

The Avtex Fibers
Conservancy Park Master Plan Report

Front Royal, Virginia

March, 2000

Prepared For:
FMC Corporation
Environmental Protection Agency

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2.0 Stakeholder Planning Process

Background

The 500 acre Avtex Fibers site is located along the South Fork of the Shenandoah River in Front Royal, Virginia, and was the location of a former rayon manufacturing facility. The rayon plant was first operated by the American Viscose Company from 1940 to 1963 and then by FMC Corporation from 1963 to 1976 and Avtex Fibers, Inc. from 1976 to 1989. In 1989 the plant was shut down for financial, environmental and safety reasons and Avtex declared bankruptcy.

Because of pollution associated with plant operations, the Avtex site was designated a Federal Superfund site by the Environmental Protection Agency (EPA) in 1986. After Avtex shut down in 1989, EPA conducted a number of environmental cleanup (remediation) projects, culminating with demolition of 30 acres of plant buildings in 1998. A Consent Decree between EPA and former owner FMC, effective October 1999, calls for FMC to conduct the remaining remediation work at the site. This work involves closure of former waste impoundments (basins) along the River, cleanup of remaining buildings, and remediation of impacted soil and ground water. Over 100 acres of industrial waste impoundments are located on the 180 acres of the site between the railroad tracks and the Shenandoah River (basin area). Three types of waste materials, sulfate sludge, fly ash and viscose are present in the basins. Closure of the sulfate and fly ash basins is current underway, and is termed the "Basin Closure Project". FMC and its environmental consultants are in the process of finalizing engineering plans for the Basin Closure Project. Following EPA's approval of these plans, construction work in the basin area is scheduled to begin in the summer and fall of 2000.

Report Purpose

The purpose of this document is to present the Conservancy Park Master Plan for the Avtex Fibers Site. This report describes the stakeholder process and provides information on the input received and products produced during a series of community workshops. The process took place over a four-month period from October 1999 through January 2000 and resulted in a Master Plan for a conservancy park within the basin area. Construction drawings, based on this Master Plan, are being incorporated into the remediation design package for the Basin Closure Project.

The anticipated future use of the basin area is open space and conservancy. In order to ensure that the reclamation work to be undertaken by FMC and EPA complements the future use, a Stakeholder Planning Process was used to develop an end-use vision for the basin area. The concept of integrating future use with the Superfund cleanup process is being strongly promoted by the EPA through the new "Superfund Redevelopment Initiative". In fact, the Avtex Fibers Site has been named a pilot in the new initiative and the community will be awarded a grant to facilitate their redevelopment efforts.



View of the Site from Skyline Drive

2.0 Stakeholder Planning Process

Stakeholder Planning Process

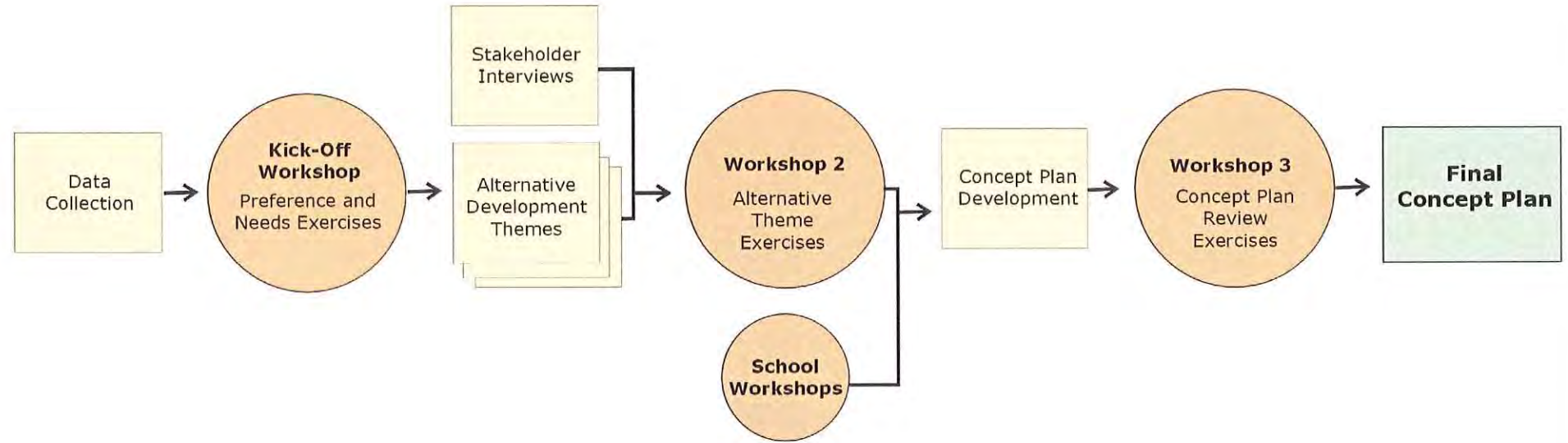
The Stakeholder Planning Process was designed to facilitate open and interactive collaboration to create an end-use vision for the basin area property. FMC Corporation, EPA, the local Economic Development Authority (EDA), Virginia Department of Environmental Quality, Virginia Game and Inland Fisheries, government agencies, town planning officials, local environmental, business, and community groups, and site neighbors worked together to develop a Concept Plan for a conservancy park in the basin area. Based on the National Standard for Sustainable Brownfields Redevelopment E1984-98, the stakeholder process encouraged input from all parties to help develop planning and design solutions and build ownership of the final plan. In order to achieve consensus and develop a successful plan, the process focused on three goals:

- To ensure that all opinions and viewpoints heard were understood.
- To communicate important site information pertinent to the plan and design.
- To generate and evaluate alternative concepts for park development.

The Stakeholder Planning Process was based on a series of stakeholder workshops: the Kick-Off Workshop focused on understanding community needs and preferences, Workshop 2 helped define a concept for the park, and Workshop 3 defined the preferred solution. The workshops were structured to minimize long presentations and encourage interaction between individual stakeholders. A series of individual and group exercises enabled stakeholders to express personal and group concerns while also listening to the concerns of others. Team members facilitated the discussions and helped document issues and ideas. Individual workshop results are described on the following pages.



Stakeholder Site Visit



Process Diagram

Questionnaire Results

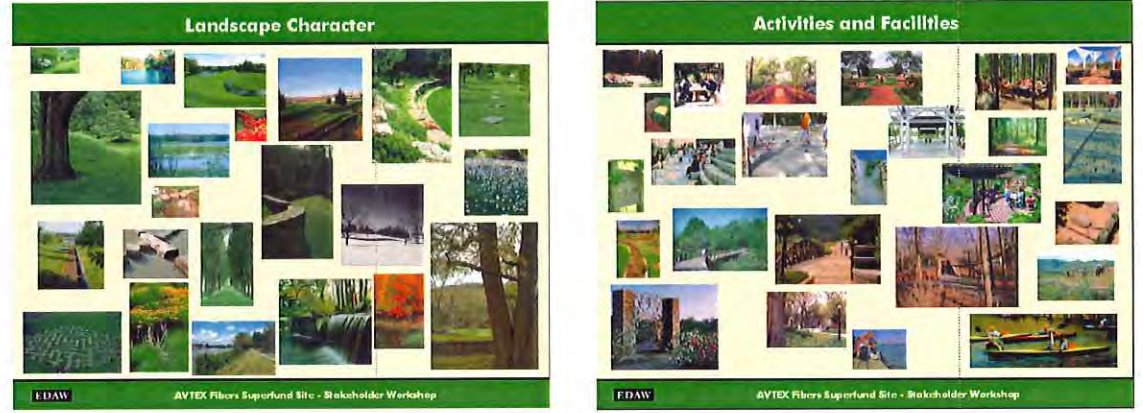
What activities should be offered at this park?

- 1 Hiking/Walking
- 2 Picnicking/Picnic Shelters
- 3 Biking
- Environmental Demonstration Area
- 4 Fishing
- Environmental Learning Center
- Birdwatching
- Multi-Purpose Field
- 5 Boating/Boat Launch
- 6 Nature Walk

What should the South Fork Waterfront Park look like in the year 2010?

- A natural, undeveloped landscape
- A landscape reflecting the site's evolution and history
- A park with good, easy public access to river
- A park with trails, benches and environmental education center.
- A park with limited parking, picnic shelters, sports fields, boating and fishing
- A park where families and friends can picnic, relax, and enjoy nature
- A park with children learning and playing before, during, and after school

Visual Preference Results



Landscape Character and Activities and Facilities Image Boards

Survey Results: Visual Preferences

Landscape Character	Activities and Facilities
<p>POSITIVE RESPONSE</p>	<p>POSITIVE RESPONSE</p>
<p>NEGATIVE RESPONSE</p>	<p>NEGATIVE RESPONSE</p>

EDAW AVTEX Fibers Superfund Site - Stakeholder Workshop

Response Summary Board

Kick-Off Workshop

The Kick-Off Workshop, held on November 15, 1999, helped the stakeholder group and the consultant team get a preliminary understanding of community recreational needs and preferences. After a brief overview of the team's recreational and environmental experience, participants were asked to fill out a questionnaire with the following questions:

1. What parks do you frequent? How often? What activities draw you to these parks?
2. What would you like to do at the South Fork Waterfront Park in the year 2010?
3. What activities should be offered at this park?
4. What should the South Fork Waterfront Park look like in the year 2010?
5. What should the park be named?

The stakeholders identified hiking and walking as the most preferred activity with other passive recreation and environmental interpretation activities close behind. They also envisioned a natural, undeveloped landscape with limited park infrastructure to enable families and friends to relax and enjoy nature.

The second exercise at the Kick-Off Workshop focused on visual preferences within the Stakeholder group. Two image boards were presented to the group: a "Landscape Character" board and an "Activities and Facilities" board. Participants were given green dots and red dots, and asked to place a green dot on any image that best represented what they envisioned for the park and to place a red dot on any image that least represented what they would like to see in the park.

The results of the image exercise reveal the diversity of preferences within the stakeholder group. The majority of participants favored a natural landscape character with few built features and a passive recreation experience that focused on trail and water activities.

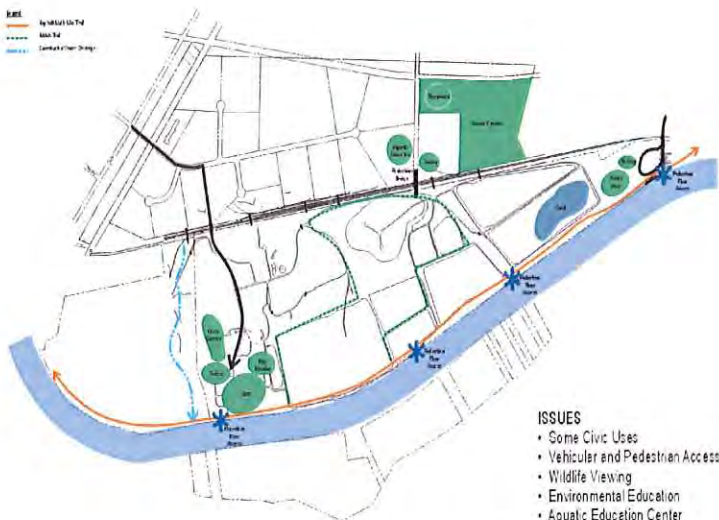
At the end of the Kick-Off Workshop, a series of interviews were scheduled to give stakeholders and interested individuals an opportunity to discuss specific concerns and to provide information.

Workshop 2

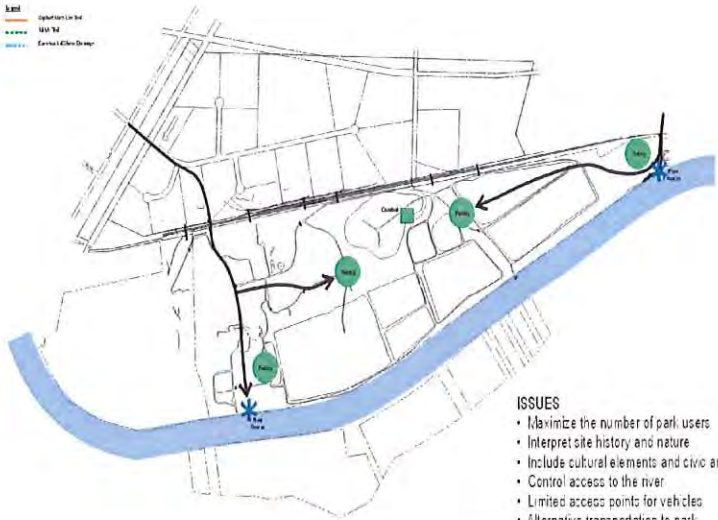
The goal of Workshop 2, held in two sessions on December 13, 1999, was to generate preliminary concepts for the park master plan. After a brief presentation of the questionnaire and visual preference results, the team introduced three alternative park themes to the stakeholders, including an “Ecological” theme, a “Passive Recreation” theme, and a “Civic” theme. The three themes were developed based on the needs and preferences expressed during the Kick-Off Workshop.. The stakeholders broke into 5 groups to discuss the themes and decide what they liked and disliked about each. They were then asked to bring together the elements that they liked from each theme into a single concept drawing.

The majority of the groups gravitated toward the “Ecological” and “Passive Recreation” themes, while only one preferred the “Civic” theme over the others. Most of the group concepts focused on access to the park, wildlife areas, trails and river access. A few of the main points of discussion included:

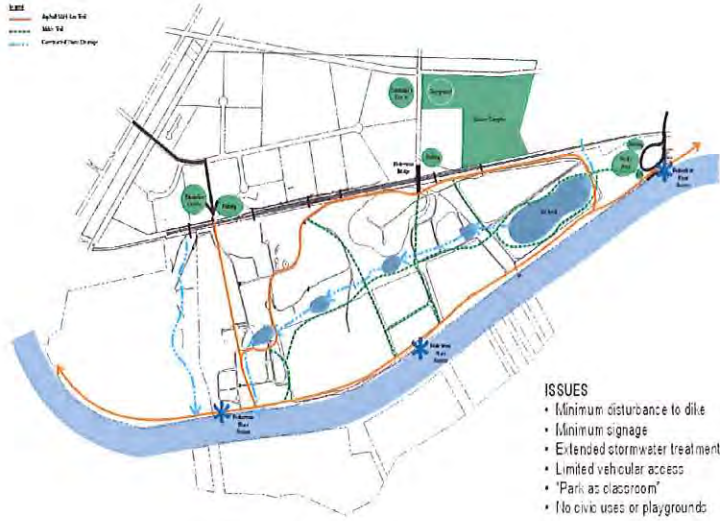
- Providing access and activities for all members of the community.
- Enhancing pedestrian connections to the town of Front Royal.
- Interpreting the site’s history and its environmental features.
- Limiting vehicular access across the site.
- Providing sufficient habitat for existing fauna on the site.



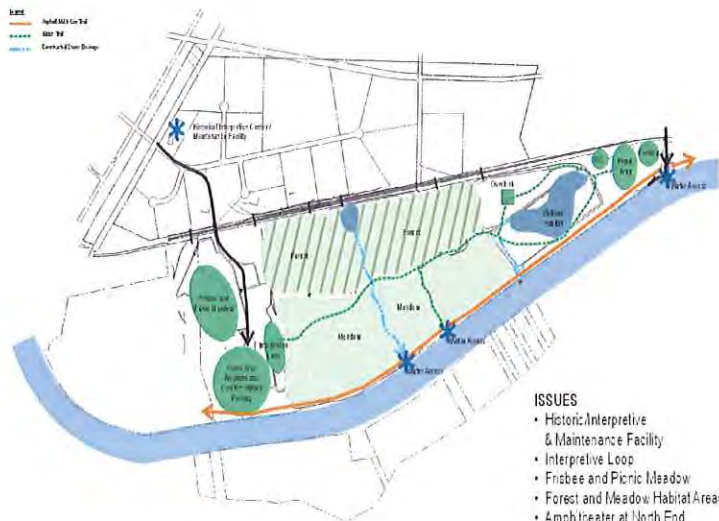
Group 1 Concept



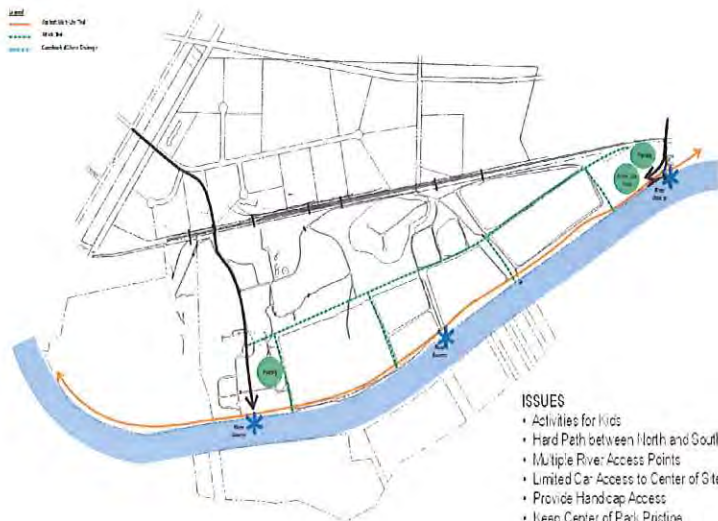
Group 2 Concept



Group 3 Concept



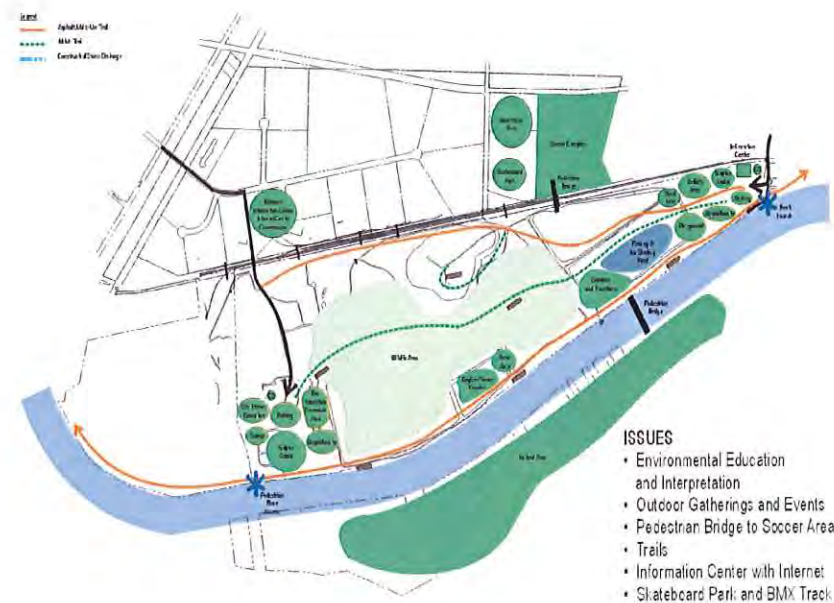
Group 4 Concept



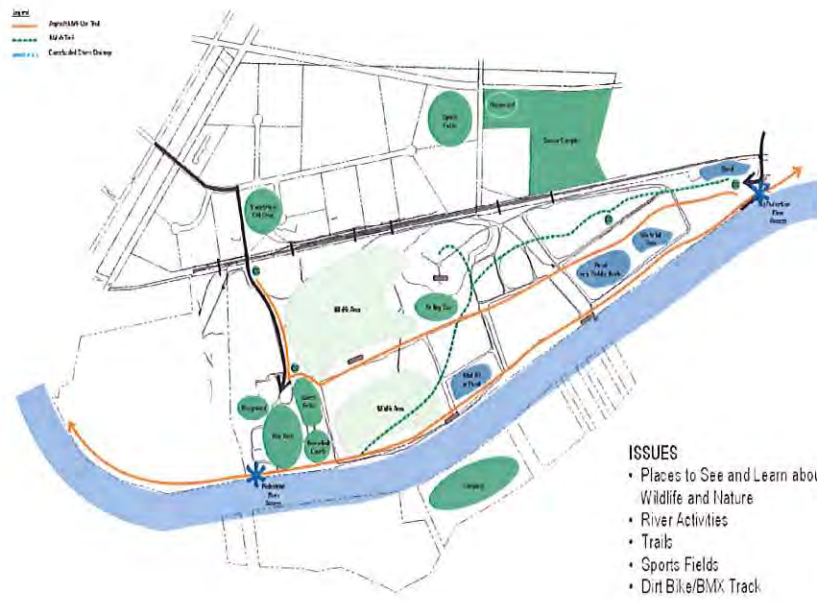
Group 5 Concept



Stakeholder Break-out Group



High School Workshop



Middle School Workshop



Junior High School Workshop

School Workshops

After Workshop 2, additional workshops were conducted at the High School, Junior High School, and Middle School. These school workshops were designed to gather ideas on how teenagers would like to use the park and what would be good for the community. Each workshop began with a short presentation describing the Avtex site, the Basin Closure Project, and how planners and landscape architects approach park design. The students then broke into small groups and were asked to talk about what types of activities they liked to do outside and what types of activities would be good for the new park. They were then asked to locate these activities on a site plan.

Although many of the students asked for active recreational uses, such as ball fields and watersports, which cannot be accommodated in the basin area, many others emphasized the need for trails, picnic areas, and places to view wildlife. Some of the active uses requested may be accommodated on other portions of the Avtex property or in other parks in Front Royal.

Common program elements between the school groups and the adult groups include:

- Trails
- River Access
- Picnic Area
- Environmental Education
- Interpretation
- Ponds and Wetlands
- Wildlife Habitat
- Wildlife Observation
- Limited Vehicular Access
- Emergency Access
- Pedestrian Connections
- Outdoor Gathering Areas

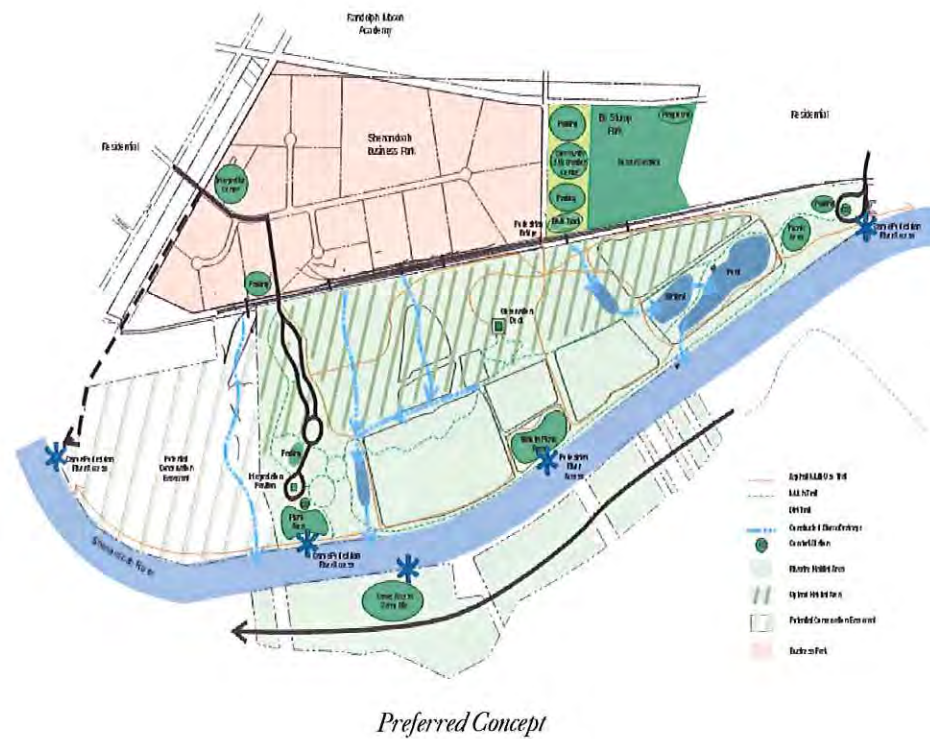
Workshop 3

Workshop 3 was held on January 18, 2000. The goal of this workshop was to get the Stakeholders' thoughts and comments on a draft Master Plan for the site. The planning team began the workshop with a brief presentation on legal landuse restrictions governing the site and the proposed construction phasing, followed by a presentation of the draft Master Plan and its different elements.

In order to facilitate discussion of the plan, the planning team generated five diagrams of the draft Master Plan. The first was a generalized diagram of the entire scheme and the others were detailed diagrams of specific elements of the scheme, including: "Wildlife and Conservation", "Circulation and Interpretation", "River Use", and "Access and Connections".

Participants were asked to divide into four groups and to discuss each diagram for ten minutes. The majority of groups supported each of the elements and the draft Master Plan with only minor changes, such as the addition of a chestnut grove. Many groups also discussed the importance of plan implementation and long-term management of the site by its future owners.

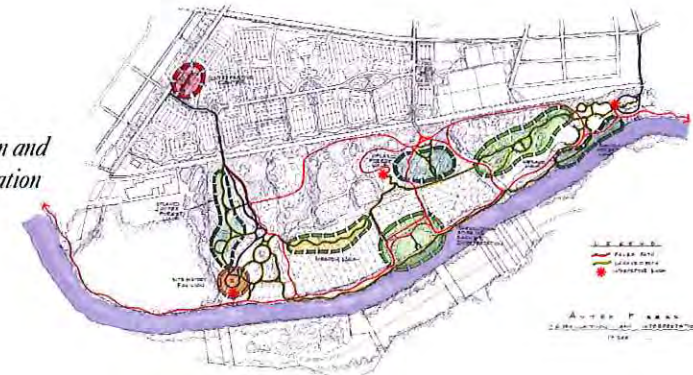
Comments from Workshop 3 that may impact the Basin Closure Project are being evaluated by FMC and EPA and will be incorporated into the remediation design package as appropriate.



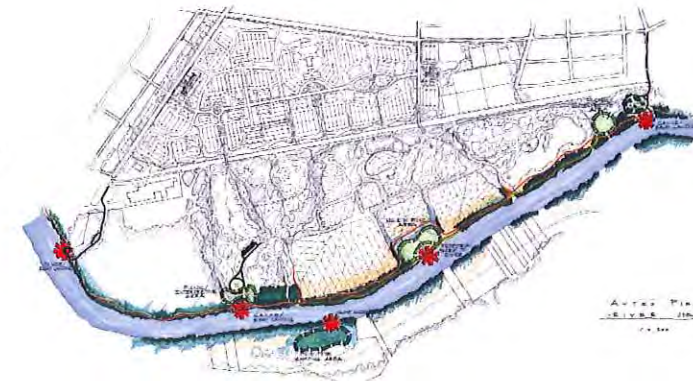
Wildlife and Conservation



Circulation and Interpretation



River Use



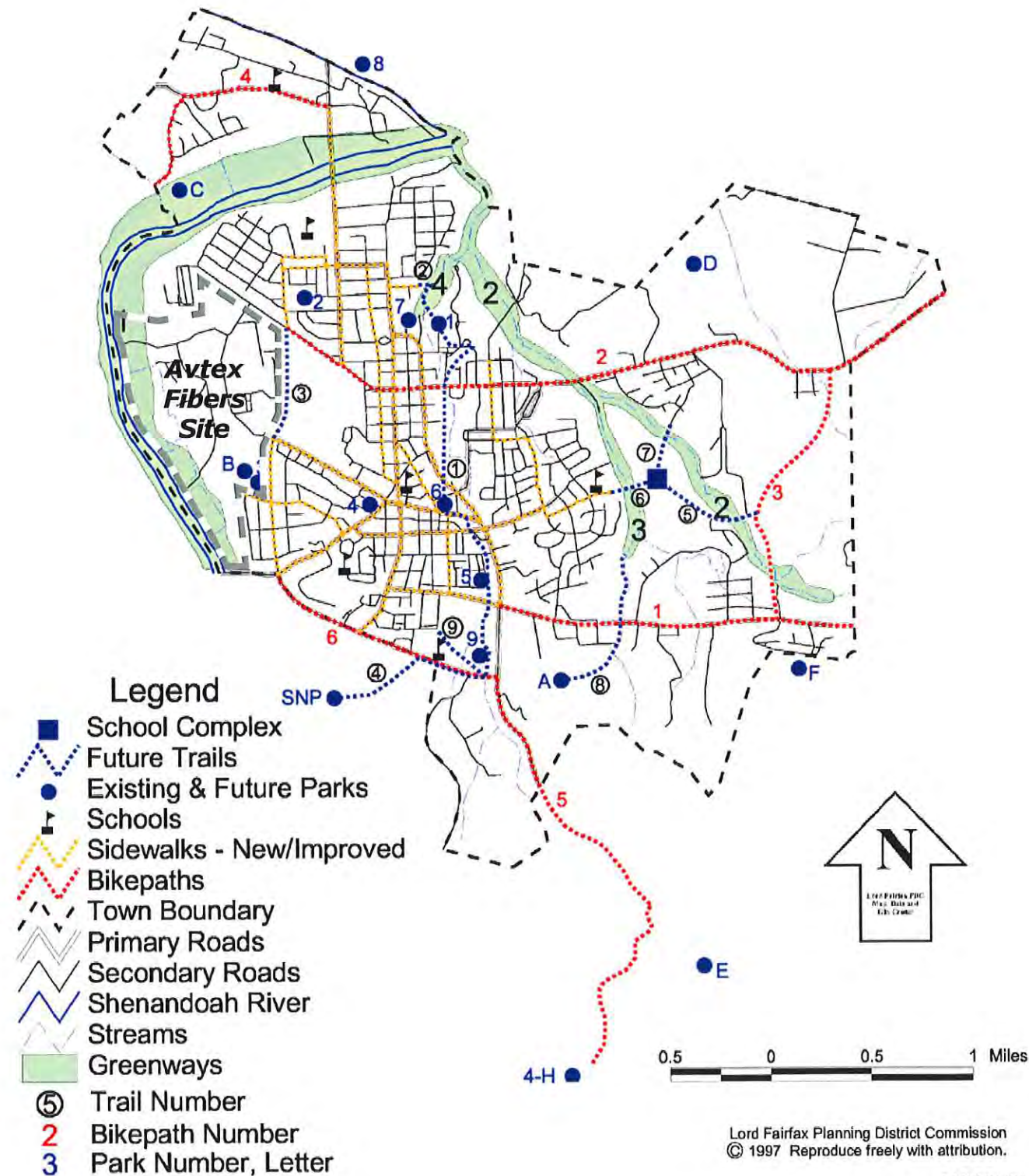
Access and Connections



Workshop #3 Plan Review

3.0 Site Characteristics

Front Royal's Plan for Parks, Trails, Bikeways and Greenways



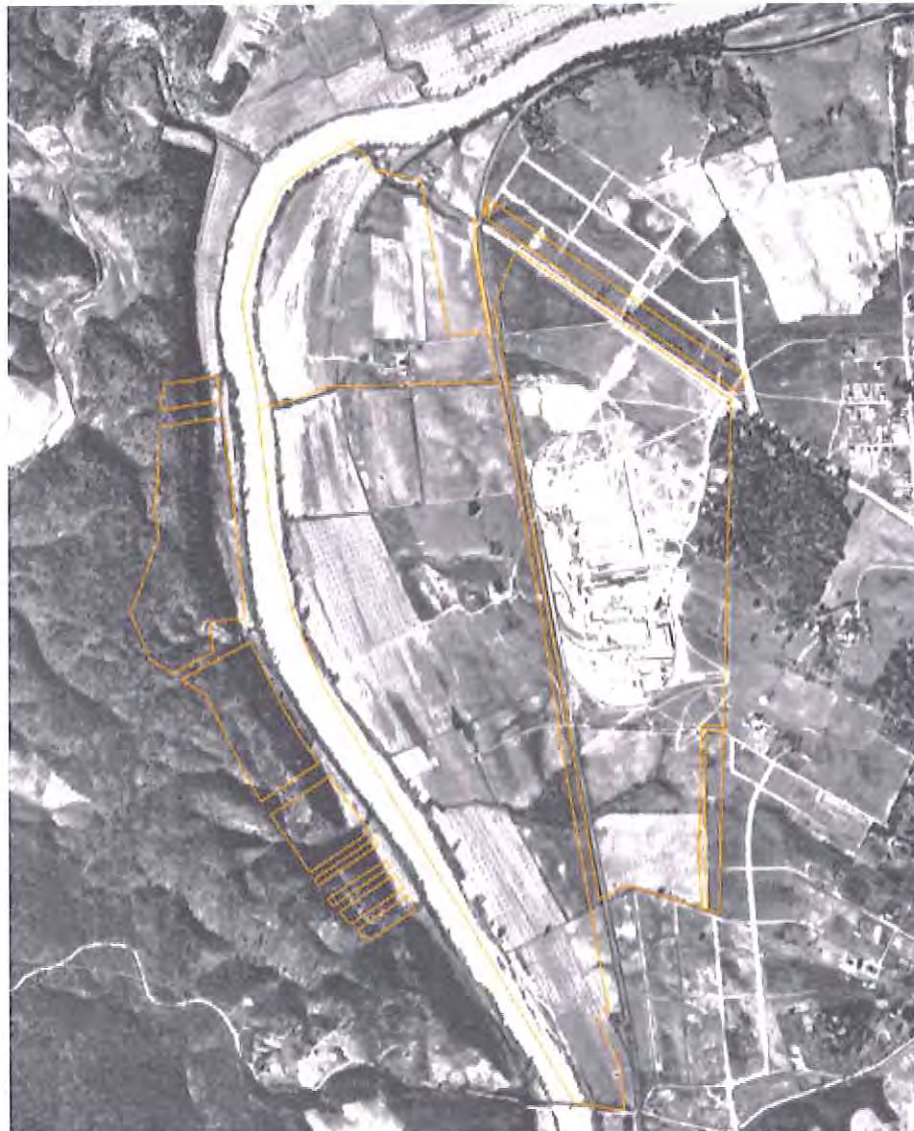
Site Context

Most of the Avtex Fibers site (about 430 acres) is located within the municipal boundaries of the Town of Front Royal on the east bank of the South Fork of the Shenandoah River. Some 70 acres of Avtex property is situated on the west bank of the river in Warren County jurisdiction. The site is surrounded by the extraordinary beauty of the Shenandoah Valley and is within sight of the Blue Ridge Mountains. Re-development of the site should reflect its central location within Front Royal, while also recognizing its close proximity to the Appalachian Trail and Skyline Drive within the Shenandoah National Park and George Washington National Forest.

Front Royal is a growing community of approximately 13,000 residents. The community is the county seat for Warren County and predominantly recognized as a tourist center for the Blue Ridge Mountains and the Shenandoah National Park. The town contains a number of motels, restaurants and shops catering to tourists. These are particularly busy during the summer when fishing and canoeing are popular on the river and during the fall color season. The town has an established Historic District and actively promotes its historic Civil War heritage as part of General Stonewall Jackson's Valley Campaign.

A parks plan, entitled *Where the Mountains Meet The River: Front Royal's Plan for Parks, Trails, Bikeways and Greenways*, has been developed by the Planning Department of Front Royal to help guide existing and future recreation facilities in the town, including a proposed greenways and trails system for the community. Development of recreational uses on the Avtex property should be integrated with this plan to maximize the town's recreational resources.

The Town of Front Royal has been physically and visually cut off from the Shenandoah River. Re-development of the Avtex site has potential to reconnect the town with the waterfront along the river. The site will provide a valuable green space for the community, adding recreational and educational value for residents, as well as visitors to the town and surrounding region.



1937

Aerial Photographs from 1937 and 1993 reveal the site features of the basin area before and after industrial development.



1993

Site Characteristics

During the 19th and early part of the 20th centuries, the Avtex site was used for agricultural fields and orchards. The American Viscose Company began construction of the rayon manufacturing plant in the late 1930s on the eastern portion of the site, as shown in the 1937 aerial photograph. The western portion of the site, the basin area, was later used to dispose of waste products from the plant, which consisted of a zinc-rich sulfate sludge, viscose (a cellulose-based material), and fly ash from the on-site powerhouse. The sulfate sludge basins are aligned along the banks of the river, whereas the fly-ash and viscose basins are aligned between the sulfate basins and the railroad tracks. A fly ash "mountain" divides the fly ash basins to the south from the viscose basins to the north.

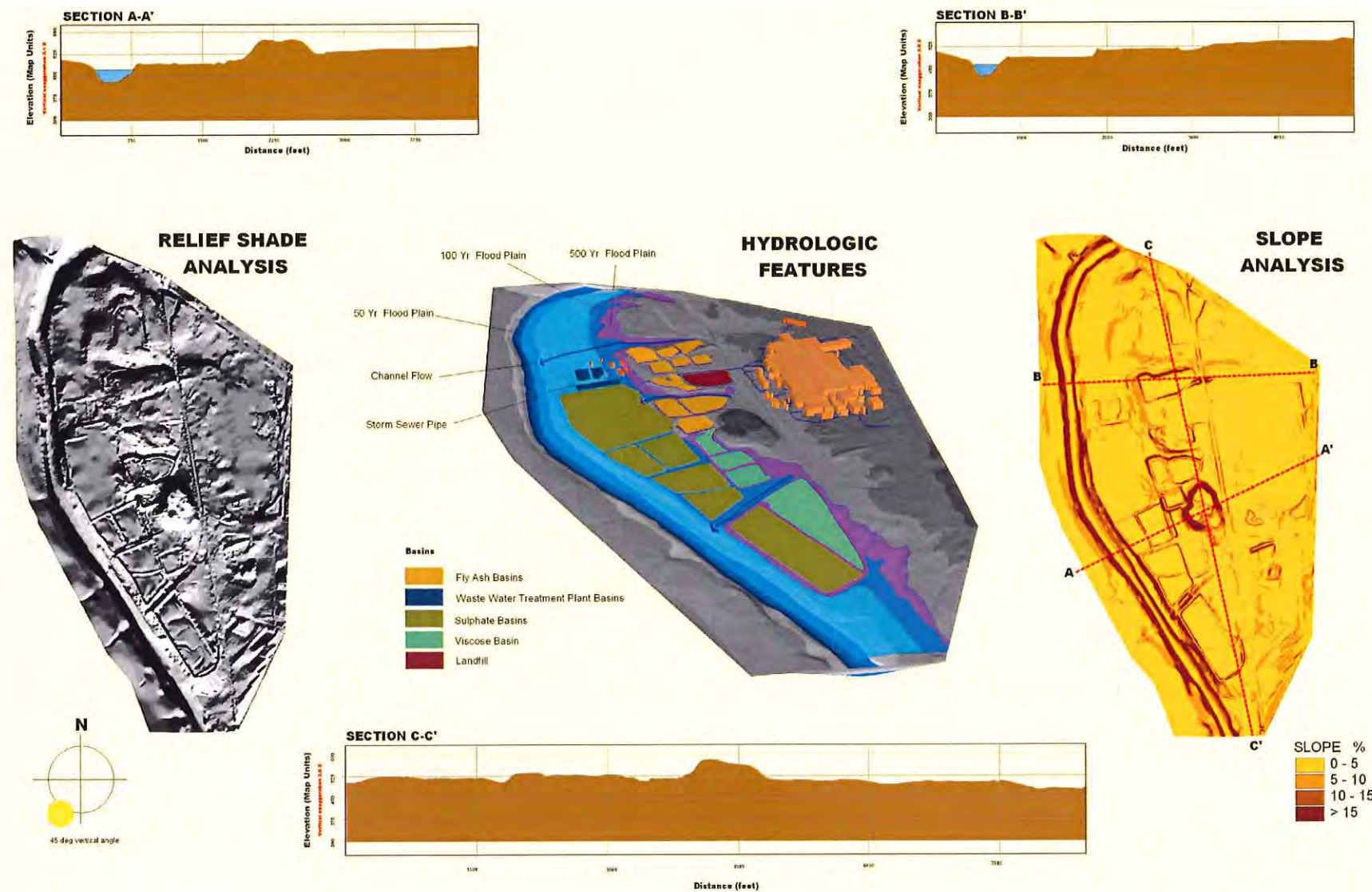
Today, the basin area is physically and visually dominated by the open basins, soil-covered landfills, the fly ash "mountain", and infrastructure (i.e. roads and pipelines) developed to support plant operations. The basins are separated by man-made dikes, which followed fence rows and roadways from the former agricultural fields and orchards. Dirt and gravel roads on the dikes provide limited vehicular access throughout the basin area. An on-site waste water treatment plant treats site stormwater and other site wastewaters, prior to discharge into the river.

The natural elements of the site are characterized by the open water within the sulfate basins, 40 foot high dikes along the river, 5 to 30-year old forest vegetation, some small wetland areas, surface water drainages, and a variety of wildlife. Where feasible, areas of wetlands, forest and riparian habitat will be protected during the remediation and construction process and incorporated into the conservancy park.

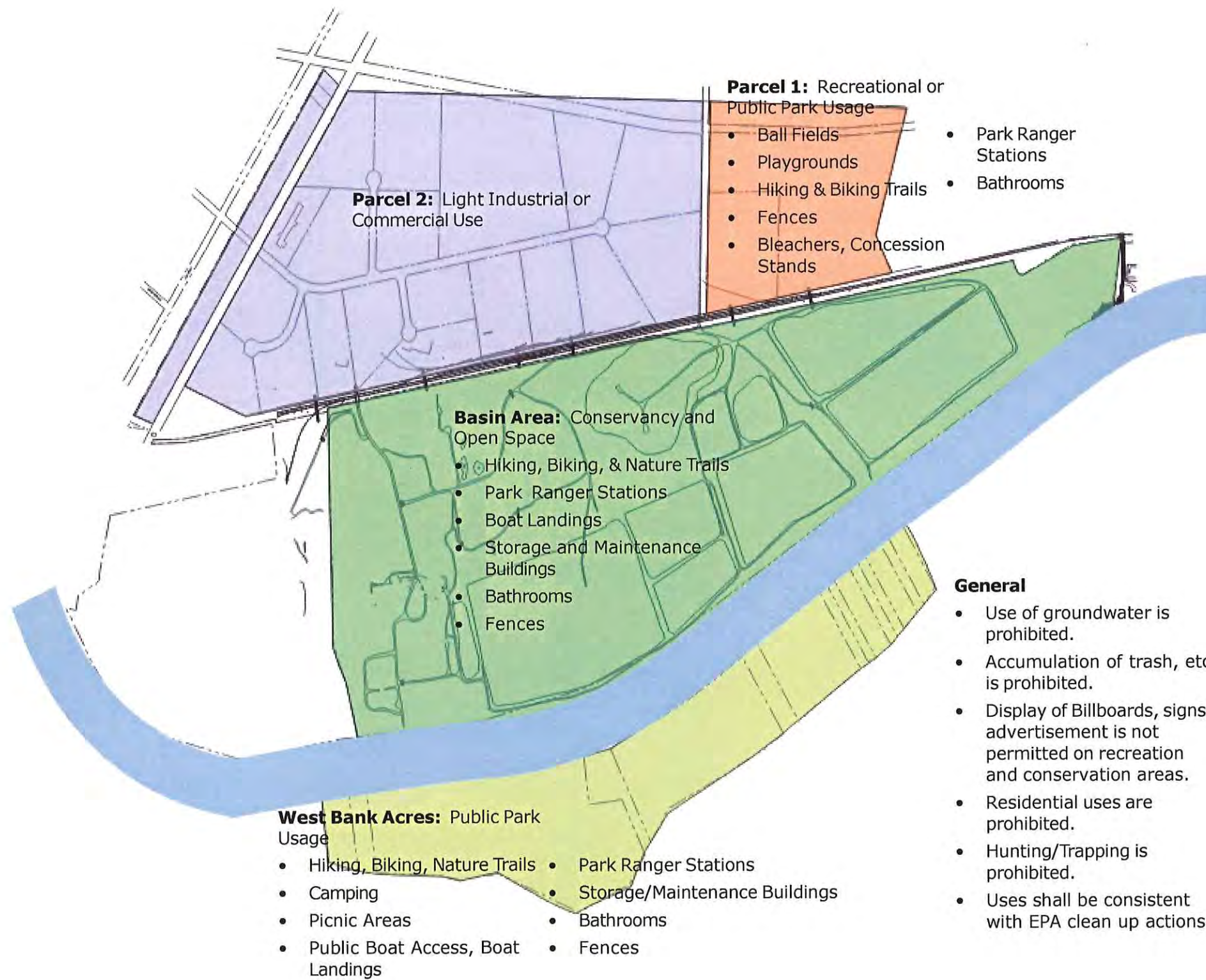
Access to the site is quite limited. An active rail line divides the plant area from the basin area and creates a physical and visual barrier. There are only two existing ways to access the basin area: across a one-lane vehicular bridge at the northern end of the site and from a public boat launch located on Luray Avenue at the south end of the site.

Access to the Shenandoah River along the edge of the Sulfate Basins is difficult due to the steepness of the man-made dikes. The existing Luray Avenue boat launch is the only easy at grade access point to the river.

The basin area of the Avtex site is located along a floodplain, therefore, most of the site topography is relatively flat. The man-made dikes built to create the basins and the fly ash “mountain” are the only topographic features on the site with significant elevation. Today, the sulfate basins are hydrologic features and are often filled by rain water. These man-made water bodies support some fish and other aquatic wildlife, and attract numerous waterfowl. Storm water is routed through the basins to the wastewater treatment plant where it is treated and released to the Shenandoah River. A minor amount of storm water runoff flows to the river via two small creeks that cross the site from east to west. In addition, there are two small wetland areas that are fed by storm water conveyed from the east side of the railroad tracks. Ground water in the overburden soils and bedrock flows in a southwest direction toward the Shenandoah River.



Site Analysis



General

- Use of groundwater is prohibited.
- Accumulation of trash, etc. is prohibited.
- Display of Billboards, signs, advertisement is not permitted on recreation and conservation areas.
- Residential uses are prohibited.
- Hunting/Trapping is prohibited.
- Uses shall be consistent with EPA clean up actions.

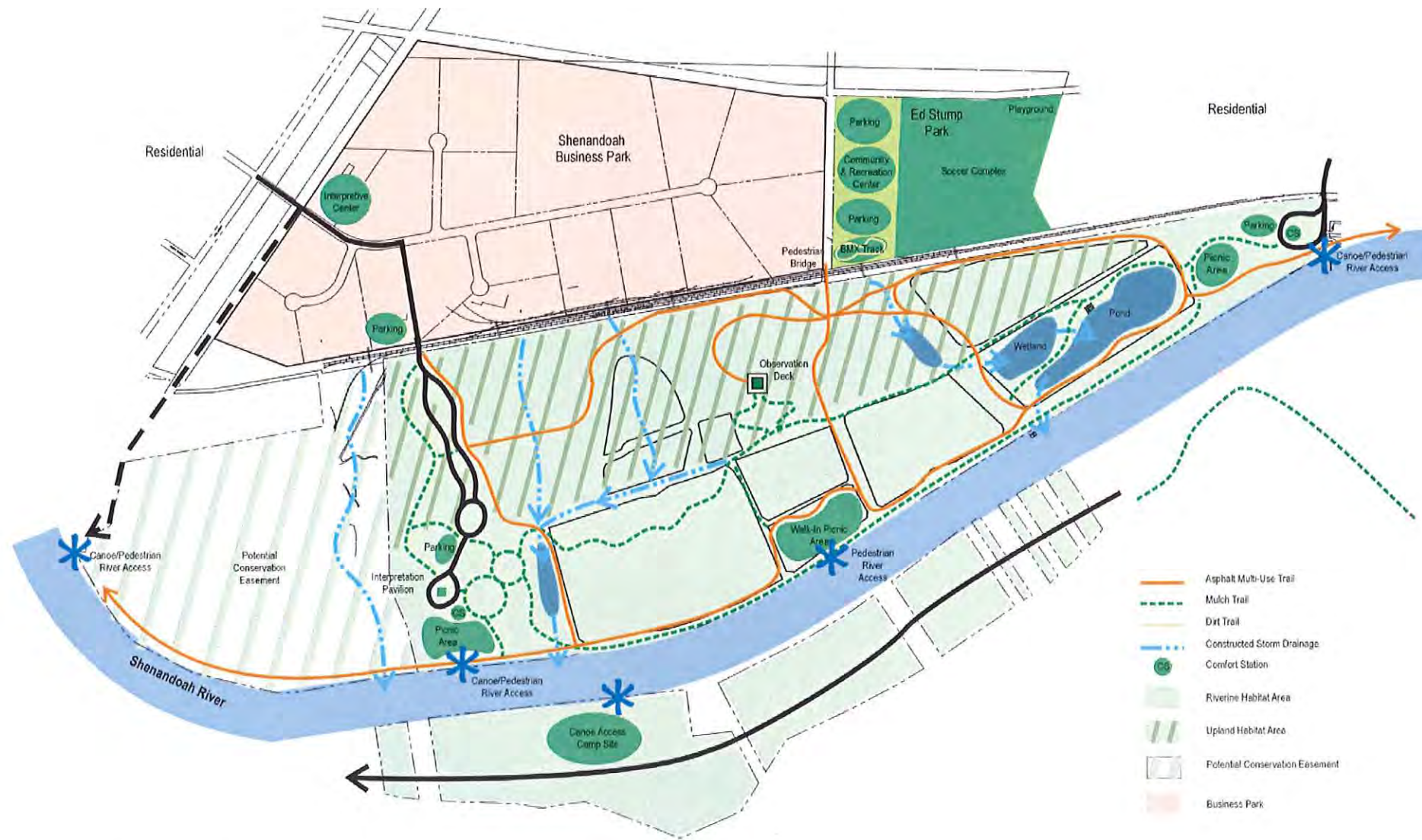
Conservation Easement Use Restrictions

Covenants and Easements

In November 1999, as part of the Avtex bankruptcy resolution and pending transfer of the property to the Warren County/Town of Front Royal Economic Development Authority (EDA), a Conservation and Environmental Protection Easement and Declaration of Restrictive Covenants was filed for the Avtex property. This "Environmental Easement" was signed by all parties involved in the Superfund legal issue, including: the Avtex Fibers bankruptcy trustee, the EPA, the U.S. Department of Justice, FMC Corporation, General Chemical Corporation (which owns the Allied Chemical property north of the Avtex site), and two oversight groups - the Lord Fairfax Soil and Water Conservation District, and the Valley Conservation Council. This document provides for access during the remaining remediation activities on the site and outlines specific restrictions regarding the future use of the Avtex properties, designated by parcels.

Parcel 1, the Ed Stump Park area, is designated for recreational or public park uses, whereas the former manufacturing plant area is designated for future light industrial or commercial use. Future uses for the basin area are restricted to "passive" recreation uses which support conservancy and open space, and may include such elements as hiking and biking trails and boat landings. The parcels on the west bank of the river are designated for similar passive uses, including camping and picnicking.

4.0 *Master Plan*



Master Plan

The Conservancy Park Master Plan for the Avtex site develops a vision for passive recreation and conservation of the basin area, as well as potential recreational components of adjacent redevelopment parcels, including Shenandoah Business Park (Parcel 2) and Ed Stump Park (Parcel 1).

The Master Plan recommends restoration of the basin area into a conservancy park that combines ecological restoration and conservation of native habitats with passive recreation opportunities for local residents and visitors. The plan designates a series of naturalized habitat areas throughout the basin area that represent the region's ecosystems. These habitats will encourage wildlife diversity on site and provide opportunities for environmental education. Interpretation of the complete history of the site from prehistoric times up to the present, including the story of pollution and on-site remediation, as well as the site's restored ecology, will be structured around a series of themed trails. Signage, site markers and other information elements interpreting the site will be strategically located to educate park users as they move around the site. The trails will link with off-site circulation systems and provide a variety of trail experiences to encourage public access and enable many different people to enjoy the park. The Master Plan also encourages residents and visitors to enjoy the Shenandoah River by providing boat landings, picnic shelters, and open areas for public passive recreation use.

In order to establish and reinforce connections between the site and the Town of Front Royal, the Master Plan also recommends recreational features for the adjacent parcels. During the community process, Stakeholders emphasized the need for active recreational facilities in the region.

Ed Stump Park, located on the southeastern portion of the Avtex site, provides an excellent opportunity to satisfy many of the active recreational needs of the community and region for decades to come. Development of the Shenandoah Business Park also provides an opportunity to connect the town to the park through a series of trails that can be used by both future employees and local residents. This open space will make the Business Park an attractive employment center within the region.

The parcels on the west bank of the river are designated for day-use and primitive camping facilities for canoeists and boaters on the river. These areas may be restored to a natural floodplain habitat to accentuate the greenway concept desired for this portion of the Shenandoah River.

On-Site (Basin Area) Program Elements

- Boat Ramp
- Canoe Put-in/Take Out
- Fishing/River Access Points
- Casting Pond
- Picnic Areas and Shelters
- Children's Play Area
- Wildlife Observation Boardwalk
- Viewing/Observation Tower
- Interpretive Signage /Areas
- Vehicular Access/Roads
- Vehicular Parking
- Pedestrian Bridge
- Storm Drainage System
- Comfort Stations

Off-Site Program Elements

- Interpretive Center
- Community Recreation Center
- Multi-Use Field
- Soccer Fields
- Playground
- BMX Track
- Research Demonstration Garden
- Vehicular Access /Parking
- Primitive Camping Area

Habitat Areas

- Upland Deciduous Forest
- Upland Juniper Forest
- Floodplain Forest
- Meadows
- Emergent Wetlands
- Ponds
- Riverine Habitat

Interpretive Themes

- Regional Context
- Site History
 - Pre-European
 - Agricultural Use
 - Manufacturing
 - Conservation Park
- Superfund
 - Legislation
 - Process
- Site Remediation
 - Capping
 - Dewatering
 - Revegetation
- Nature Conservation
 - Upland Deciduous Forest
 - Upland Juniper Forest
 - Floodplain Forest
 - Meadow
 - Emergent Wetland
 - Shenandoah Riverine Ecology

Trails

- 14' Paved Greenway Trail
- 10' Paved Multi-Use Trail
- 8' Mulch Walking Trail
- 6' Mulch Interpretive Loop Trail



AVTEX FIBERS SUPERFUND SITE
FRONT ROYAL, VIRGINIA
Master Plan

PREPARED BY ED&A, INC., JANUARY 2000
& WSSI, INC.

Wildlife and Conservation

In a regional context, the Avtex site provides an important link along the Shenandoah River's green corridor with more than a mile and a half of river frontage. Maintaining a consistent riparian corridor allows for safe migration routes and increases functional habitat sizes by connecting smaller pockets of habitat. The Avtex site currently has a moderate level of animal and plant diversity. With the restoration of the site, the size and quality of habitat areas will be increased, providing more habitat for the existing species as well as potential habitat for additional species. Restoration efforts will try to enhance or establish the following ecosystems on the site that are native to the region:

- Upland deciduous forest
- Upland juniper forest
- Floodplain forest
- Open meadow
- Wetlands

A matrix of specific plant species recommended for each habitat type, along with associated wildlife values, has been developed and will be used to guide planting plan recommendations for the conservancy park.



Wildlife and Conservation



Circulation and Interpretation

Circulation and Interpretation

Residents and visitors of Front Royal and Warren County have diverse recreational needs and interests. The Master Plan recommends an extensive trail system to satisfy these needs and enable users to experience the diversity of habitat areas and environmental features within the conservancy park. The system will be based on a hierarchy of path widths, trail lengths, loop configurations and surface types providing for a range of age levels, abilities and desires, including:

- 14 ft. paved greenway trail parallel to the river
- 10 ft. paved multi-use trails connecting to vehicular roads and parking
- 8 ft. and 6 ft. mulched walking trails

The trail system will provide for a range of activities from hiking, rollerblading, and biking to birdwatching and wildlife viewing. It will also enable visitors with limited mobility or visitors with small children to access key park features. The trail system will also function as the backbone of the park's environmental and historic interpretation. Five trails will be designated as themed interpretive trails enabling park users to learn about the native habitats and ecological systems along the trail. These include the: Upland Juniper Forest Walk, Meadow Walk, Upland Deciduous Forest Walk, Wetland Walk, and Floodplain Forest Walk.

These trails will include interpretive signage and markers with information on the habitat type, wildlife species associated with the habitat, and the remediation and restoration activity that was implemented in the area. The plan also recommends that a portion of the former American Viscose office building, located within the Shenandoah Business Park, should be used as an interpretive center. The center would enable visitors coming to the site to learn about the site's history, ecology, and context in greater detail, as well as pick up maps and other information about the park.

In addition to the interpretive trails and the center, two areas of the park will be dedicated to site history and Shenandoah River interpretation. Site history interpretation will be located in a pavilion at the north end of the park, and Shenandoah River ecology will be in the floodplain picnic area in the middle of the park. Finally, interpretive kiosks will be located at each of the parking areas to provide direction and an interpretive overview of the conservancy park.

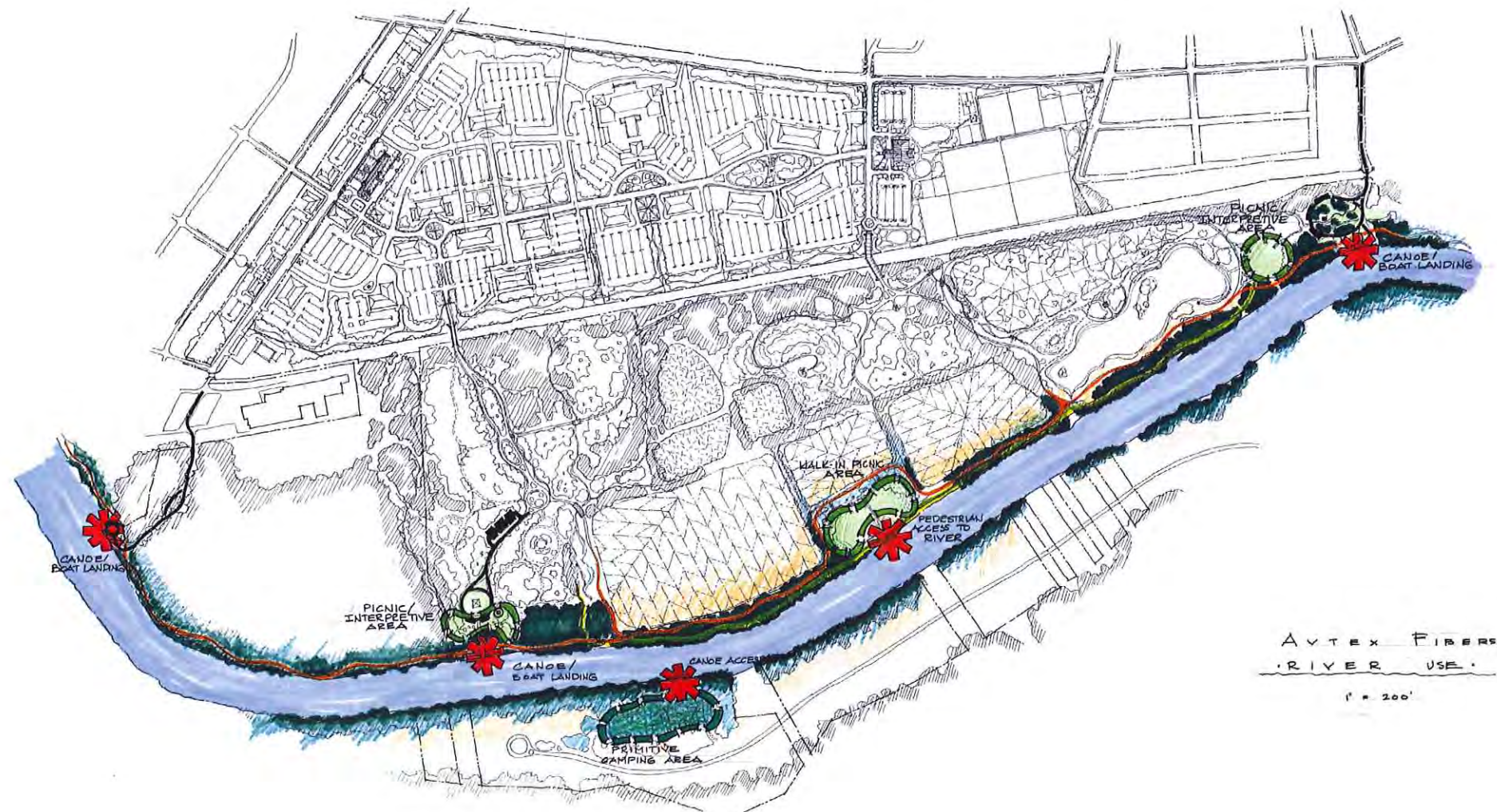
River Use and Access

Front Royal currently has few access points to the South Fork of the Shenandoah River. With the redevelopment of the Avtex site, there is potential to reconnect the city with the river on a community and regional scale.

The Master Plan provides three canoe/boat landings on the east side of the river to encourage river use while reducing erosion and damage to the shoreline. These landings will enable individual canoeists and outfitters to float down to the park from upstream locations, helping to connect the park to the region. The boat landing at Luray Avenue, for example, will have parking and restroom facilities to serve as a major take-out point for river canoe outfitters. The other boat landings on-site will be oriented to day-users taking a short float in canoe, boat or inner tube and will be accessible from residential areas in town.

Local residents and visitors will also be able to experience the river along a pedestrian and bicycle trail proposed to parallel the river. This trail will connect to both on-site trails and the off-site trail system that extends through Front Royal. Open areas along the trail and adjacent to the river can be used for day-use activities, such as picnicking, bird watching or environmental education programs focusing on river ecology.

A primitive canoe-in camping and picnicking area is provided on the west bank of the river as a stopping point for canoeists traveling this section of the Shenandoah River. Limited access is provided on the existing gravel roadway for security and maintenance personnel.



River Use and Access

Access and Connections

Developing adequate connections between the Avtex site and the community of Front Royal is paramount to encouraging public use of the conservancy park. Currently, vehicles can access the site by a single-lane bridge over the rail line at the north end of the site or from the boat launch on Luray Avenue at the south end of the site. Due to the difficulty of getting new access points over the railroad right-of-way, these existing vehicular connections should be preserved and improved. The underpass at Luray is sufficient for vehicular access, but expansion of the bridge at the north end of the site should be examined. Vehicles could also potentially access the site from Kendrick Lane if an easement were granted across Allied Chemical property.

These routes will accommodate both vehicle and pedestrian traffic, with provision for cyclists and roller-bladers. The Master Plan also recommends a pedestrian bridge across the rail line midway between the north and south access points. This bridge will provide a direct link for the community into the heart of the site, as well as providing a convenient entrance from Ed Stump Park and the Shenandoah Business Park.

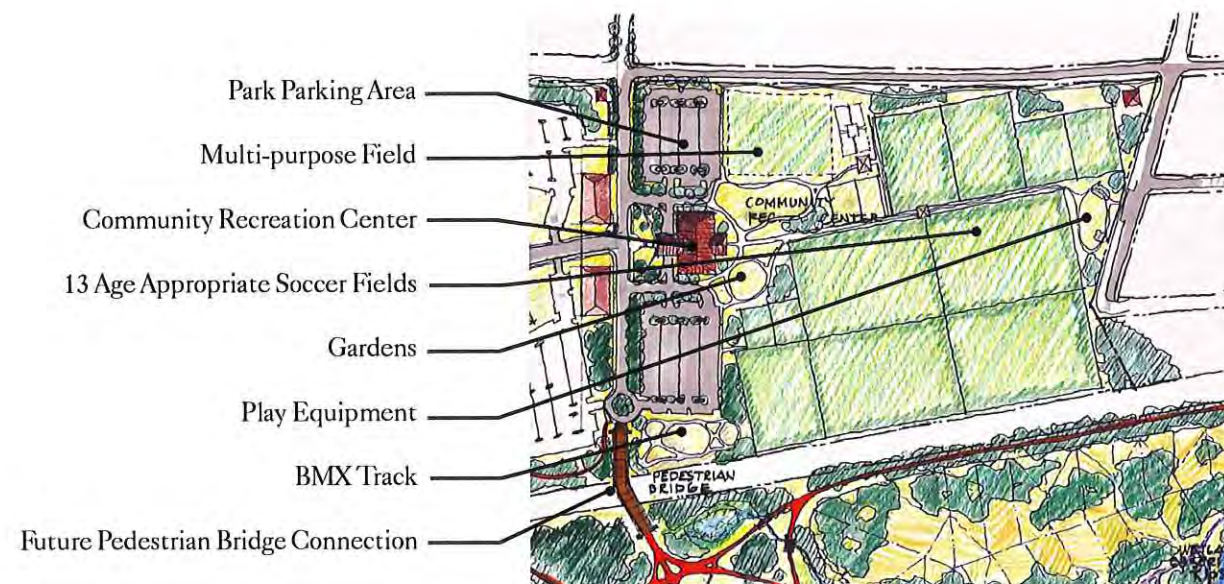
Pedestrian connections will also be made to the Front Royal Greenway Trail along the river at the north and south ends of the trail, and to a series of pedestrian trails connecting through Ed Stump Park and the Shenandoah Business Park to the Town of Front Royal.

Off-Site Recreation Program

During the Stakeholder Planning Process, community residents expressed the need for active recreational and built facilities, such as ball fields and a community center. Due to the Environmental Easement limitations on uses within the basin area, the Master Plan recommends that some of the desired facilities should be located on other parcels of the Avtex site. The development of a Community Center is recommended at Ed Stump Park with adjacent outdoor active recreation facilities, such as soccer, baseball and BMX racing. A skateboard park was not included in the concept for Ed Stump Park, since one is already being planned for another park within Front Royal. In addition to these facilities, it is recommended that the city expand their trail systems to create local connections to the Avtex site and beyond.

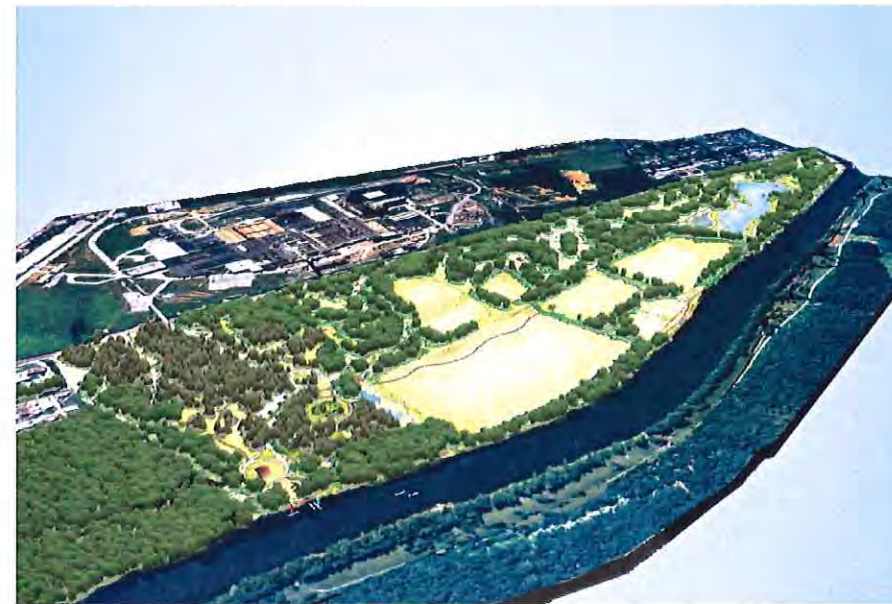


Access and Connections



Active Recreation Parcel

5.0 *Implementation Strategy*



Computer Rendering of the Master Plan

Implementation Process

The proposed Master Plan will take a combined public private effort to realize. It is intended that there will be a phased approach to the construction of all the amenities provided in the Master Plan. The construction of these amenities may occur during the estimated eight year remediation construction effort or post construction. Through the remediation efforts under Superfund, FMC and EPA will provide a "base-line restoration". The base-line restoration will provide for regrading significant portions of the site, revegetation of the impacted areas, and base preparation for future roads and trails. Items such as the new pedestrian bridge, paving of the trails, construction of the interpretive signage, and building the canoe launches will require the support of the town and county through local, state, and federal funding avenues.

Construction Phasing

The baseline landscape restoration plan is scheduled to begin construction in the fall of 2000. Once initiated, the construction activities will likely take up to eight years to reach completion. The phasing of the construction process will begin in the southern section of the site, near the Luray Avenue boat landing, and continue toward the north. The construction sequencing may allow sections of the site to be opened for public use before remediation of the entire site is complete.

Remediation of the site will be conducted in six phases of work. The first three phases of the remediation effort will address Sulfate Basins and the Fly Ash Basins and will generally proceed in a South to North direction. Phase IV will provide for remediation and final closure of the Viscose Basins 1-8 and the former industrial land fills. The areas in Phase IV currently have existing soil cover and initial successional plant growth. The next phase will be to remediate and close the final three viscose basins (9,10,11) which currently have no soil cover. The final phase (Phase VI) will be to dismantle and reclaim the area that now supports the waste water treatment plant. The waste water treatment plant will no longer be required after the remediation efforts have been completed.



Basin Diagram

Final Note

EDAW and Wetland Studies and Solutions Incorporated, on behalf of FMC, EPA, VADEQ, and EDA would like to recognize the contributions of the many stakeholders who donated their time and expertise in helping to shape the Master Plan. Their continued support will facilitate implementation of the plan and help make the conservancy park a true resource for the Town of Front Royal and the region at large.

Bill Barnett	Economic Development Authority	Walter Koehler	Gannett Fleming
Bill Biggs	Economic Development Authority	Richard Kuhn	Environmental Protection Agency
Peter Briggs	EDAW	Sue Ladd	Old Virginia Industrial Park
Jim Brinkmeier	Community Member	Carson Lauder	Town of Front Royal Council Member
Stan Brooks	Community Member	Jody Leidolf	EDAW
John Burk	Decision Quest/EIM	Dan Lenz	Town of Front Royal, Parks and Recreation
Luther Burke	Community Member	Susan Leopold	Women's Alliance for Environmental Justice and Renewal
Bob Burnley	Virginia Economic Development Partnership	Jennifer McDonald	Economic Development Authority
Vice Mayor Tony Carter	The Town of Front Royal	Tracey Miller	Community Member
Robert Christiansen	Community Member	Larry Mohn	Virginia Game and Inland Fisheries
Tom Christoffel	Community Member	Trace Noel	Community Member/River Outfitter
Barbara Coulston	EDAW	Don Orr	Friends of the Shenandoah River
Nick Crettier	FRWC Youth Soccer	Toni Pepin	Wetland Studies and Solutions
Bill Cutler	FMC Corporation	Hillary Quarles	EDAW
Mike Cyran	FMC Corporation	Joe Ragsdale	Community Member
Joe Davis	Community Member	Stephen Reeser	Virginia Game and Inland Fisheries
Richard Dorrier	EDAW	Scott Reid	Community Member
Scott Dueweke	Community Member	Mary Joy Scala	Valley Conservation Council
Joe Duggan	Front Royal Planning Commission	Elisa Schwartz	Women's Alliance for Environmental Justice and Renewal
Walter Duncan	County Board of Supervisors	Maya Sparks	Women's Alliance for Environmental Justice and Renewal
Jim Fary	Environmental Protection Agency	Doug Stanley	Warren County Planning Director
Kimberley Fogle	Director of Planning, Town of Front Royal	Kirk Stevens	U.S. Army Corp of Engineers
Bob Forbes	FMC Corporation	Joe Swiger	Community Member
Chris Galanti	Community Member	Josh Tanner	Community Member
Rick Goss	Decision Quest/EIM	Mike Taylor	Vita Nouva
Judy Gretsches	Decision Quest/EIM	Hollis Tharpe	Community Member
Bonnie Gross	Environmental Protection Agency	Kelly Walker	Front Royal-Warren County Chamber of Commerce
Ken Hafner	U.S. Army Corp of Engineers	Ed Ward	Lord Fairfax Soil and Water Conservation District
Dan Harris	Community Member	Laura Wiberg	EDAW
Phenix Hearn	Women's Alliance for Environmental Justice and Renewal	Berry Wright	Virginia Department of Environmental Quality
Stephen Heavener	Economic Development Authority	Chen-yu Yeu	Gannett Fleming
Flemming Heegard	Community Member		
Todd Hemminger	Community Member		
Tito Howard	Community Member		
Irene Hunter	Coalition for the SAFE Re-development of		
Avtex			
Marla Jones	Economic Development Authority		
Rick Kirkland	Front Royal Little League Baseball		