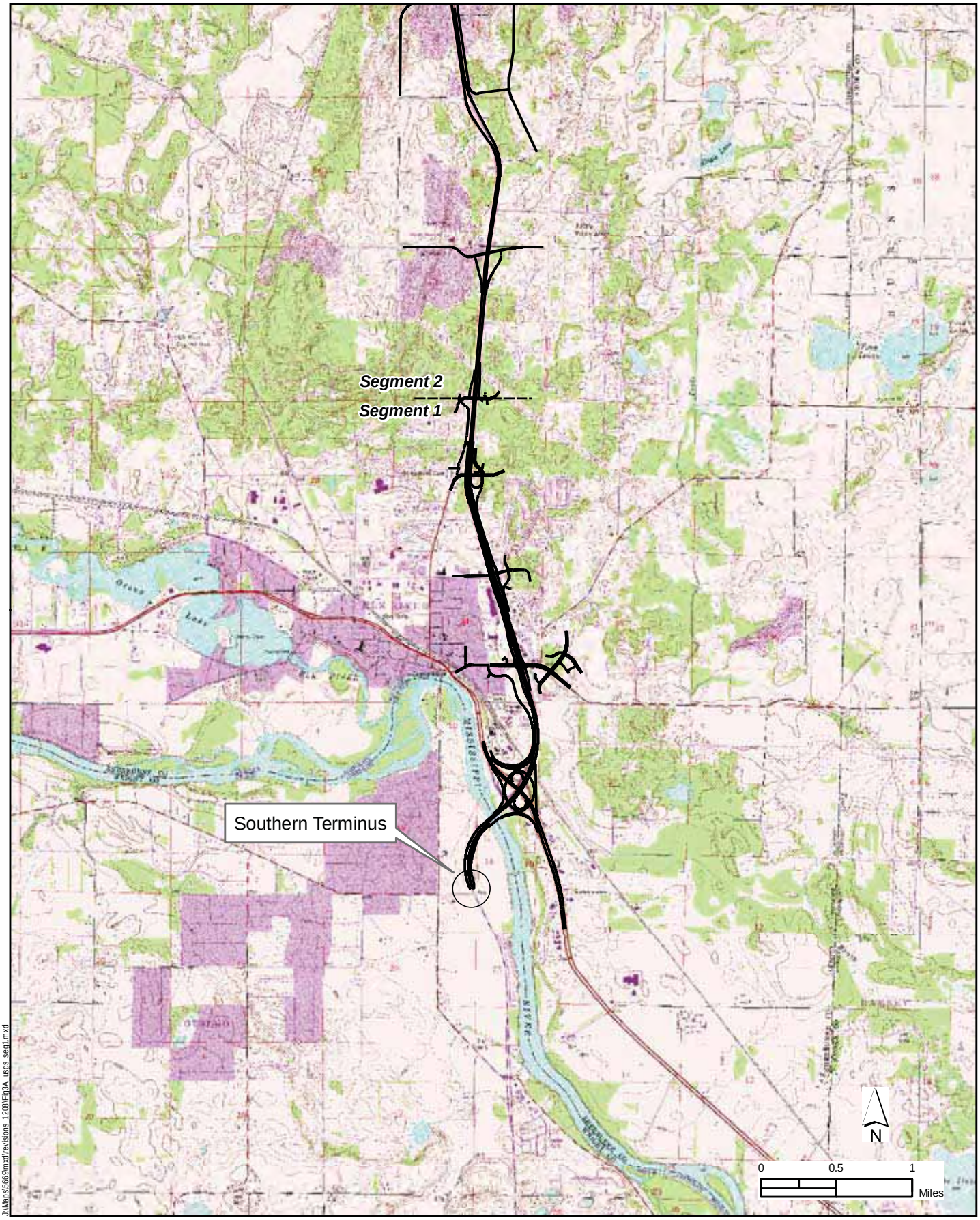
APPENDIX A

Figures



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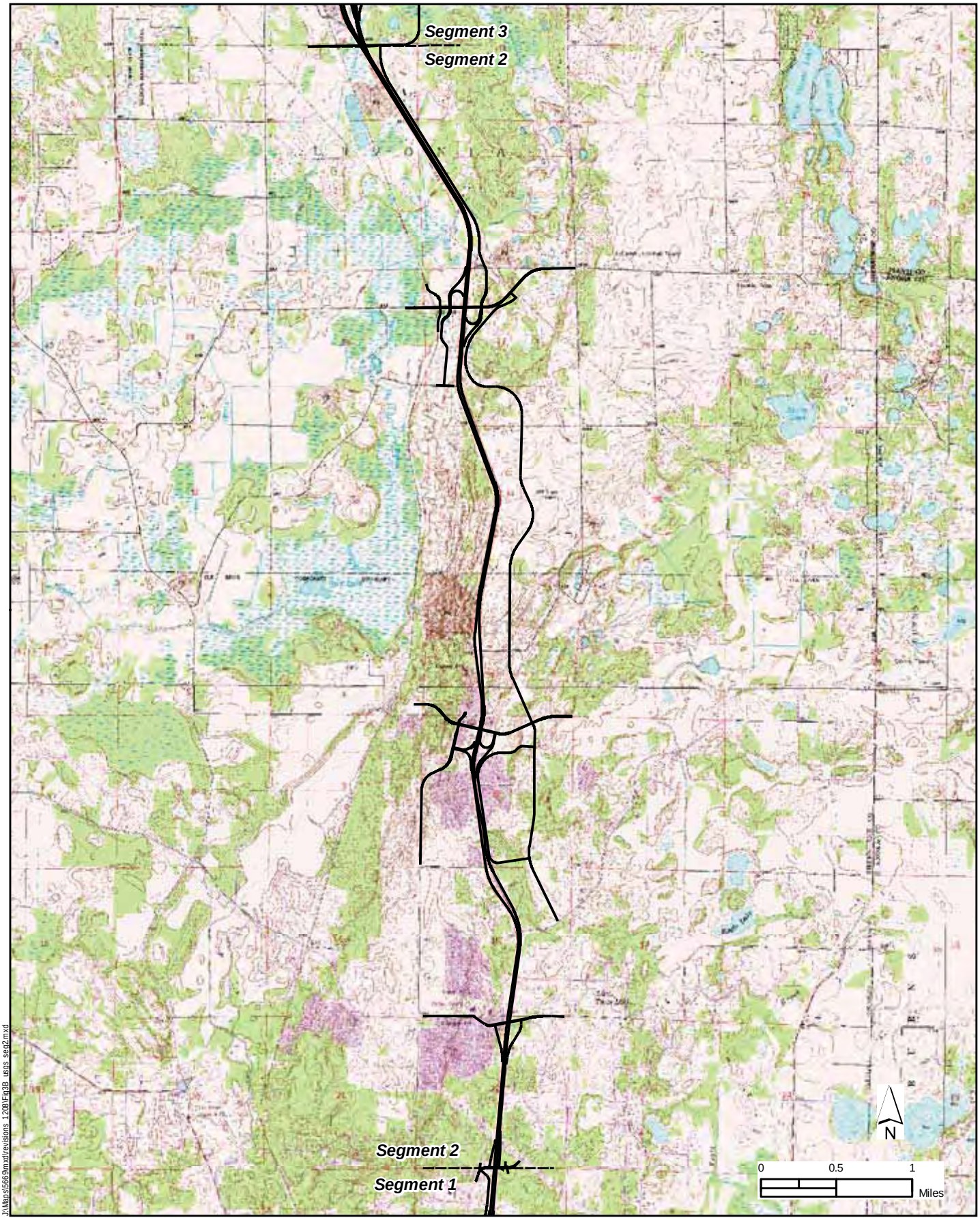
PROJECT LOCATION: SEGMENT ONE - USGS

Figure 3A

Segment One: CSAH 39 to197th Avenue NW

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71



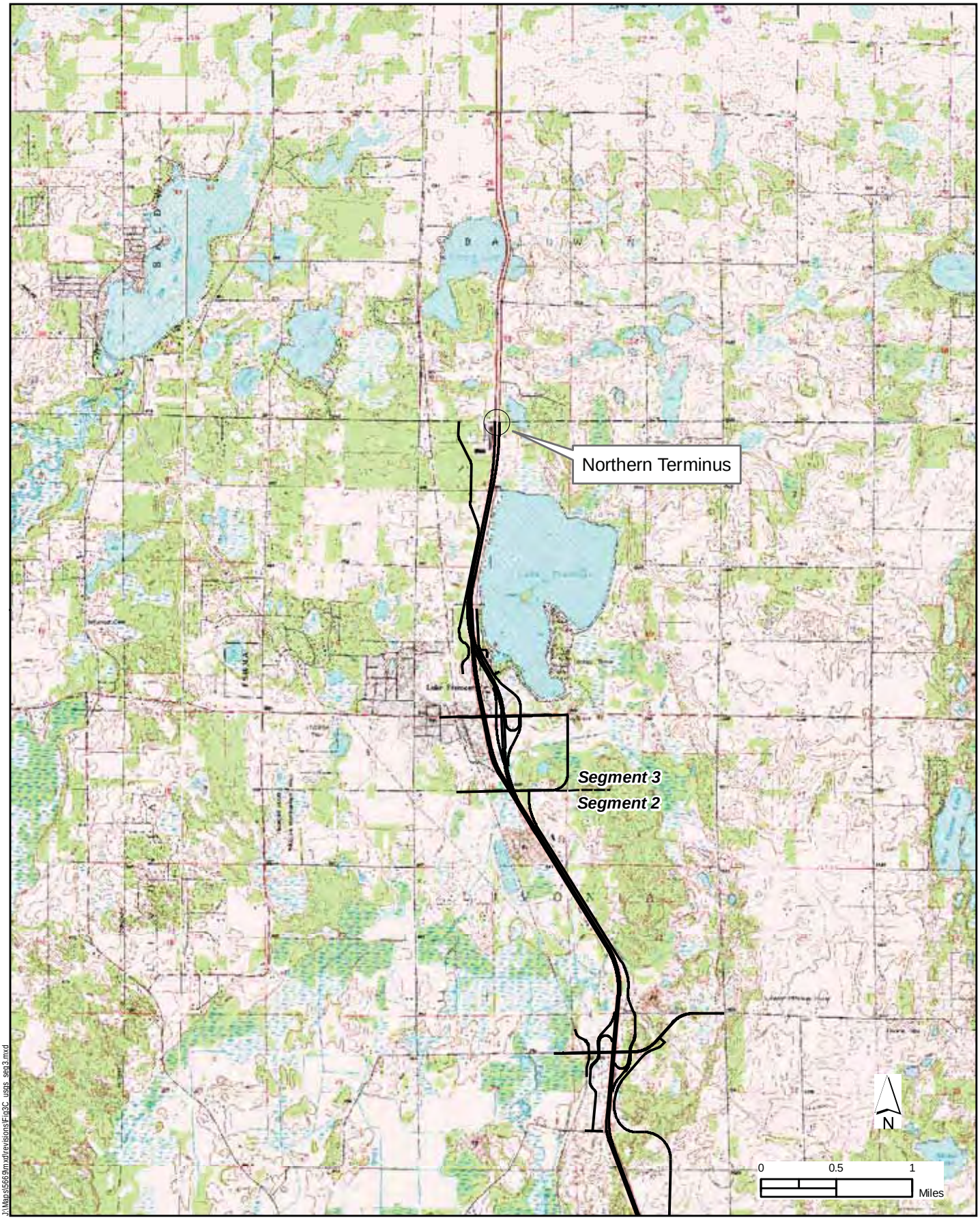
PROJECT LOCATION: SEGMENT TWO - USGS

Figure 3B

Segment Two: 197th Avenue NW to Livonia Township/City of Zimmerman Boundary

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71



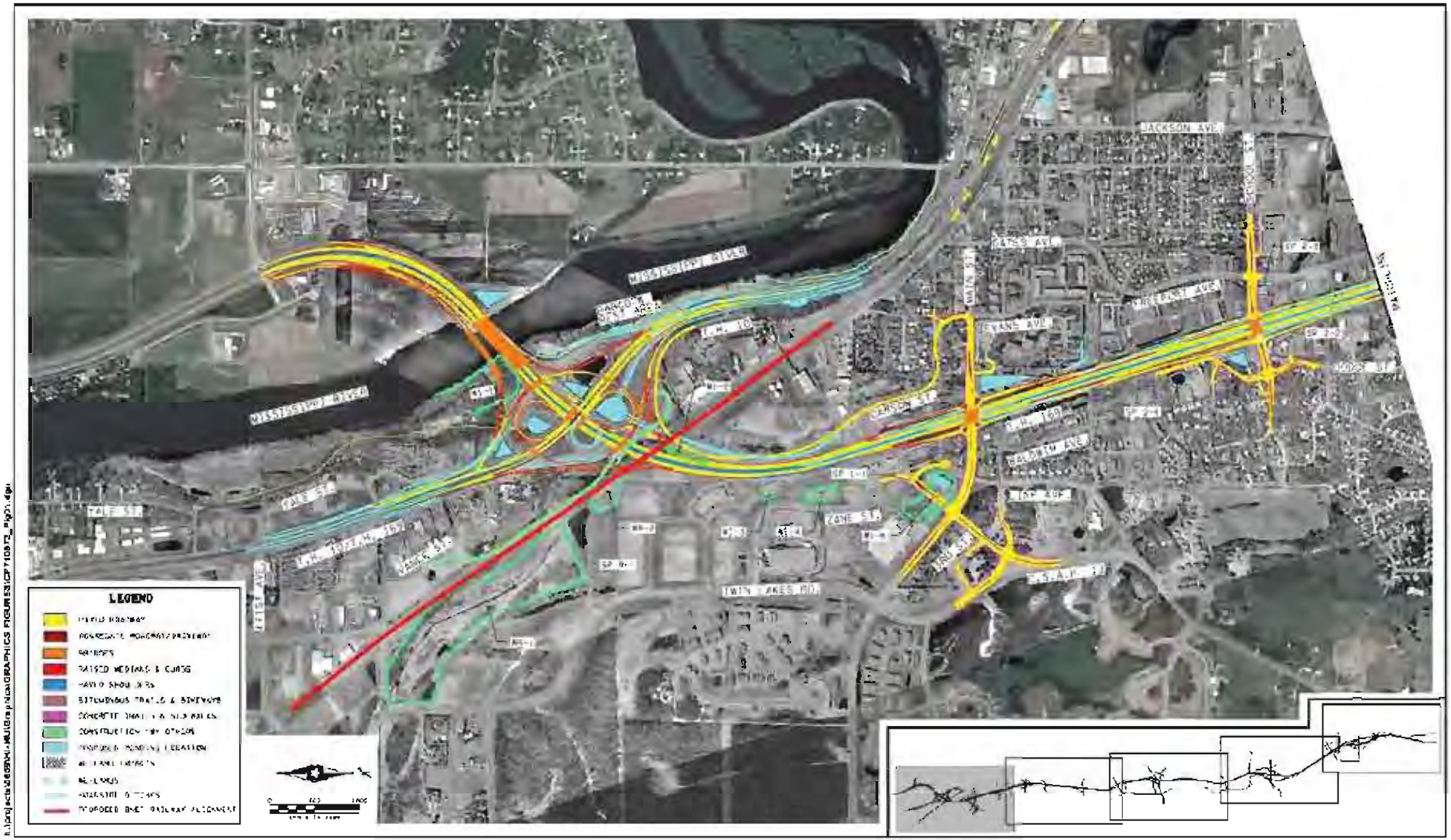
PROJECT LOCATION: SEGMENT THREE - USGS

Figure 3C

Segment Three: City of Zimmerman municipal boundary to 277th Avenue in Livonia Township

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71



PROPOSED IMPROVEMENTS / WETLAND IMPACTS

ENVIRONMENTAL ASSESSMENT
I.H. 169 - SP 7106-73 and 7106-71

Figure 4A

PROPOSED IMPROVEMENTS / WETLAND IMPACTS

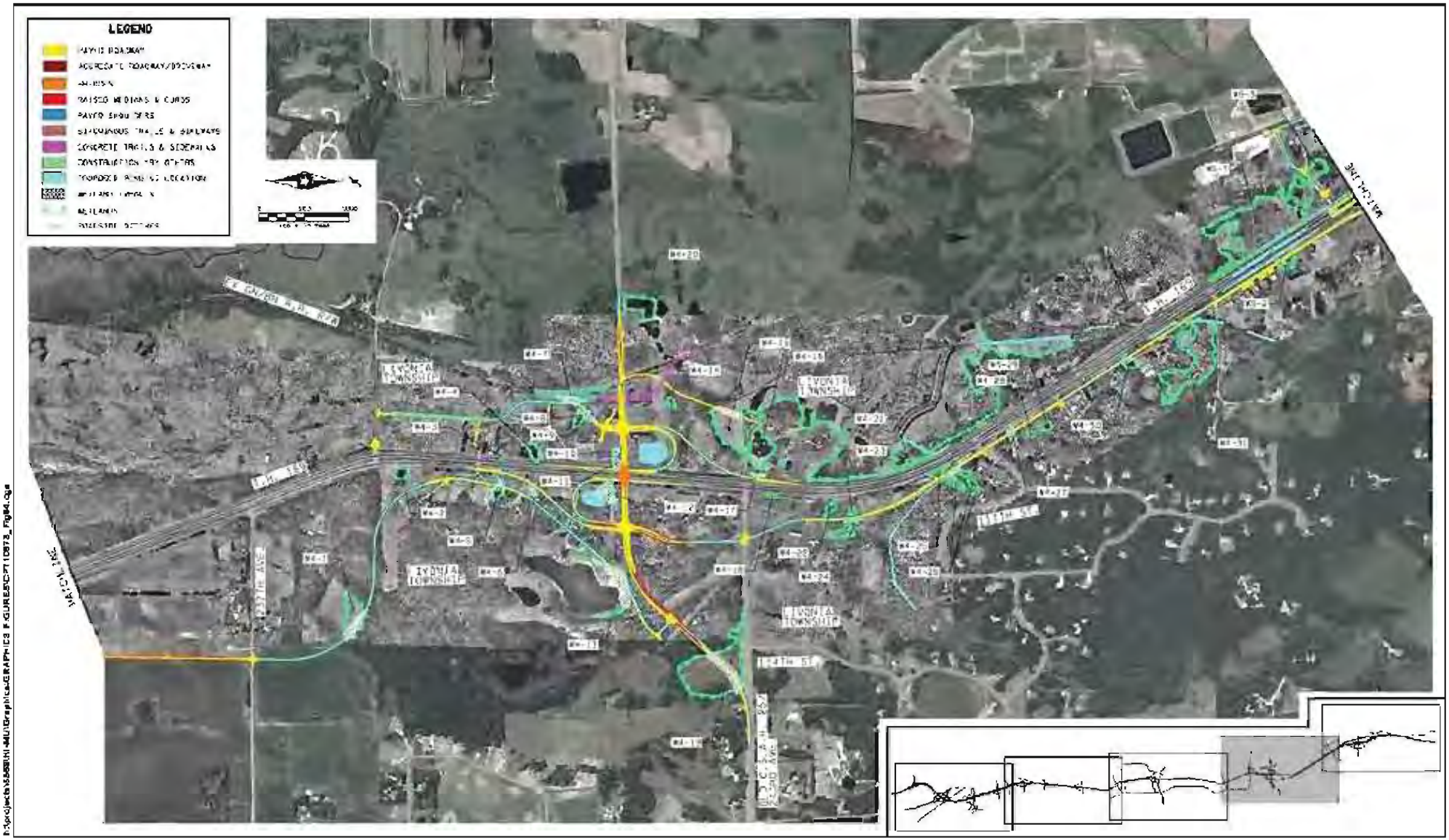
ENVIRONMENTAL ASSESSMENT
TH. 169 - SP 7106-73 and 7106-71

Figure 4B

PROPOSED IMPROVEMENTS / WETLAND IMPACTS

ENVIRONMENTAL ASSESSMENT
I.H. 169 - SP 7106-73 and 7106-71

Figure 4C


LEGEND
PAVED ROADWAY
AGGREGATE ROADWAY/DRIVEWAY
UNPAVED MEDIANS & CURBS
PAVED SHOULDERS
BITUMINOUS TRAILS & SIDEWALKS
CONCRETE TRAILS & SIDEWALKS
CONSTRUCTION TEMPORARIES
PROPOSED RIGHT-OF-WAY LOCATION
WETLANDS
EXISTING R/W
W1-1
W2-1
W3-1
W4-1
W5-1
W6-1
W7-1
W8-1
W9-1
W10-1
W11-1
W12-1
W13-1
W14-1
W15-1
W16-1
W17-1
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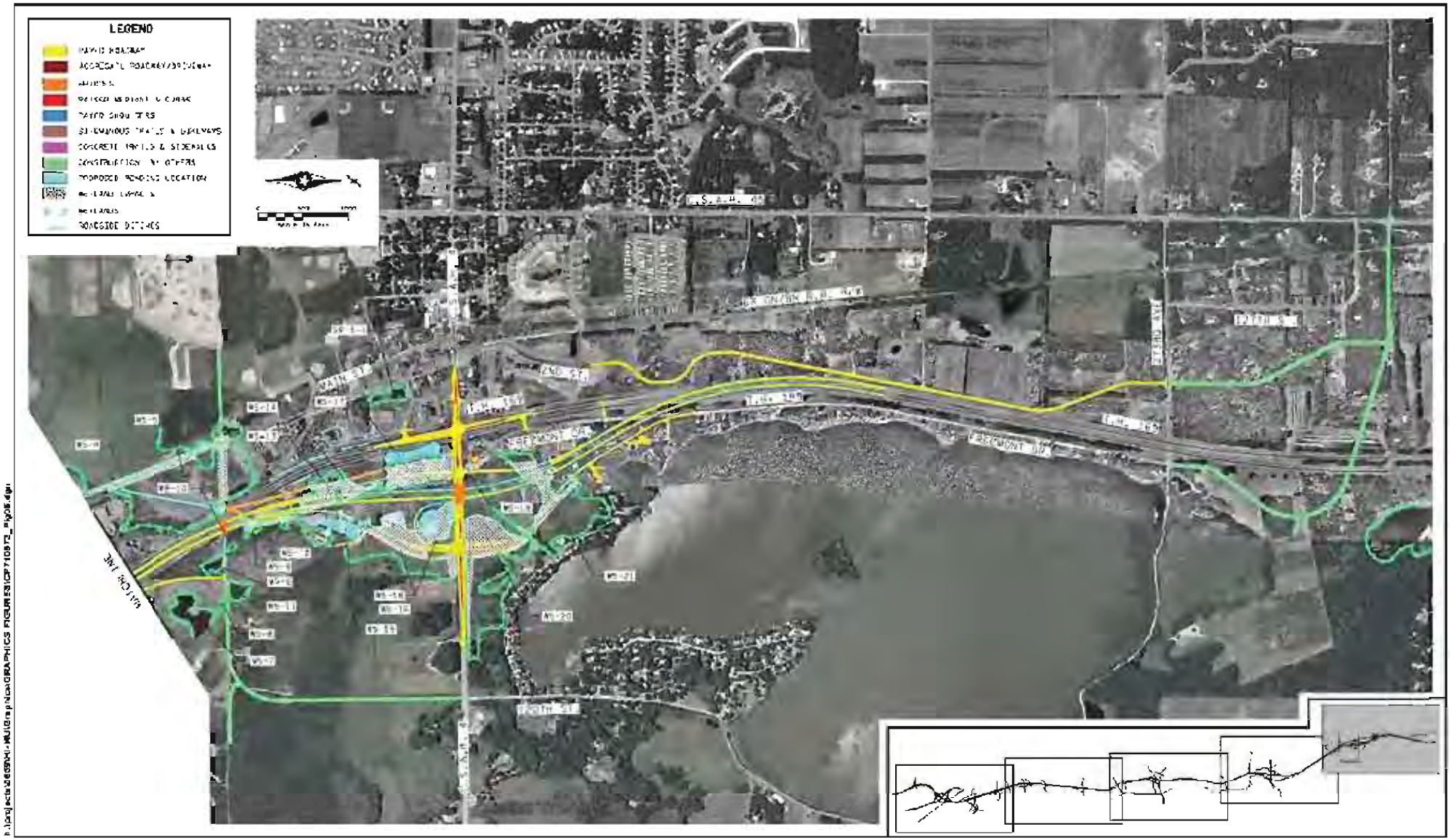
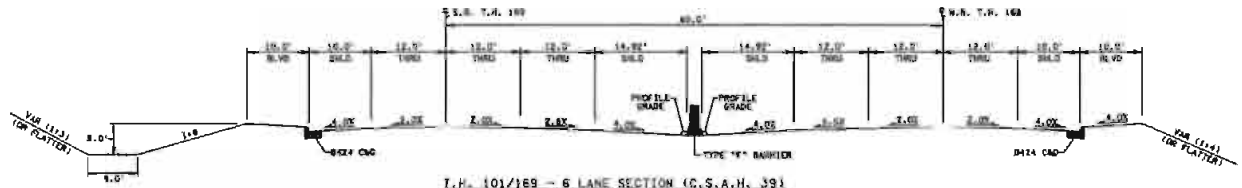
W40-1



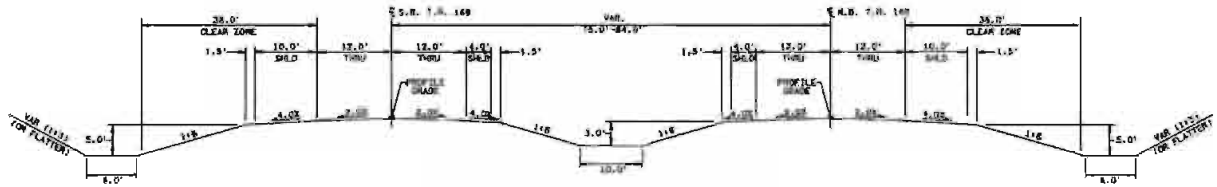
PROPOSED IMPROVEMENTS / WETLAND IMPACTS

ENVIRONMENTAL ASSESSMENT
I.H. 169 - SP 7106-73 and 7106-71

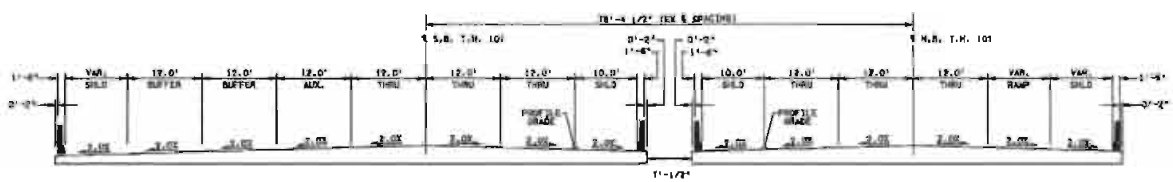
Figure 4E



T.H. 101/169 - 6 LANE SECTION (C.S.A.H. 39)
DESIGN SPEED = 70 MPH
ROAD DESIGN MANUAL TABLE 2-7.01D OR 2-7.01F, 4-4.01A & 4-4.01B



T.H. 169 - 4-LANE TYPICAL SECTION
(RURAL ELK RIVER, LIVONIA TOWNSHIP, ZIMMERMAN)
DESIGN SPEED = 70 MPH
ROAD DESIGN MANUAL TABLE 2-7.01D OR 2-7.01F, 4-4.01A & 4-4.01B



T.H. 101 - RIVER CROSSING BRIDGE (MISSISSIPPI RIVER)
DESIGN SPEED = 70 MPH
ROAD DESIGN MANUAL TABLE 9-2.01A AND FIG. 9-2.01A OR B AND 9-2.03A
BRIDGE DESIGN FIG A OR B 5-392.203 (T.H.)
BRIDGE DESIGN FIG I 5-392.203 (LOCAL)

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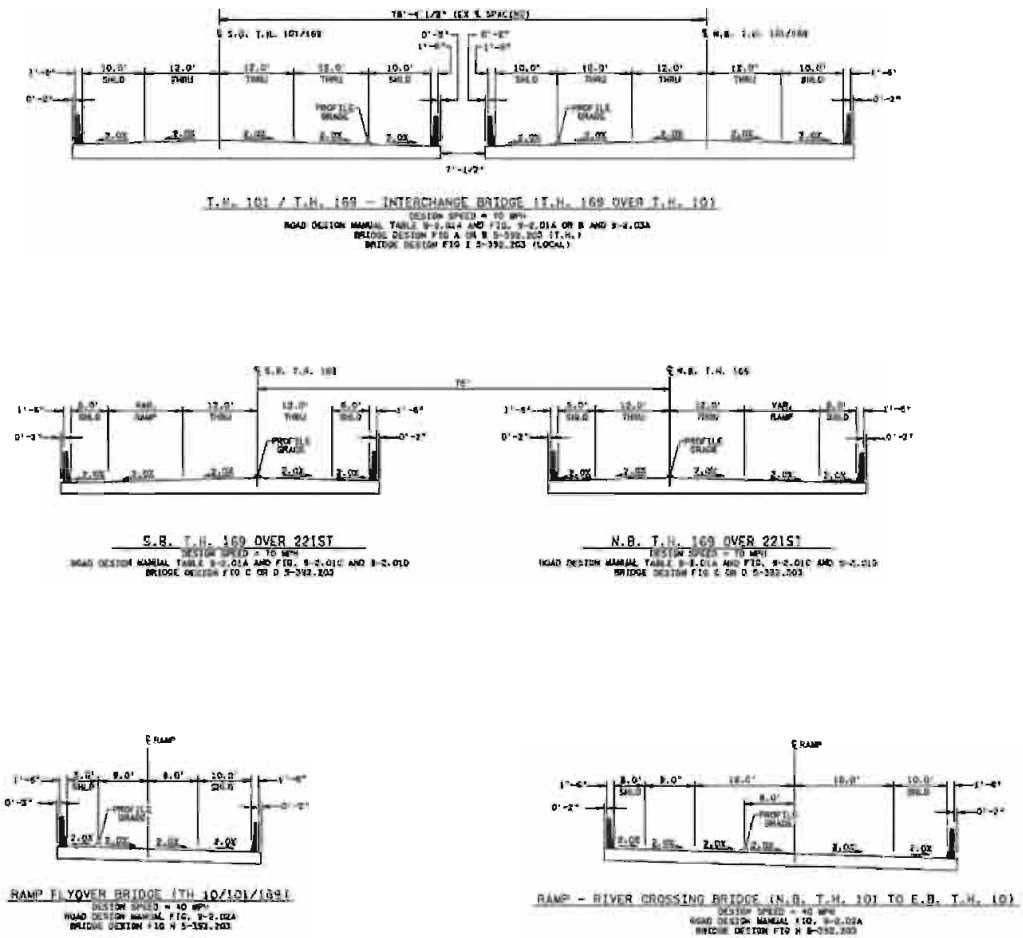
TYPICAL SECTIONS - T.H. 169

ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7106-73 and 7106-71

Figure 5A



TYPICAL SECTIONS - T.H. 169 BRIDGES

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71

Figure 5B

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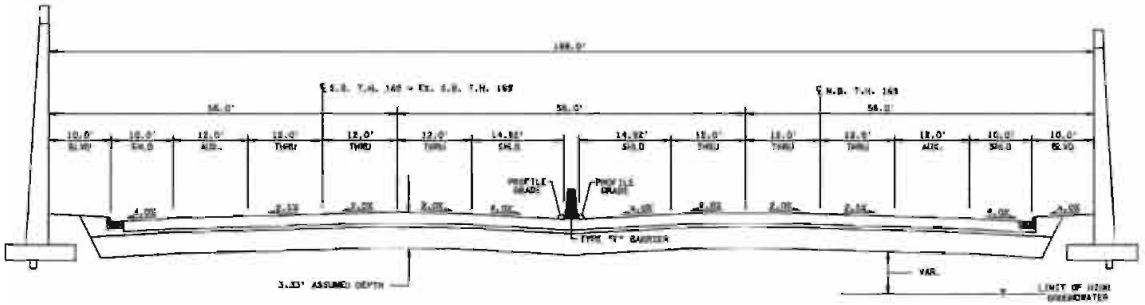
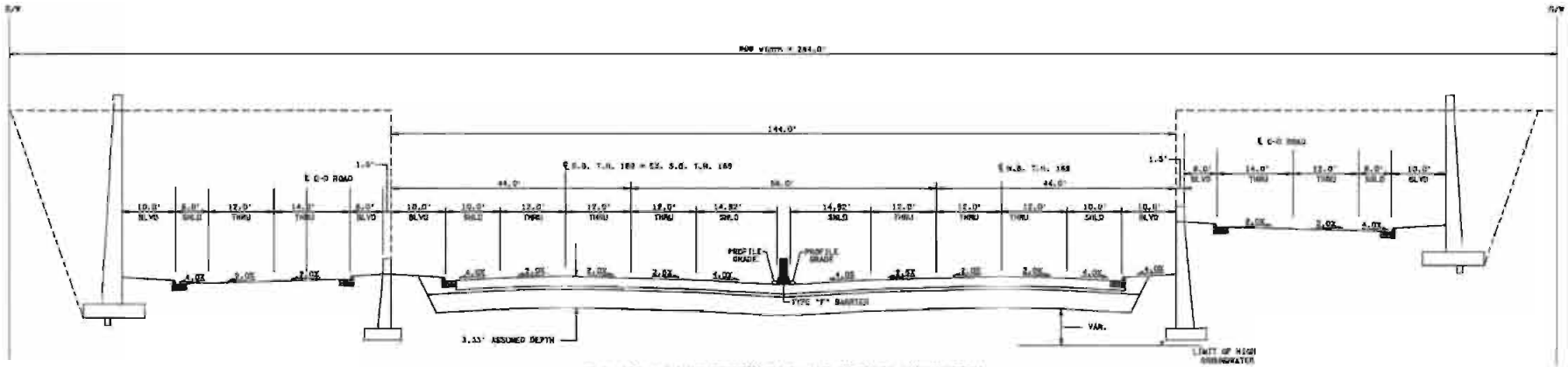


T.H. 169 FUTURE 3 LANE SECTION WITH AUXILIARY LANES
(SCHOOL STREET)
DESIGN SPEED = 70 MPH
ROAD DESIGN MANUAL TABLE 2-7.01D OR 2-7.01F, 4-4.01A & 4-4.01B



T.H. 169 - 3 LANE SECTION W/ 2-LANE CD ROADS (COMPRESSED)
(MAIN STEET, 193RD STREET, 19TH STREET)
DESIGN SPEED = 70 MPH
ROAD DESIGN MANUAL TABLE 2-7.01D OR 2-7.01F, 4-4.01A & 4-4.01B

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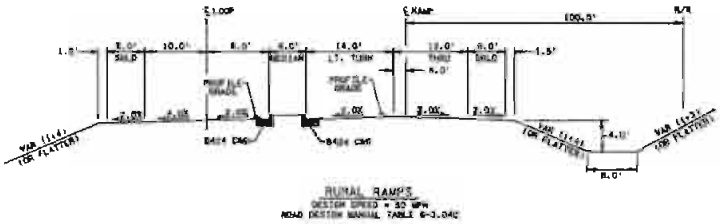
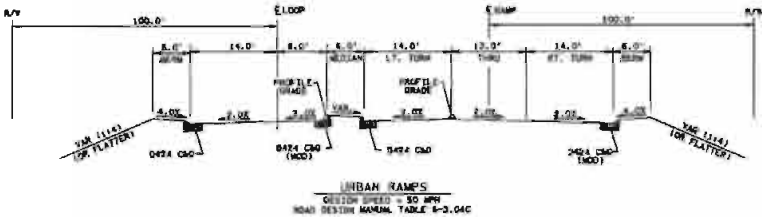
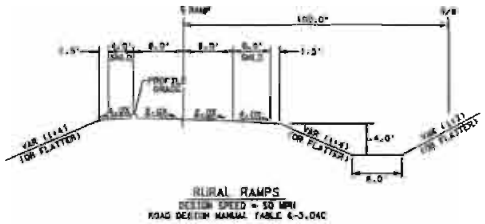
TYPICAL SECTIONS - T.H. 169 (URBAN ELK RIVER)

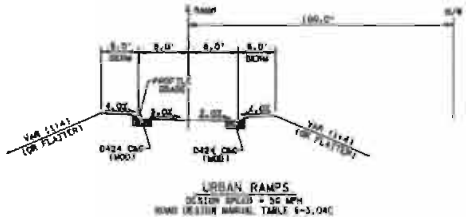
ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7106-73 and 7106-71

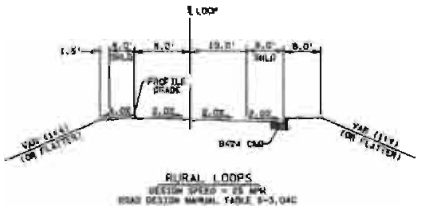
Figure 5C

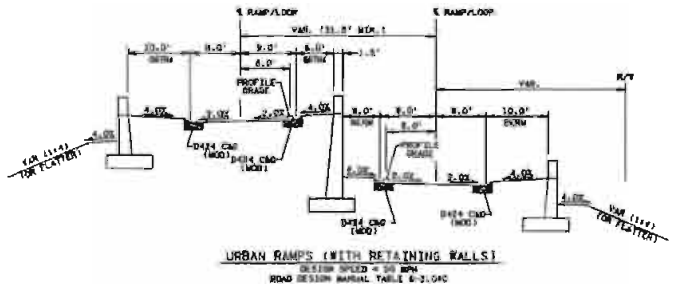












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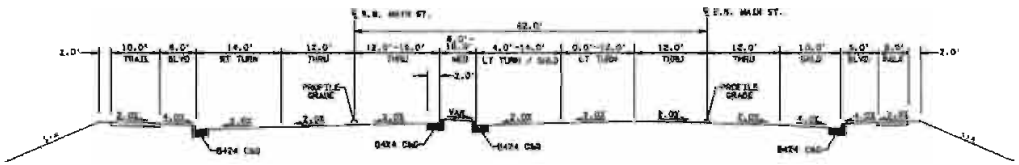
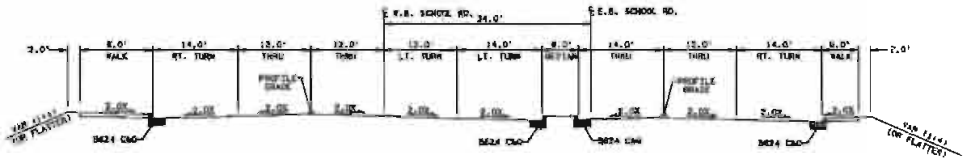
TYPICAL SECTIONS - T.H. 169 INTERCHANGE RAMPS & LOOPS

ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7106-73 and 7106-71

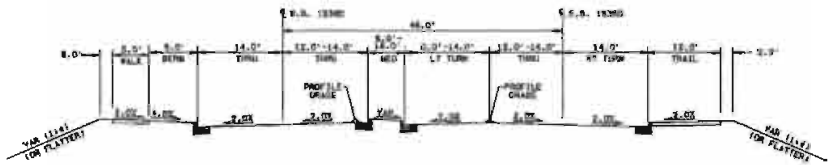
Figure 5D



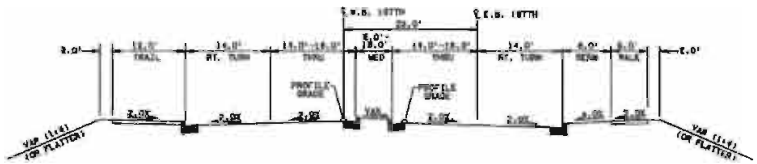
MAIN ST. - 4 LANE DIVIDED WITH TURN LANE SECTION



SCHOOL RD.



193RD ST. WITH TURN LANE



197TH ST. WITH TURN LANE

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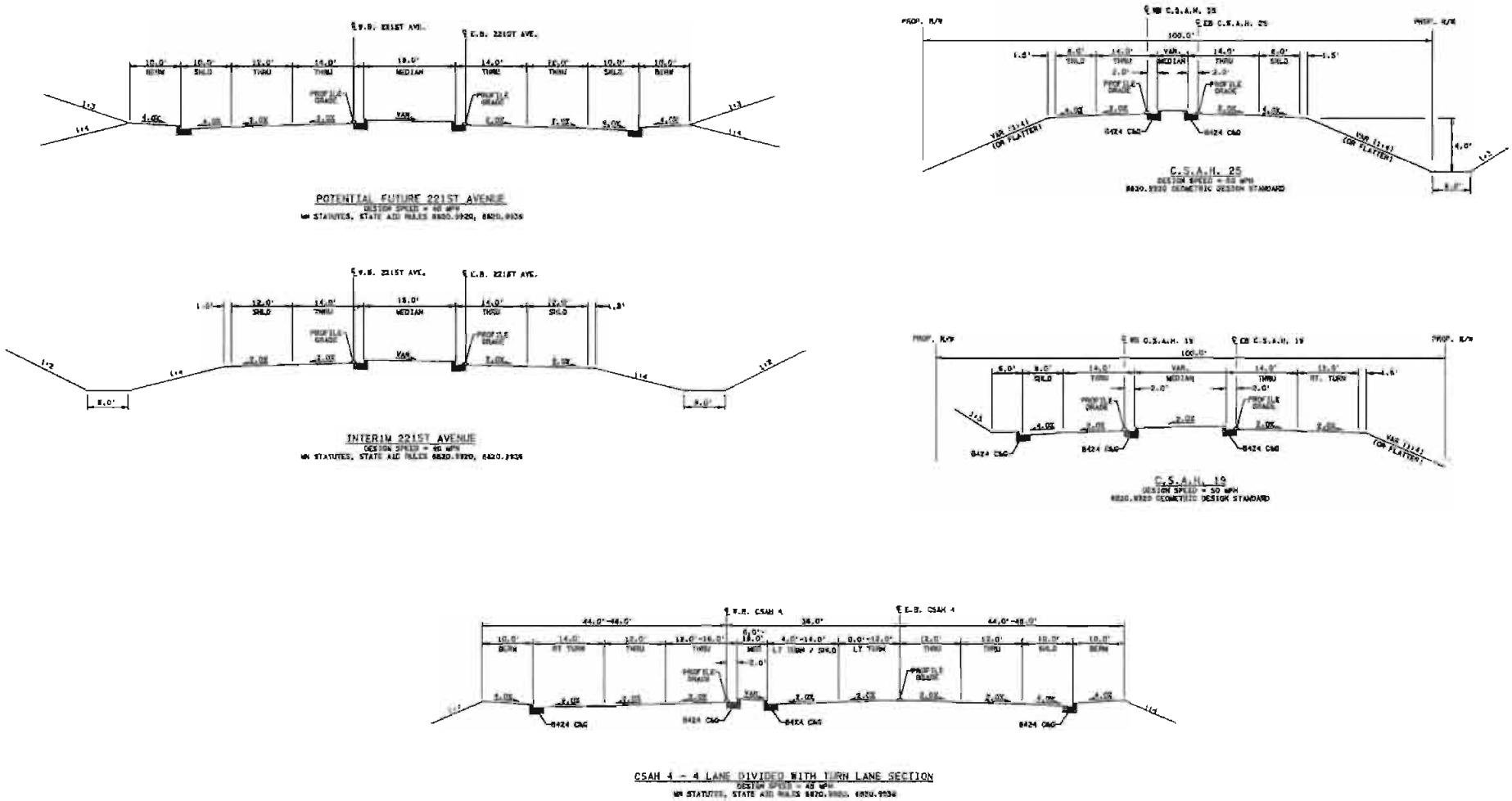
TYPICAL SECTIONS - INTERSECTING LOCAL ROADWAYS (URBAN ELK RIVER)

ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7106-73 and 7106-71

Figure 5E



TYPICAL SECTIONS - INTERSECTING LOCAL ROADWAYS (RURAL ELK RIVER, LIVONIA TOWNSHIP, ZIMMERMAN)

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71

Figure 5F

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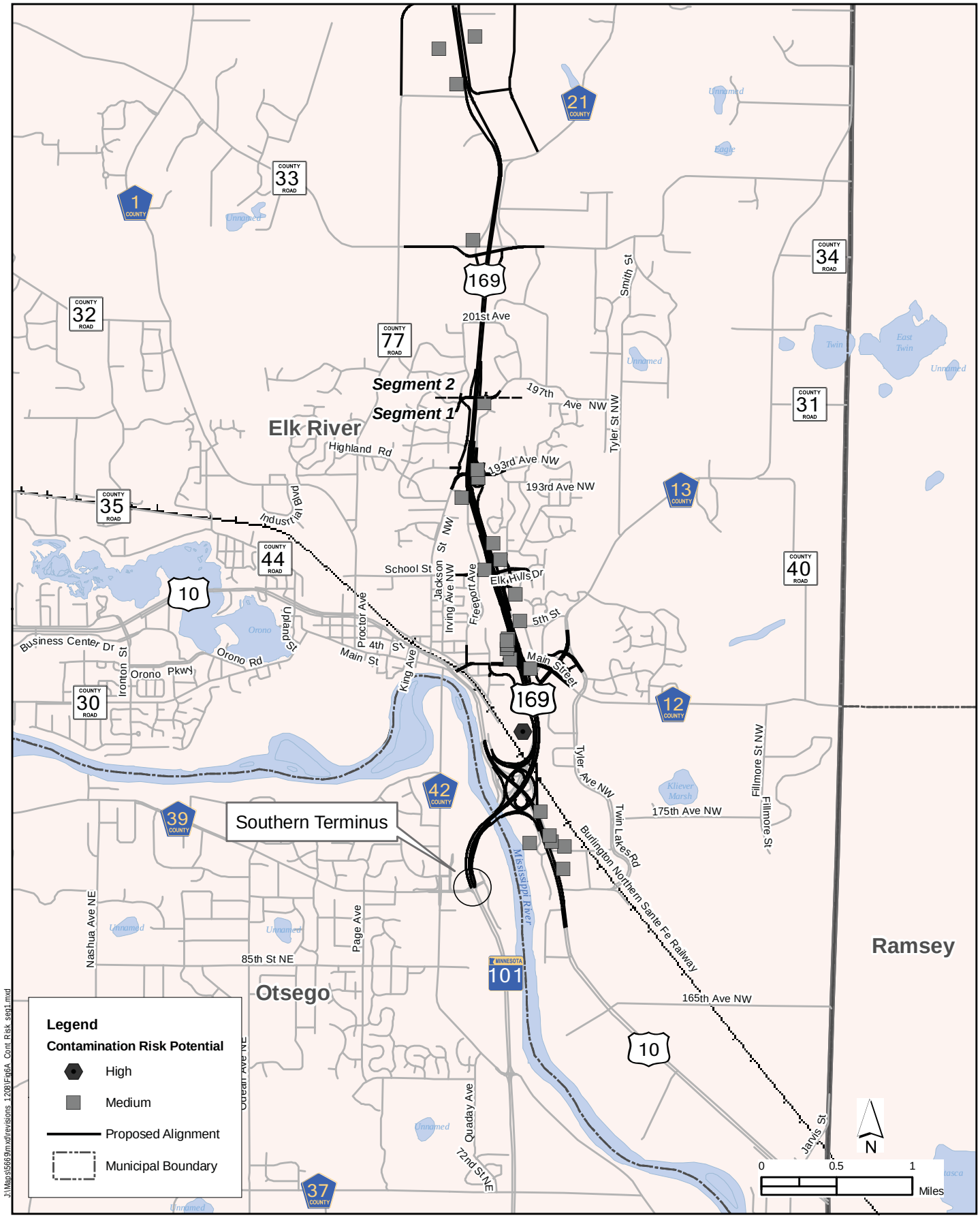


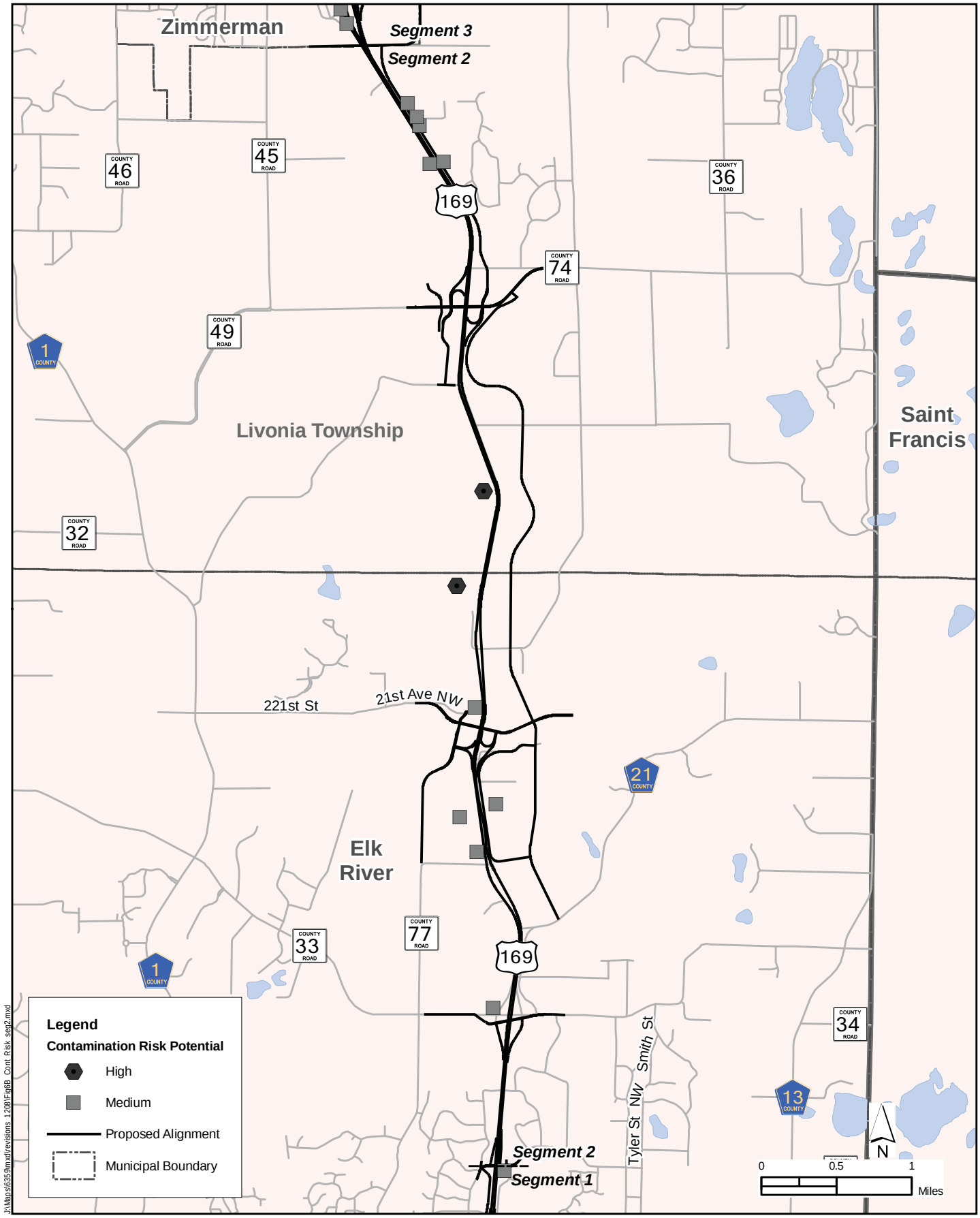
CONTAMINATION RISK POTENTIAL: SEGMENT ONE

Figure 6A

Segment One: CSAH 39 to197th Avenue NW

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71



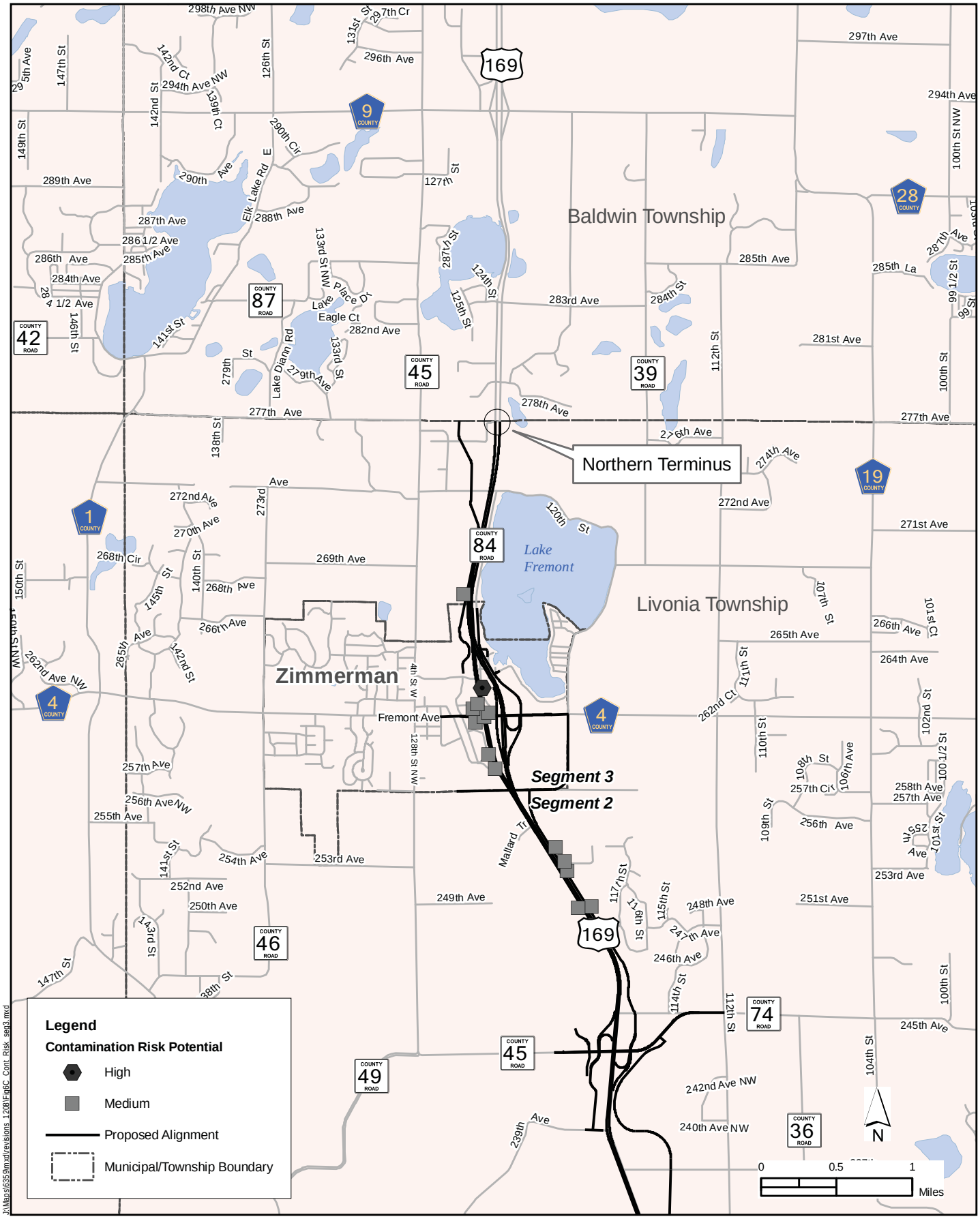
CONTAMINATION RISK POTENTIAL: SEGMENT TWO

Figure 6B

Segment Two: 197th Avenue NW to Livonia Township/City of Zimmerman Boundary

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71



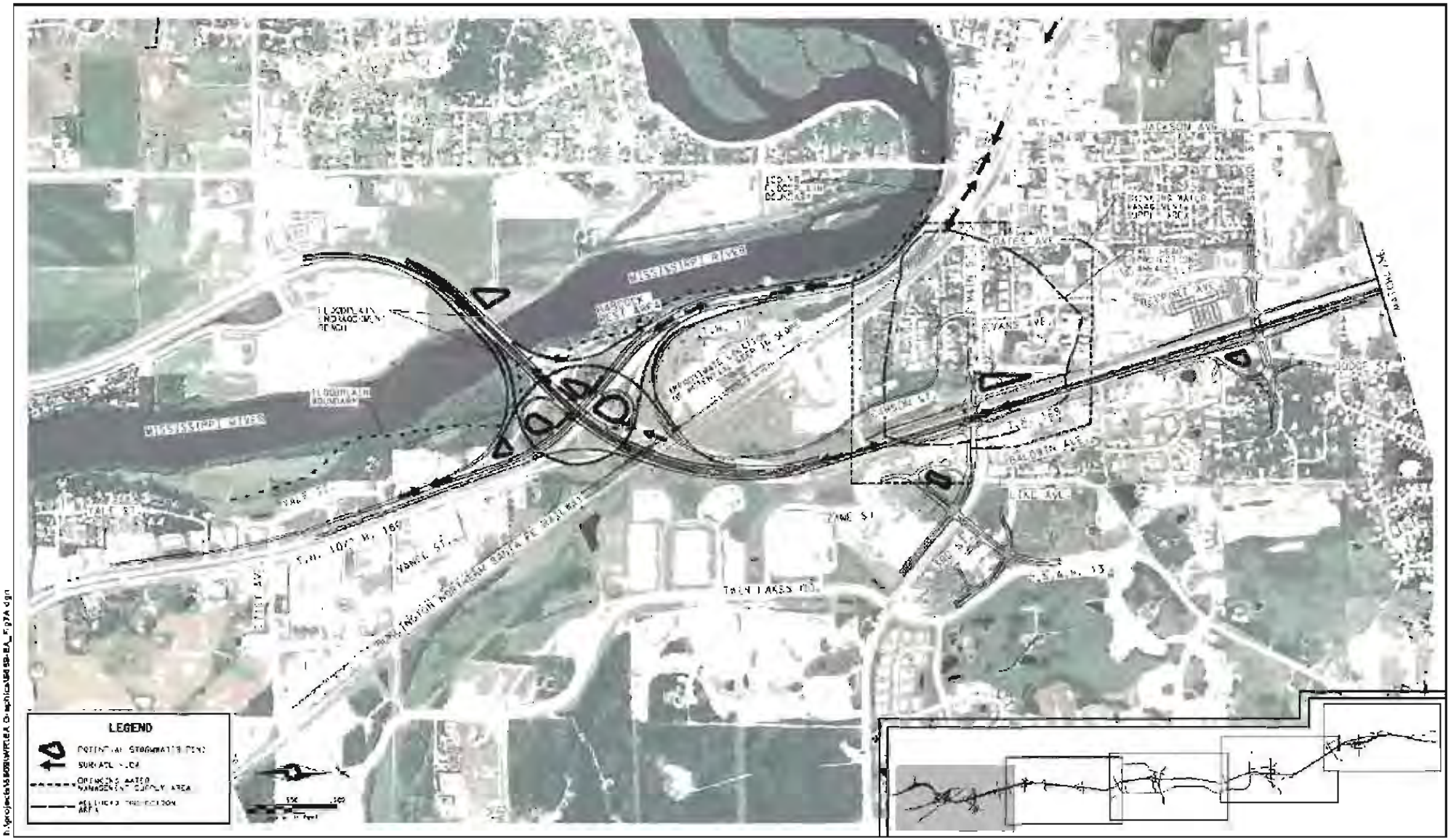
CONTAMINATION RISK POTENTIAL: SEGMENT THREE

Figure 6C

Segment Three: City of Zimmerman municipal boundary to 277th Avenue in Livonia Township

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71



HIGHWAY 169: WATER RESOURCES ISSUES MAP

ENVIRONMENTAL ASSESSMENT

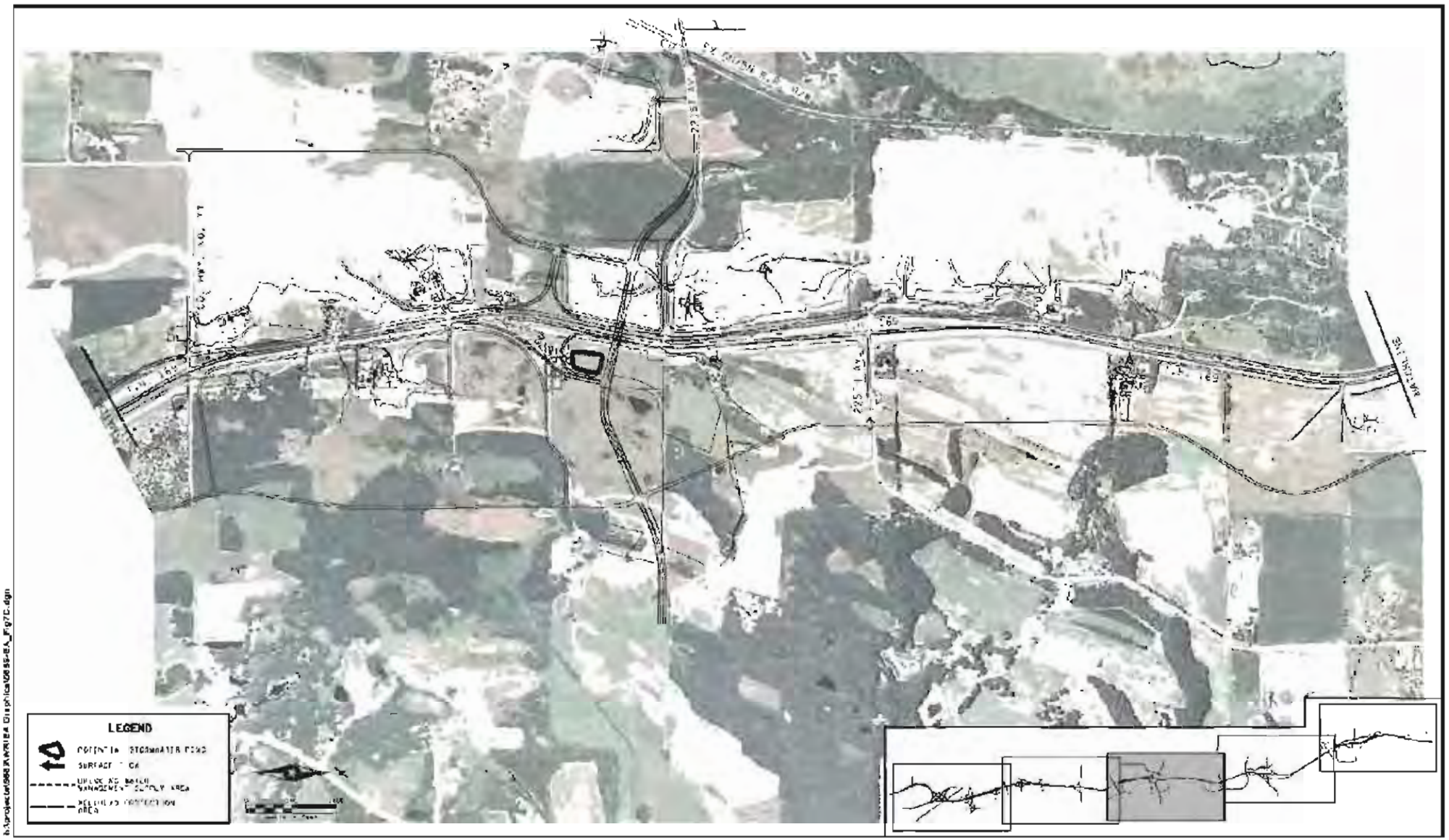
T.H. 169 - SP 7108-73 and 7108-71

Figure 7A

HIGHWAY 169: WATER RESOURCES ISSUES MAP

ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7106-73 and 7106-71

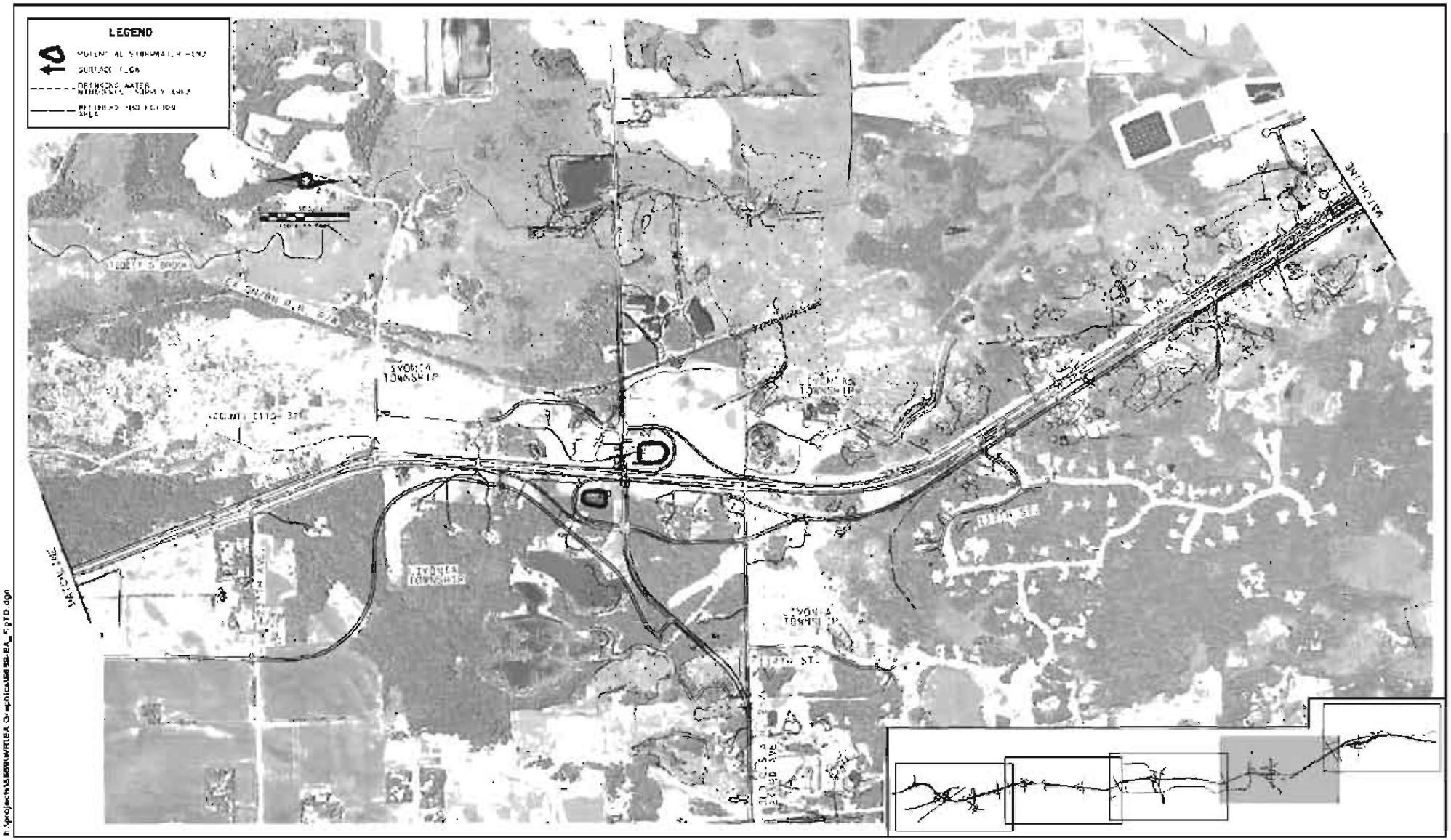
Figure 7B



HIGHWAY 169: WATER RESOURCES ISSUES MAP

ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7106-79 and 7106-71

Figure 7C



HIGHWAY 169: WATER RESOURCES ISSUES MAP

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71

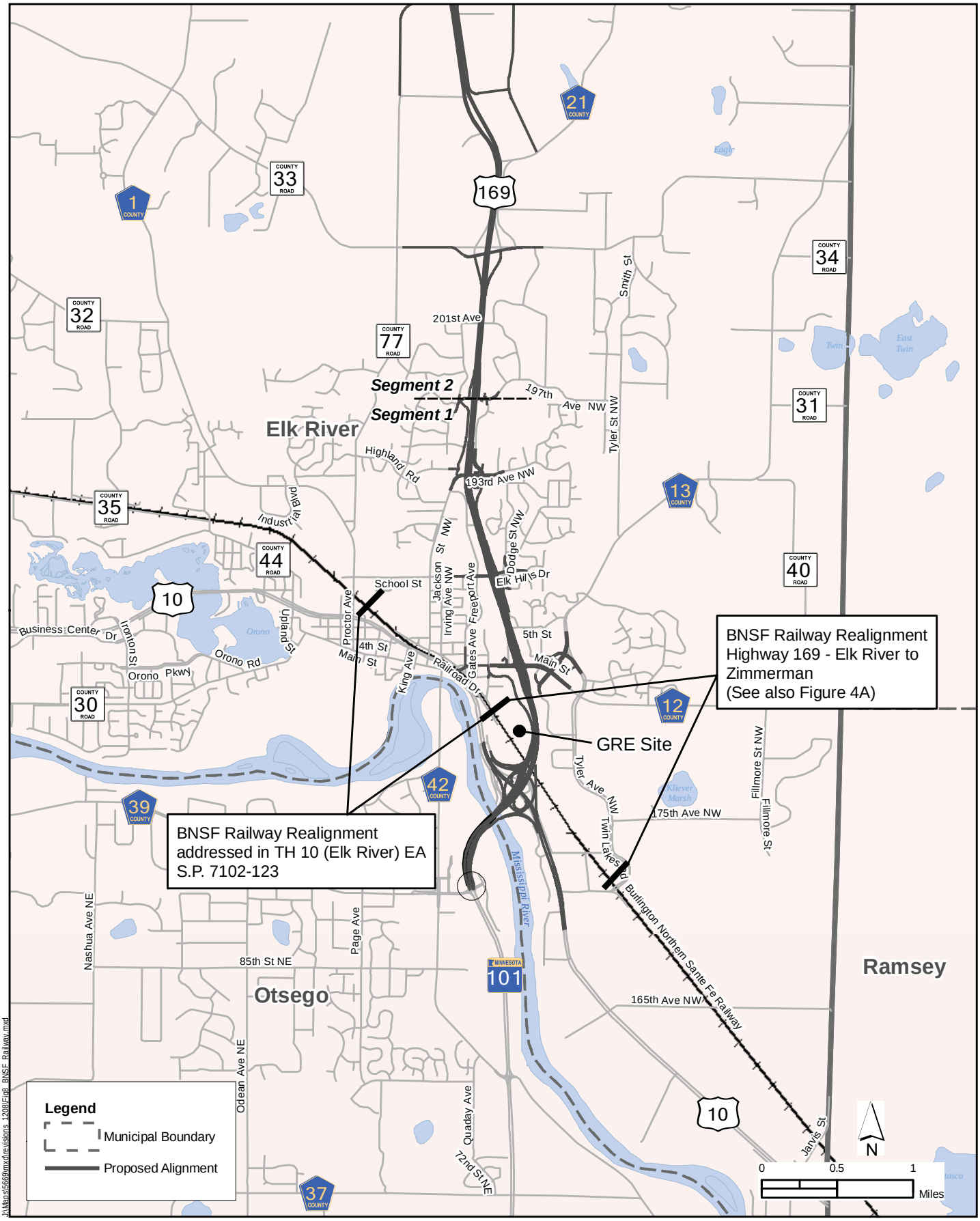
Figure 7D

HIGHWAY 169: WATER RESOURCES ISSUES MAP

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7108-73 and 7108-71

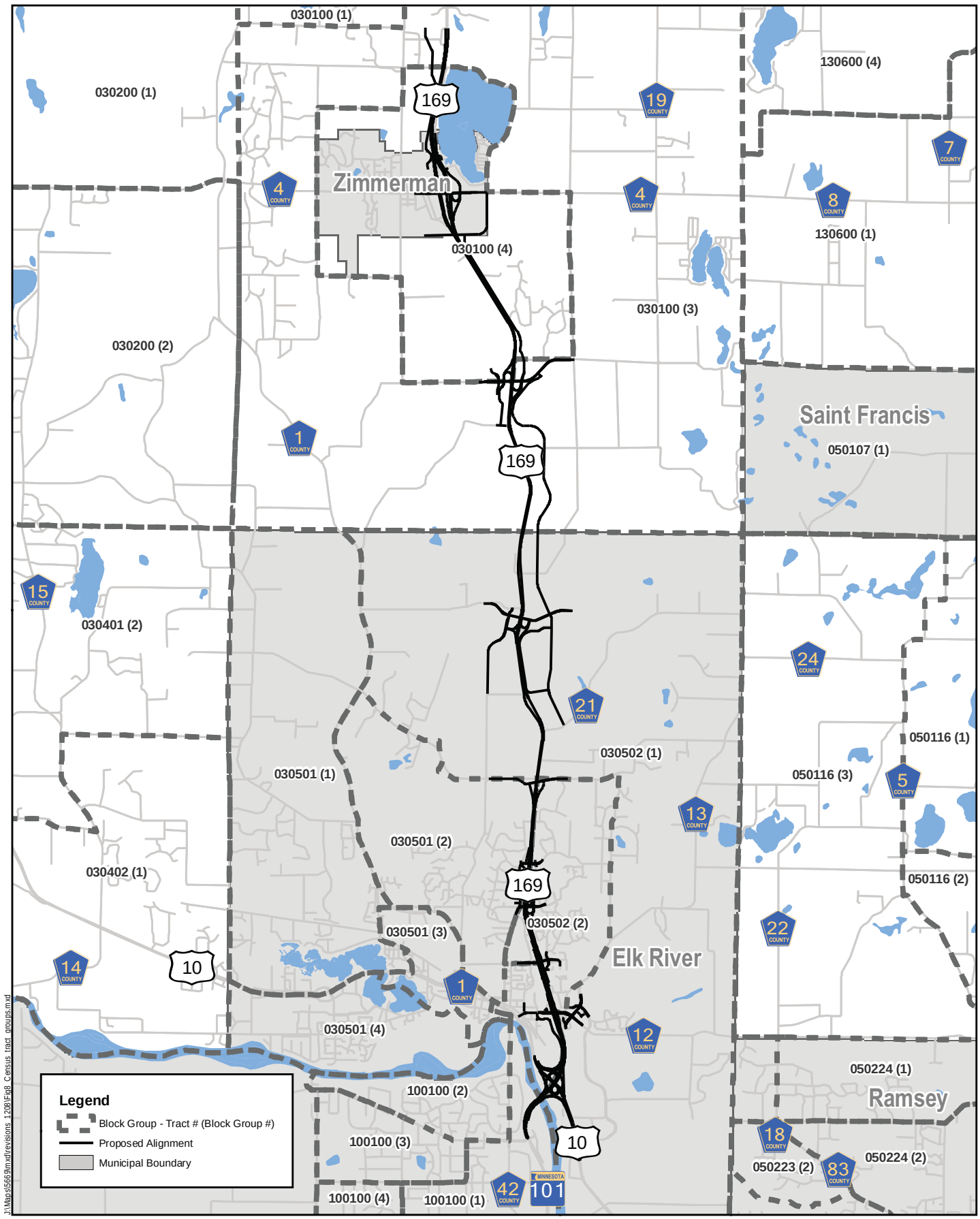
Figure 7E



BNSF Railway Realignment

Figure 8

ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7106-73 and 7106-71



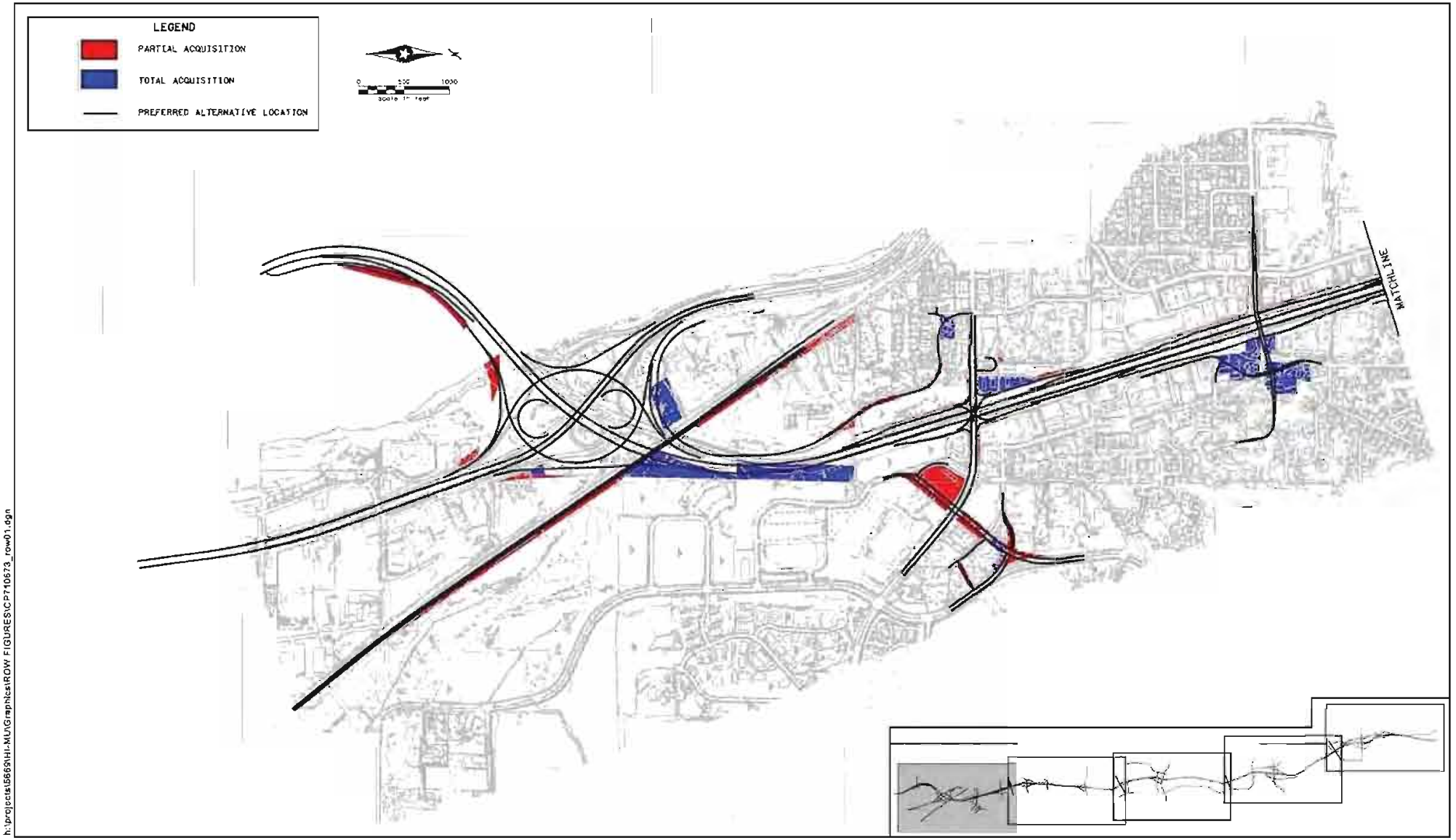
CENSUS BLOCK GROUPS

Figure 9

TH 169 - Elk River to Zimmerman

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71



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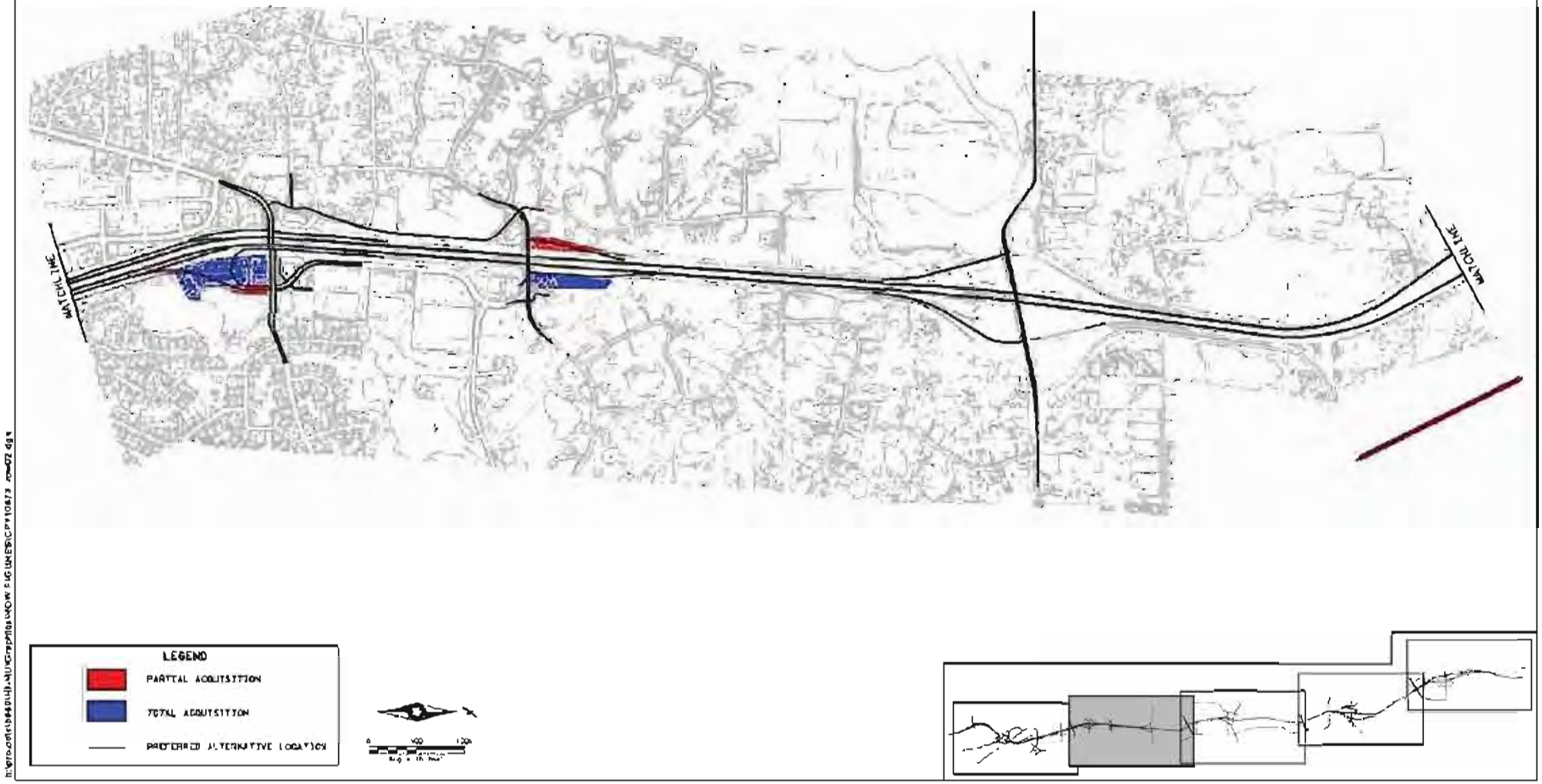
RIGHT-OF-WAY IMPACTS - (TOTAL/PARTIAL ACQUISITIONS)

ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7106-73 and 7106-71

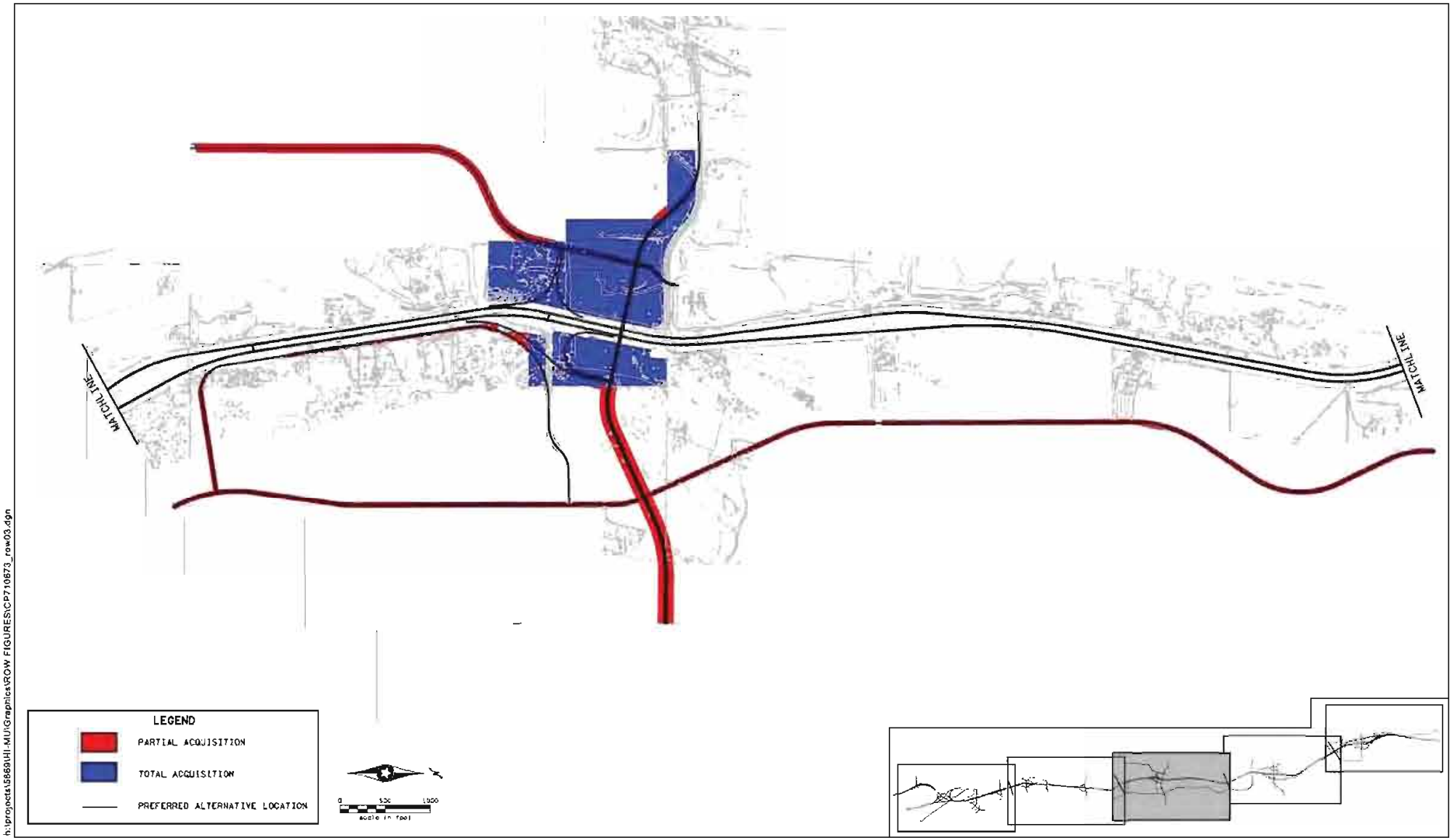
Figure 10 A



RIGHT-OF-WAY IMPACTS - (TOTAL/PARTIAL ACQUISITIONS)

ENVIRONMENTAL ASSESSMENT
T.H. 169 - SP 7108-73 and 7106-71

Figure 10B



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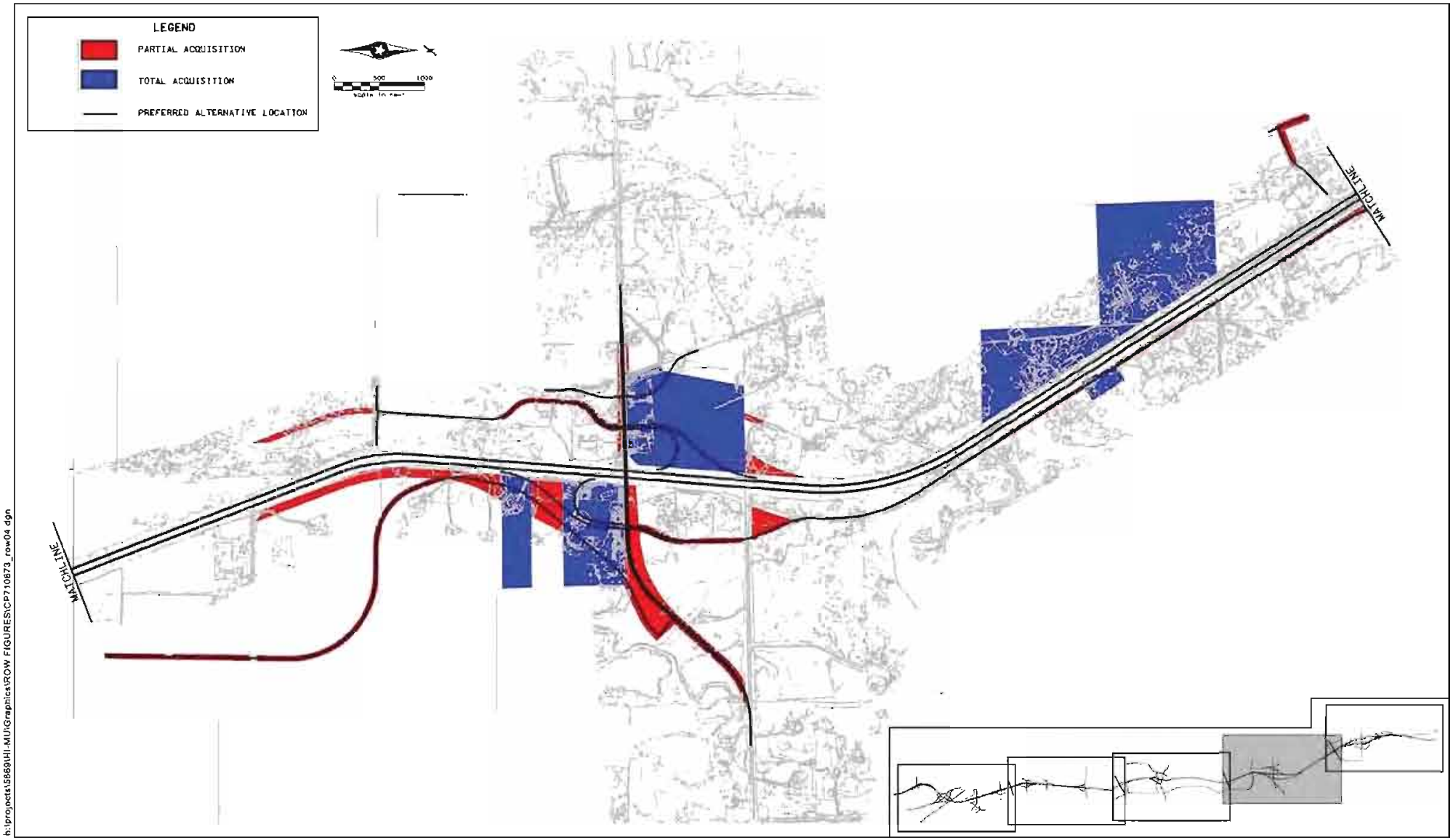
RIGHT-OF-WAY IMPACTS - (TOTAL/PARTIAL ACQUISITIONS)

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71

Figure 10C



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RIGHT-OF-WAY IMPACTS - (TOTAL/PARTIAL ACQUISITIONS)

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71

Figure 10D

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RIGHT-OF-WAY IMPACTS - (TOTAL/PARTIAL ACQUISITIONS)

ENVIRONMENTAL ASSESSMENT

T.H. 169 - SP 7106-73 and 7106-71

Figure 10E