

550
545
CUT = 35.3 S.F.
FILL = 2.2 S.F.

550
545
CUT = 43.6 S.F.
FILL = 0.0 S.F.

550
545
CUT = 31.2 S.F.
FILL = 3.0 S.F.

550
545
CUT = 18.6 S.F.
FILL = 3.8 S.F.

550
545
CUT = 21.9 S.F.
FILL = 3.1 S.F.

550
545
CUT = 29.4 S.F.
FILL = 1.0 S.F.

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CUT = 27.0 S.F.
FILL = 2.7 S.F.

550
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CUT = 35.7 S.F.
FILL = 0.1 S.F.

550
545
CUT = 32.3 S.F.
FILL = 1.1 S.F.

550
545
CUT = 88.8 S.F.
FILL = 0.0 S.F.

REVISIONS				
SYMBOL	DRAWN	APVD	DESCRIPTION	DATE

DR. BY: J.D.	APVD BY: T.M.L.	SCALE: AS NOTED	SHEET NO. 9
CK'D BY: J.D.		DATE: OCTOBER, 2012	OF 10

CROSS SECTIONS
STA. 106+60.80 TO 110+50
PHASED STREET AND STORMWATER
PHASE 3 - WASHINGTON STREET
O'FALLON, ILLINOIS

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CONSULTING ENGINEERS • LAND SURVEYORS
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V.B. City Center Area

The City Center area generally includes the original commerce and residential area of the City and is located in the heart of present day O'Fallon, Illinois. The area considered City Center and discussed in this report section is bounded by Jefferson Street on the north, Smiley Street on the east, Highway 50 on the south, and Oak Street on the west. The City Center area encompasses a total of approximately 290 acres. Approximately 70 percent of the area is residential with lot sizes ranging from about 1/10 acre to 1/4 acre. Various commercial businesses are located along sections of State Street and Lincoln Street as well as municipal buildings such as City Hall. Marie Schaefer Elementary is located in the southwest corner of the City Center area and O'Fallon Community Park covers an area of about 35 acres in the southeast section of the area.

The topography of the land can be described as very flat with ground slopes less than one percent throughout most of the area. Elevations referenced to USGS datum vary from 543.0 to 555.0 feet. The City Center area drains to two separate major watersheds, Engle Creek and Rock Springs Creek. The southeast area of City Center drains into the Engle Creek watershed and consists of about 115 acres or 40 percent of the total area. The west and north areas of City Center, about 175 acres or 60 percent of the total area, drain into Rock Springs Creek watershed. Figure V-B.1 illustrates the drainage area boundaries within the City Center area.

V.B.1. Existing Drainage System

Approximately 160 acres or one half of the City Center area is currently served by some level of a stormwater collection system. Primarily, this includes areas that drain directly to the newer reconstructed roads which have curb and gutters with storm sewers. These newer roads include Lincoln Street, Smiley Street, State Street, Third Street, Parkview Street, Highway 50, and parts of First Street. There are also some older stormwater collection inlets located along Vine Street. However, for areas along Vine Street south of Third Street, yard flooding occurs as these inlets apparently do not provide adequate drainage. Figure V-B.1 illustrates the approximate areas currently served by stormwater collection systems and also indicates the approximate locations of existing inlets. The locations of these inlets and other existing stormwater collection infrastructure indicated on Figure V-B.1 are approximate only and will need to be verified prior to beginning a detailed design of the stormwater system improvements in these areas.

Other than the newer streets listed above and Vine Street, the remaining streets in City Center have oil and chip pavement with virtually no curbs, gutters, or other drainage control. For areas not served by storm sewers, the stormwater drains in poorly defined swales and ditches located along the streets and by use of open street drainage. Due to the flat topography of the area, the existing street side drainage ditches are not an effective means to transfer the stormwater. The ditches require extensive maintenance to keep clean of fill and debris, and since the ground slopes throughout the area are relatively flat, water does pond in the ditches for extended periods.



SOUTHWEST CITY CENTER
FOR DETAILED PLAN
SEE FIGURE V-B.3

NORTHWEST CITY CENTER
FOR DETAILED PLAN
SEE FIGURE V-B.4

NORTHEAST CITY CENTER
FOR DETAILED PLAN
SEE FIGURE V-B.6

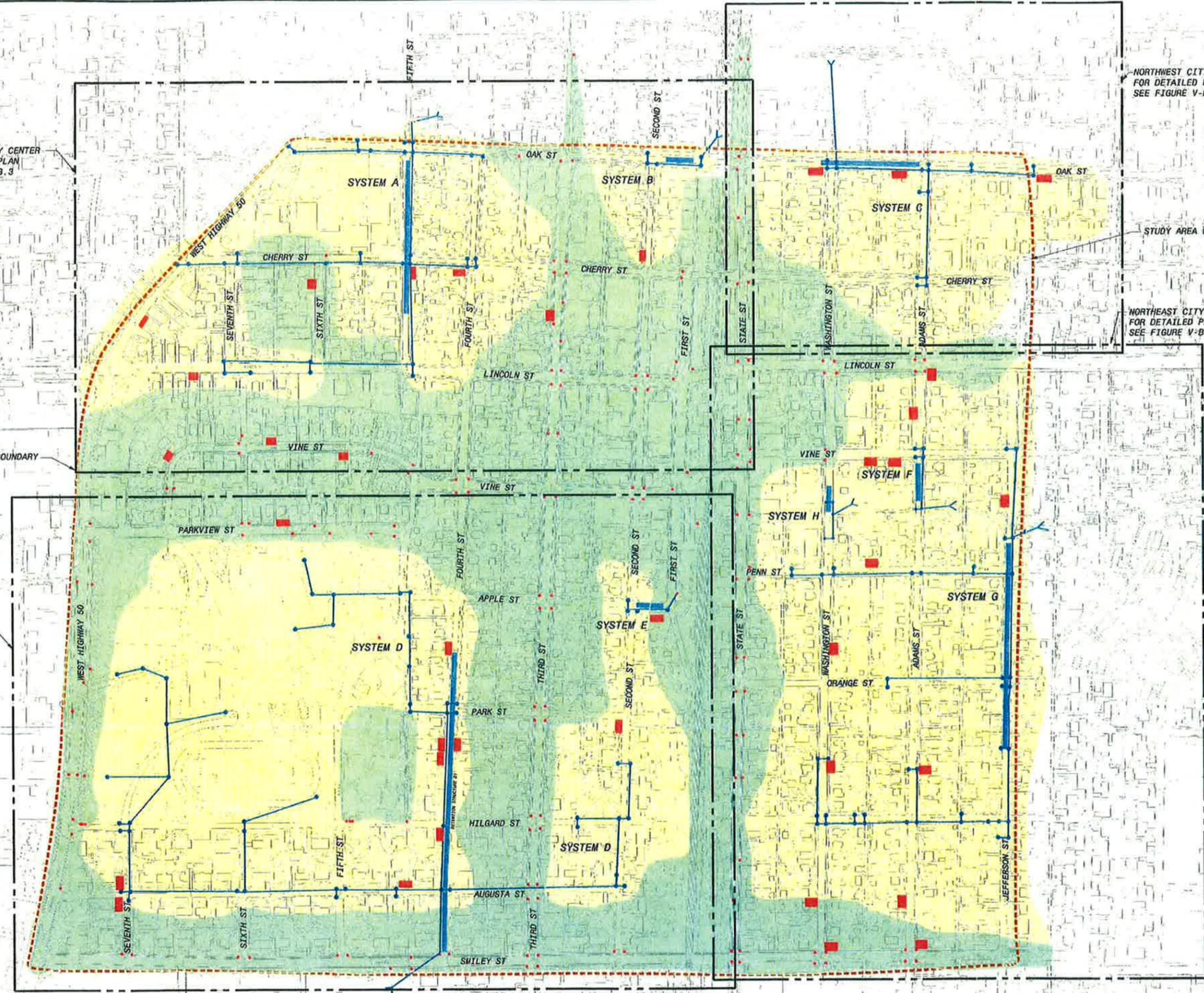
STUDY AREA BOUNDARY

STUDY AREA BOUNDARY

SOUTHEAST CITY CENTER
FOR DETAILED PLAN
SEE FIGURE V-B.5

LEGEND:

- EXISTING STORM SEWER SYSTEM DRAINAGE AREA
- PROPOSED STORM SEWER SYSTEM DRAINAGE AREA
- EXISTING STORM INLET
- NEW STORM SEWER
- NEW STORM INLET
- NUISANCE COMPLAINT
- YARD FLOODING COMPLAINT
- STREET FLOODING COMPLAINT
- STUDY AREA BOUNDARY



NO.	BY	CHK	APP

DATE	REVISIONS AND RECORD OF ISSUES
CURRENT ID:	REV1 ID:
SAVED: 06/14/2004 2:35:28 PM	REV2 ID:
DWG. VER. #:	REV3 ID:
PLOTTED: 06/14/2004 2:44:06 PM	REV4 ID:
USER: 0014813	REV5 ID:
	REV6 ID:



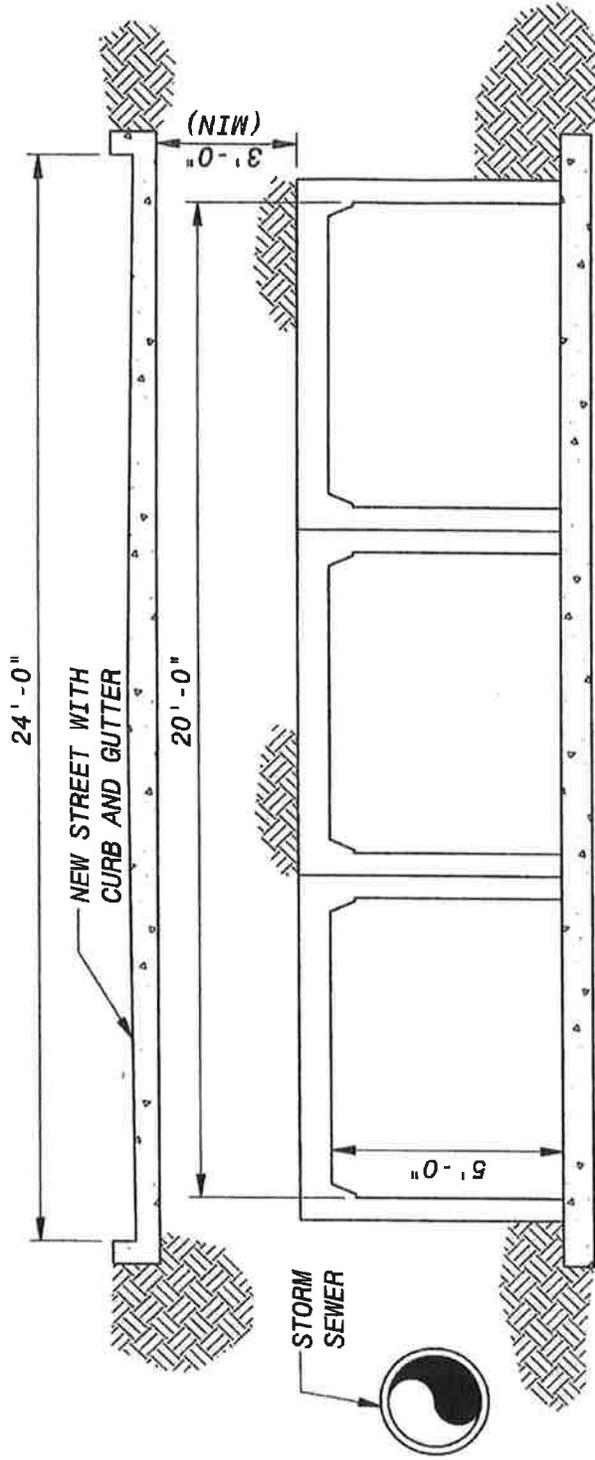
CITY OF O'FALLON, ILLINOIS
STORMWATER MASTER PLAN
CITY CENTER STUDY AREA

DESIGNED: BPF
DETAILED: JAB
CHECKED:
APPROVED:
DATE:

PROJECT NO.
133602

FIGURE:
V-B.1

A5008L
FA5008L



TYPICAL UNDERGROUND DETENTION STRUCTURE

NO SCALE

BOW14813, 8/17/2004 7:40:16 AM

BLACK & VEATCH
Corporation
St. Louis, Missouri



PROJECT
133602

CITY OF FALLON, ILLINOIS
STORMWATER MASTER PLAN

TYPICAL UNDERGROUND
DETENTION STRUCTURE

FIGURE: V-B.2



Where there are existing stormwater sewer collection systems in the City Center area, detention is not currently used to control peak flows and reduce the potential for damage downstream in Springs Creek and Engle Creek. Because there is no detention, flows from City Center are likely contributing to problems downstream in both watersheds.

Locations of complaints from the Stormwater Complaint Study, August 2003, are shown on Figure V-B.1. These complaints will be addressed with the recommended improvements for the areas discussed below.

V.B.2. Recommended Improvements

Recommended improvements for the City Center area are identified and discussed in this report section. For the City Center, the area has been subdivided into four geographically distinct drainage areas for development and discussion of improvement concepts. These areas are Southwest Sub-Area, Northwest Sub-Area, Northeast Sub-Area, and Southeast Sub-Area. Within these sub-areas there are a total of eight separate new stormwater collection systems which have been proposed and are labeled A through H. Figure V-B.1 shows the location of each sub-area and general location of each proposed stormwater collection system.

Each proposed new stormwater collection system includes the installation of new inlets, storm sewers, and detention structures. The storm sewers and detention structure are conceptually sized to meet the design storm requirements established in Chapter IV.C of this report. Most of the new storm sewers indicated will replace existing street side ditches and open street drainage. For these new storm sewers to function properly, the existing streets will need to be reconstructed with a curb and gutter system, and appropriate slopes. All improvements recommended herein are envisioned to be completed in conjunction with a street paving program as most streets are not properly designed for a curb and gutter storm system. The preliminary opinions of probable costs for the improvements do not include the design and construction of the curb and gutter system.

The topography, typical land use, and density of the existing development of the City Center area does not provide a feasible location for an open detention structure or basin. The only location where the land use allows for an open detention basin is in O'Fallon Community Park. However, as the park is located at the upper elevation of the drainage areas, it would not effectively provide an adequate detention site for the storm systems. As a result, one of the most feasible means for detention in the City Center is underground detention. The underground detention structures are intended to run parallel to the storm sewers within the street. It is envisioned that the inlet and outlet connections from the storm sewer into the detention structure will be located at the most downstream point of the structure, which will allow the stormwater to back into the detention structure during high flows and thus not flow directly through the structure. Having the stormwater back into the detention structure versus flowing through the structure will reduce maintenance in the detention structure and allow for better flow control of the



detention structure. For the recommended improvements, each detention structure was envisioned with a width of twenty feet, five feet of depth, and approximately 3 feet of cover. The length of the structure varies depending on the required detention volume. Since the outfall elevations of each new storm sewer system are fairly shallow, and the top of the structure needs to be low enough to allow for other utilities to cross, detention structures with depth greater than five feet were not assumed to be feasible. This shallower profile will also reduce potential conflicts with existing water and sanitary sewer infrastructure. Future detailed designs for the detention structures will allow variance in the dimensions of the structures. Figure V-B.2 illustrates a typical detention structure arrangement for the proposed improvements.

The recommended new stormwater collection systems discussed and illustrated in this report section provides preliminary design and layout of these systems and are only intended for conceptual design, project identification, and cost estimating purposes. Prior to any of these improvements are being implemented, this conceptual plan should be further defined and a detailed design of the stormwater collection system should be performed in conjunction with a street reconstruction program.

V.B.2.A. Southwest City Center Sub-Area

The Southwest City Center Sub-Area generally is located east of Oak Street, south of the B&O Railroad, west of Vine Street, and north of the Highway 50. The area includes approximately 50 acres that has mostly residential lots south of Third Street and mostly commercial establishments north of Third Street along First Street and Second Street. Marie Schaefer Elementary is located in this sub-area south of Fifth Street and west of Cherry Street and encompasses an area of approximately five acres with mostly paved parking lots and buildings. Newer roads with existing storm sewers in the sub-area include Third Street, First Street, and parts of Lincoln Street.

The recommended improvements for the Southwest City Center stormwater collection system are illustrated in Figure V-B.3. The improvements to this area include new stormwater collection systems A and B.

Stormwater collection system A includes the installation of approximately 4,120 feet of new storm sewers ranging in size from 12 inches to 42 inches, and installation of 33 stormwater inlets. The improvements in collection system A also include a 0.46 million gallon underground detention structure. New storm inlets for collection system A will be located along Cherry Street, Lincoln Street, and Oak Street. A 24-inch and 36-inch sewer will be located along Fifth Street to collect flows from Lincoln Street and Cherry Street to convey the flows to a 42-inch outfall located west of Oak Street along Fifth Street. The 42-inch outfall will discharge into a tributary to Engle Creek near the location of an existing outfall which collects flows west on Fifth Street. The new underground detention structure will run parallel to the 24-inch and 36-inch storm sewer and be located underneath Fifth Street.



V.B.2.D. Northeast City Center Sub-Area

The Northeast City Center Sub-Area generally is located east of Lincoln Street, south of Jefferson Street, west of Smiley Street, and north of State Street. The area includes approximately 40 acres and has mostly residential lots. An open ditch tributary to Engle Creek flows through the western half of the area. There are existing storm sewers bordering the area along State St, Lincoln Street, and Smiley Street.

The recommended improvements for the Southwest City Center stormwater collection system are illustrated in Figure V-B.6. The improvements to this area include new stormwater collection systems F, G, and H.

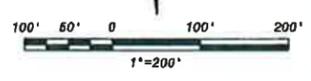
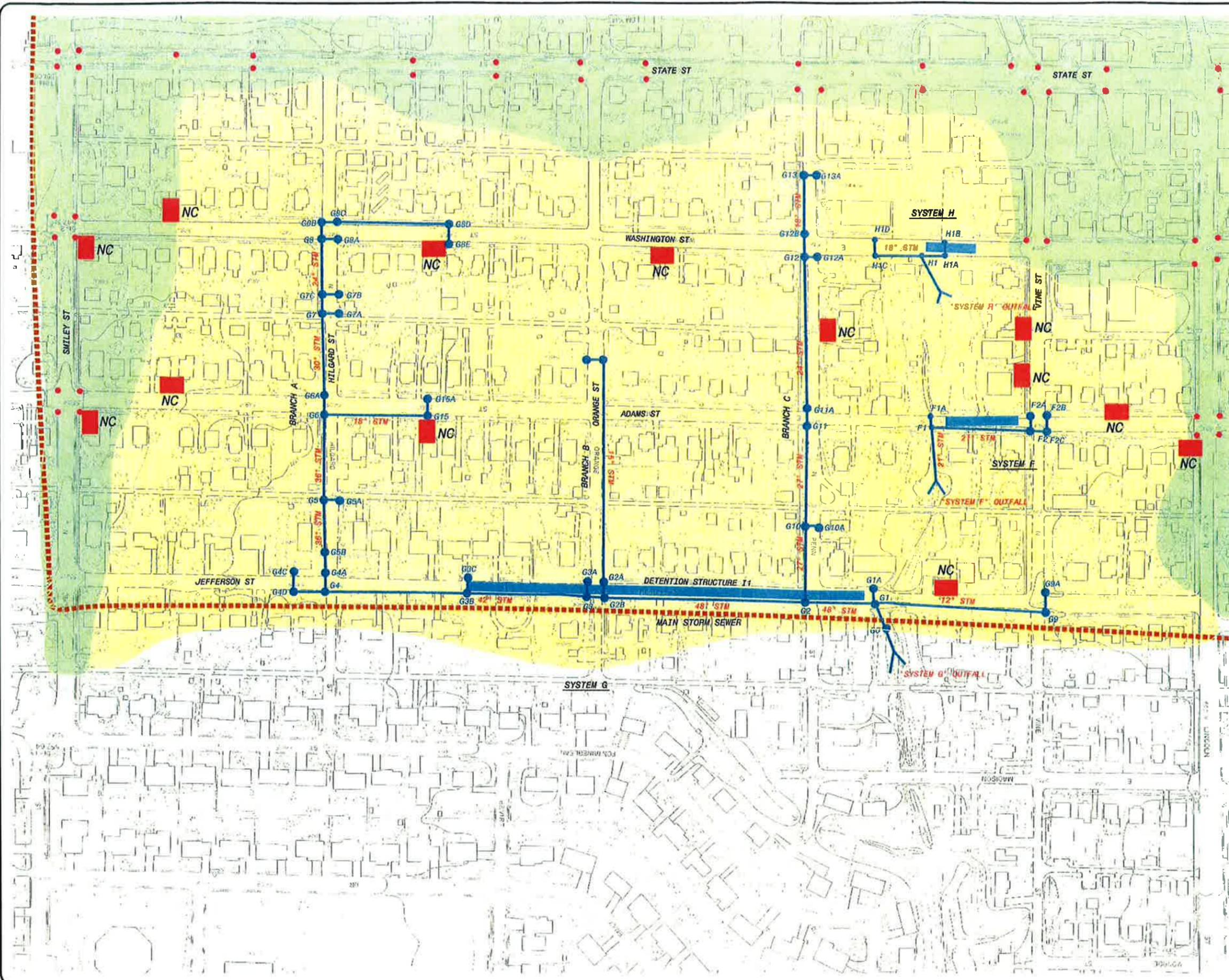
Stormwater collection system F and H include the installation of approximately 270 feet of 21-inch storm sewer for system F and 100 feet of 18-inch sewer for system H. The two systems will discharge into the existing open drainage ditch which runs through the area. The two systems will collect flows along Adams Street and Washington Street between Vine Street and Penn Street. Underground detention structures are proposed for each system to prevent erosion in the drainage ditch.

Several nuisance complaints have been identified between Penn Street and Vine Street near the existing drainage ditch. The installation of new storm sewers in the area will collect and provide better control of the flows to the ditch which will reduce these problems.

The total estimated capital cost for the stormwater collection system F improvements is \$134,100. The total estimated capital cost for stormwater collection system H is \$83,100.

Stormwater collection system G includes the installation of approximately 4,530 feet of new storm sewers ranging in size from 12 inches to 48 inches, and installation of 44 stormwater inlets. The improvements to collection system G also include a 0.66 million gallon underground detention structure. New storm inlets for collection system E will be located along Penn Street, Orange Street, Hilgard Street, and Jefferson Street. A 48-inch outfall will discharge north of Jefferson Street into the existing drainage ditch. The underground detention structure will run parallel to the 48-inch storm sewer along Jefferson Street.

Several nuisance complaints and street flooding complaints were identified along Washington Street and Adams Street. The new storm inlets and street curb and gutters will alleviate these problems.



- LEGEND:**
- EXISTING STORM SEWER SYSTEM DRAINAGE AREA
 - PROPOSED STORM SEWER SYSTEM DRAINAGE AREA
 - EXISTING STORM INLET
 - NEW STORM SEWER
 - NEW STORM INLET
 - NC NUISANCE COMPLAINT
 - YF YARD FLOODING COMPLAINT
 - SF STREET FLOODING COMPLAINT
 - STUDY AREA BOUNDARY

<p>BLACK & VEATCH Corporation St. Louis, Missouri</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>NO. OF SHEETS</td> <td>1</td> </tr> <tr> <td>TOTAL NO. OF SHEETS</td> <td>1</td> </tr> <tr> <td>DATE</td> <td>10/17/2001</td> </tr> <tr> <td>DESIGNED BY</td> <td>BPF</td> </tr> <tr> <td>DRAWN BY</td> <td>JAB</td> </tr> <tr> <td>CHECKED BY</td> <td></td> </tr> <tr> <td>APPROVED BY</td> <td></td> </tr> <tr> <td>DATE</td> <td></td> </tr> </table>	NO. OF SHEETS	1	TOTAL NO. OF SHEETS	1	DATE	10/17/2001	DESIGNED BY	BPF	DRAWN BY	JAB	CHECKED BY		APPROVED BY		DATE	
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<p>CITY OF O'FALLON, ILLINOIS</p> <p>STORMWATER MASTER PLAN</p> <p>NORTHEAST CITY CENTER SUB-AREA</p> <p>RECOMMENDED STORM WATER SYSTEM IMPROVEMENTS</p>																	
<p>DESIGNED: BPF</p> <p>DETAILED: JAB</p> <p>CHECKED:</p> <p>APPROVED:</p> <p>DATE:</p>																	
<p>PROJECT NO.</p> <p>133602</p>																	
<p>FIGURE:</p> <p>V-B.6</p>																	



The total estimated capital cost for stormwater collection system G improvements is \$1,996,700. A breakdown of the cost estimate into potential separate projects is presented in Table V-B.3.

Main Storm Sewer (Jefferson Street)	\$887,100
Branch A (Hilgard Street)	\$231,400
Branch B (Orange Street)	\$62,900
Branch C (Penn Street)	\$140,700
Subtotal for Storm System G	\$1,322,100
Utility Relocations (3%)	\$39,700
Contingencies (25%)	\$330,500
Subtotal	\$1,692,300
Engineering/Legal/Administration (18%)	\$304,600
Total	\$1,996,900

Appendix E summarize the major items included in the Northeast City Center area systems F, G, and H and the preliminary opinion of probable costs for construction of these improvements. A summary of all capital costs for the City Center is included in Chapter VI and detailed cost information is located in Appendix F.