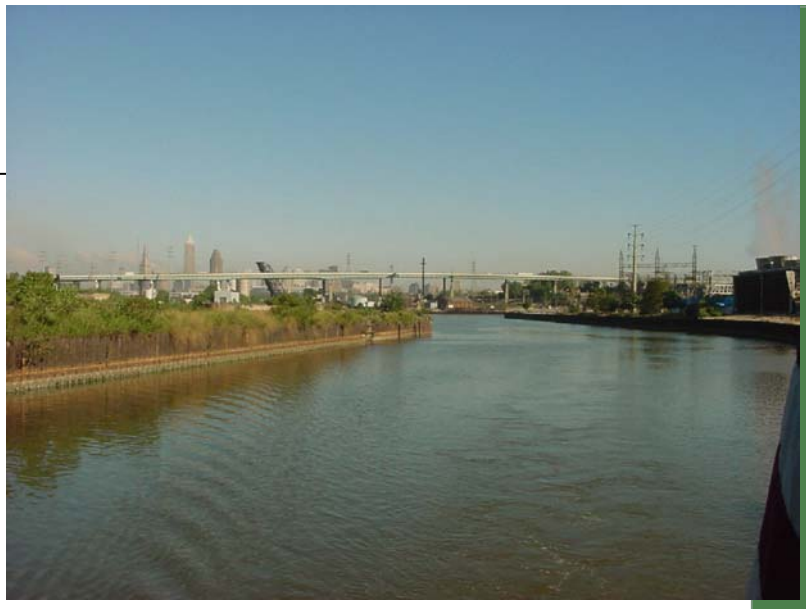
Cuyahoga Valley Initiative Idea Package Summary Healthy Valley



Create an ecology to restore and heal the natural systems, integrate with the built systems, and sustain the distinct land forms of the Valley.

Introduction

Restoration of the Cuyahoga Valley to a healthy system for economic, social and ecological purposes can not be achieved without truly understanding the historical nature of the place. Ecological restoration as defined by the Society of Ecological Restoration (SER) is the "process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed."

The Cuyahoga River Valley clearly has been degraded and destroyed by its industrial past, historical growth patterns, and typical design practices. The River served as a international symbol for ecological restoration in 1972 as it burned with volatiles and pollution after years of unregulated degradation and resulted in the U.S. Clean Water Act.

This movement launched a number of initiatives for the Cuyahoga River which includes its designation as one of 43 Areas of Concern established by the Great Lakes Water Quality Agreement in 1987. However, after continuing efforts to clean up the river by governmental agencies and community interest groups, the river remains unhealthy, limits economic development and prohibits human interaction with the river's resources.

The Valley Restoration Idea Package, will determine a strategy in which a community restoration of the valley and its river can be fulfilled based on ecological restoration principles to restore the valley's natural resources, develop healthy business practices and create a healthy place for social interaction based on the natural systems of which the valley was established upon.

Existing Conditions

Natural History of the Valley

The Valley is a distinct result of pre-historic times during the glaciation of the earth's surface. As the glaciers retreated to Lake Erie, the wide valley was formed with a narrow river channel. This wide valley and small channel provides a distinct scale to the area and can assist in understanding how the land was formed.

When Moses Cleveland founded the City of Cleveland, he entered into the channel where the marshlands surrounded ithe lower delta of the valley mouth to the Lake and he forged onto a ridge of dense forests.

As one source document states, Moses Cleveland describes his arrival to the Valley as they ascended the bank of the river *"the land level, covered with Chestnut, Oak, Walnut, Ash and some sugar Maple. There are but few Hemlocks, and those only on a mergin of Swamp, pond and Lake."*

Historically, the Valley was divided into three topographic characteristics; Lake Plains, Eastern Highlands and Southern Highlands with other sub –areas consisting of till plain, floodplains and

stream valleys, escarpment edge, ravines and gorges, and Lake Erie beach line and contiguous marshes.

The Cuyahoga Valley Lake Plain consisted of a mixed forest that varied with topography, drainage and soil, but had species such as Chestnut, Oak, Ash, Tulip, Maple, and Sycamore.

The Eastern Highlands consisted of Oaks, Chestnuts, Tulip, Ash, Beech, Sugar Maple, and Shagbark Hickory. The Southern Highlands also consisted of Beech, Sugar Maple, Hickory, Ash and Tulip. As described, the Valley was a vast forest with a large plain out to the lake that distinguished itself to early settlers.

The river itself was a winding river throughout its journey of the Valley and originally emptied near the existing Westerly Wasterwater Treatment Plan, until industrialists needed an easier channel to bring ships into and opened what is now the distinct mouth of the river to Lake Erie.

Clearly the early natural features of the Valley are seen in rare sections of the Valley, but provides a sense of the historical nature at which existed for these physiographic conditions.

The Lake and the River Mouth
Lake Erie and the confluence of the Cuyahoga create a unique ecosystem which scientists call lacustuary and influences how the river performs from north of Harvard Road to the mouth. Additionally, the Valley's land form patterns of a delta is very distinct and needs to be treated differently in plant selection, river patterns and weather forces.
As mentioned earlier, the presence of marshlands in this area can provide new fishery opportunities as well as cleansing systems for stormwater and wastewater.

The River and its Tributaries
The River is the baseline indicator of the conditions and viability of the Valley. Currently the river is improving with the introduction of federal and state regulations and an active citizenry support network. However the current conditions remain unhealthy for human interaction and habitat survival and diversity, thus limiting its full potential as a community resource. The Cuyahoga River is severly limited as its tributaries are buried, channelized andencroached upon by past and current development patterns. Land use cover that is dominated by impervious cover surfaces, non-native landscaping practices and no integration of the underlying ecological system limits the riparian health and hence water quality of the river.

Water Quality
As reflected in the Working River Idea Package, the quality of the river remains to be impaired for "fishable, swimmable, drinkable" use. The present conditions greatly limits the access and ecological diversity that could be part of the river system and the valley.

Floodplain & Wetlands
The Cuyahoga River floodplain continues to function where it is in tact. However, much of the floodplain has been filled or

developed upon which has caused flooding problems for communities in intense storm events.

Wetlands within the Valley are seen as a mitigation commodity to utilize in other watersheds and are rarely mitigated within the Cuyahoga Watershed. This poses a problem for stormwater retention, biodiversity and water quality infiltration. A study to be complete by the Cuyahoga River Remedial Action Plan to assess remaining wetlands will set forth priority areas to protect these last reserves. However, the study will not identify potential areas for mitigation or renewal of wetlands in soils with hydric characteristics. Determining the feasibility of these designations, would pose an opportunity to keep wetland mitigation projects with the Cuyahoga Watershed.

The implications of the U.S. EPA Phase II Stormwater requirements need to be considered in determining alternatives to remediate water quality and subsequently water quantity for the Cuyahoga Valley and its tributaries. The federal requirements established six minimum measures for communities to enforce; 1) Illicit Discharges, 2) Construction Run-off, 3) Post Construction Run-Off 4) Good Housekeeping, 5) Pollution Prevention and 6) Public Education/Outreach. These requirements will pose an opportunity to introduce innovative strategies to the communities on a watershed basis to work collectively in meeting the requirements of the program.

Community Tributaries

The Cuyahoga Tributaries are the feeders for both water resources as well as for neighborhood resources. These secondary stream systems currently are underserved as conduits from neighborhoods to the Valley wide system. The streams are regarded as non-essential, already degraded or hugely expensive to restore.

One example is the Central Neighborhood in which Kingsbury Run travels through in a pipe. The neighborhood has historically been divided with the transportation systems passing over the area and is largely confined by the infrastructure of rail and roadways. However, the neighborhood has an untapped resource of Kingsbury Run that could serve as the organizing element at which to restore and provide community action for the entire neighborhood.

There are a number of major tributaries are buried, which include Kinsgbury Run, Walworth Run and Morgana Run. These tributaries have been buried for over 40 years and we're largely buried for development purposes. These tributaries are buried deep in a culvert in ranges of 35-60' deep. These depths poses a challenge in actually daylighting the stream channels to the original form, due to cost. Evaluating other strategies to restore these tributaries will need to be developed.

Recognizing the importance of the tributaries as more than a water resource to the river, will establish well defined areas of priority for communities to engage in restoration, economic activity, and connection to the large Cuyahoga Valley resource network.

Headwater Streams

Headwater streams are the small network of streams that are generally less than one square mile and provide benefits to the larger river system they are connected to. These benefits include as documented by Ohio EPA include; sediment control, nutrient control, flood control, wildlife habitat corridors and water and food supply to nourish downstream segments with organisms. As these streams are identified to be a valuable asset in attaining water quality for a watershed, the Cuyahoga River Watershed communities does not recognize their importance. The burial and culverting of the headwater streams is an ongoing practice in land development practices.

Habitat

The habitat related to plant, aquatic and wildlife communities are severely limited due to the health of the river. However the activities on the land pose additional challenges to restore the river's waters as well as provide a healthy resource to the community.

Toxics, land development and management, and disconnection of resources provide the baseline of patterns that exists in the valley. However if the assets of the Valley are exposed, the restoration

ingredients could be provided. One example is the bird migratory route for Northeast Ohio and the Ohio coastline. This region serves as the convergence of two or three migratory routes for various species of birds. Utilizing these migratory patterns as an asset to restore seed disbursement of the valley poses opportunities for the Valley.

Another example of the valley's habitat assets is its floodplain and historical swampy marshlands in the northern section of the valley. Reintroduction of the floodplain and marshlands would provide an opportunity to expand the diversity of the biotic communities, provide new fishery areas and diminish the need for built infrastructure for water management solutions. These are two examples of how utilizing existing resources and its historical patterns with new innovative approaches could create the biodiversity within the Cuyahoga Valley that is reflective of the Cuyahoga Valley National Park for the entire Valley landscape.

Re-establishing the biodiversity of the Valley would greatly benefit the valley to strengthen the habitat communities present, eradicate the invasives, and re-introduce species. These factors would play a role in integrating with the economic and social assets for communities and expand upon which to frame future decisions.

Soil, Slopes, and Land Making

The USDA soil survey defines the valley mostly urban land with hydrologic characteristics of __ type soils. Due to the glaciated till and shale present along the Valley bluffs, the soils are naturally, highly erodable. This limits the soil the ability to contain the amendments needed to grow native plant species and foster fertile soil for food production and gardening. Current development patterns are accelerating this rate due to slope cutting, irregular cutting and filling and lack of vegetation cover on hillsides.

These issues are directly affecting the river's and its tributaries viability. The sediment load suffocates the stream and prohibits insects and fish to survive, thus limiting the aquatic life for the streams and river. Solutions such as sedimentation capture areas, establishment of riparian buffers, natural stabilization practices and proper grading practices could assist in the sedimentation contribution to the river.

Plants

The Cuyahoga Valley National Park serves as a historical trajectory of the biological as well as the cultural resources that were prevalent in the Cuyahoga Valley pre-industrialization. The reflection of this resource provides the backdrop for remnant landscapes throughout the valley. Small pockets of forests of beeches and maples that have aged 75 years still remain today throughout the valley. However, these resources continue to be threatened by pressing development patterns and stand unprotected. They also stand alone in patches with not interconnection of resources for habitat corridors. The historical plant palette is not utilized in current landscaping requirements for development, nor is the use of phytoremediation plants considered as an aesthetic appeal as well

as a

functional approach to site planning in the valley.

Human Health

As results of government agency sampling studies and citizen action resources the Cuyahoga River conditions continue to inhibit human health interaction in four categories as discussed in the Human Health Working Group of the Cuyahoga RAP: fish consumption, bacteria, toxics and pesticides.

In addition to these river conditions, the air conditions as a result of heavy industry use, the pooling effect of air in the valley as a pocket to retain air masses, and the highway network with vehicle emissions, poses an air pollution threat that limits and already impacts the health of the people that live in the surrounding neighborhoods as well as the employees. There are two problematic air pollution contributors in the Cuyahoga Valley region, particulate matter and NOx or nitrous oxide. These are largely caused by the industrial nature of the valley as well as the large road network it encompasses.

The third human health issue related to the valley is the soil condition. Many of the urban soils related to brownfields and urban use contain toxics that restrict the use of land for food production and utilization for other community resources.

These conditions have had correlation with human health conditions related to cancer, respiratory issues such as asthma, nervous system disorders and debilitation on the immune system. Young children and the elderly are especially vulnerable to these conditions as their systems are either developing or diminishing.

These conditions limit the utilization of river and its valley as a viable center for livability for human and habitat, and restricts the food production in both fishery and agricultural land. Clearly, these health risks limitations can be solved with innovative approaches for stormwater and wastewater treatment, natural air filtration systems, removal of toxics prior to river entry and alternative methods for pesticide elimination.

Healthy Neighborhoods

The neighborhoods on the rim of valley are reflective of the New Urbanist movement at which suburbs around the world are trying to create. The close knit communities of Cleveland are dense with diverse uses and the suburban communities provide town centers as an anchor for their establishment and viability. However, the remnants of single land use categorization, a disconnect of the resources with alternative transportation networks, and limited access to services for fresh food prevent the Valley has a healthy place to prevail in the current valley landscape.

These challenges, as is the case throughout the country, continues to expand the concern for obesity of a community and the dependence of a vehicle to travel to the services and resources available for the community. Additionally, these land use patterns limit the quality of life aspects of a community by limiting the choices for transportation, recreation and workplace environs.

One example of this is Independence. The community is a well established and successful community with a center of economic activity, good neighborhoods, a historic town center and a wonderful recreational and civic facility for its residents. However the community which abuts to the Cuyahoga Valley National Park has no established route or distinguished connection to the Park. This added value to the existing resources could strengthen Independence as a tourism portal to the National Park, expand its recreational and natural resources to the residents and add an amenity to the business community to bring employees and businesses to their community.

Providing communities with networks that are safe, enjoyable and healthy needs to be a driving principle in the Valley's future.

Components

To achieve full restoration of the valley, the health of the entire community needs to be accomplished and thus is developed by three components; 1) Clean River and Tributaries, 2) Healthy Neighborhoods and 3) an Integrated Ecosystem. All three components need to be accomplished to re-establish the valley as a place to live, work and play in concert with the ecological system of the river valley and relate to the other Idea Packages. These components are outlined as follows to frame the goals and basic principles for the Idea Package.

Clean River and Tributaries

- Reduce and eliminate emissions at all sources
  - Air emissions
  - Water
  - Soil
- Re-create a naturally-functioning watershed
  - Increase permeable surface area
  - Daylight streams/reduce culverting
  - Use natural bulkheading and shoreline where possible
  - Preserve or create wetlands through bioremediation
  - Connect elements to create an integrated wastershed system

Healthy Neighborhood

- Use Green Building Techniques for new construction and renovation
  - Public infrastructure promoting healthy living
  - Proximity to parks, recreation facilities, and Greenspace
  - Proximity to integrated trail network.
- Traditional Neighborhood Design promoting walkable neighborhoods
  - Goods and services promoting human health
  - Connection to health services, including clinics, hospitals, and other health service providers
- Access to healthy and affordable food
  - Grocery stores with fresh fruits and vegetables
  - Local restaurants with healthy food

Integrated ecosystems

Promote native species rather than invasive species
Increase bio-diversity
Preserve, protect, and create wildlife corridors

Opportunities

Establishment of Riparian Buffer in Designated Sites as Pilot Restoration Areas
Prioritize area of vacant and underutilized lands within designated riparian areas to foster innovative riparian setback strategies.

Development of a Regenerative Ecology Strategy –

Stormwater – Recharge Areas, Infiltration Areas, Wetland Pools, etc
Plant Habitat – Re-establish Historic Plant Stock,Phytoremediation , Filtration Plants, Diversify habitat
Soil/Slope – Stabilize Slope, Re-establish healthy soil
Protection and expansion of Landscape Remnants – Biodiversity Plan
Development of a Seed Source Nursery Stock for Cuyahoga Valley Restoration Projects.

Land Grading Design Movement – Initialize a new strategy to land development and the grading techniques to sustain the Valley's landforms in development practices and to utilize cut and fill techniques using innovative approaches to minimize erosion and sedimentation.

Incentive Based Program to encourage proper site development, management and maintenance. (Riverkeeper Inspection approach to enforce and assure compliance)

Wetland Reserve Re-Entry Program – Provide incentives to re-establish wetlands, minimize exports of wetlands and develop design strategies unique to Valley' historical wetlands structure.

Tributary Protection and Daylight Program –Provide codes and incentives to eliminate burial and culverting of tributaries and headwater streams, as well as daylighting existing buried streams and removal of dams no longer needed.

Current Efforts/Activities/Reports

Cuyahoga RAP Wetland Delination Study
NEORSD CSO Study – Westerly CSO Phase II Facilities
NEORSD RIDE Study – Intercommunity drainage evaluation.
OEPA TMDL Study
Rowing Club Planning Activities
Cuyahoga County Planning Commission Greenspace Plan
NOACA – Phase II Stormwater regulations guidelines
Cuyahoga County Planning Commission Towpath Trail Study

List of Technical Experts/Potential Partners

Steve Tuckerman – OEPA
Jim White- Cuyahoga RAP
Clean Air Conservancy
Northeast Ohio Regional Sewer District
Cleveland Metroparks
Cleveland Museum of Natural History
ODNR – Dan Mecklenburg
Nature Conservancy

Maps

1. Landscape
2. Historic Hydrology

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