Chlor-Alkali Site Reuse Planning Process

Meeting # 2

January 22, 2008
5:30 – 8:00 PM

Berlin High School
550 Willard Street
Berlin, NH

Meeting Agenda

Meeting Overview

1. Resolve outstanding questions raised at the first meeting (5:30 - 6:00 PM)
2. Review examples of Superfund site reuse planning in other communities (6:00 - 6:15 PM)
3. Discuss the committee reuse goals for the Chlor-Alkali site (6:15 - 7:45 PM)
4. Next Steps and Future Reuse Planning Committee Meetings (7:45 - 8:00 PM)

Committee Member Questions

Meeting Overview

1. How does EPA consider future land uses in the remedy selection process?

2. Can the Chlor-Alkali site be remediated to a level that will support unrestricted future use and unlimited exposures (e.g., highest level cleanup)?

3. Does EPA already have a predetermined cleanup level, or future use in mind for the Chlor-Alkali site?

Superfund Remedial Response Process

EPA evaluates all Superfund sites to determine what needs to be done to protect human health and the environment through a five stage process.

Five Stages Superfund Remedial Response Process

1. Remedial Investigation/Feasibility Study (RI/FS)
2. Remedy Selection / Record of Decision (ROD)
3. Remedial Design (RD)
4. Remedial Action (RA)
5. Post Construction

Future Land Use Considerations in the Superfund Remedial Response Process

1. Remedial Investigation /Feasibility Study

- Data collection and analysis
- Risk assessment
- Cleanup goals
- Remedial action alternatives

Future Land Use Considerations

- Reasonably anticipated future land uses
- Realistic site reuse expectations

2. Remedy Selection

Remedial alternatives are weighed against nine selection criteria:

- Overall protection of human health
- Compliance with state and federal cleanup standards
- Long-term effectiveness
- Reduction of toxicity, mobility or volume through treatment
- Short-term effectiveness
- Implementability
- Cost
- State acceptance
- Community acceptance

2. Remedy Selection (cont.)

EPA expectations for remedy selection

- High-level wastes treated or removed
- Low-level wastes contained on-site
- Institutional controls implemented to help maintain protectiveness
- Ground water restored to beneficial use
- Sites returned to use

Future Land Use Considerations

- Institutional controls (e.g., restrictive easements and covenants, and zoning restrictions) that limit future uses based on a site's reasonably anticipated future land use are documented in a site's ROD.

3. Remedial Design

- Plans and specifications developed
- Extent of contamination confirmed through sampling
- Remedial technologies tested

Future Land Use Considerations

- Coordination between site owners, local governments, and EPA helps to ensure that a site can be returned to use as soon as possible.
- Reuse plans can be refined to identify specific uses and the location of key features (e.g., buildings, parking areas, and trails)

Future Land Use Considerations in the Superfund Remedial Response Process

4. Remedial Action

- Funding secured
- Construction of site remedy begins
- Contaminated media remediated to selected cleanup levels

Future Land Use Considerations

- Timing of remedial construction and redevelopment activities can be coordinated to create a detailed implementation plan for a site's reuse.
- Phasing of a site's redevelopment can inform the implementation of a remedy's construction.

Future Land Use Considerations in the Superfund Remedial Response Process

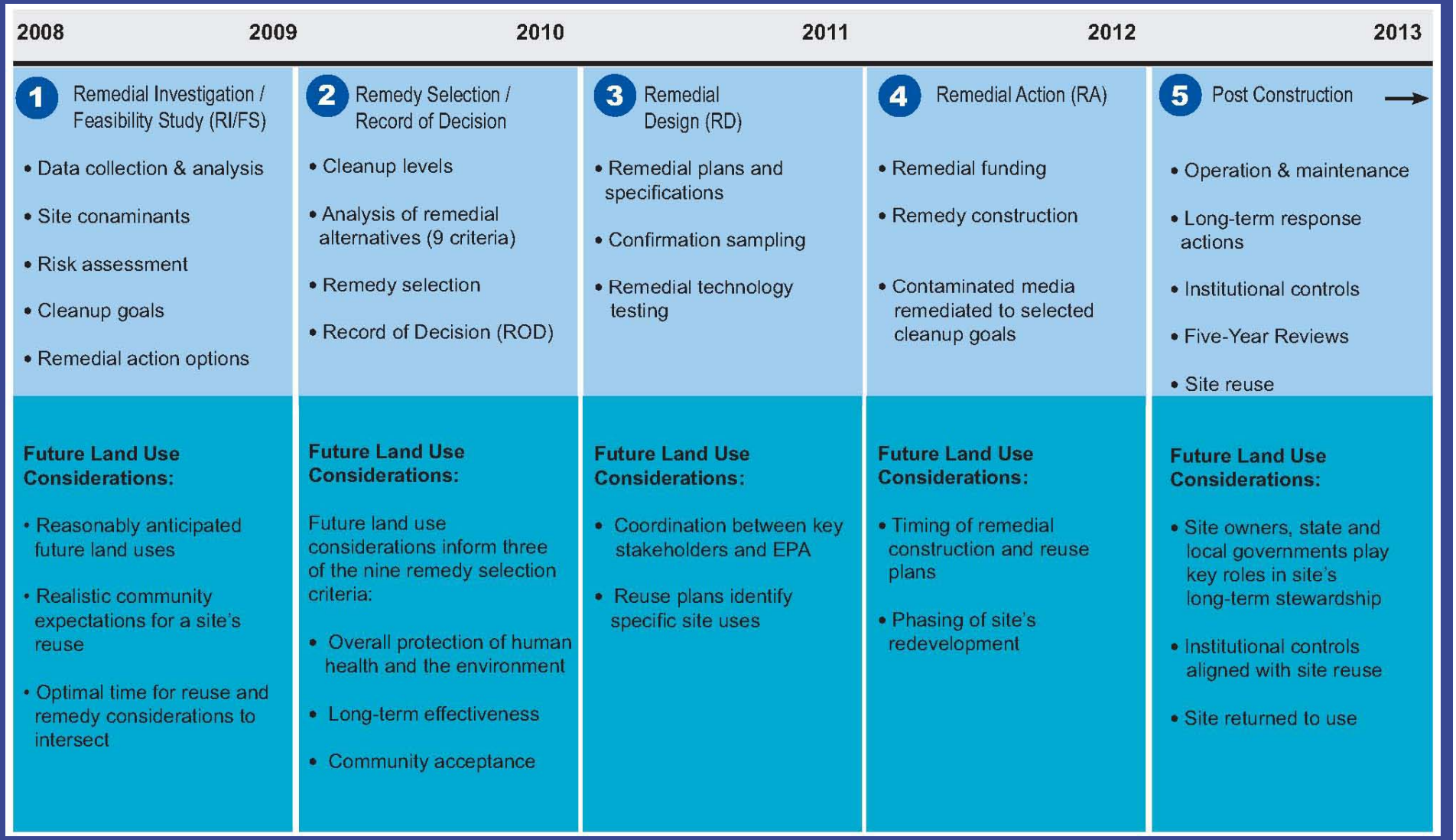
5. Post-Construction

- Operation & Maintenance
- Long-term Response Actions
- Institutional Controls
- Five-Year Reviews
- Site Reuse

Future Land Use Considerations

- Post-construction activities are necessary for a site's long-term stewardship and require participation from multiple parties other than EPA.
- Implementation of institutional controls requires participation from property owners, and local governments.

Superfund Remedial Response Process: Potential Timeline for the Chlor-Alkali Site



Overview

Communities across the United States are planning for and returning to use Superfund sites like the Chlor-Alkali site.

Superfund Sites in Reuse:

- H.O.D. Landfill Superfund Site (Antioch, Illinois)
- Eastland Woolen Mill Superfund Site (Corinna, Maine)
- Plainwell Paper Mill Superfund Site (Plainwell, Michigan)

Superfund Sites and Reuse Planning

H.O.D. Landfill

Antioch, Illinois

- 120-acre landfill area
- Site reuses include a methane co-generation plant, soccer fields, softball fields, a field hockey court, and an environmental education area
- Site reuse required extensive coordination among community members and site stakeholders
- Liability concerns addressed through stakeholder agreements and by expanding insurance policy options

Eastland Woolen Mill

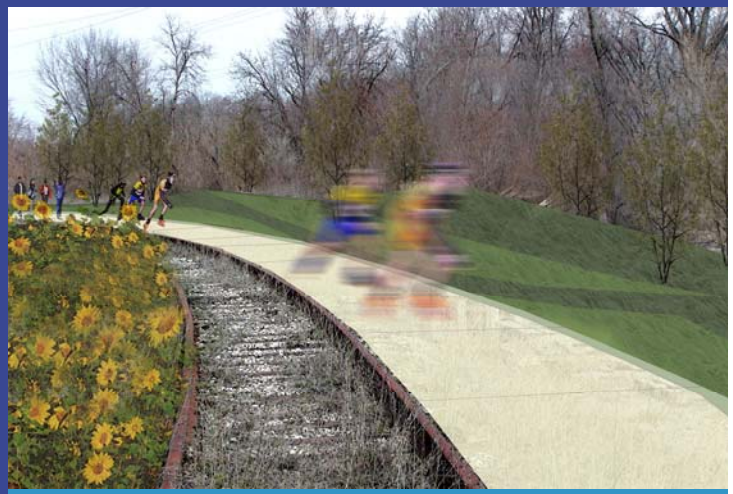
Corinna, Maine

- 21-acre former textile mill
- Close community coordination and partnership building were two key elements in the site's reuse planning process
- Community committee developed a mixed-use plan for the site and downtown
- New uses at the site and downtown include a senior housing complex, a restaurant, and a general store

Plainwell Paper Mill

Plainwell, Michigan

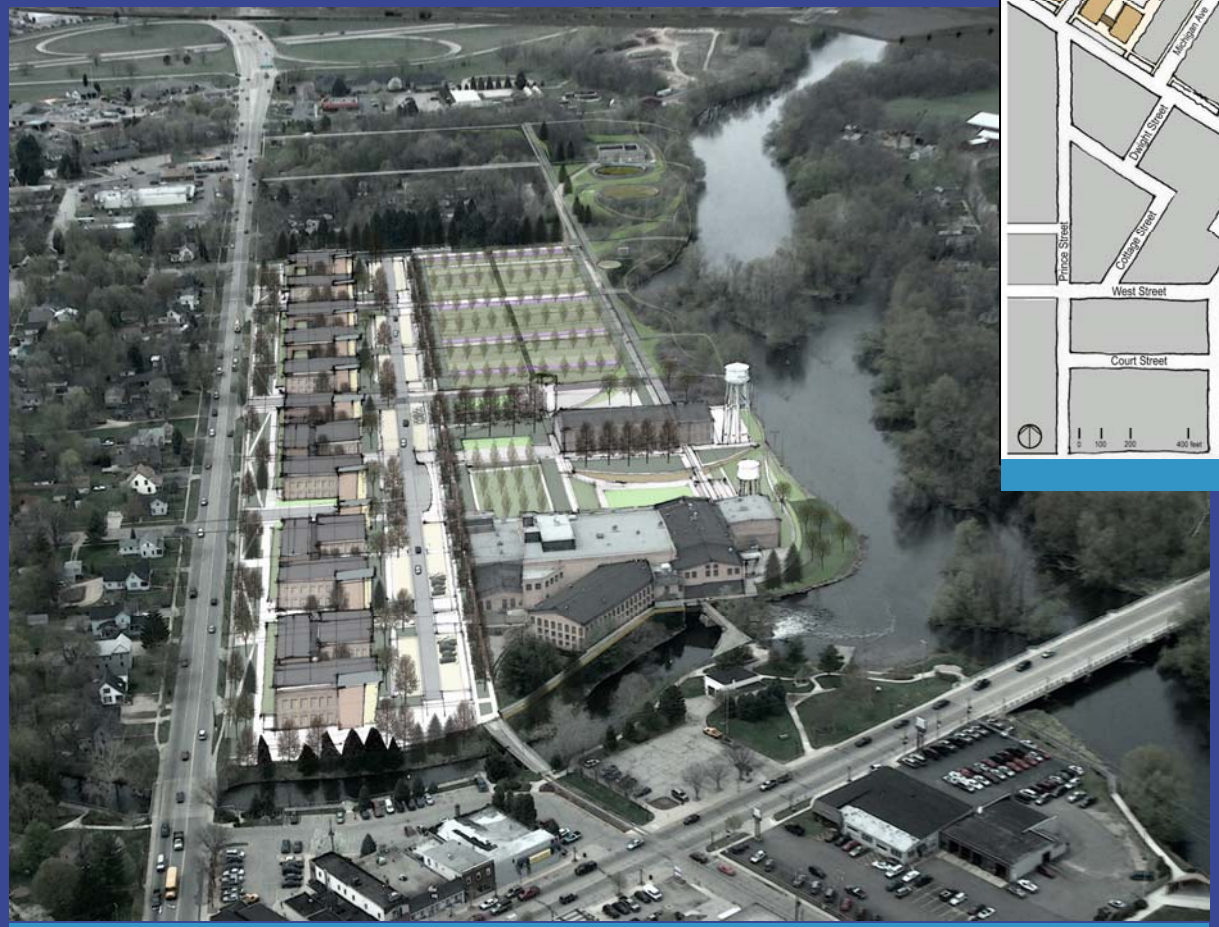
- 40-acre former paper mill site
- Community-based reuse planning process focused on site's riverfront location adjacent to downtown district
- Site reuse plan includes commercial, residential, civic, and recreational land uses
- City of Plainwell has acquired the site and is developing detailed site reuse plans, pending completion of the site's cleanup

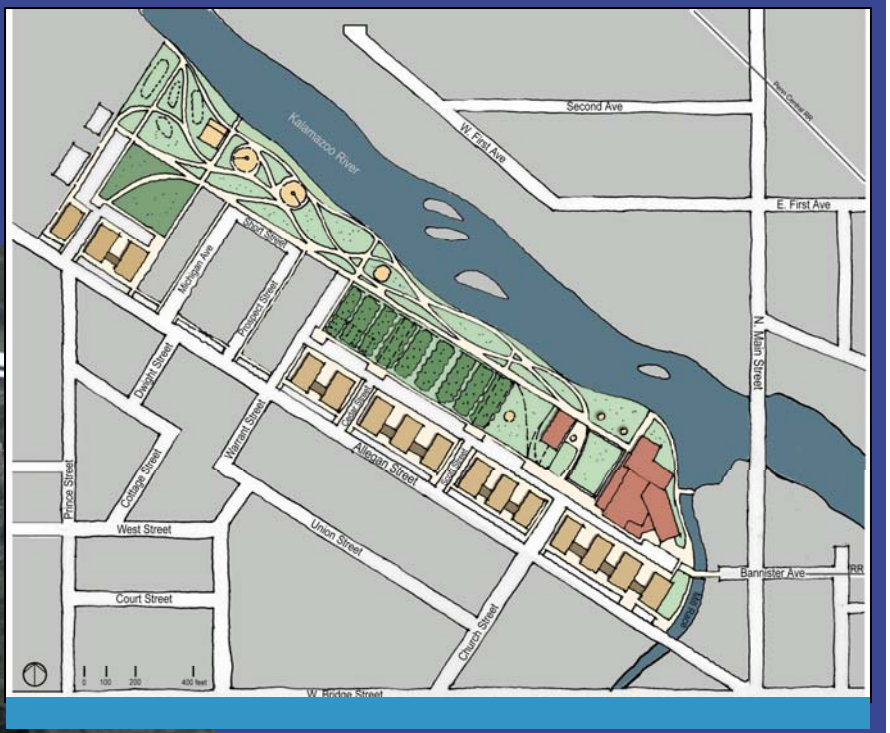


Superfund Sites and Reuse Planning

Plainwell Paper Mill

Plainwell, Michigan

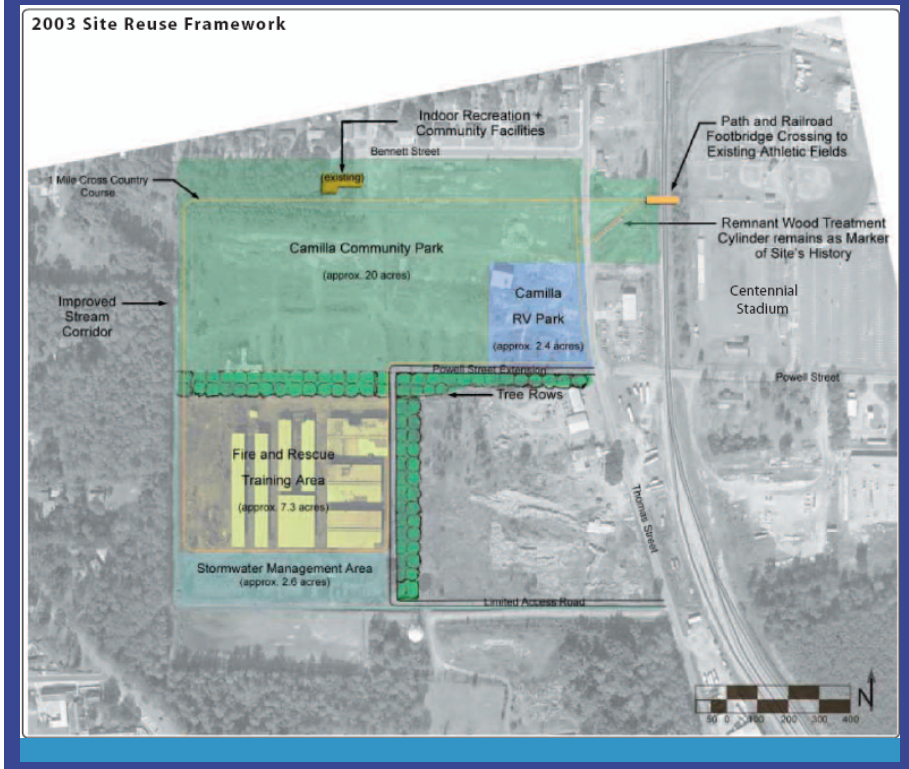


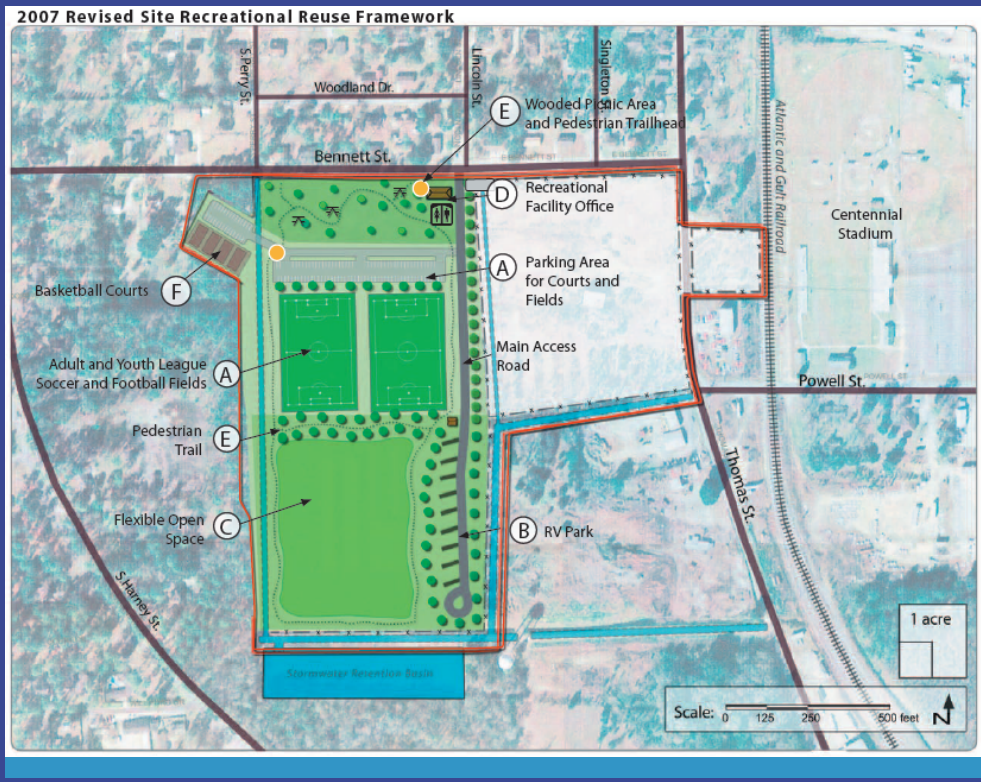


Superfund Sites and Reuse Planning

Camilla Wood Preserving Company

Camilla, Georgia





Chlor-Alkali Reuse Planning Process

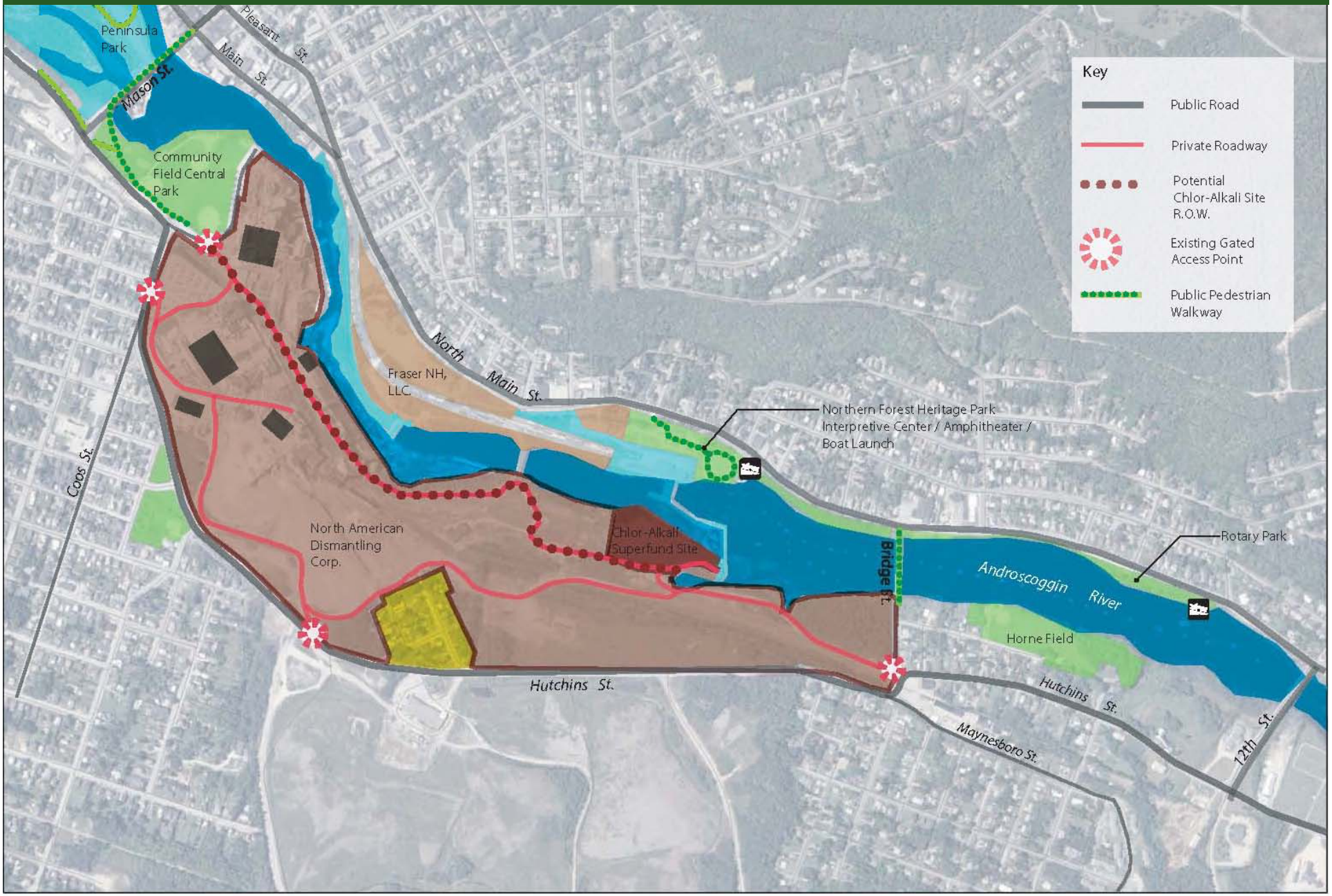
Reuse Opportunities Discussion

Future Land Use Goals Discussion

Potential Questions for Discussion

- What specific assets or opportunities does Berlin have that could help to shape the reuse of the Chlor-Alkali site?
- What types of land uses would you like to see at the Chlor-Alkali site?
- How would future land uses at the Chlor-Alkali site relate to the redevelopment of the adjacent mill site?
- How would the site's ownership inform potential reuse opportunities

Future Land Use Considerations



Riverfront Redevelopment

Overview

Riverfront areas in many communities are changing from formerly industrial areas into vibrant destinations that include retail stores, housing, parks, and trails.

Riverfront Redevelopment Success Stories:

- Arkansas River Whitewater Park (Salida, Colorado)
- Presumpscot River Redevelopment Project (Westbrook, Maine)

Riverfront Redevelopment

Arkansas River Whitewater Park

Salida, Colorado

- World-famous boating festival has taken place in this Rocky Mountain city since 1949
- Most festival activities used to take place outside downtown – located along an unattractive, inaccessible section of the Arkansas River
- Community coalition led to a multi-year plan to develop a white water park and extend a network of parks and trails downtown
- Today, the Arkansas River Whitewater Park is a year-round recreational attraction and a key venue for festival events

Riverfront Redevelopment

Presumpscot River Redevelopment Project

Westbrook, Maine

- Presumpscot River sustained city's paper, shoe, and woolen mill economy for over two hundred years
- City adopted an eight-part riverfront redevelopment project
- Project includes renovation of a woolen mill, construction of new office buildings, neighborhood improvements, and development of a riverfront boardwalk, trails, and a bike path

Riverfront Redevelopment

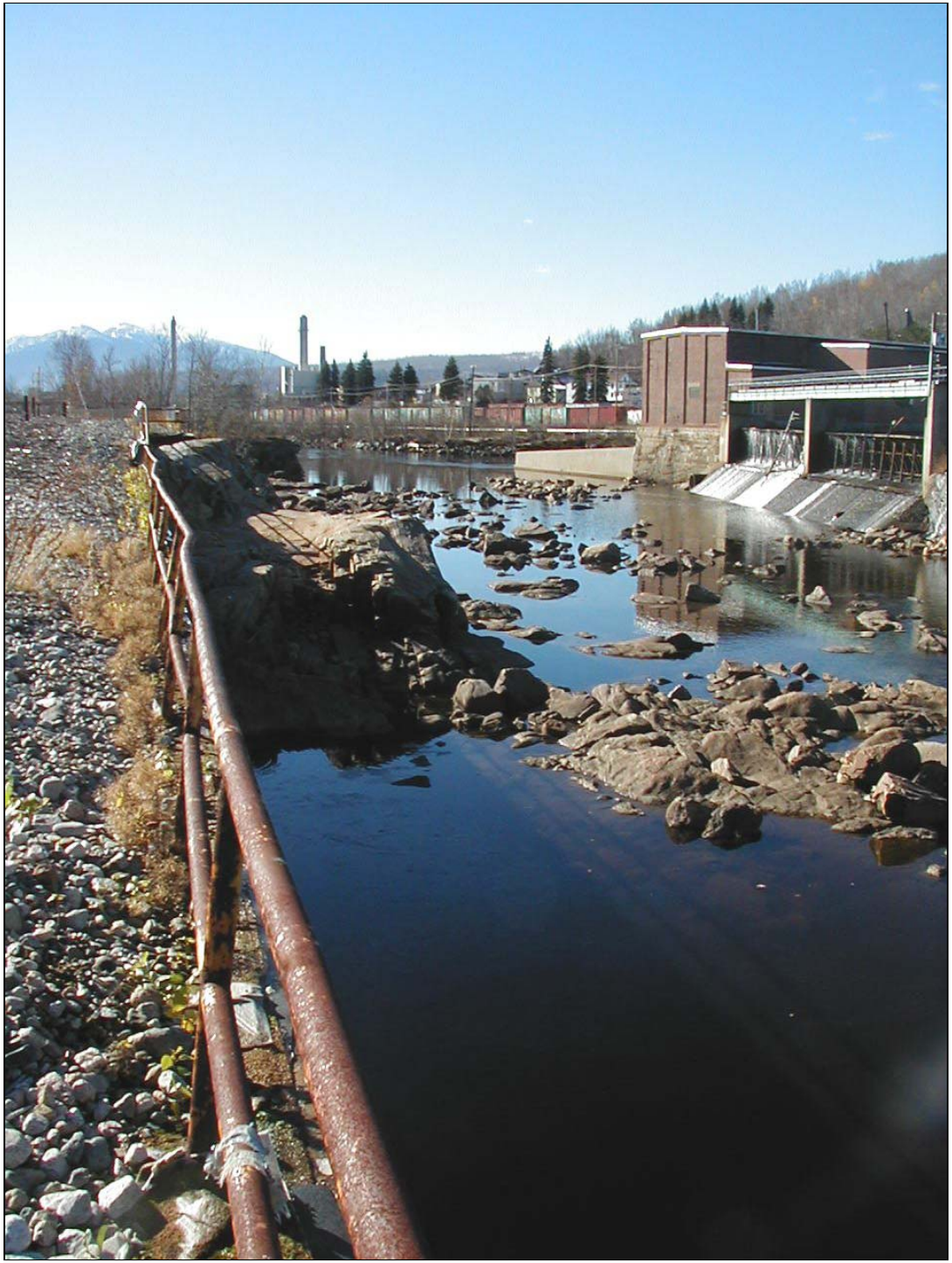
Key Considerations

Riverfront redevelopment projects require:

- Creativity, flexibility, partnership building, and resources
- Careful consideration of the community's riverfront history and future plans and priorities
- Supportive market conditions
- Public sector leadership

Areas located immediately adjacent to rivers are often well-suited for recreational land uses or for natural areas

Redevelopment efforts further back from the waterfront often focus on adaptive reuse

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Eco-Industrial Parks

Overview

An eco-industrial park is a group of businesses clustered in a single location working collectively to reduce or eliminate waste associated with their industrial processes (e.g., heat, steam, carbon dioxide, and various chemical and material byproducts).

Eco-Industrial Initiatives:

- Backyard Farms Greenhouse Complex
  Madison, Maine
- Londonderry Eco-Industrial Park
  Londonderry, New Hampshire
- Cuyahoga Valley Initiative: Waste = Revenue Roundtable
  Cleveland, Ohio

Eco-Industrial Initiatives

Backyard Farms Greenhouse

Madison, Maine:

- Backyard Farms' 25-acre green house complex produces year-round, vine-ripened tomatoes in northern New England.
- At the green house, 240,000 plants produce 1 million tomatoes per week
- Energy efficient operations utilize rainwater harvesting for irrigation, thermal blankets to limit heat loss, and low-cost electricity guaranteed through a municipal utility.
- Produce is sold directly to supermarkets and restaurants throughout the northeast.
- Backyard Farms' operation has helped generate new jobs both on-site and throughout the region.

Eco-Industrial Initiatives

Eco-Industrial Park

Londonderry, New Hampshire:

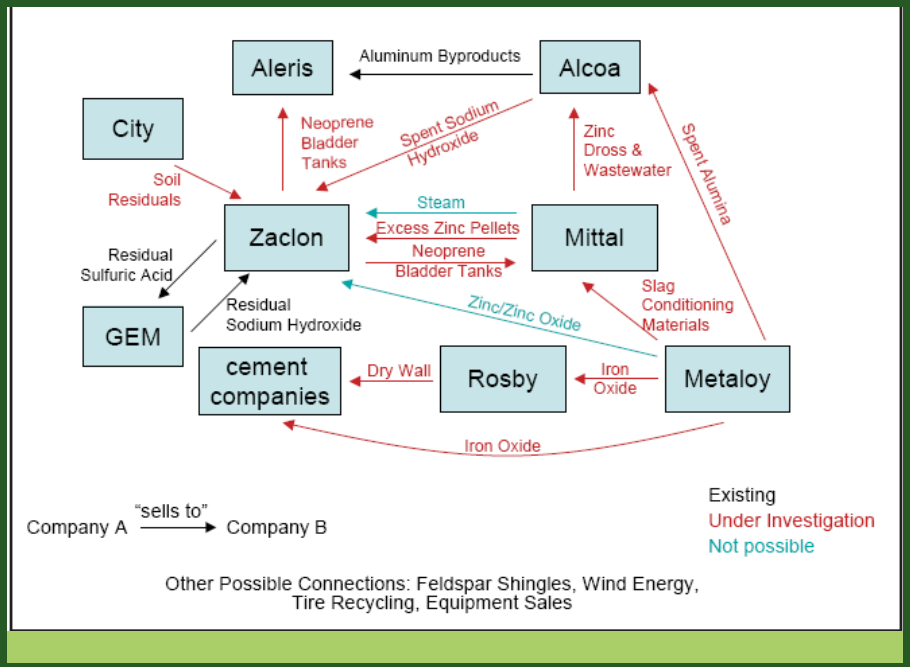
- In the 1990's, an organic dairy and a neighboring plastic recycling company formed a partnership to reduce waste products and save operating costs.
- The City of Londonderry has taken the initiative to expand the partnership into a formal eco-industrial park
- The establishment of a governance structure and set of covenants ensures better environmental performance and waste reduction for current and future eco industrial park tenants.
- Today, the park includes on-site electricity and heat generation for an expanding group of tenants.

Eco-Industrial Initiatives

Waste = Revenue Roundtable

Cleveland, Ohio:

- Process underway to revitalize the industrialized Cuyahoga River Valley
- Strategy for waste product reduction and reuse among eight large manufacturing companies



Overview

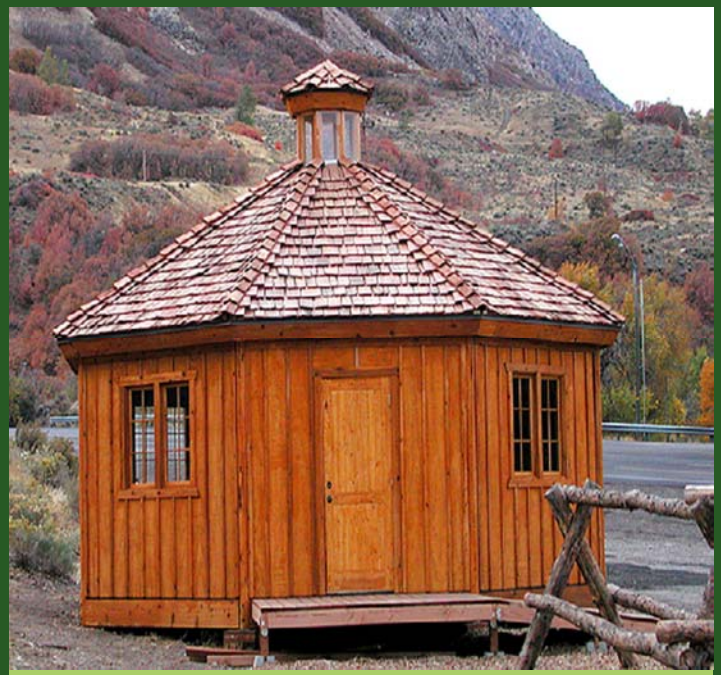
Value-added forest products manufacturing is often part of successful economic revitalization strategies in communities with a historic lumber base.

Value-added forest products manufacturing provides several economic benefits, including:

- Increased profitability and sales prices
- Creation of higher “multiplier” effects
- Pricing flexibility to address material cost increases
- Employee hiring and facility construction

Innovative Forest Product Initiative Examples

- Hardwood harvesting for wine barrel construction
- Non-timber forest products collection and cultivation
- Pine straw collection and marketing
- Integrated, custom furniture manufacturing
- Custom-made housing products
- Enhanced wood products marketing
- Woody biomass recycling for lubricants, chemicals, building materials, other products
- Wood marketing for food flavor enhancements



Biomass Energy

Potential Economic Synergies

- On-site waste heat sharing or co-generation
- Local source of electricity and heat

Next Steps

Future Chlor-Alkali Reuse Planning Process Meetings

March 5th

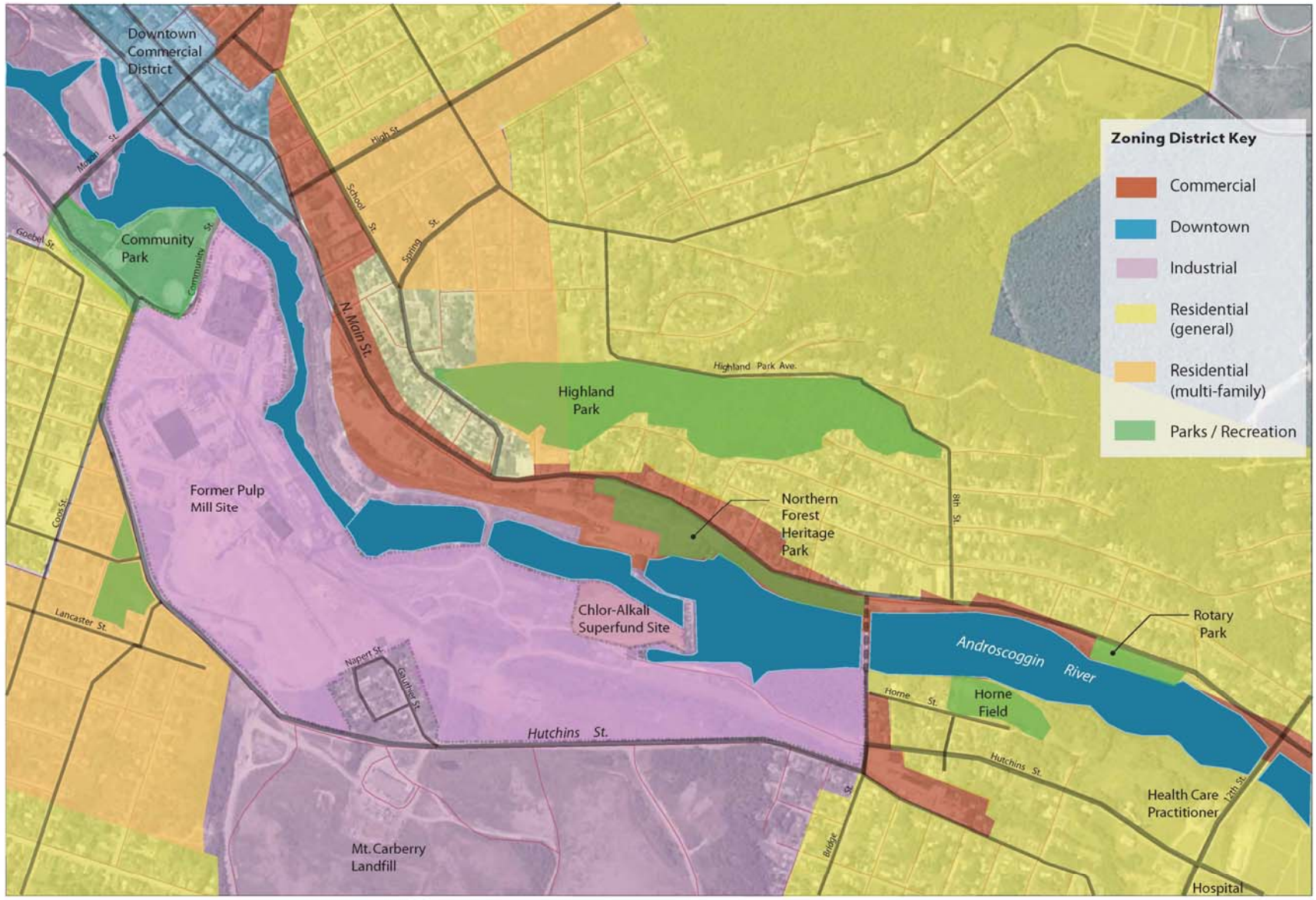
- Berlin Master Planning Process: Downtown Visioning Session

  Portion of public forum will provide opportunity for reuse planning committee to provide update on activities and obtain additional public input on the reuse of the Chlor-Alkali site.

April 29th

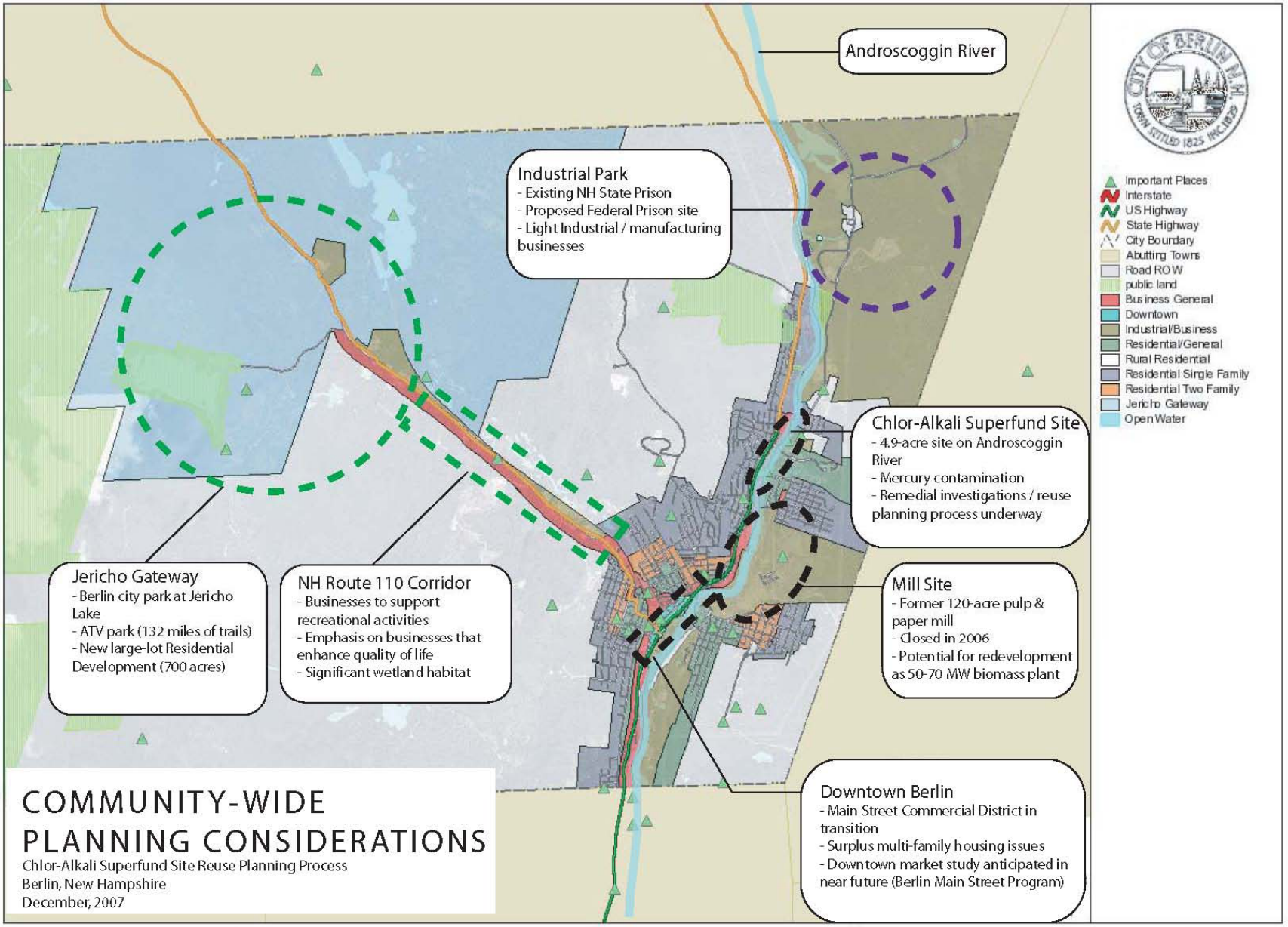
- 3rd Chlor-Alkali Reuse Planning Committee Meeting

  Consultant team will develop several future land use scenarios for the site based on RPC discussions and additional public input. These will be presented as drafts for the RPC's consideration.



CITY of BERLIN ZONING DISTRICTS

Chlor-Alkali Superfund Site Reuse Planning Process
Berlin, New Hampshire
December, 2007


Androscoggin River
Industrial Park
- Existing NH State Prison
- Proposed Federal Prison site
- Light Industrial / manufacturing businesses
Chlor-Alkali Superfund Site
- 4.9-acre site on Androscoggin River
- Mercury contamination
- Remedial investigations / reuse planning process underway
Jericho Gateway
- Berlin city park at Jericho Lake
- ATV park (132 miles of trails)
- New large-lot Residential Development (700 acres)
NH Route 110 Corridor
- Businesses to support recreational activities
- Emphasis on businesses that enhance quality of life
- Significant wetland habitat
Mill Site
- Former 120-acre pulp & paper mill
- Closed in 2006
- Potential for redevelopment as 50-70 MW biomass plant
Downtown Berlin
- Main Street Commercial District in transition
- Surplus multi-family housing issues
- Downtown market study anticipated in near future (Berlin Main Street Program)
CITY OF BERLIN N.H.
TOWN SETTLED 1825 INCL 1829
Important Places
Interstate
US Highway
State Highway
City Boundary
Abutting Towns
Road ROW
public land
Business General
Downtown
Industrial/Business
Residential/General
Rural Residential
Residential Single Family
Residential Two Family
Jericho Gateway
Open Water
COMMUNITY-WIDE PLANNING CONSIDERATIONS
Chlor-Alkali Superfund Site Reuse Planning Process
Berlin, New Hampshire
December, 2007
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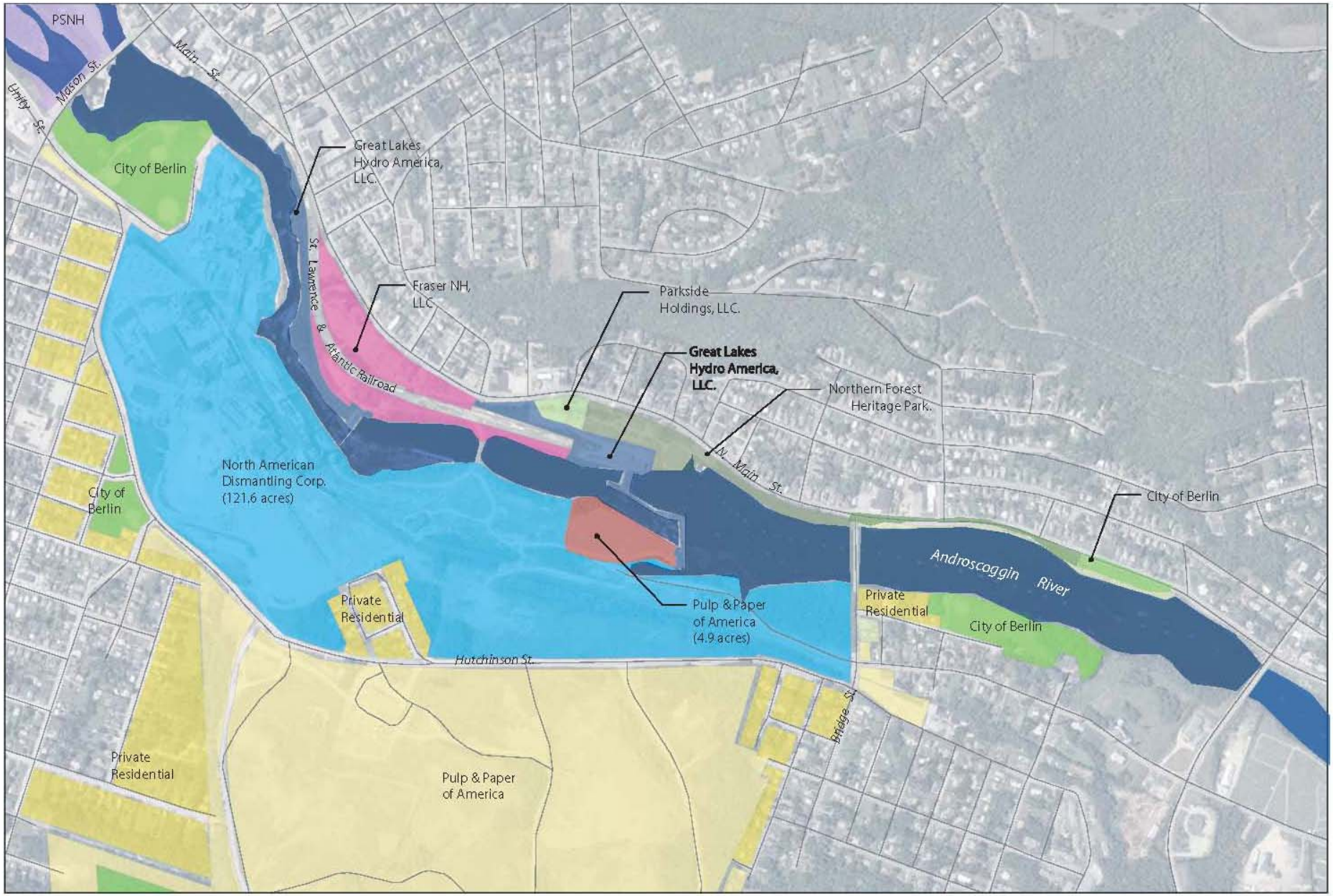

PROPERTY OWNERSHIP

Chlor-Alkali Superfund Site Reuse Planning Process

Biomass Energy

Overview

Biomass is a renewable energy technology that harvests heat energy from the burning, or decomposition of wood, plant matter, or other organic wastes.

Biomass Generation Systems

- Direct-fired
- Co-fired
- Gassification
- Modular systems

Biomass Generation Systems

- Utility-Scale Electricity Generating Plants
- Combined Heat – Power Plants
- Central Wood Heating Plants

Biomass Energy

Key Considerations

Biomass has both benefits and challenges associated with its use for energy production.

Benefits

- Renewable and locally available resource
- Market for surplus wood and organic waste
- Economic benefits for local and regional economies

Challenges

- Air pollution
- Traffic and noise
- Long-term, year round fuel supply requirements

Superfund Remedial Response Process: Potential Timeline for the Chlor-Alkali Site

2008 2009 2010 2011 2012 2013

1 Remedial Investigation / Feasibility Study (RI/FS)

Site conditions are evaluated. Data are collected to assess human health and ecological risks. A range of remedial action options are developed for a site's cleanup.

Future Land Use Considerations:

Community reuse goals can help to inform risk assessments and remedial action alternatives.

Reuse discussions can help to build realistic community expectations for a site's reuse.

This stage is an optimal time for reuse and remedy considerations to intersect.

2 Remedy Selection / Record of Decision

Cleanup levels are identified and a site's remedy is selected and documented in a Record of Decision (ROD).

During the remedy selection process, a detailed analysis of remedial action alternatives are weighed against nine criteria.

Future Land Use Considerations:

Future land use considerations are taken into account within three of the nine remedy selection criteria:

- overall protection of human health and the environment
- the long-term effectiveness of site remedies
- a community's acceptance of the Agency's cleanup plans

3 Remedial Design (RD)

Plans and specifications for a site's remedy are developed, the extent of contamination is confirmed through field sampling, and remedial technologies are tested for effectiveness.

Future Land Use Considerations:

Coordination between local governments, property owners, and EPA can help return a site to use as soon as possible by ensuring that reuse and remedial plans are compatible.

Reuse plans can be refined to identify more specific site uses at this stage.

4 Remedial Action (RA)

Funding for site remediation is secured and construction of a site's remedy begins.

Contaminated media are remediated to selected cleanup levels using remedial technologies described in the ROD.

Future Land Use Considerations:

Timing of remedial construction and reuse plans can be coordinated.

Phasing of site's redevelopment can help to shape the timing of remedial activities.

5 Post Construction →

Post-construction activities include:

- operation and maintenance
- long-term response actions
- institutional controls (ICs)
- Five-Year Reviews
- site reuse

Future Land Use Considerations:

Site owners, state and local governments, and responsible parties may all play a role in a site's long-term stewardship.

Implementation of ICs requires collaboration among multiple parties. Many ICs can only be implemented by local governments or private property owners.

Site can be returned to use.