

# **SPECIAL AREA MANAGEMENT PLAN (SAMP) UPPER TURKEY CREEK WATERSHED**

Prepared by  
Frank Austenfeld, Executive Director



*Watershed Institute, Inc.  
Windmill Village, Bldg Four  
7211 W. 98<sup>th</sup> Terr., Suite 140  
Overland Park, Kansas 66212  
(913) 685-4600*

[www.WatershedInstitute.biz](http://www.WatershedInstitute.biz)

*The Upper Turkey Creek Watershed Special Area Management Plan (SAMP) is part of a grant request sponsored by the Kansas Water Office to be funded by the U.S. Environmental Protection Agency (EPA) for the benefit of the stakeholders in the Upper Turkey Creek Watershed. Phase one has already been completed and was funded by the EPA. The following discusses the SAMP goals, phases, and history.*

## **SAMP GOALS**

1. Establish an Upper Turkey Creek Advisory Committee (UTAC)—from the stakeholder list— Through the assistance of the Turkey Creek SAMP Coordinator, Frank Austenfeld, Executive Director of the Watershed Institute, Inc. (TWI), to identify, coordinate, and implement actions that address Turkey Creek resource needs.
2. Improve Turkey Creek water quality to support native aquatic communities and enhance and maintain high-quality aquatic and terrestrial habitat in the Turkey Creek watershed.
3. Identify opportunities and mechanisms to educate and involve the public in enhancement of Turkey Creek.
4. Develop detailed comprehensive statements of policies, standards, and criteria to guide public and private uses of lands and waters as well as outline of mechanisms for implementation.
5. Establish a regulatory component addressing U.S. Army Corps of Engineers 404 permits, Stormwater permits, and EPA regulatory information as well as other relevant regulatory components identified and agreed to through Memorandum Of Understanding (MOU)

with the various agencies and stakeholders giving some sense of continuity and predictability based on a watershed area approach.

**The SAMP process consists of four phases:**

**Phase one (already completed July 31, 2005 through April 30, 2006):**

- a. Through the assistance of the Turkey Creek SAMP Coordinator, Frank Austenfeld, Executive Director of the Watershed Institute, Inc. and TWI staff, identify potential stakeholders, including local, state and federal government agencies within the Upper Turkey Creek Watershed (the Watershed).
- b. Gather information and copies of studies, reports, plans, and other available information concerning natural resources, hydrology, water quality monitoring, GIS layers, soils, capital improvement and infrastructure programs, economic development programs and projects, parks and trails, and neighborhood plans, etc. related to the Upper Turkey Creek Watershed.
- c. Review all information that has been collected for the Watershed.
- d. Identify data gaps and potential information sources that are needed to complete a SAMP or an Advance Identification (ADID) for the Watershed. See <http://www.epa.gov/owow/wetlands/facts/fact28.html>
- e. Preliminary Summary Report for the Watershed identifying the following:

1. Past and present projects and planning efforts, including who, what, when and where.
2. Existing information sources.
3. Relevant studies.
4. Current conditions, problems, technical challenges and restoration opportunities.
5. Preliminary goals and objectives of a Strategic Area Management Plan (SAMP).
6. Additional information needs that need to be developed for the Watershed.

**Phase 2: Upper Turkey Creek Advisory Committee (UTAC) and Issue Identification**

Establish an Upper Turkey Creek Advisory Committee (UTAC)—from stakeholder list— to be chaired by the SAMP COORDINATOR to identify, characterize, and document key issues that address Turkey Creek resource needs

**Phase 3: Development and Prioritization of Strategies**

Through the UTAC, develop, prioritize, and document strategies to address the issues;

- a. Through the UTAC develop and document an implementation plan called a Special Area Management Plan (SAMP) identifying who, what, how and when action items will be implemented

- b. The SAMP is a locally grass roots developed comprehensive plan providing for natural resource protection and reasonable urban-dependent economic growth with consideration to restoration of aquatic resources and protection.
- c. The SAMP contains detailed comprehensive statements of policies, standards, and criteria to guide public and private uses of lands and waters as well as outlines of mechanisms for implementation.
- d. Such a SAMP would contain a regulatory component addressing USACE 404 permits, Stormwater permits, and EPA regulatory information as well as other relevant regulatory components identified and agreed to through Memorandum Of Understanding (MOU) with the various agencies and stakeholders giving some sense of continuity and predictability based on a watershed area approach.

#### **Phase 4: Implementation, Monitoring, and Updating**

Through the UTAC develop a dynamic process to implement, monitor and update the SAMP over time. A web site would be developed and maintained by the SAMP Coordinator. Information gathering and other collaboration would be maintained with Mid-America Regional Council (MARC) and others to maintain some uniformity of Urban Watershed Management through the region. Because this is the first SAMP ever established in the mid-west, there would be some benefit and expectation that the SAMP Coordinator would include time to give, attend and arrange facilitated workshops relating to SAMPs and watershed management. The Upper Turkey Creek SAMP would also act as a model for further Urban SAMPs and watershed plans throughout the Mid-West and the United States.

# Upper Turkey Creek History

## 1.0 INTRODUCTION

The Upper Turkey Creek Basin (UTC) of Johnson and Wyandotte Counties, Kansas is heavily urbanized being comprised of residential, commercial, and industrial land uses. Lying in the southwest Kansas City metropolitan area, the Turkey Creek channel and floodplain have become a common location for public infrastructure including utilities, transportation, drainage diversions, homes, businesses, and public areas. Flood control measures implemented in the early 1900's increased development activity leading to floodplain fill, channel incision, channel straightening, concrete channel lining, channel enclosure, streambank armoring, and road and utility crossings. Extensive development in the uplands has resulted in concrete lining or pipe enclosure of many Turkey Creek tributaries. Few, if any, undisturbed reaches of Turkey Creek or its tributaries exist today.

Historically, efforts to reduce flood damage in the Turkey Creek Basin focused on structural measures with minor consideration of environmental impacts from the proposed actions. While environmental impacts were to be minimized and offset, the primary objective was to reduce flood damage and associated economic losses. Despite ongoing efforts to reduce flooding, extensive development of the floodplain, uplands, and stream channels has resulted in increased flood frequency, peak flood flows, flood flow volumes, and channel velocities. Additionally, these modifications have shortened the lag time from peak precipitation to peak flow.

In contrast to historical projects, the UTC now benefits from recent congressional actions encouraging a watershed approach to future water resource development proposals. Though the traditional goal of flood damage reduction remains a key, planning now includes opportunities for environmental restoration and sustainable solutions throughout the watershed. In response, the U.S. Army Corps of Engineers (USACE) completed a Reconnaissance Study and has initiated a Feasibility Study to identify watershed-wide actions to reduce flood damage while incorporating comprehensive measures for environmental enhancement.

In addition to the USACE's efforts, the U.S. Environmental Protection Agency (EPA) has expressed interest in developing a Special Area Management Plan (SAMP) for the UTC. To

consider the potential for development of a SAMP, the EPA contracted the Watershed Institute, Inc. (TWI) to conduct initial background research by completing phase one set forth above.

## **2.0 SAMP PROCESS**

The goal of a SAMP is to attain a balance between aquatic resource conservation, infrastructure maintenance, and sound economic development to minimize the individual and cumulative impacts of future projects. Stakeholder participation—including local government, businesses, citizens, state and federal agencies, nonprofit organizations, etc.—is essential to successful development and implementation of a SAMP. At the end of the SAMP process, there should be areas identified for protection, preservation, and enhancement, as well as areas where future activities would be allowed to occur, provided that they meet criteria developed for protection of the watershed.

## **3.0 EXISTING INFORMATION SOURCES**

### FEDERAL

- U.S. Army Corps of Engineers, Michael Wolfender, (816) 983-3108, Michael.J.Wolfender@nwk02.usace-army.mil.
- U.S. Environmental Protection Agency, Kathleen Mulder, (913) 551-7542, mulder.Kathy@epa.gov.
- U.S. Fish & Wildlife Service, Michelle McNulty, (785) 539-3473, Michelle\_McNulty@fws.gov.

### STATE

- Kansas Department of Agriculture, David L. Pope, (785) 296-3710, DWR@kda.state.ks.us.
- Kansas Department of Health & Environment, Donald D. Snethen, (785) 296-5567, Dsnethen@kdhe.state.ks.us.
- Kansas Department of Wildlife & Parks, James Hays, (620) 672-5911, jamesh@wp.state.ks.us.

### LOCAL

- Johnson County AIMS, Jay Heermann, (913) 715-1536, jay.heermann@jocogov.org.
- Johnson County Park & Recreation District, James Wilson, (913) 894-3344, jim.Wilson@jocogov.org.
- Johnson County Stormwater Management, Kent Lage, (913) 782-2640, Kent.Lage@jocogov.org.
- Johnson County Wastewater/Public Works, Eileen Hack, (913) 681-3200, Eileen.hack@jcw.org.
- Unified Government of Wyandotte County, Bill Blackwell, (913) 573-5700, bblackwe@wycokck.org.
- City of Lenexa, Michael Beezhold, (913) 477-7680, mbeezhold@ci.lenexa.ks.us.
- City of Merriam, Scott Crain, (913) 322-5522, scottc@merriam.org.
- City of Mission, Stephen Weeks, (913) 722-3066, sweeks@missionks.org.
- City of Overland Park, Bill Heatherman, (913) 895-6050, bill.heatherman@opkansas.org.
- City of Shawnee, Michael Gregory, (913) 631-2500, mgregory@cityofshawnee.org.

#### **4.0 RELEVANT STUDIES**

Numerous projects and studies continue to occur in the Turkey Creek watershed. The following summaries include descriptions of previous and current studies, and other sources of information related to the UTC. Additional sources of information related to municipal activities are available through specific planning, zoning, and stormwater departments.

**City of Merriam. 2002. Stormwater Management Ordinance. Chapter 7, Article 1 of City code of ordinances. June 24, 2002. 50pp.**

This article establishes the stormwater run-off management criteria and standards for the city's secondary or major drainage system and its components. (Ord. No. 1400, §1, 3-26-01). The secondary or major system includes the primary/minor system, its overflow elements and all Turkey Creek tributaries and drainage structures both public and private that are not identified as part of the Turkey Creek regulatory floodplain located within the City of Merriam, Kansas.

**City of Overland Park. 2005. Environmental Review (2005). 24pp.**

This report identifies the City's physical features, environmental characteristics, and limitations on its future development potential. Turkey Creek is briefly discussed under the sections on drainage basins and stream corridor protection.

**Federal Emergency Management Agency (FEMA). 1995. Flood Insurance Study, City of Kansas City, Kansas. January 1995.**

This report included hydraulic analysis—performed by the USACE—used to convert the City of Kansas City, Kansas to the regular FEMA flood insurance program. An additional goal was to provide information for use by local and regional planners in efforts to promote sound land use and floodplain management.

**Howard, Needles, Tammen, and Bergendoff Corporation (HNTB). 1996. Design Concept Report Supplement: Burlington Northern Railroad at Turkey Creek. August 1996.**

This report evaluates alternatives for lowering flood levels along Turkey Creek near the City of Merriam's industrial park. The study determined that the most feasible course of action was to widen the Turkey Creek channel downstream of the I-35 bridges, modify the channel between the railroad and I-35 bridges, and acquire four properties in the industrial park.

**Johnson County, Kansas. 2005. Northeast Johnson County Watershed Study.**

Johnson County Public Works is conducting a watershed study of the major creeks and streams in the Northeast corner of the County. The Northeast watershed is approximately 38.5 square miles and contains 5 watersheds (Brush Creek, Dykes Branch, Lake Quivira, Rock Creek, and Turkey Creek). The project includes data collection—channels, culverts, bridges, and low opening elevations on houses and business structures in or near flood-prone areas—public meetings, and development of a plan addressing current and future stormwater issues. The study will generate new floodplain maps, identify flood prone areas and other problems (stream erosion), alternative solutions will be considered.

**Kabbes, K., A.L. Owen, and M.A. Ports. 2003. Master Planning Urban Stream Restoration – Upper Turkey Creek, Kansas City, Kansas. Pages 83-90, *In Protection and Restoration of Urban and Rural Streams*. ASCE Conference Proceedings.**

Overview of the 2001 USACE Reconnaissance Study and 2002 Project Management Plan and focus of the 2003 Feasibility Study presented at the American Society of Civil Engineers (ASCE) Protection and Restoration of Streams conference.

**Kansas Department of Economic Development & Planning. 1991. Turkey Creek Drainage Basin Economic Development Impact Study. Kansas City, KS.**

This document is referenced in a USACE report, however, we were unable to locate a copy.

**Kansas Department of Transportation. 1983. Turkey Creek improvement, 75<sup>th</sup> Street and I-35 interchange. January 1983.**

This report outlines the design for raising the grade of the 75<sup>th</sup> Street crossing of Turkey Creek and using a channel reach upstream from the Burlington-Northern Railroad bridge for borrow and as a detention basin. KDOT chose to proceed with the project.

**Kansas Department of Wildlife & Parks. 2003. Biological data—fish and macroinvertebrates—collected at five sites in the Upper Turkey Creek basin. Excel spreadsheet format.**

KDWP collected fish and macroinvertebrate samples at five (5) locations in Upper Turkey Creek. Rough analysis of KDWP data shows low fish diversity—3 to 6 species per site—and high macroinvertebrate biotic index (MBI) scores indicating problems from organic pollution. Full data set available through KDWP Environmental Services Section, Pratt, KS.

**Kansas Department of Wildlife & Parks. 2006. Turkey Creek files. Environmental Services Section, Pratt, Kansas.**

Miscellaneous files, reports, response letters, and permit notices related to activities in the Turkey Creek basin. Much of this information is directly from the USACE and duplicated in the U.S. Fish & Wildlife files.

**Lee, C.J., D.P. Mau, and T.J. Rasmussen. 2005. Effects of Contaminant Sources on stream-water quality in Johnson County, Northeastern Kansas, October 2002 through June 2004. U.S. Geological Survey, Fact Sheet 2005–3080, August 2005. Lawrence, KS. 4pp.**

This fact sheet summarizes the results of a water-quality investigation conducted in Johnson County from October 2002 through June 2004. The complete report is available on the World Wide Web at: <http://ks.water.usgs.gov/Kansas/studies/qw/joco>. A minimum of three stormflow samples were collected from six sites located in the Blue River, Cedar Creek, Indian Creek, Kill Creek, Mill Creek, and Turkey Creek watersheds.

**Lee, C.J., D.P. Mau, and T.J. Rasmussen. 2005. Effects of nonpoint and selected point contaminant sources on stream-water quality and relation to land use in Johnson County, Northeastern Kansas, October 2002 through June 2004. U.S. Geological Survey, Scientific Investigations Report 2005-5144. Lawrence, KS. 104pp.**

USGS collected water and sediment samples in 12 Johnson County watersheds in to determine the effects of nonpoint and selected point contaminant sources on stream-water quality and their relation to varying land use. The streams studied were located in urban areas of the county (Brush, Dykes Branch, Indian, Tomahawk, and Turkey Creeks), developing areas of the county (Blue River and Mill Creek), and in more rural areas of the county (Big Bull, Captain, Cedar, Kill, and Little Bull Creeks). Two base-flow synoptic surveys (73 total samples) were conducted in 11 watersheds, a minimum of three stormflow samples were collected in each of six watersheds, and 15 streambed-sediment sites were sampled in nine watersheds from October 2002 through June 2004.

**U.S. Army Corps of Engineers. 1956. Design Memorandum No. 2, General Design Memorandum, Turkey Creek Diversion. January 1956.**

These documents proposed a plan to raise the Turkey Creek right bank levee by four feet starting 200 feet upstream from the tunnel entrance and extending 4,000 feet upstream. The project also proposed widening the channel to 90 feet with 2:1 side slopes between the Southwest Boulevard and Frisco Railroad bridges. This plan was never implemented.

**U.S. Army Corps of Engineers. 1962. Flood Protection Project, Turkey Creek, Merriam, Kansas. September 1962.**

This report is a design memorandum reevaluating the economic justification of a 1946 flood protection plan to alleviate Turkey Creek flooding in the City of Merriam. The plan included levees, floodwall, new channel, and road and bridge modifications. The proposed project was never constructed.

**U.S. Army Corps of Engineers. 1968. Letter Report for proposed inclusion of Turkey Creek improvements, Modification of Local Protective Works, Kansas River, Kansas City, Kansas (Flood Control Act of 1962). May 1968.**

This report describes the Turkey Creek flood problem and proposes a new 28-foot tunnel adjacent the existing tunnel, and enlarging 11,400 feet of channel upstream of the tunnel. The proposed project was never authorized.

**U.S. Army Corps of Engineers. 1974. Flood Plain Information Report for Turkey Creek in metropolitan Kansas City. January 1974.**

This report—prepared at the request of the Cities of Kansas City, Merriam, and Overland Park, Kansas, the Kansas Water Resources Board, and Kansas City, Missouri—evaluated flood hazards associated with Turkey Creek in the metropolitan area. The report was authorized under Section 206 of the 1960 Flood Control Act (Public Law 86-645).

**U.S. Army Corps of Engineers. 1987. Reconnaissance Report: Turkey Creek Basin, Kansas and Missouri. December 1987.**

This study examined alternatives for flood damage reduction in the Turkey Creek Basin, assessed Federal interest and local support for flood reduction measures, and concluded that one or more alternatives had potential economic feasibility. The study also recommended proceeding with a feasibility phase study.

**U.S. Army Corps of Engineers. 1998. Feasibility Report and Environmental Assessment, Turkey Creek Basin, Kansas City, Kansas and Missouri. December 1998.**

This report includes recommendations for construction of hillside interceptors and channel modifications. Recommendations authorized for construction in Public Law 106-53—the Water Resources Development Act of 1999—Section 101(a)(24).

**U.S. Army Corps of Engineers. 2001. Upper Turkey Creek Basin, Johnson and Wyandotte Counties, Kansas: Section 905(b) Analysis. July 2001. 22 pp.**

This report evaluates the potential Federal interest in solutions to recurring flood damages, environmental degradation, and related water and land resource needs and opportunities in the Upper Turkey Creek Basin. A positive determination of Federal interest and recommended approval by the USACE District Engineer lead to development of the 2002 Project Management Plan (PMP).

**U.S. Army Corps of Engineers. 2002. Upper Turkey Creek Basin, Johnson and Wyandotte Counties, Kansas, Feasibility Study: Project Management Plan. 29 pp.**

This PMP identifies the problems and concerns, alternatives to be considered, the scope of studies, tasks and products, and estimated study costs associated with formal development of the USACE Feasibility Study.

**U.S. Army Corps of Engineers. 2003. Existing environmental condition for the flood damage reduction & environmental restoration feasibility study – Upper Turkey Creek Basin, Wyandotte and Johnson County, Kansas. November 2003. 15 pp.**

This report provides the current environmental setting for the proposed restoration feasibility study.

**U.S. Army Corps of Engineers. 2003. Turkey Creek Basin, Kansas City, Kansas and Kansas City, Missouri – General Reevaluation Report and Environmental Assessment. January 2003. 102 pp., 23 plates, 8 Appendices.**

This report presents the findings of a reevaluation of potential measures to reduce flood damages identified in USACE's 1998 Feasibility Report and Environmental Assessment. Reevaluation was necessary to include updated information from a severe flood in October 1998. This report extends modification of the Turkey Creek channel an additional 4,000 feet upstream, widens the channel modifications approved in 1998, and upgrades the Turkey Creek tunnel. The plan provides flood damage reduction benefits to the same locations identified in the 1998 document.

**U.S. Army Corps of Engineers. 2004. Upper Turkey Creek Basin Environmental Restoration Report: Feasibility Phase – Draft. August 2004. 59 pp.**

This report—prepared by HNTB and Kabbes Engineering—provides designs for 13 projects at 12 sites and addresses seven of the nine environmental restoration strategies listed in the 2001 Reconnaissance Study. The report identifies the potential water quality, habitat, and flood control benefits plus estimated restoration costs for each design.

**U.S. Fish & Wildlife Service. 1987. Planning Aid Report for the Turkey Creek Basin, Kansas and Missouri Reconnaissance Study. September 1987. Kansas State Office, Manhattan. 8pp.**

This report to the USACE provided five recommendations to conserve fish and wildlife habitat and two recommendations to enhance habitats during the reconnaissance phase determining potential flood control measures for the Turkey Creek Basin.

**U.S. Fish & Wildlife Service. 1997. Draft Fish and Wildlife Coordination Act Report for the Turkey Creek-Kansas City, Kansas and Kansas City, Missouri local flood protection project – Draft. April 1997. Kansas State Office, Manhattan. 12pp.**

This report to the USACE identified the loss of 18 acres of riparian habitat and the physical alteration—channelization—of 4000 feet of Turkey Creek as the primary impacts to proposed flood control measures. USFWS provided six recommendations to minimize and offset fish and wildlife habitat losses. This report was authorized under Section 205 of the Flood Control Act of 1948 and designed to accompany the USACE Feasibility Study.

**U.S. Fish & Wildlife Service. 1998. Final Fish and Wildlife Coordination Act Report for the Turkey Creek flood damage reduction project – Kansas City, Kansas and Kansas City, Missouri. October 1998. Kansas State Office, Manhattan. 11pp.**

This report to the USACE identified the loss of 5.6 acres of riparian habitat and the physical alteration—channelization—of 4100 feet of Turkey Creek as the primary impacts to proposed flood control measures. USFWS provided six recommendations to minimize and offset fish and wildlife habitat losses. This report was authorized under Section 205 of the Flood Control Act of 1948 and designed to accompany the USACE Feasibility Study.

**U.S. Fish & Wildlife Service. 2002. Draft Supplemental Final Fish and Wildlife Coordination Act Report for the proposed General Reevaluation Report and revised Environmental Assessment, Lower Turkey Creek flood damage reduction project – Kansas City, Kansas and Missouri. March 29, 2002. Kansas State Office, Manhattan. 11pp.**

This report is the draft supplement to the 1998 Final Fish & Wildlife Coordination Act Report and General Reevaluation Report. Due to the occurrence of a flood event exceeding the containment capability of the proposed channel modifications (1998 Feasibility Report), the USACE expanded the proposed project (General Reevaluation Report). Based on the proposed project expansion, the USFWS added four recommendations to the six previously identified measures to minimize and offset fish and wildlife habitat losses. USFWS also included one recommendation to enhance fish and wildlife habitat.

**U.S. Fish & Wildlife Service. 2002. Final Supplemental Final Fish and Wildlife Coordination Act Report for the proposed General Reevaluation Report and revised Environmental Assessment, Lower Turkey Creek flood damage reduction project – Kansas City, Kansas and Missouri. September 9, 2002. Kansas State Office, Manhattan. 6 pp.**

This report is the final supplement to the General Reevaluation Report. No changes were made from the previous “draft.”

**U.S. Fish & Wildlife Service. 2006. Turkey Creek files. Ecological Services Office, Manhattan, KS.**

Miscellaneous files, reports, response letters, and permit notices related to activities in the Turkey Creek basin. Much of this information is directly from the USACE and duplicated in the KS Department of Wildlife & Parks files. Files inaccessible due to office move.

**Welker, G.E. and D.G. Huggins. 1997. Use Attainability Analysis of Turkey Creek Johnson and Wyandotte Counties, Kansas. Kansas Biological Survey, Lawrence, Kansas. 79 pp.**

This report details chemical and biological sampling of Turkey Creek to determine use attainability for aquatic life, recreation, future use attainment, and potential causes of non-attainment. Non-attainment was attributed to nonpoint pollution associated with urbanization and point source pollution associated with wastewater treatment discharge.