Kernsville Dam and Impounding Basin Area

Site Description

Location

The Center Turnpike, Route 22 and the Schuylkill Canal made Hamburg the gateway to Schuylkill County and to the Pennsylvania coal regions. By the early 1800's Hamburg was positioned at the crossroads of major routes connecting the coal region to industrial centers on the East Coast. The railroad soon supplanted the canal in the 1850's, further fueling Hamburg's growing economy. Historic remnants of the Schuylkill Canal, and the Pennsylvania and Reading Railroads are visible in Hamburg and the surrounding area. Today, Hamburg easily accessible via I-78 and Route 61, major north/south and east/west routes.

Situated on the eastern bank of the Schuylkill River, stunning scenery and countless acres of State Game Lands, forested mountains, and agricultural fields surround Hamburg. Directly north of Hamburg is State Game Lands Numbers 106 and 110 and Weiser State Forest, which includes Blue Mountain and the Hawk Mountain Bird Sanctuary. The town of Port Clinton is a historically significant canal village located just to the north of Hamburg along the Schuylkill River. It is an important hub for the Appalachian Trail.

The Kernsville Dam spans the Schuylkill River near the boundaries of Windsor Township, Tilden Township and the Borough of Hamburg in Northern Berks County. The dam is located approximately 1 mile north of Hamburg and 1½ miles south of the Blue Mountain Gap in Port Clinton. The Kernsville impounding basin is located about a ½ mile below the dam between the western bank of the Schuylkill River and Lowland Road.

A service station, several restaurants and other industrial buildings in the Tilden Corporate Center are adjacent to the site, accessible via Industrial Drive.

The Kernsville facility encompasses approximately 252 acres of state-owned lands along the Schuylkill River. This area includes the Kernsville Desilting Pool, Impounding Basin, the area surrounding the Kernsville Dam and a former DER camping facility. The Pennsylvania Bureau of Abandoned Mine Reclamation (BAMR) manages this facility and the adjacent lands.

Access

The entrance to the Kernsville Dam and impounding basin is at the intersection of Lowland and Industrial Roads. These two roads connect State Street in Hamburg to Route 61 north of I-78.

The access road continues north on the western

Figure 3.1 A view south on Lowland Road looking toward State Street.

edge of the basin, then past the dam to its terminus near the former D.E.R. campground. Riddled with potholes, the road is in poor condition. The river's steep bank on the east and the rising steep slope of the proposed Bartram Trail right-of-way to the west, narrow the road's width at points.

The Bartram Trail provides the off-road connection from Hamburg Borough to the state owned lands in Tilden Township as well as to Schuylkill County and communities such as Port Clinton, Auburn, Landingville, and Schuylkill Haven. Crossing the Schuylkill River, the Hamburg/Tilden pedestrian bridge, a key link for the Bartram Trail, directly connects Hamburg Park to the state-owned lands.

An informal footpath parallels the river outside the impounding basin. This footpath is a potential alignment for a future pedestrian loop trail.

HISTORY OF DAM / IMPOUNDING BASIN

Northern Berks County and Schuylkill County have a rich history highlighted by the coal discovery of the late 1700's. The Schuylkill River Valley coal mining industry impacted the River. The separation of coal from rock and earth, produces a by-product of very fine coal dust and rock particles. Stormwater flows carry this by-product overland to nearby waterways eventually reaching the Schuylkill River. The river became the resting place for up to three million tons of mining wastes. Over time, the build up of silt and other waste by-products began to choke the Schuylkill River and Canal with sediment. This build up of sediment was one reason for the closing of the Schuylkill River Navigation System.

Soon after World War II, Pennsylvania began the task of cleaning up the Schuylkill River. In the early 1950's, the Commonwealth planned and constructed three dams and three desilting pools as part of the Schuylkill River Desilting Project.

Figure 3.2 A view of the dam facility access road, just below the dam.

In separate initiatives impoundment basins for disposal of dredged materials were built in 24 locations along the river. This $25 million project (approximately $475 million in today's dollars) reduced maintenance dredging in the navigation channels below the Fairmount Dam, reduced flood heights and associated damages along the Schuylkill, and increased the river's value as a natural resource. The Bureau of Abandoned Mine Reclamation (BAMR) was established to maintain these facilities and remove the coal silt from the River.

Today, BAMR actively manages three sites along

Figure 3. 3 There are numerous informal footpaths found around the desilting basin.

the Schuylkill River at the Kernsville, Auburn, and Tamaqua Dams. The Auburn and Tamaqua sites, located up stream from the Kernsville site, control a majority of the coal silt now flowing into the river. BAMR operates the Kernsville Dam as a "back-up" facility, catching any silt not contained by the other two locations.

BAMR, a division of the Department of Environmental Protection (DEP), also manages the land immediately surrounding the dam. The Kernsville Dam received its name from the area north of Hamburg formerly known as Kernsville. The $2 million project to build the Kernsville dam and impounding basin began in June 1948 and was completed in September 1949. The dam's spillway spans 600 feet and has a normal desilting pool area of 54 acres which holds approximately 190,000,000 gallons. The Kernsville dam replaced five older and smaller dams in the Kernsville area. Remnants of a canal lock gate still remain and are located just upriver from the dam on the east bank.

The Kernsville impounding basin, located about a mile south of the dam, is designed to hold the material dredged from behind the dam. The storage basin has a maximum capacity of approximately 750,000 cubic yards and covers an area of approximately 87 acres. The I-78 bridge delineates the basin area into northern and southern “sections” covering roughly 67 and 20 acres. The impounding basin is designed to separate the silt from the water, forcing silt particles to settle out while water is filtered by numerous french drains and allowed to percolate back into the ground and river. A large concrete control structure located on the eastern side of the basin controls overflows.

Dredging Policy

The Kernsville Dam was constructed to catch silt and mining by-products from a drainage area of 340 square miles of the upper Schuylkill River valley. The requirements of the federal cost-sharing agreement calls for the state to continuously maintain the project so that it provides the maximum benefits for which it was designed. A provision in the operations and maintenance plan calls for the state to remove sediment from the desilting pool when the capacity had reached 50 percent of maximum storage. The silt collected behind the Kernsville Dam is periodically dredged and the material is then hydraulically pumped to the impounding basin. The last dredging of the pool was conducted in 1973 when 250,000 cubic yards of silt were removed from the pool. In recent years, due to the reduced amount of mining and improved erosion control measures, only the pools at Tamaqua and Auburn have required active dredging.

BAMR periodically monitors the level of silt build up in each facility to determine when to dredge a particular pool. Soundings are taken of the river, ascertaining the depth of water and depth of silt. The Kernsville Dam was last sounded in 1996 at which point the pool was approximately 35% filled with silt. Another sounding of the pool is scheduled in 2001.

BAMR currently operates one dredging crew. Each dredging operation takes several years. First the equipment is brought to the site and the piping is installed. A large barge "vacuums" the deposited silt from the river floor and sends it down the pipe to the basin, where it is spread. The impounding basin then slowly allows the water to filter back to the river. The dredging of the Kernsville pool will take 1 to 2 years. The basin may take an additional year to drain, depending on amount of water carried with silt removed and weather conditions.

BAMR Boat Launch

Located on the western bank of the river just above the dam is a BAMR storage building and a boat launch/ramp. The launch and storage facility were constructed and maintained to accommodate dredg-

ing activity in the pool. When the pool is not being actively dredged, its pool and ramp were open for public use. In 1999, BAMR closed the boat ramp to the public because it did not comply with the intent of the standards outlined in the recently released legislation PA house bill 10, 6/19/98. This legislation prohibits the construction or public use of any boat launch within 200 feet above the dam and 100 feet below the dam because of safety concerns. Although this dam does not technically fall under the legislation (low-head, run-of-river dam), BAMR chose to comply with the spirit and intent of this legislation, in the interest of safety.

Boaters became concerned with the ramp closing, as the BAMR boat launch is the only formal access point on the pool. Residents wanted to see the ramp opened for recreational use. Emergency access, is permitted under legislation.

The siting of a new boat launch is not easily accommodated in this pool. The natural flow of water deposits silt along the western shoreline, making the eastern shore more suitable. However, the eastern shore is steep, and has limited access to accommodate a boat launch. The area immediately above the existing ramp is narrow and steep, requiring that the new facility be further upriver. An area currently used by canoes and small boats is located on a projection of land just south of the former DER campsite on the west shore. This area is large enough to provide for a new boat ramp, boat parking and vehicle turnaround. This location, as any along the western shore will require periodic dredging.

During the course of this study, BAMR advised the consultants that the dredging equipment owned by BAMR was too large to use the existing boat launch and that a new boat launch must be constructed for the equipment to access the desilting pool. When this boat launch is constructed for dredging operations, it could become a permanent boat launch for recreational boating.

A smaller canoe dock/launch installed just upriver of the BAMR storage building would facilitate canoe portage around the dam. The location closer to the dam reduces trail maintenance for a relatively short canoe portage route.

SILTATION

The Kernsville desilting pool has significant silt deposits. The silt deposits predominately on the western shore due to slower river flows. Silt creates a barrier to recreational boaters and fishermen. In calculating silt deposit, BAMR includes the entire pool in the calculation. The Kernsville pool starts at the dam and continues upstream approximately 1.25 miles to a point where Route 61 crosses the river.

At this time, BAMR is assessing the Kernsville Dam and Basin. Their current dredging at Auburn will be completed in 2001. They are scheduled to move the operation to the Tamaqua facility in 2002. This dredging is anticipated to take 2 years to complete, barring equipment down time or poor weather conditions. Based on these dates, the earliest dredging could occur at the Kernsville facility is 2004/2005.

The impounding basin was designed for one complete dredging of the pool. Once the basin is full, BAMR will need to decide where to dispose silt from future operations. Two options include: finding a new site to deposit the silt, or removing the silt via rail or road.

The health of the river should continue to be a priority. Even as the amount of coal silt decreases, the need to maintain the Kernsville pool will remain.

Analysis

Bicentennial Trail

In Hamburg, the Bicentennial Trail parallels the old Schuylkill Canal alignment along the eastern bank of the Schuylkill River. The trail runs north from Hamburg Park to the trail's terminus just north of the Blue Mountain Road and Port Clinton Avenue intersection. At this point,the trail potentially links to the Appalachian Trail via Blue Mountain Road. Just east of this intersection on Blue Mountain Road, an off-road trail connects the Olivet Blue Mountain Camp Grounds to the Appalachian Trail atop the Blue Mountain. This is an important connection to Hamburg, providing hikers the opportunity to use the services offered in Hamburg.

To the south, the trail connects to the Bartram Trail at the Hamburg/Tilden pedestrian bridge. The remaining portion of the Bicentennial Trail is planned to continue south, following the shoreline of the Schuylkill River. Frequent flooding, easement acquisition and physical obstacles have prevented this section from being completed.

Hamburg park to Through-Truss Bridge at Kernsville Dam

The proposed Bartram Trail, connecting Hamburg to Frackville in northern Schuylkill County starts at the southern end of the Hamburg/Tilden pedestrian Bridge in Hamburg Park.

A majority of the Bartram Trail will run along the former Pennsylvania Railroad right-of-way, but there are a few sections where the trail must follow alternative routes due to out parcel sales. A mile section of proposed trail from Lowland Road (at the Hamburg/Tilden pedestrian bridge) north requires an alternative alignment. This is one location where former R.R. right-of-way is unavailable for use.

Lowland Road, heavily traveled by automobiles and large trucks, parallels the old railroad alignment. The Hamburg/Tilden pedestrian bridge trail intersects with Lowland Road on a sharp curve and would be a dangerous location for a pedestrian crossing. Lowland Road is below the existing

Figure 3. 4 The western terminus of the Hamburg/Tilden pedestrian bridge.

trail/bridge grade at this point and requires a ramp to be handicap accessible. At this point, the trail must proceed north on the east side of Lowland Road. On the western side of the road, the steep, vegetated embankment of the old rail right-of-way restricts road improvements. The paved shoulders on both sides of Lowland Road are narrow and could not safely accommodate a trail. On the eastern side, a grassy swale parallels Lowland Road, carrying stormwater. This swale is also at the base of the western edge of the dike surrounding the Kernsville basin. The basin berm parallels the road, 15 feet above the roadway elevation. This embankment, covered with trees and dense understory vegetation, could be an alternate trail route.

To the north, the I-78 overpass crosses Lowland Road. The overpass spans the road and the bridge

footings are adequately spaced, so as not to impede any potential trail improvements. Further north, Lowland Road ends at the intersection of Industrial Drive. From this point north, the dam access road completes the connection back to the former railroad grade. This section of road is in poor condition, riddled with potholes and fractured macadam. The road separates the Kernsville impounding basin from the former Pennsylvania Railroad right-of-way. A large stone monument is located on the eastern side of the road which commemorates the completion of the Kernsville dam and basin project. This is the only vehicular access point to the Kernsville impounding basin.

Figure 3. 5 This view shows the intersection of Lowland Road and the Bartram Trail after descending from the Hamburg-Tilden pedestrian bridge.

Proposed Bartram Trail parallel Lowland Road.

analysis plan

Figure 3. 6 North of the I-78 overpass Lowland Road terminates at Industrial Drive which makes a sharp curve to the left..

Figure 3. 7 The monument commemorating the completion of the Kernsville Dam and Basin lies amidst a sea of sand in the northern basin area.

IMPOUNDING BASIN

The southern section of the basin, below I-78 is surrounded by fifteen to twenty five-foot high earthen dikes. These dikes are overgrown with mature woody trees and dense understory vegetation. The expansive area within the dike is filled with a sandy, silt loam soil that now supports the growth of dense grasses and scattered shrubs. Some areas appear to be in the early stages of successional growth. The southern basin section is approximately 20 acres.

The northern section of the impounding basin totals approximately 61 acres. The landscape of the northern section of the basin is characterized by a sandy, gravel silt loam type of material littered with the remnants of coal particles. This section of the basin is also surrounded by fifteen-foot dikes, which are densely vegetated with mature trees and understory shrubs. However, within the basin two very different types of landscapes can be observed. Scattered clumps of vegetation, small standing pools of water, and various types of ground cover characterize the southern part of the north basin. The northern part of the north basin appears to be an alien landscape. There is little to no vegetation covering the ground and the dark sandy soil is rutted and mounded, showing the scars of construction equipment operations. After the last dredging operation in 1973, sporadic removal and moving of dredged materials have shaped the “moon-scape” landscape.

A rich riparian buffer grows between the eastern berm of the basin and the Schuylkill River. This heavily wooded swath of land feels far removed from the neighboring landscape of the basin with sympathetic views of the Schuylkill River. The mature trees that stand tall along the banks of the river create a serene feeling very different from that of the basin. The rushing sound of water permeates the woods and adds to the attractive character of this area.

Figure 3. 8 This is a typical view of the northern section of the basin. Note the sandy, barren terrain.

Kernsville Dam

After passing the impounding basin, the access road continues north to the Kernsville Dam. The road enters a tunnel of vegetation. A dense riparian buffer hides much of the adjacent river. For approximately 1,000 feet, a sharp drop-off to the river on the east and a steep embankment on the west constrains the road. The road again widens as it enters an opening in the woodland near the dam.

About 1 mile north from the impounding basin, the access road enters a level opening in the landscape. The access road spills into a large parking/turn-around area. On the western side, a steel railroad trestle carries the Bartram trail over an active Northern Reading Blue Mountain Rail road line. To the east, an informal dirt and gravel parking area serves the BAMR facilities - a maintenance building, boat ramp and the Kernsville Dam.

Here, the Kernsville Dam spans the width of the Schuylkill River, and provides an intriguing vantage point. From the shoreline, expansive views of the desilting pool and distant mountains are revealed. A viewing platform on top of the dam provides a unique opportunity to view the pool, dam and shorelines. The shoreline near the dam and BAMR dock is open and devoid of vegetation.

On the down stream side of the dam there is an existing portage trail to a small wooden dock, located approximately six hundred feet down-stream from the parking lot.

Western Land Holdings

Just to the north, on the west side of the railroad tracks is an additional 30 acres of Commonwealth land. This area of state land is now heavily wooded, but once held stockpiles of topsoil from the construction of the Kernsville facility. This land is sloping, but has the potential to accommodate recreational uses. Use of this land for active recreation would require clearing of vegetation, substantial grading and improved access.

Access to this area requires either crossing the active rail line (from the dam area) or constructing a second entrance, from Lowland Road. A separate portion of Lowland Road that is off of Kiln Road and Industrial Boulevard. Lowland Road then terminates at an intersection with Route 61 just south of the Route 61 bridge over the Schuylkill River.

From Lowland Road, an easement into this area currently permits a driveway for an adjacent property owner. Adjacent to and just west of this area of state land exists a narrow ravine that is a former railroad “cut” that enters a privately owned historic railroad tunnel. Any access would either have to share this driveway easement or require a second road into the parcel.

Figure 3. 9 This is a view of the BAMR boat launch and maintenance facilities from the Kernsville Dam.

DEP CAMPSITE

The dam access road terminates in a small gravel parking area. An opening in the riparian buffer, provides a gentle landing for canoes, and other small boats.

North of this parking area, canopy trees are interspersed with a dense understory. A concrete structure and fire ring remain from the former campsite. People continue to use this area informally during the day. This level area provides opportunity for a number of recreational activities and uses.

Further north, as the river bends, beautiful rhododendron dominate the understory vegetation. From here, stunning views of the steep terrain on the opposite shoreline dominate the landscape. This very level area appears to be untouched by man, although at one time this area of land was engineered during the change in the alignment of the Schuylkill River. An informal footpath follows the banks of the Schuylkill River to the gap. State Route 61 crosses the Schuylkill and defines the northern boundary of the state lands. A large rock outcrop, on the eastern shore at the bend in the river is a popular (and unofficial) summer swimming hole.

AREAS FOR ADDITIONAL STUDY

Although the Kernsville Dam and Impounding Basin lands were the only areas examined for the implementation of athletic facilities, the public made suggestions for alternative athletic field locations. Some meeting attendees questioned whether the proposed areas near the Kernsville Dam were the best locations for sports fields. Other sites that were recommended by various members of the public for investigation include:

1. Belmont Avenue.

At the northern end of Belmont Avenue, Hamburg Borough and the State of Pennsylvania own two parcels of land. The combined acreage of these two plots of land is approximately 14 acres. This land could accommodate between two and four athletic fields, dependent on their size, with parking. A more detailed study of the grades in this area would be required in order to better determine the site's suitability.

2. State Hospital Property.

The Hamburg Center, a state-owned institution located in Windsor Township and bordering Hamburg Borough on the west, may be a potential location for athletic fields. It is uncertain whether the state would be willing to lease this land or provide an easement. It is also unknown how much of the 95 acres of land included in this property would be available or useable for athletic fields.

3. Mid-Atlantic Canners Association Incorporated and Municipal Sewer Authority land.

The two parcels of land owned by the Municipal Sewer Authority and the Mid-Atlantic Canners industrial building north of Route 61 and near the banks of the Schuylkill River, totals approximately 30 acres. Again, it is unclear how much of this vacant land is currently utilized by the previously mentioned owners. However, this land is level, centrally located and easily accessible.

These sites need to be researched to determine the feasibility of incorporating athletic facilities. It is beyond the scope of this study to do so. It should be noted that this project received substantial local publicity and owners of the three above mentioned facilities did not come forward to suggest use of these lands.

PROGRAMMING

SRGA and the North Berks Recreation Corporation provided a number of programming suggestions that the consultant considered in preparing conceptual plans for the Kernsville Dam Recreational site. Suggested land uses included passive and active recreational activities as well as wildlife and nature preserves.

The first of four public meetings focused on confirming a program with the general public for the site. The 53 people who attended generated many ideas. A complete list of programming suggestions generated during that meeting is contained in Appendix.

Studying the feasibility of utilizing part of the basin for the development of at least three multi-sport athletic fields (combination of soccer/baseball/football fields) initially, was a key component of the program. It was imperative to identify existing conditions and future plans for the impounding basin prior to examining the feasibility of alternative uses for this area. BAMR requirements for future desilting operations had to be thoroughly investigated to gain a clear understanding of feasible future uses of the basin.

Utilization of the Schuylkill River for recreational activities such as boating and fishing was another key programmatic element. Dam safety issues and current water use legislation as it relates to water use and access issues are key considerations. The development of support facilities to serve the active recreational components such as restrooms, utilities, storage and security must also be considered.

The demand for recreational use of the river is growing along the entire Schuylkill. The dams along the Schuylkill River were constructed either for watering the canals or for the dredging and maintenance of the river. Since the canal has long been out of use and the need to dredge the river for coal silt is lessening, the purpose and effect of the dams is changing. These structures have created pools of water utilized for recreation. The growing popularity of water activities invites the question as to who should continue to maintain these structures and their associated pools. The Schuylkill River Greenway Association in association with the PA Fish and Boat Commission is creating a continuous water trail on the river that is likely to increase future use.

Passive recreational elements are also potential components of the design concept. Nature trails and wildlife preserve/wetlands/habitat allow for many passive recreational opportunities. Such activities include walking, jogging, bird watching and fishing. A well-planned path system with interpretation of key features, such as history or natural characteristics of the site was also considered. The potential to reuse the former camping facility (or other state lands) for future camping use was also a possibility.

Pedestrian/cyclist access from Hamburg and other North Berks communities to the proposed recreation areas must be safe and convenient. The existing Bicentennial Trail and the Hamburg/Tilden pedestrian bridge link Hamburg to the recreation

Figure 3. 10 A view looking north on Lowland Road of the grassy shoulder and the western embankment of the impounding basin.

area. These routes should include handicapped accessible connections through environmentally sensitive areas such as wetlands.

Vehicular access to the active recreation areas of the basin is essential. It will be necessary to improve and expand the existing access road to support such a facility. Improvements must include participant and spectator parking and emergency and maintenance access.

RECOMMENDATIONS

The areas previously described, including the area around the Kernsville Dam, the Kernsville Impounding Basin, and the state owned lands north along the Schuylkill River, have the potential to be utilized for passive and active recreational facilities. These proposed facilities can positively impact the Hamburg community while satisfying the recreational needs and desires of the people in the Hamburg area. Recreational improvements to the lands and the opportunities that they provide will enhance the quality of life of the region.

HAMBURG TO THROUGH TRUSS ROUTE

The existing Hamburg/Tilden pedestrian bridge provides the perfect opportunity to connect Hamburg to the Kernsville Dam Lands via a pedestrian/bicycle trail. This trail will begin where the existing trail terminates in Tilden Township at Lowland Road. Here, the trail will turn north, ramping down behind the existing sewage facility to Lowland Road. From this point there is an on-road or off-road trail option leading to the recreational site.

Option 1.

The off-road option must cross the swale on the eastern side of Lowland Road with a bridge and then must ramp up to the impounding basin dike. This route may impact the wetlands that exist in this low area. Mitigation of impacts to the wetlands would be required. This trail alignment would ramp up to the top of the dike surrounding the impounding basin. Interesting views of the basin create opportunities for interpretation points. The top of the dike is a narrow five feet and would require widening to twelve feet to accommodate the trail. This alignment provides an off-road pedestrian corridor that separates the trail from Lowland Road. The trail would eventually intersect the Schuylkill River Project monument area adjacent to Lowland Road.

Option 2.

The second option again connects the existing trail leading down from the pedestrian bridge and crosses the existing swale. From this point, the trail would follow an expanded and improved shoulder along Lowland Road, passing underneath the I-78 bridge. The two-way route would continue north to the Industrial Drive and Lowland Road intersection where the path would continue straight, following the dam access road and past the Schuylkill River Project monument.

Figure 3. 11 The large steel through-truss bridge of the Bartram Trail provides the opportunity for an interpretative point with great views of the Kernsville Dam and river.

sketch plan

Numerous improvements would have to be made to the shoulder of Lowland Road to create a safe and separate pedestrian/cycle lane. The shoulder would be improved to twelve foot width. In addition, a barrier, such as a guiderail, between the trail and the road should be installed. This route modifies the existing drainage swale and possibly requires some wetland mitigation along Lowland Road. Since BAMR's use of the basin may be only a few years away, option 2, the trail along Lowland Road, is the recommended option. In the future, a trail on top of the impounding basin dike could be a fantastic loop trail.

The trail continues north, past the Schuylkill River Project monument area. This is the only existing vehicular entrance to the basin, and has the potential of being an interpretation point that identifies and describes the Schuylkill River Project. This sandy vacant site has an interesting history and an intriguing landscape. The parking area should be defined by either curbing or railing. The access to the basin should be gated. Interpretive signage will explain the importance of the dredging process.

From this point, the trail will cross the dam access road at a designated crossing. The trail continues along the Bartram Trail (former Pennsylvania Railroad right-of-way) owned by SRGA, heading north toward the dam area.

The trail continues to the large steel through-truss bridge. The bridge provides great views of the dam and surrounding area. A ramp will be constructed down from the Bartram Trail just before the bridge to the existing grade of dam area. The trail route will parallel the road and will continue north from this point, to the proposed recreational fields along the river.

RECOMMENDED USE OF STATE LANDS - ACREAGE AND PERCENTAGE

The recommendations of this master plan will utilize the 252 acres of state land in the following manner:

Area	*Acreage*	*Percentage of 252 acres*
Multi-purpose fields (3)	8	3.2%
Parking (170 cars), new and existing roads, boat launch	4	1.6%
Lands remaining undisturbed	165	65.5%
Impounding basin	75	29.7%
Total BAMR Lands	252	100.0%

The Kernsville Impounding Basin

Initial concepts by both BAMR and the community for the recreational use of the state lands focused on using the impounding basin for sports fields. As this was investigated, however, it became apparent that this concept was impractical for at least the next five to seven years.

The Bureau of Abandoned Mine Reclamation must dredge the Kernsville pool in the near future. Immediate use of the basin for sports fields is not recommended as any sports field use of the basin would be lost once the dredging process began.

One option to advance the use of the basin would be to alter the storage area. The construction of a new berm, parallel the northern side of I-78, would separate the basin. The southern basin could be filled with dredged materials from the north basin. This would elevate the southern area and increase storage capacity in the upper basin area. A topsoil cap would be required to provide a useable surface for recreational fields. The costs associated with the construction of the inner berm and drainage, as well as moving the existing spoils to the southern area, capping, and necessary vehicular access would make this option prohibitively expensive compared to other options.

BAMR has determined that dredging of the Kernsville desilting pool will occur in approximately four years. The dredging operation may require up to two years and the "settling" of dredge materials in the impounding basin may require an additional year. Regardless of the exact timetable, BAMR has agreed in principle that dredging will occur. For these reasons, use of the impounding basin in the next several years in not recommended. After dredging operations are complete and the impounding basin is filled to capacity (as per BAMR's preliminary calculations), BAMR and the community may once again consider the development of sports fields or other uses in the filled basin.

Recommended Improvements

After thorough investigation, alternative solutions were developed for various sections of the Commonwealth lands. These alternatives were developed to provide the greatest flexibility to the state and the Hamburg community in utilizing these lands.

Recommendations include:

Passive Recreational Uses

Nature/Wildlife Preserves .

Most areas in the project area should remain as nature preserves. These areas include the island located on the Schuylkill River between the pedestrian and the I-78 bridges, the island just north of the northern tip of the desilting basin, the area just below the Kernsville Dam, and an area on the northern tip of the site, should be protected and managed as nature preserves. This plan calls for 165 acres of the 252 acre site to remain undisturbed.

Play/Picnic/Fishing Area.

Just north of the proposed boat launch, a multipurpose area including picnic facilities, a playground

and a dedicated shoreline for fishing is proposed. This area is strategically located near the proposed northern athletic fields giving parents the opportunity to supervise one child while their other children are participating in organized sports. A picnic pavilion with grills or barbecue pits is also recommended.

Motor Boat Launch.

A new boat launch facility is at the terminus of the dam access road. This area of land sufficiently accommodates a boat launch facility, vehicular turnaround and parking. In order to accommodate their new, large dredge equipment, BAMR must create a new boat launch site. It is recommended that BAMR build their construction access dredge launch at this location. Upon completion of dredging operations, the launch can be converted for permanent recreational boat access.

ACTIVE RECREATIONAL USES

Central Sports Area.

Located just south of the Kernsville Dam and near the Bartram Trail connection there exists sufficient acreage to immediately construct a multipurpose athletic field with parking and support facilities. The current alignment of the dam access road must be moved slightly to the west to accommodate these changes. This should be the first field constructed.

Future Multi-Purpose fields.

The northern area of the site can accommodate up to five full sized athletic fields. These fields could be utilized for multiple sports including soccer, baseball and football. A gate at the southern terminus of this facility above the proposed new boat launch will control off-season use. Based on community recommendations, this master plan recommends that two athletic fields with associated parking be built at this location.

Parking.

The two proposed northern athletic fields and boat launch will require approximately one hundred and twenty (120) parking spaces to accommodate spectators and participants. A two-bay parking area will be located along the western edge of the site on both sides of the access road. The parking will parallel the active rail line, separated by a fence. Locating parking on the interior of the site will have little impact on views into the site from the river. A turnaround for drop-off is recommended at the northern terminus.

Estimated Parking:

Multi-purposed field (3 fields x 50 cars/each)	150 cars
Boat launch	20 cars
Total	170 cars

Support Facilities.

It is necessary to provide support facilities for the active recreation areas including men's and women's restrooms, a concession area, storage, utilities, and security. It is recommended that these facilities be built adjacent to the northern athletic fields.

Native Plant Riparian Buffer.

A native riparian planting buffers between the river and the sports facilities. Vegetation reduces soil erosion along the riverbanks and discourages geese

migration onto the site. The riparian buffer will create a visual buffer between the fields and the river and create an intriguing setting along the river walk trail.

Access and Linkages

Improved Access Road.

The dam access road requires paving improvements that are absolutely imperative. Repaving the cartway width to twenty feet for the entire length will accommodate park traffic and emergency and maintenance vehicles. It will also be necessary to extend the length of the road to serve the proposed northern fields and boat launch facility. It is recommended that BAMR improve the road to facilitate dredging operations.

The dredge pipe must run from the desilting pool along the road to the impounding basin. Frequent high pressure leaks from the eighteen inch diameter pipe are common. BAMR should make provisions in the road widening to allow for the pipe and a temporary "jersey barrier" to protect those using the road from these leaks during the one to two years of dredging.

The dredge pipe will provide a temporary inconvenience at the Central Sports Area. A ramp / steps and interim parking along the road can accommodate this temporary condition.

Woodland Interpretive Trail.

An interpretive/woodland trail between the banks of the Schuylkill River and the impounding basin should be developed. The trail begins at the south end of the basin, linking to the pedestrian bridge with steps. It continues north between the edge of the basin and the Schuylkill River. The trail will eventually round the top of the basin, and then head back south to the Kernsville Desilting Project Monument. The woodland trail can incorporate interpretive information about riparian vegetation, successional growth, and the river.

Canoe Portage Route.

Due to the closing of the existing BAMR boat ramp, it is necessary to provide a new portage route for canoes. The boat launch must be located at least 200 feet above the dam and 100 feet below the dam. Above the dam, a new portage should be located just north of the existing maintenance building. Below the dam, a new portage route would be located at the specified 100 feet from the dam. The installation of a well-marked portage trail between the two launches will help guide boaters between the two sites.

River Walk Trail.

A loop walking trail links the park, connecting the central sports field with the portage route, as well as the new boat launch, northern play fields and parking area, and native plant garden. The trail loop around the northern athletic fields provides a jogging / walking trail that focuses on the great views along the river. The ten-foot wide trail will be located in or adjacent to the riparian buffer that is proposed along the length of the river.

Appalachian Trail Connection.

The existing Bicentennial Trail could be utilized to link Hamburg to the Appalachian Trail. From the terminus of the Bicentennial Trail, a new trail is recommended parallel to Blue Mountain Road to the Olivet Blue Mountain Camp. From this point, an existing trail runs up the mountain from the camp connecting to the Appalachian Trail.

IMPOUNDING BASIN

Kernsville Basin Monument Interpretive Point.

The impressive monument dedicated to the completion of the Kernsville Dam project deserves a small interpretive area. Parking and appropriate signage describing the interesting history of the Schuylkill River Project and its importance to the continued health of the river will foster awareness and understanding of the site.

Vegetative Buffer.

A screen planting between the access road and the impounding basin will help block views of the scared landscape. The buffer should include the berming of earth at the north western edge of the basin where the dam access road closely parallels the basin.

Impounding Basin Uses.

Until the dredging of the pool is completed, the basin area may either remain in its present condition, or it could be seeded with warm season grasses to provide a minimum level of vegetative cover and enhance wildlife habitat.

Once dredging operations are completed, there will be several options that should be considered by BAMR and the community. These include:

- Additional active recreational fields / uses;
- Permanent seeding / planting of native species to establish cover and wildlife habitat
- Introduction of group camping or some other "passive' use

It must be understood, future dredging of the Kernsville desilting pool may need to be completed at some future date (2030?, 2050?) and that uses in the basin may disrupted at that time.

Recommended Sequence of Improvements

Immediate improvements:

- Nature areas preservation
- Trail construction from Hamburg pedestrian bridge to through truss bridge
- Central sports area field and parking (adjacent to dam)
- Canoe portage route
- Dam access road improvements
- Basin vegetative buffer
- Kernsville basin monument interpretive area

Intermediate improvements:

- Woodland interpretive trail
- Native plant riparian buffer along river
- Northern athletic fields and parking & support facilities
- River walk trail
- Play area and fishing area
- Appalachian Trail Connection

Long term improvements:

- Motor Boat launch
- Basin uses

Cost Estimate Summary

Bartram Trail

Subtotal $90,532.00

Active Recreational Uses

Central Sports Area

Subtotal $88,006.00

Northern Sports Area

Subtotal $463,555.00

Access Road

Subtotal $261,332.00

Boat Launch

Subtotal $29,400.00

Canoe Portage and Launch

Subtotal $22,000.00

Total Cost **$954,825.00**

upper plan

lower plan

The Kernsville Dam Recreation Area Cost Estimate

Item	Qty	Unit	Unit Cost	Total
Bartram Trail Extension				
Trail - Pedestrian Bridge to Bartram Trail (10' wide aspha	2888	SY	$14.00	$40,432.00
Metal Guide Rail - along Lowland Road	2100	LF	$15.00	$31,500.00
24" Concrete drainage pipe	2100	LF	$6.00	$12,600.00
3 Storm water catch basins	3	EA	$2,000.00	$6,000.00
Subtotal				**$90,532.00**
Road				
Access Road improvement	16111	SY	$12.00	$193,332.00
Access gates	2	EA	$3,000.00	$6,000.00
Metal Guide Rail	1800	LF	$15.00	$27,000.00
Vegetated buffer along basin	1400	LF	$25.00	$35,000.00
Subtotal				**$261,332.00**
Northern Sports Area (along river)				
Clear and Grub trees	300	MSF	$150.00	$45,000.00
Strip topsoil (SY x 6" = CY)	2390	CY	$1.50	$3,585.00
Grade fields area (6" depth)	2390	CY	$3.00	$7,170.00
Storm water drainage	1	LS	$50,000.00	$50,000.00
Seed Two Athletic Fields - H.S. Regulation (195' x 330')	128700	SF	$0.06	$7,722.00
Potable water service (well)	1	LS	$12,000.00	$12,000.00
Irrigation for fields(spigots for hose bibs/sprinklers)	1	LS	$15,000.00	$15,000.00
Irrigation Pump	1	LS	$5,000.00	$5,000.00
Restroom / storage / concession building	1	EA	$60,000.00	$60,000.00
Playground	1	LS	$30,000.00	$30,000.00
Picnic pavilion	1	EA	$20,000.00	$20,000.00
Dam access road - new segements (not inc. parking area	900	SY	$14.00	$12,600.00
Parking gravel (350 SF/space) - 120 parking spaces + a	4700	SY	$10.00	$47,000.00
Fencing along RR tracks (6' chain link)	4500	LF	$13.20	$59,400.00
Native Plant Garden	1	LS	$10,000.00	$10,000.00
Trail - Loop woodland trail (Northern) (6' wide mulch)	5066	SY	$8.00	$40,528.00
Security lighting	1	LS	$7,500.00	$7,500.00
Electrical service	1	LS	$7,500.00	$7,500.00
Tree planting	50	EA	$150.00	$7,500.00
Soccer Goals	4	EA	$2,500.00	$10,000.00
Baseball Backstop	1	EA	$6,050.00	$6,050.00
Subtotal				**$463.555.00**

Item	Qty	Unit	Unit Cost	Total
Central Sports Area (adjacent to dam)				
Clear and Grub	7.3	MSF	$150.00	$1,095.00
Grade fields area (6" depth)	1200	CY	$3.00	$3,600.00
Add topsoil (SY x 6" = CY)	1200	CY	$30.00	$36,000.00
Storm Water drainage	1	LS	$8,000.00	$8,000.00
Seed 1 Athletic Field - H.S. Regulation (195' x 330')	64350	SF	$0.06	$3,861.00
Irrigation for fields(spigots for hose bibs/sprinklers)	1	LS	$3,500.00	$3,500.00
Parking (50 spaces - gravel)	1945	SY	$10.00	$19,450.00
Security lighting	1	LS	$2,500.00	$2,500.00
Electrical services	1	LS	$2,000.00	$2,000.00
Soccer Goals	2	EA	$2,500.00	$5,000.00
Tree planting	20	EA	$150.00	$3,000.00
Subtotal				**$88,006.00**
Canoe Launch				
Trail - Portage route (10' wide gravel)	700	SY	$10.00	$7,000.00
Wooden docks - two	2	EA	$7,500.00	$15,000.00
Subtotal				**$22,000.00**
Boat Launch				
Concrete pad	1	LS	$10,000.00	$10,000.00
Parking - boat launch - 50 spaces - gravel	1940	SY	$10.00	$19,400.00
Subtotal				**$29,400.00**
Total cost				**$954,825.00**

MAINTENANCE

MAINTENANCE PHILOSOPHY

The Kernsville Dam Recreation Area will contain facilities for both active and passive recreation, serving all age groups year-round. Maintenance goals must strive to minimize any real or perceived risks of injury and provide residents with an attractive facility, all within a limited maintenance budget. "Best maintenance or management practices" should be implemented, assuring a quality facility and healthy habitat. As labor, equipment, and material costs continue to rise, so will the cost of maintaining the park. The Northern Berks Recreation Corporation must continually strive to achieve high quality maintenance with as little public funds as possible.

In addition to the Corporation upholding and increasing its efficiency in maintaining the park, local residents must also share this responsibility. The community can greatly assist by undertaking "clean-up" events, sponsoring planting events, and encouraging residents to keep the park clean and litter free.

ACTIVE FIELDS

The most intense and regular maintenance is required on the multi-purpose fields. In addition to frequency of use, seasonal and cyclic weather conditions will also affect the maintenance requirements of the fields.

The most important factor that the Corporation will have under its control is the quality of its maintenance efforts. Quality relates to using the correct equipment for the specific task, performing a task at the correct time, and closely monitoring conditions so that the maintenance schedule can be adjusted to react to use, weather, or other factors. Even with the best maintenance of the athletic fields, turf rehabilitation is periodically required.

One of the greatest concerns for safety on athletic fields is compaction. Hard playing fields can lead to increased injuries. Proper maintenance of the athletic fields should not be considered a luxury, but a matter of safety. Aeration, fertilization, and irrigation are the best prevention to field compaction, and should be completed several times a year.

RESTROOMS

Each facility should be checked daily when closed at dusk. Any problems should be addressed promptly. The restroom should be cleaned at least five times a week during peak use periods during the summer. Once or twice a week cleaning should suffice during the remainder of the year when it is open.

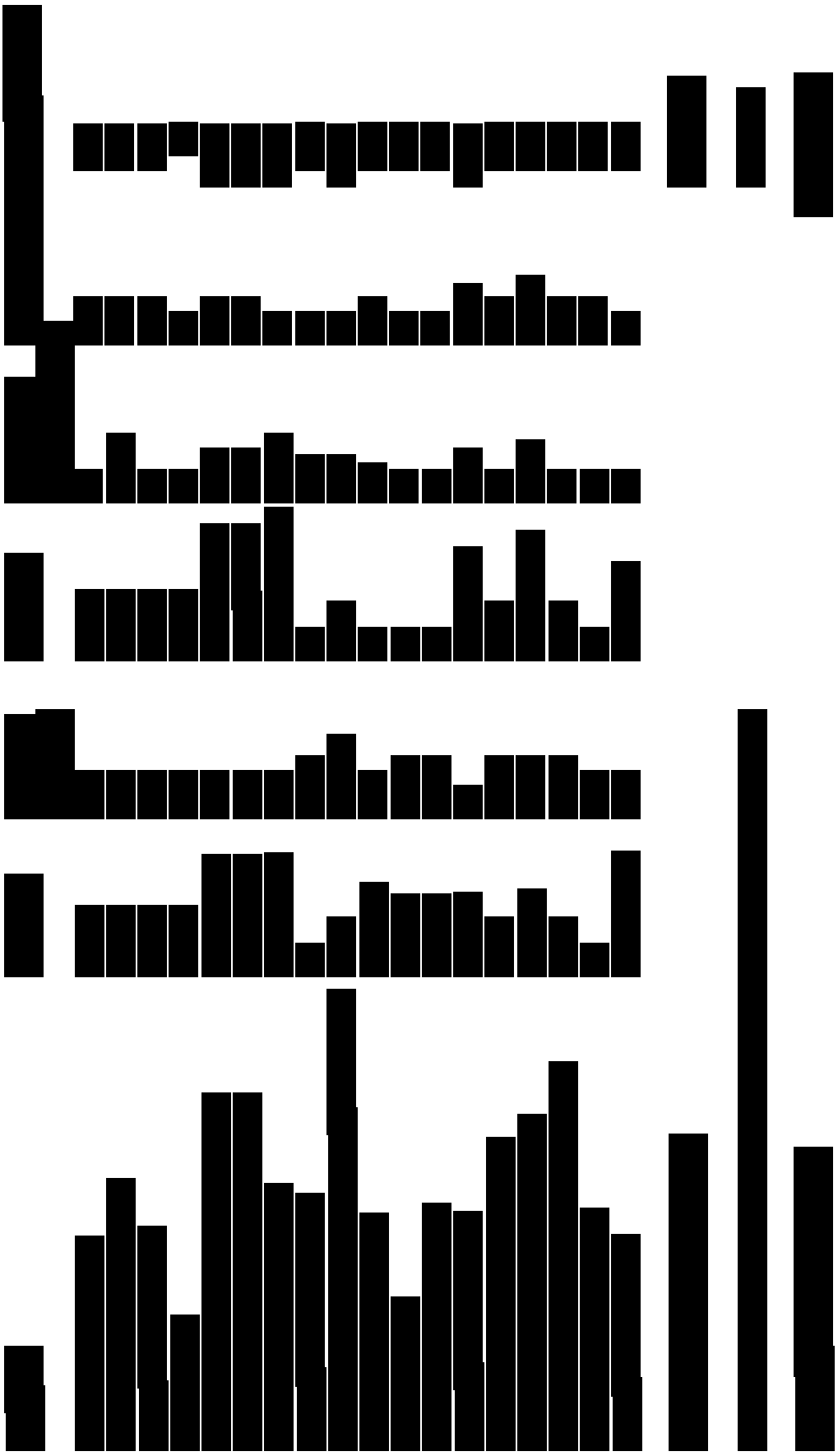
As a cost-savings option, portable toilets could be utilized until a permanent bathroom is constructed.

PLAYGROUND

The playground safety surface should be thoroughly inspected once a week for broken glass or other debris that might cause injury. The play equipment should be formally and closely inspected once a month for worn or missing parts or connections. Fencing should be inspected annually for proper and tight connections.

TRAILS

The stone dust trails will require yearly maintenance. During the spring and summer, vegetative growth, such as weeds and grasses should be controlled. The turf on either side of the trail should be maintained at a height less than 6". The stone dust will need to be supplemented and rolled yearly. Because the trail may be susceptible to occasional washing out, inspect the trail regularly, particularly after heavy storms and repair immediately as needed.



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