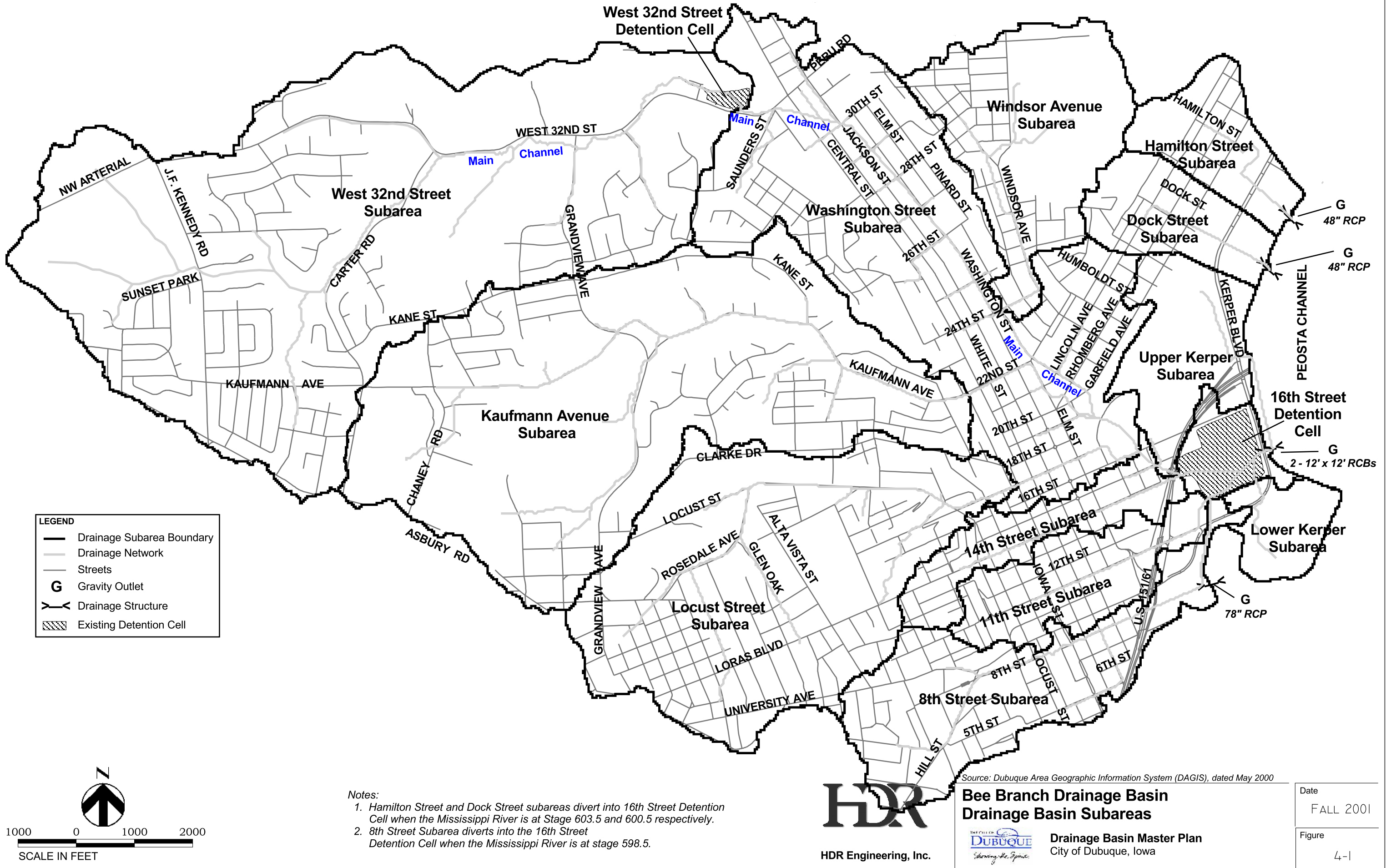
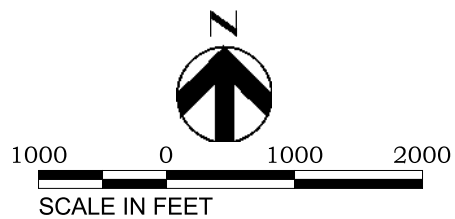






HDR Engineering, Inc.

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

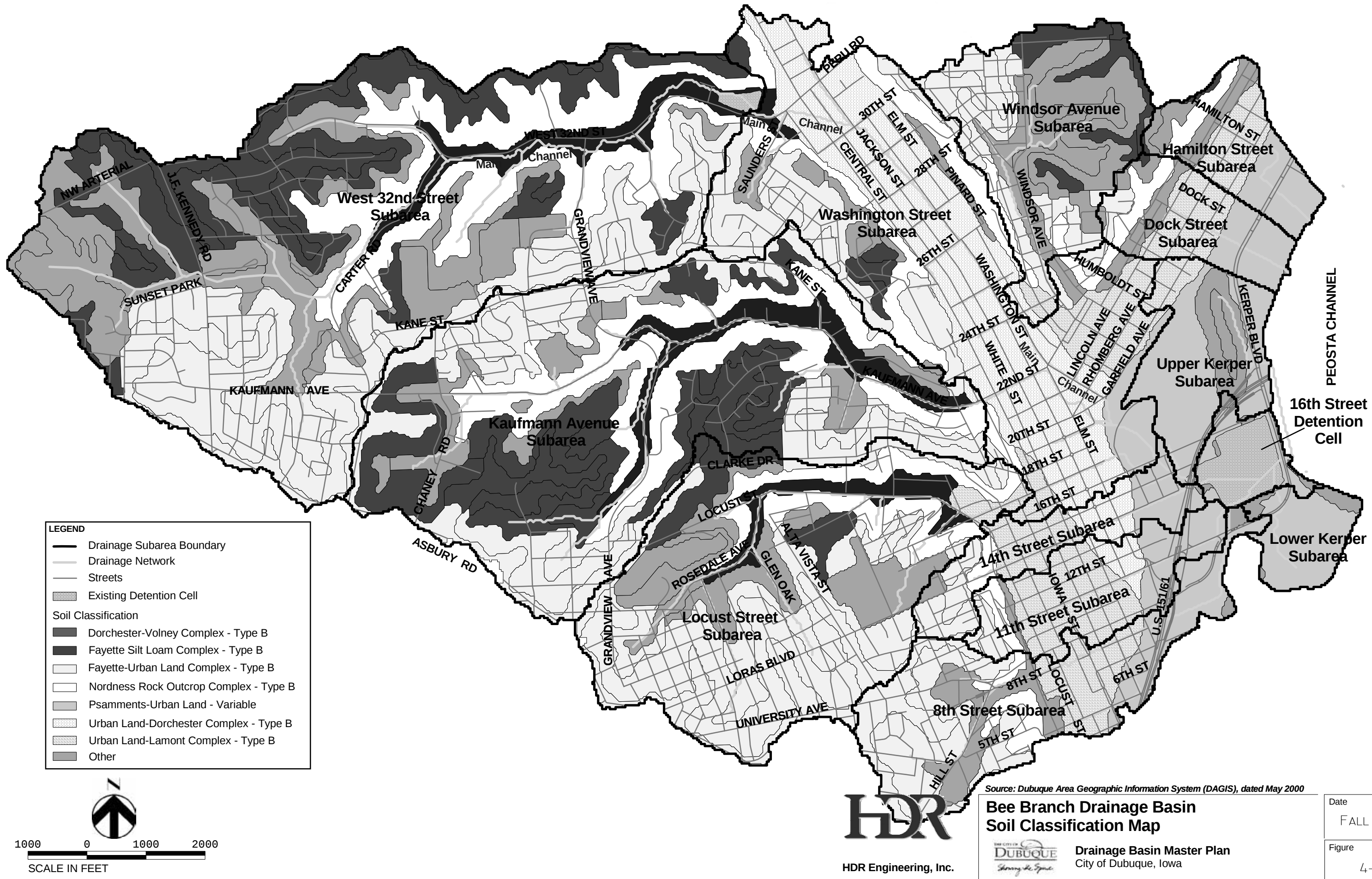
Bee Branch Drainage Basin Basin Slope Map

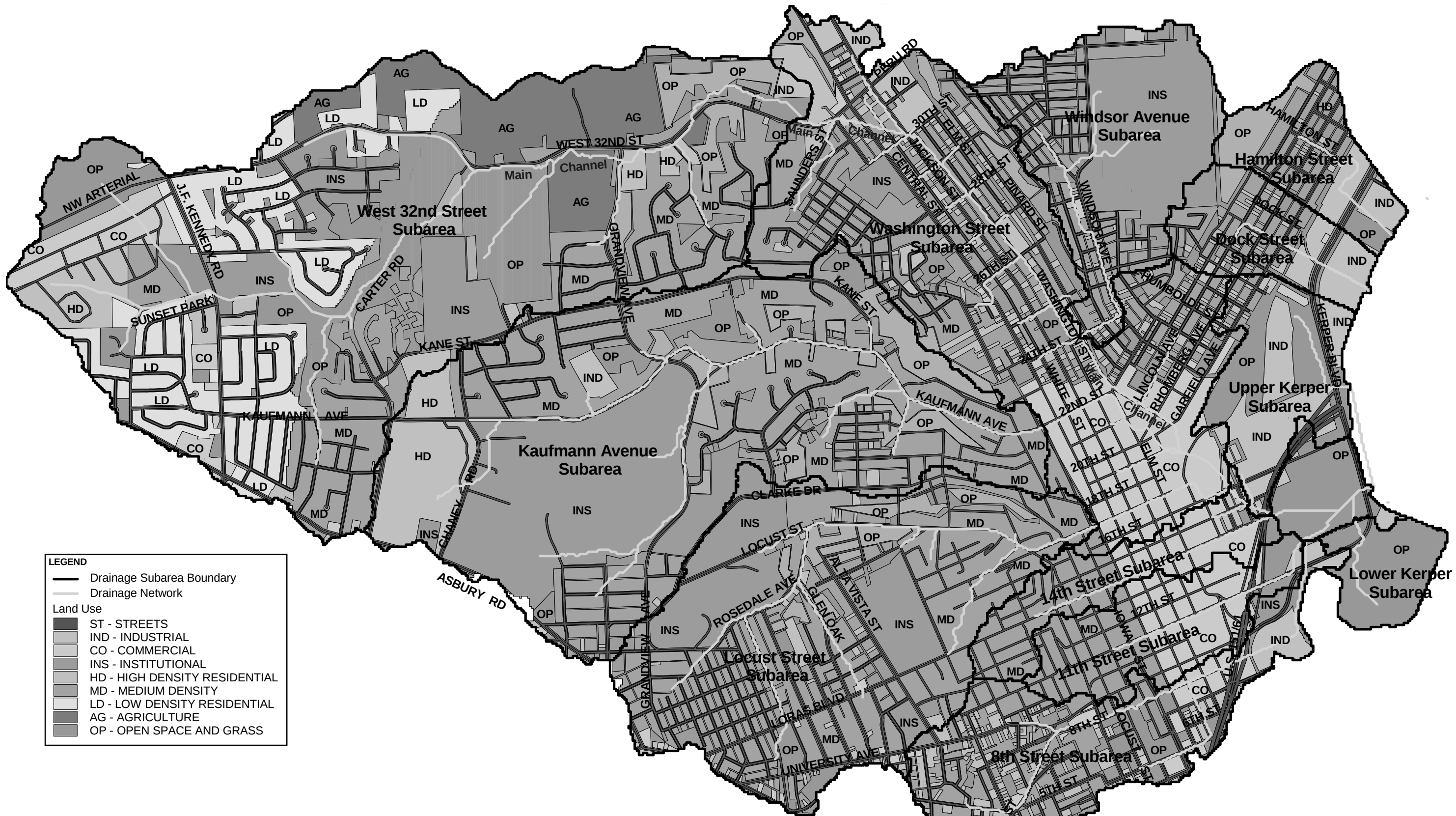


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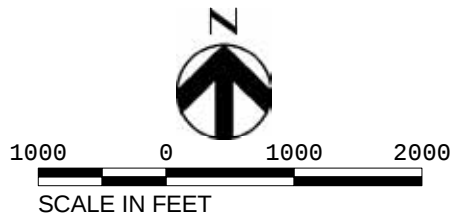


LEGEND

— Drainage Subarea Boundary
— Drainage Network

Land Use

- ST - STREETS
- IND - INDUSTRIAL
- CO - COMMERCIAL
- INS - INSTITUTIONAL
- HD - HIGH DENSITY RESIDENTIAL
- MD - MEDIUM DENSITY
- LD - LOW DENSITY RESIDENTIAL
- AG - AGRICULTURE
- OP - OPEN SPACE AND GRASS



- Notes:**
1. Hydrologic analysis performed was based on ultimate land use development classification, except for agricultural land, where the land use was based on agriculture.
 2. Missing data was supplemented, as directed by city staff.



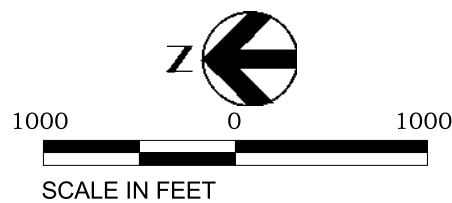
Source: Dubuque Area Geographic Information System (DAGIS), dated May 2000

Bee Branch Drainage Basin Land Use Classification



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Notes:
1. Inundated area shown represents flooding from the Bee Branch storm sewer trunk line only. Flooding from tributary subareas are not included.

HDR
HDR Engineering, Inc.

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

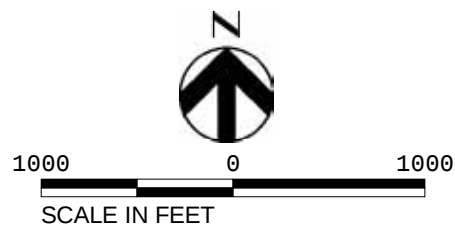
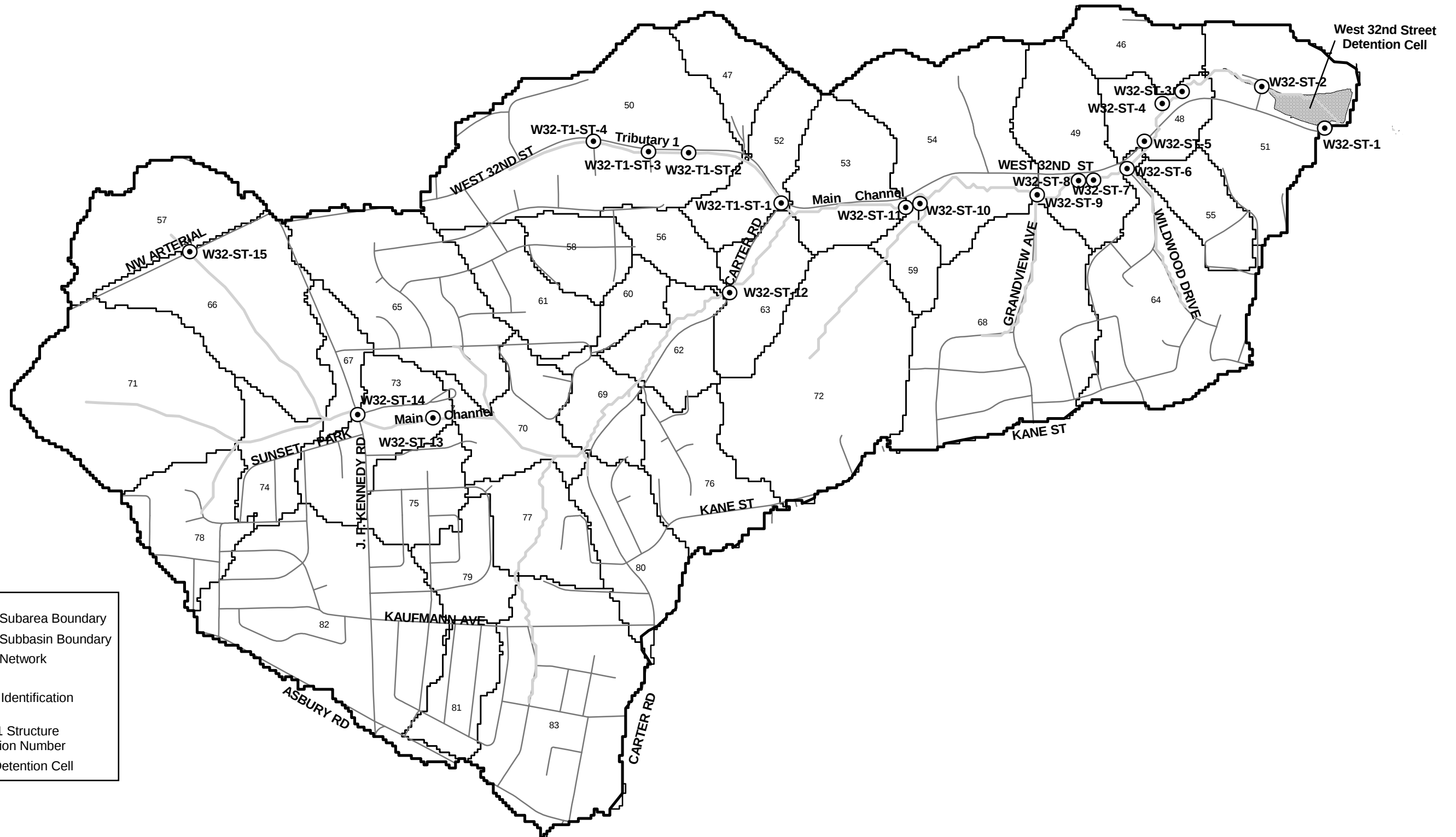
**Washington Street Drainage Subarea
Existing 100-Year Flood Inundation - Lower Reach**



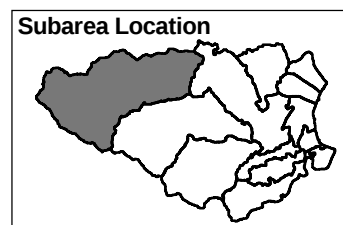
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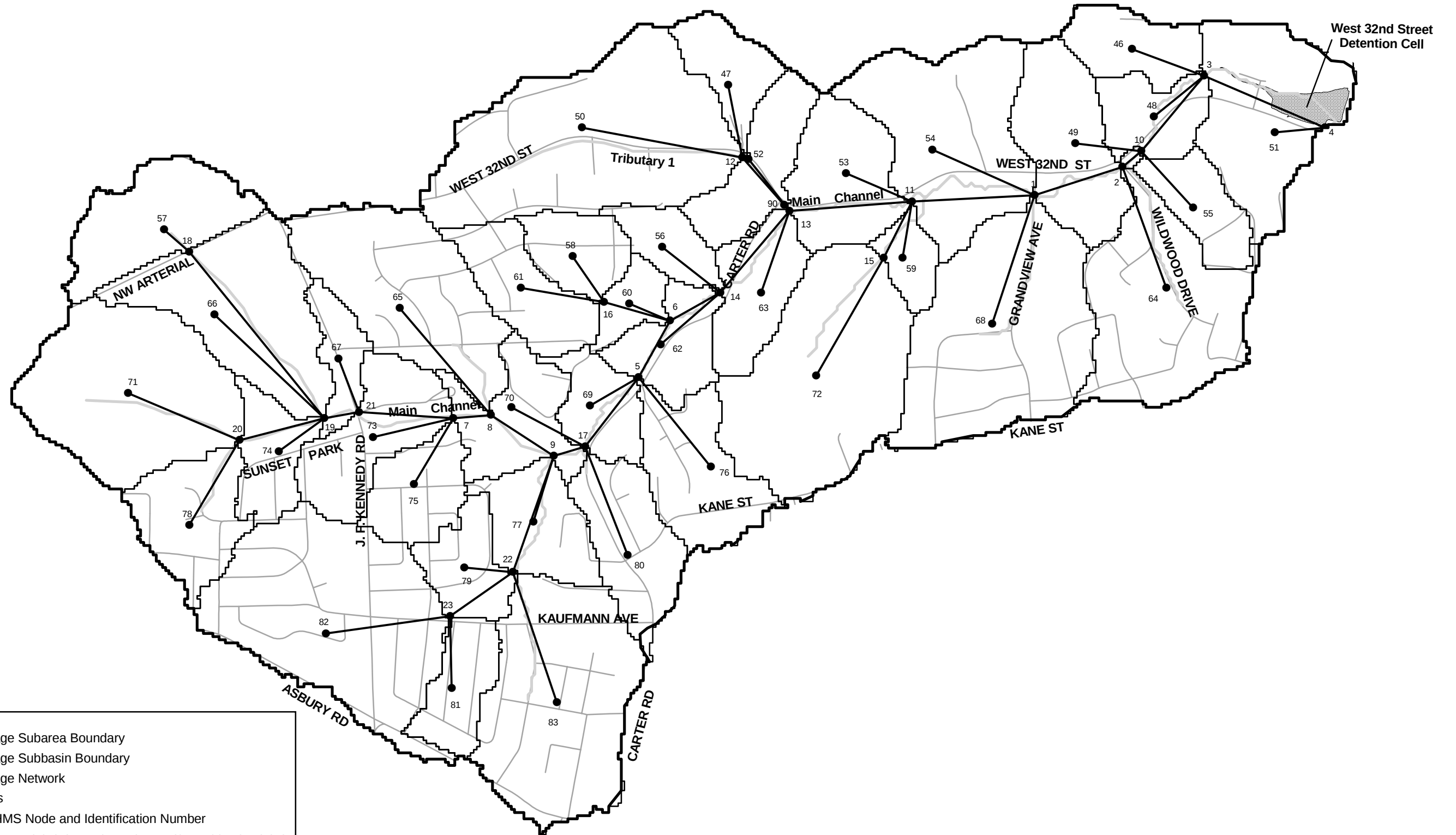


Note:
1. Subbasins 36, 51 and 61 are located downstream of the West 32nd Street Detention Cell and do not contribute to the cell.



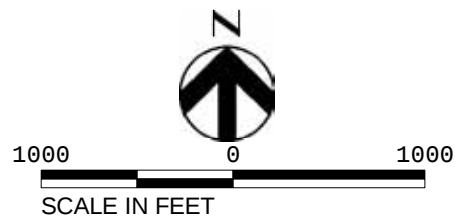
Source: HEC-HMS CWRC PRE-PRO, ArcView Version 4
**West 32nd Street Drainage Subarea
HEC-HMS Subbasin Delineation**
THE CITY OF DUBUQUE
Stronger. Smarter.
Drainage Basin Master Plan
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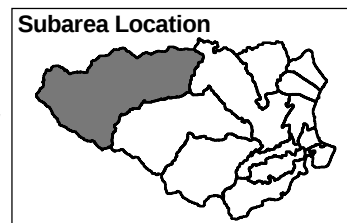


LEGEND

- Drainage Subarea Boundary
- Drainage Subbasin Boundary
- Drainage Network
- Streets
- 12 HEC-HMS Node and Identification Number
- HEC-HMS Link (Channel Routing and/or Subbasin Links)



- 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

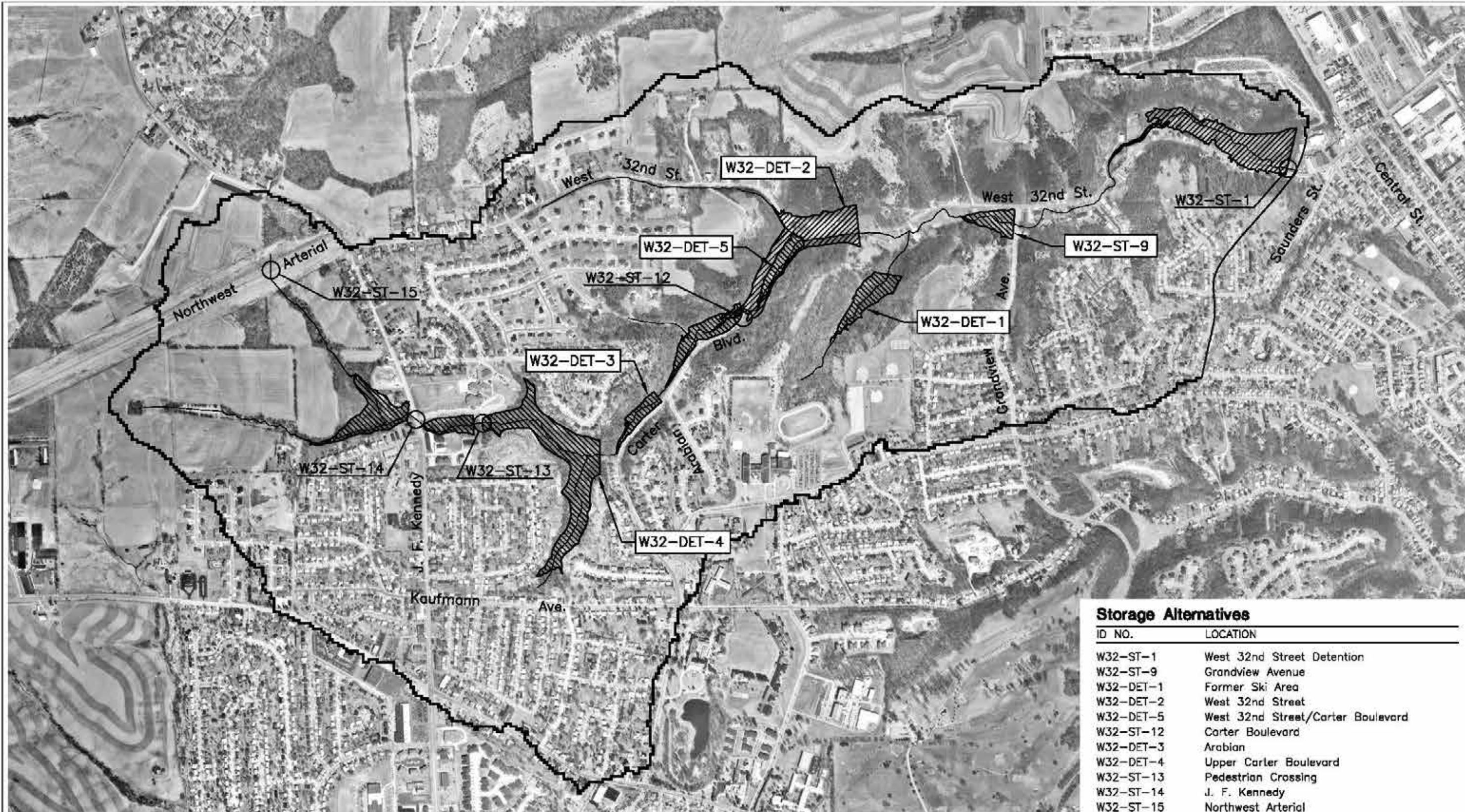
West 32nd Street Drainage Subarea HEC-HMS Model Schematic



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Figure
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Storage Alternatives

ID NO.	LOCATION
W32-ST-1	West 32nd Street Detention
W32-ST-9	Grandview Avenue
W32-DET-1	Former Ski Area
W32-DET-2	West 32nd Street
W32-DET-5	West 32nd Street/Carter Boulevard
W32-ST-12	Carter Boulevard
W32-DET-3	Arabian
W32-DET-4	Upper Carter Boulevard
W32-ST-13	Pedestrian Crossing
W32-ST-14	J. F. Kennedy
W32-ST-15	Northwest Arterial

Source: Dubuque Area Geographic Information System (DAGIS), Dated 2000.
Aerial Photography Date 1997.

HDR

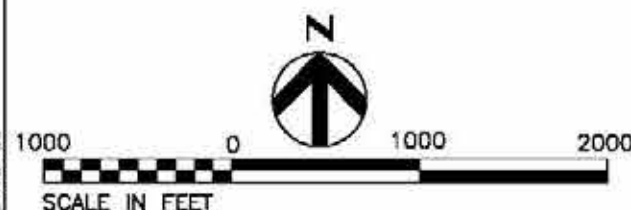
HDR Engineering, Inc.

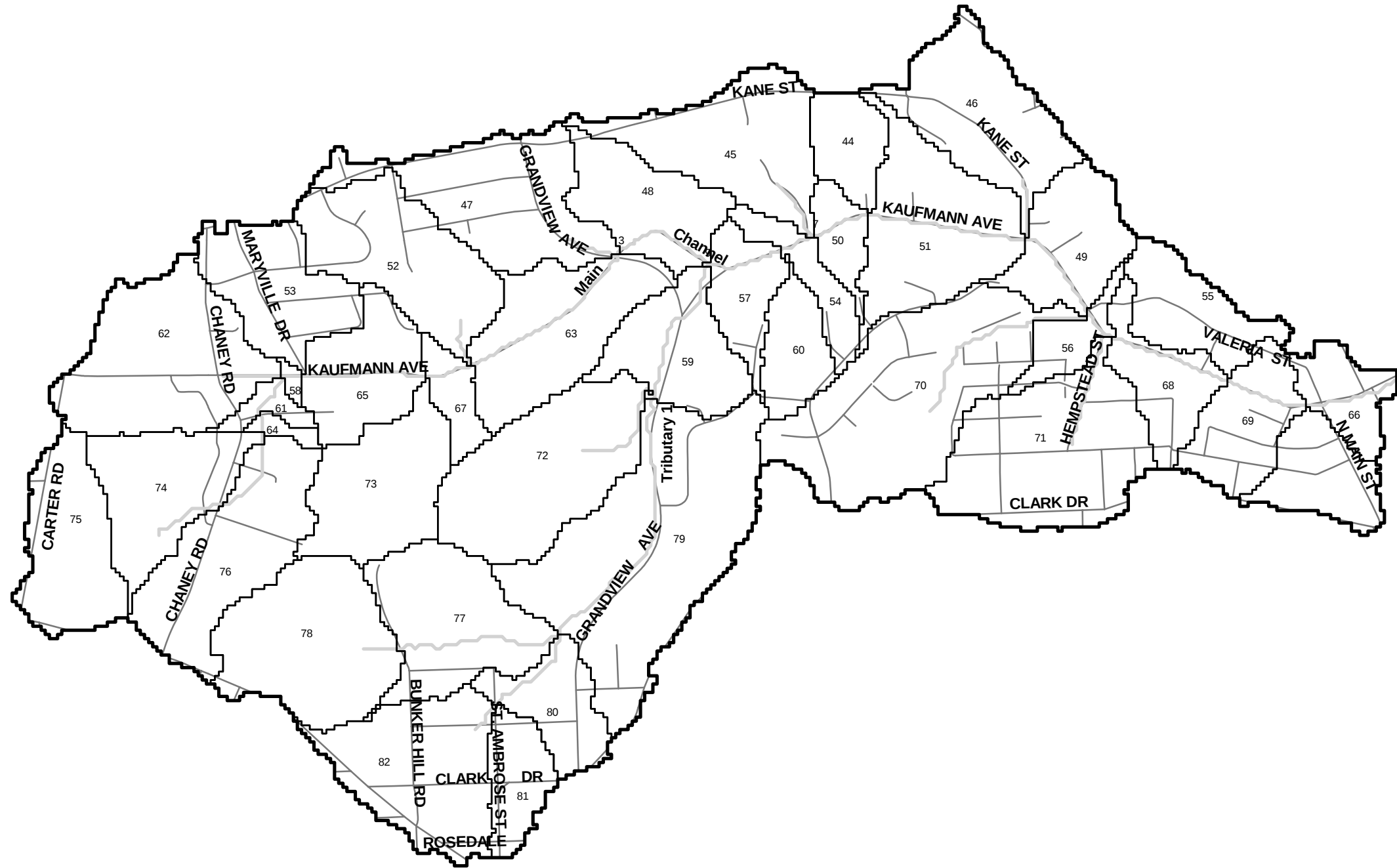
West 32nd Street Drainage Subarea Detention Sites Investigated

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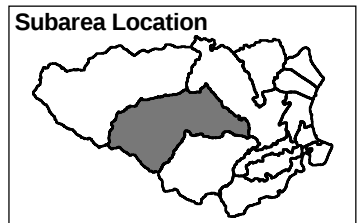
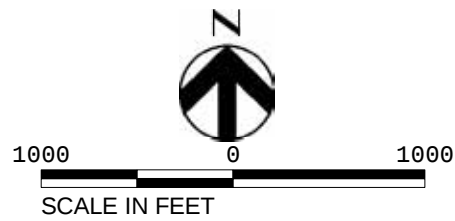
Figure
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LEGEND

- Drainage Subarea Boundary
- Drainage Subbasin Boundary
- Drainage Network
- Streets
- 31 Subbasin Identification Number



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

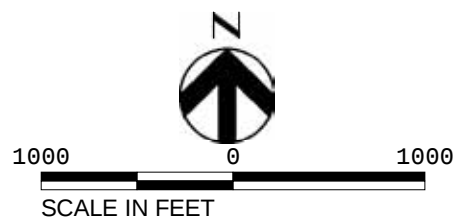
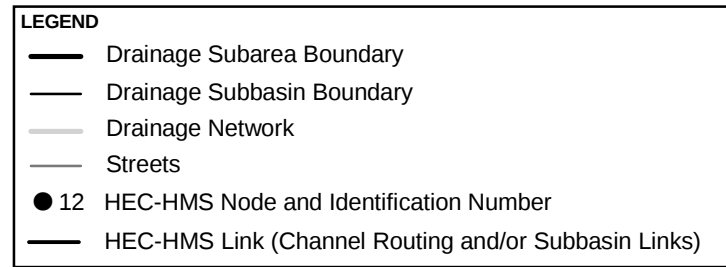
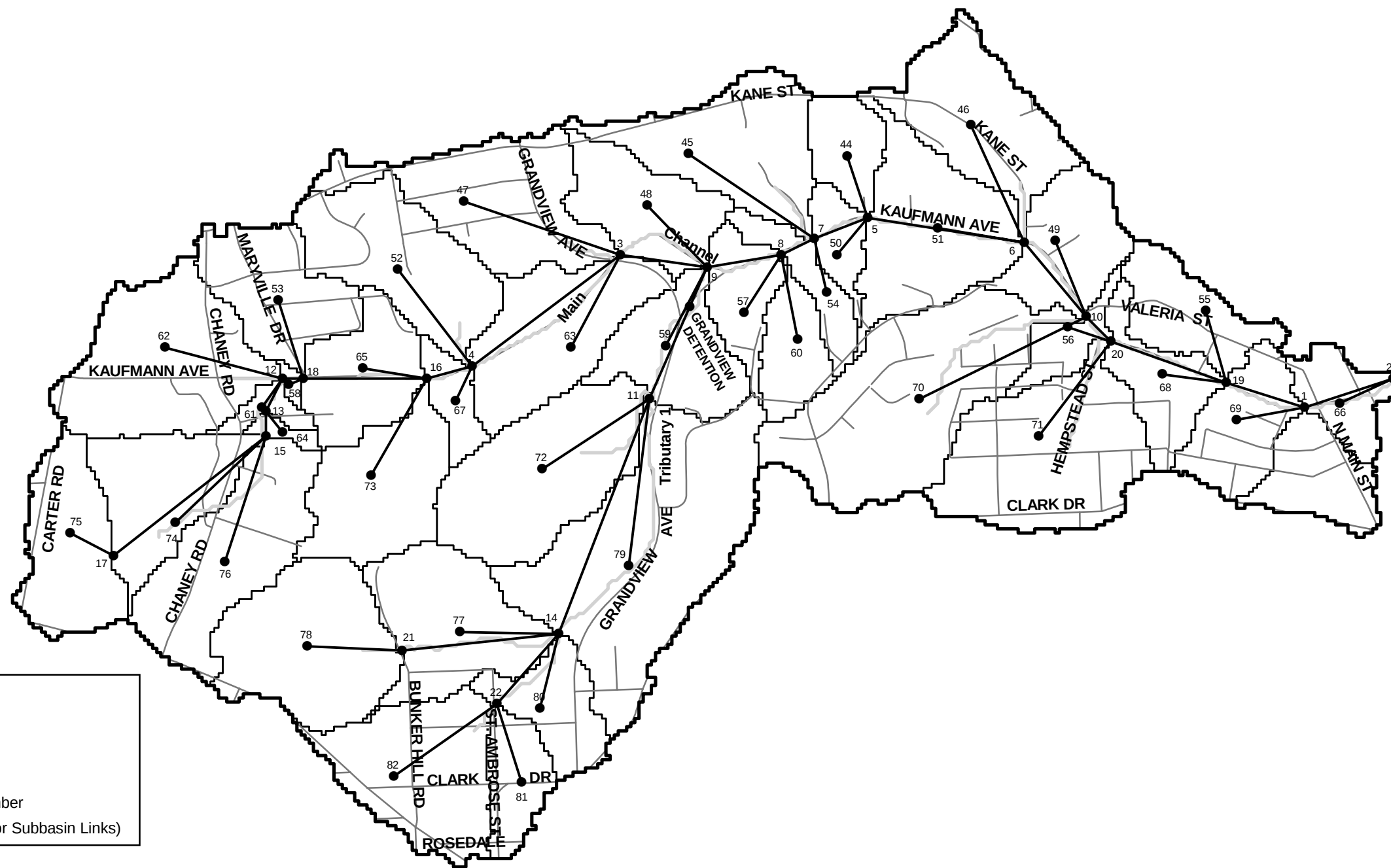
Kaufmann Avenue Drainage Subarea HEC-HMS Subbasin Delineation



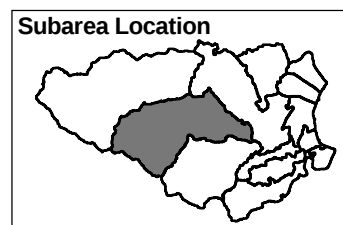
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Figure
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- Notes:**
1. Location of peak discharges defined by Hec-HMS node identification number.
 2. HEC-HMS links represent combining runoff from adjacent subbasins and/or routing runoff through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



Source: HEC-HMS CRWR PRO, ArcView Version 4

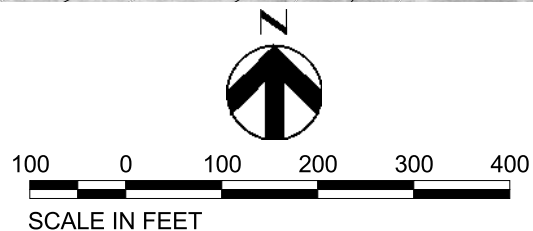
Kaufmann Avenue Drainage Subarea HEC-HMS Model Schematic



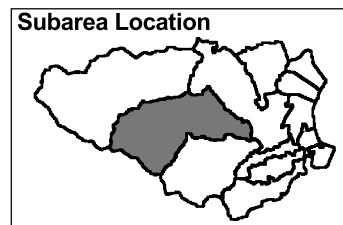
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- Notes:
1. Grandview Avenue traffic prohibited during intense rainfall events.
 2. Provide advanced warning signal system on Grandview Avenue to alert motorists of ponded water and to seek alternative route.



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

Kaufmann Avenue Drainage Subarea Detention Site Alternative



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