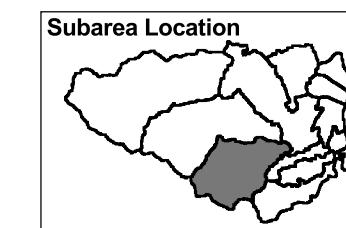


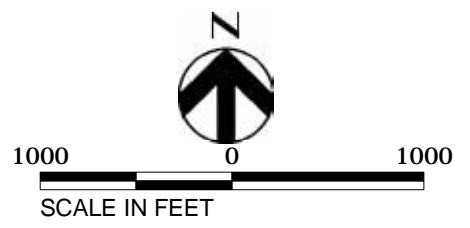
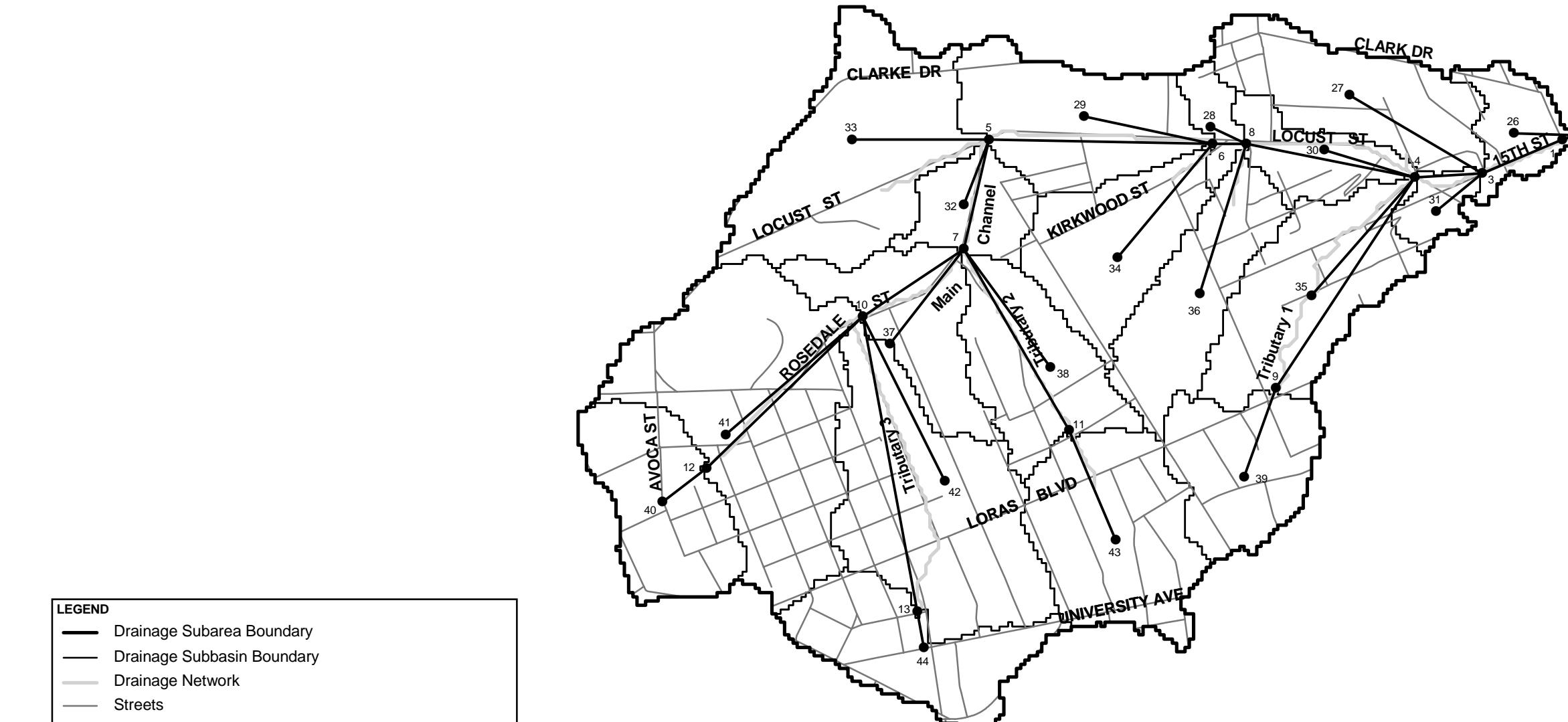
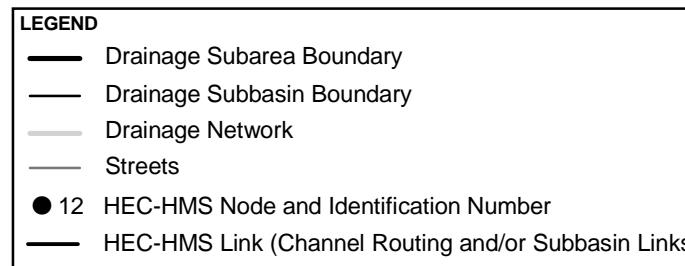
1000 0 1000
SCALE IN FEET



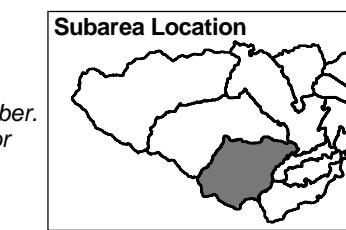
HDR
Engineering, Inc.

Source: HEC-HMS CRWR PRE-PRO, ArcView Version 4
Locust Street Drainage Subarea
HEC-HMS Subbasin Delineation
THE CITY OF DUBUQUE
Sharing the Spirit
Drainage Basin Master Plan
City of Dubuque, Iowa

Date
FALL 2001
Figure
4-14

**Notes:**

1. Location of peak discharges defined by HEC-HMS node identification number.
2. HEC-HMS links represent combining runoff from adjacent subbasins and/or routing runoff through a channel section.



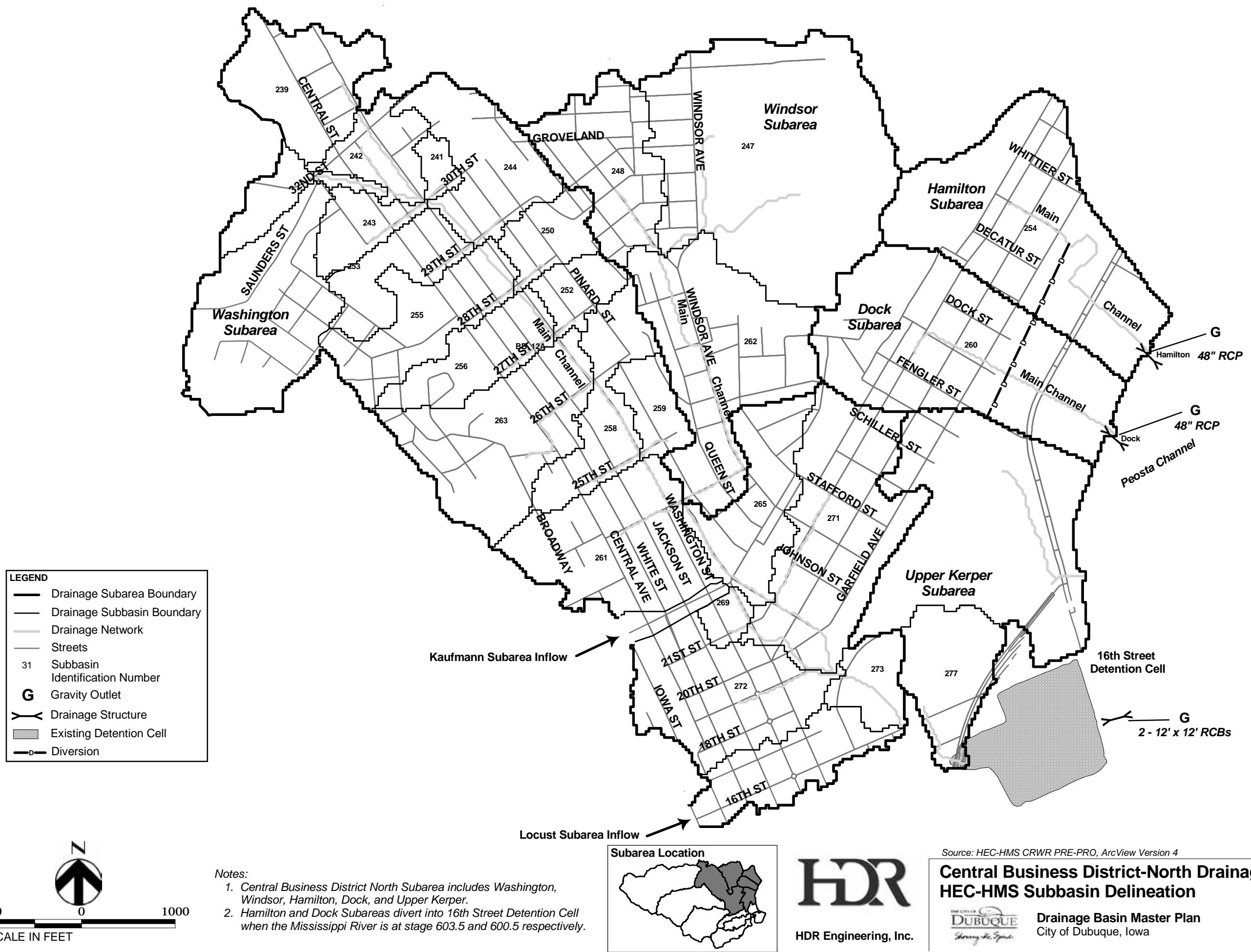
Source: HEC-HMS CRWR PRE-PRO, ArcView Version 4

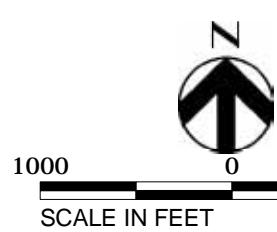
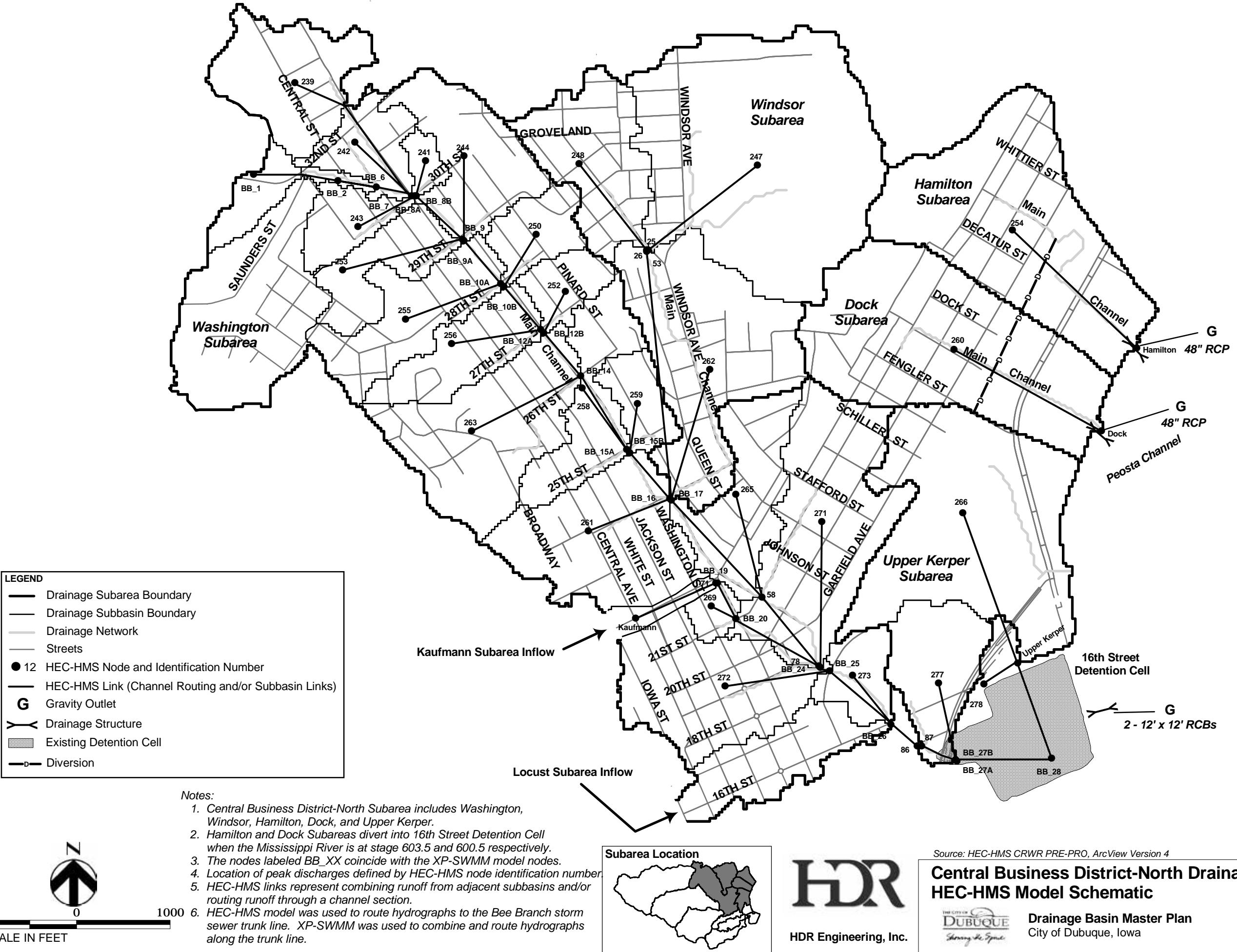
Locust Street Drainage Subarea
HEC-HMS Model Schematic



Drainage Basin Master Plan
City of Dubuque, Iowa

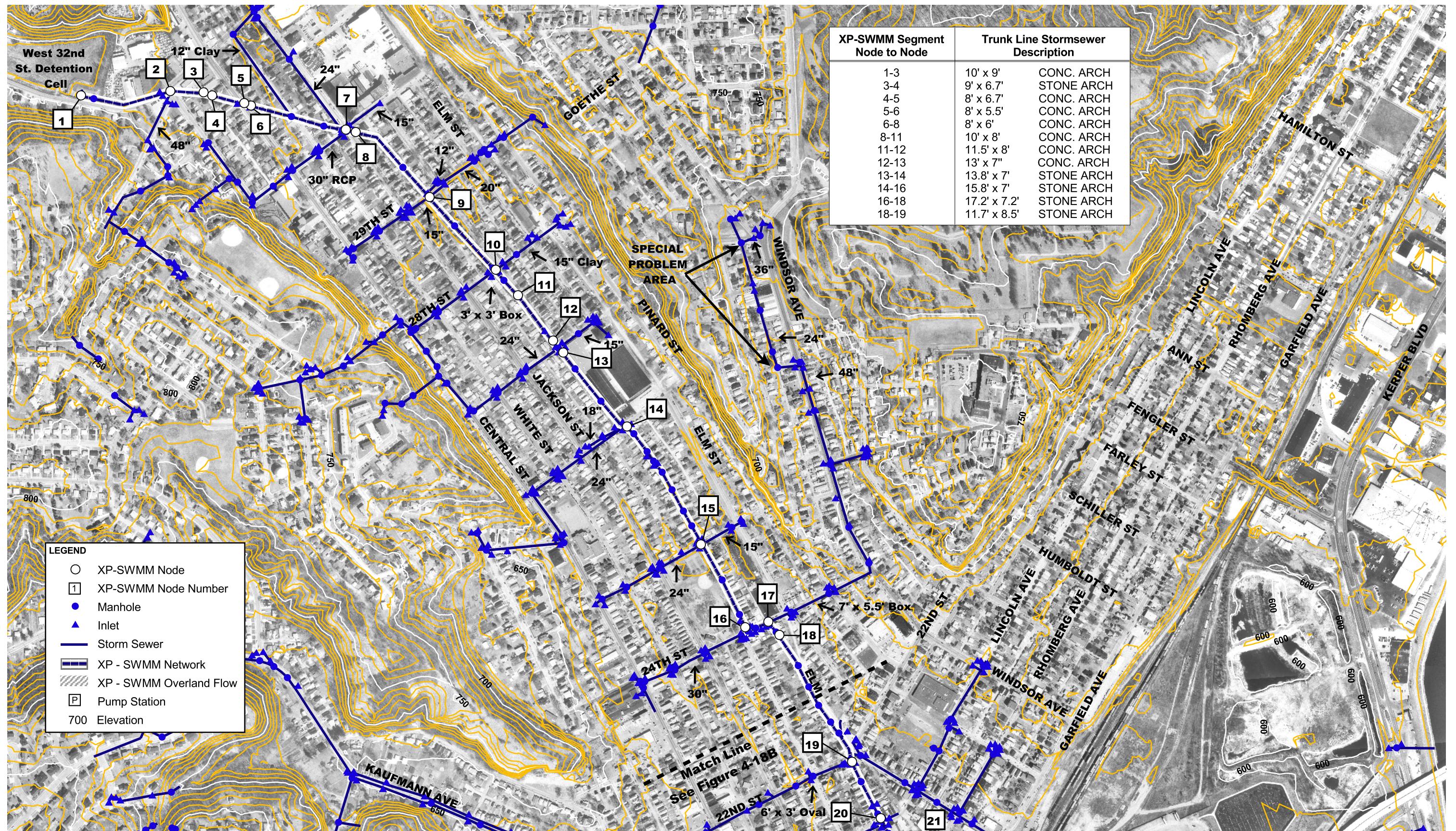
Date
FALL 2001
Figure
4-15





HDR
HDR Engineering, Inc.

Date
FALL 2001
Figure
4-17



Notes:

1. XP-SWMM nodes have been defined where pipe size or slope changes, or at tributary junctions.
2. Overland flow path between XP-SWMM Nodes 1 to 20 are assumed to be the same as the trunk line storm sewer. Overland flow path between XP-SWMM Nodes 20 to 28 are defined by an alternative overland flow path.

500 0 500 1000
SCALE IN FEET

Source: Dubuque Area Geographic Information System (DAGIS), dated May 2000, Aerial Photography, dated 1997

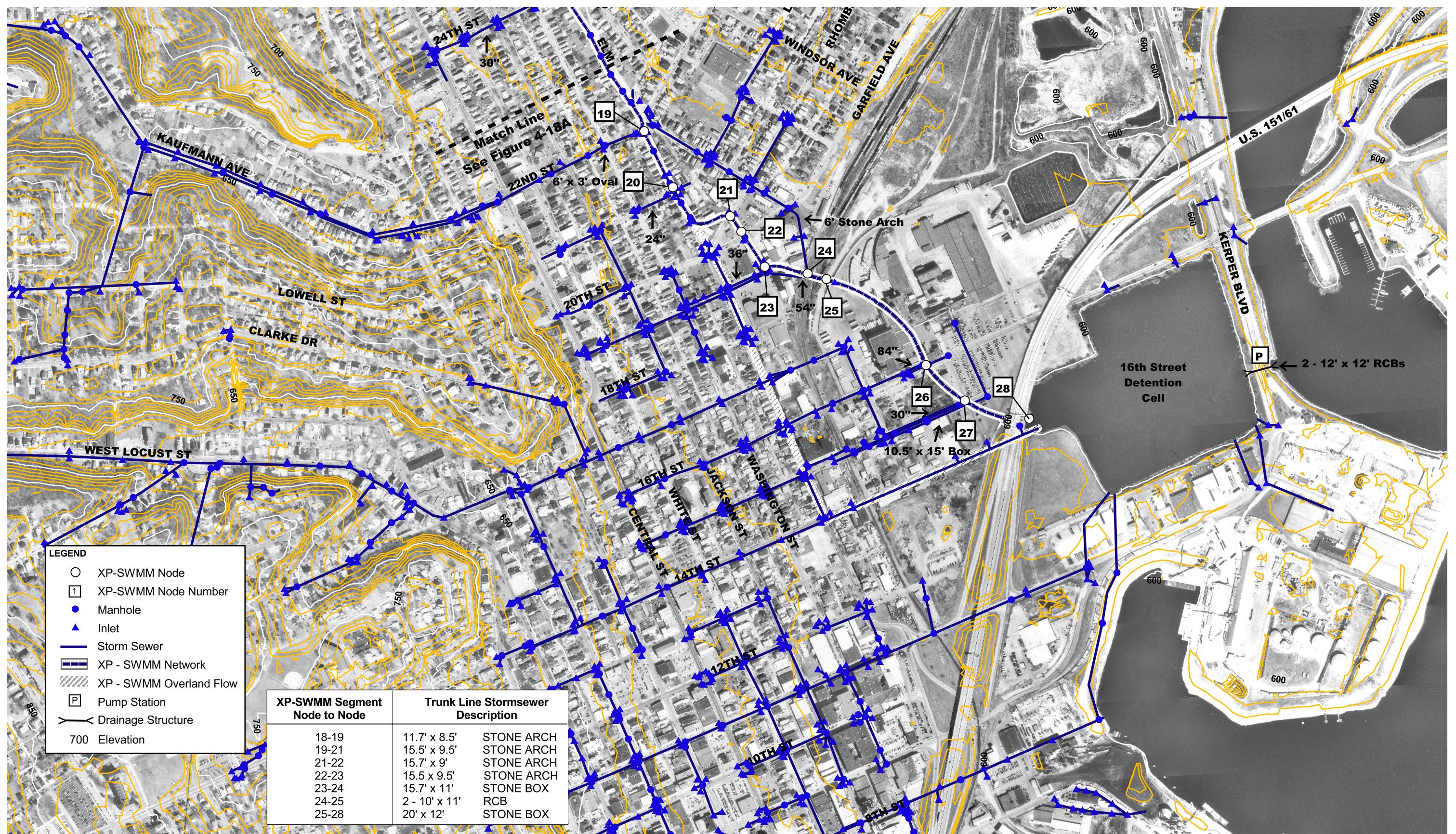
Washington Street Subarea
Bee Branch Storm Sewer Trunk Line
XP-SWMM Model Schematic (1 of 2)

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DUBUQUE
Showing the Spirit

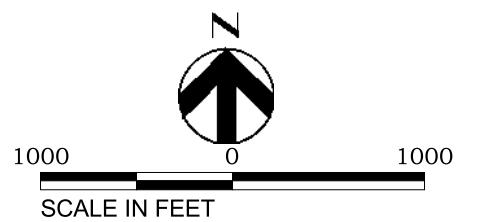
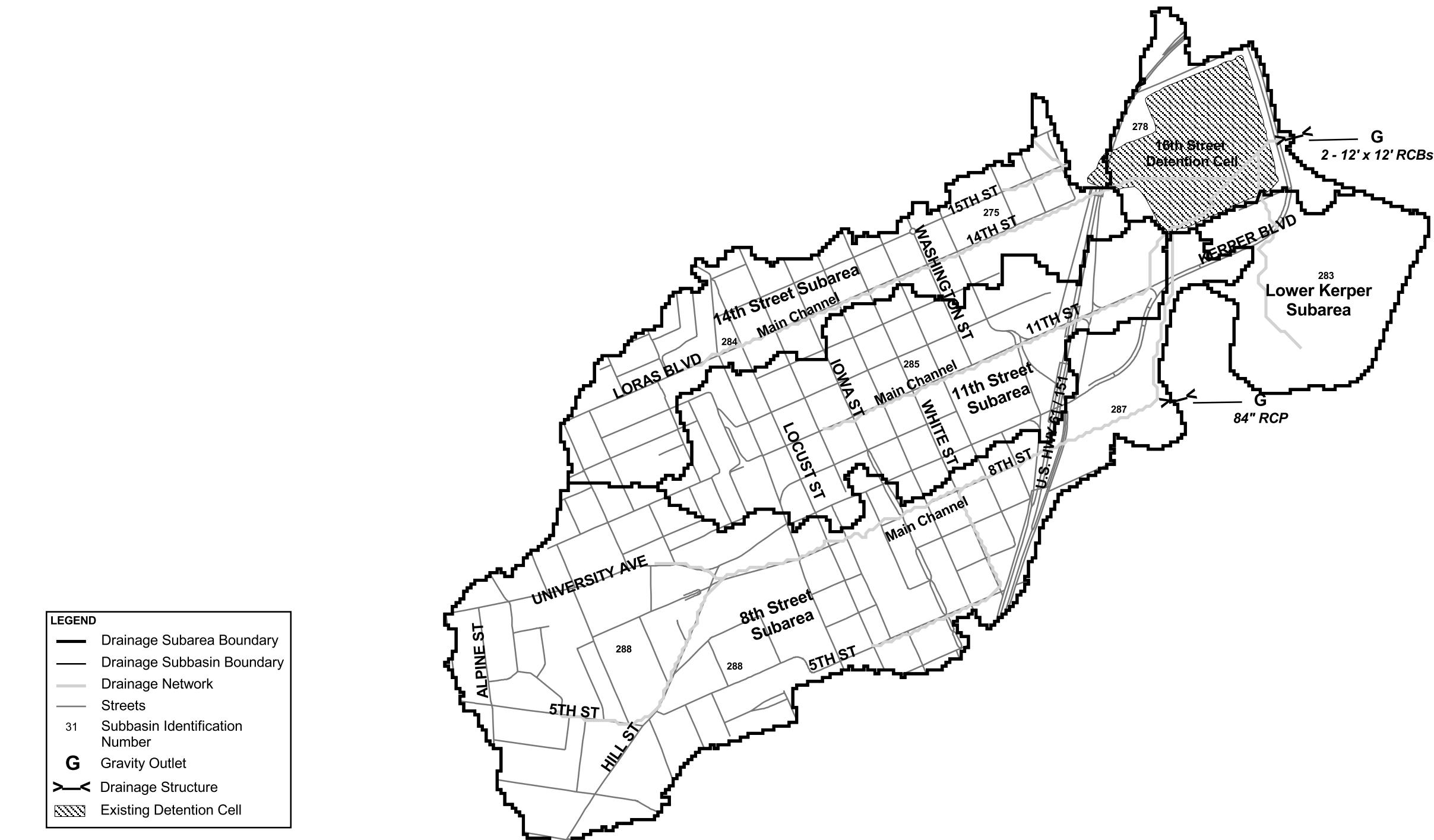
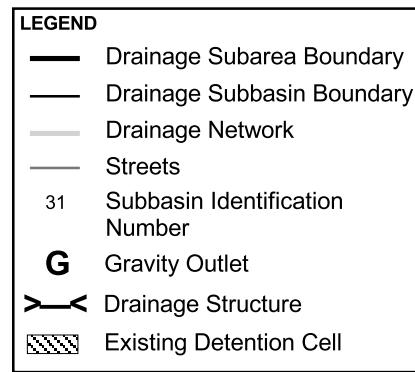
Drainage Basin Master Plan
 City of Dubuque, Iowa

Date: FALL 2001
 Figure: 4-18A



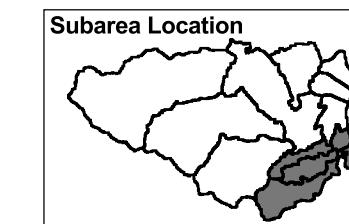
Notes:

1. XP-SWMM nodes have been defined where pipe size or slope changes, or at tributary junctions.
2. Overland flow path between XP-SWMM Nodes 1 to 20 are assumed to be the same as the trunk line storm sewer. Overland flow path between XP-SWMM Nodes 20 to 28 are defined by an alternative overland flow path.
3. 16th Street Detention Cell pump station consists of 2 - 90,000 gpm pumps and 1 - 20,000 gpm pump.



Notes:

1. Central Business District Subarea includes 8th, 11th, and 14th Street Subareas.
2. 8th Street Subarea diverts into 16th Street Detention Cell when Mississippi River at stage 598.5.



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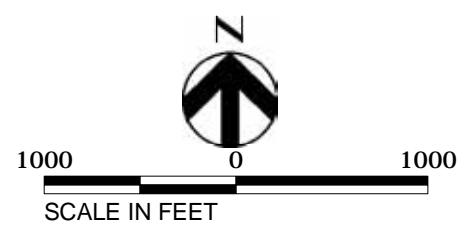
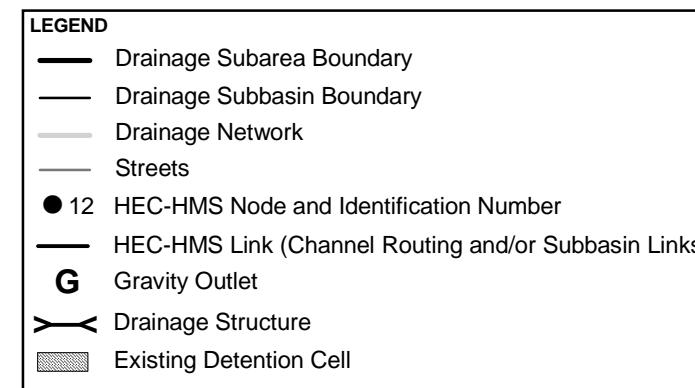
Source: HEC-HMS-PRE-PRO, ArcView Version 4

**Central Business District Drainage Subareas
HEC-HMS Subbasin Delineation**



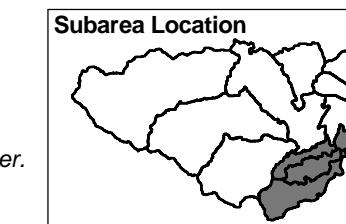
Drainage Basin Master Plan
City of Dubuque, Iowa

Date
FALL 2001
Figure
4-19



Notes:

1. Central Business District Drainage Subarea includes 8th, 11th, and 14th Street Subareas.
2. 8th Street Drainage Subarea diverts into 16th Street Detention Cell when Mississippi River at stage 598.5.
3. Location of peak discharges defined by HEC-HMS node identification number.
4. HEC-HMS links represent combining runoff from adjacent subbasins and/or routing runoff through a channel section.



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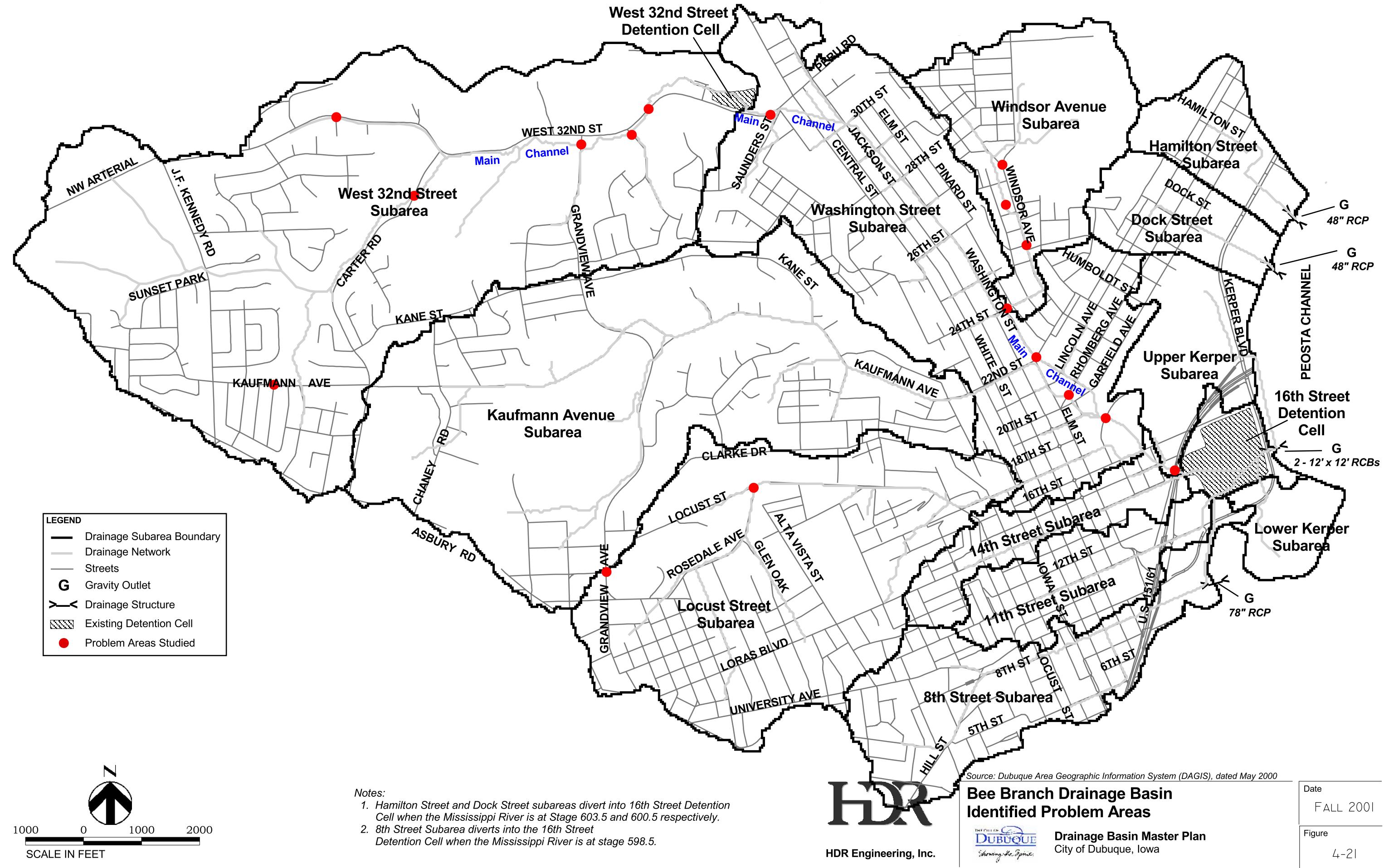
Source: HEC-HMS CRWR PRE-PRO, ArcView Version 4

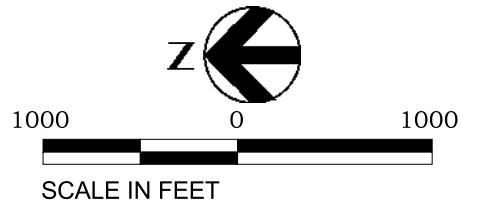
Central Business District Drainage Subareas HEC-HMS Model Schematic



Drainage Basin Master Plan
City of Dubuque, Iowa

Date
FALL 2001
Figure
4-20





Notes:

1. Flooding depths shown are peak depths for the 100-year flood with West 32nd Street Subarea Alternative W32-5 improvements and a flood control channel constructed from 16th Street Detention Cell to 24th Street.
2. Inundated area shown represents flooding from the Bee Branch storm sewer trunk line only. Flooding from tributary subareas are not included.

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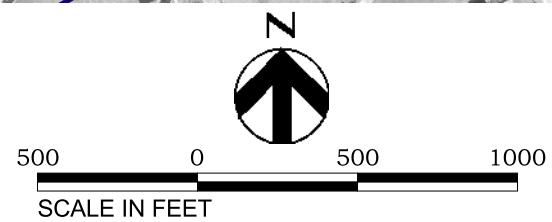


Source: Dubuque Area Geographic Information System (DAGIS), dated May 2000, Aerial Photography, 1997

**Washington Street Drainage Subarea
West 32nd Street Improvement Impacts**

Drainage Basin Master Plan
City of Dubuque, Iowa

Date
FALL 2001
Figure
4-22

**Notes:**

(Reference symbol listed in figure legend.)

1. Existing Storm Sewer - Labels 1, 3, 4, 7, 8
2. Proposed Relief Storm Sewer - Labels 2, 4, 7, 8 and 1, 3, 9, 10
3. Proposed Storm Sewer Option - Labels 1, 3, 3A, 5, 6, 8 and 2, 4, 7, 8



HDR Engineering, Inc.

Source: Dubuque Area Geographic Information System (DAGIS), dated May 2000, Aerial Photography, dated 1997

Bee Branch Drainage Basin Proposed Relief Sewer Alternative



Drainage Basin Master Plan
City of Dubuque, Iowa

Date
FALL 2001
Figure
4-23



500 0 500 1000
SCALE IN FEET

Notes:

1. Phase I - 16th Street Detention Cell to Garfield Avenue.
2. Phases I & II - 16th Street Detention Cell to 24th Street.

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THE CITY OF DUBUQUE
Sharing the Space

Drainage Basin Master Plan
City of Dubuque, Iowa

Source: Dubuque Area Geographic Information System (DAGIS), dated May 2000, Aerial Photography, dated 1997

**Bee Branch Drainage Basin
Proposed Flood Control Channel Alternatives**

Date
FALL 2001
Figure
4-24



Notes:

1. Flooding depths shown are peak depths for the 100-year flood with West 32nd Street Subarea Alternative W32-5 improvements and a flood control channel constructed from 16th Street Detention Cell to Garfield Ave (Phase I).
2. It was assumed the tributaries from 16th Street Detention Cell to Garfield Avenue were improved as necessary to convey the 100-year flood flows to the Bee Branch storm sewer trunk line.
3. Inundated area shown represents flooding from the Bee Branch storm sewer trunk line only. Flooding from tributary subareas are not included.



HDR Engineering, Inc.

Source: Dubuque Area Geographic Information System (DAGIS), dated May 2000, Aerial Photography, 1997

**Washington Street Drainage Subarea
Phase I Flood Control Channel Impacts**



Drainage Basin Master Plan
City of Dubuque, Iowa

Date
FALL 2001

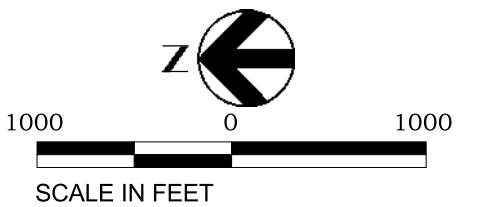
Figure

4-25



Notes:

1. Flooding depths shown are peak depths for the 100-year flood with West 32nd Street Subarea Alternative W32-5 improvements and a flood control channel constructed from 16th Street Detention Cell to 24th Street (Phases I & II).
2. It was assumed the tributaries from 16th Street Detention Cell to 24th Street were improved as necessary to convey the 100-year flood flows to the Bee Branch storm sewer trunk line.
3. Inundated area shown represents flooding from the Bee Branch storm sewer trunk line only. Flooding from tributary subareas are not included.



HDR Engineering, Inc.

Source: Dubuque Area Geographic Information System (DAGIS), dated May 2000, Aerial Photography, dated 1997

**Washington Street Drainage Subarea
Phase I & II Flood Control Channel Impacts**



Drainage Basin Master Plan
City of Dubuque, Iowa

Date
FALL 2001
Figure
4-26