

# The Great Hot Spots Tour

## Paxton Creek Watershed and Education Association A Self-Guided Driving Tour

### Background

This tour aims at watershed awareness through familiarization and education. The tour is a precursor to a new initiative on stormwater management through impervious surface retrofit and low impact development, which will be launched in mid-summer, 2002, by Paxton Creek Watershed and Education Association (PCWEA) .

This document of six pages describes a PCWEA driving tour of parts of Paxton Creek watershed. It runs through parts of Lower Paxton and Susquehanna Townships, and the City of Harrisburg in Pennsylvania. The tour focuses upon places in the watershed with severe impairment mainly from erosion and sedimentation, locations promising for remediation, and sites of opportunity for enhancement or protection. The self-guided tour is based upon a real tour conducted on April 20, 2002. This is a modified version of the real tour, which included a stop at a private home site. Another location, similar to that one, has been substituted.

**\*\*Tour difficulties are not anticipated, but a few places require caution. PCWEA disclaims any problems that parties might experience when taking this tour \*\***

Lessons to be learned from the tour include the following observations:

- The main problem of stormwater in Paxton Creek watershed is runoff from impervious surfaces; stormwaters are temporarily stored in detention basins and released off site, as compared to the preferable on site infiltration of stormwaters, and/or storage in wetlands.
- Grasses are much better than impervious surfaces at protecting streams from stormwater runoff, but grasses are relatively ineffective as compared to woodland and fringe ground cover.
- Associated with stormwater runoff is nonpoint source pollution, prevalent and pervasive in Paxton Creek watershed. Many pollutants such as the following types are involved: metals, oils and debris washed from roads and parking lots; fertilizers and pesticides from lawns and other landscape; heated waters off parking lots on hot days; unsanitary wastes from malfunctioning sewers and septic tanks; sediment eroded from many sources, particularly stream banks.
- Sediment has been, and continues to be, a particular problem for Paxton Creek. Excessive stormwater runoff associated with development has caused so much erosion and sedimentation that Wildwood Lake Sanctuary is no longer a functioning lake that has reserve capacity to store stormwaters, or support boating and similar recreation. The lake is so shallow from sediment, deposited by Paxton Creek, that the aquatic areas mainly consist of wetlands. Wildwood Lake is a superb wetland for the endangered American Lotus species!
- Existing impervious asphalt and concrete can be retrofitted to handle stormwater through

soaking beds, rainwater gardens, conservation ordinances, and other approaches and techniques.

The tour involves stops and discussions at eight sites, and passage by, and pauses at another seven sites. Descriptions and travel directions are given below.

## Tour Sites

(Set odometer counter reading to 0.0 miles, at the Blue Hen Ct. intersection near the end of Patton Road, at the base of Blue Mountain in Lower Paxton Township. **During the tour odometer readings may vary among vehicles.**

*Headwaters, Patton Road* Patton Road begins a few hundred yards east (towards Linglestown) from the intersection of Route 39 with Colonial Road, and leads back towards the mountain (**Start**, mile point 0.0) At the junction of impaired and unimpaired creek branches -- street-wide culverts underneath Patton Road and Blue Hen Ct. Note (1) differences in types of land cover along the two branches: the unimpaired branch drains from forests and fields; this landscape vegetation appears messy, but the organic matter present is effective in absorbing most stormwaters before they reach the stream; the other branch in the area drains from a residential subdivision with runoff mainly from impervious surfaces, (2) the sizes of the culverts for expected stormwater volumes are quite large, attesting to the volumes of stormwaters involved, and (3) the relative ineffectiveness of grasses as a buffer to protect streams is evident; the banks of the branch going behind the residential buildings along Patton Road look nibbled along their edges — erosion! — despite grassy lawns extending from the residences to the edges of the stream; grasses are limited at absorbing stormwaters. This site and others are being monitored by the Paxton Creek Rangers of the PCWEA.

(Go back along Patton Road for a mile, and turn left onto Route 39. Travel east for 0.8 mile; turn right onto Colonial Club Road. After 0.5 mile make a right turn onto Goose Valley Road, where the following items can be observed)

*Goose Valley Road (Drive, mile points 1.9-3.9)* Observe en route the relationship between vegetation and creek condition (i.e., relatively unimpaired reaches exist upstream and downstream of the golf course; only a relatively narrow strip of woodland and shrub vegetation are adjacent to the creek; it is enough to protect from storm runoff associated with new developments in the area.

*Colonial Golf Club (Drive, pausing at mile point 2.5)* In the distance on the right side the banks of Paxton Creek can be seen cutting across the landscape, parallel with Goose Valley Road. The banks of the stream are eroding and slumping, as the buffer grasses inadequately protect the creek. Golf courses are also known for their nonpoint source pollution, consisting of runoff with products to enhance and protect the golf course landscape (e.g., fertilizers and pesticides).

*Winchester Park Retention Pond (Drive, pausing at mile point 2.8)* Vegetation such as cattails exist in this pond, usually dry, located on the left side behind a high embankment near the entrance to the Winchester Park. Much stormwater runoff flows from impervious surfaces in this development into the retention area, which is surrounded by a fence. Note that this is a retention basin, not a detention pond where waters can be temporarily stored before discharge into Paxton Creek; although this stormwater alternative does not exacerbate erosion, potential infiltration on site and aquifer replenishment are reduced. On site management of stormwaters from each residence would be much more desirable.

*Wooded Floodplain* (Drive, pausing at mile point 3.2) The creek channel on the right side has eroded to bedrock, and is too deep for most stream overflows, except during heavy storm events; in effect, this floodplain is nonfunctional during 95% of the storms.

(Turn left onto Colonial Road at mile point 3.9, and go 1.5 miles to a stoplight for the mall and apartments. Turn right into the apartments complex, and go around to the management office parking area via North Arlington and Williamsburg Streets; follow the office directional signs for the management office to the parking area)

*The Brook Apartments* (**Stop**, mile point 5.9) Note (1) evidence exists of severe erosion with grass-covered slumps from waters released from underground mall storage; erosion has reached to bedrock, and expanded with increased stormwater volumes, (2) as shown by erosion from side drains, grass is ineffective as a protective buffer, (3) steep slopes are relatively unstable, (4) physical objects such as bridges and pipes are vulnerable to erosion, even leading to collapse of structures downstream, (5) infiltration opportunities were missed, where side culverts extend from lots and buildings directly to the stream, rather than drain into swales before reaching the main ditch, (6) there is an absence of energy dissipaters (large stones) beneath the outlets of culverts, to reduce the force of flowing waters, and (7) remediation would require cutting the embankments to create floodplains, before protective shrub and woodland vegetation could be planted.

(Return along the same route to the apartment complex stoplight, and drive straight across into the mall area, and into the left lot for a brief stop)

*Colonial Park Mall* (**Stop**, mile point 6.5) Note (1) the slight drainage slope on the mall lot, leading towards the southwestern corner, where curbs separate runoff from island vegetation and potential infiltration sites, (2) Prospects for desirable stormwater retrofit could include: removal of curbs, and other barriers between stormwater and infiltration places; soaking strips along the lot perimeter; rainwater gardens and soaking trenches at intervals throughout the lot, with slight pavement humps to direct flows towards rainwater gardens — NOT surface detention basins, or storage tanks underneath the lot (the present approach to stormwater management).

(Upon leaving the mall, turn right onto Colonial Road. Travel approximately 1.8 mile, and turn left onto McIntosh Road at mile point 8.3; the destination is at mile point 8.7, a creek crossing at a small bridge-culvert in the road dip; a white fence and barn will be observed on the left as the site is approached)

*McIntosh Road Farm* (Drive, pausing at mile point 8.7) Note the differences as to the stream width, extent of bank erosion, and width of the stream at distances of 50 feet left and right from the bridge. On the left grasses have been planted and mowed to the edge of the stream, where more erosion has occurred (observe the ragged edges and sloping/undercut banks). A small, secondary floodplain area is starting to build in the stream, as deposits in the stream have accumulated near a bank. The whole area is a historical floodplain. It does not serve that function (i.e., water storage), now, following minor storm events, because the stream has eroded so deep that moderate stream levels do not go over the tops of the banks. Due to increased volumes of upstream runoff, the creek has widened because it can not go deeper (bedrock has been reached), further eroding the banks as the larger amounts of water have to be accommodated.

Compare this situation with the reach of the creek on the right side of the bridge. Away from the vicinity of the bridge, the stream is more narrow, and erosion is less evident. Considerable shrubs and trees line the banks, which have a quite messy appearance as compared to the mowed landscape on the other side of the bridge. This fringe vegetation is an ideal buffer, which protects

the stream from stormwater runoff into the creek. Once, again, the area exhibits the limited effectiveness of grasses as buffer plantings. A lesson to be learned: messy vegetation is good!

(Continue on along McIntosh Road to its end. Turn left onto Crums Mill Road, go 0.2 mile, and turn right onto Paxton Church Road. Continue on Paxton Church Road, crossing Progress Avenue; at approximately 100 yards on the left past a shopping center is the entrance/exit to a residential development)

*Brandywine Village Detention Basin (Drive, **Stop**, mile point 10.2)* Note: immediately before the entrance is a small detention basin, containing cattails and a short riser drain pipe; this pipe discharges stormwaters received from the development behind vegetation another 50 yards alongside Paxton Church Road ; inadequate energy dissipaters (boulders, big stones) at the end of the pipe have allowed severe erosion, reaching to bedrock.

Detention basins are the main existing stormwater control technique in the watershed. They can have serious drawbacks, which include the following: worsen erosion through a “fire hose effect “ from improperly-placed discharge pipes; allow very little on site infiltration to recharge aquifers, resulting in diminished groundwaters, which worsen supplies to wells and streams during drought periods; habitats become degraded for aquatic wildlife, as sediment clogs creeks, and stream flows diminish and dry up due to inadequate aquifer recharges; detention basins only **temporarily** store stormwaters, which after their release may join downstream with waters from other detention basins and storage areas, causing larger creek flows with greater erosion, more sedimentation, and even flooding. “Why are detention basins used? “ you ask. They allow more impervious surfaces (e.g., roof tops, parking lots, roads and other developments) at specific locations, but create severe problems for neighbors, other parties, and places downstream.

(Continue on along Paxton Church Road; around a big curve, past Shutt Mill Road at mile 11.3, and continue slowly on Paxton Church Road.

*Paxton Church Road, West End (Drive, pausing at mile point 11.4)* Observe in the distance among the trees on the left, deep erosion cuts into banks and a wider stream, because of aggregated flows from creek branches draining areas upstream. Pins placed in at various levels of an embankment for measuring erosion are present, but they cannot be seen from the road.

(Continue along Paxton Church Road to its end, and turn left onto Crooked Hill Road. Go past Harrisburg post office on the left, and proceed to Elmerton Avenue. Turn left onto Elmerton Avenue at the traffic light , and continue)

*Parking Lot Detention Basin (Drive, pausing at mile point 12.7)* Erosion exists on the inside slopes of the stormwater detention basin, which receives drainage off the Farm Show shuttle parking area above the basin. This 20-acre lot, although constructed in 2001, has no on site infiltration of stormwaters through runoff trenches, swales, or other approaches..

(Continue on Elmerton Avenue past the community gardens, and turn right onto State Farm Road; go 0.3 mile downhill to a small parking area on the left at the creek. **Caution** Potentially dangerous parking — exercise care!)

*State Farm Road Curve Vicinity (**Stop**, mile point 13.5)* Note : A lot can be seen at this site. The stream is the Asylum Run part of Paxton Creek. It is a tributary with flashy flows. This means the water levels can vary greatly with storm events, due to rapid runoff upstream from massive amounts of impervious surfaces in Colonial Park, Penbrook, and adjacent areas. (1) The bridge has adequate width and hydraulic capacity for water volume changes; many bridges are too small, with erosion occurring at abutments, (2) access to Capital Area Greenbelt occurs, here.

Both upstream and downstream shrubs and trees have been planted on the floodplain, and along the trail by Greenbelt volunteers and HACC students, (3) a Gabion mat (wire container filled with stones) exists along a bank upstream of the bridge; gabions are useful in protecting erosion-prone areas, when installed properly, (4) considerable refuse and debris (even deer carcass remains) have been deposited at this out-of-the-way site by people who are poor environmental stewards, (5) beyond the cable limiting access to vehicles is an abandoned restaurant/club; severe encroachment of the parking area next to the creek has occurred, where erosion is undermining the asphalt surface; pins marked by flagging material have been driven into the sides of the embankment at this location for monitoring erosion **Caution** Potentially dangerous situation exists in leaning over the edge to observe the pins Evident in this area are portals to a major interceptor sewer that runs from suburban townships alongside Asylum Run, a typical pattern for many streams; construction of sewers alongside streams may enhance erosion, by placing unconsolidated soils in the vicinity of flowing waters, (6) a small ribbon floodplain is adjacent to the creek, and (7) drainage from Elmerton Road and the Veterans' Park area enter Paxton Creek through a large culvert, here. This site and others in the watershed are being monitored by Paxton Creek Rangers of the PCWEA. At this location and others are measurement plates affixed to objects alongside the creek ; these are staff gauges that show water levels, which are recorded by the stream monitors.

(Return and turn left onto Elmerton Avenue, and proceed straight, crossing Cameron Street, and onto Industrial Road. Go past the Farm Show and HACC, until immediately past the I-81 overpass at mile point 16.3, turn right into Wildwood Way leading into Wildwood Lake Sanctuary; park in the lot by Olewine Nature Center, and walk along the bike path N. to bridge, where the main stem of Paxton Creek enters the park)

**Wildwood Lake Sanctuary (Stop, mile point 16.7)** Note (1) the extent of sediment accumulation in this vicinity of Paxton Creek is extreme, as the creek reduces gradient and slows; muck more than six inches deep exists in places on the bottom of the creek, here, (2) the main channel has been blocked with sediment and debris for years, causing a new branch to develop, wind its way through woods and wetlands to the base of the upland rise near Olewine Nature Center, and out of the lake south via Morning Glory Drain, and (3) so much sediment and debris has entered the lake that deltas have formed, creating habitat changes (i.e., trees and shrubs on higher grounds), severely restricting water circulation, and nearly separating the lake into lobes. WATER & RESTROOMS are available, here, in the Olewine Nature Center most days between 10 am-4 pm.

(Return back along the same route along Industrial Road towards Cameron Street)

**Wetlands Strip (Drive, pausing at mile point 18.6)** Area on right receives drainage off Farm Show parking lots and roads. Despite flood-prone conditions along this reach of Paxton Creek, especially near the Asylum Run confluence, stormwater retrofit and on site infiltration (e.g., rainwater gardens) are not being practiced in this area, exacerbating flood vulnerability.

(Continue on same route to the traffic light on Cameron Street at mile point 18.7, and turn right)

**Paxton Creek Corridor Parallel to Cameron Street (Drive, mile point 18.7 and forward)** Downstream from Wildwood Lake, Paxton Creek is channelized, crossing HACC and Harrisburg, until reaching confluence with the Susquehanna River past the PennDOT building south of I-83, and off Rosebud Island. Observe in the distance on the right channelized Paxton Creek beneath trees (around mile point 20.2), next to impervious surfaces, old buildings, old and new enterprises (Subway Cafe, Appalachian Brewery); these are opportunities for trails and micro-

parks — places for potential urban respites, providing relief for urban workers, and enhancing economic redevelopment.

(At mile point 20.8 turn right into the right lane beside Mulberry Street high bridge, and go around and park by the creek facing east underneath the bridge, taking care not to block traffic)

***Encroachment Beneath Mulberry Street High Bridge (Stop, mile point 20.9)*** Note (1) Paxton Creek is basically a ditch at this point, a straight channel with a concrete liner; these features allow stream flows to travel more quickly away from local areas, reducing vulnerability to floods, but making worse conditions for communities downstream; the concrete liner also affords very poor substrate for aquatic organisms, making Paxton Creek a biological death in this portion of the watershed, (2) reinforced high channel walls stabilize the creek banks, but contain no floodplains for water storage, or habitats for aquatic creatures, (3) lateral drainage pipes exist, with some draining fluids which may contribute to the pollution load of Paxton Creek and (4) impervious surfaces, mainly buildings and parking areas encroach upon the stream; the creek has no vegetative buffers to protect it from nonpoint source pollution along much of its urban route. The arches of this old bridge have an aesthetic appeal, which may be enhanced by murals painted onto the bridge in the near future.

(Turn right onto Cameron Street, and travel 1.3 miles to Ames True Temper parking lot on the right (**Caution:** a narrow entrance exists just past the abandoned Robbins Door and Sash building, followed by a copse of trees and a billboard which immediately precede the entrance)

***Capital Area Greenbelt Crossing (Stop, Tour Finish, mile point 22.2)*** Access to the Capital Area Greenbelt is here; after securing vehicles, walk along the Greenbelt a short distance to a bridge across Paxton Creek. Note (1) a collapse of the creek's concrete liner is shown, further attesting to the dysfunction of stream liners, (2) portals to sewer mains are located along Paxton Creek in this vicinity; these sewers drain to a pumping station, and nearby wastewater treatment plant for Harrisburg, and (3) beside the creek is a tall stone pillar (abutment?) for the PA Canal, which probably crossed above this site before year 1900. Can you imagine small packet canal boats floating in a trough (bridge) above your head, as would occurred before and during the Civil War? The main Paxton Creek mouth is another half mile downstream, and a ten-minute walk from this point, partially along the Greenbelt.

The Great Hot Spots Tour ends at this bridge, not at the mouth of Paxton Creek. If you desire a little refreshment, a little further along the Greenbelt, off to the right is the Lochiel Hotel and Bar, a run-down establishment with unique charm; at this place you can get drinks, simple food, (and hot blues music on Thursday nights); the Lochiel is also reachable via Shanois Street off Cameron.

**(Caution:** dangerous traffic situation exists when leaving the lot onto Cameron Street; a safer exit from the lot is located further to the S. in the parking area)

Sponsored by the Paxton Creek Watershed and Education Association  
[www.hacc.edu/paxtoncreek](http://www.hacc.edu/paxtoncreek)

— Funded Partially by a Growing Greener grant —