5. Environmental Review Process

5.1. Overview

While the decision to build a new school is primarily focused on the educational needs of children in the community and reflects a great many local factors and considerations, a full understanding of the environmental issues associated with each candidate site is essential for a fully informed school siting decision.

The example environmental review process presented in this section describes a process of evaluating candidate sites that are under serious consideration as a location for a school. EPA recommends that all sites under serious consideration undergo an initial screen (see Section 5.5) and preliminary environmental assessment (see Section 5.6). If no environmental concerns are found in the preliminary assessment, no further assessment is needed. If potential environmental concerns are found, the local education agency (LEA)(see Section 10) should select a different site or perform a comprehensive environmental assessment (see Section 5.7) to ensure that environmental concerns are identified and remediated (i.e., cleaned up) or mitigated, as appropriate. If remediation or mitigation is necessary to prevent exposures, site-specific remediation/mitigation measures (see Section 5.7 and 5.8) and a long-term stewardship plan (see Section 5.9) should be developed, reviewed by the public and implemented.

> You will see the word "site" mentioned throughout this section, which is an established term in the environmental profession. Its use should not be interpreted to reference only vacant sites or greenfields; it includes locations (sites) with existing buildings.

A full understanding of the potential risks of candidate sites to ensure that a prospective school site does not pose unacceptable health and safety risks to students and staff is very important but can be costly and time-consuming. For this reason, it may be desirable to try to avoid sites that have onsite contamination or are in very close proximity to pollution generating land uses at the initial stage of identifying candidate sites if other acceptable locations exist in the community that may pose fewer environmental challenges.

5.2. Why Is an Effective Environmental Review of Prospective Candidate Sites So Important?

Children, particularly younger children, may be more vulnerable when exposed to contaminants in both indoor and outdoor environments. There are multiple pathways for potential exposures to contaminants in air, water or soil that should be considered during the site evaluation process. Indoor pathways can include vapor intrusion into structures from soil and ground water and poor indoor air quality from infiltration of air contaminants through windows, doors and ventilation air intakes. Children competing in outdoor sports or playing on school grounds could be exposed to contaminants present in soil, water and outdoor air on school grounds. Therefore, it is important to determine whether a site is

contaminated or could be impacted by contaminants that may migrate to the site from nearby air, land and water sources. If these contaminants reach a level that poses a threat to the health of children and staff, cleanup or other mitigation actions may be required to prevent unacceptable exposures. These contaminants may be present due to historical and current industrial activity, unsafe demolition practices, illegal dumping or through material brought to a site, such as fill, which could have resulted in soil, ground water or surface water contamination. EPA recommends that all properties or structures proposed for use as a school be carefully evaluated for potential environmental contaminants and potential exposures of children, staff and visitors before making final decisions to use a site or structure for a school. The site evaluation process should identify and evaluate all potential safety hazards and sources of environmental contamination that may be present at the site or which may migrate to the site from nearby sources.

The environmental review process for candidate school sites is designed to answer the following questions:

- Are site surface soils, subsurface soils, soil gases, ground water or surface water contaminated with hazardous materials and substances to a degree that the site should be remediated before use or should not be used for school purposes (i.e., onsite contamination);
- Are there offsite sources of pollution, contaminants or other environmental hazards affecting the site such that the hazards should be mitigated before use of the site or the location should not be used for school purposes (i.e., offsite environmental impacts); and
- Are there environmental and public health impacts associated with putting a school on the site that should be mitigated or that are so significant that the site cannot safely be used for school purposes (i.e., impacts of the project on the environment)?

NOTE: LEAs, as well as states and tribes (see Section 7), are encouraged to adopt and use an environmental review process comparable to the process outlined in this section to the maximum extent possible. However, EPA recognizes that elements of the process outlined may be beyond the current capacity of some LEAs, states, tribes and other participants in the process to fully implement with existing authorities, expertise and resources. EPA encourages LEAs, states, tribes, communities and other interested organizations to work collaboratively with each other to identify opportunities to leverage existing resources as well as to identify and work toward fulfilling needs for improving local, state and tribal capacity to conduct a rigorous site evaluation process and to safely operate risk reduction measures such as lead encapsulation systems.

Existing State Requirements

Some states, such as California, Maryland, Minnesota, New Jersey, New York and Washington, require sponsors of new school construction projects to assess the environmental impact of the project as part of a state environmental review process. Other states have environmental review laws including Connecticut, Georgia, Hawaii, Indiana, Montana, North Carolina, South Dakota, Virginia and Wisconsin. The extent to which human health impacts are considered in such reviews varies. More information can be found on the Resources page of the guidelines website. (www.epa.gov/schools/siting/resources.html#LINKS_States)

5.2.1. The Importance of Meaningful Public Involvement

An essential prerequisite to an effective site review and selection process is to develop and formalize substantive public involvement in site selection decisions (see Section 3). LEAs should develop a communication plan at the beginning of the process. When draft and final reports are available for public comment, written notice of the

results of the reports should be posted on the website, sent to those identified in the communications plan and should include:

- A statement that a report has been completed;
- A brief statement in plain language describing its specific components and results;
- The location where people can review a copy of the report or an executive summary written in the appropriate foreign language (if applicable);
- Announcement of a public comment period that provides a reasonable opportunity for meaningful public involvement (typically 30 – 90 days, as determined by the circumstances, LEA practice or recommendations of the state or tribal environmental agency);
- Instructions and addresses for submitting public comments; and
- The date, time and location of any scheduled public meetings.

More information on the process for establishing and maintaining meaningful public involvement can be found in the Meaningful Public Involvement (see Section 3).

5.3. Recommended Environmental Review Process

The example environmental review process presented in this section and illustrated in the flow charts describes a transparent, thorough, prospective process for evaluation of potential school sites and structures. The purpose of the process is to ensure that all potential hazards are addressed prior to the decision to acquire land or use a particular location or structure for a school or other purpose where children will spend a significant amount of time (see Section 1.1).

If no significant environmental and public health issues are found during the initial screening stages (Stage 1, Section 5.5 and Stage 2, Section 5.6), no further assessment is needed. Later stages should be used for those sites that may have contamination issues (onsite or from nearby sources) that must be resolved prior to use for a school.

Ideally, the LEA should not acquire or lease any location for school use until the appropriate environmental review has been completed (e.g., Stage 2, Section 5.6, for sites with no or few environmental issues and Stage 5, Section 5.9, for sites with significant contamination issues). The most resource intensive environmental reviews of candidate school locations occur in Stages 3-5.

The following site review and selection process recommends state and tribal environmental regulatory approval and oversight for evaluation of onsite contamination of candidate sites. States and tribes (see Section 7) can also provide technical assistance for an evaluation of offsite environmental hazards and the potential environmental impacts associated with placing a school on a candidate site. However, the actual tribal or state and local oversight relationships for various steps in the environmental review process may vary, with state or tribal policies mandating greater or lesser oversight.

All state and most tribal environmental regulatory agencies (http://www.astswmo.org/Pages/Resources/State_Agency_Links.htm) have programs in place to evaluate and approve cleanup plans of onsite contamination for specific types of sites or projects. Few states currently require sponsors of new school construction projects to assess the environmental impact of the project as part of a state environmental review process. EPA encourages LEAs to seek technical assistance on assessment from environmental regulators in the absence of other legislative or regulatory requirements.

State and tribal education agencies and their local education counterparts will benefit from involvement and technical assistance from the state or tribal voluntary cleanup program or brownfields response program in identifying, assessing and ensuring safe school site selection in accordance with state and federal requirements. Potential health and environmental risks posed by

locations near Superfund sites or facilities regulated under the Resource Conservation and Recovery Act (RCRA) can best be addressed through
consultation with appropriate tribal, state and federal hazardous site cleanup staff.

Special Considerations for Existing Structures/Leased Space

EPA recommends that existing structures/leased space be subject to a thorough environmental review consistent with these guidelines prior to use as a school. Existing structures at the site may have additional considerations for environmental review, including, but not limited to, the concern that a structure may not have been built and/or remediated to an adequate standard for occupation by students (e.g., with respect to the presence of toxic substances, potential vapor intrusion, or seismic activity) and that existing structures may not be accessible for intrusive sampling of onsite contamination.

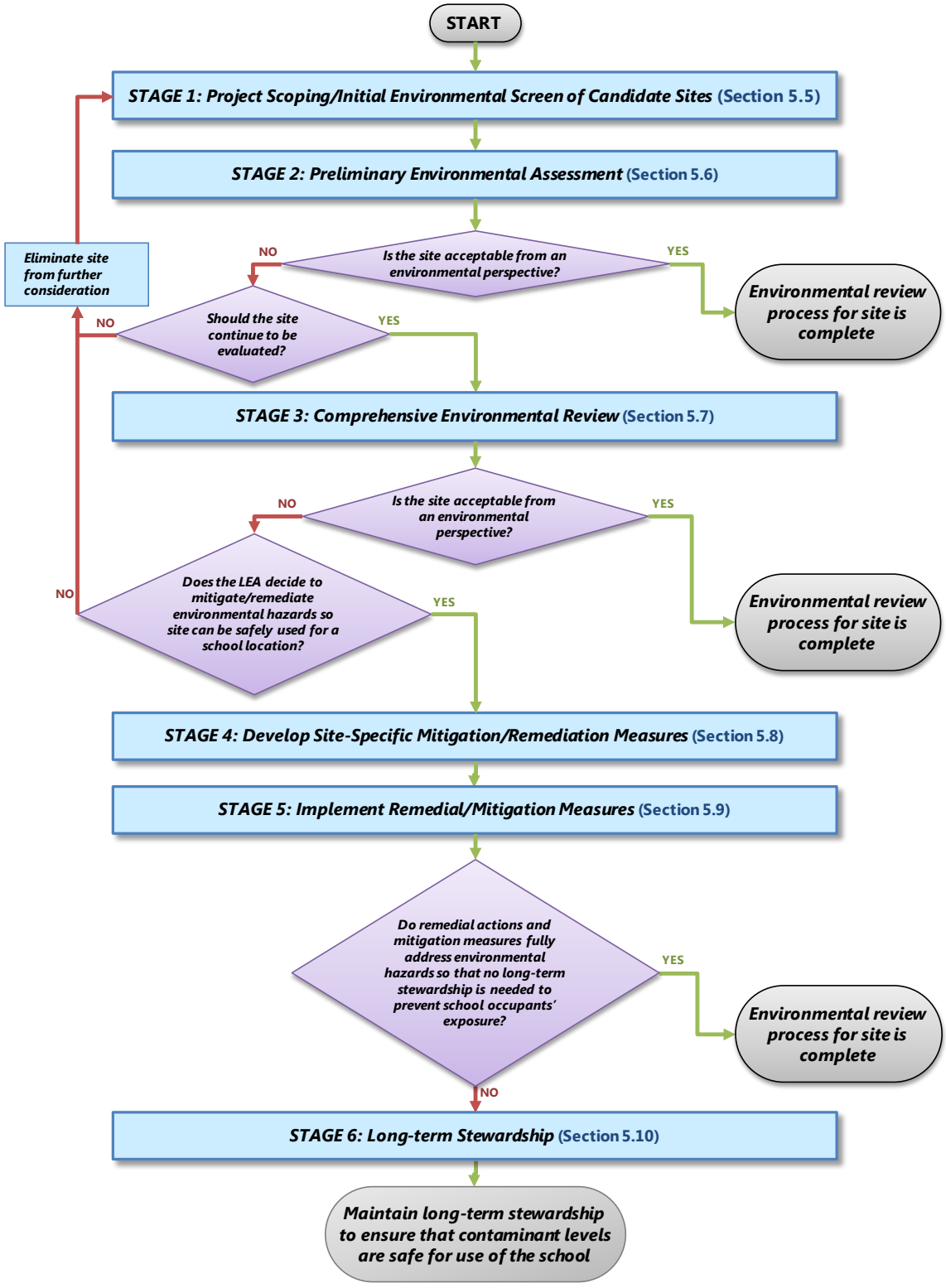
5.4. Stages of Site Review

The recommended process for evaluating candidate school sites should be performed by environmental professionals (see Section 10) and will benefit from public involvement (see Section 3) at multiple steps in the process. The environmental review begins with project scoping of the candidate site followed by a preliminary environmental review. If no significant issues are found in the preliminary assessment, no further assessments are needed. If potential environmental hazards are identified in the preliminary assessment, the environmental review should continue to Stage 3, which begins the more detailed or comprehensive environmental review, or another site should be selected. The process of environmental review culminates in a final evaluation that responds to comments received from the public and the agencies providing oversight of the process.

- Stage 1 – Project Scoping/Initial Screen of Candidate Sites (see Section 5.5)
- Stage 2 – Preliminary Environmental Assessment (see Section 5.6)
- Stage 3 – Comprehensive Environmental Review (see Section 5.7)
- Stage 4 – Develop Site-specific Remediation/ Mitigation Measures (see Section 5.8)
- Stage 5 – Implement Mitigation/Remediation (see Section 5.9)
- Stage 6 – Long-term Stewardship Plan (see Section 5.10)

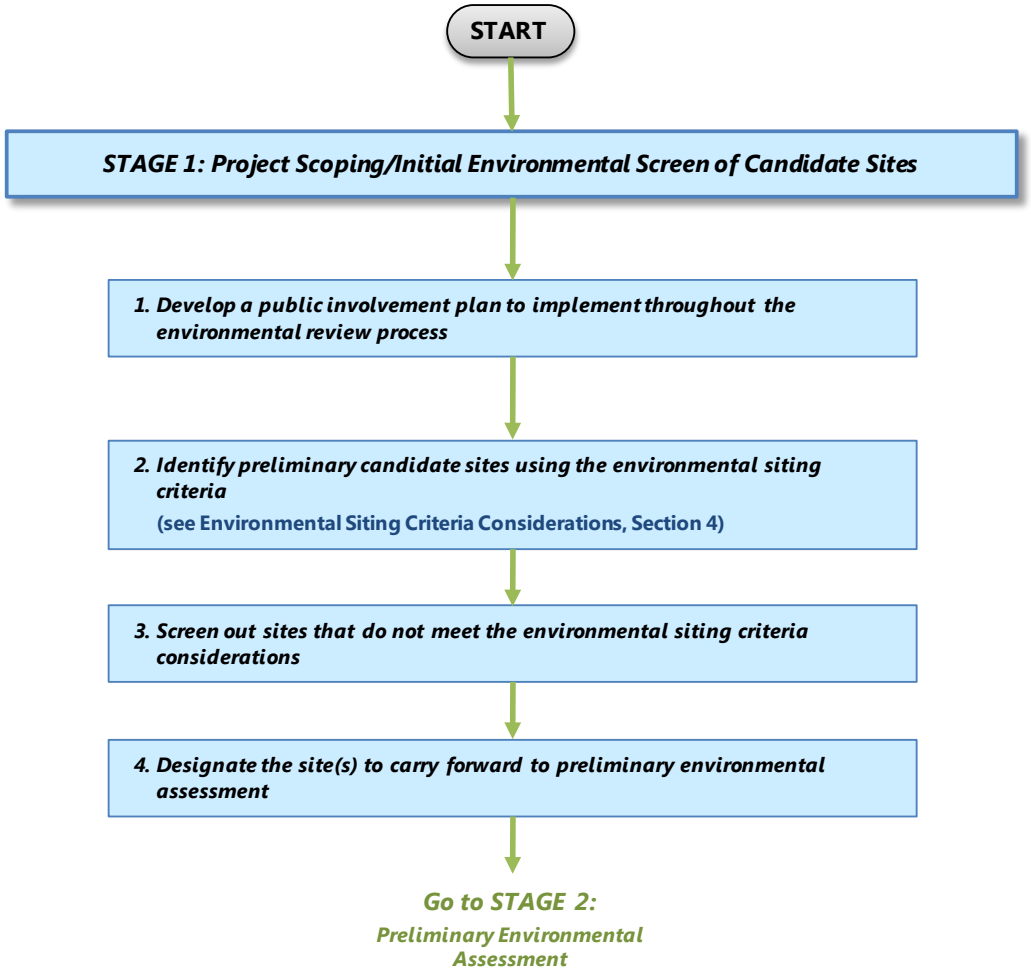
It is important to note that the full process for environmental review can be quite lengthy if site remediation and mitigation are necessary. The LEA may want to consider alternative locations early on rather than take a site through the entire environmental review process.

Exhibit 7: Stages of Site Review



5.5. Stage 1: Project Scoping/Initial Screen of Candidate Site

Exhibit 8: Stage 1: Project Scoping/Initial Screen of Candidate Site



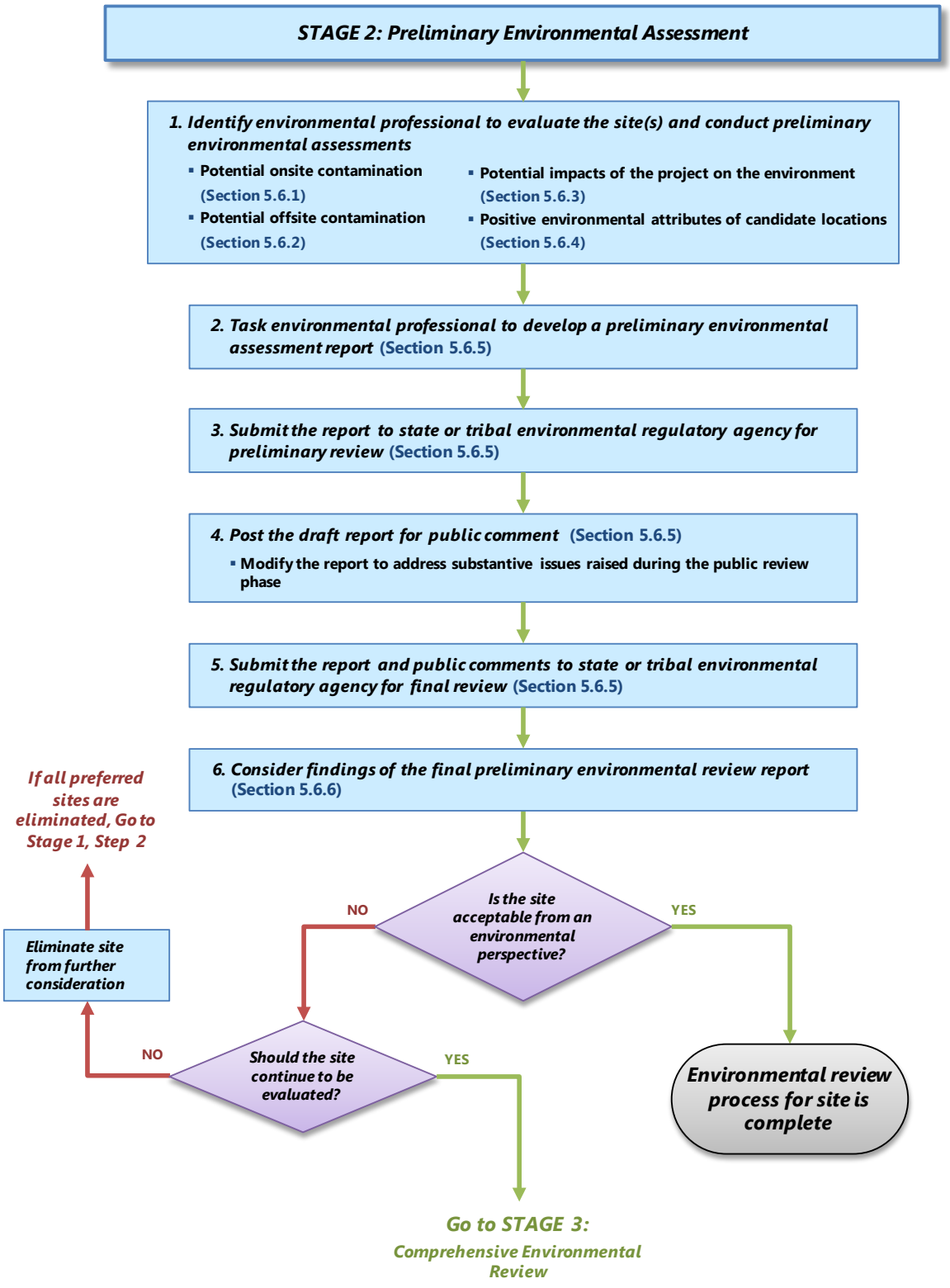
This stage of the environmental review process begins when the LEA decides to proceed with a school facility project. At this point the school siting committee (SSC) (see Section 3.3) should be tasked with identifying candidate locations for the school project and plan to give the public an opportunity to comment (see Section 3.7) on the preferred location that is selected.

The SSC would typically begin with a review of possible locations for the project and screen sites using a variety of siting criteria considerations (see Section 4) that would include, but not be limited to, community, environmental, planning and transportation factors, and public health considerations. The scope of criteria considered by the SSC could also include cost, availability, educational programs, services to be provided, zoning and other considerations appropriate to the locality. The screening should also assess the likelihood of obtaining the various environmental, historical, cultural and other land use approvals and permits relevant to the proposed school site. For example, such an evaluation is required in New Jersey under the School Development Authority Environmental Screening Report (www.njsda.gov/Business/Doc_Form/PDFsForms/RE_Manual.pdf), beginning on page 15 of Appendix A. Many of the factors that will be considered by the SSC are beyond the scope of these guidelines. While all of these factors play an important role in school siting decisions, the remainder of this section will focus on environmental factors that should be considered by the SSC in recommending appropriate locations for schools.

The SSC and LEA may wish to consult existing state or tribal site inventories to streamline the acceptance or rejection of sites. The screening activity may need to be facilitated or supported by advisers from various disciplines, including environmental professionals and consultants. Support from federal, state, tribal or local government may be needed at this stage as well.

5.6. Stage 2: Preliminary Environmental Assessment

Exhibit 9: Stage 2: Preliminary Environmental Assessment



Once the LEA designates candidate sites for the project, the LEA should engage an environmental professional (see Section 10) to conduct the necessary environmental reviews for the project.[52] Because LEAs may have limited experience and limited resources for conducting or overseeing the work described in the guidelines, the LEA may need assistance from federal, state, tribal or local government agencies to guide or even undertake this work. If the local government has an environmental department, the LEA should consult with them as they may be in the best position to oversee contractors or otherwise help with the environmental review process.

The preliminary environmental assessment of the site is intended to:

- Identify issues related to the environmental suitability of the preferred site; and
- Identify issues to be addressed in detail during the next stage of environmental review (Stage 3, Comprehensive Environmental Review, Section 5.7) if environmental issues are identified and the site continues to be considered.

The first step of the preliminary environmental assessment involves four environmental reviews, which can be conducted concurrently.

- Environmental Site Assessment (ESA) of onsite contamination;
- Preliminary environmental assessment of offsite environmental impacts;
- Preliminary environmental assessment of impacts of the project on the environment; and
- Preliminary environmental assessment of desirable environmental attributes of candidate locations.

The following four environmental reviews should be combined into a preliminary environmental assessment report when they have been completed.

5.6.1. Environmental Site Assessment (ESA) of Onsite Contamination

An Environmental Site Assessment (ESA) initially examines the site history and former use of the property, and may include interviews with nearby property owners and residents, to assess potential for onsite contamination of surface soils, subsurface soils, soil gases, ground water and surface water that may be contaminated.

The purpose of the ESA is to identify the presence or the likely presence of any environmental hazards on a property based on historical and current land uses that might pose health risks. An ESA, as a preliminary environmental assessment process, will help identify issues for decision-making as well as screen for issues that may need to be addressed in greater detail. The industry standard for ESAs is the ASTM International Standard E1527-05.[53] (www.astm.org/Standards/E1527) The ESA will be based on a review of public and private records of current and past land uses, historical aerial photographs, environmental databases and the files of federal, tribal, state and local regulatory agencies. In addition, the assessment includes conducting a site visit, inspecting adjacent properties and interviewing people familiar with the site's history, including past and present owners.

Many lenders and insurers require an ESA prior to property acquisition to obtain Comprehensive Environmental Response, Compensation, and

[52] The qualifications of an environmental professional needed to conduct ESA's are defined in ASTM International Standard E1527-05 (www.astm.org/standards/e1527.htm); also see U.S. Environmental Protection Agency, "All Appropriate Inquiries Rule: Definition Of Environmental Professional," U.S. Environmental Protection Agency, Washington, DC, EPA 560-F-05-241, October 2005. (Accessed on September 16, 2011) Available at: http://epa.gov/brownfields/aai/ep_deffactsheet.pdf.

[53] ASTM E1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process sets forth the activities to be conducted and information to be gathered. The standard is used during real property transfers. (www.astm.org/standards/e1527.htm)

Liability Act[54] (CERCLA; also known as "Superfund") (www.epa.gov/superfund/policy/cercla) liability protections such as:

- The bona fide prospective purchaser protection (www.epa.gov/compliance/cleanup/revitalization/bfpp);
- Contiguous property owner protection (www.epa.gov/compliance/cleanup/revitalization/cpo); and
- The innocent landowner defense (www.epa.gov/oecaerth/cleanup/revitalization/ilo).[55]

The Environmental Review Process section of the Resources page (www.epa.gov/schools/siting/resources.html#LINKS_environmental_review_process) lists links to ASTM standards related to site assessment for commercial transactions.

Additionally, an eligible LEA may apply for an EPA Brownfields Assessment Grant to conduct an ESA on one or multiple sites and will be required to have completed one if the LEA intends to apply for an EPA Brownfields Cleanup Grant. The LEA may also be required under state or tribal laws or regulations to ensure that all potential hazards are identified, including those that are beyond the scope of CERCLA. Tribal and state voluntary cleanup programs often provide guidance and oversight during real property transfer transactions. ESAs conducted for proposed school sites should also address non-CERCLA related potential hazards from both onsite and offsite sources (see Exhibit 6: Screening Potential Environmental and Safety Hazards).

Ultimately, an ESA or subsequent environmental site assessment is used to determine if further action or no further action is required for the site. For example, if a review of records shows onsite environmental contamination exceeds state, tribal or local standards, a comprehensive environmental review would need to be conducted before the site could be developed as a school. Many states have established a variety of environmental standards to support cleanups. In some cases, states or tribes have developed guidance or rules specifically to guide the school siting process when considering environmental contamination. In other cases, states or tribes have other standards that have been developed for more generic purposes that may be appropriate for assessing the suitability of candidate school sites. When state or tribal standards exist, they should be used. In the absence of such standards, states and tribes may wish to employ EPA risk assessment methods for the establishment of cleanup levels. (www.epa.gov/oswer/riskassessment/risk_superfund)

The environmental standards used to evaluate site contamination should be based on either 1) standards developed for schools or residential use or 2) risk based levels set for residential use. If further action is required, the ESA report should specify recognized environmental conditions for further study.

5.6.2. Preliminary Environmental Assessment of Offsite Environmental Impacts

In the preliminary environmental assessment of offsite environmental impacts, the environmental professional should identify potential environmental hazards surrounding the candidate site such as from old waste sites (including Superfund sites), localized air pollution (e.g., rail lines, industrial facilities), hazardous material pipelines and others. Hazards of potential concern and the screening distance from the site for which potential hazards should be identified for evaluation are described in Exhibit 6: Screening Potential Environmental and Safety Hazards.

Some level of air quality analysis should be considered for every new school site prior to project approval by the LEA. This analysis should

[54] *Comprehensive Environmental Response, Compensation, and Liability Act, U.S. Code 42 (1980) §§9601 et seq.*

[55] In the CERCLA liability context, an ESA, usually called "All Appropriate Inquiries," (see: http://www.epa.gov/brownfields/aai) is usually a prerequisite to obtaining any of these liability protections. If the LEA intends to obtain and maintain any of these CERCLA liability protections, it must conduct an ESA within one year prior to acquisition, with certain elements updated within 180 days prior to acquisition.

at a minimum include criteria air pollutants (i.e., ground-level ozone, sulfur dioxide, lead, carbon monoxide, nitrogen oxides and particulate matter) and hazardous air pollutants (e.g., air toxics such as benzene, formaldehyde and diesel exhaust). Depending on the location of the site, the analysis may require database reviews, contaminant transport and dispersion modeling, monitoring, health risk assessments, site reconnaissance and/or other methods. For more specific guidance see Evaluating Impacts of Nearby Sources of Air Pollution (see Section 6).

The Emergency Planning and Community Right-To-Know Act[56] (www.epa.gov/oecaagct/lcra#Hazardous%20Chemical%20Notification%20and%20Inventory%20Reporting) gives communities access to information on toxic and hazardous chemicals inventories in their communities. Additionally, Section 112(r) of the Clean Air Act[57] requires facilities that produce, handle, process, distribute or store certain chemicals to develop and submit a Risk Management Plan to EPA, which is also available to communities.[58]

5.6.3 Preliminary Environmental Assessment of Impacts of the Project on the Environment

In assessing a potential site for new school construction (rather than renovating or expanding an existing school or adapting another structure), LEAs should consider the environmental impacts of building a school on the new location, in addition to potential health and safety risks to the surrounding community. An environmental impact review conducted during the preliminary environmental assessment identifies potential significant impacts of the project on the surrounding environment and human health, as well as construction and regulatory obstacles that cannot be overcome. An environmental impact review may be required by a state or tribal environmental regulatory agency or planning board (e.g., for large school construction projects).

The outcome of the environmental impact review could result in rejecting a site from further consideration either by the state or tribe or by the LEA. The potential categories for consideration that should be assessed may include:

- Community amenities;
- Existing infrastructure; and
- Potential impacts or hazards.

Potential impacts that should be assessed may include:

- Local utilities such as water supply, sewage service and electricity;
- Increases in local traffic and congestion as well as impacts on pedestrian safety;
- Hydrology/water quality such as coastal wetlands, floodplains and stream encroachment constraints;
- Public land such as displacement of parks;
- Access to public resources such as parks and libraries;
- Historic or archeological resources;
- Threatened or endangered plant or animal species;
- Habitat loss;
- Aesthetics such as lighting or noise from stadiums;
- Hazards and hazardous materials related to transport and disposal of onsite contamination removed from the site during cleanup;
- Agricultural resources such as displacement of farmland;

[56] *Emergency Planning and Community Right-To-Know Act, U.S. Code 42 (1986) §§11001 et seq.*
[57] *Clean Air Act, U.S. Code 42 (1970) §§7401 et seq.*
[58] U.S. Environmental Protection Agency, "Risk Management Plan Rule." Last modified September 19, 2011. Available at: http://www.epa.gov/osweroe1/content/rmp/.

- Air quality such as emissions from construction, including engine exhaust and dust from clearing, grading and burning;
- Geology/soils such as creating slope instability during construction;
- Mineral resources such as displacing drilling rights;
- Public services such as police and fire;
- Ability to serve as an emergency shelter;
- Excessive community relocation and displacement impacts;
- Time spent traveling to and from school;
- Walk/bike route audits; and
- Percentage of students who could walk/bike to school.

5.6.4. Preliminary Environmental Assessment of Desirable Environmental Attributes of Candidate Sites

Desirable environmental attributes of a given site should also be assessed, such as the site's proximity to residences where future students live (so students would be able to walk or bike to school); whether sidewalks, crosswalks and streets in proximity to the site provide safe routes to school; the availability of public transportation to and from the site; and access to community resources, such as libraries, community centers, parks and other features. See Exhibit 4: Desirable Environmental Attributes of Candidate Sites.

5.6.5 Review of the Preliminary Environmental Assessment Report

Once the environmental professional has completed the four reviews described earlier, a report should be developed and submitted for the review steps that follow.

Preliminary agency review of the preliminary environmental assessment report

The LEA will need to comply with the state's requirements for environmental review and would typically submit the draft preliminary environmental assessment or additional assessments to the state or tribal environmental regulatory agency (www.astswmo.org/Pages/Resources/State_Agency_Links.htm) for any site it is considering pursuing. When state or tribal requirements are not present, the LEA should secure an agreement with the state or tribal environmental regulatory agency for review of the draft ESA results. It is desirable to have the state or tribe review the offsite contamination assessment, environmental impact assessment and assessment of desirable environmental attributes as well.

Public comment on the preliminary environmental assessment report

All four reviews that comprise the preliminary assessment report should be made available to the public and relevant local agencies (e.g., the local department of transportation and the local police) for comment. To aid with the understanding of these work products, the environmental professional or the LEA should prepare a plain language summary of the preliminary environmental assessment reports for the community, including translation for non-English speaking stakeholders, if applicable.

If the preliminary environmental assessment report recommends no further action, the LEA should release the work conducted (e.g., reports submitted to the state, any responses and other supporting assessments) for public comment and, if appropriate, hold a public hearing, before formally adopting the recommendations of the preliminary review. If the preliminary environmental assessment report recommends further action, public review of the preliminary environmental assessment report may occur during Stage 3 (see Section 5.7).

Regardless of the findings, the components of the preliminary review report should be subject to

public comment. The LEA should follow the steps described earlier (see The Importance of Meaningful Public Involvement, Section 5.2.1) to solicit public comment on the preliminary environmental assessment report and proposed next steps based on review findings. A public comment period may be required by the state or tribal regulatory agency, particularly if the preliminary review indicates that no further environmental review is necessary and no other method of securing public comment are likely. The information listed earlier should be included in a public notice. More information on effective public involvement can be found in the Meaningful Public Involvement section (see Section 3).

Final agency review of preliminary environmental site assessment

Prior to final state- or tribal-level review, the LEA's report should be modified to address substantive issues raised during the public review phase. The state or tribal environmental regulatory agency (www.astswmo.org/Pages/Resources/State_Agency_Links.htm) should also review all comments received on the preliminary environmental assessment report and determine whether no further action is required on the site or whether further action (e.g., a comprehensive environmental review) is required.

5.6.6. SSC and LEA Review and Recommendation

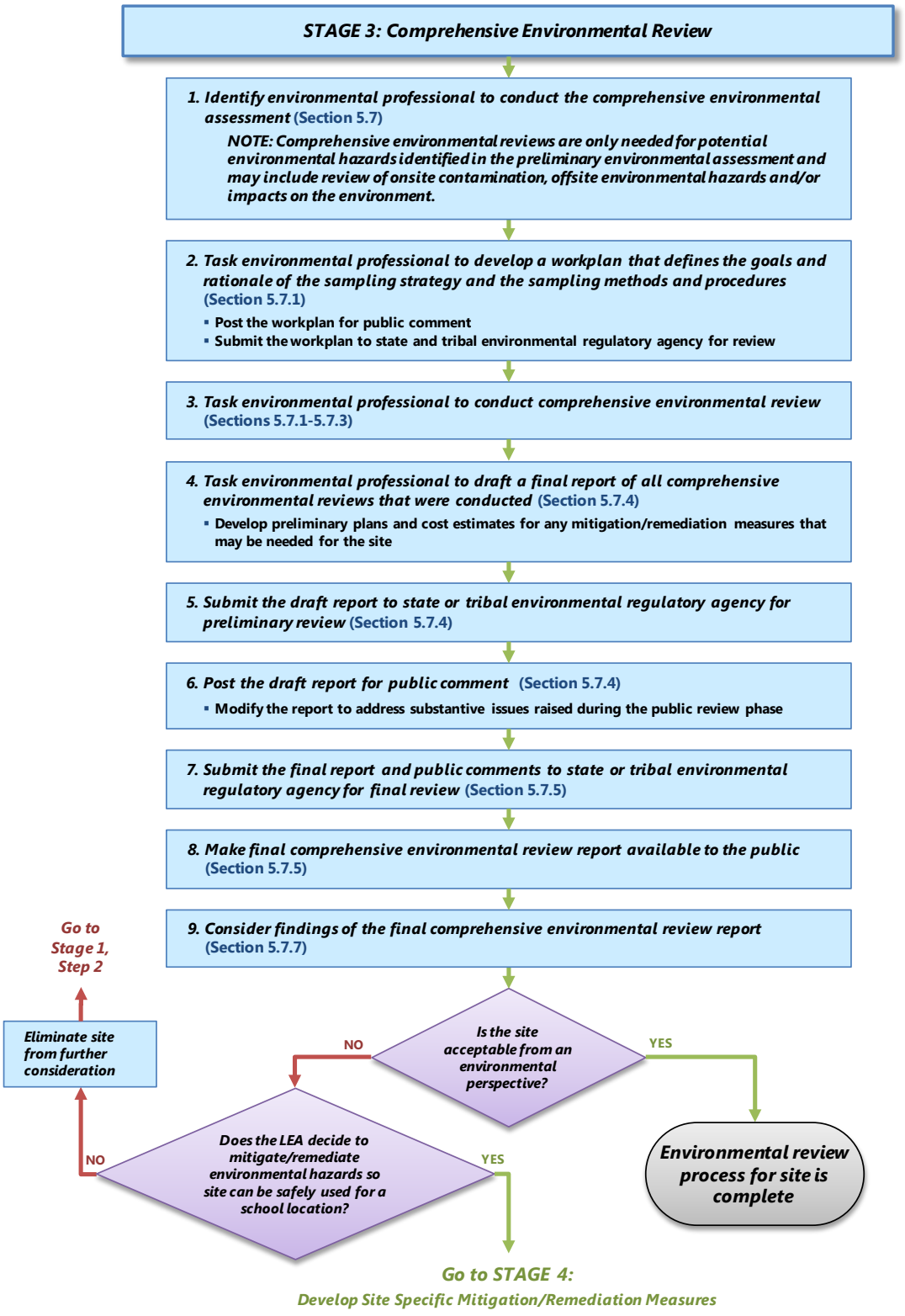
After the state or tribal environmental regulatory agency responds to the findings of the final preliminary environmental assessment report and determines whether further action is needed, the SSC and the LEA should review the findings of the preliminary environmental assessment report and make a recommendation on the project. The recommendation should be based on the Preliminary Assessment Report and public comments received. The purpose of this review is for the LEA to either:

1. **Proceed with plans** for construction if no further remediation or study is required;
2. **Continue evaluating** the potential environmental hazards at the site with a comprehensive environmental review; or
3. **Eliminate the site** from further consideration and pursue alternative locations.

If the recommendation is to proceed with construction or with a comprehensive environmental review, decisions should be explicitly described and steps should be taken to involve the public to the greatest extent possible. If the recommendation is to proceed with construction of a new school because no further remediation or study is required (no further action is needed), the governing body of the LEA should formally accept and document the findings of the review and then proceed with the project.

5.7. Stage 3: Comprehensive Environmental Review

Exhibit 10: Stage 3: Comprehensive Environmental Review



If the LEA decides to conduct a comprehensive environmental review, the environmental professional (see Section 10) employed or hired to perform the assessment will conduct a more thorough examination of the potential issues identified in the preliminary environmental review.[59] The LEA is encouraged to work with its state or tribal environmental program to assist with this effort. The following description of the comprehensive environmental review includes assessment of onsite contamination, offsite environmental hazards and potentially significant environmental impacts of the proposed school on the surrounding environment. It is important to note that it may not be necessary to perform all three comprehensive reviews. The findings from the preliminary environmental review can be used to determine which assessment(s) is/are needed to fully characterize the site.

The purpose of the comprehensive environmental review is to gather and analyze data on environmental hazards and impacts identified in the Preliminary Environmental Review, and evaluate the risks posed to children's health, public health and the environment based on the contamination or impacts found. The comprehensive environmental review also includes developing preliminary plans and cost estimates for mitigating or reducing risks. The cost of the comprehensive environmental review will depend on the complexity of the site. LEAs are strongly encouraged to work with their state or tribal environmental regulatory program to identify critical environmental factors that need to be considered in the environmental assessment process.

In many states, the only portion of the comprehensive environmental review that is subject to review and approval by the state environmental regulatory agency is the onsite contamination component. An oversight review of the offsite and environmental impact reports should also be completed, but the agency that conducts the review will vary from state to state.

The environmental professional should prepare draft reports for each review being performed, and the LEA should publish those drafts for public comment. All final drafts should consider public comments. The final drafts should be subject to review and approval by the SSC and LEA. To capture a range of considerations the three reviews that follow (or whichever of the three reviews that are needed, based on the preliminary environmental review) can be conducted concurrently.

The comprehensive environmental review should also include an evaluation of the potential risks posed to children's health, public health or the environment based on the contaminants identified at the site. This evaluation should include:

- **A conceptual site model** that includes a written description and graphic depiction of all possible pathways of exposure that could result in children, school staff and the community being exposed to potentially harmful contaminants at the school site (e.g., inhalation, soil ingestion, dermal);[60] and
- **A description of potential health consequences** of long-term and short-term exposure to any potentially harmful contaminants, to the extent feasible.

5.7.1 Comprehensive Environmental Review of Onsite Contamination

If the state or tribal regulatory agency concurs with the findings from the preliminary environmental assessment and no further action

[59] The qualifications of an environmental professional needed to conduct ESA's are defined in ASTM International Standard E1527-05 (www.astm.org/standards/e1527.htm); also see U.S. Environmental Protection Agency, "All Appropriate Inquiries Rule: Definition Of Environmental Professional," U.S. Environmental Protection Agency, Washington, DC, EPA 560-F-05-241, October 2005. (Accessed on September 16, 2011) Available at: http://epa.gov/brownfields/aai/ep_deffactsheet.pdf.

[60] Many conceptual site models have been developed. For example, there is a model in Section 3.1 of the Regional Screening Level Guidance available at: www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm and California has a model available at: www.dtsc.ca.gov/SiteCleanup/upload/Appdx_A1_083108.pdf.

is required, the review for onsite contamination is complete.

If the preliminary environmental assessment (see Section 5.6) shows that further assessment of onsite contamination is necessary, the environmental professional should conduct a comprehensive environmental review to determine if hazardous materials are present, or if there is potential for a release of a hazardous material or substance that could pose a health threat to children, staff or community members. The comprehensive environmental review should also assess the need for cleanup based on levels of contamination found and identify the cleanup standards that will be used.

Before any work is done on the comprehensive environmental review, the LEA should develop a public involvement plan (see Section 3) that ensures meaningful public and community involvement in the comprehensive environmental review process. The plan should indicate what mechanisms the LEA will use to involve the public. The LEA should submit the public involvement plan to the state or tribal regulatory agency for comment before comprehensive environmental review activities begin; in some cases, this may be a state or tribal requirement.

Before conducting any sampling for the detailed comprehensive environmental review, the environmental professional should prepare a workplan that defines the following:

- The goals of the sampling;
- The rationale for the sampling strategy, including the number and location of sampling sites and what substances to analyze in the samples; and
- The sampling methods and procedures that will be used, and the analytical methods and procedures, in accordance with quality assurance plan requirements.

The comprehensive environmental review may include full-scale grid sampling and analysis of soil, soil gases (if any), and potentially surface water, ground water and air (www.epa.gov/schools/siting/resources) to accurately define the type and extent of contamination present at the candidate site. State or tribal environmental regulatory agency (www.astswmo.org/Pages/Resources/State_Agency_Links.htm) review of the workplan should be obtained prior to the initiation of sampling. Prior to sampling, the LEA should obtain signed access agreements from property owners.

Criteria for establishing the degree of cleanup needed should be based on state or tribal cleanup

Engineering and Institutional Controls and Community Involvement

Engineering controls and institutional controls are tools to ensure that sites remain safe by preventing potential exposures to contaminants and preventing land uses likely to create exposures (see Section 8.15).

Communities have an important role to play in ensuring engineering and institutional controls remain in place and are effective in preventing potential exposures. Through the community involvement and planning process, the community can become familiar with the nature of residual contamination, engineering controls and institutional controls that place restrictions on how the land can be used. They can help LEAs meet their obligations by reporting actions in conflict with those land use restrictions to LEA management and tribal or state environmental regulatory authorities. The LEA and the SSC also can continue to play a role in updating the community about their inspection, monitoring and maintenance efforts, with the assistance of tribal or state technical oversight, as appropriate. See the Quick Guide for Environmental Issues (see Section 8.15) for information about engineering and institutional controls.

rules or guidance, where they exist. The environmental standards used to evaluate site contamination should use either 1) standards developed for schools or residential use or 2) risk-based levels designed to be protective for residential use. If cleanups are going to leave residual contamination that exceeds residential use levels, engineering and institutional controls (see Section 8.15) and long-term stewardship (see Section 8.16) should be included to provide a safe environment.

The process of identifying the capability of the state, tribal or local agencies to maintain institutional and/or engineering controls and implement long-term stewardship will vary with the jurisdiction. For example, communities with well established environmental departments are more likely to be familiar with institutional and engineering controls and long-term stewardship, especially if there are sites within their community where institutional and engineering controls and long-term stewardship have been employed. In situations where the local government lacks the resources, expertise or authority to implement and enforce institutional/engineering controls as part of overseeing long-term stewardship plans, state or tribal staff may need to assume this responsibility. If staff or resources are not available to support institutional and engineering controls and long-term stewardship that would be needed, a site that requires these tools should not be selected because exposures without institutional and engineering controls and long-term stewardship could pose unacceptable risks to students and workers.

When environmental testing is completed, and remedial actions are undertaken to prevent potential environmental exposures, it may be important to preserve the ability to pursue cost recovery in the future, in cases where legal cost recovery mechanisms exist. The environmental professional should keep detailed records during all phases of the environmental assessment and remediation and is required to sign documentation of their findings and recommendations. Photo documentation, complete field notes, written notification to property owners of environmental conditions and provisions to allow property owners to obtain split samples for analysis are all recognized methods to preserve cost recovery rights.

5.7.2. Comprehensive Environmental Review of Offsite Environmental Hazards

Using the list of offsite hazards identified in the preliminary environmental assessment report (Stage 2, see Section 5.6), the environmental professional should evaluate and estimate the risks those hazards may pose to future users of the school site. (If no nearby hazards were identified in the preliminary environmental review, no further review of offsite environmental hazards is needed.) The environmental professional should identify both the risks that can be mitigated and those that cannot be mitigated and identify measures to reduce these risks to the extent feasible. Old waste sites, including Superfund sites, industrial air pollution sources, rail lines, rail yards and highways are examples of the kind of hazards that would be evaluated at this stage (See Exhibit 6: Screening Potential Environmental and Safety Hazards). The report about offsite hazards should discuss whether feasible mitigation measures are available that would eliminate all significant risks. For more specific guidance see Evaluating Impacts of Nearby Sources of Air Pollution (see Section 6).

5.7.3. Comprehensive Environmental Review of Impacts of the Project on the Environment

Using the list of potential significant environmental impacts (e.g., habitat and water quality) identified in the preliminary environmental assessment (see Section 5.6), the environmental professional should evaluate and report potential impacts the project may have on the surrounding environment and propose alternatives to mitigate or eliminate those impacts. The report should discuss what environmental impacts will remain even after mitigation measures are taken. (If no potential

significant environmental impacts were identified in the preliminary environmental review, no further review of impacts of the project on the environment is needed.)

5.7.4. Development and Review of Comprehensive Environmental Assessment Reports

The environmental professional should prepare a draft report that combines the findings of the environmental assessment(s) performed in the comprehensive environmental review. This draft comprehensive environmental review report will also describe proposed and alternative mitigation measures to reduce potential risks and impacts. Through findings and conclusions with supporting data, the report should document potential impacts that:

- Are not considered to be of concern;
- Could be effectively managed though mitigation; and
- May pose significant or unacceptable risks even after all feasible mitigation steps have been implemented.

The LEA should submit the draft comprehensive environmental review report to the environmental agencies involved in the regulatory oversight of the school siting decision, which may include tribal, state, other local agencies or federal agencies (such as Bureau of Indian Education or Department of Defense), and the public upon its completion by the environmental professional. To solicit public comment, the LEA should post the draft comprehensive environmental review on the project website and should follow the steps described earlier in this section.

The LEA and state or tribal environmental regulatory agency should evaluate public response to the notice and modify the public involvement plan (e.g., by extending the comment period), as necessary, to ensure meaningful public input throughout the school siting process. The LEA should address all substantive comments received during the comment period.

The state, tribal, local or federal environmental regulatory agency that is overseeing the conduct of the comprehensive environmental review should review all comments received. The agency may then accept or reject the conclusions of the review or request revisions. In some cases (e.g., due to timing or access constraints), the comprehensive environmental review may not characterize all environmental hazards. A separate supplemental site investigation may be necessary prior to determining the potential need for remediation/mitigation. The process for conducting a supplemental site investigation should follow the steps identified earlier for the comprehensive environmental review. If accepted, the state, tribal, local or federal environmental regulatory agency may concur with the finding that no further action is required or that a remedial action workplan is required if the LEA decides to pursue development of the site. The agency will explain in detail the reasons for accepting or rejecting the comprehensive environmental review report and the basis for its determination.

5.7.5. Final Comprehensive Environmental Review Report

Following the public comment period the environmental professional, in consultation with the LEA and the SSC, should evaluate and respond to all public comments and incorporate those comments into a final comprehensive environmental review report.

The final report should then be forwarded to the SSC and to relevant public agencies. To solicit public comment, the LEA should post the final comprehensive environmental review on the project website and should follow the steps described earlier in this section.

5.7.6. Cost Estimates and Schedules of Remediation and/or Mitigation Measures

If the final report of potential environmental risks and impacts includes proposals for mitigation measures (e.g., institutional controls (see Section 8.15), engineering controls (see Section 8.15),

encapsulation of lead based paint (see Section 8.16), enclosure of asbestos (see Section 8.8), and long-term stewardship (see Section 10), potential cost estimates and schedules of implementation should be developed in coordination with facility planners (e.g., architects and local agencies). In addition, preliminary cost estimates and schedules for implementation of any remediation of onsite contamination should be prepared, including, where appropriate, the cost of maintaining and monitoring controls over the life of the school. These preliminary cost and schedule estimates for mitigation and remediation should then be forwarded to the SSC and LEA.

5.7.7. SSC Review and Recommendation

The SSC should review:

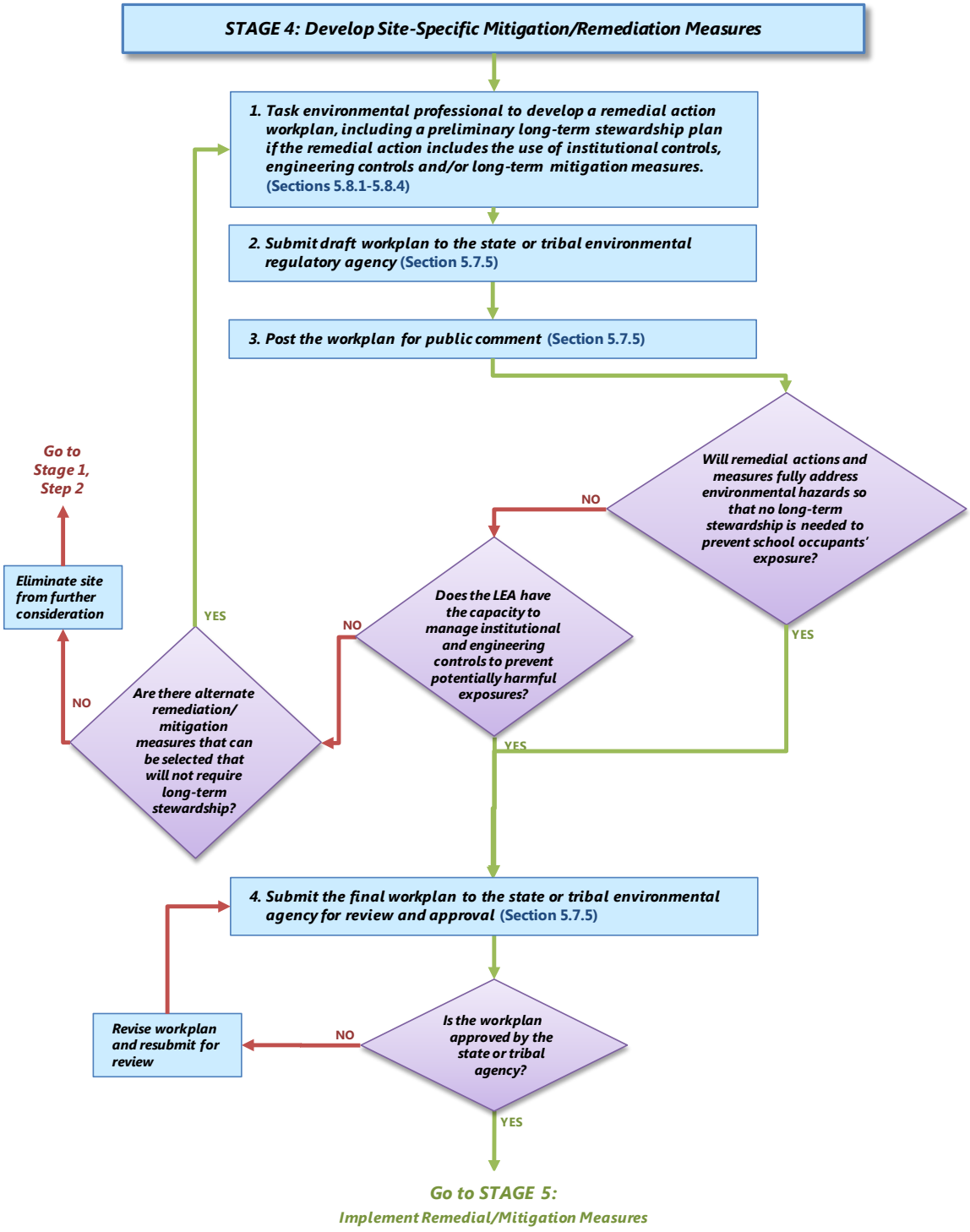
- Final comprehensive environmental review report;
- Preliminary cost estimates and schedules for remediation and mitigation; and
- Public comments received on these documents.

The SSC should recommend to the LEA whether the environmental reports adequately characterize potential environmental concerns at the candidate site. Following this determination, the SSC can recommend to the LEA whether to proceed or eliminate the site from further consideration based on public health risks, costs and schedule impacts, public concerns and other factors.

The LEA should then review the committee recommendations, including any analysis of potential alternatives, impacts to public health, project costs/schedule impacts, public concerns, etc., and decide to certify the environmental reports or request further revisions to the reports. Following this determination, the LEA may approve proceeding with the project at the site for which the comprehensive environmental review was completed or decide to eliminate the site from further consideration. If the LEA decides to eliminate the site from further consideration, the LEA should work with the SSC to identify another preferred location for environmental review that begins at Stage 2 (see Section 5.6) or Stage 3 (see Section 5.7), depending on what assessment has already been performed for the new preferred location. In those instances, records of environmental investigation, findings and decisions should be retained.

5.8. Stage 4: Develop Site-specific Mitigation/Remediation Measures

Exhibit 11: Stage 4: Develop Site-specific Mitigation/Remediation Measures



5.8.1. Offsite Mitigation Measures

In addition to remediation of onsite contamination, the LEA should coordinate with the appropriate state, tribal and local government agencies to implement any necessary offsite mitigation measures, such as installing traffic signals, signage, utilities, etc., as well as identify potential measures that can be implemented at the proposed school site to mitigate hazards from offsite pollution sources by eliminating exposures to pollutant hazards. For more specific guidance see Evaluating Impacts of Nearby Sources of Air Pollution (see Section 6).

5.8.2. Onsite Remediation Measures

If the LEA decides to proceed with a site where contamination will be cleaned up, a remedial action workplan should be developed and submitted to the state regulatory agency for approval. Typically, an environmental professional will assist with the workplan. When designing cleanup activities, the LEA should recognize that young children will be present on the site and evaluate assumptions used in establishing cleanup standards and remedial response. When available, the state and LEA should use cleanup levels that are explicitly protective of early life sensitivity to toxicants and early life exposures.

NOTE: Typically, cleanup levels for sites intended for residential use are appropriate for use at sites considered for a future school use. State and tribal programs may recommend cleanup levels based on their review of the specific site characteristics, contaminants present on the site and other factors. Where cleanup is needed, all cleanup work should be completed and approved by the state or tribal regulatory agency prior to occupancy of the school. In cases where residual waste or contamination will remain on site following cleanup, a careful and objective evaluation of the capacity of the school district and local and state authorities should be completed to ensure safe operations and that institutional and engineering controls (see Section 8.15) will be maintained (i.e., long-term stewardship) over the long term and be subject to public review before the decision is made to rely on such controls. Where state or tribal regulators have approved cleanup to restricted reuse standards, LEAs need to secure funds or post a bond to ensure the continued monitoring and maintenance of institutional and engineering controls.

The remedial action workplan should:

- **Identify methods for cleaning up** the site to contaminant levels that meet the applicable environmental and public health standards;
- **Contain a financial analysis** that compares estimated costs over the life of the school for the identified cleanup methods that will bring the site into compliance with applicable safety standards;
- **Recommend a cleanup plan** from the alternatives identified, including a description of long-term maintenance, monitoring and the cost of any institutional or engineering controls and long-term stewardship implemented as part of the cleanup (preliminary site maintenance plan);
- **Explain how the recommended cleanup option will prevent children from being exposed to the environmental hazards** found at the site or on any adjoining contaminated parcels; and
- **Clearly describe the responsibilities and long-term environmental stewardship obligations of the LEA** (or other responsible party) for inspection, maintenance and reporting associated with any engineering control implemented as part of the cleanup.

If cleanups are going to leave residual contamination on the site that require implementation and maintenance of engineering/institutional controls (see Section 8.15), LEAs should ensure that the site cleanup plan is approved by the state or tribe for state or tribal voluntary cleanup sites.

5.8.3. Remediation Techniques

Although the specific remedial response measures prescribed in a remedial action workplan will need to be tailored to the particular characteristics of a given site, a number of environmental conditions in need of remediation are routinely encountered at existing and proposed school locations. The environmental professional and the state or tribal environmental regulatory agency should have the expertise needed to develop each of the remediation options that follow.

The following text provides examples of situations that might be encountered. These examples are being provided because they highlight scenarios that have been repeated in different locations throughout the country. They highlight types of contamination and remedies that have been employed. See the Quick Guide to Environmental Issues, Section 8, for additional information about the examples below, and see the Resources (www.epa.gov/schools/siting/resources) page of the guidelines website for links related to environmental issues that may be encountered for some sites.

Example 1

The presence of volatile organic compounds (VOCs) in soil and ground water (see Section 8.3) may require mitigation measures to protect against potential vapor intrusion into overlying school buildings. Common contaminants in soil and ground water that can cause a vapor intrusion concern include benzene (e.g., from gasoline) and dry cleaning and degreasing solvents (e.g., trichloroethylene and perchloroethylene). If these or other volatile contaminants are present and the LEA decides to proceed with the site, there are ways the facility can be located on the property, designed and engineered to minimize the potential for vapor intrusion and include mitigation equipment for future use, if needed, at a lower cost than if retrofitted after construction. When constructed, periodic indoor air testing is often warranted, and depending on the concentration and potential duration of exposure, remedial actions such as the installation of an underground soil vapor recovery system may be required to eliminate a potential vapor intrusion concern. Water quality testing may also be required. If ground water is found to be contaminated, monitoring wells may need to be drilled at the site, and long-term water monitoring may be required.

Example 2

The presence of petroleum in soil and ground water (see Section 8.5) as a result of leaking underground storage tanks may require soil and ground water remediation. If the soil is excavated, and if separated phase petroleum is floating on the water table, it usually requires recovery and offsite treatment and disposal. Contamination from underground storage tanks can also result in vapor intrusion concerns, which are discussed in the earlier example.

Example 3

In some cases, structural fill is brought onto a site to provide a reliable structural surface for construction, and in other cases, the soils on the site are composed of historic fill (see Section 8.14). If fill is contaminated, it can present a potential risk to students or staff. If feasible, the LEA should clean up the site to residential use levels, which may involve removal of fill material. Where removal of large quantities of fill material is infeasible, institutional/engineering controls and an enforceable long-term stewardship plan, approved by an environmental regulatory agency, may be utilized to eliminate exposure to contaminated soil. Landscaping plans need to be compatible with the engineering control. For example, plants with only a shallow root zone may be allowed but trees may be prohibited.

Example 4

The presence of banned pesticides (see Section 8.12) may be encountered in soil and ground water at existing and proposed school sites as a result of former agricultural and pest management practices. Some of these pesticides do not readily degrade, and as a result may

present a potential exposure when soil is excavated. Depending on prior uses of the site, sampling for pesticides may be appropriate to consider in the development of the comprehensive environmental review plan described earlier in Stage 3 (see Section 5.7).

5.8.4. Preliminary Long-term Stewardship Plan

If the remedial action workplan includes partial cleanup in conjunction with the use of institutional and engineering controls to prevent potentially harmful exposures to contaminants, the LEA should develop a preliminary long-term stewardship plan as part of the remedial action plan to ensure full consideration of long-term feasibility and cost. A preliminary long-term stewardship plan should include:

- **Identification of contaminants of concern** and, if possible, maps showing the location of contamination, property boundaries, and institutional and engineering controls;
- **Proposed plans to contain contaminants**, including any engineering and institutional controls to be used;
- **Long-term maintenance and monitoring measures** necessary to ensure the long-term integrity of engineering and institutional controls;
- **A detailed evaluation of the resources and expertise necessary** to implement the plan and a discussion of alternative measures considered and the basis for their rejection;
- **A demonstrated commitment of funding** sufficient to ensure the implementation and maintenance of all plan components over the long term (i.e., the life of the school);
- **A remedial action workplan** that addresses cleanup of the entire contaminated site when a school is proposed for only a portion of a known contaminated site. In this case, the long-term stewardship plan should outline the ongoing security measures which will ensure that only authorized persons can gain access to the unremediated portion of the contaminated site;
- **Plans for monitoring institutional and engineering controls** should include timeframes for monitoring (annual monitoring reviews should be adopted at least for the first few years when institutional controls/engineering controls are employed), recordkeeping and reporting;
- **Conditions and procedures for modification and termination of institutional controls;** and
- **Recommendations for the final site sampling to be done after the cleanup has been completed** to ensure that all residual contamination is less than the cleanup goals defined for the site. Such sampling recommendations should be designed to discover the highest possible concentrations of contamination at the candidate site.

There are a number of resources that document types of remediation, costs and effectiveness for a range of contaminants, engineering controls and institutional controls that can be effective in managing contaminants, including EPA's Office of Solid Waste and Emergency Response onsite cleanup (www.epa.gov/oswer/cleanup/index) and EPA's Clu-In (www.clu-in.org/) websites, which are listed on the Resources (www.epa.gov/schools/siting/resources) page of the guidelines website. While these websites provide extensive materials, the cost, effectiveness and variety of methods will vary with the site and need to be properly monitored and maintained to remain protective.

5.8.5. SSC and State or Tribal Agency Review and Public Comment

The LEA should secure state or tribal regulatory agency review and approval of the remedial action workplan prepared by the environmental professional. Upon submitting this plan to the state or tribal environmental regulatory agency, the draft remedial action workplan should be

made available to the SSC for review and comment. Once the workplan is submitted to the state or tribal agency for approval, the LEA should post the draft comprehensive environmental review on the project website and follow the steps described earlier to solicit public comment.

A public hearing on the remediation plan should be conducted in the neighborhood or jurisdiction of the candidate site. The LEA should publish a notice of the hearing in newspapers of general circulation, including foreign language newspapers if the school district has a sizable number of non-English speaking parents, and post a notice on the LEA and project websites stating the date, time and location of the hearing.

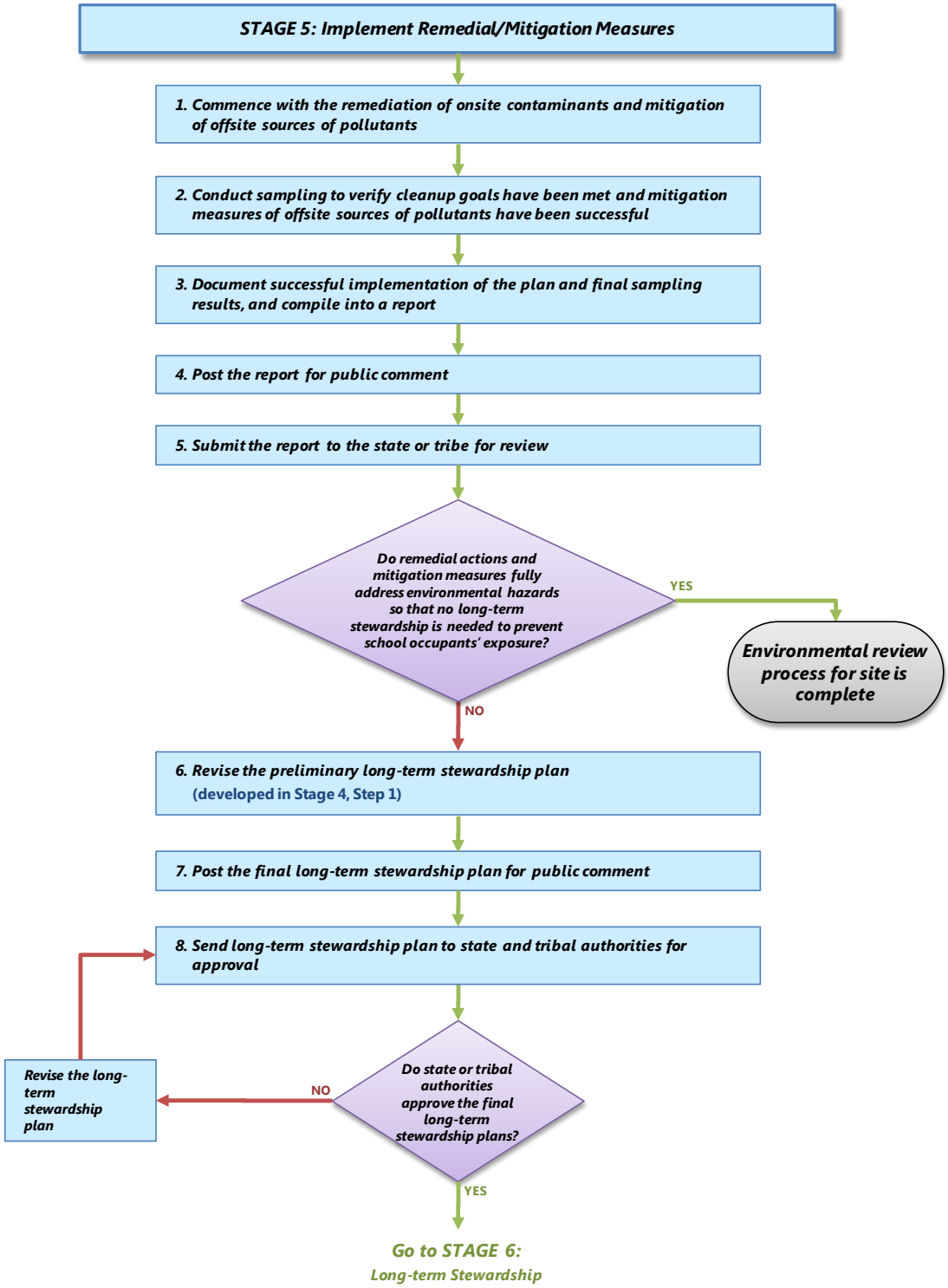
After the public hearing and review of any comments received during the public comment period, the state or tribe should approve the remedial action workplan, approve the workplan with revisions or disapprove the workplan. If the state or tribe requires additional information, a copy of the state's or tribe's comments and the responses prepared by the environmental professional in coordination with the LEA should be made available to the SSC and be posted on the project website. Any additional information submitted by the LEA to the state or tribe should also be made available to the SSC.

The state or tribe should explain in detail the reasons for accepting or rejecting the workplan. Before approving a workplan, the state or tribe should make an explicit finding that the LEA has the requisite capacity to oversee and manage the remediation/mitigation measures and institutional and engineering controls proposed in the remedial action workplan.

After the state or tribe approves the workplan, the SSC may also review the plan and recommend to the LEA whether to proceed with acquiring the site and implementing the remediation plan. The LEA should not begin constructing the school until site clearance has been provided by the state or tribal environmental regulatory agency, following its approval of the remediation activities (post-Stage 5).

5.9. Stage 5: Implement Remedial/Mitigation Measures

Exhibit 12: Stage 5: Implement Remedial/Mitigation Measures



Prior to the onset of any school construction at the candidate site, EPA recommends the remediation of the site as defined in the remedial action workplan be completed. If engineering controls are required as part of remediation, construction of those controls may begin following approval by the state or tribal environmental regulatory agency.

Remediation measures taken to reduce risks from offsite hazards can be conducted prior to or during school construction activities, depending on the mitigation measures being implemented. Appropriate state, tribal and local environmental agencies should be consulted before and after the remediation measures are installed to ensure that the mitigation controls taken will reduce exposures to the environmental hazards of concern. For more specific guidance see Evaluating Impacts of Nearby Sources of Air Pollution (see Section 6).

Final sampling, in accordance with sampling procedures in the comprehensive environmental review or the remedial action workplan, should be conducted to verify that cleanup goals have been met. Documentation regarding the implementation of the plan and all final sampling results should be compiled into a report and submitted to the LEA and SSC for posting on the project website and also submitted to the state or tribe for review, which may require additional sampling and/or remediation efforts as the state or tribe deems appropriate. Any modifications to the remedial action workplan should also go through the appropriate public review processes described earlier.

Toward the completion of remedial activities, the environmental professional should revise the preliminary long-term stewardship plan (LTSP) developed in Stage 4, Section 5.8, which will set forth, in detail, the specific manner in which institutional and engineering controls will be employed. The preliminary LTSP should address all contamination left on site following remediation that would prevent residential use. The preliminary LTSP should be submitted for public review and comment in the same manner undertaken for all of the preceding plans and reports and should be submitted to the state or tribe for approval prior to the commencement of construction. A critical component of such a plan is a clear commitment for the funding and other support needed to effectively monitor and ensure the integrity and effectiveness of any institutional and engineering controls.

A description of the recommended contents of the preliminary or final LTSP follows:

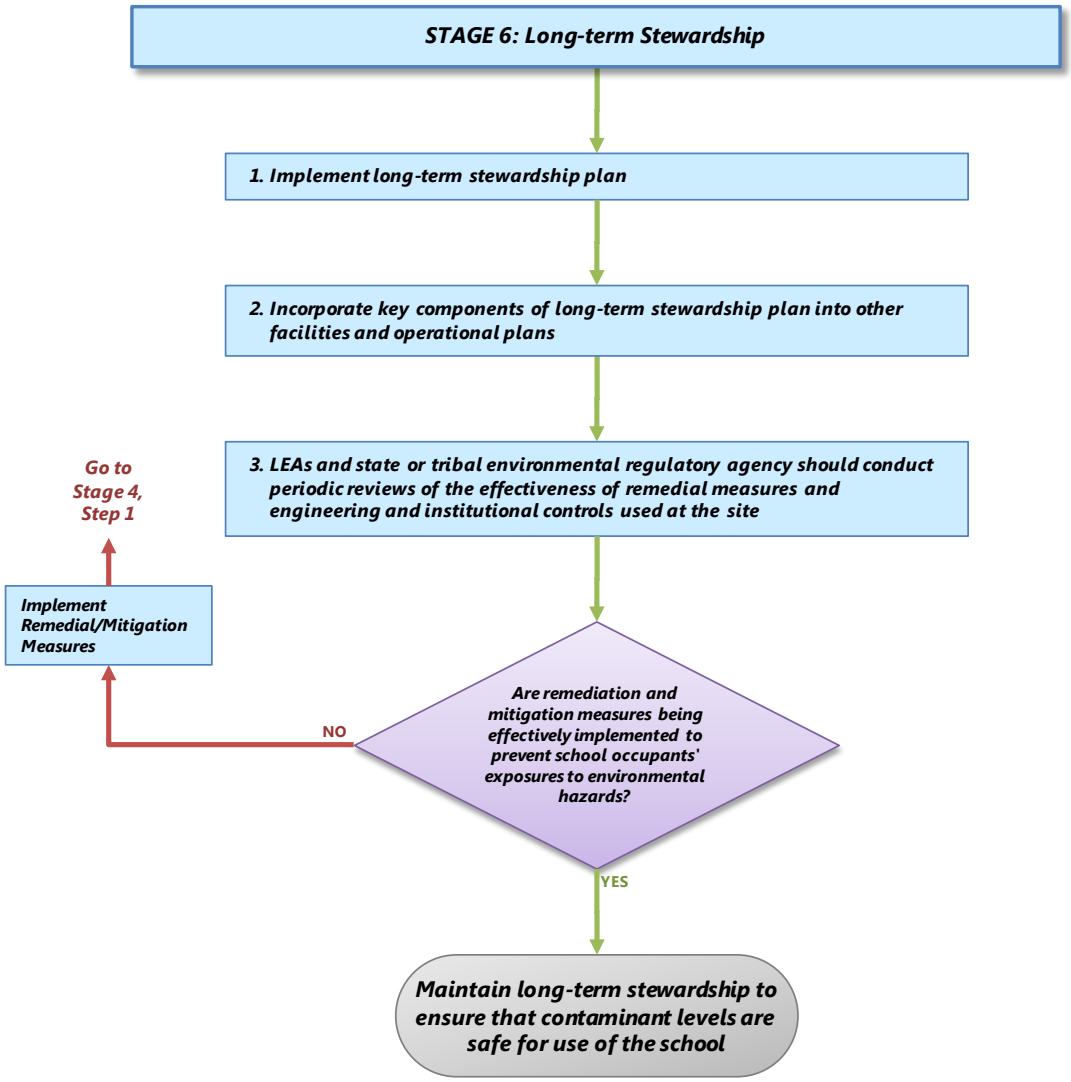
- **A site description** that includes:
  - Historical uses of the site and relevant adjacent historical uses;
  - A summary of the environmental evaluation of the site including details on the location and extent of soil/water contamination in excess of regulatory standards; and
  - A summary of the remedial work done at the site along with the test results.
- **A clear depiction of the institutional and engineering controls** that includes:
  - Accurate maps showing the institutional and engineering controls;
  - A description of the long-term environmental stewardship obligations along with a statement of who will be responsible for their implementation; and
  - A public document that outlines the responsibilities for maintaining both engineering and institutional controls, provided contamination levels warrant the controls.
- **Specific contingency plans** that describe engineering control restoration activities should the engineering control be disturbed;
- **A description of prohibited activities** (e.g., digging) in areas constructed with an engineering control to maintain the integrity of the engineering control;

- **A definition of the minimum professional requirements** (i.e., licensed professional engineer) for maintaining the engineering control, including where appropriate any necessary training of school staff responsible for managing school grounds including:
  - Identification/creation of a position within the schools facility department for a technically knowledgeable person trained and responsible for oversight of the school and grounds;
  - Training on techniques for monitoring cracks in the school foundation and breaches in the engineering control;
  - How to handle and/or report problems with equipment and remedial systems; and
  - How to handle complaints and comments about environmental conditions at the school.
- **A compliance monitoring program** to be carried out by qualified environmental professionals, as necessary, that will include:
  - Routine inspections, tests and maintenance of engineering and institutional controls to ensure their continued effectiveness;
  - Tests for the presence of contaminants in the soil, soil gas, ground water and indoor and ambient air on the school grounds if an engineering control is disturbed;
  - Procedures for recordkeeping and reporting;
  - Allocation of responsibilities for these activities among LEAs, state or tribal agencies, school officials and staff; and
  - An independent review by a licensed professional engineer not affiliated with the school.
- **A public accountability/oversight plan** that includes:
  - The prominent placement of signage within the school that clearly defines the extent of the contaminated areas along with appropriate institutional and engineering controls on the property, and directs readers to appropriate personnel and documents for further inquiry;
  - Development of a "due care plan," to be kept onsite and made available to the public electronically, that summarizes key elements and responsibilities for implementing the plan in a lay-accessible manner;
  - Measures to promote the long-term, institutional and public memory of the plan through activities designed to promote awareness by students, staff and the community, such as guest speakers and dedication of a section of the school or local library to the history of the site, remediation strategies and oversight and stewardship measures; and
  - The establishment of regular reporting mechanisms that publicly disseminate information on the location of controls, compliance status and monitoring reports in a manner consistent with the notice provisions discussed earlier and including relevant local and tribal or state environmental agencies. Included in this should be testing reports that clearly describe the purpose of the testing, sample locations and collection procedures, and analytical methods used. The release of these reports should:
    - Be accompanied by a meaningful opportunity for the public to provide comment and meet with school officials responsible for maintaining the engineering controls; and
    - Target outreach and communications about release of reports to parents and school workers (should be notified yearly about where and how to obtain information about contamination, remediation activities and ongoing monitoring).

School building construction should begin only after the state or tribal authority approves the final long-term stewardship plan and determines that the site is ready for construction. Engineering controls may be implemented before, during or after construction, depending on the type of controls to be used.

5.10. Stage 6: Long-term Stewardship

Exhibit 13: Stage 6: Long-term Stewardship



LEAs should incorporate key components of the long-term stewardship plan into other facility and operational plans and training materials for principals, facility staff, groundskeepers and contractors. The long-term stewardship component of the school management plan memorializes the remedial actions that were performed, monitoring of well locations, the standards to which the remediation was performed, the location of material removed and replaced, and tests and confirmatory sampling of materials brought as replacement fill and any wastes or material left capped in place. This plan describes in detail the specific manner in which institutional and engineering controls will be employed in the future and by whom. The final plan should clearly show figures and drawings of those locations where soil or water quality remains above residential use standards, including as-built drawings depicting the engineering control. The plan should clearly define the roles and responsibilities for maintaining the engineering controls, and these responsibilities should be memorialized in an institutional control such as a deed restriction that stays with the property even when bought, sold or donated. Where offsite sources of contamination exist, area-wide partnerships may be an effective tool to address contamination.

After the school project is complete and the school is opened, the state or tribal environmental regulatory agency should conduct a periodic review of the effectiveness of remedial measures and engineering and institutional controls used at the site. Annual assessments of school sites may also be required as part of a school facility operation plan or long-term facility plan or as part of local government master planning or comprehensive plan updates and reporting. One potential model for such reviews is the five-year review EPA currently conducts for Superfund sites. Five-year reviews[61] (www.epa.gov/superfund/cleanup/postconstruction/5yr)

[61] U.S. Environmental Protection Agency, "Superfund Five-Year Reviews." Last modified August 9, 2011. Available at: http://www.epa.gov/superfund/cleanup/postconstruction/5yr.htm.

provide an opportunity to evaluate the implementation and performance of a remedy to determine whether it remains protective of human health and the environment. These reviews will also be useful in identifying new sources of environmental hazards arising after school construction and occupancy.

When employing institutional/engineering controls, plans should be developed to address issues that might arise. For example, the failure of an institutional or engineering control should trigger immediate notification by the LEA of the staff, parents and community, as well as state or tribal authorities. Actions may be needed to ensure that students or staff are not exposed to contamination. School emergency preparedness plans should provide for ensuring that students and staff will not be at risk in the event of the failure of engineering controls. Plans should also outline requirements for personnel to monitor engineering controls, which might be a combination of maintenance staff and environmental engineers. Complaints or concerns related to the performance of engineering and institutional controls should be tracked and responses to those complaints/concerns documented.

To help ensure that the management of institutional and engineering controls will receive the attention they require, the procedures for management of institutional and engineering controls should be part of the school facility operations procedures. The procedures should include monitoring requirements, effectiveness and integrity review requirements, any performance review requirements (such as calibration procedures) and documentation requirements. Because these documents can be challenging for a lay audience, a summary written in plain language (and translated for non-English speaking stakeholders) should be available to community members. Routine monitoring, reviews for the effectiveness and integrity of the remedy, and reporting all need to continue for as long as contamination levels do not meet safe levels for use of the school.

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