CHAPTER 3
SYCAMORE CREEK (SEGMENT 0806E)

Watershed Characterization

Segment 0806E is a five mile stretch of Sycamore Creek running generally south to north from the confluence with the Echo Lake tributary near S. Riverside Drive to the confluence with the West Fork Trinity River (0806) in Fort Worth, Texas (Figure 3-1). Located in southeast Fort Worth, the watershed surrounding Sycamore Creek is residential, interspersed with commercial areas and some light industry (land use on Figure 3-2 and aerial photograph on Figure 3-3). TCEQ describes the flow type for this stream as perennial. Though primarily natural in appearance, the channel is affected by numerous bridge crossings, low water crossings and, in Sycamore Park, a low water dam creating a long pool and landscaped banks using large stones to form steps to the stream bed. There are no NPDES outfalls in the stream watershed. TCEQ information indicates that streamflow is perennial and the presumed aquatic life use is high (TCEQ, 2010c).

Additional Information

The review of historical information and climatic conditions is found in Chapter 2.

Site Selection Strategy

An objective of the survey efforts under the RUAA was to include an appropriate number of sites in each of the eleven streams, including Sycamore Creek. The urban nature of much of the watershed contributes to numerous road crossings and neighborhood parks at which the various streams may be accessed.

The strategy used in station selection for the RUAA surveys incorporates the following:

Survey locations were found (completed May – June 2009) in each of the eleven streams described in the section above.

Existing TCEQ stations were used whenever these stations were located in areas that afford at least some access opportunity for various forms of recreational use. Some TCEQ monitoring stations may not provide inviting access for recreational contact.

Special attention was focused on the numerous parks located on many of the streams in the RUAA study.

On June 11, 2009, TIAER presented a list of proposed sites to an aggregate of state and local agencies, i.e., the TCEQ, TSSWCB, Trinity River Authority, Texas Parks and Wildlife, North Central Texas COG, DFW Airport, and the cities of Fort Worth, Dallas, Grand Prairie, Irving, and Coppell. As a result of the meeting, some locations were moved, some added and some dropped. The sites listed below reflect the results of input received following the meeting. For Sycamore Creek site selection the major interaction occurred with City of Fort Worth staff.

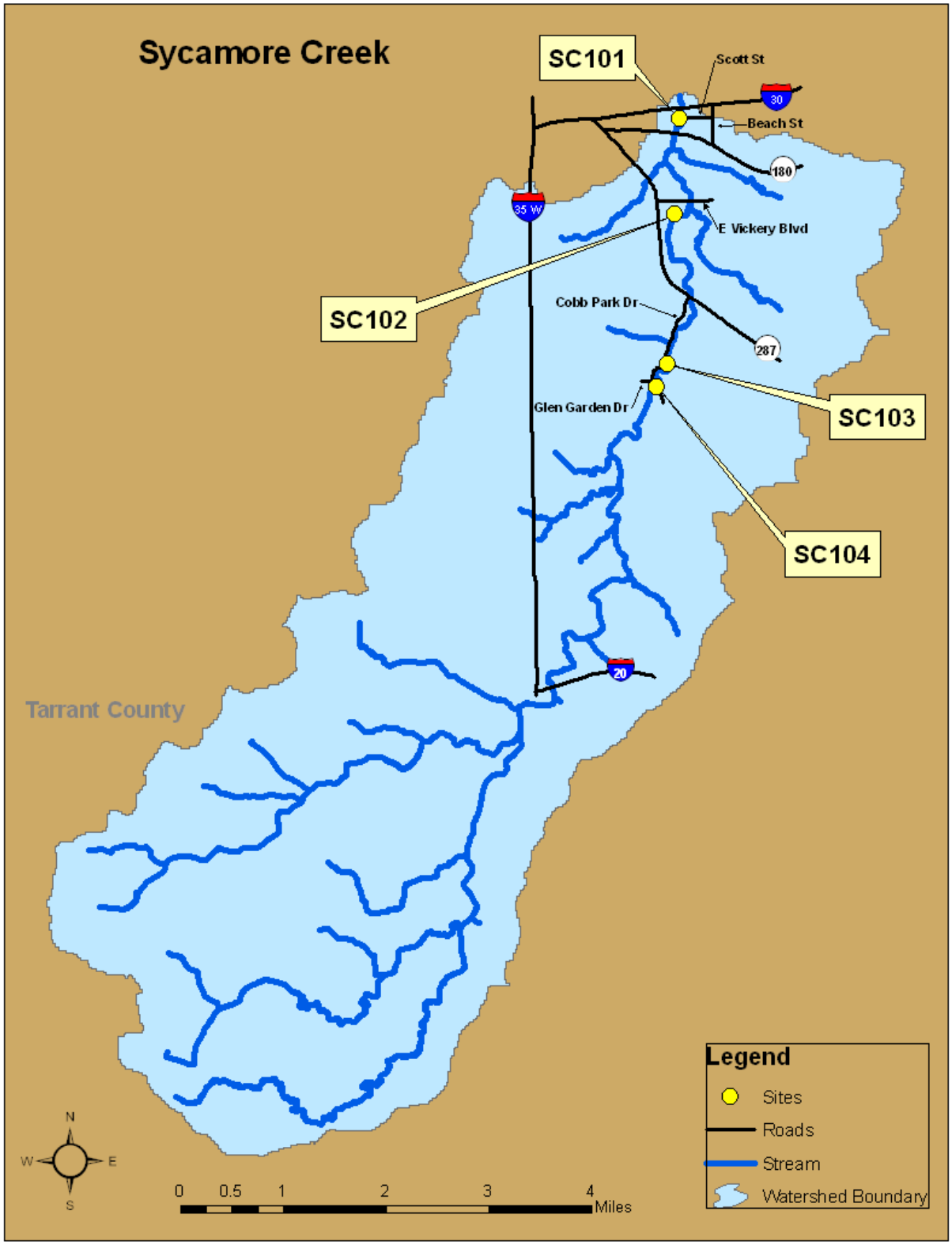


Figure 3-1 Sycamore Creek (Segment 0806E) showing RUAA sites

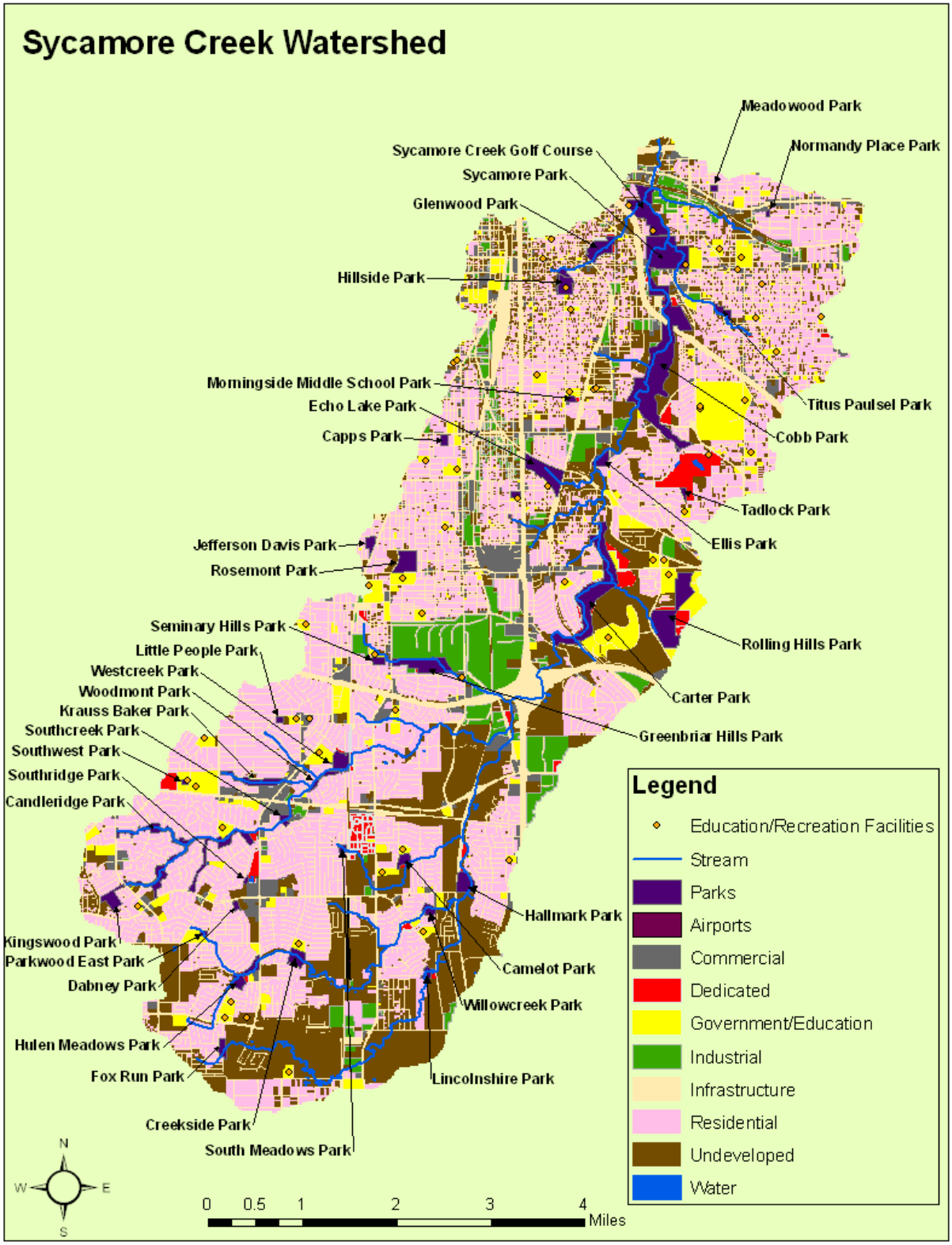


Figure 3-2 Land use/land cover for Sycamore Creek watershed (Source: NCTCOG, 2007 & 2009)

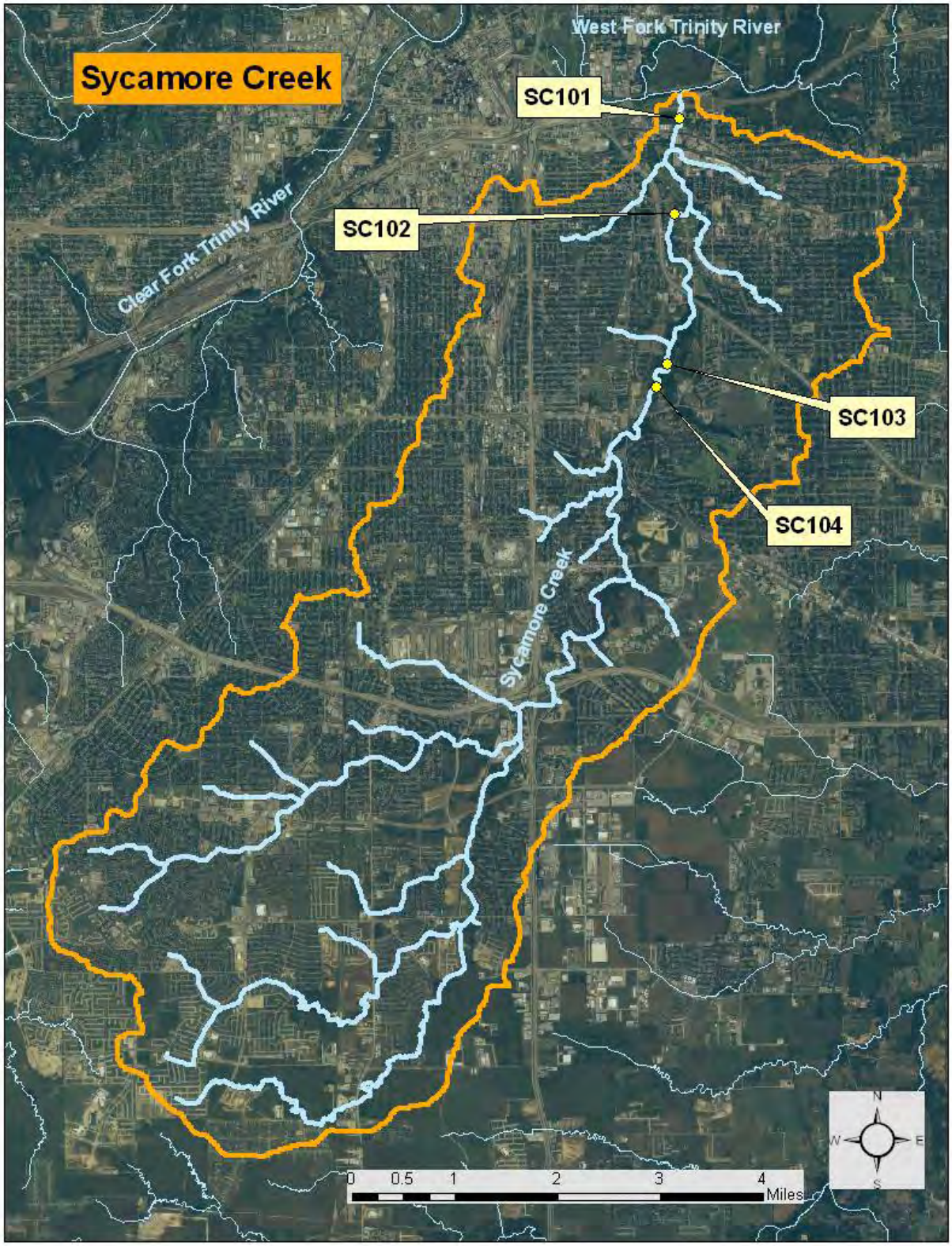


Figure 3-3 Aerial photograph of Sycamore Creek watershed (Source: NAIP, 2005)

Survey Site Descriptions

The survey sites selected for Sycamore Creek (Segment 0806E) are provided in Figure 3-1. Three appropriate sites for the performance of a RUAA and one additional site for interviews only (Site SC104) were identified in this stream segment. A brief description of each site follows.

Site SC101 (TCEQ Station 17369) is located on Sycamore Creek at the western end of Scott Street in Ft. Worth, Texas. The reach begins approximately 179 m upstream of IH 30 and runs toward the confluence with the West Fork Trinity River. There is a park with a hike and bike trail beyond the lower portion of the reach and evidence of homeless camps near the Scott Street access point.

Site SC102 is located on Sycamore Creek upstream of E.Vickery Blvd. in Ft. Worth. There is a large park at this location with a bedrock stream bottom and the large stone steps provide easy access for contact recreation, including wading.

Site SC103 is located on Sycamore Creek in Cobb Park near the Redbud Picnic area in Ft. Worth. There are play and sports facilities and picnic tables located at this park area. Numerous individuals were observed utilizing the facilities on the initial scouting trip. There is a low water crossing at this point which makes the stream very accessible for aquatic recreation.

Site SC104 is located on Sycamore Creek near Glen Garden Drive in Ft. Worth. There is a park located at this area with a play structure for children. However, access to the stream at this site is more challenging and less inviting than the sites listed above. TIAER field staff only conducted interviews at this location.

Results and Discussions

General Description of Stream and Survey Sites

The RUAA surveys were conducted on August 4-8, 2009, August 25-29, 2009 and May 27-31, 2010. The surveys and associated interviews were performed on weekdays, weekends and holidays at opportune times to observe recreational activities in and around Sycamore Creek.

Surveys conducted on Sycamore Creek were conducted during varying air and water temperatures as shown in Table 3-1. Water temperatures were warm enough for recreational activities to occur.

Table 3-1 Temperatures measured at each site along Sycamore Creek

Assessment Unit	Site Number	August 4-8, 2009		August 24-29, 2009		May 27-31, 2010	
		Air Temp (C)	Water Temp (C)	Air Temp (C)	Water Temp (C)	Air Temp (C)	Water Temp (C)
Sycamore Creek	SC101	31.3	28.5	27.2	28.4	28.0	25.1
	SC102	34.7	32.0	26.8	33.5	37.0	27.1
	SC103	36.0	29.8	33.0	29.1	32.0	25.2
	SC104	Interview location only					

Table 3-2 contains information on the appearance of the stream channel and riparian zone at each site.

Table 3-3 shows the average thalweg depth for each reach and site during each of the RUAA surveys.

Table 3-4 shows the maximum, minimum and average widths at each site for each survey. The observed flow and total discharge and also listed for each site and survey.

Physical Description of Site SC101

The stream at Site SC101 is natural in appearance with a bedrock bottom and shrub/tree dominated streambanks. A concrete drainage pad at the west end of Scott Street allows access to the stream, but requires some care in selecting footing. Overall access to the stream is moderately easy. The site is located in a residential and light commercial business area north of IH30. The area west of the stream is an undeveloped field. Table 3-2 describes the stream channel and riparian zone appearance at SC101. A homeless camp was located on the left bank of the stream between the 150-m and 180-m transects. The camp appeared abandoned during the third survey conducted May 27-31, 2010. Photogroup 3-1 depicts the tree/shrub dominated streambanks and the homeless camp.

The surveyed reach at Site SC101 was a wadeable stream with a rock bottom. Some portions of the stream contained gravel and cobble along the edges, but overall the dominant substrate was bedrock. During the first two surveys, no pools were identified in the study reach. During the third survey, three pools were identified and their dimensions are listed in Table 3-5.

The drainage pad located at the 150-m transect was rough concrete down the streambank with several large concrete blocks located at the bottom of the bank in the stream. The 0-m transect was located just above the IH30 bridge crossing. The stream channel at that location became a concrete lined channel. Photogroup 3-2 shows the access point at the 150-m transect and the concrete lined channel at the 0-m transect.

Table 3-4 shows the hydrographic parameters collected at the site during each of the three surveys. The stream was relatively shallow and streamflow measurements were less than 3.0 cfs during each of the surveys. A concrete drainage ditch fed into the stream on the right bank at the 30-m transect. A concrete weir was located at the 120-m transect and a temporary rock dam was identified during the third survey at the 240-m transect. Photogroup 3-3 shows the aforementioned structures.

Parking options at the site were limited to the end of Scott Street in front of a guardrail which keeps vehicles from traveling down the drainage ditch to the stream at the 150-m transect. The steep banks of the stream make the concrete ditch the easiest access point. Trinity Trails hike/bike path is located on the downstream side of the Interstate State 30 bridge crossing, just beyond the study reach.

Table 3-2 Stream channel and riparian zone assessment for Sycamore Creek during August 4-8, 2009, August 24-29, 2009 and May 27-31, 2010 surveys

Assessment Unit	Site Number	Side of Stream	Stream Channel Appearance	Riparian Appearance	Riparian Size	Park	Landscape Surroundings
Sycamore Creek	SC101	Right Bank	Natural	Shrub/tree dominated	Moderate	None	Business facility/Natural
		Left Bank		Shrub/tree dominated	Moderate		Natural
	SC102	Right Bank	Upper 1/3 Natural; Lower 2/3 channelized	upper ¼ shrub dominated; lower ¾ Rip Rap below mowed/maintained	Moderate	Sycamore Park	Natural / Park
		Left Bank			Moderate		
	SC103	Right Bank	Natural	R/L Forest and shrub dominated	Moderate	Cobb Park	Natural
		Left Bank			Moderate		Natural/Park
	SC104	Interview location only					

Table 3-3 Physical Descriptors of Sycamore Creek. Stream flow type from TCEQ (2008b).

Stream	Segment #	Length (miles)	# of Sites	# of Recreational Areas on Stream	Avg. Thalweg Depth (m) for Stream Segment			Stream Flow Type
					August 4-8, 2009	August 25-29, 2009	May 27-31, 2010	
Sycamore Creek	0806E	5.0	4	2	0.45	0.46	0.46	perennial
					Avg. Thalweg Depth (m) for Site Reach			
Site Name	**Reach length (m)**	**# of Transects**	**# of Recreational Areas at Site**		**August 4-8, 2009**	**August 25-29, 2009**	**May 27-31, 2010**	
SC101	300	11	0		0.43	0.38	0.36	
SC102	300	11	1		0.40 [a], 0.12, 1.16	0.35 [a], 0.10, 1.03	0.39 [a], 0.14, 1.06	
SC103	300	11	1		0.53 [a], 0.24, 1.04	0.65 [a], 0.37, 1.14	0.63 [a], 0.25, 1.29	
Site SC104 was an interview location only								
[a] The three depths provided are average, below dam, and above dam								

Table 3-4 Additional hydrographic parameters of Sycamore Creek.

Survey Dates	Assessment Unit	Site Number	Maximum width (m)	Minimum Width (m)	Average Width (m)	Discharge (cfs)	Observed Flow Condition[1]
August 4-8, 2009	Sycamore Creek	SC101	13.9	4.4	10.0	2.36	Normal
		SC102	20.5	1.2	15.0	1.83	Normal
		SC103	33.0	0.92	4.2	1.48	Normal
August 25-28, 2009	Sycamore Creek	SC101	13.5	3.6	10.0	0.91	Normal
		SC102	20.5	0.45	15.0	0.65	Normal
		SC103	33.0	0.86	4.9	0.36	Normal
May 27-31, 2010	Sycamore Creek	SC101	13.4	2.3	5.94	1.94	Normal
		SC102	20.35	1.35	9.3	2.0	Normal
		SC103	32.3	1.32	8.76	0.71	Normal

[1] Possible flow condition categories: no flow, low flow, normal flow, high flow
Site SC104 was an interview location only

Table 3-5 Pool dimensions at Site SC101.

Survey Dates	Length (m)	Width (m)	Depth (m)
May 27-31, 2010	28.2	13.4	0.57
	24.8	10.3	0.96
	>30.0	11.2	0.79

Aquatic vegetation and algae cover over the 300-m reach were absent to rare during the three surveys. A nutria was observed entering a pipe near the 0-m transect during the third survey. No other vertebrates were observed during any of the surveys. The water was generally clear to green in color. No odors were detected during any survey. Large garbage in the stream channel was rare while small garbage was rare to common and, when present, consisted of plastic bags and bottles, aluminum cans, cups and crates. During the second survey, remnants from an assumed party were discovered on a gravel bar in the stream (Photogroup 3-4). Garbage was abundant on streambanks during all three surveys.

Physical Description of Site SC102

Sycamore Creek at Site SC102 in Sycamore Park is a channelized stream in the lower 200 m of the reach and a natural stream for the remaining 100-m. A concrete low water dam with a bike/walk path crossing is located at the 210-m transect. Above the dam, the stream is natural in appearance forming a large deep pool that extends well beyond the 300-m transect of the reach. Below the dam, the stream is a bedrock channel with concrete blocks creating stair steps on both the right and left bank. The area above the stair steps on the right site is mowed and maintained while the area above the left bank is more natural, though some maintenance occurs. Access to the stream at and below the dam is easy as over this 200-meters of the stream rock stair steps go from the top of the bank to the streambed. Table 3-2 describes the stream channel and riparian zone appearance at this site. Photogroup 3-5 shows the streambanks, accessibility, and low-water dam and the large pool above the dam.

A children play structure, picnic tables, tennis courts, and baseball fields are some of amenities located in the park. There is a concrete walk/bike trail throughout the park and several picnic tables are located underneath large oaks trees. The lawns associated with the park are mowed and maintained by the city. Photogroup 3-6 depicts some of the amenities of the park and a bridge at the 180-m transect, which allows people to travel from one side of the park to the other.

The surveyed reach at Site SC102 was a wadeable stream. Upstream of the dam the banks were natural in appearance with trees/shrubs being the dominant riparian vegetation. Thalweg depths above the dam were typically over 1.0 m during all three of the surveys. Stream depths below the dam were typically less than 0.2 meters during each survey. Table 3-3 shows the average thalweg depths collected at Site SC102. The thalweg depths are reported in three categories (average overall depth, below dam depth, and above dam depth) to show the change in stream conditions along the 300-m reach.

There were no pools identified at Site SC102 other than the large pool above the concrete dam. This segment of the stream was fairly uniform with typical depths over 1.0 m and widths of approximately 15 m. The pool continued well beyond the 300-m transect of the study reach. Photographs of the pool are located in previously presented Photogroup 3-5.

The park is located in a residential area with several entry points from major roads around the park. There is ample parking located in the park, both in large parking lots and along the side of the park road that runs through the park. A golf course is located across East Vickery Boulevard, north of the site. Aesthetically, the park appears inviting for recreation, although the only

appealing location for water recreation is the segment from the 0-m transect to the 210-m transect. There were no fences or signs observed prohibiting water recreation at the site.

Aquatic vegetation at the site was absent, while algae cover ranged from common to abundant. Water at SC102 was clear in the lower 200-m and green above the dam. The water surface was generally free of any scum or film. The stream had a slight odor (characterized as "rare" on the survey field data sheets) during two of the three surveys with odor being absent the third survey. There was a slight to moderate presence of water dependent birds and a slight presence of snakes. A moderate presence of wild mammals, squirrels, a dead opossum and a dead raccoon was observed at the site. No other vertebrates were observed, although fecal droppings and tracks were observed. Large in-stream garbage consisting of large plastic bags and a toilet bowl was observed during two of the surveys. Small garbage in the channel and on the banks was rare and, when present, consisted of plastic bags and bottles.

Physical Description of Site SC103

Sycamore Creek at Site SC103 in Cobb Park is a natural stream with a low-water crossing located at the 210-m transect. The stream above the low water crossing is a large pool greater that 300 meters long with an average width of 30 meters and depths over 1.0 m. The stream below the crossing was relatively shallow and much narrower that in the upstream transects. The dominant substrate of both segments was bedrock. Dominant vegetation of the banks of both sides of the stream was tree/shrub. Depths above the low water crossing were deep enough for immersion, but the stream below the dam was more inviting for wading. Access to the stream was easy at the low water crossing, which allowed travel both upstream and downstream. There was a pipe gate across the entrance to the low water crossing to keep vehicles from crossing the stream. Table 3-2 describes the stream channel and riparian zone appearance at this site. Photogroup 3-7 depicts the stream channel and riparian zone appearance in the upper half of the study reach. Photogroup 3-8 depicts the stream channel and riparian zone in the lower half of the reach.

The reach surveyed at Site SC103 was wadeable for its entire 300-m length. The bedrock bottom made walking relatively easy. Depths above the crossing were greater than 1.0-m while depths below the crossing were typically less than 0.5-m. Table 3-3 shows the average thalweg depths collected at SC103 during the three surveys. In order to show the difference in the depths above and below the crossing, three thalweg depth averages were given in the table; overall reach, below the crossing and above the crossing.

Two pools were identified in the study reach during each site survey. One pool was immediately below the low-water crossing. The second pool was upstream of the low-water crossing and extended beyond the 300-m transect. Dimensions of the pools are found in Table 3-6.

Site SC103 in Cobb Park is located within a high residential area with Cobb Park Drive West running along the western side of the stream. Redbud Trail is the name of the low water crossing of the stream. There are mowed and maintained sports fields in the area and picnic tables underneath oak trees (Photogroup 3-9). City of Fort Worth staff recommended not visiting the park after dark.

Table 3-6 Pool dimensions at Site SC103

Survey Dates	Length (m)	Width (m)	Depth (m)
August 4-8, 2009	18.0	33.0	0.86
	>100	33.0	>1.0
August 25-28, 2009	18.0	33.0	0.85
	>100	33.0	>1.0
May 27-31, 2010	18.0	33.0	0.86
	>100	33.0	>1.0

Aquatic vegetation at the site was absent to rare and algae cover was common. There was a slight presence of water dependent birds and domestic pets with no other observances of vertebrates. Fecal droppings and tracks were observed. Water below the low-water crossing was clear but was green in color above the crossing. Scum was observed on the water surface during one of the surveys, but was clear during the other two surveys. Channel and bank garbage, both large and small, was common during two of the three surveys, but was rare during the third. Garbage consisted of plastic bags and cups, glass containers, discarded household items and automotive items, such as tires. Odor of the stream was absent during the first survey, faint during the second and common during the third. During two of the surveys, there was a distinct sewage smell in the air.

Physical Description of Site SC104

Sycamore Creek at Site SC104 in Glen Garden Park is a natural stream with a small play structure and parking lot located off of Old Mansfield Road. The dominant substrate of the stream appears to be gravel. Footpaths were observed at the site; however, they were covered with broken glass and many glass bottles were observed around the park area. The banks of the stream are natural in appearance with trees/shrubs being the dominant vegetation. The area where the play structure is located is mowed and maintained by the city. Photogroup 3-10 depicts the riparian zone of the banks and the substrate of the stream.

A children play structure and pavilion structure are located east of the parking lot. Several visits to the site for interviews revealed bottles and cups strewn about, as the trash barrels located by the pavilion appeared to be ignored. Access to the stream appears to be moderately easy but dangerous based on the broken glass and bottles along the footpath. Photogroup 3-11 depicts the structures at the small park and the areas of trash and broken glass. During TIAER's visits to the site, not one person was observed utilizing the play structure. One interview from a city employee stated that he had never observed the play structure being utilized either. Overall, not much activity was observed at this location.

Activities: Observed and Interviewed

During each RUAA survey, field personnel visited the sites during times of days and on days when recreational activities were apt to be observed. Two of the three selected sites were located in residential areas at public parks. Paved parking lots, hike/bike trails, well established roads in the area, bridges and public access made the facilities well suited for public recreation. The third site was close to a hike/bike trail and a suspected homeless camp. Table 3-7 shows although people were observed, no primary contact recreational activities were observed by TIAER personnel at any of the sites located on Sycamore Creek. The "number observed" column shows

the approximate number of persons observed at the site when the survey was performed, with primary contact recreation activities listed as individual columns.

Table 3-7 Primary contact recreation activities evaluation during the surveys of Sycamore Creek.

Date	Site Number	Number Observed[1]	Wading Children	Wading Adults	Swimming	Water Skiing	Diving	Tubing	Surfing	Whitewater activities	Other
August 4-8, 2009	SC101	None	-	-	-	-	-	-	-	-	-
	SC102	1-10	-	-	-	-	-	-	-	-	-
	SC103	11-20	-	-	-	-	-	-	-	-	-
August 24-29, 2009	SC101	1-10	-	-	-	-	-	-	-	-	-
	SC102	1-10	-	-	-	-	-	-	-	-	-
	SC103	11-20	-	-	-	-	-	-	-	-	-
May 27-31, 2010	SC101	None	-	-	-	-	-	-	-	-	-
	SC102	11-20	-	-	-	-	-	-	-	-	-
	SC103	1-10	-	-	-	-	-	-	-	-	-

[1] None; 1-10; 11- 20; 20-50; >50

Table 3-8 shows that no secondary contact recreation activities were observed at the sites along Sycamore Creek. People were observed within eight meters of the stream at two of the three sites, Site SC102 and Site SC103. People were either walking or jogging across the low water crossing at the 210-m transect of the stream at Site SC102. In addition, during two of the three surveys, people were observed sitting on the stair-step blocks near the 30-m transect. When the persons saw us walking toward them, they left the site immediately before an interview could be conducted. The age of the persons was suspected to be high school age.

Table 3-8 Secondary contact recreation activities observed during the surveys of Sycamore Creek.

Date	Site Number	Number Observed[1]	Fishing	Boating	Non-whitewater activities	< 8 m from shore	Other
August 4-8, 2009	SC101	None	-	-	-	-	-
	SC102	1-10	-	-	-	X	-
	SC103	11-20	-	-	-	-	-
August 24-29, 2009	SC101	1-10	-	-	-	X	-
	SC102	1-10	-	-	-	-	-
	SC103	11-20	-	-	-	-	-
May 27-31, 2010	SC101	None	-	-	-	-	-
	SC102	11-20	-	-	-	X	-
	SC103	1-10	-	-	-	-	-

[1] None; 1-10; 11- 20; 20-50; >50

At Site SC101, people were observed sitting and lying down near a tent at the homeless camp, which was more than eight meters from the stream. However, one of the occupants was observed defecating on a gravel bar near the stream. No photographic documentation is provided for this activity. In addition, evidence was discovered during one trip indicating that people were sitting on a gravel bar in the stream channel. Cigarette butts were also observed on the edge of the concrete pad at the 150-m transect. Although field personnel did not observe the

activity in the stream, there is a high probability that some form of activity did occur in the stream channel. Photogroup 3-12 depicts the evidence of some activity in the stream channel.

People were observed at Site SC102 during all three of the surveys. Persons were observed running and walking, bicycling, playing tennis and just sitting, either in their cars or at picnic tables. Of the runners and walkers, some were exercising while others, carrying bags of what appeared to be groceries, appeared to be traveling through the park on their way home. One person was performing yoga under a shade tree. None of the people observed were using the stream for recreation.

At Site SC103 people were observed at the site during two of the three surveys. Activities here were mainly confined to standing and sitting around the picnic tables, eating lunch, and playing dominoes. The observed walking activities consisted of persons walking to and from their vehicles to either leave the site or join in the conversation at the tables; walking for exercise was not observed. During the third survey, only one person was observed walking around collecting aluminum can tabs from the ground and trash containers. Of the persons observed, none appeared to be dressed for water recreation or appeared to be contemplating water recreational activities.

Some activities were observed over the surveyed reach of each site that were not associated with water recreation. These activities included walking, running/jogging, biking and tennis, to mention a few. Table 3-9 shows the general activities observed at each site during each survey. People were observed alone, as couples, and in large groups. No one observed during the surveys seemed to be interested in recreating in the water or dressed for water recreation. Individuals were utilizing the park amenities, such as the hike/bike paths for exercise and picnic tables for eating their lunch. Some were just sitting on park benches watching people or wildlife. Some persons were sitting in their cars underneath a shade tree. One person was observed collecting beer can tabs from trash cans and from the ground. Photogroup 3-13 shows some persons at picnic tables and cars located at the park.

People were interviewed at the three sites where RUAA surveys were conducted and one additional site, Site SC104 at Glen Gardens Park. TIAER personnel, wearing identification tags, asked the individuals to participate in the RUAA interviews. Site SC104 was suggested as an interview location by City of Ft. Worth personnel because of some presumed activity occurring at that location. Most people were willing to accommodate being interviewed, but some did not want to answer any questions. TIAER personnel tried not to interfere with the activities of individuals and tried to make the questions as brief as possible. Some people gave names and phone numbers, some gave just names and others chose not to give any information other that their opinions. In order to not invade their privacy, no interviews were attempted at the homeless camp at Site SC101.

Table 3-10 records the activities reported during interviews either conducted by the interviewee or activities of others they have observed. The numbers under the column headings indicate the number of times an activity was mentioned during all of the interviews.

Table 3-9 Summary of general activities observed during surveys of Sycamore Creek

Date	Site Number	Number Observed[1]	Drinking Water in mouth	Bathing	Walking Jogging Running	Bicycling	Standing	Sitting	Lying down	Playing on shore	Picnicking	Motorcycle /ATV	Hunting/ trapping	Wildlife watching	< 8 m from shore	> 8 m from shore	Other
August 4-8, 2009	SC101	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SC102	1-10	-	-	X	-	-	X	-	-	X	-	-	-	X	X	-
	SC103	11-20	-	-	X	-	X	X	-	-	X	-	-	-	-	X	X
August 24-29, 2009	SC101	1-10	-	-	-	-	X	X	-	-	-	-	-	-	-	X	X
	SC102	1-10	-	-	X	-	-	X	-	-	X	-	-	-	-	X	-
	SC103	11-20	-	-	X	-	X	X	-	-	X	-	-	-	-	X	X
May 27-31, 2010	SC101	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SC102	11-20	-	-	X	X	-	X	-	-	X	-	-	-	X	X	X
	SC103	1-10	-	-	X	-	-	-	-	-	-	-	-	-	-	X	X

[1] None; 1-10; 11- 20; 20-50; >50

Table 3-10 Activities reported in interviews at sites along Sycamore Creek.

Watershed	Site Name	Swimming	Walking Jogging Running	Wading		Standing Sitting Sleeping	Wildlife Watching	Picnicking	Fishing	Bicycling
				Adults	Children					
Sycamore Creek	SC101	-	-	-	-	-	-	-	1	-
	SC102	-	-	1	4	-	-	-	2	-
	SC103	-	-	-	1	-	-	-	5	-
	SC104	-	-	-	-	-	-	-	1	-

A total of 16 interviews were attempted or collected at the four locations located along Sycamore Creek. Some of the interviews were site specific while others talked about the creek as a whole. The consensus of the people we talked with was that they would not recreate in the water. The common interviewee responses were the water was nasty, gross, dangerous, or trashy. Only one person, familiar with the stream for 30 plus years, stated that when she was a child, she did wade in the stream at the Cobb Park location. Not one other interviewee claimed to have recreated in the stream, though some interviewees had observed or heard of recreation activities in the stream.

Most of the people interviewed stated that they have observed or heard of people wading in the stream, both children and adults. They usually made reference to the two sites located at Sycamore Park and Cobb Park. It was also stated that fishing does occur in the stream, but they didn't think the fish are eaten. One group of people playing dominoes at a picnic table in Cobb Park stated that the bad sewage smell prevented them from going any closer to the stream than the picnic tables. It was further stated that there is frequent traffic where people drive up and park along the road, go into the trees alongside the stream, and return to their cars and leave after only a couple of minutes. The type of activities that occurred at these times was only speculation by the interviewee.

One interview from a city employee spoke of the homeless camp at Site SC101. It stated that the camp is there year round and that bathing and "adult" recreation has been observed at the site. It was further stated that the creek as a whole is not used for contact recreation, mainly catch and release fishing. No children have ever been observed on the playground equipment at Site SC104, Glen Gardens Park.

One person interviewed at Site SC102 stated that many families come to the park in the evenings and Sunday afternoons and wade in the stream in the areas of the stair-step blocks. Field personnel did visit the site on a Sunday and a couple of evenings and never were able to verify this information. A couple of people stated that they came to the park to play tennis, nothing else. They had no desire to get into the water or couldn't swim; they just play tennis for recreation.

A police officer informed us at Site SC102 that it was illegal to get into the stream. An interview was attempted, but the officer acted as if he did not have time to answer any questions and subsequently left. No signs prohibiting entrance into the stream were identified by field crews at any of the locations surveyed.

Copies of the interviews conducted along Sycamore Creek are located in Appendix A-4.

Summary

RUAA surveys were conducted at three sites (SC101, SC102, and SC103) along Sycamore Creek on August 4-8, 2009, August 25-29, 2001 and May 27-31, 2010. Only interviews and observations of activities in and around the stream were made at a fourth site, SC104. Copies of all field data sheets, flow sheets, transect pictures and interviews from each survey at Sites SC101, SC102, and SC103 are located in the Appendix A-1, A-2, A-3 and A-4, respectively.

Several activities were observed by TIAER field staff during the surveys and reported by interviewees, and these activities are summarized in Figure 3-4. There were reports of people recreating in the stream at two locations, Sites SC102 and SC103. The occupants of the homeless camp at Site SC101 appear to utilize the stream in a variety of ways, but none of these activities were observed by TIAER personnel. Fishing, catch and release, was reported to occur along the stream although not verified by field personnel. The city park department maintains the grounds in the parks.

The effluent sewage smell in the area of Cobb Park was one of the reasons mentioned for not eating the fish caught or recreating in the stream. The amounts of garbage in the channel and on the banks at this location may also deter recreation.

Both observations and interviews indicated that most people who make use of the park facilities do not use the Sycamore Creek for recreation, except for the reported wading by children at Sites SC202 and SC203 and the water-related activities associated with the homeless camp at Site SC101. Many interviewees described the water as “too nasty” to recreate in. There were no signs warning against trespassing and/or swimming observed at any of the sites surveyed.

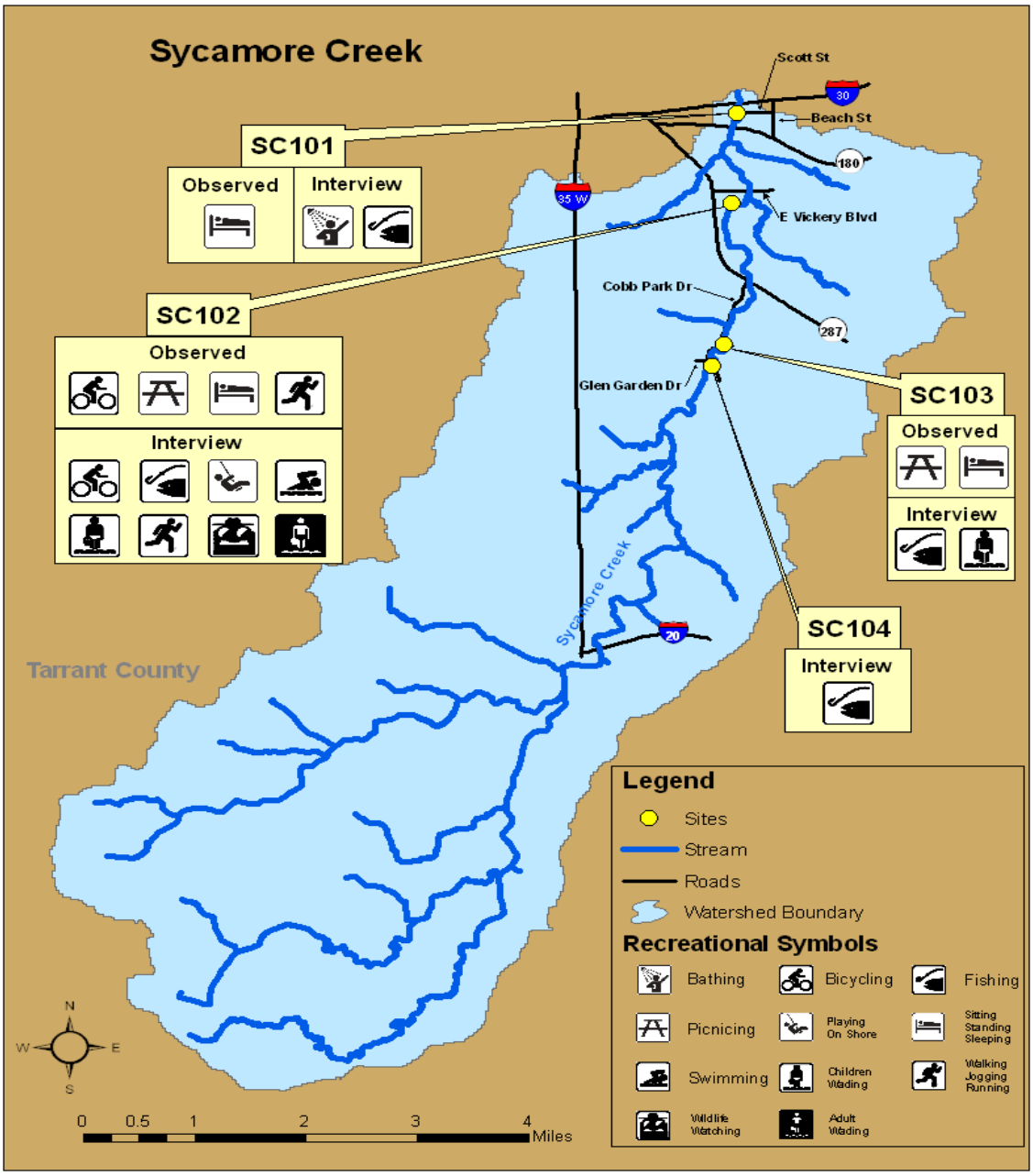
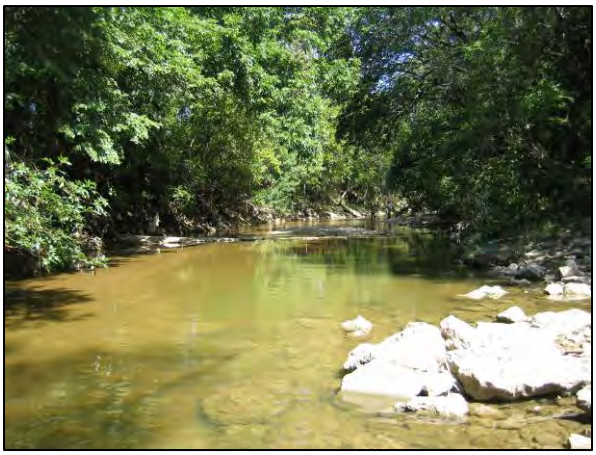


Figure 3-4 Summary of activities observed and reported in interviews at sites along Sycamore Creek

Sycamore Creek (Segment 0806E)
Photogroups


Photogroup 3-1 Sycamore Creek Site SC101 depicting stream and tree/shrub dominated riparian zone and on the lower row a distant photograph through the trees of a tent at the homeless camp near the creek. [Return to Text]

Photogroup 3-2 Sycamore Creek showing concrete pieces in stream and concrete apron leading to stream at the 150-m transect (upper row, note right photograph is looking up the apron) and stream and banks at the 0-m transect at IH-30 (middle and lower rows; note in lowermost photograph the pedestrian bridge in the background that is part of a hike/bike trail). (Individual pictured is TIAER staff.) [Return to Text]

Photogroup 3-3 Sycamore Creek Site SC101 showing storm drain entering creek at 30-m transect (top portion of upper row, left side photograph); weir or low dam at 120-m transect (following two photographs); and temporary rock dam (lower row, right photograph). [Return to Text]

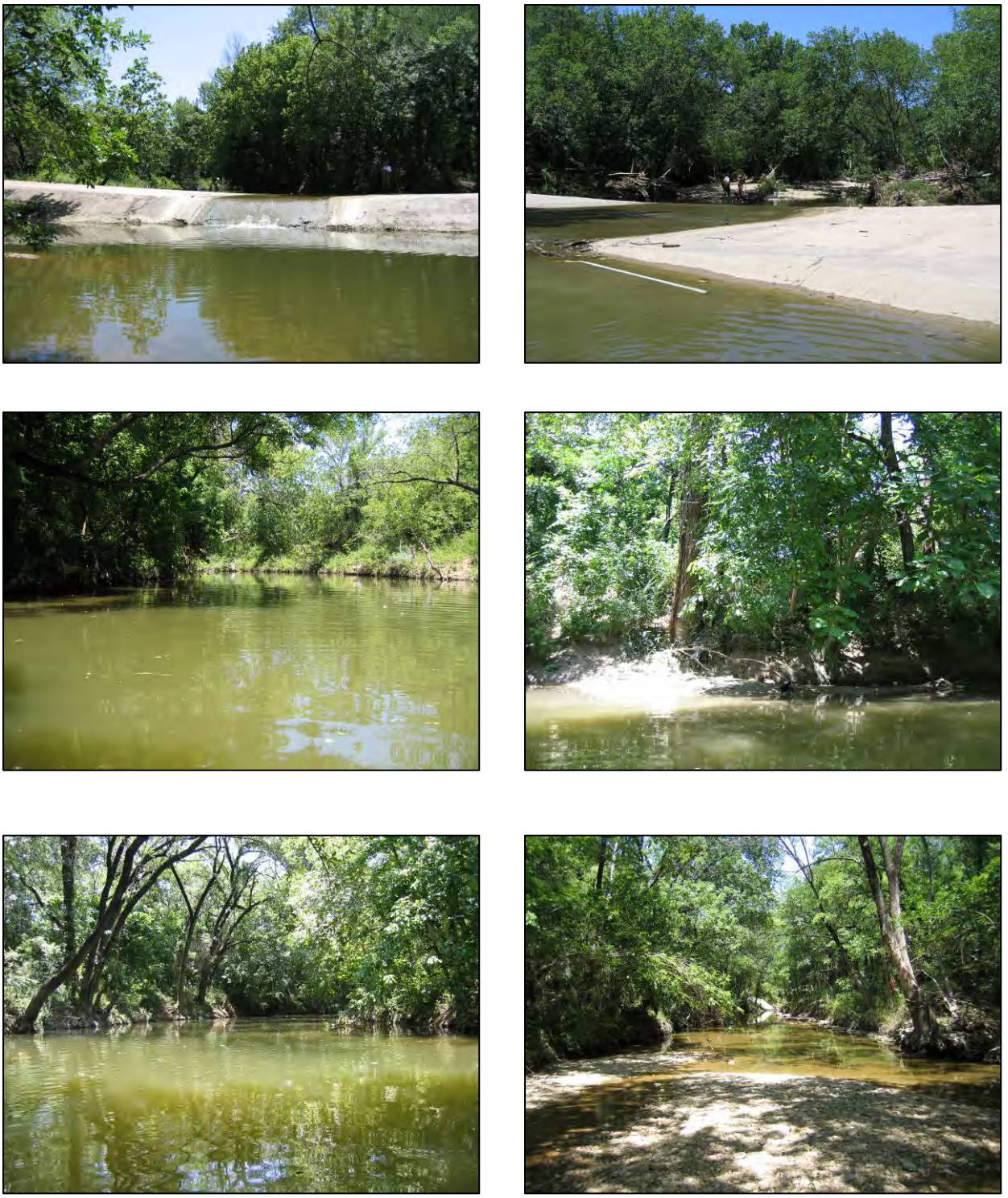
Photogroup 3-4 Sycamore Creek Site SC101 showing remnants of suspected party including camp fire. (Individual pictured is TIAER staff.) [Return to Text]

Photogroup 3-5 Sycamore Creek Site SC102 showing stream below low water dam at 210-m transect (upper row & middle row left) and large pool and dam (middle row right and lower row) above this transect. (Individual in upper right photograph is TIAER staff.) [Return to Text]





Photogroup 3-6 Sycamore Creek Site SC102 showing area within Sycamore Park and the bridge crossing the stream. [Return to Text]



Photogroup 3-7 Sycamore Creek Site SC103 showing stream channel, pooled conditions, and riparian vegetation. [Return to Text]



Photogroup 3-8 Sycamore Creek Site SC103 showing additional areas of stream channel and riparian vegetation. [Return to Text]


Photogroup 3-9 Sycamore Creek Site SC103 showing Cobb Park. [Return to Text]

Photogroup 3-10 Sycamore Creek Site SC104 showing stream and riparian zone. [Return to Text]

Photogroup 3-11 Sycamore Creek Site SC104 showing conditions in Glen Garden Park. [Return to Text]

Photogroup 3-12 Sycamore Creek showing evidence of human activity in the stream channel, including cigarette butts, remnants of camp fire, and signs of party on gravel bar. (Note that some photographs are repeats of previous photographs; Individual pictured is TIAER staff.) [Return to Text]

Photogroup 3-13 Sycamore Creek showing activities observed on parks along creek. [Return to Text]

CHAPTER 4
COTTONWOOD BRANCH (SEGMENT 0822A)

Watershed Characterization

Segment 0822A is a six mile unclassified segment defined as running upstream from its confluence with Hackberry Creek to Valley View Road in Irving, Texas, Dallas County. Cottonwood Branch flows generally west to east from near State Highway (SH) 161 on the east side of Dallas/Fort Worth International Airport (DFW Airport), through Irving, Texas, and to a confluence with Hackberry Creek near Dallas, Texas just west of the Elm Fork Trinity River (Figure 4-1). Additionally, this stream flows through a densely populated residential area, two golf courses and North Lake College and the land use of the watershed is predominately residential (land use on Figure 4-2; aerial photograph on Figure 4-3). Though accessible at many points, the stream is posted as non-recreation use by the Dallas County Utility and Reclamation District (DCURD) for much of its length. Though stretches of the creek appear natural, much of the stream has been channelized into concreted water ways. Additionally, there are several "lakes" that have been created within the boundaries of the golf courses. Four sites were selected for RUAA locations in this stream. There are no NPDES WWTP outfalls in the segment watershed. TCEQ lists flow type for this stream as intermittent with pools and based on this flow regime assigned a presumed aquatic life use of limited (TCEQ, 2010c).

Additional Information

The review of historical information and climatic conditions is found in Chapter 2.

Site Selection Strategy

An objective of the survey efforts under the RUAA was to include an appropriate number of sites in each of the eleven streams. The urban nature of much of the watershed contributes to numerous road crossings and neighborhood parks at which the various streams may be accessed.

The strategy used in site selection for the RUAA surveys incorporates the following:

Survey locations were found (completed May – June 2009) in each of the eleven streams described in the section above.

Existing TCEQ stations were used whenever these stations were located in areas that afford at least some access opportunity for various forms of recreational use. Some TCEQ monitoring stations may not provide inviting access for recreational contact.

Special attention was focused on the numerous parks located on many of the streams in the RUAA study.

On June 11, 2009, TIAER presented a list of proposed sites to an aggregate of state and local agencies, i.e., the TCEQ, TSSWCB, Trinity River Authority, Texas Parks and Wildlife, North Central Texas COG, DFW Airport, and the cities of Fort Worth, Dallas, Grand Prairie, Irving, and Coppell. As a result of the meeting, some locations were moved, some added and some dropped. The sites listed below reflect the results of input received following the meeting. For Cottonwood Branch site selection the major interaction occurred with City of Irving staff.

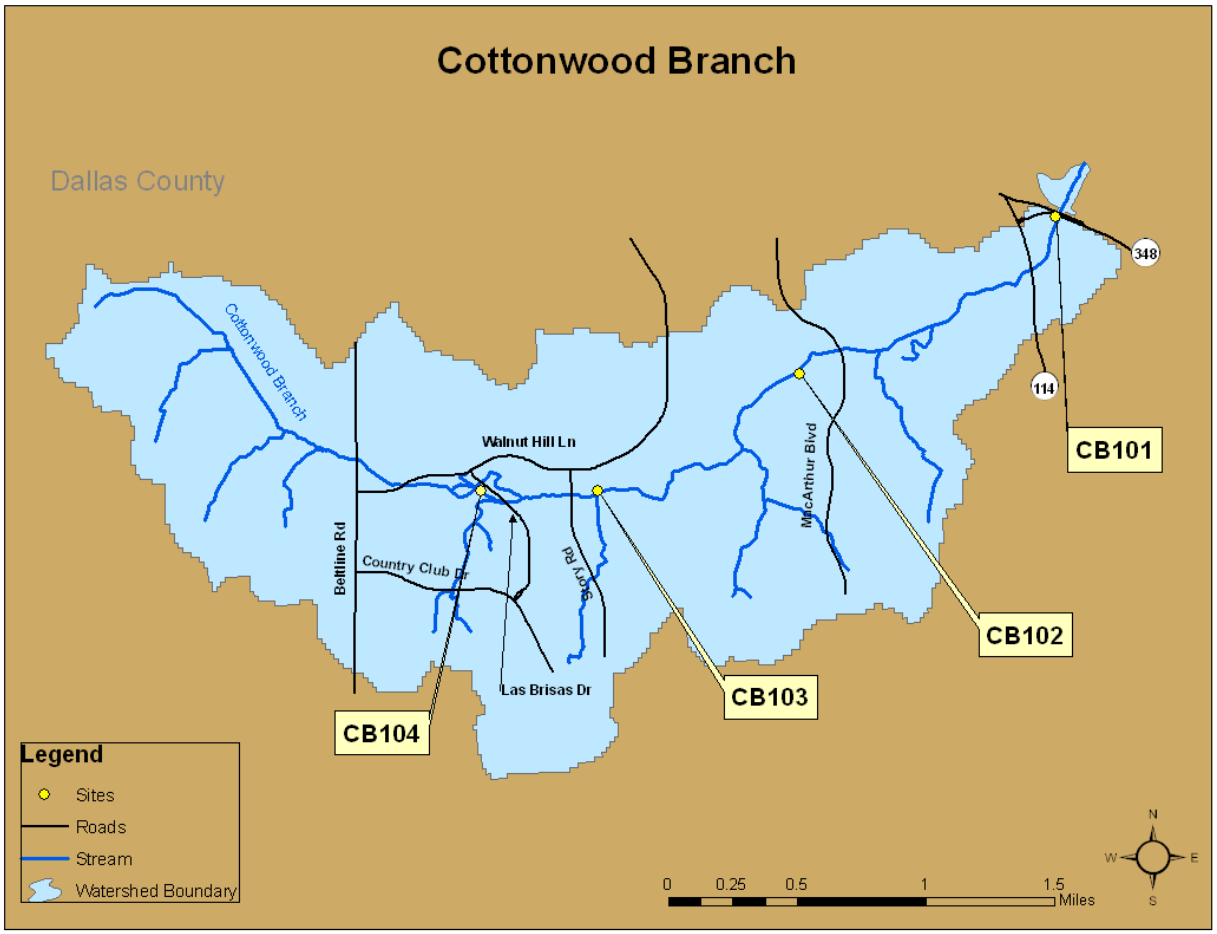


Figure 4-1 Cottonwood Branch (0822A) showing RUAA sites

Survey Site Descriptions

The survey sites selected for Cottonwood Branch (Segment 0841H) are shown in Figure 4-1. Four sites were identified as suitable RUAA locations along this stream. A brief description of each site follows.

Site CB101 (TCEQ Station 17168) is located on Cottonwood Branch at Highway Spur 348 near the confluence with Hackberry Creek, in Irving, Texas. Though not particularly inviting for swimming, there is potential for boat access from Hackberry Creek and fishing from the bank.

Site CB102 (TCEQ Station 18359) is located on Cottonwood Branch on the campus of North Lake College approximately 433 m upstream of McArthur Blvd. in Irving. At this location the stream is under the jurisdiction of DCURD and, according to college employees, access is strictly prohibited, though the stream runs through two golf courses as well as the college campus. Though recreation in the water is prohibited, the banks are not fenced thus the stream is accessible from the campus.

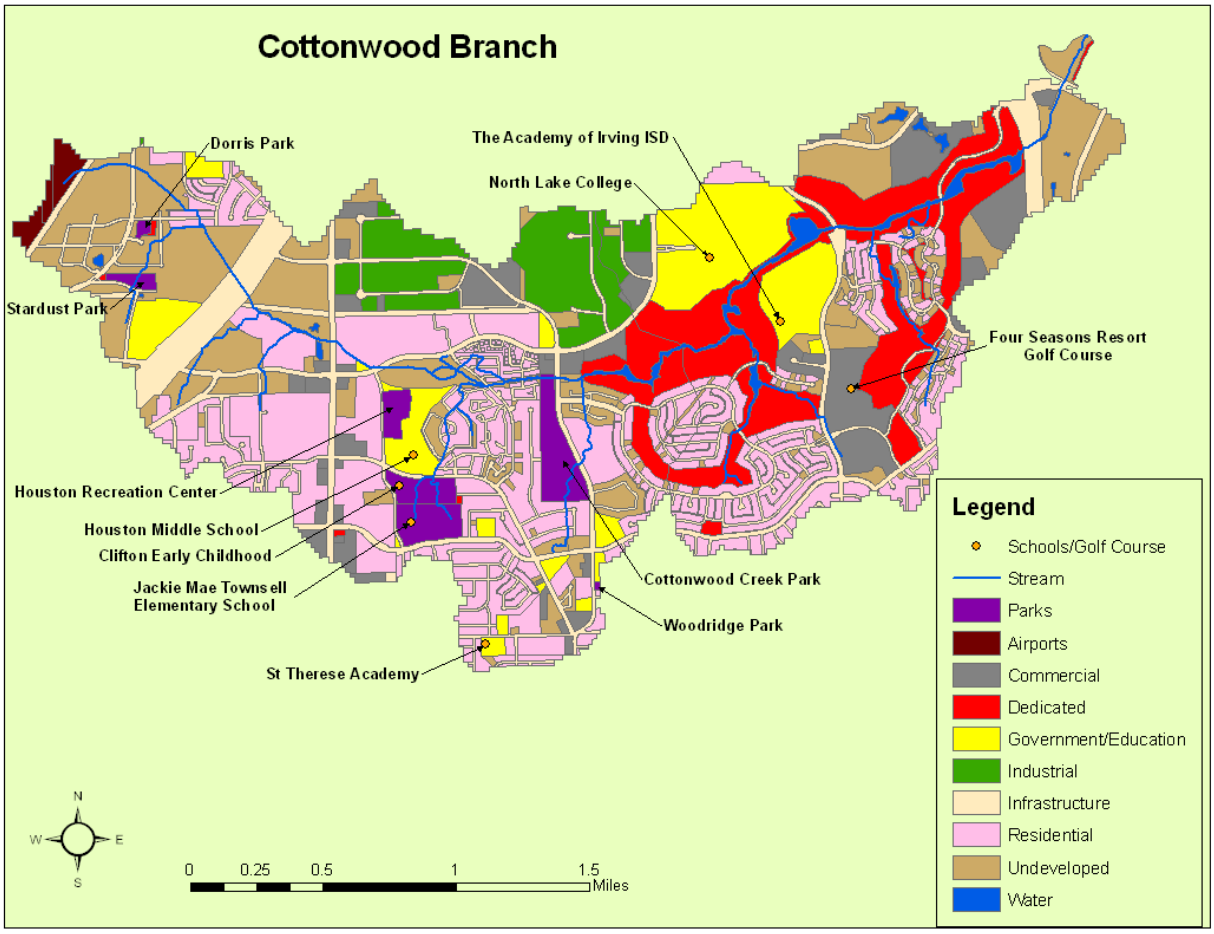


Figure 4-2 Land use/land cover for Cottonwood Branch Watershed (Source: NCTCOG, 2007 & 2009)

Site CB103 (TCEQ Station 17166) is located on Cottonwood Branch at N. Story Rd. in Irving. The area is residential and light commercial with easy access to the stream from both banks.

Site CB104 is located on Cottonwood Branch at the crossing of Las Brisas Dr., in Irving. The general area between Las Brisas and Walnut Hill Lane is undeveloped and could be accessed easily from the bank from the 0-m to the 150-m transects. Upstream of the 150-m transect, a steep bank at the crossing and dense vegetation along the remainder of the 150-m reach deters access.

Results and Discussions

General Description of Stream and Survey Sites

The RUAA surveys were conducted on August 4-8, 2009, August 25-29, 2009 and May 27-31, 2010. The surveys and associated interviews were performed on weekdays, weekends and holidays at opportune times to observe recreational activities in and around Cottonwood Branch.

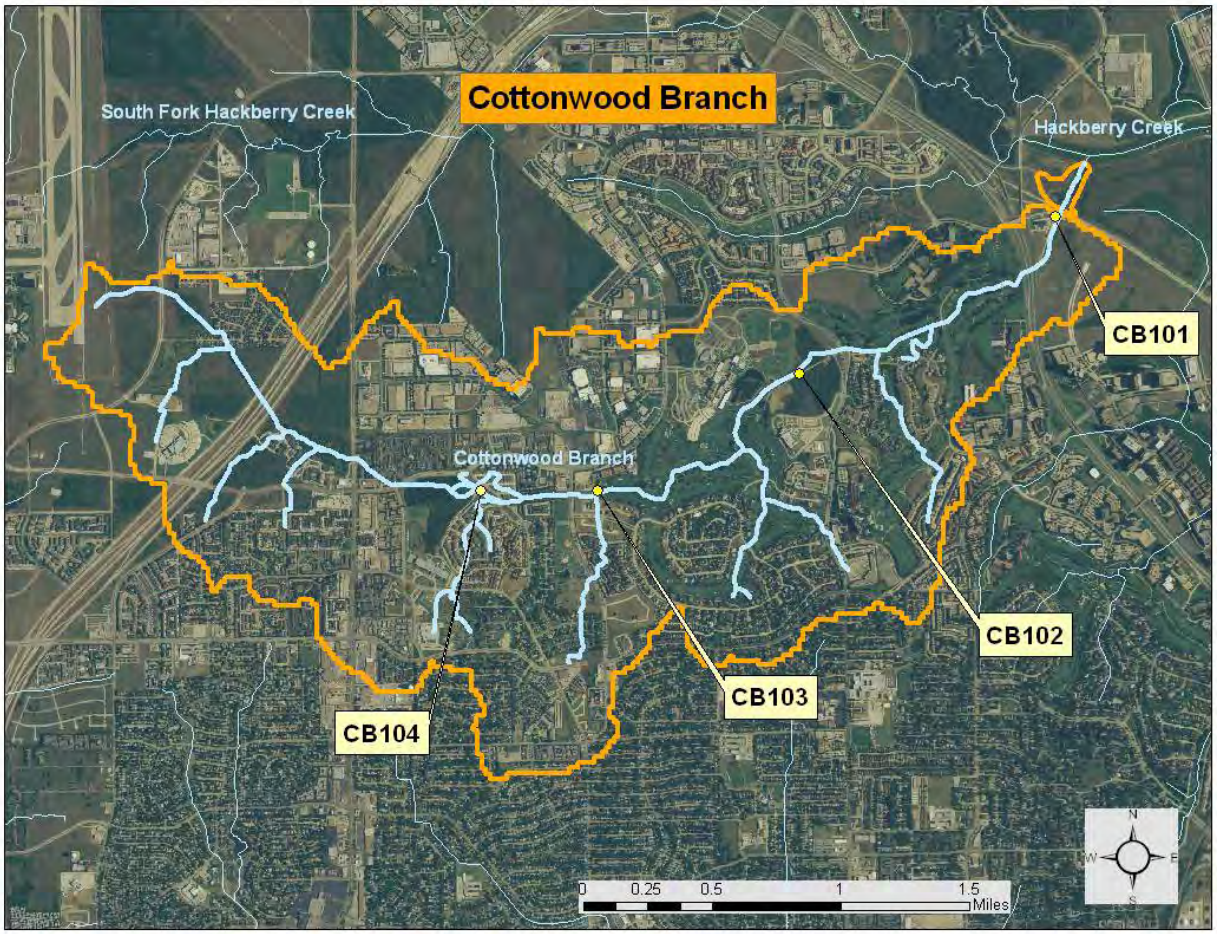


Figure 4-3 Aerial photograph of Cottonwood Branch Watershed (Source: NAIP, 2005)

Surveys conducted on Cottonwood Branch were conducted during varying air and water temperatures as show in Table 4-1. Water temperatures were warm enough for recreational activities to occur.

Table 4-1 Temperatures measured at each site along Cottonwood Branch

Assessment Unit	Site Number	August 4-8, 2009		August 24-29, 2009		May 27-31, 2010	
		Air Temp (C)	Water Temp (C)	Air Temp (C)	Water Temp (C)	Air Temp (C)	Water Temp (C)
Cottonwood Branch	CB101	34.9	30.9	30.0	29.7	37.0	31.2
	CB102	30.6	32.5	30.0	30.3	33.0	32.1
	CB103	33.5	32.5	31.0	31.3	33.0	36.1
	CB104	30.6	30.7	32.0	29.2	37.0	28.2

Table 4-2 contains information on the appearance of the stream channel and riparian zone at each site.

Table 4-3 shows the average thalweg depth for each reach and site during each of the RUAA surveys. The thalweg depth at some locations was estimated based on the depth of water at the edge of the pool or stream. At these locations, the stream was considered non-wadeable and only width measurements were collected. Although unwadeable depths were recorded as >1.0 m, a depth value of 1.0 m was used to calculated the average thalweg depth for the stream segment.

Table 4-4 shows the maximum, minimum and average widths at each site for each survey. The observed flow and total discharge and also listed for each site and survey.

Physical Description of Site CB101

The stream at Site CB101 is channelized with steep concrete walls and a concrete walkway atop the left bank and mowed and maintained grass corridor above the right bank. Cottonwood Branch flows from a golf course upstream through a small concrete canal and falls down a concrete waterfall structure just above the 300-m transect. Much of the banks on both sides was undeveloped but there was a construction site beyond the mowed corridor on the right bank and a hotel with a large parking lot is located on the left bank between the 0 and 150-m transects. There are steps leading from the hotel parking lot to the concrete walkway. Table 4-2 describes the stream channel and riparian zone appearance at this site. Access to the edge of the stream is relatively easy while access to the stream itself is moderately difficult. Photogroup 4-1 depicts the stream channel banks and adjacent corridors and Cottonwood Branch has a small canal leading from the golf course that expands into a larger concrete channel. There is a dam located just downstream of the 0-m transect which maintains the level of the stream (Photogroup 4-2).

The surveyed reach at Site CB101 was a wadeable stream, but due to the steep concrete banks, accessibility was difficult. Depth measurements were collected utilizing an RDA acoustic Doppler current profiler, ADCP. The flow measurements were collected in the small channel above the 300-m transect which flows into the stream.

Due to the concrete sides of the channel and the dam below the 0-m transect maintaining the water level, the dimensions of the stream channel did not change between surveys (Table 4-4; Photogroup 4-3).

The site is located in an urban/suburban area with major highways on the north and south ends of the reach. The only parking facility available is the parking lot associated with the hotel. There was a slight presence of water dependent birds with no other vertebrates observed. The stream contained no aquatic vegetation with algae cover observed to be rare during one of the surveys, otherwise algae cover was absent. No odors were detected during any of the three surveys. No bank garbage was observed during any of the surveys and garbage in the channel, both large and small, was absent to rare. Observed garbage was plastic bags and bottles and paper. Avian fecal droppings were observed at the site, but no tracks were observed.

Table 4-2 Stream channel and riparian zone assessment for Cottonwood Branch during August 4-8, 2009, August 24-29, 2009 and May 27-31, 2010 surveys

Assessment Unit	Site Number	Side of Stream	Stream Channel Appearance	Riparian Appearance	Riparian Size	Park	Landscape Surroundings
Cottonwood Branch	CB101	Right Bank	Dam above; channelized below	Concrete / Mowed	Small	None	Construction area
		Left Bank		Concrete	Small		Hotel
	CB102	Right Bank	Low water crossing at 150m; lake below; channelized	Maintained road; natural	Moderate	None	Natural
		Left Bank		Natural to top of bank; mowed / maintained above bank	Moderate		College campus
	CB103	Right Bank	Dam above and at 150m; channelized	Concrete mowed/maintained	Small	None	Apartment complex; recreational field; golf course estates
		Left Bank		Concrete mowed/maintained	Small		Business facilities
	CB104	Right Bank	Low water bridge over 2 culverts at 150m; lake below	Upper ½ shrub dominated; Lower half mowed/maintained	Moderate	None	Open field with construction evident; natural
		Left Bank		Upper ½ shrub dominated; Lower half mowed/maintained	Moderate		Natural; street then apartment complex

Table 4-3 Physical Descriptors of Cottonwood Branch. Stream flow type from TCEQ (2008b).

Stream	Segment #	Length (miles)	# of Sites	# of Recreational Areas on Stream	Avg. Thalweg Depth (m) for Stream Segment			Stream Flow Type
					August 4-8, 2009	August 25-29, 2009	May 27-31, 2010	
Cottonwood Branch	0822A	6.0	4	0	0.71	0.73	0.73	intermittent w/ pools
					Avg. Thalweg Depth (m) for Site Reach			
Site Name	**Reach length (m)**	**# of Transects**	**# of Recreational Areas at Site**		**August 4-8, 2009**	**August 25-29, 2009**	**May 27-31, 2010**	
CB101	300	11	0		0.54	0.54	0.54	
CB102	300	11	0		>1.0*	>1.0*	>1.0*	
CB103	300	11	0		>1.12, 0.79**	>1.12, 0.79**	>1.01, 0.83**	
CB104	300	11	0		0.50	0.58	0.56	

* Non-wadeable stream. Estimated depth;
** first value is thalweg depth for entire reach, second value is thalweg depth for wadeable transects

Table 4-4 Additional hydrographic parameters of Cottonwood Branch

Survey Dates	Assessment Unit	Site Number	Maximum width (m)	Minimum Width (m)	Average Width (m)	Discharge (cfs)	Observed Flow Condition[1]
August 4-8, 2009	Cottonwood Branch	CB101	18.0	18.0	18.0	3.54	Normal
		CB102	37.8	17.4	20.0	Not measurable	Normal
		CB103	14.0	1.7	12.0	0.50	Normal
		CB104	40.5	0.7	2.2	0.02	Normal
August 25-28, 2009	Cottonwood Branch	CB101	18.0	18.0	18.0	No Flow	Normal
		CB102	37.8	17.4	20.0	Not measurable	Normal
		CB103	14.0	1.7	12.0	0.73	Normal
		CB104	40.5	0.45	1.4	0.11	Normal
May 27-31, 2010	Cottonwood Branch	CB101	18.0	18.0	18.0	2.30	Normal
		CB102	37.8	17.4	20.0	Not measurable	Normal
		CB103	14.7	2.0	11.7	0.18	Normal
		CB104	40.5	0.74	1.54	0.15	Normal

[1] Possible flow condition categories: no flow, low flow, normal flow, high flow

Physical Description of Site CB102

The Cottonwood Branch at Site CB102 is a channelized, non-wadeable stream with a dam below the 0-m transect, which creates a large impoundment. There is a concrete crossing at the 150-m transect that people utilize to cross the stream. The study reach is fairly uniform with a mud/clay bottom. Northlake College main campus, a local community college, is located adjacent to the stream along the left (north) bank. The right side of the stream is more natural in appearance, although it is utilized by the golf course for storage of sand and deposition of grass and tree trimmings. Residences and the Academy of Irving ISD campus were observed at an appreciable distance beyond the riparian zone of the right bank. Access to the stream from the college campus side is easy but is more difficult from the right side of the stream. A local golf course has a gate entering the site from MacArthur Road, which was found shut after hours and on weekends. TIAER personnel received permission to access the site from golf course personnel. Table 4-2 describes the stream channel and riparian zone appearance at this site. Photogroup 4-4 and Photogroup 4-5 depict the aforementioned observations and features.

Transect width measurements for Site CB102 are located in Table 4-5. Width measurements were obtained using a range finder. Based on the height of the dam below the study reach, depths of the stream were estimated to be greater that 1.0 meter as shown in Table 4-3.

Table 4-5 Transect width measurements at Site CB102

Survey Dates	Transect Location (m)	Width (m)
August 4-8, 2009 August 25-28, 2009 May 27-31, 2010	0	20
	30	20
	60	20
	90	20
	120	20
	150	17
	180	20
	210	20
	240	20
	270	20
	300	20

From an informal conversation with a Northlake College groundskeeper, the water in the stream is classified as under the jurisdiction of DCURD, Dallas County Utility and Reclamation District, and consequentially access into the stream is prohibited. Photogroup 4-6 displays a DCURD no trespassing sign on the fence at the site entrance under the MacArthur Rd. bridge over Cottonwood Branch.

The banks of the stream are natural in appearance with shrubs and grasses being the dominant riparian cover, though a few small willow trees were present. The left side is mowed and maintained by the college grounds crew. On the right side shrub and grass dominate with a small vehicle trail running along side the stream. The golf course utilizes this road as golf course grounds keepers were observed traveling the road. Photogroup 4-7 shows the vegetation along the banks and the mowed area maintained by the campus grounds crew.

Aquatic vegetation at the site was abundant with algae cover increasing from rare to common to abundant during the three surveys. There was a slight to moderate presence of water dependent

birds with no other vertebrates observed. No surface debris, film or scum was observed at the site and no unusual odors were detected. Fecal droppings, largely avian, and tracks were observed at the site. No large garbage was observed in the stream. Small garbage consisting of plastic bags, bottles, and paper trash were observed along the banks and in the stream channel.

Physical Description of Site CB103

The Cottonwood Branch at Site CB103 is a concrete channelized stream for the lower half and a more natural appearing stream for the upper half. The study reach at this site was only 270 meters in length due to a no trespassing sign at the 270-m transect and a fence on a golf course that impeded access below the 0-m transect (Photogroup 4-8).

At the 240-m transect a series of gabions lead to the concrete channel beneath the bridge. These structures act as a dam for the upper portion of the stream above the bridge crossing, and above the 270-m transect is another dam creating a pool (Photogroup 4-9). The riparian zone on the lower half of the reach is a mowed and maintained corridor. The riparian zone on the upper half of the reach is natural. Photogroup 4-10 depicts the riparian zones at each end of the reach.

At Site CB103, the lower 120 meters is a non-wadeable, wide, deep stream with depths greater than 1.0 meter. A depth measurement of 1.45 meters was collected off of a pipe crossing the stream at the 0-m transect. The width of the lower portion of the stream was 14 meters. The dominant substrate in this portion of the stream is concrete. From the 120-m transect to just below the 150-m transect, the stream is flowing through the gabions and sometimes was not observed on the surface as it filtered through the rock structure. From just below the 150-m transect to the 180-m transect, the stream is narrow and shallow as it is flowing on the concrete bottom of the bridge crossing (Photogroup 4-10, right side photograph). At the 180-m transect, the stream becomes a wadeable, more natural channel that is wide with some deep pools that continues up to the 270-m transect. The primary substrate in the natural portion of the stream is mud/clay. Table 4-3 shows the average thalweg at this site for the entire study reach using an estimated depth for the non-wadeable portion, and then the wadeable portion, from the 150-m transect to the 270-m transect. The estimated depth for the non-wadeable portion was based on the measured depth from a pipe crossing the stream at the 0-m transect. Field personnel walked out on the pipe to collect a depth measurement and assumed that the remainder was the same depth, thus unwadeable.

Access to the stream edge was moderately easy, as was access to the stream. There is a small concrete path to walk along the top of the concrete lined channel of the lower portions of the study reach. Footpaths were observed along the top of the right streambank in the upper portions of the stream. A golf course is located on the south east side of the stream, a shopping strip mall is located to the northwest, and a large parking lot is located north east of the stream. A large fenced in field is located southwest of the stream.

There was a slight to moderate presence of water dependent birds observed at the site (Photogroup 4-11). A snake was observed during one of the three trips with no other vertebrates observed. Fecal droppings were observed during all three surveys and tracks were observed during one trip. Aquatic vegetation and algae cover were rare to common. Garbage along the

banks was rare while large garbage in the stream was absent to rare. Small garbage in the channel was rare to common consisting of plastic bags, bottles, and paper.

Physical Description of Site CB104

CB104 is a natural stream in the upper half of the reach and impounded in the lower. Access to both the edge of the stream and into the stream is easy. There are two round concrete culverts located at the 150-m transect where the stream flows into the impoundment. The length of the pipes is approximately 25 meters and the pipes are covered with rocks and concrete. The length of the impoundment is approximately 70 meters, beginning near the 120-m transect and ending around the 60-m transect. Below the impoundment at the 60-m transect, Cottonwood Branch resumes stream characteristics and flows beneath Las Brisas Drive. The bridge crossing is concrete on the left side and decorative concrete blocks along the right side. Grass dominates the riparian zone below the pipe culverts while dense stands of shrubs and small trees dominate the riparian zones above the culverts. There is one apartment complex located just beyond the right bank riparian zone and one apartment complex located across Las Brisas Drive beyond the left riparian bank. The 300-m reach was located in a highly residential area comprised of mainly apartment complexes with a few single-family dwellings. Table 4-2 describes the stream channel and riparian zone appearance at this site. Photogroup 4-12 and Photogroup 4-13 provide a visual reference to the impoundment and riparian zones at this site.

The surveyed reach at Site CB104 was wadeable for a majority of the reach but non-wadeable in the large pool described above. The large pool, resulting from the impoundment by the bridge crossing on Las Brisas Drive, was recorded as having a length of 70 meters, a width of 40.5 meters, and a depth greater than 1.0 meter. The impoundment was deep enough for recreation and access was easy. The riparian zones above the pipe culvert were dense shrubs which made walking in the stream difficult. The dominant substrate of the stream was silt/gravel. The stream above the pipe culverts is more difficult to access than the area around the impoundment and the stream is relatively narrow and shallow. Vegetation in some locations was almost touching from one side of the stream to the other (Photogroup 4-13; upper right and lower left photographs). A tributary entered at the 180-m transect, and the tributary at this location was deeper and wider than Cottonwood Branch (Photogroup 4-14) and during the first survey caused confusion as to which channel was the correct one.

Aquatic vegetation at the site was abundant and algae cover was rare to common. No odor was detected and no surface film or scum was observed. There was a slight to moderate presence of water dependent birds and fecal dropping and tracks were observed during all three surveys. No other vertebrates were observed during any of the three surveys.

Garbage in the channel and on the banks was common for both large and small garbage. Two grocery carts and one golf cart were observed in the stream. Other garbage consisted of plastics, bags and bottles, and paper trash. Photogroup 4-15 depicts the major objects found in the stream.

Activities: Observed and Interviewed

During each RUAA survey field personnel visited the sites during times of days and on days when recreational activities were apt to be observed. Table 4-6 shows the types of general

Table 4-6 Summary of general activities observed during surveys of Cottonwood Branch

Date	Site Number	Number Observed[1]	Drinking Water in mouth	Bathing	Walking Jogging Running	Bicycling	Standing	Sitting	Lying down	Playing on shore	Picnicking	Motorcycle /ATV	Hunting/ trapping	Wildlife watching	< 8 m from shore	> 8 m from shore	Other
August 4-8, 2009	CB101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CB102	1-10	-	-	-	-	X	-	-	-	-	-	-	-	X	-	X
	CB103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CB104	1-10	-	-	X	X	X	-	-	X	-	-	-	-	X	-	-
August 24-29, 2009	CB101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CB102	1-10	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-
	CB103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CB104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 27-31, 2010	CB101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CB102	1-10	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
	CB103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CB104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] None; 1-10; 11- 20; 20-50; >50

activities observed at the sites during the three surveys. The "number observed" column shows the approximate number of persons observed at the site when the survey was performed.

Table 4-7 shows the types of activities identified during individual interviews of city employees and individuals at the site.

Table 4-7 Activities reported in interviews at sites along Cottonwood Branch

Watershed	Site Name	Swimming	Walking Jogging Running	Wading		Standing Sitting Sleeping	Wildlife Watching	Picnicking	Fishing	Bicycling
				Adults	Children					
Cottonwood Branch	CB101	-	-	-	-	-	-	-	-	-
	CB102	-	-	-	-	-	-	-	2	-
	CB103	-	-	-	-	-	-	-	1	-
	CB104	-	-	-	-	-	-	-	-	-

At Site CB101, no types of recreation, primary or secondary, or general activities were identified during the RUAA surveys or from interviews. Site CB103 had one interview which identified one person fishing in the pond one time, but no other activities were identified. Sites CB102 and CB104 had observed and interview identified activities that included fishing, walking, biking, standing and playing on the shore.

At Site CB102, the site adjacent the Northlake College Campus, a person was identified fishing during two of the three surveys (Photogroup 4-16). During the third survey at the site, high school aged students, apparently leaving school, were using the concrete crossover walking toward the college campus. Students were observed carrying books and backpacks and traveling in groups of two or more. Since the persons walking were school age and minors, no pictures were collected due to possible legal ramifications. One interview was collected from a City of Irving employee stated that he had observed and heard of fishing occurring at the site more than once.

During one of the trips to look for potential persons to interview at Site CB102, a fisherman was observed and approached from the college campus side of the stream. The gentleman stated that he did fish in the stream that borders the college campus, but only catch and release. He does not eat the fish and does not put his hands in the water while fishing. He further stated that he fishes one to two times a month and has observed others fishing as well.

No interviews were collected at Site CB104 due to potential interviewees being under age or declining to be interviewed. Two under age persons were observed standing on the culvert crossing at the 150-m transect and throwing rocks into the pond (Photogroup 4-17). They inquired as to what we were doing and volunteered that they do not recreate in the water. They lived in a local apartment complex and crossed the field on their way to and from school. A few other persons, less than 5, were observed walking across the field, and one person was observed riding a bicycle across the field. No other activities were observed. Of the activities identified,

the risk of potential water recreation was minimal. The activities noted for the two youths were standing, playing on shore, and walking.

Copies of the interviews conducted along Cottonwood Branch are located in Appendix B-4.

Summary

RUAA surveys were conducted at four sites along Cottonwood Branch on August 4-8, 2009, August 25-29, 2001, and May 27-31, 2010. Copies of all field data sheets, flow sheets, transect pictures, and interviews from each survey are located in Appendix B-1, B-2, B-3 and B-4, respectively.

Few activities were observed by TIAER field staff during the surveys and reported by interviewees, and these activities are summarized in Figure 4-4. Both observations and interviews indicated that other than fishing at CB102, no other types of water recreation occur along Cottonwood Branch. People were observed in the vicinity of the stream along Cottonwood branch but other than the fishing mentioned above, no other activities were observed or reported.

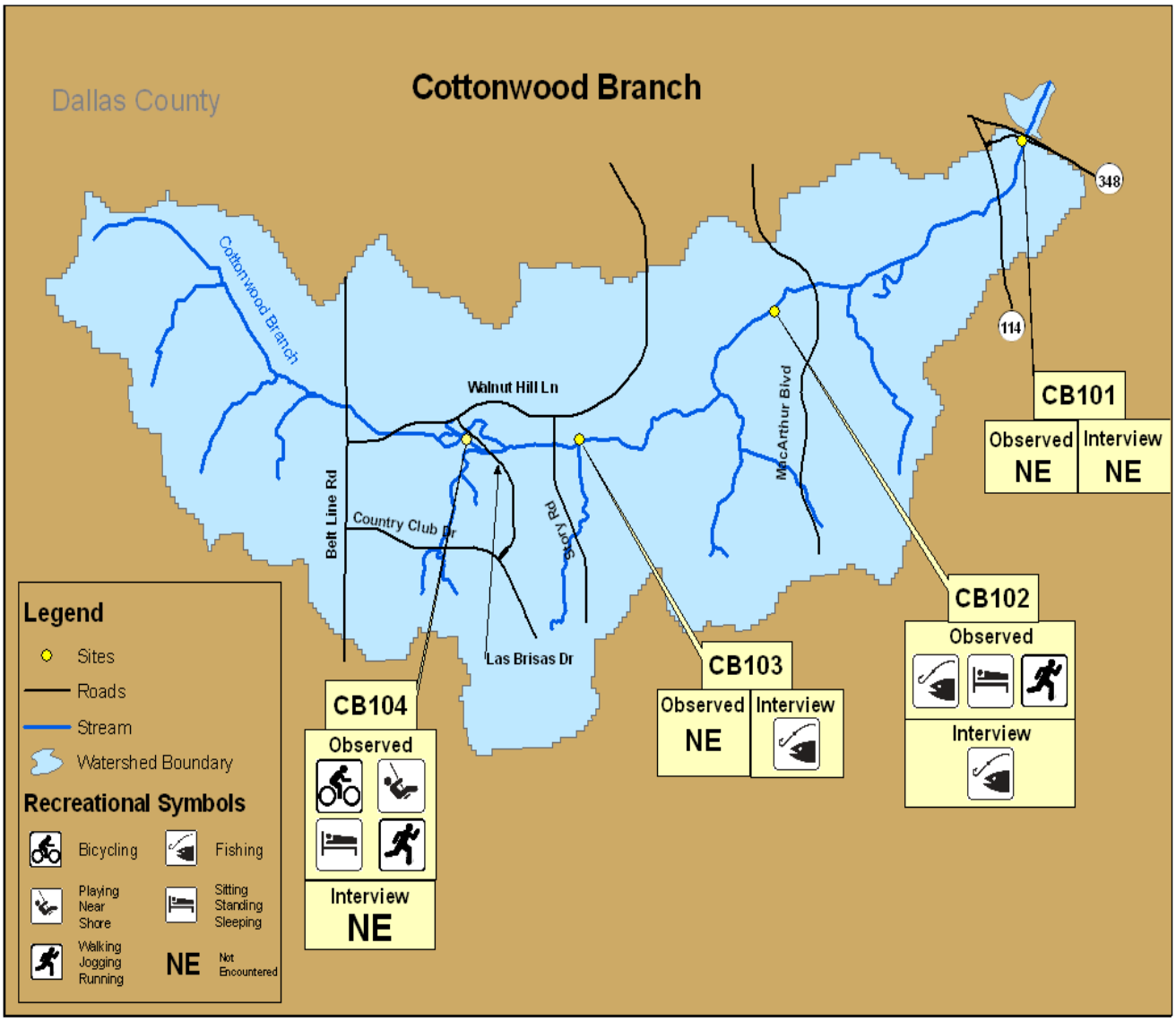


Figure 4-4 Summary of activities observed and reported in interviews at sites along Cottonwood Branch

Cottonwood Branch (Segment 0822A) Photogroups

Photogroup 4-1 Cottonwood Branch Site CB101 showing streambanks and in bottom right photograph the drop structure for Cottonwood Creek at the golf course. [Return to Text]

Photogroup 4-2 Cottonwood Branch Site CB101 showing small dam just downstream of 0-m transect. [Return to Text]

Photogroup 4-3 Cottonwood Branch Site CB101 showing consistency of channel dimensions. [Return to Text]

Photogroup 4-4 Cottonwood Branch Site CB102 showing general stream characteristics and concrete stream crossing. (Individuals pictured are TIAER staff.) [Return to Text].

Photogroup 4-5 Cottonwood Branch Site CB102 showing access from golf course and view of Northlake College at stream. [Return to Text]

Photogroup 4-6 Cottonwood Branch Site CB102 showing DCRUD no trespassing sign on fence. [Return to Text]

[Remainder of page intentional left blank]

Photogroup 4-7 Cottonwood Branch Site CB102 showing bank vegetation and maintained areas near stream at Northlake College. (Individual pictured is TIAER staff.) [Return to Text]

Photogroup 4-8 Cottonwood Branch Site CB103 showing access restrictions that limited reach length to 270-m. (Field crew shown in photographs) [Return to Text]

Photogroup 4-9 Cottonwood Branch Site CB103 showing dam above 270-m transect (lower right photograph) and the gabions and concrete channel in the vicinity of the 240-m transect. (Individuals pictured are TIAER staff.) [Return to Text]

Photogroup 4-10 Cottonwood Branch Site CB103 showing riparian zone. (Field staff shown on photograph on right) [Return to Text]

Photogroup 4-11 Cottonwood Branch Site CB103 showing example of water fowl (duck). [Return to Text]

Photogroup 4-12 Cottonwood Branch Site CB104 showing stream and surrounding riparian zone at 0-m transect (upper row of photographs) and impoundment at 60-m transect (lower row of photographs). [Return to Text]

Photogroup 4-13 Cottonwood Branch Site CB103 showing impoundment at 150-m transect (upper left) and natural channel at 300-m transect (other two photographs). (Individual in upper left picture is TIAER staff.) [Return to Text]

Photogroup 4-14 Cottonwood Branch Site CB103 at 180-m transect showing tributary to Cottonwood Branch [Return to Text]

Photogroup 4-15 Cottonwood Branch Site CB104 showing debris and trash at 210-m, 240-m, and 270-m transects. [Return to Text]

Photogroup 4-16 Cottonwood Branch Site CB102 showing fishing activities (right photograph person fishing barely visible as white dot near center of photograph and immediately to right of water). [Return to Text]

Photogroup 4-17 Cottonwood Branch Site CB104 showing youths throwing rocks into impounded water (members of field crew to the right). [Return to Text]

CHAPTER 5
GRAPEVINE CREEK (SEGMENT 0822B)

Watershed Characterization

Segment 0822B is small tributary of the Elm Fork Trinity River (0822) below Lake Lewisville. Grapevine Creek originates in Tarrant County on the north end of DFW Airport and flows generally northeast through Grapevine, Texas and forms the boundary between Coppell and Irving, Texas prior to entering the Elm Fork Trinity River near Carrollton, Texas north of Dallas (Figure 5-1). This creek runs through residential developments in the lower and middle portions of the reach and industrial/commercial in the upper portion (land use on Figure 5-2 and aerial photograph on Figure 5-3). TCEQ lists flow type for this stream as intermittent. The middle portion of the reach, from North MacArthur Blvd. to Southwestern Blvd., appears natural. The lower and upper portions both exhibit evidence of channelization and levees have been built to abate flooding from North MacArthur Blvd. to near the confluence with Elm Fork Trinity River. Three sites were selected in Grapevine Creek for performance of an RUAA. There are no NPDES WWTP outfalls in the segment watershed. TCEQ lists flow type for this stream as intermittent and based on this flow regime assigned a presumed aquatic life use of minimal (TCEQ, 2010c).

Additional Information

The review of historical information and climatic conditions is found in Chapter 2.

Site Selection Strategy

An objective of the survey efforts under the RUAA was to include an appropriate number of sites in each of the eleven streams. The urban nature of much of the watershed contributes to numerous road crossings and neighborhood parks at which the various streams may be accessed.

The strategy used in site selection for the RUAA surveys incorporates the following:

Survey locations were found (completed May – June 2009) in each of the eleven streams described in the section above.

Existing TCEQ stations were used whenever these stations were located in areas that afford at least some access opportunity for various forms of recreational use. Some TCEQ monitoring stations may not provide inviting access for recreational contact.

Special attention was focused on the numerous parks located on many of the streams in the RUAA study.

On June 11, 2009, TIAER presented a list of proposed sites to an aggregate of state and local agencies, i.e., the TCEQ, TSSWCB, Trinity River Authority, Texas Parks and Wildlife, North Central Texas COG, DFW Airport, and the cities of Fort Worth, Dallas, Grand Prairie, Irving, and Coppell. As a result of the meeting, some locations were moved, some added and some dropped. The sites listed below reflect the results of input received following the meeting. For Grapevine Creek site selection the major interaction occurred with City of Irving staff.

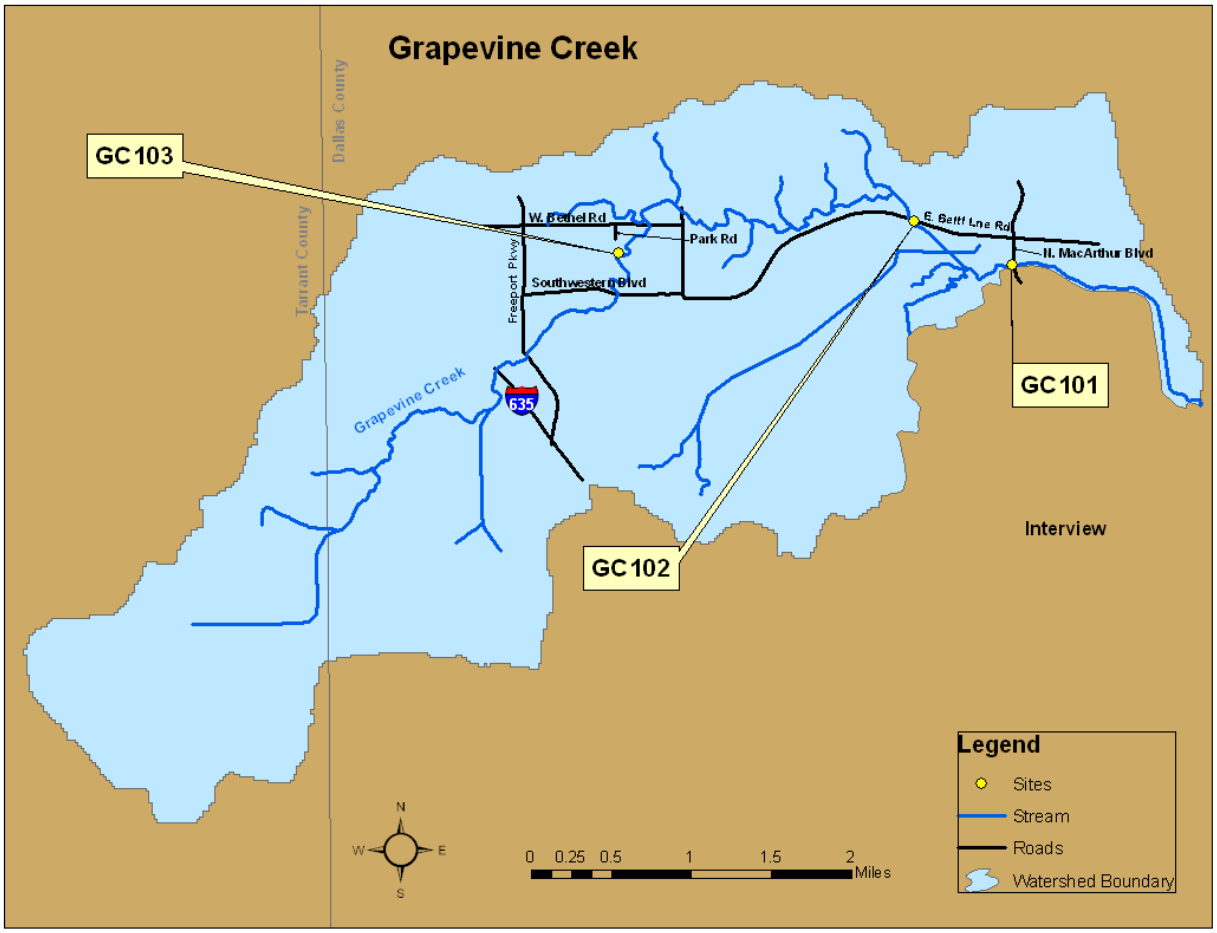


Figure 5-1 Grapevine Creek (0822B) showing RUAA survey sites

Survey Site Descriptions

The survey sites selected for Grapevine Creek (Segment 0822B) are provided in Figure 5-1. Three sites were identified as suitable RUAA locations along this stream. A brief description of each site follows.

Site GC101 (TCEQ Station 20311) is located at N. McArthur Blvd. in Irving, Texas. Grapevine Cr. at this area is bordered by light commercial and residential development. The stream is accessible at this point for contact recreation.

Site GC102 (TCEQ Station 17169) is located approximately 30 m downstream of E. Beltline Rd. between Irving and Coppell, Texas. This location is accessible from up or downstream.

Site GC103 is located in Coppell at Park Rd. off W. Bethel Rd. This site is located in Grapevine Springs Park and is easily accessed from the bank.

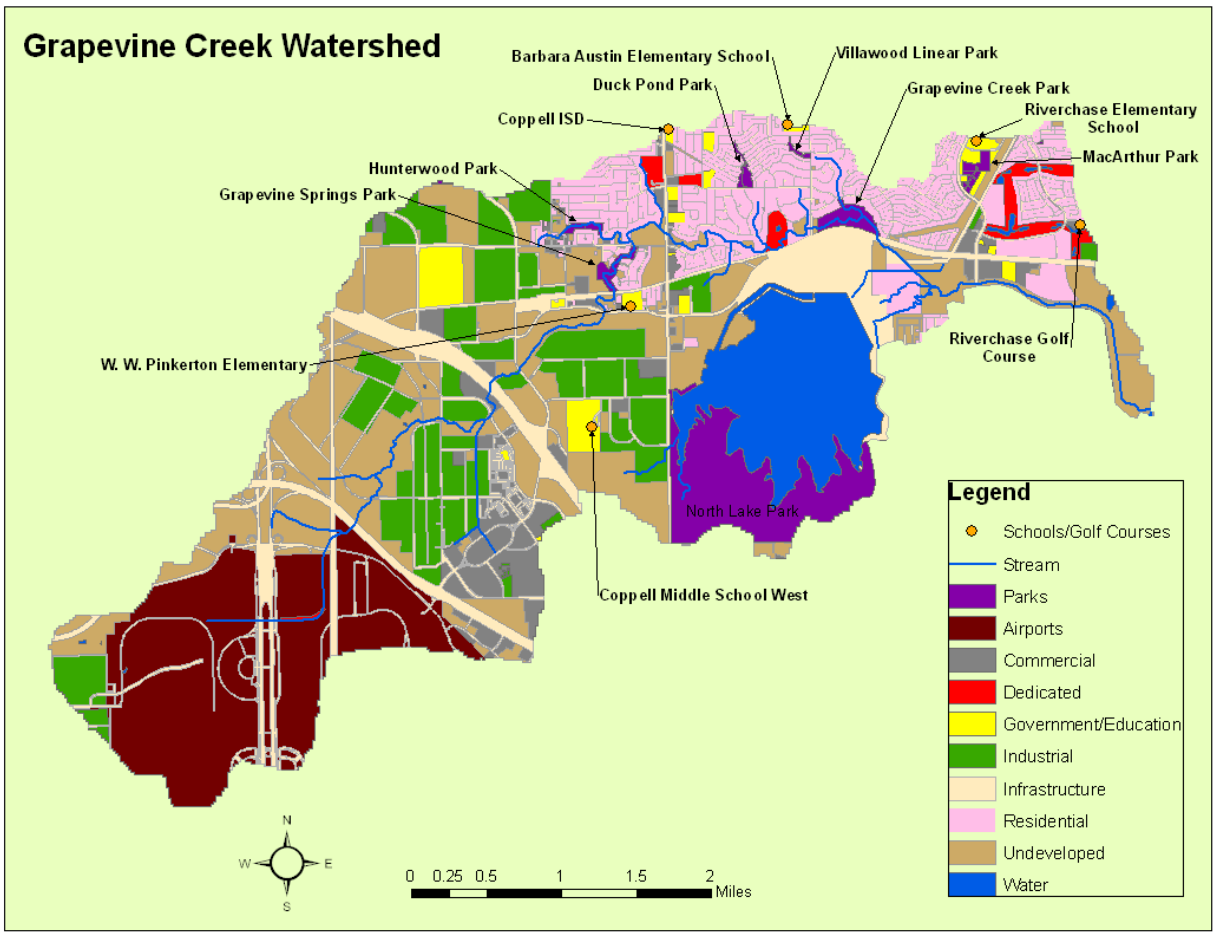


Figure 5-2 Land use/land cover for Grapevine Creek Watershed (Source: NCTCOG, 2007 & 2009)

Results and Discussions

General Description of Stream and Survey Sites

The RUAA surveys were conducted on August 4-8, 2009, August 25-29, 2009 and May 27-31, 2010. The surveys and associated interviews were performed on weekdays, weekends and holidays at opportune times to observe recreational activities in and around Grapevine Creek.

Surveys conducted on Grapevine Creek were conducted during varying air and water temperatures as show in Table 5-1. Water temperatures were warm enough for recreational activities to occur.

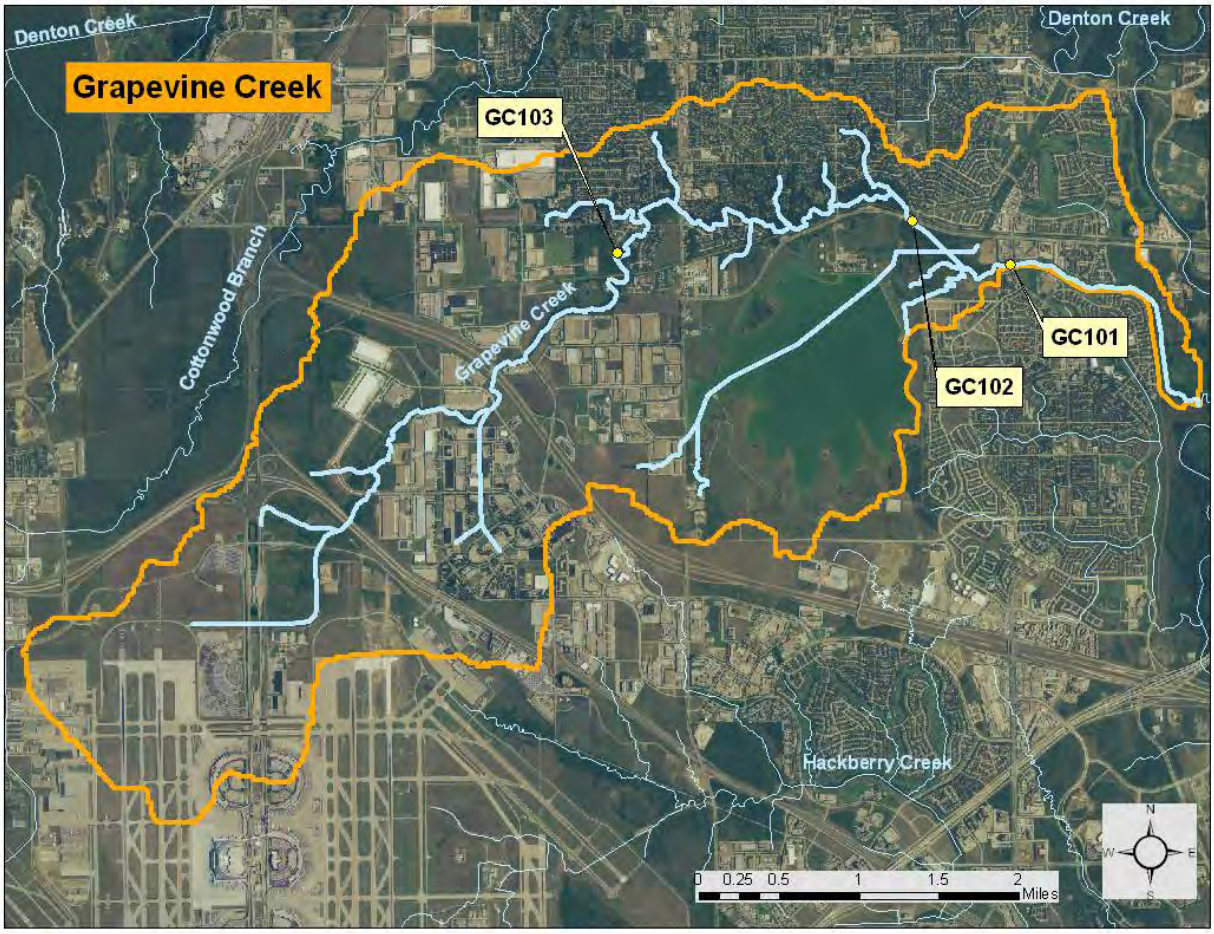


Figure 5-3 Aerial photograph of Grapevine Creek Watershed (Source: NAIP, 2005)

Table 5-1 Temperatures measured at each site along Delaware Creek

Assessment Unit	Site Number	August 4-8, 2009		August 24-29, 2009		May 27-31, 2010	
		Air Temp (C)	Water Temp (C)	Air Temp (C)	Water Temp (C)	Air Temp (C)	Water Temp (C)
Grapevine Creek	GC101	29.8	28.5	26.2	30.4	28.5	25.6
	GC102	30.3	27.7	23.7	29.6	29.0	24.3
	GC103	29.2	27.1	27.0	29.0	28.0	24.3

Table 5-2 contains information on the appearance of the stream channel and riparian zone at each site.

Table 5-3 shows the average thalweg depth for each reach and site during each of the RUAA surveys.

Table 5-4 shows the maximum, minimum and average widths at each site for each survey. The observed flow and total discharge are also listed for each site and survey.

Table 5-2 Stream channel and riparian zone assessment for Grapevine Creek during August 4-8, 2009, August 24-29, 2009 and May 27-31, 2010 surveys

Assessment Unit	Site Number	Side of Stream	Stream Channel Appearance	Riparian Appearance	Riparian Size	Park	Landscape Surroundings
Grapevine Creek	GC101	Right Bank	Low water crossing; Rock dam; ½ channelized; ½ natural	Shrub/tree dominated	Large	None	Urban
		Left Bank		Shrub/tree dominated	Large		Urban
	GC102	Right Bank	Upper ½ channelized; Lower ½ natural	Shrub/tree dominated	Large	None	Natural
		Left Bank		Shrub/tree dominated	Moderate		Natural
	GC103	Right Bank	Channelized; dam just above 30m transect	Upper ½ tree/shrub; Lower ½ mowed/maintained	Large	Grapevine Springs Park	Upper ½ Natural Lower ½ Park
		Left Bank			Large		

Table 5-3 Physical Descriptors of Grapevine Creek. Stream flow type from TCEQ (2008b).

Stream	Segment #	Length (miles)	# of Sites	# of Recreational Areas on Stream	Avg. Thalweg Depth (m) for Stream Segment			Stream Flow Type
					August 4-8, 2009	August 25-29, 2009	May 27-31, 2010	
Grapevine Creek	0822B	5.5	3	1	0.42	0.42	0.44	Intermittent

				Avg. Thalweg Depth (m) for Site Reach			
Site Name	Reach length (m)	# of Transects	# of Recreational Areas at Site	August 4-8, 2009	August 25-29, 2009	May 27-31, 2010	
GC101	300	11	0	0.44	0.52	0.44	
GC102	300	11	1	0.35	0.32	0.39	
GC103	300	11	0	0.46	0.42	0.49	

Table 5-4 Additional hydrographic parameters of Grapevine Creek

Survey Dates	Assessment Unit	Site Number	Maximum width (m)	Minimum Width (m)	Average Width (m)	Discharge (cfs)	Observed Flow Condition[1]
August 4-8, 2009	Grapevine Creek	GC101	11.5	1.8	5.3	0.82	Normal
		GC102	6.5	1.5	5.3	0.77	Normal
		GC103	11.6	2.2	5.3	0.62	Normal
August 25-28, 2009	Grapevine Creek	GC101	11.4	1.6	5.5	0.31	Normal
		GC102	6.5	2.1	5.3	0.26	Normal
		GC103	11.6	2.2	5.3	0.17	Normal
May 27-31, 2010	Grapevine Creek	GC101	12.6	2.02	5.2	1.61	Normal
		GC102	6.8	1.85	6.0	1.50	Normal
		GC103	12.6	2.54	3.91	0.95	Normal

[1] Possible flow condition categories: no flow, low flow, normal flow, high flow

Physical Description of Site GC101

The stream at Site GC101 is channelized from the 0-m transect to the 150-m transect and natural from the 150-m transect to the 300-m transect. The banks of the stream are steep with dense vegetation making accessibility to the stream moderately difficult. Part of the riparian zone in the lower half of the reach is mowed and maintained in the area behind a strip mall located north of the stream. Remnants of a rock dam are located at the 210-m transect and a low water crossing is located at the 270-m transect. Table 5-2 describes the stream channel and riparian zone appearance at this site. Site GC101 is located in an urban/suburban location at the N. MacArthur Blvd. bridge crossing of Grapevine Creek. The site is in a heavy populated area and accessible by the public. There were no fences impeding access to the stream. Photogroup 5-1 and Photogroup 5-2 depict the stream channel banks, riparian corridors, and low water crossing.

The surveyed reach at Site GC101 was a wadeable stream with the lower half being relatively narrow and shallow and the upper half being more natural with deep and wide areas. Dominant substrate of the channel was mud/clay with some stretches of the stream containing gravel. Two pools were identified during each of the surveys and the dimensions of the pools are listed in Table 5-5.

Table 5-5 Pool dimensions at Site GC101

Survey Dates	Length (m)	Width (m)	Depth (m)
August 4-8, 2009	41.3	9.7	0.9
	41.0	11.5	1.21
August 25-28, 2009	41.3	9.7	1.0
	41.0	11.4	1.25
May 27-31, 2010	23.0	9.7	0.64
	40.0	12.6	1.4

Parking locations were identified north of the stream at the shopping facilities. Both aquatic vegetation and algae cover were rare to common during the three surveys. There was a slight presence of water dependent birds and snakes with no other vertebrates identified. Tracks and fecal droppings were observed. No scum or film was observed on the surface. No unusual odors were detected. Stream channel and bank garbage, both large and small, was generally rare but on one visit, small garbage was recorded as common. Garbage, when present, generally consisted of plastic bags and bottles.

Physical Description of Site GC102

Grapevine Creek at Site GC102 is a mostly natural wadeable stream located at East Belt Line Road and Grapevine Creek in a largely suburban area. The upper half of the stream is partially channelized with gabions located along the left bank. The right side of the upper half, and both sides of the lower half, are natural in appearance. The concrete apron of the bridge provides moderately easy access to the stream, although no immediate parking is available. The only observed potential parking was on the right-of-way, next to East Belt Line Road. A railroad trestle crosses the creek at the 240-m transect and a pipeline crosses the stream at the 120-m transect. Table 5-2 describes the stream channel and riparian zone appearance at this site. Photogroup 5-3 and Photogroup 5-4 depict the stream appearance and pipeline and railroad crossings.

The surveyed reach at Site GC102 was a wadeable stream, relatively narrow and shallow with a few deep pockets in the upper half of the reach. Dominant substrate of the channel was sand with some small gravel intermixed throughout the reach. One pool was identified during two of the surveys and two pools were identified during the third survey. Dimensions of the pools are provided in Table 5-6.

Table 5-6 Pool Dimensions at Site GC102

Survey Dates	Length (m)	Width (m)	Depth (m)
August 4-8, 2009	41.0	6.47	0.65
August 25-28, 2009	40.0	6.45	0.63
May 27-31, 2010	90.0	6.00	0.79
	19.0	5.83	1.30

With the exception of the apron at the E. Belt Line bridge crossing, the banks of the stream are natural in appearance with shrubs and grasses dominating the riparian cover, though some large trees are interspersed along the bank. Grapevine Creek Park is shown on some maps to be located at the upper end of the study reach, although no entrances to the park were located by TIAER personnel. The park appears to be a wooded area with no park structures identified during the scouting trips and surveys. The area north of the stream is residential and the area south of the site is natural rangeland. Approximately 300 meters southwest of the stream is North Lake, with an electric generating station located on the northern shore (Figure 5-2 & 5-3).

Aquatic vegetation was rare to common as was algae cover was during the three surveys. There was a slight presence of water dependent birds during the initial survey with no additional observations noted during the two subsequent surveys. There was no other observation of other vertebrates during any of the three surveys. Bank and channel garbage observed during the first two surveys was rare. During the third survey, bank garbage was still rare while large garbage in the stream was not observed at all. Small channel garbage, consisting of plastic bags and bottles, was commonly observed. No surface scum or film was noted and no unusual odors were detected. Both fecal droppings and animal tracks were observed during all three surveys.

Physical Description of Site GC103

Grapevine Creek at Site GC103 is a channelized stream running through Grapevine Springs Park. The stream appears to have been diverted from its original path to flow through the park. A dam located upstream of the park directs water into the park through a decorative rock channel that adds to the aesthetics. Based on aerial maps, it appears that the stream reconnects with the natural channel just downstream of the park area. The study reach at this site contained two wooden bridges and a concrete dam on the lower half of the reach. A pipeline and a railroad crossing were located on the upper half of the reach, near the 300-m transect. Photogroup 5-5 and Photogroup 5-6 depict the aforementioned structures.

The park at Site GC103 contains large trees with mowed and maintained areas from the 30-m transect to the 120-m transect. Below the 0-m transect and from the 120-m transect to the 300-m transect, the riparian zones transition from mowed and maintained to a more natural tree and shrub riparian zone. Table 5-2 describes the stream channel and riparian zone appearance at this site. In the park the stream is bordered by decorative rock walls on both sides that afford several easy access points to the water. There are picnic tables and grills located beneath the large trees

and walking trails throughout the park. Above the park, the closeness of trees and shrubs make access to the stream more difficult. Photogroup 5-7 and Photogroup 5-8 show the banks of the stream and decorative walls of the stream and available park amenities.

The reach surveyed at Site GC103 is a wadeable stream with a bedrock bottom. Depths of the stream remained relatively constant, generally less than 1.0 meter. One pool was identified during the third survey. Dimension of the pool were 13 meters long and 12.6 meters wide with a maximum depth of 0.5 meters. Some large rocks were located in the stream channel at the 300-m transect near the railroad trestle (previous Photogroup 5-6).

The area around the site is highly residential and developing, with obvious growth occurring during the time period of the three surveys. One business facility is located past the wooded area southwest of the site. The only entrance to the park is located off West Bethel Road with a small parking lot (capacity of approximately ten cars) on the north side of the park. A new senior center was built west of the site during the time the surveys were conducted.

There was a slight presence of domestic pets observed at the site with no other mammals noted. Tracks and fecal dropping were observed during all three surveys. Aquatic vegetation was rare with algae cover rare to common. Large garbage in the channel was rare to absent, while small channel garbage was rare, and when present consisted of plastic bags and bottles. Bank garbage was generally rare with one observance of no bank garbage. Foam was observed on the surface of the stream during the first survey, while the stream appeared clear the other two visits. No unusual odor was detected in the clear stream. The stream has sufficient depth to support some types of recreation and has a very nice appeal.

Activities: Observed and Interviewed

During each RUAA survey, field personnel visited the sites during times of days and on days when recreational activities were apt to be observed. Table 5-7 show the types of general activities observed at each site for each survey. Table 5-8 show the types of activities identified during the interviews.

Site GC101 revealed no types of primary recreation during the RUAA surveys or from interviews. ATV tracks were observed beneath the bridge during the first visit. Footprints were observed beneath the bridge during the second trip. Photogroup 5-9 shows the ATV tracks and footprints. Dense vegetation along the banks of the stream made access moderately difficult. TIAER personnel made a path through the shoulder tall vegetation and slid into the stream from the bank to conduct the surveys, no footpaths were observed.

No primary contact recreation was identified at Site GC102. ATV tracks and bare-foot prints were observed beneath the bridge crossing in the sand. Graffiti was also located on the apron of the bridge. Photogroup 5-10 depicts the aforementioned tracks and graffiti. During the third survey, a jogger was observed running beneath the bridge. The jogger came down the north side of the bridge, ran beneath the bridge, and ran back up the south side of the bridge. No other activities were identified at Site GC102 which would involve water recreation, primary or secondary contact. In an interview with a City of Irving employee, ATV tracks are often seen

Table 5-7 Summary of general activities observed during surveys of Grapevine Creek

Date	Site Number	Number Observed[1]	Drinking Water in mouth	Bathing	Walking Jogging Running	Bicycling	Standing	Sitting	Lying down	Playing on shore	Picnicking	Motorcycle /ATV	Hunting/ trapping	Wildlife watching	< 8 m from shore	> 8 m from shore	Other
August 4-8, 2009	GC101	None	-	-	-	-	-	-	-	-	-	X*	-	-	-	-	-
	GC102	None	-	-	-	-	-	-	-	-	-	X*	-	-	-	-	-
	GC103	1-10	-	-	X	-	X	X	-	-	-	-	-	-	-	X	-
August 24-29, 2009	GC101	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GC102	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GC103	1-10	-	-	X	-	-	-	-	-	-	-	-	-	-	X	-
May 27-31, 2010	GC101	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	GC102	1-10	-	-	X	-	-	-	-	-	-	-	-	-	-	X	-
	GC103	1-10	-	-	X	-	X	-	-	-	-	-	-	-	-	X	-

[1] None; 1-10; 11- 20; 20-50; >50
* Tracks

Table 5-8 Activities reported in interviews at sites along Grapevine Creek.

Watershed	Site Name	Swimming	Walking Jogging Running	Wading		Standing Sitting Sleeping	Wildlife Watching	Picnicking	Fishing	Bicycling
				Adults	Children					
Grapevine Creek	GC101	-	-	-	-	-	-	-	-	-
	GC102	-	-	-	-	-	-	-	-	-
	GC103	-	3	-	2	-	-	1	-	-

beneath the bridge and graffiti was noted as being on the concrete apron beneath the bridge. The employee has neither seen nor heard of any form of water recreation in the stream.

At Site GC103, Grapevine Springs Park, several people were observed utilizing the park, but not for contact recreation (e.g., Photogroup 5-11). People were observed sitting on benches, walking on paths, with and without domestic pets (dogs and a cat). A Boy Scout meeting was being held during the second survey, and a young lady was conducting a photo shoot during the first visit. Aesthetically, the park is well maintained and inviting. According to several interviews, the park is the best kept secret in Coppell, as not many people seem to know about the park and the park is generally not very crowded.

One of the six interviews attempted was uninformative in that one of the two persons asked TIAER personnel if the location was Grapevine Springs Park. Two of the remaining five interviews revealed primary contact recreation occurring below the dam at the 0-m transect of the reach. The remaining three interviews stated that they personally did not use the stream for recreation and had not seen or heard of anyone else recreating in the stream.

The two interviewees indicating primary contact occurred adding that they allowed their kids to wade just below the lower dam in the shallow, moving water. The stream at that location contains a bedrock bottom and is clear. The water above the dam was generally slow moving, quite a bit deeper, and, although still clear, contained some algae, which some perceive as dirty. The word “dirty” was used by one individual to describe the water in the stream. The children of this person, however, did indicate a willingness to get in the water, but were prohibited by their mother.

The Boy Scout leader was also interviewed and stated that his troop does many activities at the park but none involve contact recreation. The troop may cross the stream on stones, but do not get in the stream. Other people have been observed in the park crossing the stream on stones, but again, no contact recreation was observed.

One gentleman, who was walking his dogs, indicated that he comes daily to walk the trails with his dogs and frequently sees other people walking their pets as well. He stated that people utilize the park for eating lunch at picnic tables, but he has never observed any contact with the water.

One woman, who was walking her cat, indicated that she frequently brings her children to the park as an escape from television and video games. She allows here children to run the trails and sometimes wade in the riffle areas downstream of the dam. She has infrequently observed other children with a blow-up raft floating down the stream below the study reach.

Another gentleman stated that he has frequently observed high school aged youths wading in the stream. He does allow his own children to wade in the stream beneath the dam, but not very often. He would not allow them to enter into the deeper portions of the stream above the dam near the 30-m transect.

Copies of the interviews conducted along Grapevine Creek are located in Appendix C-4.

Summary

RUAA surveys were conducted at three sites along Grapevine Creek on August 4-8, 2009, August 25-29, 2001 and May 27-31, 2010. Copies of all field data sheets, flow sheets, transect pictures, and interviews from each survey are located in the Appendix C-1, C-2, C-3 and C-4, respectively.

Few activities were observed by TIAER field staff during the surveys and reported by interviewees, and these activities are summarized in Figure 5-4.

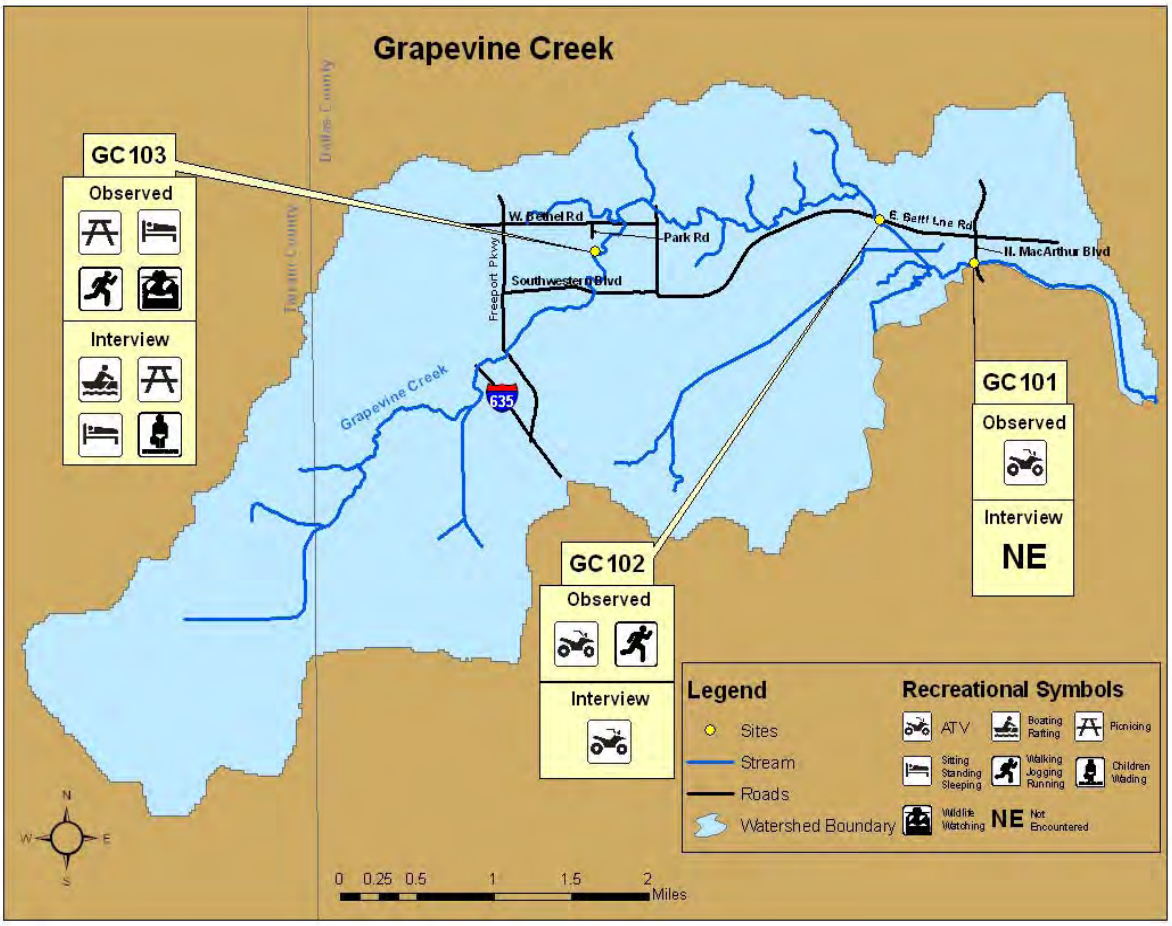


Figure 5-4 Summary of activities observed and reported in interviews at sites along Grapevine Creek. (Note: The interview of rafting at GC103 is with blow-up raft, not white-water rafting.)

Both observations and interviews indicated that primary contact recreation does occur at Site GC103 in Grapevine Springs Park. Children wade in the lower portions of the stream with the bedrock bottom and moving, shallow water. ATV tracks and footprints were observed by TIAER personnel at Sites GC101 and GC102, and verified for Site GC102 in an interview with a City of Irving employee. No other forms of recreation or evidence of recreation were identified at either site. Water depths are sufficient for contact recreation in Grapevine Creek but were only reported to occur at Site GC103, Grapevine Springs Park. Dense vegetation and limited parking options make recreation difficult at Sites GC101 and GC102.

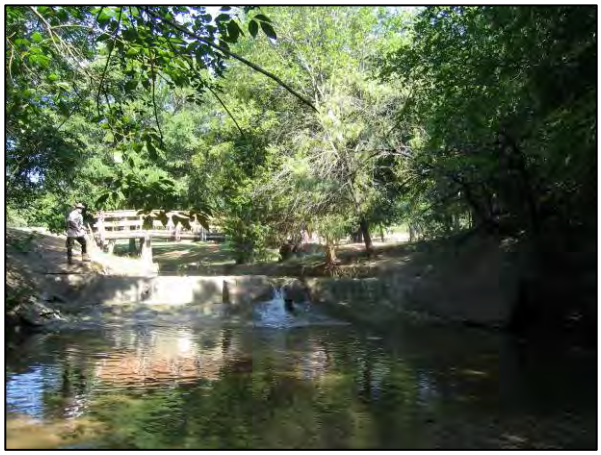
Grapevine Creek (Segment 0822B)
Photogroups

Photogroup 5-1 Grapevine Creek Site GC101 showing creek upstream and downstream at 0-m transect (upper row), downstream at 300-m transect (middle row left), and riparian zone on lower half of reach (middle row right) and at 210-m transect (lower row). [Return to Text]

Photogroup 5-2 Grapevine Creek Site GC101 showing low water crossing at 270-m transect. [Return to Text]

Photogroup 5-3 Grapevine Creek Site GC102 showing upper half of stream with gabions at 300-m transect (upper row) and natural channel of lower half at 150-m and 0-m transects (lower row). (Individual pictured is TIAER staff.) [Return to Text].

Photogroup 5-4 Grapevine Creek Site GC102 showing pipeline and railroad crossings. (Individuals pictured are TIAER staff.) [Return to Text]



Photogroup 5-5 Grapevine Creek Site GC103 showing streambanks and bridges in Grapevine Spring Park. (Individuals pictured are TIAER staff.) [Return to Text]

Photogroup 5-6 Grapevine Creek Site GC103 at 300-m transect looking downstream. [Return to Text]

Photogroup 5-7 Grapevine Creek Site GC103 showing banks of stream at and below the 120-m transect (upper row) and above the 120-m transect (lower row). (Individuals pictured are TIAER staff.) [Return to Text]

Photogroup 5-8 Grapevine Creek Site GC103 showing amenities in Grapevine Springs Park [Return to Text]

Photogroup 5-9 Grapevine Creek Site GC101 showing ATV tracks and footprints. [Return to Text]

Photogroup 5-10 Grapevine Creek Site GC102 showing ATV tracks, graffiti on bridge apron, and barefoot tracks. [Return to Text]

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Photogroup 5-11 Grapevine Creek Site GC103 showing picnic type activities in Grapevine Springs Park (center of photo under trees). [Return to Text]

CHAPTER 6
COPART BRANCH MOUNTAIN CREEK (SEGMENT 0841E)

Watershed Characterization

Segment 0841E is a 2.8 mile creek running upstream from confluence with Mountain Creek to approximately 0.3 miles upstream of Camden Road on Dallas Naval Academy, Dallas County (Figure 6-1). Much of the watershed surrounding Copart Branch is densely commercial with a large portion the businesses being auto salvage, though the land use in the southern portion of the watershed is governmental (i.e., the Dallas Naval Academy) (land use on Figure 6-2 and aerial photograph on Figure 6-3). Access to this stream is limited by chain link fencing at two of the crossings and the other access points are over grown with poison ivy and other dense vegetation. There are no NPDES WWTP outfalls in the segment watershed. TCEQ lists flow type for this stream as intermittent with pools and based on this flow regime assigned a presumed aquatic life use of minimal (TCEQ, 2008).

Additional Information

The review of historical information and climatic conditions is found in Chapter 2.

Site Selection Strategy

An objective of the survey efforts under the RUAA was to include an appropriate number of sites in each of the eleven streams. The urban nature of much of the watershed contributes to numerous road crossings and neighborhood parks at which the various streams may be accessed.

The strategy used in site selection for the RUAA surveys incorporates the following:

Survey locations were found (completed May – June 2009) in each of the eleven streams described in the section above.

Existing TCEQ stations were used whenever these stations were located in areas that afford at least some access opportunity for various forms of recreational use. Some TCEQ monitoring stations may not provide inviting access for recreational contact.

Special attention was focused on the numerous parks located on many of the streams in the RUAA study.

On June 11, 2009, TIAER presented a list of proposed sites to an aggregate of state and local agencies, i.e., the TCEQ, TSSWCB, Trinity River Authority, Texas Parks and Wildlife, North Central Texas COG, DFW Airport, and the cities of Fort Worth, Dallas, Grand Prairie, Irving, and Coppell. As a result of the meeting, some locations were moved, some added and some dropped. The sites listed below reflect the results of input received following the meeting. For Copart Branch site selection the major interaction occurred with City of Irving staff.

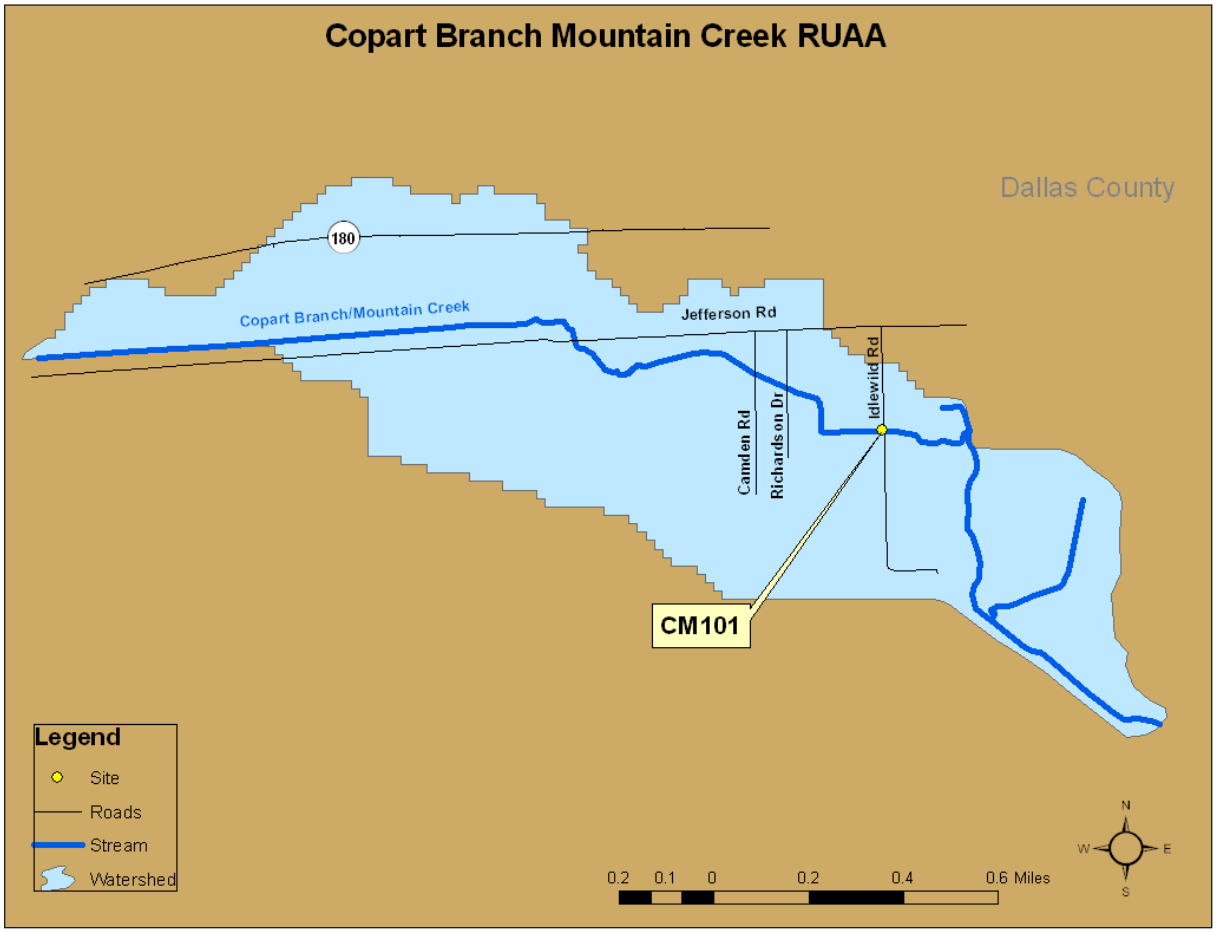


Figure 6-1 Copart Branch (Segment 0841E) showing RUAA sites

Survey Site Description

The survey site, CM101, selected for Copart Branch Mountain Creek (Segment 0841E) is shown in Figure 6-1. The short stream distance and inaccessibility to most of this creek limited the number of RUAA sites to one. A brief description of the site follows.

Site CM101 (TCEQ Station 17672) is located at Copart Branch downstream of Idlewild Rd. west of Mountain Creek, in Grand Prairie, Texas. The area is heavy commercial with no residential development near the stream. Access is limited by chain link fences that line the stream at the road crossing (Photogroup 6-1) and down both sides past numerous wrecking yards used for stockpiling old cars. The stream below this station appears channelized and the banks appeared to be levied. Access to the stream at this location was obtained through contacting the owner of the business upstream of Idlewild Rd. The property owners downstream of Idlewild were contacted for access permission but this request was denied.

Two additional sites at road crossings were considered during the initial reconnaissance trip. Both sites were dismissed because of access difficulties or hazardous conditions. A brief description of the two sites that were not included in the RUAA surveys follows.

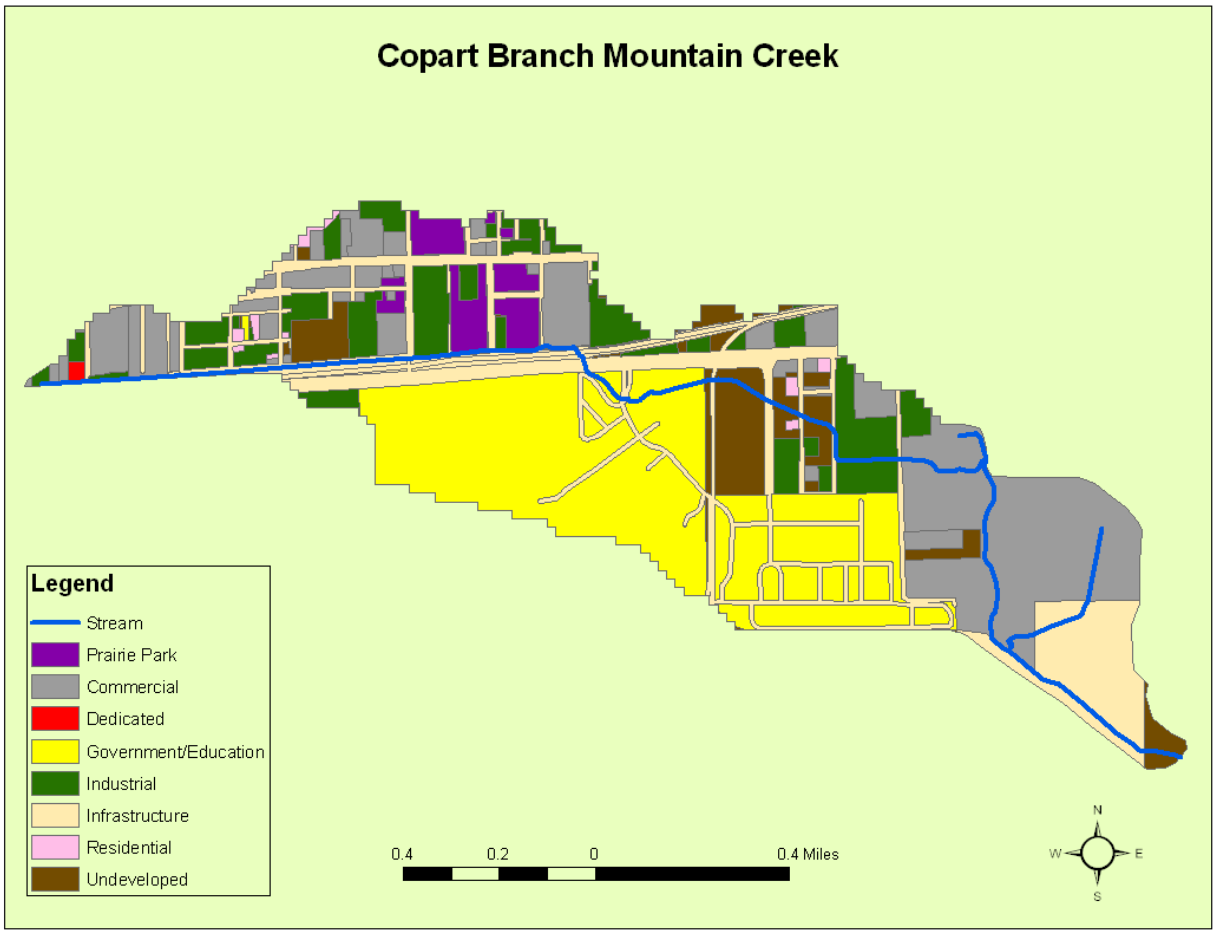


Figure 6-2 Land use/land cover for Copart Branch Watershed (Source: NCTCOG, 2007 & 2009)

A potential site was identified at the Camden Drive road crossing of Copart Branch Mountain Creek (Figure 6-1; Photogroup 6-2). The adjacent area upstream consisted of trees and dense vegetation, much of which was poison ivy. There were no footpaths or walkways observed leading to the stream. The area downstream was much the same with more trees and vegetation, including poison ivy. A concrete guardrail was located on the downstream side of the crossing. There were no visual signs of recreation, primary or secondary, identified at this site. The site was located in a highly commercial land use area with no residential areas identified in the immediate area. The density of the poison ivy at this location was instrumental in the decision not to use this location due to the health risk to personnel.

A second potential site was identified at the Richardson Drive crossing of Copart Branch Mountain Creek (Figure 6-1; Photogroup 6-3). The area upstream consisted of trees and vegetation along the banks of the stream, most of which was poison ivy and beggar's lice. The downstream area contained a chain link fence at the road which prevented anyone from entering the stream or banks. No visual signs such as footpaths, trails, or fishing gear were observed in

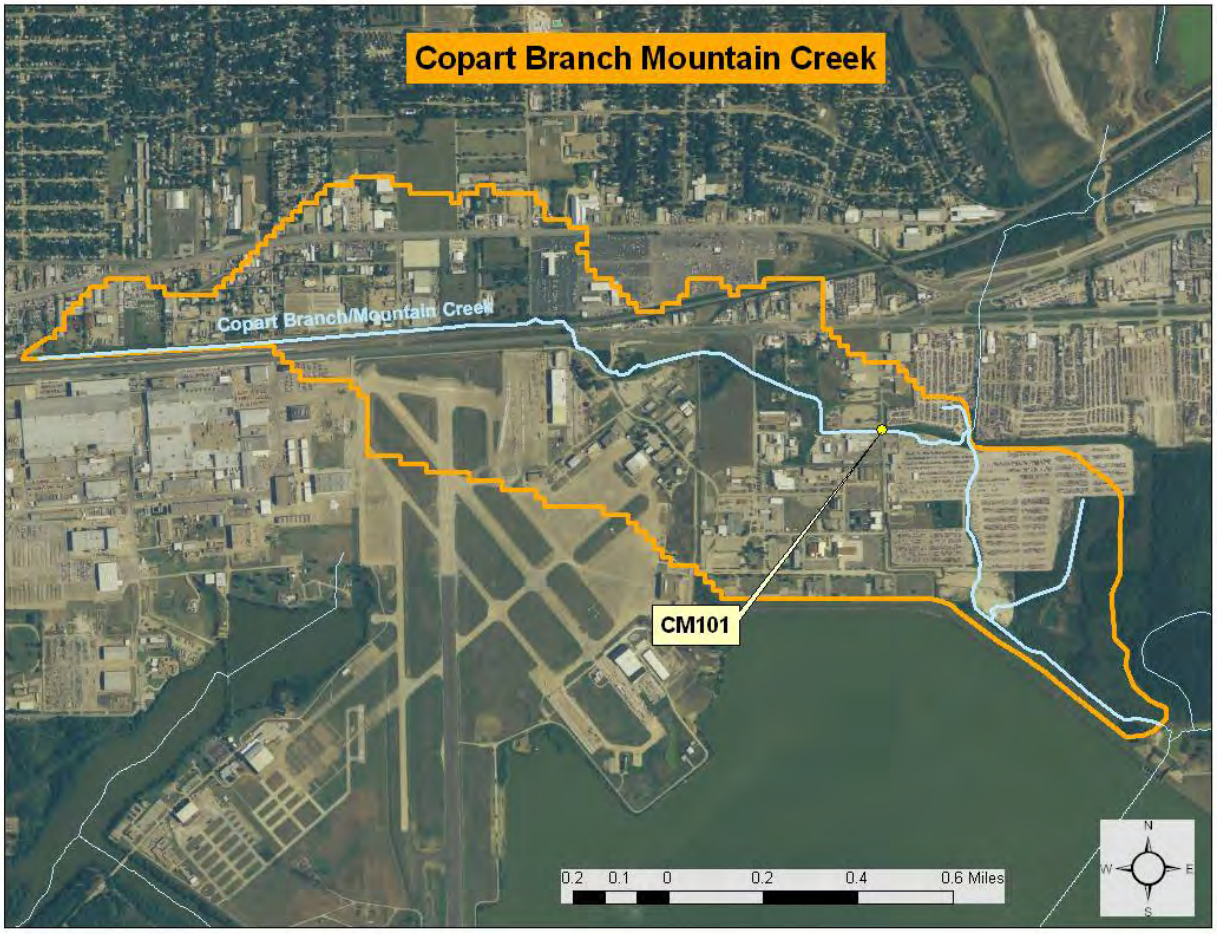


Figure 6-3 Aerial photograph of Copart Branch watershed (Source: NAIP, 2005)

the area. As at Camden Drive, the health hazard risk to the field staff was one factor involved in the decision not to use this location. The other limiting factor was the fence that prohibited access downstream.

It should be noted that during the August 8, 2010 survey at Site CM101, TIAER personnel did drive by Camden Drive and noted that nobody was observed recreating in the area of the stream or in the stream itself (Photogroup 6-4).

Results and Discussions

General Description of Stream and Survey Sites

The RUAA surveys were conducted on August 4-8, 2009, August 25-29, 2009 and May 27-31, 2010. The surveys and associated interviews were performed on weekdays, weekends and holidays at opportune times to observe recreational activities in and around Copart Branch Mountain Creek.

Surveys conducted on Copart Branch were conducted during varying air and water temperatures as show in Table 6-1. Water temperatures were warm enough for recreational activities to occur.

Table 6-1 Temperatures measured at Site CM101 along Copart Branch Mountain Creek

August 4-8, 2009		August 24-29, 2009		May 27-31, 2010	
Air Temp (C)	Water Temp (C)	Air Temp (C)	Water Temp (C)	Air Temp (C)	Water Temp (C)
30.8	27.1	23.7	27.2	35.0	26.3

Table 6-2 contains information on the appearance of the stream channel and riparian zone at Site CM101.

Table 6-3 shows the average thalweg depth for Site CM101 during each of the RUAA surveys. The reach length for the site was 300 meters with a total of 11 transects surveyed.

Table 6-4 shows the maximum, minimum and average widths at Site CM101 for each survey. The observed flow and total discharge are also listed for the site for each survey.

Physical Description of Site CM101

The stream at Site CM101 on Copart Branch Mountain Creek is channelized with a round pipe culvert/bridge located at the 0-m transect and a concrete box-culvert/bridge at the 150-m transect. The entire length of the reach is located behind a chain link fence which is locked after business hours and on weekends. Once inside the fenced area, there are no obstacles that would prevent a person from readily gaining access to the stream. Permission for accessing the stream was obtained from the property owner, a mobile food catering service with facilities on the south side of the creek. Employee parking was restricted to the north side of Copart Branch Mountain Creek.

The surveyed reach at Site CM101 was a wadeable stream with gently sloping banks which lead to the edge of the stream. The slopes were maintained by the catering service. A gravel road was located on the north side of the stream, used to access the employee parking lot. In May 2009, employee cars of the employees were parked along the gravel road, but on subsequent visits, no parking fire lane signs were installed and parking was restricted to the parking lot located north of the 150-m transect. Photogroup 6-5 shows the employee trimming the riparian zone, employee parking, and the newly installed no parking signs.

At CM101 the stream was generally narrow and shallow with depths typically less than 1.0 meter. The stream had a mud/clay dominated substrate. Little to no algae was observed; however, aquatic vegetation was abundant, especially from the 210-m to the 300-m transect (Photogroup 6-6). No odors were detected on any trip. Depth measurements were collected in this densely vegetated area during the first survey, but based on the difficulty in obtaining the measurements, they were not attempted on the second survey. During the May 2010, it was observed that a diversion channel had been constructed to bypass the thick vegetation, so the depths were collected in that channel on that visit (Photogroup 6-7).

There was a slight to moderate presence of water dependent birds with fecal droppings and nests observed. A domestic pet was observed during the first survey, with no other vertebrates observed during the two other surveys. No garbage was observed on the banks or in the stream during any of the three surveys.

Table 6-2 Stream channel and riparian zone assessment for Site CM101 on Copart Branch Mountain Creek during August 4-8, 2009, August 24-29, 2009 and May 27-31, 2010 surveys.

Side of Stream	Stream Channel Appearance	Riparian Appearance	Riparian Size	Park	Landscape Surroundings
Right Bank	Concrete culvert/bridge at 150m; Round pipe culvert/bridge at 60m; channelized	R/L upper 1/3 Herbaceous marsh; R/L lower 1/3 mowed/maintained corridor	Upper 1/3 moderate; Lower 1/3 small	None	Business facility
Left Bank			Upper 1/3 moderate; Lower 1/3 small		Employee parking

Table 6-3 Physical Descriptors of Site CM101 on Copart Branch Mountain Creek. Stream flow type from TCEQ (2008b).

Stream	Segment #	Length (miles)	# of Sites	# of Recreational Areas on Stream	Avg. Thalweg Depth (m) for Stream Segment			Stream Flow Type
					August 4-8, 2009	August 25-29, 2009	May 27-31, 2010	
Copart Branch	0841E	2.8	1	0	0.36	0.26*	0.11	Intermittent w/ pools
* - Unable to measure all transects due to very dense vegetation								

Table 6-4 Additional hydrographic parameters of Site CM101 on Copart Branch Mountain Creek

Survey Dates	Maximum width (m)	Minimum Width (m)	Average Width (m)	Discharge (cfs)	Observed Flow Condition[1]
August 4-8, 2009	8.2	0.45	1.0	1.47	Normal
August 25-28, 2009	8.2	0.45	1.0	1.48	Normal
May 27-31, 2010	6.2	0.07	0.65	0.04	Low
[1] no flow, low flow, normal flow, high flow					

Activities: Observed and Interviewed

During each RUAA survey, field personnel visited the sites during times of days and days when recreational activities were apt to be observed. During the three surveys, the only people observed at the sites other than TIAER field personnel were employees of the mobile catering service. Persons were observed walking across the bridge to their vehicles leaving work. One person was observed maintaining the riparian area of the stream during the first survey. During each planned RUAA survey trip, at least one other attempt was made to visit the site other than at the time of the survey, i.e. weekend days, to see if people were utilizing the stream. No one was ever observed recreating in or near the stream during any site visit.

An interview of the mobile catering service owner was conducted. He related that he has been in the area 30 to 40 years and has never observed anyone recreating in the area. He further stated that years ago the streamflow was contained in a four-inch pipe, but when the Naval Air Station was built, the flow rate increased to an amount greater than what the pipe could handle and the stream was created. Evidence of the PVC pipe was observed at the 30-m transect as depicted in Photogroup 6-8. He further stated that following our visits to the facility in 2009 the flow rate decreased to what it measured in May. Finally, he stated that the diversion channel was constructed due to beavers building dams creating the marsh type environment observed above the 210-m transect. They were attempting the drain the marsh area but the beavers just built dams farther upstream. A copy of the interview sheet is located in Appendix D-4.

Summary

RUAA surveys were conducted at Site CM101 on Copart Branch Mountain Creek August 4-8, 2009, August 25-29, 2001 and May 27-31, 2010. No types of contact recreation, primary or secondary, were identified at this location (see summary on Figure 6-4). The activity documented as other on the figure is the employee who was trimming the grass in the riparian zone of the stream. People observed in the area were employees going to and from work and were never seen near the stream.

Copies of all field data sheets, flow sheets, transect pictures and interviews from each survey are located in Appendix D-1, D-2, D-3 and D-4, respectively.

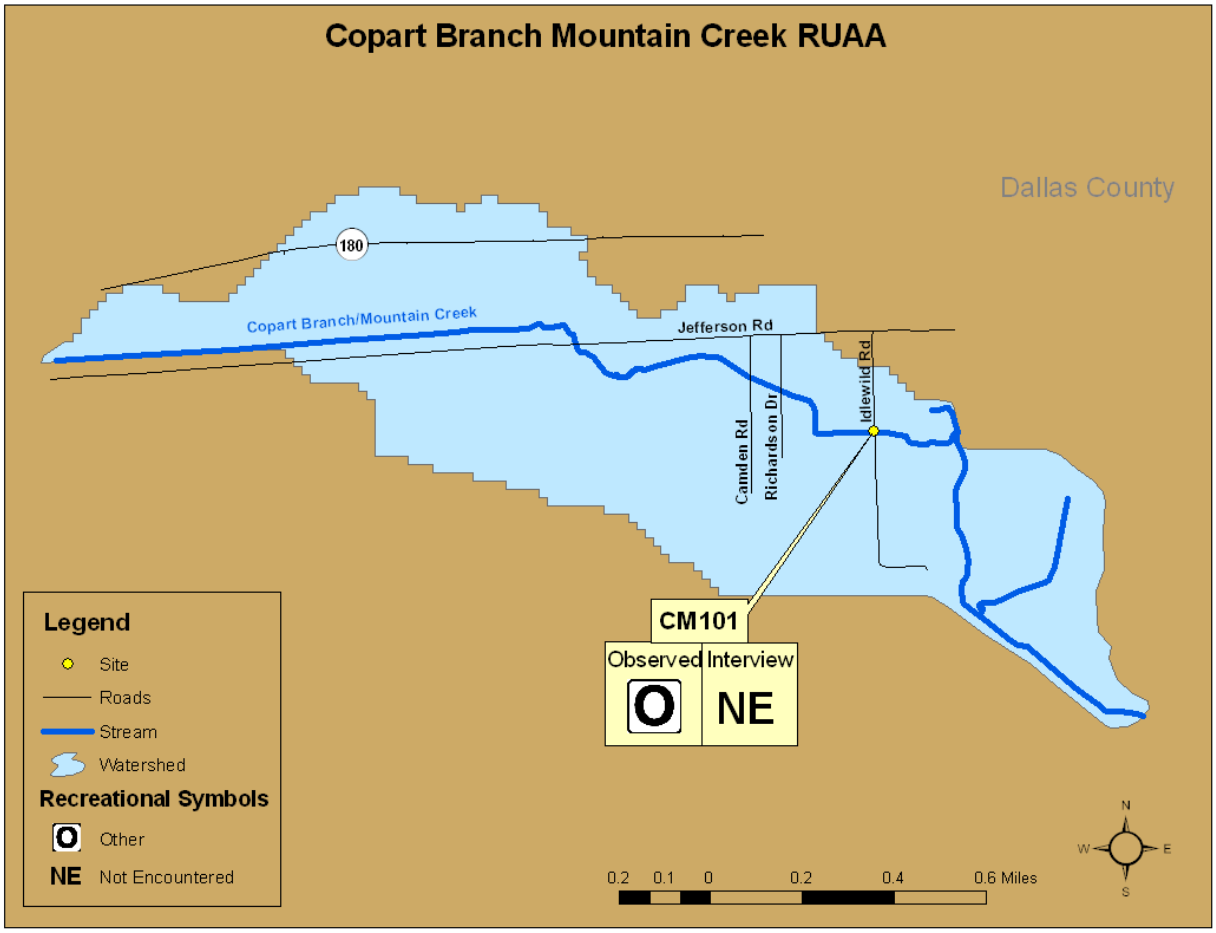


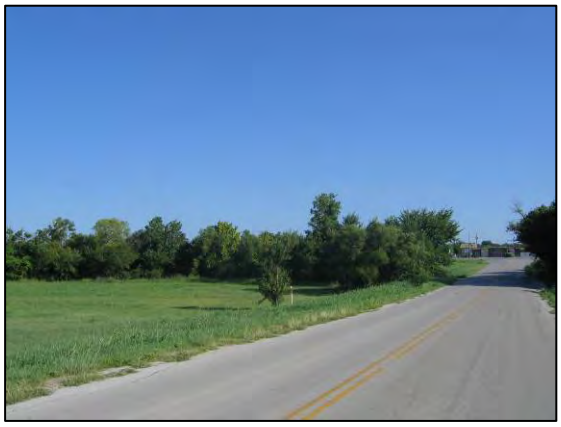
Figure 6-4 Summary of activities observed and reported in interviews at Site CM101 on Copart Branch Mountain Creek

Copart Branch Mountain Creek (Segment 0841E) Photogroups

Photogroup 6-1 Copart Branch Site CM101 (Idlewild Rd.) looking downstream (left) and upstream (right). [Return to Text]

Photogroup 6-2 Copart Branch at Camden Drive showing dense vegetation along the stream at the road crossing. [Return to Text]

Photogroup 6-3 Copart Branch at Richardson Drive showing heavy bank vegetation on upstream side and fence along downstream side of the road. [Return to Text]



Photogroup 6-4 Copart Branch at Richardson Drive during August 8, 2010 survey showing absence of human activity in the vicinity of road crossing. [Return to Text]

Photogroup 6-5 Copart Branch Site CM101 showing grass trimming on creek bank on August 5, 2009. [Return to Text]

Photogroup 6-6 Copart Branch Site CM101 between the 210-m and 300-m transects showing emergent aquatic vegetation. (Individual pictured is TIAER staff.) [Return to Text]

Photogroup 6-7 Copart Branch Site CM101 showing by-pass channel constructed around area of thick vegetation. (Individual pictured is TIAER staff.) [Return to Text]

Photogroup 6-8 Copart Branch Site CM101showing what is possibly a remnant section of the 4-in diameter pipe that contained the flow in past years. [Return to Text]