Reuse Assessment

Nuclear Metals, Inc. Superfund Site

Concord, Massachusetts

Overview

EPA Region 1 and EPA's Superfund Redevelopment Initiative (SRI) sponsored a reuse assessment for the Nuclear Metals, Inc. Superfund site (NMI site or Site) located at 2229 Main Street in Concord, Massachusetts. SRI consultants Skeo worked with the EPA Region 1 site team to develop the reuse assessment in close coordination with local stakeholders.

From 2018 through January 2020, Skeo and EPA worked with the Town of Concord Department of Planning and Land Use staff to integrate technical analysis, stakeholder engagement and facilitation support with EPA's site activities and the Town's local planning process. The town's NMI/Starmet Reuse Planning Committee, composed of local residents, provided oversight and guidance regarding the future use recommendations.

This report summarizes the reuse planning process including site and community analysis, stakeholder goals and input, and future land use recommendations to help inform near-term site cleanup activities, future land-use plans and long-term redevelopment activities for the Site.

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REUSE ASSESSMENT

Suitability and Opportunities
Nuclear Metals, Inc. Superfund Site
February 2020

Concord, Massachusetts

OVERVIEW

EPA Region 1 and EPA's Superfund Redevelopment Initiative (SRI) are co-sponsoring a reuse assessment for the Nuclear Metals, Inc. (NMI) Superfund site. This reuse support is designed to assist local stakeholders in planning for future land use, redevelopment, property ownership and long-term stewardship at the NMI site. EPA contractor Skeo has partnered with EPA's site team, the project coordinator (de maximis, inc.), town of Concord staff, and the town's NMI/Starmet Reuse Planning Committee on the project.

EPA and the NMI site's potentially responsible party (PRP) group have begun work on plans for the upcoming remedial design and remedial action stages of cleanup at the NMI site. As they work on these plans, they need input from town and local stakeholders regarding future land use goals and priorities and potential redevelopment options. The community's input will inform how the site will be left post- cleanup within the next one to two years.

This fact sheet shares site information to help inform outreach and public input coordinated by the town's NMI/Starmet Reuse Planning Committee. It includes site background information, an analysis of the NMI site's suitability for different land uses in the future and a list of preliminary reuse goals from recent town planning documents. The purpose of this fact sheet is to provide information on the NMI site that the committee can share with other community stakeholders and organizations in Concord. The Reuse Planning Committee has met with town departments and local organizations and has held a community workshop in conjunction with EPA to gather input and inform initial reuse concepts.

BACKGROUND

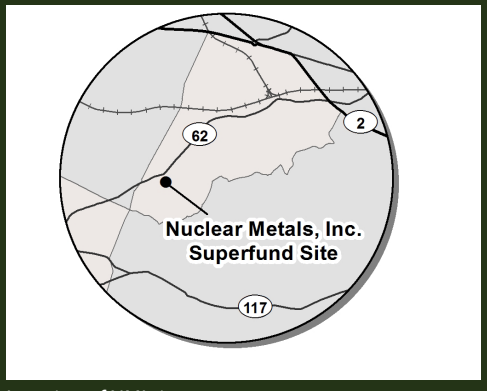
Several defense contractors (Whittaker, Textron, Inc. and Starmet Corporation) operated a specialty metals research and production facility on site from 1958 to 2011. The facility made depleted uranium (DU) ordnance products for the U.S. Department of Defense. During operations, DU handling and disposal practices resulted in contamination of the facility's production building, equipment, and site soil, sediment and groundwater. DU production at the facility ceased in 1997.

EPA placed the NMI site on the Superfund program's National Priorities List (NPL) in 2001. Starmet permanently abandoned the facility in 2011. Since then, EPA has overseen the efforts of the NMI site's PRP group to investigate and clean up the NMI site. To date, the PRP group has completed site investigations and multiple removal actions, including demolition of facility buildings and construction and operation of a groundwater treatment facility. EPA selected the NMI site's final cleanup plan in the its 2015 Record of Decision (ROD). The town's Reuse Planning Committee has been involved at the site, informing site clean-up goals and plans over a period of several years.

Concord s NMI/Starmet Reuse Planning Committee discussing and learning about the NMI site.

Cooling water recharge pond at the NMI site.

Concord s NMI/Starmet Reuse Planning Committee touring a wooded area of the NMI site.



Location of NMI site.

REUSE SUITABILITY

STATUS AND FUTURE SITE ACTIVITIES

The Remedial Design / Remedial Action Consent Decree (RD/RA CD) for the Nuclear Metals Site, a legal agreement between EPA and the Settling Defendants which outlines how the remedy described in the ROD will be implemented, was entered by the District Court of Massachusetts and became effective on December 6, 2019. As described in the ROD, the cleanup work will consist of:

- Remediation of sitewide soils and sediments to allow for future residential, commercial and other uses.
- Remediation of the Holding Basin Consolidation Area, resulting in a capped containment area.
- Remediation of DU in on-site groundwater to contain and treat the DU in place.
- Continued off-site groundwater remediation.

Clean soil will be used to backfill the removed soil and long term monitoring programs will ensure the remedy remains protective. EPA and the PRP group estimate that it will take five to seven years to complete the site work outlined above. This estimate includes about two to four years for remedial design activities and two to three years for construction activities.

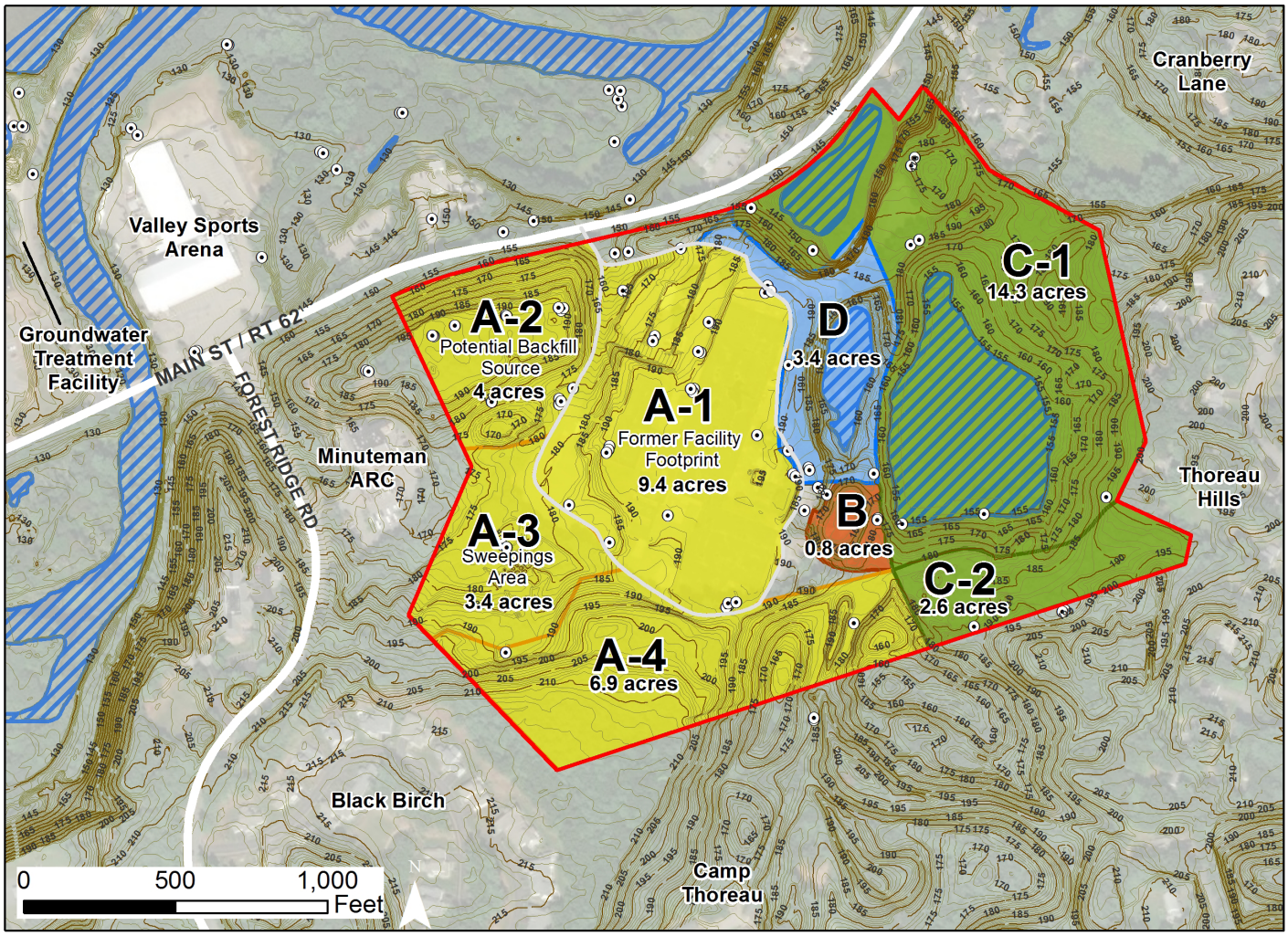
Zone A: Potential Development Areas	Four potential development zones provide about 23 acres suitable for a wide range of uses (residential, commercial, light industrial, mixed use), with flexibility for different building configurations and few use limitations. Reuse plans may inform on-site road locations and surface cover in soil remediation areas. Town water lines are available on Main Street; new on-site water connections are needed. Municipal sewer service is not available at the NMI site; on-site wastewater management options will likely need to be considered in development plans.
Zone B: Holding Basin Consolidation Area	Development limitations likely will prevent cap disturbance and new structures. Potentially suitable for paved parking or open space.
Zone C: Open Space - Habitat/Buffer	Suitable for open space, trails and wildlife viewing. Certain areas may have potential for development compatible with adjacent trails and uses. Slopes currently limit access in some areas. Reuse may inform final surface cover in soil remediation areas (cleared area versus revegetation).
Zone D: Open Space - Drainage/ Infrastructure	Remedial design coordination needed to evaluate access options between Zone A and Zone C. Suitable for stormwater and surface water drainage features.

REUSE ZONES
POTENTIAL USES AND LIMITATIONS

The NMI site could offer up to to 23 acres of developable land across three to four different areas. As the NMI site will be cleaned up to residential standards, these development areas could host residential, commercial, light-industrial and mixed-use projects. Certain limitations, established as part of the site's remedy, prohibit excavation or development activities in the Holding Basin Consolidation Area (Zone B) and restrict on-site groundwater use. An additional 16+ acres of open space could support trails, site access, forest, wetlands and wildlife habitat. These areas could also support stormwater drainage features and help meet open space and wetland buffer requirements. Because of the variety of uses that are possible at the NMI site, community input can help inform remedial design considerations, including site backfill, regrading and surface cover for future development areas, drainage features, and open space access.

The site property, owned by Starmet, is tax delinquent. Because of previous response actions, outstanding mortgage debts and unpaid taxes, significant financial encumbrances need to be addressed prior to the property's ownership transfer and redevelopment. Federal enforcement liens will also need to be considered in a future settlement agreement. In addition, title encumbrances will need to be resolved as part of any future ownership transfer. These efforts will likely require the involvement

of the PRP group, government agencies and town of Concord as well as the site's future owners. The town's role in site property transfer and future ownership may vary depending on the property's anticipated future use and municipal priorities. Additionally, groundwater use at the NMI site will be prohibited at the Site. The property is and will continue to be connected to Concord's



Potential Reuse Zones Map

- Site Boundary
- Monitoring Wells
- Surface Water
- Existing Roads
- Onsite Access
- Zone A. Potential Development Areas
- Zone B. Holding Basin Consolidation
- Zone C. Open Space - Habitat/Buffer; Potential for Development TBD
- Zone D. Open Space - Drainage/Infrastructure
- 5' Elevation Contours
- 1' Elevation Contours

municipal water system.

POTENTIAL FUTURE USES

Potential future land uses for the NMI site may include housing, commercial areas, transportation and municipal uses, community and recreation areas, and conservation uses. Additional detail is provided under the reuse scenarios below and committee principles discussed on the following page.

REUSE SCENARIOS

Reuse priorities and goals emerged out of the Reuse Committee's meetings with local organizations and town departments, discussions at community workshops, and an understanding of site conditions and clean-up standards. Eastern areas of the

Skeo developed this map using base map information provided by CDM Smith. Shapefile source: HDR Engineering, Inc. - OU5 Remedial Investigation. Aerial: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

COMMUNITY GOALS FOR SITE REUSE

site (Zone C) are likely to remain natural or restored forest and wetland habitat areas with some degree of non-intrusive nature viewing and trail access. Community priorities indicate an interest in environmental education and viewing areas around the sphagnum bog. These areas could include a small outdoor education area or viewing platform. Trails in southern and western areas of the site could extend through adjoining town parcels, offering trail connections beyond the site.

Western areas, with the exception of the restricted Holding Basin Consolidation area (Zone B), are expected to be suitable for redevelopment and stormwater management. The A-1 area is ideal for more intensive development; it is surrounded by a ring road that provides access to all areas of the Site as well as an adjacent stormwater retention pond (Zone D). The three western areas (A-2, A-3 and A-4) can support a variety of redevelopment options now or over time or remain undeveloped.

KEY REMEDIAL DESIGN CONSIDERATIONS

Future use plans and reuse concepts to date anticipate that areas in Zone A-1 would be level areas suitable for development of new buildings, structures, infrastructure, access roads and parking. Community preferences are to keep A-2, A-3 and A-4 areas as potential future development zones as well.

Office/Meeting Space
Indoor combination of municipal space and commercial space

Housing
Indoor unspecified housing concept

Environmental Education/Sports Fields
Outdoor developed recreation including playing fields, walking trails and outdoor nature classrooms/viewing areas

COMMITTEE PRINCIPLES

- **Multiple Integrated Uses:** Redevelopment should address multiple needs identified by the community.
- **Environmental Stewardship:** Redevelopment should be sustainable and preserve environmental assets, be carbon neutral, and improve landscape resilience.
- **Fiscal Sustainability:** Find creative ways to fund reuse.
- **Community Synergy:** Strengthen the community and our relationships with neighboring towns. Provide opportunities for people from diverse social groups to interact as they access services at the site, and support site accessibility to local neighborhoods and surrounding communities.

Open Space
Outdoor undeveloped areas with a few minimally landscaped trails for walking or birding

Transit Center
Outdoor transit center with outdoor parking and other municipal uses

Community Center
Indoor community center combining indoor recreation and artisanal space

CONTACT INFORMATION

For questions about or input on Concord s reuse goals:

Town of Concord - Marcia Rasmussen, Director of Planning & Land Management | nmistarmetreuse@concordma.gov | 978-318-3290

For questions about EPA Superfund:

U.S. EPA - Sarah White, Community Involvement Coordinator white.sarah@epa.gov | 617-918-1026

U.S. EPA - Christopher Smith, Remedial Project Manager smith.christopher@epa.gov | 617-918-1339

ADDITIONAL INFORMATION

Town of Concord NMI/Starmet Reuse Planning Committee: https://concordma.gov/2446/NMI-Starmet-Re-use-Planning-Committee

EPA Nuclear Metals, Inc. Superfund Site Profile: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0100550

EPA Superfund Redevelopment Initiative: https://www.epa.gov/superfund-redevelopment-initiative

Nuclear Metals, Inc. Site Reuse Assessment Report

Site Background

At the NMI site, several private defense contractors operated a specialty metals research and production facility from 1958 to 2011. Initially, Textron, Inc. and Whittaker performed specialty metals research and development work for the U.S. Atomic Energy Commission and the U.S. Department of Defense, along with some private industry contracts from 1958 to 1972. Company employees then assumed ownership of the property and production facility, operating as Nuclear Metals, Inc., and began producing depleted uranium (DU) ordnance products such as armor penetrators for the U.S. Army. Facility operations and DU handling and disposal practices resulted in contamination of the facility's production building, equipment and site soil, sediment and groundwater. DU production at the facility ceased in 1997. The company reorganized as the Starmet Corporation (Starmet) and shifted manufacturing to the production of beryllium alloy components and spherical metal powders.

Starmet completed interim cleanup actions overseen by Massachusetts Department of Public Health Radiation Control Program (MADPH-RCP) in 1998. EPA listed the Site on the Superfund program's National Priorities List (NPL) in 2001, and has since overseen site investigation and removal actions performed by a group of potentially responsible parties that includes two private companies Textron and Whittaker (PRP group) and Settling Federal Agencies (SFAs) (U.S. Army and U.S. Department of Energy). On May 12, 2003, the MADPH-RCP modified Starmet's radioactive materials license for manufacturing or operations to allow only their possession on-site. Starmet abandoned the facility in 2011. The Radioactive Materials License was terminated by the MADPH-RCP on November 8, 2011.

To date, the PRP group, with significant funding contributions from the SFAs, has completed the Remedial Investigation / Feasibility Study (RI/FS) and multiple removal actions, including demolition of facility buildings and design, construction, and operation of a groundwater treatment facility. EPA has overseen the work with the feedback and input of the 2229 Main St. Committee. EPA selected the NMI site's final cleanup plan in the Site's 2015 Record of Decision (ROD).

Prior Cleanup Activities

Initial response actions and investigations addressed priority contaminants. EPA and the Massachusetts Department of Environmental Protection (MassDEP) actions have included:

- *EPA Time-Critical Removal Action #1, 2002-2003:* EPA installed an interim cover over the Holding Basin area and a temporary cap over an area containing buried material referred to as the "Old Landfill," and fenced in the Old Landfill area.
- *EPA Drum Removal (as part of PRPs RI field work), 2004*
- *MassDEP Removal Action, 2005-2007:* MassDEP transported about 3,800 drums of waste and 322 tons of DU offsite for disposal.
- *EPA Time-Critical Removal Action #2, 2007-2008:* EPA removed building materials that could present a fire or chemical hazards risk in response to a fire at the NMI facility in June 2007.
- *EPA Non-Time-Critical Removal Action, 2011-2019:* The PRPs emptied and demolished the site buildings. All materials (23.5 million pounds of building waste) were shipped off site for disposal. A temporary liner was placed over the building's slab foundations. It will remain in place until excavation begins during the remedial action.
- *EPA Groundwater Non-Time-Critical Removal Action*, 2016 to Present: The 2015 ROD included an Action Memorandum to accelerate the groundwater remedy for contaminants in groundwater including volatile organic compounds (VOCs) and 1,4-dioxane which were shown to be migrating off-site and at risk of impacting the Town of Acton's water supply wells. The PRPs designed and constructed a groundwater extraction and treatment system that is now operating and successfully cutting off the flow of contaminants towards the Town of Acton's wells, destroying those contaminants, and discharging the treated water to the Assabet River.

Implementation of the Full Selected Remedy

The Site's 2015 ROD addresses soil, sediment and groundwater contaminants. The Remedial Design / Remedial Action Consent Decree (RD/RA CD) for the Nuclear Metals Site, is a legal agreement between EPA, the PRPs (Settling Defendants), and the SFAs that outlines how the remedy described in the ROD will be implemented. The RD/RA CD was entered by the District Court of Massachusetts and became effective on December 6, 2019.

With the RD/RA CD in place, over the next five to seven years EPA will oversee remedial design and remedial actions to implement the components of the selected remedy outlined below.

Soil and Sediment Excavation: The ROD requires excavation and off-site disposal of 82,500 cubic yards of contaminated material; excavated areas will be regraded with clean soil.

In-Situ Treatment and Capped Containment: For the Holding Basin (HB) area, the ROD requires hydraulic containment during construction to prevent further DU migration, in-situ stabilization of contaminated soils, and installation of a vertical containment wall and low-permeability below-grade cap, with placement of clean fill over the cap.

Groundwater: The remedy includes in-situ treatment of overburden DU and bedrock uranium plumes, extraction and treatment of groundwater contaminated with VOCs and 1,4-dioxane, and monitoring of contaminant concentrations in the groundwater to assess the treatment's effectiveness.

Institutional Controls: The ROD requires Institutional Controls (ICs) to: 1) prevent unacceptable exposures to, and to prevent disturbance of, the HB area; 2) prohibit use of contaminated groundwater until cleanup levels are met; and 3) require installation of vapor mitigation systems should future structures be built above the VOC plume before groundwater cleanup levels are met, unless an

evaluation of vapor intrusion risks is performed to show such systems are not required. The specific ICs for the site are expected to take the form of "Notices of Activity and Use Limitations" (NAULs). The ICs will be addressed and further defined during the Remedial Design. The general form of the NAULs is provided in Appendix D of the CD.

The Remedial Design phase of the project is expected to last between two to four years, followed by construction of the designed remedy (Remedial Action), which will take an additional two to three years. Aspects of this remedial design process may influence the final surface cover, grades or access at certain areas across the Site. To the extent that the Town can timely identify specific areas and / or a vision for reuse, the remedial design process could incorporate them to the extent possible. Specific aspects of the remedial design that need Town input are addressed later in this assessment, in the "Remedial Design" section.

Reuse Planning Process

During the reuse assessment, EPA and town staff coordinated local land use planning with anticipated remedial design activities for the NMI site through the town-appointed NMI/Starmet Reuse Committee.

Prior Town Involvement

The Town, local organizations and committees have been actively involved in the remedial process at the NMI site for almost 20 years. EPA supports a Technical Advisory Group (TAG) with representatives from the towns of Concord and Acton. In addition, the Town appointed a committee to coordinate with the TAG and EPA efforts at the Site. Known as the 2229 Main Street Committee, the group helped inform community input into the Site's 2015 ROD and remains involved in discussions related to technical aspects of the Site's cleanup.

NMI/Starmet Reuse Committee

Concord Town Council established the NMI/Starmet Reuse Committee in 2019 to work with EPA during remedy implementation and to help guide future land use and redevelopment recommendations for the NMI site. The Committee was created to assist the Town with identifying possible ways to reuse the NMI site for maximum public benefit. The committee has seven members who represent diverse interests in the community. Members serve two-year terms.

The Committee has the following responsibilities:

- Review the record of environmental contamination and cleanup at the Site to fully understand existing and likely future conditions.
- Hold a public hearing early in the term of the Committee to solicit preliminary public comments and suggestions regarding the kinds of public and private uses that should be considered in the reuse planning process.
- Work with staff and professional consultants to assess each idea for reuse suitability, including housing, commercial uses and municipal uses.
- Explore funding opportunities, including federal grants and private funding.

The Committee's work began at a June 2019 meeting. Research and a compilation of previous planning recommendations followed. This led to a set of principles and goals highlighted in a briefing document used to help gather town input.

The Committee held discussions in August, September and October 2019 with other town-appointed groups to ensure land use zoning, conservation, recreation, economic development and housing committees understood key opportunities and constraints to consider in evaluating future redevelopment options for the Site.

Photo 2. Committee and community members discuss possible reuse scenarios at the NMI site during an October 17 reuse planning workshop.

With initial groundwork in place, EPA and the Town co-hosted a reuse planning workshop in October 2019 that identified a set of potential uses and general concepts for the Site.

Table 1. Reuse Planning Activities for the NMI Site

Month	Reuse Planning Activities	Outcomes
February 2019	EPA and Town coordinated planning process.	Coordination calls between EPA Region 1, SRI, Concord Department of Planning and Land Use Staff, and PRP representative de maximis.
April 2019	EPA SRI prepared draft site reuse analysis.	Initial assessment of land use context and areas suitable for redevelopment at the Site.
June 2019	NMI/Starmet Reuse Committee formed and held site tour and reuse working session on June 20, 2019.	Committee site tour, Committee work program and refined reuse suitability map to guide future site redevelopment planning discussions.
August – October 2019	Committee meetings held monthly and members led outreach to other town committees. Town and EPA convened community reuse workshop on October 17, 2019.	Community awareness of future use planning process and community priorities for future use and redevelopment at the Site.
November – December 2019	EPA and the Committee coordinated recommendations to inform site activities and local land use planning.	Six reuse considerations and an evaluation framework to assist in future land use and redevelopment decision making.
January - March 2020	Committee briefing for local elected officials and EPA completed Reuse Assessment Summary Report.	Reuse Assessment Report and initial future land use recommendations to support Remedial Design activities and further town-led redevelopment planning.

Stakeholder and Community Goals

Through initial stages of the reuse planning process, SRI worked with the Committee and stakeholders to identify and refine the following principles and potential uses for the Site.

Reuse Principles: Based on previous planning and studies and the Town's 2229 Main Street Committee's work, the NMI/Starmet Reuse Committee identified four principles to guide the evaluation of potential future uses and redevelopment options for the Site.

- *Multiple Integrated Uses:* Redevelopment of the Site should address multiple needs identified by the community and its recent Envision Concord Comprehensive Plan.
- *Environmental Stewardship:* Redevelopment should be sustainable and preserve environmental assets, be carbon neutral and improve landscape resilience.
- *Fiscal Sustainability:* Redevelopment should use creative ways to fund reuse and seek a positive fiscal impact for the town.
- *Community Synergy:* Redevelopment should strengthen the community and relationships with neighboring towns. It should also provide opportunities for people from diverse social groups to

interact as they access services at the Site, and support accessibility to local neighborhoods and surrounding communities.

Reuse Goals: In addition, the Committee identified the site redevelopment goals listed below.

- Enhance transportation, mobility and infrastructure.
- Enhance housing choice.
- Enhance economic vitality.
- Enhance education and recreation opportunities.

Community Context and Land Use Considerations

The following section highlights the Site's location and context and describes land uses, zoning, ownership and key land use considerations for the property and surrounding areas. These factors help to inform and illustrate the Site's potential to help meet the reuse goals outlined above.

Regional Context: The Site is in the northwestern part of the Boston metropolitan area. It is situated near Concord's western boundary with Maynard and Acton as well as its southern boundary with Sudbury. It is about a mile west of West Concord, a mixed-use commercial center with an MTA transit station. It is also about 2 miles from U.S. Route 2 in Concord, 11 miles from Interstate 95 and 25 miles from Boston. Its proximity to key transportation infrastructure and population centers makes the location desirable as a point of connection between Concord and its neighboring communities, while also being outside of the Town's traditional village centers of West Concord and Concord Center (see Figure 2).

Surrounding Land Uses (Figure 3): The Site occupies approximately 40 acres currently designated as vacant industrial land. Current land uses and activities adjacent to the Site include a small commercial shopping center, a business park, neighborhoods with single-family homes, owner-occupied multi-unit housing and a summer camp. (See Figure 3)

Zoning (Figure 4): The Site is located in the Limited Industrial Park zoning district, which allows for warehousing, storage, research and development, and light manufacturing, as well as limited manufacturing, packaging, processing and testing activities. Nearby zoning districts include Limited Industrial Park (south and west), Residence B (north) and Residence A (east).

Property Ownership Context (Figures 5 and 6): The Site's ownership is complex, as the owner of record is listed as the Starmet NMI Corporation. However, the Commonwealth of Massachusetts records show the company was dissolved in bankruptcy court in 2007, and in 2011, former operators abandoned the property after ceasing operations. The owner of record has also defaulted on loans and local property taxes. Nearby property ownership consists mostly of privately owned businesses, homes and conservation areas. The Town owns several narrow strips of property that border the Site to the south and southwest. These properties are held by the Town for future access, trail, development or conservation uses.

Site Features and Access: Current site access is limited to an entrance on Main Street and an unofficial road that surrounds the former facility. The NMI site includes a former manufacturing building slab,

forested areas, and wetland areas, including the sphagnum bog and a large retention pond referred to as the cooling water recharge pond. Structures have been removed from the former building area. Slabs and impacted sub-slab soil will be removed as part of the remedy.

Reuse Suitability

SRI conducted an analysis to identify reuse suitability across the Site. Outcomes of the suitability evaluation and subsequent stakeholder input and discussion are shown in Table 2 and Figure 7 and Figure 8. A recap of the Site's selected remedy and activities to be implemented during the upcoming cleanup, followed by a discussion of key remedial considerations and discussion of areas suitable for various future uses, are highlighted below.

Remedy Implementation Activities

- Remediation of sitewide soils and sediments to allow for future residential, commercial and other uses.
- Remediation of the Holding Basin area, resulting in a capped containment area.
- Remediation of uranium and DU in on-site groundwater to contain and treat the uranium and DU in place.
- Continued off-site groundwater remediation.

Remedial and Reuse Considerations

EPA's approved clean-up plan required the Site to be remediated to meet federal and state standards that are deemed safe for future residential development. The Site's remedy could also support future commercial, recreational or limited industrial uses.

The 2015 ROD specifies a remediation goal for residential uses with certain limitations. There are several distinct areas and related activity and use limitations within the Site that will likely influence reuse possibilities and have been considered throughout the reuse assessment in determining viable use options.

Remedial Design Considerations: Features and locations at the Site property that were addressed in previous response actions or will be addressed as part of the remedy selected in the Site's 2015 ROD, known as Areas of Concern (AOCs) are highlighted in Figure 6 and discussed below.

- The former manufacturing building area includes a concrete slab that will be demolished and removed, along with impacted sub-slab soils, for off-site

Photo 1: Former building footprint.

Photo 2: Pond on site.

disposal. Post cleanup this area could become a large flat area suitable for development.

- Remedial design anticipates that soil excavation areas will generally be backfilled and re-graded.
- The Holding Basin Area will be covered with a sub-grade cap. Building construction will be prohibited in this area of the Site.
- The Cooling Water Recharge Pond will most likely function as a stormwater retention feature after cleanup.
- Ongoing groundwater pumping and treatment initiated under the Groundwater NTCRA will continue and use of groundwater will be prohibited until cleanup levels are met. The current groundwater treatment facility, located in Acton on the Knox Trail property nearby to the north of Main Street, is currently addressing contaminated groundwater which has migrated off-property. On-Site groundwater will be treated through a separate process that will be determined during the design. The Town of Concord provides municipal drinking water to the Site via an existing water line on Main Street.

Photo 5: Holding basin area.

Photo 6: Sphagnum bog.

Institutional Controls: Institutional controls are legal or administrative requirements (e.g., activity and use limitations) included as part of a Superfund remedy to restrict or limit land and resource uses. Institutional controls at the Site include limitations on land and groundwater use and future development activities outlined below.

- Future uses of the property must prevent disturbance of the capped containment system in the Holding Basin area.
- Vapor barriers may be required for buildings constructed above groundwater contaminated with volatile organic compounds.
- Institutional controls will prohibit the use of groundwater until cleanup goals are achieved.

Physical Constraints: The Site encompasses significant physical features that will inform future use options. The sphagnum bog wetland and surrounding forested areas with steep slopes that are not suitable for development but could support passive recreation or open space. On the eastern boundary of the Site, steep slopes and grade changes limit site access and use options.

Table 2. Reuse Suitability Zones

Zone A: Potential Development Areas	Four potential development zones provide 16 to 23 acres that are suitable for a wide range of uses (residential, commercial, light industrial, mixed-use), with flexibility for different building configurations and few use limitations. Reuse plans may inform on-site road locations and surface cover in soil remediation areas. Town water lines are available on Main Street; new on-site water connections are needed. Municipal sewer service is not available at the Site; on-site wastewater management options will likely need to be considered in development plans.
Zone B: Holding Basin Area Consolidation	Development limitations likely will prevent cap disturbance and new structures. Potentially suitable for paved parking or open space.
Zone C: Open Space - Habitat/Buffer	Suitable for open space, trails and wildlife viewing. Certain areas may have potential for development compatible with adjacent trails and uses. Slopes currently limit access in some areas. Reuse may inform final surface cover in soil remediation areas (cleared area versus revegetation).
Zone D: Open Space – Drainage/ Infrastructure	Remedial design coordination needed to evaluate access options between Zone A and Zone C. Suitable for stormwater and surface water drainage features.

Developable Areas: The NMI site could offer about 16 to 23 acres of developable land across four different areas, as highlighted in Table 2. Developable acreage refers to areas considered suitable for re-grading, access and utility improvements, and a combination of building footprints, parking, and landscaped or natural areas.

Open Space, Wetlands and Habitat: An additional 16^{+} acres of open space could support trails, site access, forest, wetlands and wildlife habitat. These areas could also support stormwater drainage features and help meet open space and wetland buffer requirements. Because of the variety of uses that are possible at the Site, stakeholder input may inform remedial design considerations, including site backfill, regrading and surface cover for future development areas, drainage features and open space access.

Utility Considerations: Groundwater use at the Site will be prohibited for the foreseeable future. The property is and is expected to remain connected to Concord's municipal water system. Sewer utilities are not available at the Site and there are no plans to extend sewer lines to the area. Future utilities will need to consider the use of septic systems or on-site wastewater treatment.

Key Site Ownership Considerations

The Site property, owned by Starmet NMI Corporation, is tax delinquent. Because of previous response actions, outstanding mortgage debts and unpaid taxes, significant financial encumbrances need to be addressed prior to the property's ownership transfer and redevelopment. Federal enforcement liens will also need to be considered in a future settlement agreement.

Title encumbrances will need to be resolved as part of any future ownership transfer. These efforts will require the involvement of the government agencies and the Town as well as the Site's future owners. The Town's role in site property transfer and future ownership may vary depending on the property's anticipated future use and municipal priorities.

Table 3. NMI Site Lien Status

Property Encumbrances*	Lien Holder	Date Issued	Amount
Mortgage**	Atlantic Savings Bank	10/2/1974	
Mortgage	The Massachusetts Industrial Finance Agency, State Street Bank and Trust Company	11/15/1983	
Mortgage	The Industrial Finance Agency, State Street Bank and Trust Company	6/27/1985	
Mortgage	Citizens Bank of Massachusetts	9/3/2001	
Federal Tax Lien	The United States Department of the Treasurer Internal Revenue Service	5/4/2005	
USDOJ Lien	United States Department of Justice – Environmental Enforcement Section	9/29/2009	
Tax Liens	The Town of Concord Office of the Collector of Taxes	7/14/2010	

** Property encumbrance types, lien holders, dates and amounts sourced from April 2011 Title Report. Additional EPA and MDEP liens of lesser value may exist and require future resolution through discussion with the agencies.*

*** The April 2011 Title Report clarifies that the 1974 mortgage lien is unenforceable, because it is over 35 years old and has not been extended on the record.*

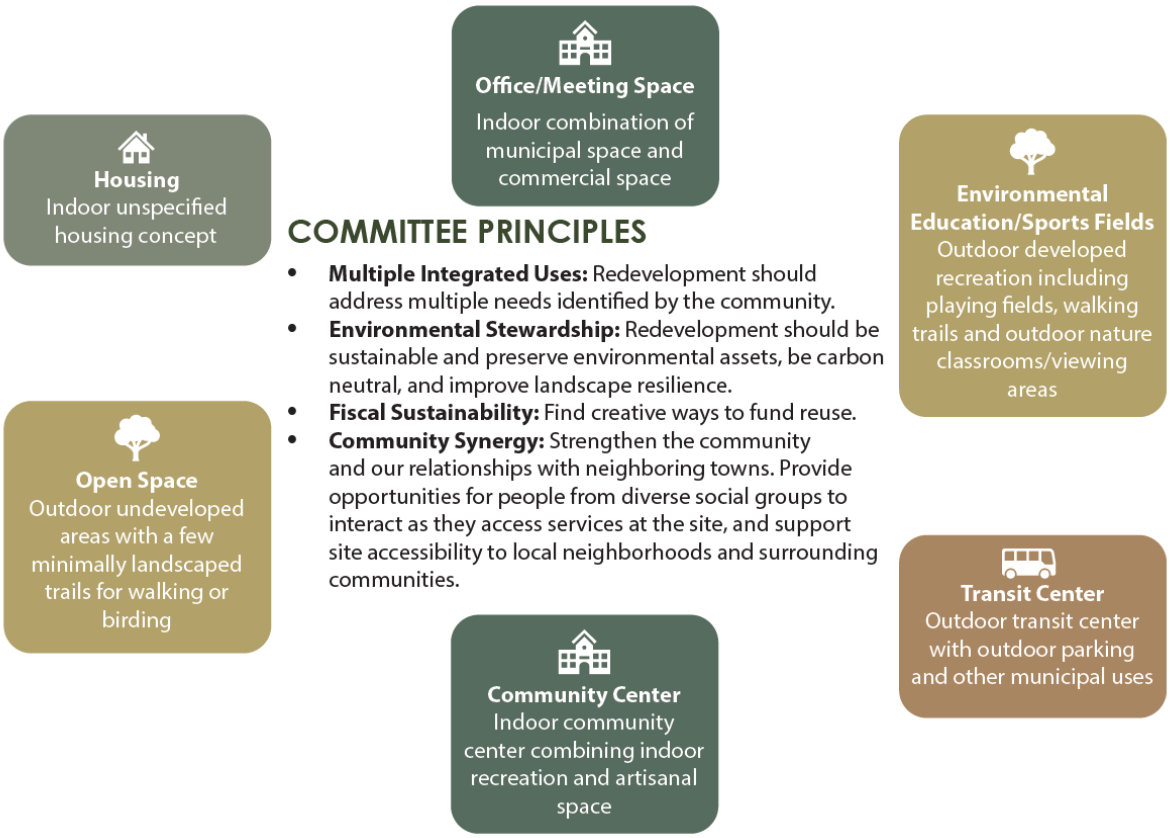
Potential Uses and Reuse Concepts

Through community input gathered prior to and during the October 2019 workshop, SRI and the Committee synthesized information to help inform potential reuse concepts for the Site that could be

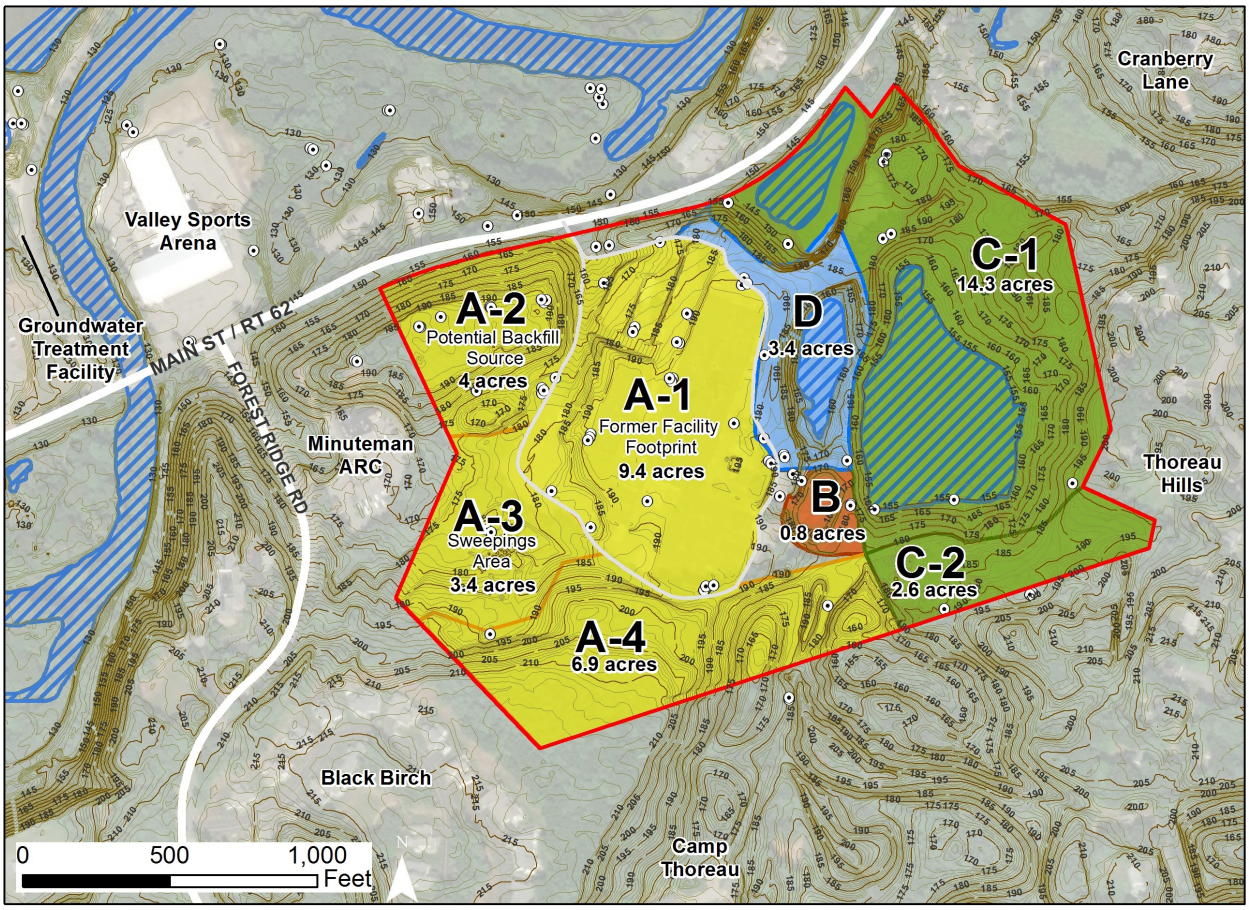
considered alone or in combination at locations across the Site. During the workshop, SRI presented key project background and site reuse opportunity and constraint information. Working with town staff and committee members, SRI facilitated small-group discussions to identify additional future use ideas, to explore options to combine various potential on-site uses and to prioritize key reuse opportunities.

The Committee recommended a set of reuse concepts as outlined below, which combined with the reuse principles to guide concept evaluation, will inform the final site redevelopment recommendations delivered to the Town Select Board. The Committee and Select Board expect this will be an iterative process over the next few years that can be coordinated with remedial design activities. The recommend reuse concepts highlighted in the Principles and Concepts Diagram below, described further in the key reuse considerations section, and characterized in a strategic planning matrix intended to help inform the Committee's decision making in the future (see Appendix A).

Reuse Concepts and Principles Diagram



Key Reuse Considerations



Potential Reuse Zones Map

- Site Boundary
- Monitoring Wells
- Surface Water
- Existing Roads
- Onsite Access
- Zone A. Potential Development Areas
- Zone B. Holding Basin Consolidation
- Zone C. Open Space - Habitat/Buffer; Potential for Development TBD
- Zone D. Open Space - Drainage/Infrastructure
- 5' Elevation Contours
- 1' Elevation Contours

Reuse Suitability Map

Potential Future Uses

Potential future land uses for the NMI site are likely to include housing, commercial areas, transportation and municipal uses, community and recreation areas, and conservation uses.

Reuse Scenarios

Eastern areas of the Site (Zone C) are likely to remain natural or restored forest and wetland habitat areas with some degree of non-intrusive nature viewing and trail access. Community priorities indicate an interest in environmental education and viewing areas around the sphagnum bog. These areas could

include a small outdoor education area or viewing platform. Trails in southern and western areas of the Site could extend through adjoining town parcels, offering trail connections beyond the Site.

Western areas, with the exception of the restricted Holding Basin Consolidation area (Zone B), are expected to be suitable for redevelopment and stormwater management. The A-1 area is ideal for more intensive development; it is surrounded by a ring road that provides access to all areas of the Site as well as an adjacent stormwater retention pond (Zone D). The three western areas (A-2, A-3 and A-4) can support a variety of redevelopment options now or over time or remain undeveloped.

Remedial Design

The Site's remedy is expected to be protective of the future uses envisioned for the area. There are several remedial design decisions that EPA and PRP group will make over the next few years that may affect certain areas potential for reuse. These relate to grading, access, and long-term ownership and stewardship.

Grading: Future use plans and reuse concepts to date anticipate that areas in Zone A-1 would be level areas suitable for development of new buildings, structures, infrastructure, access roads and parking. Community preferences are to keep A-3 and A-4 areas level as potential future development zones as well. As part of the remedial action, significant volumes of backfill material will be needed for the Holding Basin area (B) and the former manufacturing area (A-1). A hill at the western boundary of the Site (A-2) offers a potential source of on-site fill material, which could help reduce off-site truck traffic (~82,500 cu. yds. of excavation = ~6,200 truckloads of backfill). Excavation for fill in A-2 would significantly alter topography and could potentially level the hill to a grade accessible from A-1 and A-3. Leaving a portion of the hill intact or future tree planting could provide a visual barrier and preserve aesthetics from Main Street, while potentially contributing to carbon-neutral outcomes.

Access: Remediation of the Cooling Water Recharge Pond area (D) includes stabilization of steep embankments around the surface water feature. At the northern end, excavation may remove a paved parking area and unofficial road that crosses from northern end of A-1 to C-1. This road was constructed on fill placed in the 1980's. The gabion walls containing the fill are failing and will need to be removed or reinforced in order to conduct the required remediation of the Cooling Water Recharge Pond. The northern edge of the pond could potentially be replaced or regraded, allowing at-grade access to be maintained. A more significant grade change between the two areas could prevent vehicle or emergency access. Town and EPA coordination is needed to coordinate anticipated reuse plans with final grading and access in this location.

Surface Cover: The capped Holding Basin Containment area will have institutional controls that prevent excavation and soil disturbance and require ongoing maintenance. The capped surface may be suitable for use as a small parking lot adjacent to open space areas further west, or the cap surface could be maintained as grass vegetation. EPA and PRP group design engineers will determine potential uses, if any, for the area. An important consideration could be to determine whether paving the area would be feasible based the containment area's load-bearing capacity. Access to this area will be needed for remedy-related maintenance and inspections. The paved surface cover option could provide an opportunity for a dedicated parking area for trail users or environmental education amenities envisioned for adjoining Area C.

Monitoring Wells: A network of monitoring wells has been constructed over the years of groundwater investigation at the site, as shown in Figure 6. There are currently 76 monitoring wells on the 2229 Main Street property, and more will be installed during the RD/RA process. Long-term monitoring of groundwater is a component of the ROD remedy. The specific wells to be included in the long-term monitoring process have not yet been identified. Reuse construction cannot destroy required monitoring wells. Access to monitoring wells will be needed for long-term monitoring.

Long-term Ownership Considerations

EPA is not responsible for deciding the future ownership of the NMI site. During remedy construction and over the long term, Superfund sites benefit from having an engaged property owner that can coordinate directly with EPA or PRP group representatives regarding site operations and monitoring and maintenance activities. A property owner is also needed before Institutional Controls for the property can be recorded. The Committee and Town have not yet made specific recommendations about the future ownership of the Site. Key site ownership considerations are listed below.

Ownership and Scenarios: The recommended reuse scenario proposes dividing the Site into two future use areas: conservation uses (east) and development areas (west). From an ownership perspective, the envisioned conservation education or open space uses could involve the Town or other government entity as a partial owner of the Site over the long term. Ownership options for the land uses considered for A-1, A-2 and A-3 (office, community center, housing, transit center) are less certain.

Viable Owner: Close coordination between the Town and EPA will likely be needed during the remedial design to ensure that a viable entity that can work with EPA and the PRP group during remedy construction takes title to the property.

Clearing Title: The site property has as much as $39 million in unresolved mortgage debt, back taxes and federal liens. In the near term, the Town could acquire the site property through tax foreclosure – a key step that could benefit the Site, the Town and key stakeholders in several ways. The Town's ability to foreclose on the $339,000 tax lien is a strategic tool that may become necessary to resolve property encumbrances and enable future property transactions and reuse activities to move forward.

Superfund Liability Protections: Municipal acquisition may also enable the Town to gain certain liability protections afforded to local governments. If the Town acquired the property for back taxes, that may open up opportunities to manage Superfund liability through subsequent property transfers. Additional discussion with EPA will be required prior to pursuing this resolution.

Holding Basin Area Ownership and Stewardship: In the long term, the Town and EPA could consider carving out the holding basin capped consolidation area as a separate parcel and transferring ownership of that area alone to an entity responsible for maintaining the cap and related remedy components for the area. Such a transfer may relieve the Town or other potential future owner from having to coordinate with the entity responsible for operation and maintenance activities at the Site. The PRP group, while not an owner of the property, may be included conversations surrounding the long-term monitoring and maintenance for the Holding Basin Area.

Reuse Assessment Outcomes and Next Steps

Through the NMI site reuse planning process and this reuse assessment, SRI and EPA Region 1 provided technical support, including land use and site analysis tools, that created a framework for the

Committee's evaluation of potential redevelopment options for the Site. SRI and EPA Region 1 also provided stakeholder coordination and meeting facilitation support to assist in compiling information to supplement local outreach led by the NMI/Starmet Reuse Committee. This Reuse Assessment Summary Report concludes the current phase of SRI reuse planning support for the NMI site.

Reuse Assessment Outcomes

- The process helped EPA, the Town, the Committee and community members work collaboratively, sharing information about the history and status of the NMI site, discussing the implications of cleanup considerations for redevelopment options, and soliciting feedback to guide future use planning.
- The Committee initiated its work and completed key tasks by assessing suitable uses, identifying and vetting a full range of potential uses with community partners and stakeholders, holding a public workshop, and identifying initial recommendations to guide coordination between the Town and EPA during the remedial design.
- Community stakeholders had opportunities to learn about the Site and reuse opportunities – over 100 community members, residents, partners and key stakeholders attended the October 2019 reuse workshop held at Concord Town House. Participants provided input about the future uses they would like to see on site and ways they could be combined to achieve local priorities.
- The Committee received important information about future use considerations for the Site from the community's feedback and recommended six priority uses that are compatible with the planned remedy.

Next Steps

The Committee's next steps are to continue discussions among the Select Board, the Committee and local stakeholders, and to continue with public outreach. The Committee envisions that a future phase of community engagement could involve further discussions about feasible redevelopment options for the Site after the Committee completes its due diligence evaluation of the site reuse recommendations. The Reuse Committee will prepare a final report with recommended reuse scenarios and future town actions by the end of 2020.

CONTACT INFORMATION

For questions about or input on Concord's reuse goals:

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For questions about EPA Superfund:

U.S. EPA - Sarah White, Community Involvement Coordinator white.sarah@epa.gov | 617-918-1026

U.S. EPA - Christopher Smith, Remedial Project Manager smith.christopher@epa.gov | 617-918-1339

ADDITIONAL INFORMATION

Town of Concord NMI/Starmet Reuse Planning Committee: https://concordma.gov/2446/NMI-Starmet-Re-use-Planning-Committee

EPA Nuclear Metals, Inc. Superfund Site Profile: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0100550

EPA Superfund Redevelopment Initiative: https://www.epa.gov/superfund-redevelopment-initiative

FIGURES

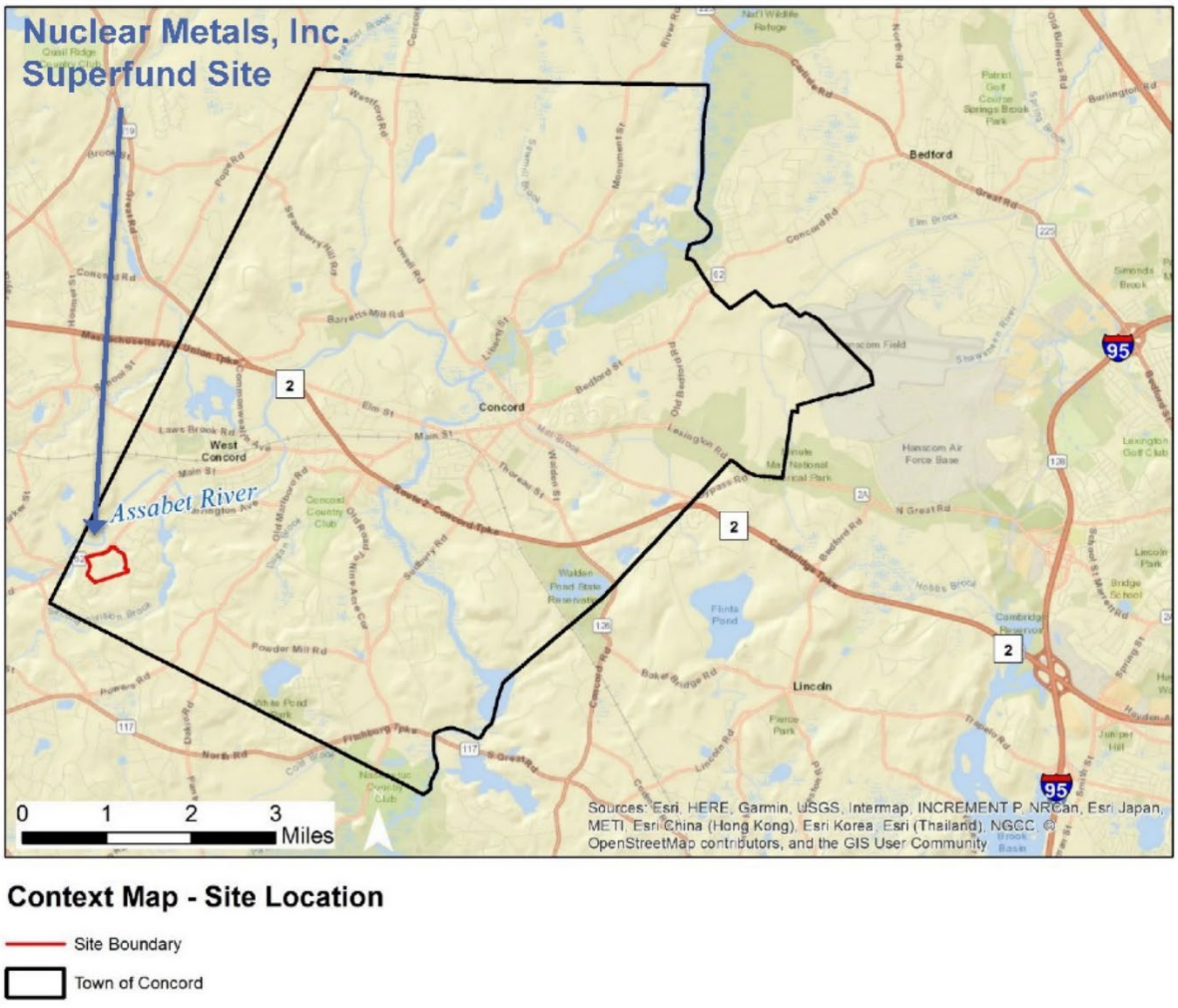

Figure 1. Regional Context

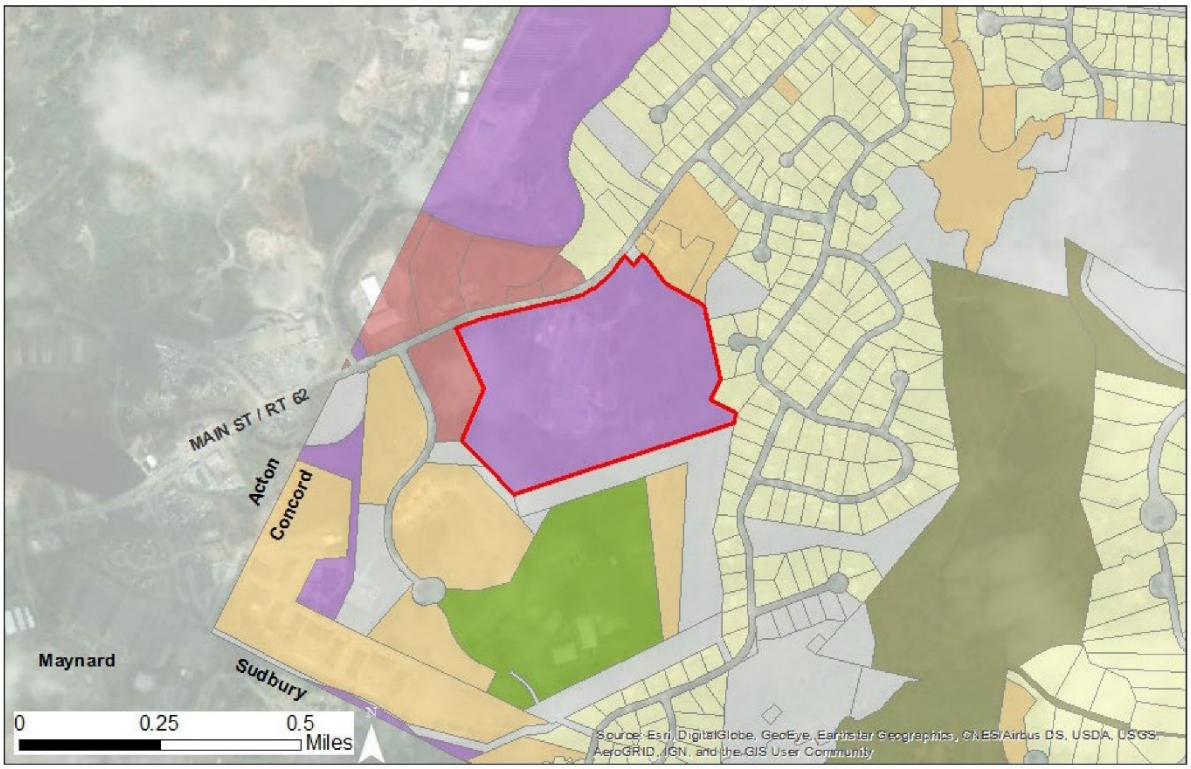

Figure 2. Surrounding Land Uses

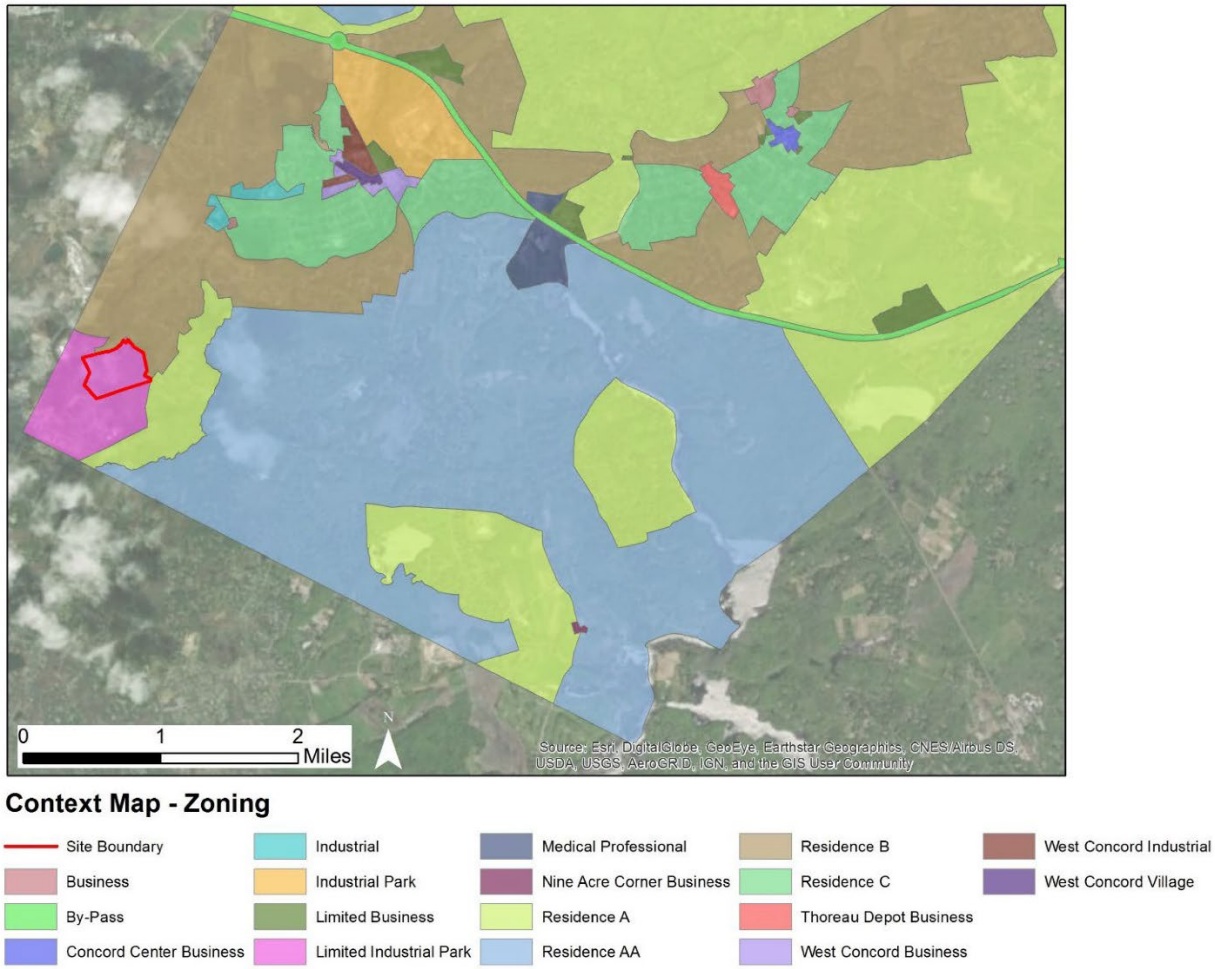

Figure 3. Zoning

Figure 4. Property Ownership

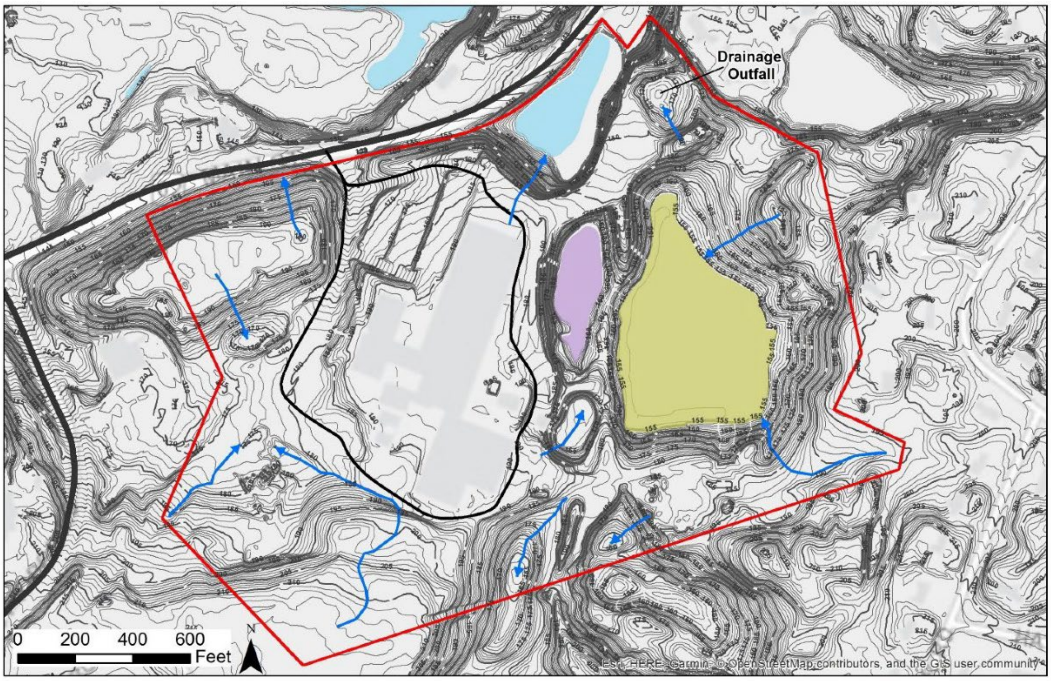

Figure 5. Site Features and Access

Components

Former building slab demolition

Soil/sediment excavation and offsite disposal

Holding Basin Consolidation

Groundwater (in-situ)

Design Considerations for Reuse

- Stormwater drain surfaces
- Backfill, regrading and surface cover in excavated areas
- Cooling water recharge pond, bog edge re-grading and stabilization

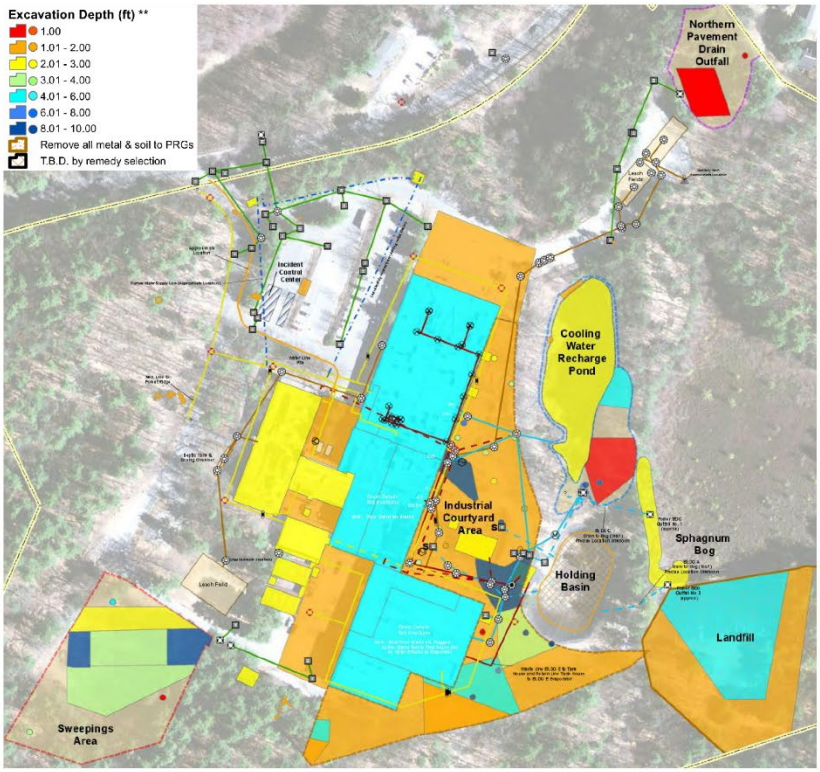

Figure 6. Remedial Design Considerations

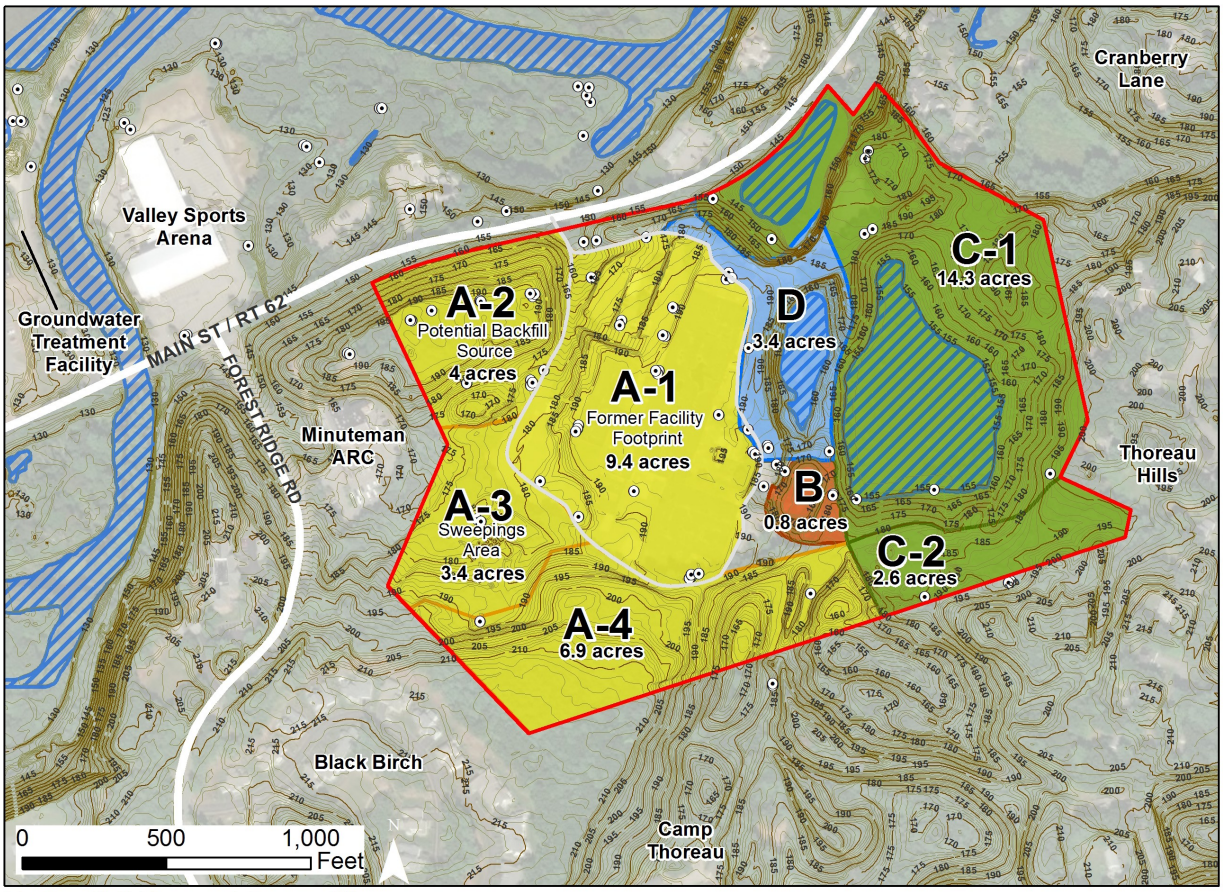

Figure 7. Reuse Suitability

Scenario Evaluation Tracking Table for Nuclear Metals, Inc. Superfund Site		Reuse Scenarios					
		Housing	**Community Center**	**Office/Meeting Space**	**Transit Center**	**Environmental Ed/Sports Fields**	**Leave it alone**
		Indoor unspecified housing concept	Indoor community center combining indoor recreation and artisanal space	Indoor combination of municipal space and commercial space	Outdoor transit center with outdoor parking and other municipal uses (This is considered outdoor because it could be implemented without extensive building foundations.)	Outdoor developed recreation including playing fields, walking trails, & outdoor nature classrooms/viewing areas.	Outdoor undeveloped areas with a few minimally landscaped trails for walking or birding.
Committee Principles	**Multiple Integrated Uses** Redevelopment should address multiple needs identified by the community	Seasonal workforce housing, a senior center, cluster or co-housing, or a group home could be easily combined with other uses.	A community center could be co-located with housing, transit center, environmental ed/sports fields to help meet multiple community needs.	Multiple uses, including municipal offices and commercial space, could coexist in an indoor space.	Uses such as commuter parking, public transit, and potentially some municipal storage could address multiple community needs.	The community identified multiple recreational and educational uses that could easily coexist and fill a variety of needs.	Multiple nature-based outdoor uses could exist simeltaneously and address several community needs.
	Environmental Stewardship Redevelopment should be sustainable and preserve environmental assets, be carbon neutral, and improve landscape resilience	Preference could be given to developers with green design experience.	Locate communty center within zones suitable for structural development.	A municipal/commercial structure could be built within zones suitable for structural development.	An outdoor transit center could have the potential to generate energy by incorporating solar panels into design elements.	Nature education and associated spaces would prepare citizens to be stewards of environmental assets.	Preservation of natural areas and old-growth trees leaves natural landscape intact, which was identified as a potential benefit to the community.
	Fiscal Sustainability Find creative ways to fund reuse	Requires housing development partner and potential non-profit CDC or housing development corp.	If co-located with housing, seek proposals that include a community center integrated into development prorgam and financing.	Combining commercial space with municipal space would generate more revenue than municipal use alone.	The U.S. Department of Transportation and the Federal Transit Administration provide grants to help fund public transportation.	Grant funding for outdoor recreation and sports activities is likely available.	Undeveloped areas and trails would require minimal funding for creation and maintenance.
	Community Synergy Strengthen community and our relationship with neighboring towns. Provide opportunities for people from diverse social groups to interact as they access services at the site, and support accessibility to local neighborhoods and surrounding communities	Housing that provides a diverse range of housing types, that could serve individuals and families with a wide range of income levels affordable set-asides, live-work arrangement and market-rate.	A community center would most likely help build community synergy if co-located with activities, services or amenities that bring users to the site (recreation or housing).	Co-located commercial and municipal space would likely provide opportunities for citizens interested in shopping and municipal employees to interact daily in a way that would promote community synergy.	Members of the community who utilize public transportation will interact with one another while doing so in a way that can build community. Surrounding communities may also utilize a transit center.	Members of the community could interact socially via recreational activities on site. Sports fields may also create a draw for surrounding communities.	Site areas such as the sphagnum bog are already a draw for ecotourists. Leaving natural spaces on site may draw in enthusiasts from neighboring communities.
Site Location Considerations Stand-alone, potential to co-locate with other specific uses, suitability of site area for use type, etc.		Diverse range of housing types could take advantage of various reuse zones. Higher-density live-work or affordable units may be configured adjacent to amenities or services in a central area (A-1), while town homes or indpendent living flats could fit well in a more seculuded location scuh (A-2 or A-4).	A community center would benefit from a central location such as Zone A-1 and if configured toward the east side could help to serve environmental stewardship goals and connect with trails and open space around the spagnum bog. Assume level area with adequate parking for community events or shared parking wtih other uses.	A municipal/commercial space would likely be best suited for Zone A-1, as a structure like this would benefit from a central location, proximity to Main Street, ease of infrastructure setup, and availability of level space for both building construction and parking.	If a transit center were to include a paved parking lot or municipal vehicle storage lot, that component could be located in Zone B. Additional components such as any building would be better suited for Zone A-4 (directly south of Zone B) or A-1 (west of Zone B). Multiple zones may be used and connected, but Zone B requires the cap not to be disturbed.	Because of the topography, surface water, and natural features, Zones C and D would be ideal locations for nature education services. There are areas of Zones C-2, D, and B that have shallower grades and could be leveled for sports fields.	Steep slopes in areas of Zones D and C-1 make them attractive locations for hiking trails. Zone C-2 could easily connect with existing trails nearby. This area contains some old growth trees and existing wildlife habitat such as the sphagnum bog.
Remedial Design Given site location considerations, are there any design considerations needed to accommodate the scenario?		For zone A-4, there's an opportunity to coordinate backfill material removed from hill with anticipated buidling footprints,. Housing type may influence final grading needs; vehicle access and building ingress/egress; for example smaller units or may work well at staggered elevations.	A community center would be located within a Zone A location that is suitable for structural development, A-1 is most likely location.	A mixed use office and commercial space would be located in Zone A. A-1 would likely be the best candidate for structural development of such a space.	A paved area such as a parking lot could be located in Zone B. A parking structure or transit center facility that would require more infrastructure and soil disturbance would be better suited for Zone A. Zone A-2 may be the best location, as it is adjacent to both the existing access road and Route 62.	Zone B or C-2 would be suitable for fields other passive recreational use. Zone C-1, because of its proximity to existing natural features including the sphagnum bog, would be best suited for environmental education and hiking/biking space.	Zones C-1 and D would be suitable for designated undeveloped areas, as Zone D encompasses much of the site's drainage area and Zone C-1 surrounds the sphagnum bog, which would be an appealing area for activities like birdwatching.
Ownership Given use type, what ownership types are anticipated? For long-term ownership, is it likely to be private, public/quasi-public, or non-profit; or some combination?		A diverse range of housing types would likely require a carefully coordinated strategy for land ownership and building or unit ownership. Private, public/quasi public and non-profit are all likely ownership types.	A community center would likely be maintained or leased by a non-profit, or quasi-public entity.	Co-located municipal and commercial space would likely be maintained by a public or quasi public entity and leased by private and non-profit entities.	A transit center would likely be best suited to public, quasi-public, or non-profit ownership.	Sports fields, recreational trails, and environmental education spaces would likely benefit from non-profit, public, or quasi-public ownership.	Would likely lend itself best to public, quasi-public, or non-profit ownership