I. INTRODUCTION

Skelly and Loy, Inc. was contracted by the Township of Upper St. Clair and in cooperation with the Upper St. Clair Citizens for Land Stewardship to conduct the McLaughlin Run Watershed Assessment which consisted of a stream corridor evaluation of all waterways within the McLaughlin Run watershed. The McLaughlin Run watershed encompasses an area of approximately 7.2 square miles including portions of Upper St. Clair, Bethel Park, and Bridgeville, Pennsylvania. The assessment was completed with funding provided by the Environmental Protection Agency's 319 Grant Program.

The first portion of the work scope included completing a stream corridor evaluation identifying both stable and unstable stream reaches and classifying the streams in accordance with David Rosgen's natural rivers classification system using fluvial geomorphological principles as outlined in his book entitled "Applied River Morphology". The second component of the work scope included developing a prioritization of impacted stream reaches in order to better direct future stream restoration and stabilization efforts. This prioritization is intended to ensure long-term effectiveness of future restoration and stabilization efforts, identify critical reaches and sediment sources, and serve as a foundation for a coordinated and effective watershed management plan. This report is an integrative tool for community planners, township officials, and local watershed associations that can be used as a guide to enhance streambank and riparian corridor habitats throughout the McLaughlin Run watershed.

IV. RESULTS

The McLaughlin Run watershed is a highly urbanized area in which increases in runoff have greatly affected the drainage system. The increase in runoff and lack of stormwater control have also increased the channel erosion potential and sediment transport capacity of the streams. The increase in sediment capacity has resulted in the severe degradation of stream channels and banks. In some cases, the channels are actively widening and encroaching upon surrounding infrastructure. In other cases, the channel has become over-widened and is prompting the aggradation of excess sediment and limiting the active flow area of the stream. This assessment provided the proper tools to prioritize all streams for future stabilization/restoration efforts.

A. PRIORITIZING MCLAUGHLIN RUN STREAM REACHES

The stream reaches classified in Appendix A as "Poor" were further evaluated based on the potential for restoration and stream improvement. Each of the stream reaches listed was analyzed with respect to nine restoration elements.

1. Health and safety concerns
2. Number of landowners adjacent to reach
3. Easy access to site
4. Ability to restore flood-prone area without impacting surrounding infrastructure
5. Position of impacted reach within the watershed
6. Relationship of impacted reach to other "Good" stream sections
7. Potential for fixing downstream problems
8. Anticipated complexity of permit requirements
9. Overall construction cost to restore

The highest priority stream reaches are presented in Table 4 based on the above nine elements. Included in Appendix E is a matrix showing which one of the nine components is important to each site and identifying its respective priority (high, medium, low).

TABLE 4
HIGH PRIORITY STREAM REACHES

STREAM REACH IDENTIFICATION	REVISED USDA SCORE	RANKING
11	4.6	Poor
13	4.8	Poor
706/707/708	5.2/4.0/5.6	Poor/Poor/Poor
1502	4.0	Poor
1703/15/16	3.4/4.2/5.8	Poor/Poor/Poor
06	5.8	Poor
1901	4.6	Poor
203	4.0	Poor
709	2.0	Poor
02/04	5.4/5.2	Poor/Poor
08	5.0	Poor
17	5.2	Poor
302	4.8	Poor
504/505	5.2/4.0	Poor/Poor
1302/1303	4.0/5.4	Poor/Poor
18	3.4	Poor

The public health and safety of the surrounding area is a critical concern in deciding which stream reaches are in need of restoration. The undermining of a roadway by the unstable lateral movement of the channel could have devastating effects and therefore must be remedied first.

In addition, the number of landowners located adjacent to the impacted reach and access to the stream reach also affected stream priority. Essentially, the larger the number of landowners, the larger the coordination effort in planning a stream restoration project. Along the same lines, a site located in a remote location will complicate the construction effort, thus making a restoration plan more expensive.

TABLE 7
SUMMARY OF NEAR BANK STRESS RATINGS
FOR PERMANENT CROSS SECTIONS

VARIABLE	PROJECT SITE UPSTREAM	PROJECT SITE DOWNSTREAM	MCLAUGHLIN RUN/ LESNETT ROAD	GREASERS RUN
Cross-Sectional Area (square feet)	32.1	32.2	30.8	19
Near-Bank Cross-Sectional Area (square feet)	10.88	13.3	7.4	8.4
Ratio	0.34	0.41	0.24	0.44
Near Bank Stress Rating	Moderate	Moderate to High	Low	High

Once the streambank erosion potential and near bank stress rating were determined, the bank erodibility rate was estimated based on the results of Rosgen's empirical methodology (Rosgen, 1996). Table 8 provides the results of the streambank erodibility analysis.

TABLE 8
RESULTS OF STREAMBANK ERODIBILITY ANALYSIS

VARIABLE	PROJECT SITE UPSTREAM	PROJECT SITE DOWNSTREAM	MCLAUGHLIN RUN/ LESNETT ROAD	GREASERS RUN
Near Bank Stress Rating	Moderate	Moderate to High	Low	High
Streambank Erosion Potential	Extreme	Extreme	Very High	High
Bank Erosion Rate (feet/year)	1.0-1.2	1.5-1.8	0.18-0.45	0.5-1.1

The results of the BEHI procedure, as listed in Table 8, provide an average bank erodibility rate for McLaughlin Run and Greasers Run tributary as 1.1 feet/year and 0.8 feet/year, respectively. Actual bank erosion rates have yet to be determined in the field. The permanent cross sections were recently installed and have yet to be analyzed for long-term erosion rates. However, pictures taken six months apart (Photograph Nos. 1 and 2) at the McLaughlin Run upstream project site show significant erosion of the streambank. From these pictures, an estimate of the actual streambank erodibility was determined to be approximately 0.5-1.0 feet/year. This estimated value compares fairly well with the BEHI determined rate of 1.0-1.2 feet/year at the same location, thus providing confidence in BEHI results. Future monitoring of the permanent cross sections installed within the watershed will provide actual bank erosion rates and allow for validation of BEHI results. Overall, the BEHI analysis shows that the streambanks of McLaughlin Run and Greasers Run are highly unstable. As a result, bank stabilization efforts are warranted to prevent further erosion and deterioration of surrounding infrastructure.

V. FINDINGS AND RECOMMENDATIONS

The watershed assessment report is an integrative tool for community planners, township officials, and local watershed associations that can be used as a guide to enhance streambank and riparian corridor habitats throughout the McLaughlin Run watershed.

The majority of the McLaughlin Run watershed is a highly urbanized area in which streams have been impaired due to past land use practices (increased land development, stormwater runoff, stream channelization, and berm/dike construction). These land use practices have affected the hydro-physiographic regime of the watershed and have caused instabilities within the system. The major influence to the system is the stormwater runoff from increased impervious areas from land development. As identified previously, the McLaughlin Run watershed is comprised of approximately 21% impervious area. This amount of impervious area has significantly increased runoff and has caused a detrimental effect within the streams dynamic equilibrium. Research models demonstrate that stream instability begins to occur at about 10% imperviousness. Where these tools have been applied to urban watersheds, they have consistently shown that a sharp threshold in stream quality exists at approximately 10-15% imperviousness. The second threshold appears to occur at about 25% imperviousness where most indicators of stream quality shift to a poor condition (Rapid Watershed Planning Handbook, 1998). The three thresholds for classifying the potential streams quality are as follows.

- Sensitive Streams: 1-10% impervious cover
- Impacted Streams: 11-25% impervious cover
- Nonsupporting Streams: 26-100% imperious cover

Using impervious area as an indicator of a stream's potential quality and stability can be an important tool. This initial evaluation combined with the visual watershed assessment can validate the above stream classification scheme based on imperviousness.

From the visual watershed assessment, it is apparent that the lack of past stormwater management controls and increased runoff has increased streambank erosion rates and sediment transport capacity. Field observations of the actual bank erosion rate were made at one of the four permanent cross sections installed within the watershed. The predicted average erosion rate of 1.1 feet/year is consistent with the actual observed bank erosion. Ongoing monitoring of these permanent cross sections should be implemented to evaluate the long-term effectiveness of

stabilization/restoration efforts to reduce predicted bank erosion rates and increased channel stability.

The increase in sediment capacity has resulted in the degradation of stream channels and banks. This degradation of the stream channel banks is the natural response to the effects of increased flows. The natural response of streams to achieve a stable equilibrium is for the channels to actively widen and increase their bankfull cross-sectional area. This has caused encroachment problems upon the existing surrounding infrastructure. In other cases, the channel has become over widened and is prompting the aggradation of excess sediment and limiting active flow area of the stream. Also, stream channelization steepens stream slopes increasing velocities in the channel and accelerating bank erosion rates. These processes increase the width/depth ratio of streams and, in turn, reduce the stream facet riffle-pool sequences. Bank armoring with gabion baskets and retaining walls has accelerated downstream sediment transport problems, while, in some cases, only providing temporary solutions to severe bank degradation.

As a result of the watershed assessment, seven Best Management Practices (BMP's) were developed as strategies for streambank stabilization/restoration efforts. Each impacted reach and the identified BMP should be evaluated for long-term effectiveness for the watershed. The first five BMP's identify alternative methods to the traditional engineering methods that can be applied to unstable streams for streambank stabilization. The more traditional methods were considered only in situations where more natural techniques would be ineffective.

From the watershed assessment it was possible to develop BMP's to help improve stream conditions and the interaction of natural processes between the streams within the watershed. The BMP's are listed below and explained in the following section.

- BMP No. 1 - New Channel Construction or Relocation
- BMP No. 2 - Bank Stabilization
- BMP No. 3 - Debris Jam Removal
- BMP No. 4 - Revegetation/Riparian Plantings
- BMP No. 5 - Sediment Transport Efficiency
- BMP No. 6 - Traditional Engineering Channel Stabilization Methods
- BMP No. 7 - Stormwater Control Measures

A. BEST MANAGEMENT PRACTICES

Best Management Practices (BMP's) were developed from the McLaughlin Run Watershed Assessment. BMP Nos. 1-5 identified in this report are natural approaches to streambank

stabilization/restoration. These methods are low-cost approaches that provide for the natural stabilization of streams. This watershed assessment provides local community planners and township officials with a tool that can be used to monitor and implement applicable BMP's to increase the McLaughlin Run stream stability and provide enhancement to stream habitat. For the site specific conditions encountered in the McLaughlin Run watershed, any number or combination of these BMP's can be used to enhance and increase the dynamic stability of the watershed. With all the BMP's presented here, it is important to complete the stabilization/restoration efforts and stabilize all disturbed areas as soon as possible. Typical BMP drawings are included in Appendix F.

BMP No. 1 - New Channel Construction or Relocation

The design effort should be based upon using the fluvial geomorphology design procedures based on natural channel formation. The work steps include developing additional detailed design criteria for each project area from collected field data. This includes supplementing the existing Hydraulic Geometry Curves for this particular region. Specifically, this includes the development of appropriate channel geometry inclusive of bankfull cross-sectional area, bankfull width, mean bankfull depth, stream type applicable to the site conditions (i.e., valley type, valley slope, channel boundary conditions, etc) and other design detail. Also, field data will be collected to develop typical cross sections, longitudinal profiles to depict stream bottom facets such as riffles and pools, including stream structures to enhance channel stability and augment sediment transport, riparian buffer strip planting plans and erosion and sedimentation control plans.

BMP No. 2 - Bank Stabilization (Grading, Rock Structures, Rock Toe Protection)

Bank stabilization can be effectively implemented through bank regrading or the construction of in-stream rock structures to divert erosive flow velocities away from eroded stream banks. Oftentimes, a combination of these protective measures is used along any given reach of stream depending on the nature of the erosion problem, size of stream, and adjacent land use.

Bank Grading

The basic concept of this bank grading is to provide a more stable bank slope along the stream channel. Steeply sloping to vertical or undercut banks should be regraded to at least 2V:1H where compatible with fluvial geomorphologic principals. At a minimum, any overhanging bank material should be removed to prevent sloughing or encroachment into the stream channel and should be placed outside any areas prone to flooding. All bank material should either be removed from the site or graded along the floodplain to provide positive drainage. Coordination with the landowner may result in the identification of suitable disposal areas. Bank grading itself may provide the needed restoration but can also be completed with rock toe protection measures or the construction of rock vanes. All disturbed areas should be stabilized with seed, mulch and/or riparian plantings.

Rock Vanes

Rock vanes are in-stream structures used to redirect flow away from the near bank region and toward the center of the channel. These structures are placed along the outside meander bend of the channel and are often installed in series depending on the degree of curvature of the meander. The installation of rock vanes will prevent lateral stream channel migration and hence reduce bank erosion. These structures also create aquatic habitat by providing designed scour pools downstream of the structure.

Cross Rock Vanes

Cross rock vanes are in-stream structures used on straight channel reaches in order to provide stability along both stream banks. These structures are used to maintain the stream sinuosity and provide for stability of the channel in crossover reaches between stream facets. Cross rock vanes redirect the flow away from the banks towards the center of the channel and create designed, self-maintaining scour holes. These structures also create aquatic habitat and provide grade control to prevent channel downcutting or headcutting.

Rock Toe Protection

Rock toe protection is the placement of large rock along the toe of the bank to prevent bank erosion, especially along the outside of a meander bend. The rock should be keyed into the bank and the channel to prevent channel scour and bank erosion. Additional rock can be placed on top of the rock keyed into the channel bottom.

BMP No. 3 - Debris Jam Removal

Debris jams are a natural stream feature and can provide aquatic habitat. Some debris jams can become extensive and lead to accelerated bank erosion. Many jams consist of woody debris which becomes lodged along a channel reach. These jams can build during high flow events and accumulate finer debris such as leaves and twigs. Many times these jams will constrict the capacity of the channel and direct flows into a stream bank causing erosion. Some jams consist of residential trash (tires, plywood or appliances) which can also lead to bank erosion.

In areas where debris jams are causing bank erosion or channel scouring, the debris should be removed above the normal water level of the stream. By removing the debris above the normal water level, higher flows can pass unimpeded. Large woody material can be removed with chainsaws, while small woody debris can be trimmed with lopping shears and removed. All trees along the stream banks which are leaning due to bank erosion should be cut at the base of the tree. The tree and limbs should then be removed from the flood-prone area. The remaining trunk and roots should be left in place to provide bank stability. All woody debris imbedded in the substrate should remain in place, as this material oftentimes provides grade control and aquatic habitat.

Any woody debris material removed from the channel should be discarded outside the work area which is prone to seasonal flooding. All residual trash should be properly disposed of and will require additional coordination.

Included in this BMP is the removal of multiflora rose along the immediate stream bank. This thorny shrub species is invasive and was found growing along many stream reaches in the study area. Multiflora rose may provide some bank protection but is shallow-rooted and can easily be removed. Large shrubs tend to grow out into open channels and can cause extensive channel blockages. Once removed, the streambank should be replanted with more suitable riparian species as discussed under BMP No. 4.

Impacted Reach No. 17 ("Poor" F3 Stream Type)

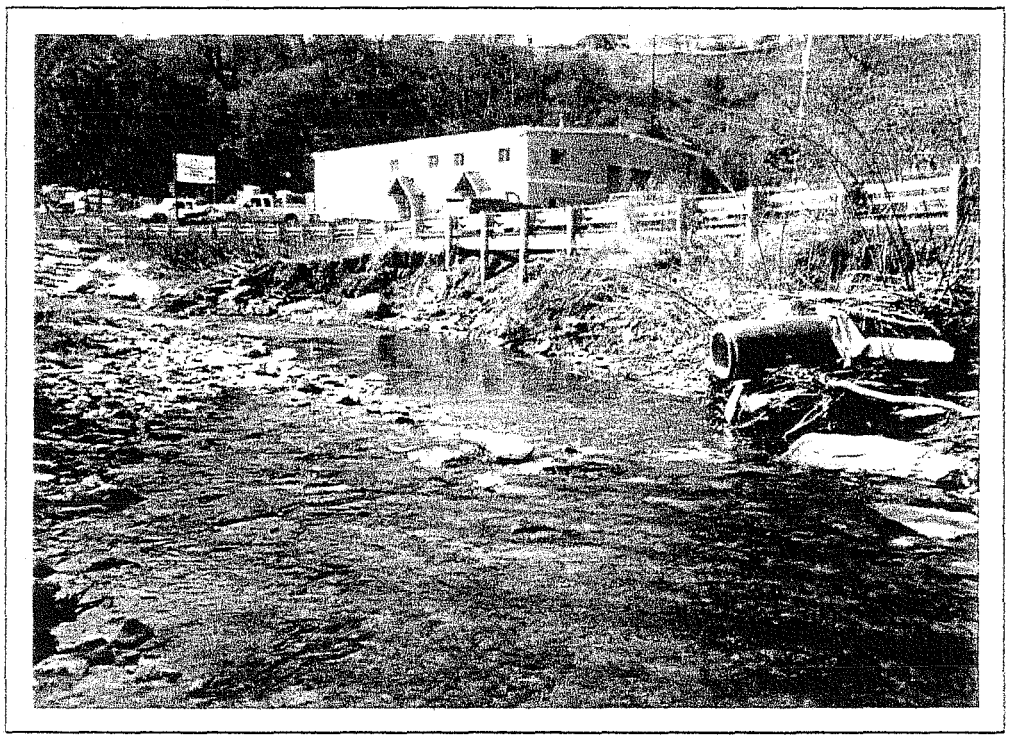
Reach Location

Impacted Reach No. 17 is a stretch of McLaughlin Run that starts approximately 3,500 feet upstream of where the Borough of Bridgeville/Upper St. Clair Township line crosses McLaughlin Run and extends approximately 2,000 feet downstream of the township line. The reach is located on the Bridgeville, Pennsylvania, 7.5' U.S.G.S. quadrangle. The stream segment to be considered is 5,500 feet in length and runs parallel to McLaughlin Run Road with over half of the reach located in the Township of Upper St. Clair and the remaining stretch located in the Borough of Bridgeville. Please refer to the McLaughlin Run Watershed Map for location of this site.

Existing Site Conditions

The reach that has been identified for possible restoration at this site is a section of the main stem of McLaughlin Run. This section of stream flows through an urbanized industrial and residential area. The upstream section of the reach parallels McLaughlin Run road and is restricted on both banks. The steep valley walls on the left bank force the stream to flow immediately adjacent to the roadway fill of McLaughlin Run road. As a result of the valley form and encroaching development, the upstream section of this reach is highly channelized, which is resulting in the severe erosion of the channel banks. The erosion of the right bank along the roadway fill is undermining sections of McLaughlin Run Road and requiring immediate attention. Concrete retaining walls and gabion baskets have been placed throughout the reach on both banks to help protect the surrounding infrastructure from erosive damage. However, the armor is beginning to be undermined, and the imminent failure will pose risks to public health and safety, thus making this a high priority reach. In addition to severe bank erosion, the main channel within this reach is currently aggrading and producing large point and side bars that are reducing flow area. The downstream section of the reach flows through a highly industrial and residential area where development has occurred immediately adjacent to the left and right stream banks. The stream banks all along the reach are composed primarily of highly erodible sand which is leading to severe bank erosion and channel widening where unrestricted. Most of the downstream section is channelized which has increased velocities and flows through the reach and magnified bank and channel erosion. Located between the two seemingly channelized sections is a short area in which

the left bank opens into a city park consisting of baseball fields and open grassy areas. Within this area the channel has been pushed up against the roadway fill to provide maximum area for park recreation. If left unrestored, this entire reach of stream will continue to degrade and cause the eventual failure of roadway embankments and other surrounding infrastructure.



Photograph No. 13: Priority Reach No. 17 - Streambank erosion undermining McLaughlin Run Road.

Restoration Plan For Reach No. 17

The stream restoration plan for this section of McLaughlin Run should include the implementation of multiple BMP's. The first step in the plan should include a combination of BMP's, including bank stabilization practices in accordance with BMP No. 2 and riparian plantings in accordance with BMP No. 4, where applicable. The middle "park" section of the reach provides access to the left overbank area that can allow for bank stabilization practices and riparian plantings. Any riparian plantings in this public access setting should consist of grass or tree species and avoid shrubs or brushy species in order to avoid creation of a security risk in this park area. The manicured nature of the park provides ample area for left bank sloping or terracing and the restoration of a flood-prone area. The remaining upstream and downstream banks have been

pinched by steep valley walls and development and as a result are too steep to permit bank stabilization. Therefore, these banks will require the implementation of traditional engineering methods in accordance with BMP No. 6. This may include the addition of more stream bank armoring to minimize the degradation of bank material. Finally, the last step in the plan would be to implement BMP No. 5 and increase the sediment transport efficiency through the stream reach to solve the aggradation problem. The use of various grade control and other rock structures within the reach can redirect flow away from degrading banks as well as improve sediment transport efficiency of aggrading sections.

Likelihood of Success

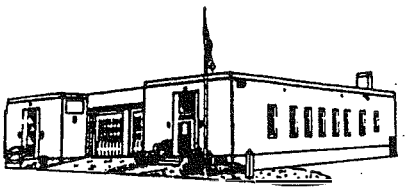
The likelihood of success at improving stream condition is moderate. Bank stabilization in the "park" area will decrease the unstable lateral movement of the stream in that area and decrease the sediment load throughout the reach. Riparian plantings along the reach may also minimize nonpoint source pollution and provide additional stability to the channel banks, while the implementation of traditional engineering methods to protect the development adjacent to the channel banks will decrease the risks to public health and safety of the surrounding area. Finally, the use of rock structures to redirect flow and increase sediment transport capacity will further stabilize the stream reach and minimize impacts on surrounding infrastructure. However, the nature of development surrounding this section of McLaughlin Run requires the constant monitoring of any BMP implemented within the reach to ensure public health and safety remain intact.

High Priority Stream Reaches for Stabilization/Restoration Efforts

Stream Reach ID	Stream Type	Restoration Rating	Priority Rating	Categories for Potential Stream Restoration								
				Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8	Category 9
2 / 4	G6 / G6	Poor	High		X		X	X	X	X	X	X
6	B4	Poor	High	X		X	X	X	X	X	X	X
8	F3	Poor	High	X			X		X			X
11	F3	Poor	High	X	X	X	X					X
13	F3	Poor	High		X	X	X					X
17	F3	Poor	High	X	X	X		X		X	X	X
203	F3	Poor	High				X	X	X	X	X	X
302	G4	Poor	High			X	X	X	X	X	X	X
504 / 505	E5b	Poor	High		X	X	X	X	X		X	X
706 / 707 / 708	F5 / F5 / F5	Poor	High	X		X	X			X		X
709	F5	Poor	High			X	X	X	X		X	X
1302 / 1303	G5 / B5	Poor	High			X	X	X	X		X	X
1502	F4	Poor	High	X	X	X			X	X		X
1703 / 15 / 16	F5 / F3 / C4	Poor	High		X	X	X			X		X
1901	G5	Poor	High		X	X	X	X		X	X	X

Category Reference

Catergory 1	**Health and Safety Concerns**
Catergory 2	**Number of Landowners**
Catergory 3	**Site Accessibility**
Catergory 4	**Flood Prone Area Restoration**
Catergory 5	**Cost**
Catergory 6	**Position Within Watershed**
Catergory 7	**Relationship to Good Reaches**
Catergory 8	**Permit Requirements**
Catergory 9	**Potential for Fixing Downstream Problems**



BOROUGH of BRIDGEVILLE

Honorable Kathleen McGinty, Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building, 16th Floor
P.O. Box 2063
Harrisburg, PA 17105

April 10, 2007

RE: Growing Greener Application – Borough of Bridgeville

Dear Secretary McGinty,

The Borough of Bridgeville would like to urge your office to approve the Growing Greener Grant Application which is being submitted for a project on McLaughlin Run. Due to the urban nature of the stream, channel erosion has occurred and has continued to worsen. This situation impacts not only a portion of McLaughlin Run, but has also started to affect McLaughlin Run Road and downstream receiving waters (Chartiers Creek). As the stream channel changes to accommodate the increased runoff volume, large amounts of sediment have been removed and deposited downstream.

McLaughlin Run is on the impaired watershed list for siltation, nutrients and turbidity. McLaughlin Run is also a tributary to Chartiers Creek, which is on the impaired watershed list for siltation, nutrients and low dissolved oxygen. Therefore, a project to restore a part of McLaughlin Run will benefit not only McLaughlin Run but Chartiers Creek as well.

The sediment problem has continually worsened over the past few years due to the Hurricanes which have swept through our area. In 2004, Hurricane Ivan dropped approximately six (6) inches of rain in the area causing disastrous flooding to McLaughlin Run and Chartiers Creek. The amount of debris and sediment carried downstream from McLaughlin Run was significant. The Army Corps of Engineers is currently planning a dredging project for Chartiers Creek to remove sediment from Hurricane Ivan. While a dredging project may move sediment from prior events, our project intends to prevent future sediment problems from occurring.

Without the project, this situation is expected to worsen as the stream becomes more entrenched and disconnected from its natural floodplain. Left unabated, the problem will increase the frequency and intensity of the downstream flooding experienced by our community and the possible failure of McLaughlin Run Road. Significant erosion has occurred at the bridge abutments for McLaughlin Run Road and the erosion continues to deteriorate. The Watershed Assessment Report which was completed in 2000 states "the stream banks of McLaughlin Run are highly unstable. As a result, stream restoration efforts are warranted to prevent further erosion and deterioration of surrounding infrastructure."

In 2001, the Township of Upper St. Clair completed a three-phased Natural Channel Design project similar to the one proposed on McLaughlin Run with it deemed to be highly successful. We acknowledge your office will certainly get a deluge of grant applications for important projects. As you review each project, know that the work proposed by the Borough of Bridgeville has regional potential. It will address immediate problems with water quality and help to remediate the watershed for the protection of the

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www.bridgevilleboro.com

surrounding communities as well as the existing infrastructure. Many communities in our region are facing similar problems but few have considered the natural approaches proposed by the Borough of Bridgeville.

This project has many opportunities to benefit the public. Respectfully, I urge you to approve this important grant request.

Sincerely,

Lori Collins
Borough Manager

Cc: Borough Council
Joseph Sites, P.E. – Borough Engineer
Justin C. Wagner, P.E. – Project Engineer

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TO: Governor Edward G. Rendell's Office
225 Main Capitol Building
Harrisburg, Pennsylvania 17120

FROM: Justin C. Wagner, P.E. – Project Engineer
The Gateway Engineers, Inc.
400 Holiday Drive
Suite 300
Pittsburgh, PA. 15220

SUBJECT: ***DEP WATERSHED GRANT SUBMISSION***

DATE: 3/30/2007

CC: Lori Collins, Borough Secretary
Joseph Sites, P.E. - Borough Engineer

Please be advised that the **Borough of Bridgeville** will submit a grant request for funding on Friday, April 13, 2007 under the DEP Watershed Grants Program requesting funds for a project to improve the water quality, stabilize the streambanks, and improve the habitat for fish and wildlife in the McLaughlin Run area. The Borough requests a letter of support for this project. A copy of the Executive Summary and a draft letter of support are attached to this memorandum.

You may mail your letter of support directly to the ***DEP Grant Center, Watershed Grant Program, 15th Floor Rachel Carson State Office Building, 400 Market Street, Harrisburg, PA 17101*** at your earliest convenience.

We appreciate your ongoing support and dedication to the Borough of Bridgeville community and thank you, in advance, for your kind consideration.

Governor Edward G. Rendell's Office
225 Main Capitol Building
Harrisburg, Pennsylvania 17120

Honorable Kathleen McGinty, Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building, 16th Floor
P.O. Box 2062
Harrisburg, Pa. 17105

March 23, 2007

Re: Borough of Jefferson Hills Growing Greener Application

Dear Secretary MrGinty,

The Borough of Bridgeville is seeking funding through the Growing Greener Program for a Stream Restoration Project on McLaughlin Run. Improvements will be made to the stream channel to reduce the intensity and frequency of downstream flooding using Natural Channel Design Methods developed by Rosgen. The project can also be justified by its capacity to prevent flooding, erosion, streambank destabilization and the deterioration of existing infrastructure.

McLaughlin Run is on the impaired watershed list for siltation, nutrients and turbidity. McLaughlin Run is tributary to Chartiers Creek, which is on the impaired watershed list for siltation, nutrients and low dissolved oxygen. Therefore a project to restore a port of McLaughlin Run will benefit not only McLaughlin Run but Chartiers Creek as well.

The sediment problem has continually gotten worse over the past few years due to the Hurricanes which have swept through our area. In 2004, Hurricane Ivan dropped approximately 6 inches of rain in the area, causing disastrous flooding to McLaughlin Run and Chartiers Creek. The amount of debris and sediment carried downstream from McLaughlin Run was significant. The Army Corps of Engineers is currently planning a dredging project for Chartiers Creek to remove sediment from Hurricane Ivan. While a dredging project may move sediment from prior events, our project intends to prevent future sediment problems from occurring.

Without the project, this situation is expected to worsen as the stream becomes more entrenched and disconnected from its natural floodplain. Left unabated, the problem will increase the frequency and intensity of the downstream flooding experienced by our community and the possible failure of McLaughlin Run Road. Significant erosion has occurred at the bridge abutments for McLaughlin Run Road and the erosion continues to deteriorate. The Watershed Assessment Report which was completed in 2000 states, "the streambanks of McLaughlin Run are highly unstable. As a result, stream restoration efforts are warranted to prevent further erosion and deterioration of surrounding infrastructure."

It is financially impossible for the Borough of Bridgeville to implement the proposed improvements on their own. Without the grant funding requested in 2007, it is unlikely that local resources will be sufficient to pay for the needed construction work. Although the Growing Greener Program receives requests for far more funding than is available for distribution, the

arguments for the McLaughlin Run project are compelling. In addition to protecting a valuable watershed and the ecological diversity it supports, it will address immediate problems with water quality and help to remediate the watershed for the protection of the surrounding communities as well as the existing infrastructure.

This project is located in one of Bridgeville's main community parks. The project will not only restore the stream channel, but also protect and beautify the park. The project is located upstream of a heavily developed area of the Borough. The improvements will benefit the densely populated areas downstream.

In the area surrounding Pittsburgh, growth is significant. As development occurs, it would be advantageous for private and municipal leaders to consider best management approaches of stream restoration using Natural Channel Design Methods. This project will be made available as a demonstration effort and Gateway Engineers will be available to meet with interested leaders regarding ways that they too can address water quality issues through natural channel design techniques. The benefit from this project can extend to municipalities throughout southwestern Pennsylvania. I urge you to prioritize this important project for the 2007 round of Growing Greener funding. For additional information on any component of the planned activities, please contact Justin C. Wagner, P.E. at Gateway Engineers, Inc at (412) 921-4030.

Thank you for your assistance.

Sincerely,

Edward Rendell, Governor
Commonwealth of Pennsylvania

McLaughlin Run Natural Stream Bank Stabilization

PROJECT NARRATIVE

The project site is located in the McLaughlin Run Watershed in Bridgeville Borough in a highly urbanized industrial and residential area. The McLaughlin Run Watershed encompasses an area of approximately 7.2 square miles and is located in portions of Upper St. Clair, Bethel Park and Bridgeville. A Watershed Assessment Study was completed in June of 2000, with funding provided by the Environmental Protection Agency's 319 Grant Program, and found that the increase in run-off has greatly affected the drainage system of the watershed due to the high urbanization of the area. The study also concluded that the increase in runoff and lack of stormwater control have increased the channel erosion potential and sediment transport capacity of the streams. The Watershed Assessment Report has recommended improving the existing stream through seven methods, one of which is New Channel Construction or Relocation using Fluvial Geomorphology (FGM) methods.

The proposed project site is to be located in the McLaughlin Run Park, which is an area with high, steep banks, which was caused by, among other things, an increase in run-off. This portion of McLaughlin Run was identified in the Watershed Assessment Report as a reach where restoration was needed. As the stream channel continually changes to accommodate the increased runoff volume, large amounts of sediment have been removed and deposited downstream. The sediment problem will continue to get worse unless the stream is repaired. The scope of the proposed project will consist of approximately 600' of stream which will be stabilized downstream using natural streambank stabilization methods using Fluvial Geomorphology (FGM) developed by (Rosgen). This project will stabilize portions of the channel thereby reducing the sediment load and decreasing the streambank slopes.

The following is a list of items that will be addressed by Bridgeville Borough through the engineering design:

- Utilize fluvial geomorphology (FGM) concepts developed by Rosgen to stabilize the channel while maintaining a natural environment
- Channel capacity and sediment transport calculations
- Natural stream bank stabilization techniques via in-stream natural rock structures and riparian buffer zones
- Field validation of the bankfull stage at a USGS stream gaging station
- Field methods to properly measure morphological variables.
- Stream diversion structure design
- Ecosystem management applications using stream types such as: fish habitat structure evaluation, riparian management, watershed management/cumulative effects assessment and analysis, hydraulic and sediment relations and engineering design concepts
- Riparian area improvement and function
- Construction methods, equipment selection and contracting plans and specifications
- Field Supervision of Construction
- Permit applications

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412.921.9960 FAX

www.gatewayengineers.com

TO: **Honorable Nick Kotik**
115 EAST MAIN STREET
CARNEIGIE, PA 15108

FROM: Justin C. Wagner, P.E. – Project Engineer
The Gateway Engineers, Inc.
400 Holiday Drive
Suite 300
Pittsburgh, PA. 15220

SUBJECT: ***DEP WATERSHED GRANT SUBMISSION***

DATE: 3/30/2007

CC: Lori Collins, Borough Secretary
Joseph Sites, P.E. - Borough Engineer

Please be advised that the **Borough of Bridgeville** will submit a grant request for funding on Friday, April 13, 2007 under the DEP Watershed Grants Program requesting funds for a project to improve the water quality, stabilize the streambanks, and improve the habitat for fish and wildlife in the McLaughlin Run area. The Borough requests a letter of support for this project. A copy of the Executive Summary and a draft letter of support are attached to this memorandum.

You may mail your letter of support directly to the ***DEP Grant Center, Watershed Grant Program, 15th Floor Rachel Carson State Office Building, 400 Market Street, Harrisburg, PA 17101*** at your earliest convenience.

We appreciate your ongoing support and dedication to the Borough of Bridgeville community and thank you, in advance, for your kind consideration.

Honorable Nick Kotik
115 East Main Street
Carneigie, PA 15108
(412) 429-5091
Fax: (412) 429-6310

Honorable Kathleen McGinty, Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building 16th Floor
P.O. Box 2063
Harrisburg, Pa. 17105

March 23, 2007

Re: Borough of Bridgeville Growing Greener Application

Dear Secretary McGinty,

The Borough of Bridgeville is seeking funding through the Growing Greener Program for a Stream Restoration Project on McLaughlin Run. Improvements will be made to the stream channel to reduce the intensity and frequency of downstream flooding using Natural Channel Design Methods developed by Rosgen. The project can also be justified by its capacity to prevent flooding, erosion, streambank destabilization and the deterioration of existing infrastructure.

McLaughlin Run is on the impaired watershed list for siltation, nutrients and turbidity. McLaughlin Run is tributary to Chartiers Creek, which is on the impaired watershed list for siltation, nutrients and low dissolved oxygen. Therefore a project to restore a port of McLaughlin Run will benefit not only McLaughlin Run but Chartiers Creek as well.

The sediment problem has continually gotten worse over the past few years due to the Hurricanes which have swept through our area. In 2004, Hurricane Ivan dropped approximately 6 inches of rain in the area, causing disastrous flooding to McLaughlin Run and Chartiers Creek. The amount of debris and sediment carried downstream from McLaughlin Run was significant. The Army Corps of Engineers is currently planning a dredging project for Chartiers Creek to remove sediment from Hurricane Ivan. While a dredging project may move sediment from prior events, our project intends to prevent future sediment problems from occurring.

Without the project, this situation is expected to worsen as the stream becomes more entrenched and disconnected from its natural floodplain. Left unabated, the problem will increase the frequency and intensity of the downstream flooding experienced by our community and the possible failure of McLaughlin Run Road. Significant erosion has occurred at the bridge abutments for McLaughlin Run Road and the erosion continues to deteriorate. The Watershed Assessment Report which was completed in 2000 states, "the streambanks of McLaughlin Run are highly unstable. As a result, stream restoration efforts are warranted to prevent further erosion and deterioration of surrounding infrastructure."

It is financially impossible for the Borough of Bridgeville to implement the proposed improvements on their own. Without the grant funding requested in 2007, it is unlikely that local resources will be sufficient to pay for the needed construction work. Although the Growing

Greener Program receives requests for far more funding than is available for distribution, the arguments for the McLaughlin Run project are compelling. In addition to protecting a valuable watershed and the ecological diversity it supports, it will address immediate problems with water quality and help to remediate the watershed for the protection of the surrounding communities as well as the existing infrastructure.

This project is located in one of Bridgeville's main community parks. The project will not only restore the stream channel, but also protect and beautify the park. The project is located upstream of a heavily developed area of the Borough. The improvements will benefit the densely populated areas downstream.

In the area surrounding Pittsburgh, growth is significant. As development occurs, it would be advantageous for private and municipal leaders to consider best management approaches of stream restoration using Natural Channel Design Methods. This project will be made available as a demonstration effort and Gateway Engineers will be available to meet with interested leaders regarding ways that they too can address water quality issues through natural channel design techniques. The benefit from this project can extend to municipalities throughout southwestern Pennsylvania. I urge you to prioritize this important project for the 2007 round of Growing Greener funding. For additional information on any component of the planned activities, please contact Justin C. Wagner, P.E. at Gateway Engineers, Inc at (412) 921-4030.

Sincerely,

Nick Kotik
State Representative

McLaughlin Run Natural Stream Bank Stabilization

PROJECT NARRATIVE

The project site is located in the McLaughlin Run Watershed in Bridgeville Borough in a highly urbanized industrial and residential area. The McLaughlin Run Watershed encompasses an area of approximately 7.2 square miles and is located in portions of Upper St. Clair, Bethel Park and Bridgeville. A Watershed Assessment Study was completed in June of 2000, with funding provided by the Environmental Protection Agency's 319 Grant Program, and found that the increase in run-off has greatly affected the drainage system of the watershed due to the high urbanization of the area. The study also concluded that the increase in runoff and lack of stormwater control have increased the channel erosion potential and sediment transport capacity of the streams. The Watershed Assessment Report has recommended improving the existing stream through seven methods, one of which is New Channel Construction or Relocation using Fluvial Geomorphology (FGM) methods.

The proposed project site is to be located in the McLaughlin Run Park, which is an area with high, steep banks, which was caused by, among other things, an increase in run-off. This portion of McLaughlin Run was identified in the Watershed Assessment Report as a reach where restoration was needed. As the stream channel continually changes to accommodate the increased runoff volume, large amounts of sediment have been removed and deposited downstream. The sediment problem will continue to get worse unless the stream is repaired. The scope of the proposed project will consist of approximately 600' of stream which will be stabilized downstream using natural streambank stabilization methods using Fluvial Geomorphology (FGM) developed by (Rosgen). This project will stabilize portions of the channel thereby reducing the sediment load and decreasing the streambank slopes.

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TO: The Honorable John R. Pippy
937 Beaver Grade Road
Moon Township, PA. 15108

FROM: Justin C. Wagner, P.E. – Project Engineer
The Gateway Engineers, Inc.
400 Holiday Drive
Suite 300
Pittsburgh, PA. 15220

SUBJECT: ***DEP WATERSHED GRANT SUBMISSION***

DATE: 3/30/2007

cc: Lori Collins, Borough Secretary
Joseph Sites, P.E. - Borough Engineer

Please be advised that the **Borough of Bridgeville** will submit a grant request for funding on Friday, April 13, 2007 under the DEP Watershed Grants Program requesting funds for a project to improve the water quality, stabilize the streambanks, and improve the habitat for fish and wildlife in the McLaughlin Run area. The Borough requests a letter of support for this project. A copy of the Executive Summary and a draft letter of support are attached to this memorandum.

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We appreciate your ongoing support and dedication to the Borough of Bridgeville community and thank you, in advance, for your kind consideration.

Senator John Pippy
610 East McMurray Road
Road 105
McMurray, Pa. 15317

Honorable Kathleen McGinty, Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building 16th Floor
P.O. Box 2063
Harrisburg, Pa. 17105

March 23, 2007

Re: Borough of Bridgeville Growing Greener Application

Dear Secretary McGinty,

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The sediment problem has continually gotten worse over the past few years due to the Hurricanes which have swept through our area. In 2004, Hurricane Ivan dropped approximately 6 inches of rain in the area, causing disastrous flooding to McLaughlin Run and Chartiers Creek. The amount of debris and sediment carried downstream from McLaughlin Run was significant. The Army Corps of Engineers is currently planning a dredging project for Chartiers Creek to remove sediment from Hurricane Ivan. While a dredging project may move sediment from prior events, our project intends to prevent future sediment problems from occurring.

Without the project, this situation is expected to worsen as the stream becomes more entrenched and disconnected from its natural floodplain. Left unabated, the problem will increase the frequency and intensity of the downstream flooding experienced by our community and the possible failure of McLaughlin Run Road. Significant erosion has occurred at the bridge abutments for McLaughlin Run Road and the erosion continues to deteriorate. The Watershed Assessment Report which was completed in 2000 states, "the streambanks of McLaughlin Run are highly unstable. As a result, stream restoration efforts are warranted to prevent further erosion and deterioration of surrounding infrastructure."

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arguments for the McLaughlin Run project are compelling. In addition to protecting a valuable watershed and the ecological diversity it supports, it will address immediate problems with water quality and help to remediate the watershed for the protection of the surrounding communities as well as the existing infrastructure.

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Sincerely,

Senator John Pippy
37 th District

McLaughlin Run Natural Stream Bank Stabilization

PROJECT NARRATIVE

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TO: **Lori Collins, Borough Secretary**
BOROUGH OF BRIDGEVILLE
425 BOWER HILL ROAD
BRIDGEVILLE, PA 15017

FROM: Justin C. Wagner, P.E. – Project Engineer
The Gateway Engineers, Inc.
400 Holiday Drive
Suite 300
Pittsburgh, PA. 15220

SUBJECT: ***DEP WATERSHED GRANT SUBMISSION***

DATE: 3/30/2007

CC: Joseph Sites, P.E. - Borough Engineer

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We appreciate your ongoing support and dedication to the Borough of Bridgeville community and thank you, in advance, for your kind consideration.

Borough of Bridgeville
425 Bower Hill Road
Bridgeville, PA 15017

Honorable Kathleen McGinty, Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building 16th Floor
P.O. Box 2063
Harrisburg, Pa. 17105

March 23, 2007

Re: Growing Greener Application from Bridgeville Borough

Dear Secretary McGinty,

The Borough of Bridgeville would like to urge your office to approve the Growing Greener grant application which is being submitted for a project on McLaughlin Run. Due to the urban nature of the stream, channel erosion has occurred and has continued to worsen. This situation impacts not only a portion of McLaughlin Run, but has also started to affect McLaughlin Run Road and downstream receiving waters (Chartiers Creek). As the stream channel changes to accommodate the increased runoff volume, large amounts of sediment have been removed and deposited downstream.

McLaughlin Run is on the impaired watershed list for siltation, nutrients and turbidity. McLaughlin Run is tributary to Chartiers Creek, which is on the impaired watershed list for siltation, nutrients and low dissolved oxygen. Therefore a project to restore a port of McLaughlin Run will benefit not only McLaughlin Run but Chartiers Creek as well.

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In 2001, the Township of Upper St. Clair completed a three-phased Natural Channel Design project similar to the one proposed on McLaughlin Run and it was deemed to be highly successful. We acknowledge that your office will certainly get a deluge of grant applications for important projects. As you review each project, know that the work proposed by the Borough of Bridgeville has regional potential. It will address immediate problems with water quality and

help to remediate the watershed for the protection of the surrounding communities as well as the existing infrastructure. Many communities in our region are facing similar problems but few have considered the natural approaches proposed by the Borough of Bridgeville. This project has many opportunities to benefit the public and I urge you to approve this important grant request.

Sincerely,

Lori Collins, Borough Secretary
Borough of Bridgeville

McLaughlin Run Natural Stream Bank Stabilization

PROJECT NARRATIVE

The project site is located in the McLaughlin Run Watershed in Bridgeville Borough in a highly urbanized industrial and residential area. The McLaughlin Run Watershed encompasses an area of approximately 7.2 square miles and is located in portions of Upper St. Clair, Bethel Park and Bridgeville. A Watershed Assessment Study was completed in June of 2000, with funding provided by the Environmental Protection Agency's 319 Grant Program, and found that the increase in run-off has greatly affected the drainage system of the watershed due to the high urbanization of the area. The study also concluded that the increase in runoff and lack of stormwater control have increased the channel erosion potential and sediment transport capacity of the streams. The Watershed Assessment Report has recommended improving the existing stream through seven methods, one of which is New Channel Construction or Relocation using Fluvial Geomorphology (FGM) methods.

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