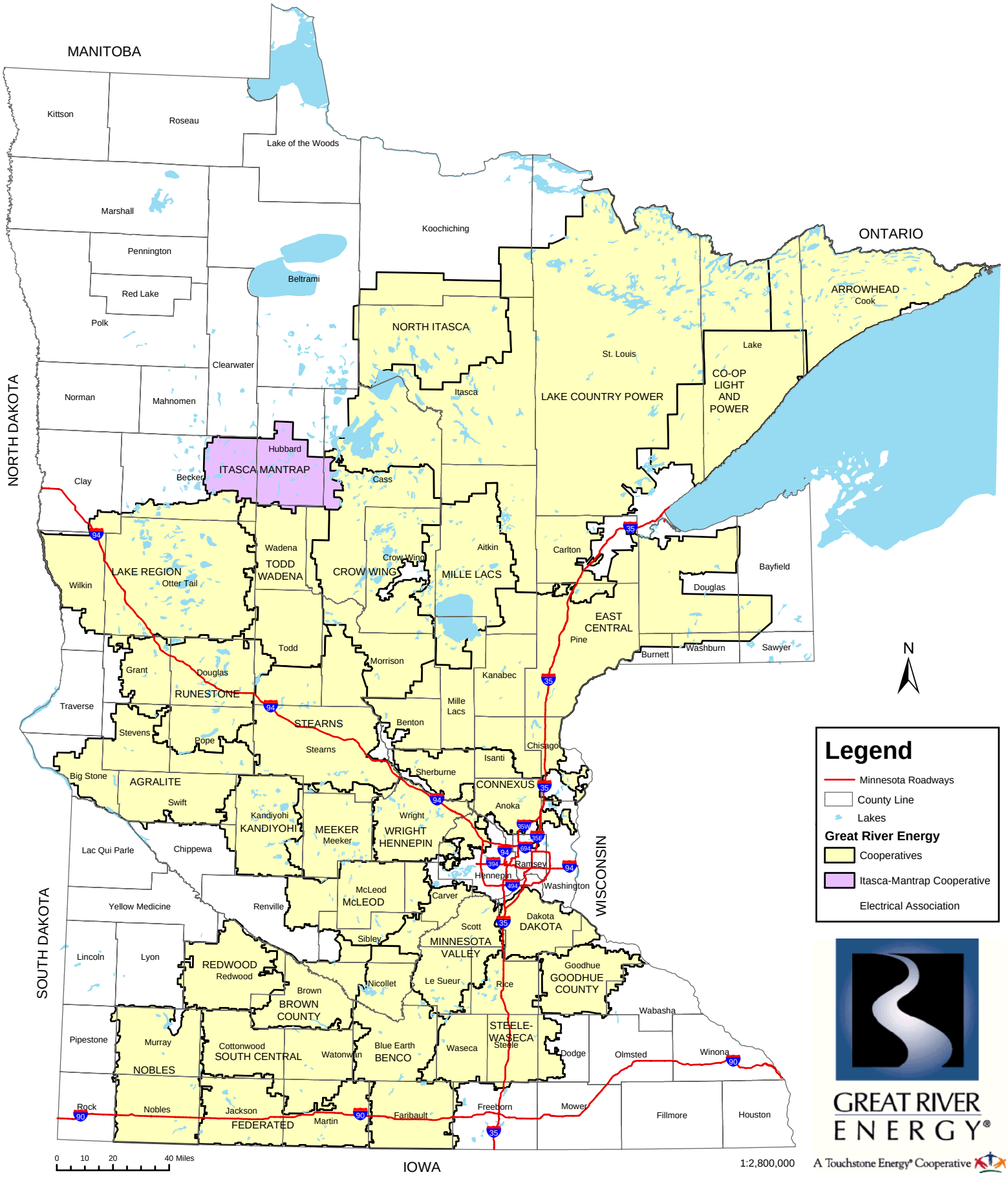
Figure 1-1
GRE Service Territory



Updated: 03/08/2006

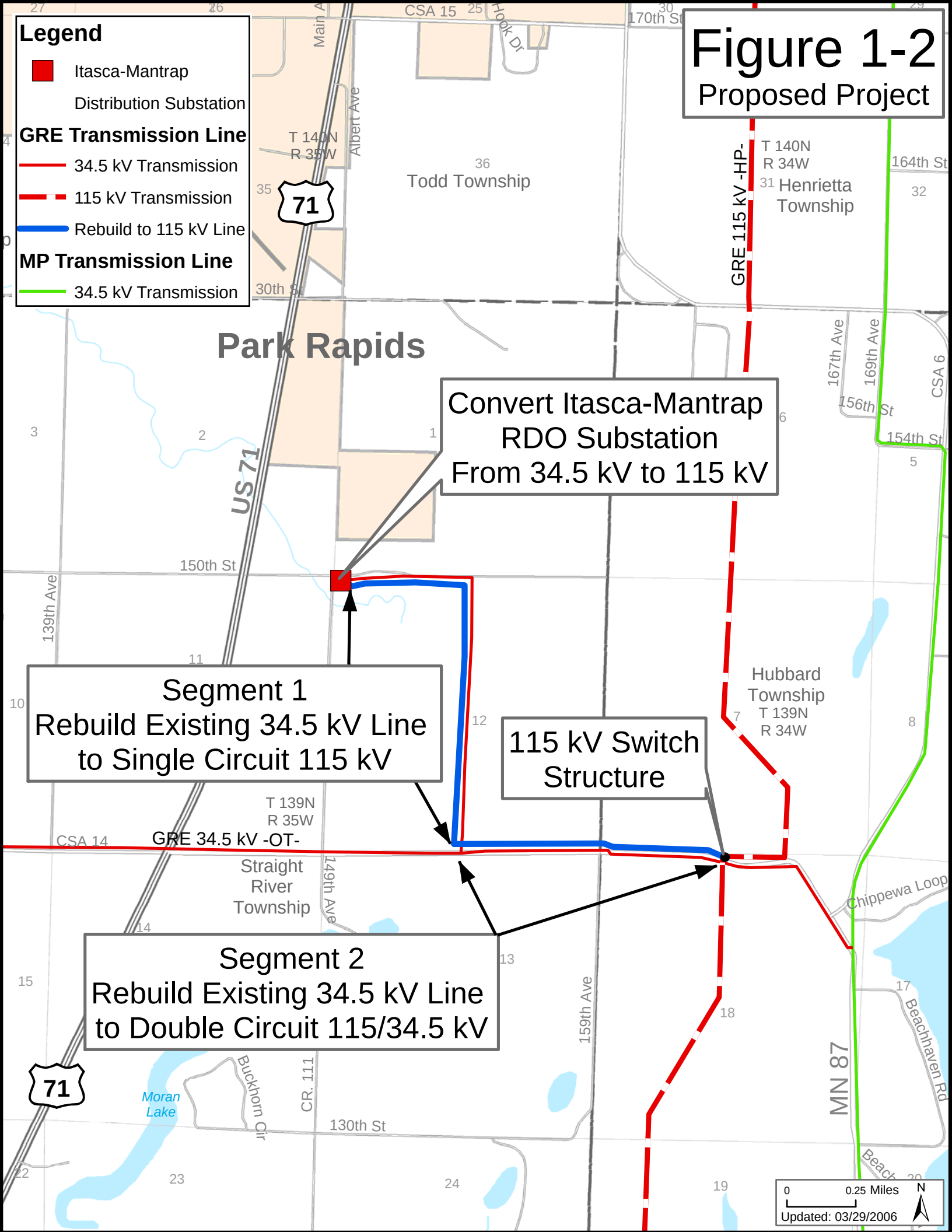
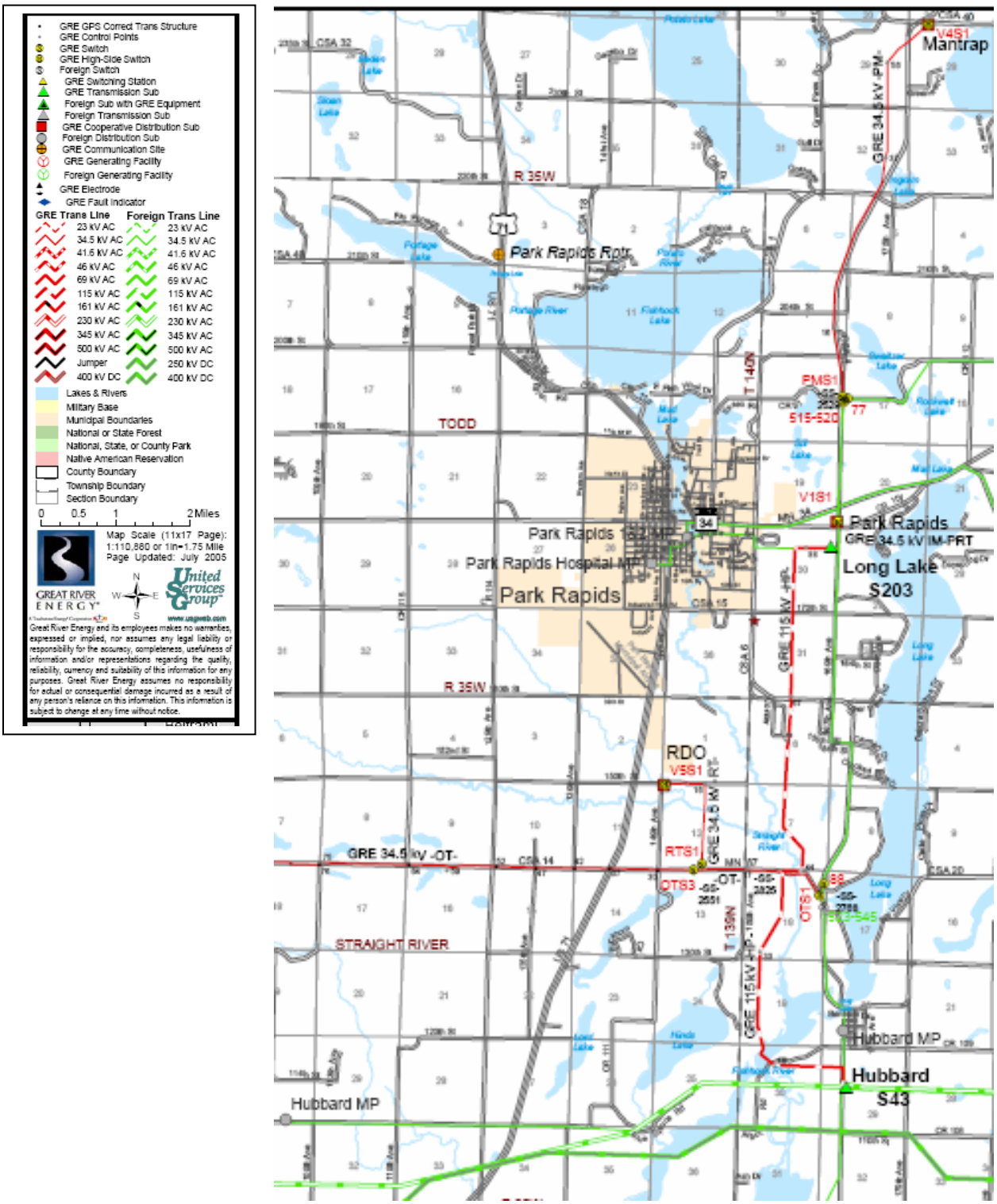


Figure 1-2
Proposed Project
Legend
Itasca-Mantrap
Distribution Substation
GRE Transmission Line
34.5 kV Transmission
115 kV Transmission
Rebuild to 115 kV Line
MP Transmission Line
34.5 kV Transmission
Park Rapids
Todd Township
Henrietta Township
Hubbard Township
Straight River Township
T 140N R 35W
T 140N R 34W
T 139N R 35W
T 139N R 34W
GRE 115 kV -HP-
GRE 34.5 kV -OT-
US 71
MN 87
CSA 15
CSA 14
CSA 6
170th St
164th St
156th St
154th St
150th St
130th St
30th St
Main Ave
Albert Ave
Hook Dr
167th Ave
169th Ave
139th Ave
149th Ave
159th Ave
Chippewa Loop
Beachhaven Rd
Buckhorn Cir
CR. 111
Moran Lake
Convert Itasca-Mantrap RDO Substation From 34.5 kV to 115 kV
Segment 1 Rebuild Existing 34.5 kV Line to Single Circuit 115 kV
115 kV Switch Structure
Segment 2 Rebuild Existing 34.5 kV Line to Double Circuit 115/34.5 kV
0 0.25 Miles
N
Updated: 03/29/2006

Figure 2-1 Park Rapids Area Transmission System



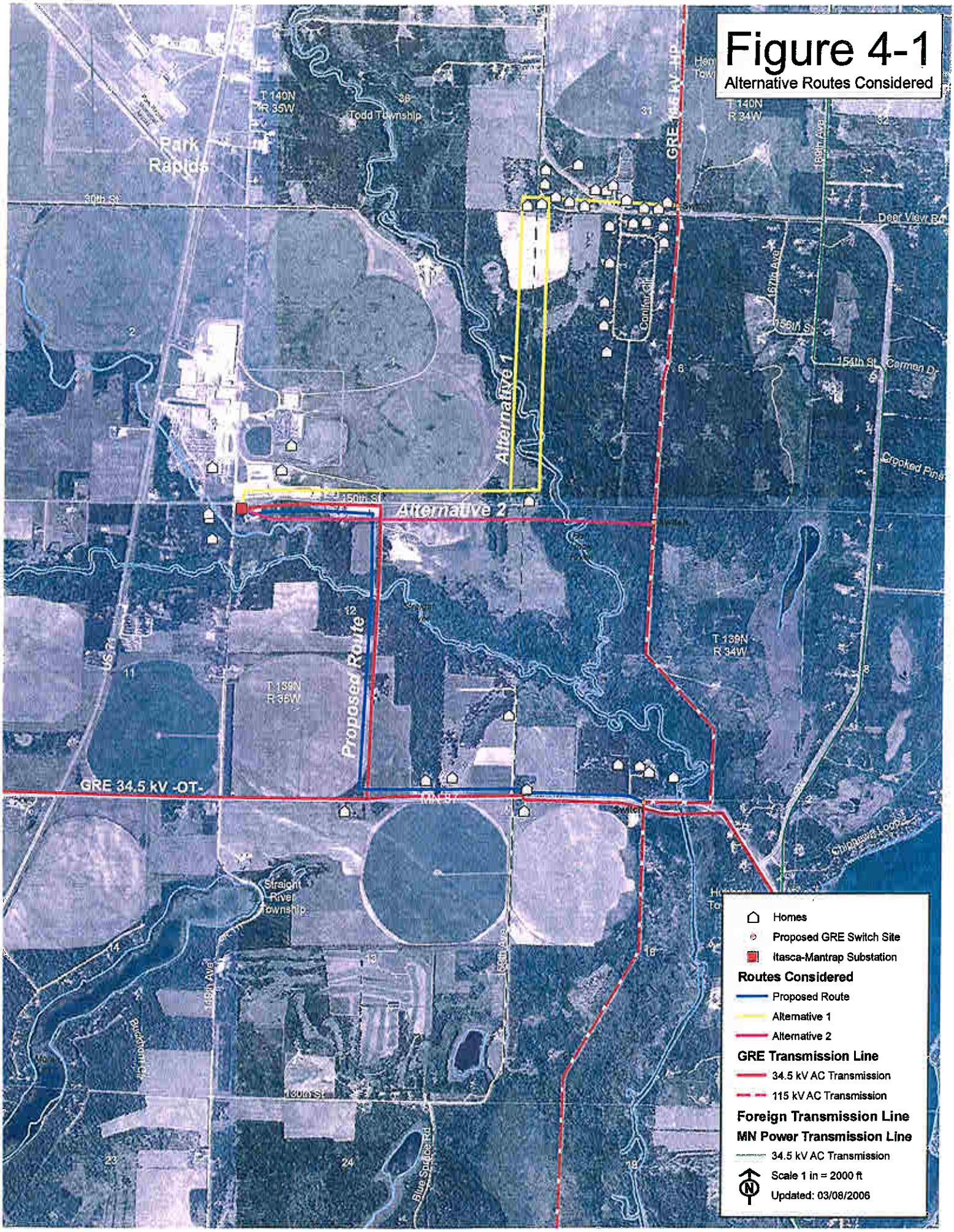


Figure 4-1
Alternative Routes Considered
Park Rapids
Todd Township
T 140N
R 35W
T 140N
R 34W
GRE 116 kV -HP
Deer View Rd
Alternative 1
Alternative 2
Proposed Route
T 139N
R 35W
T 139N
R 34W
GRE 34.5 kV -OT-
Straight River Township
Crooked Pine
Homes
Proposed GRE Switch Site
Itasca-Mantrap Substation
Routes Considered
Proposed Route
Alternative 1
Alternative 2
GRE Transmission Line
34.5 kV AC Transmission
115 kV AC Transmission
Foreign Transmission Line
MN Power Transmission Line
34.5 kV AC Transmission
Scale 1 in = 2000 ft
Updated: 03/08/2006

Figure 5-1

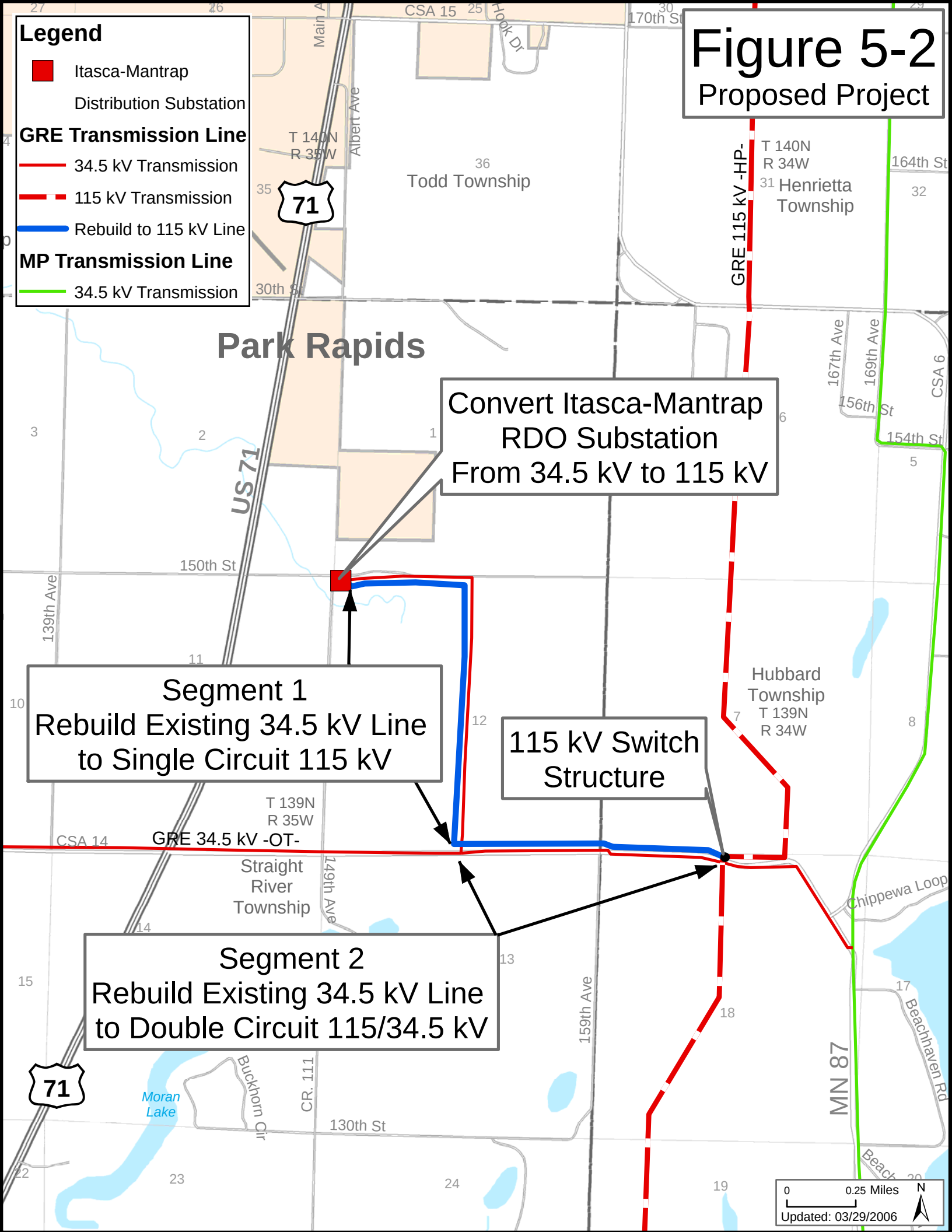


Figure 5-2
Proposed Project
Legend
Itasca-Mantrap
Distribution Substation
GRE Transmission Line
34.5 kV Transmission
115 kV Transmission
Rebuild to 115 kV Line
MP Transmission Line
34.5 kV Transmission
Park Rapids
Todd Township
Henrietta Township
Hubbard Township
Straight River Township
T 140N R 35W
T 140N R 34W
T 139N R 35W
T 139N R 34W
GRE 115 kV -HP-
GRE 34.5 kV -OT-
US 71
MN 87
CSA 15
CSA 14
CSA 6
170th St
164th St
156th St
154th St
150th St
130th St
30th St
Albert Ave
Main Ave
Hook Dr
167th Ave
169th Ave
139th Ave
149th Ave
159th Ave
Chippewa Loop
Beachhaven Rd
Buckhorn Cir
CR. 111
Moran Lake
Convert Itasca-Mantrap RDO Substation From 34.5 kV to 115 kV
Segment 1 Rebuild Existing 34.5 kV Line to Single Circuit 115 kV
115 kV Switch Structure
Segment 2 Rebuild Existing 34.5 kV Line to Double Circuit 115/34.5 kV
0 0.25 Miles
N
Updated: 03/29/2006

Figure 5-3

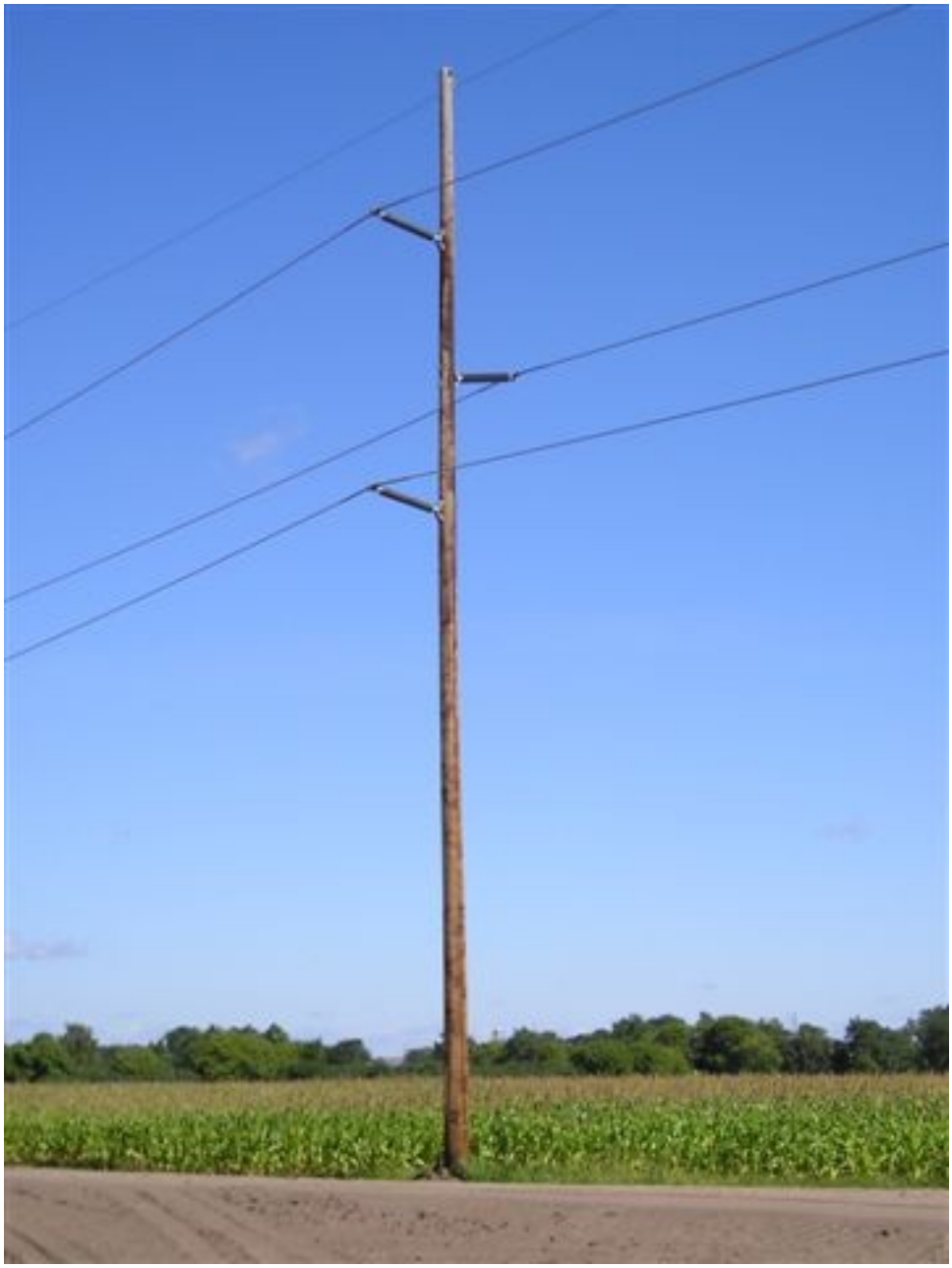


Figure 5-4

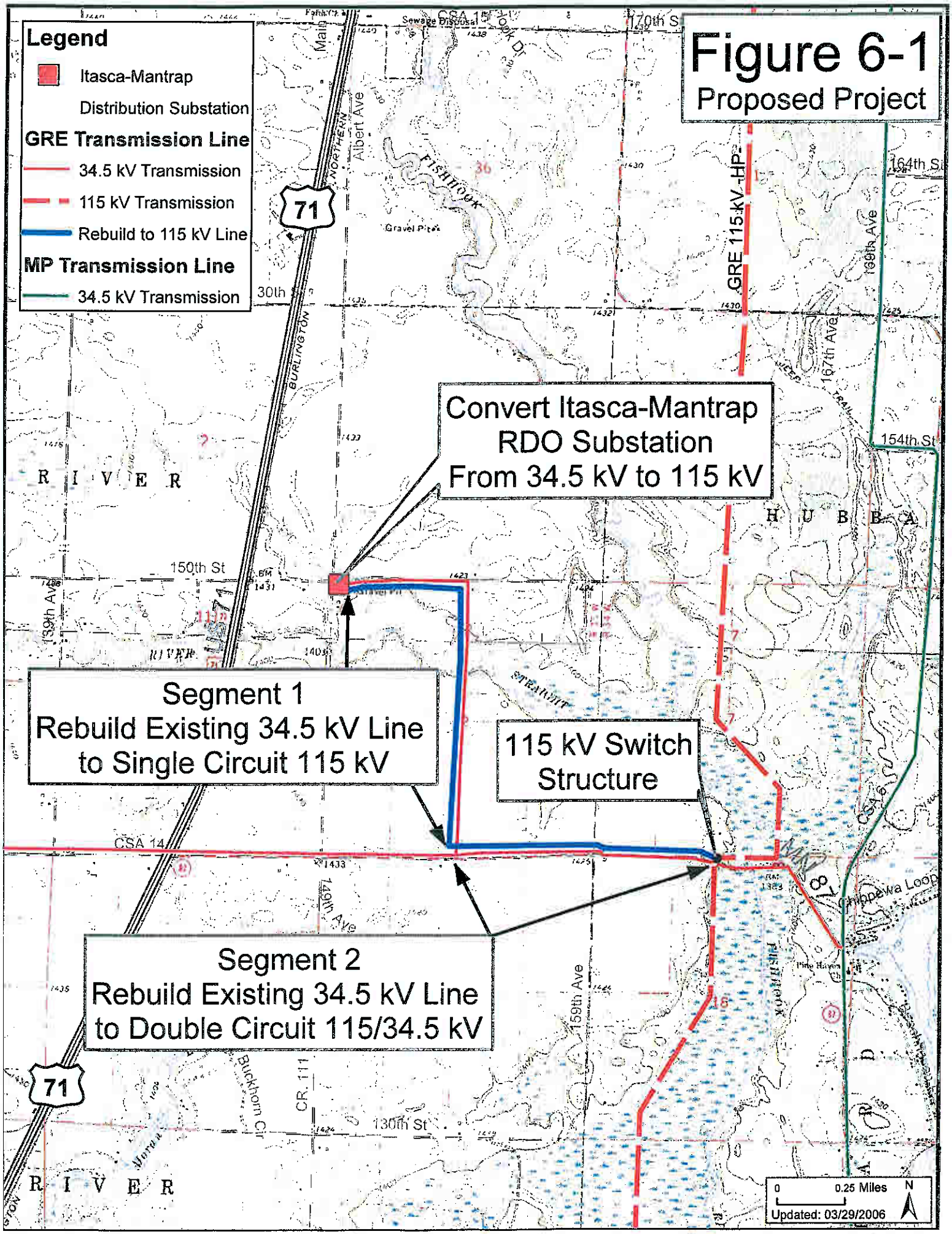


Figure 6-1
Proposed Project
Legend
Itasca-Mantrap
Distribution Substation
GRE Transmission Line
34.5 kV Transmission
115 kV Transmission
Rebuild to 115 kV Line
MP Transmission Line
34.5 kV Transmission
Convert Itasca-Mantrap
RDO Substation
From 34.5 kV to 115 kV
Segment 1
Rebuild Existing 34.5 kV Line
to Single Circuit 115 kV
115 kV Switch
Structure
Segment 2
Rebuild Existing 34.5 kV Line
to Double Circuit 115/34.5 kV
GRE 115 kV -HP-
71
CSA 14
150th St
154th St
164th St
170th St
30th St
130th St
Albert Ave
Buckhorn Cir
CR. 111
0
0.25 Miles
N
Updated: 03/29/2006

Figure 8-1 Schematic Diagrams of Typical GRE Structures

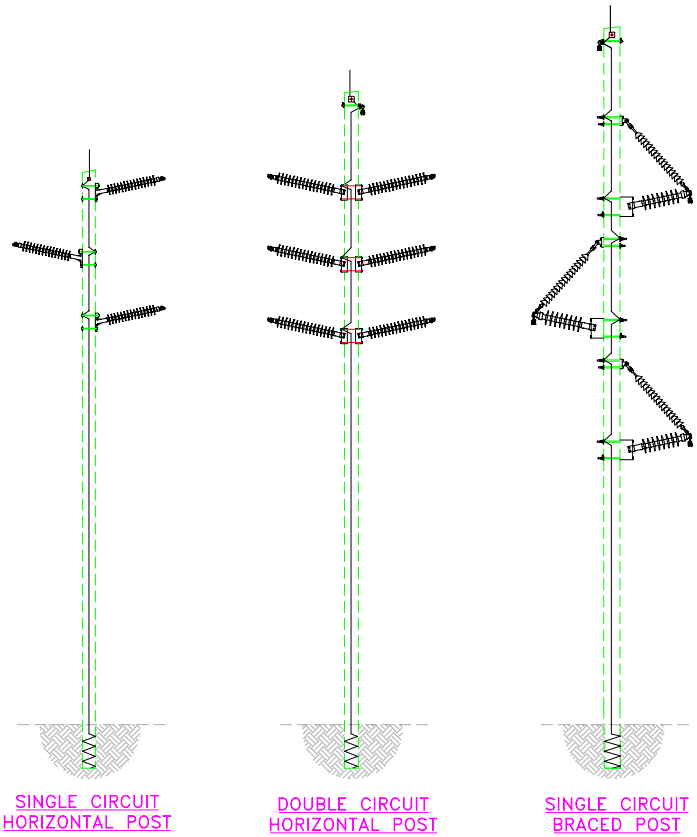
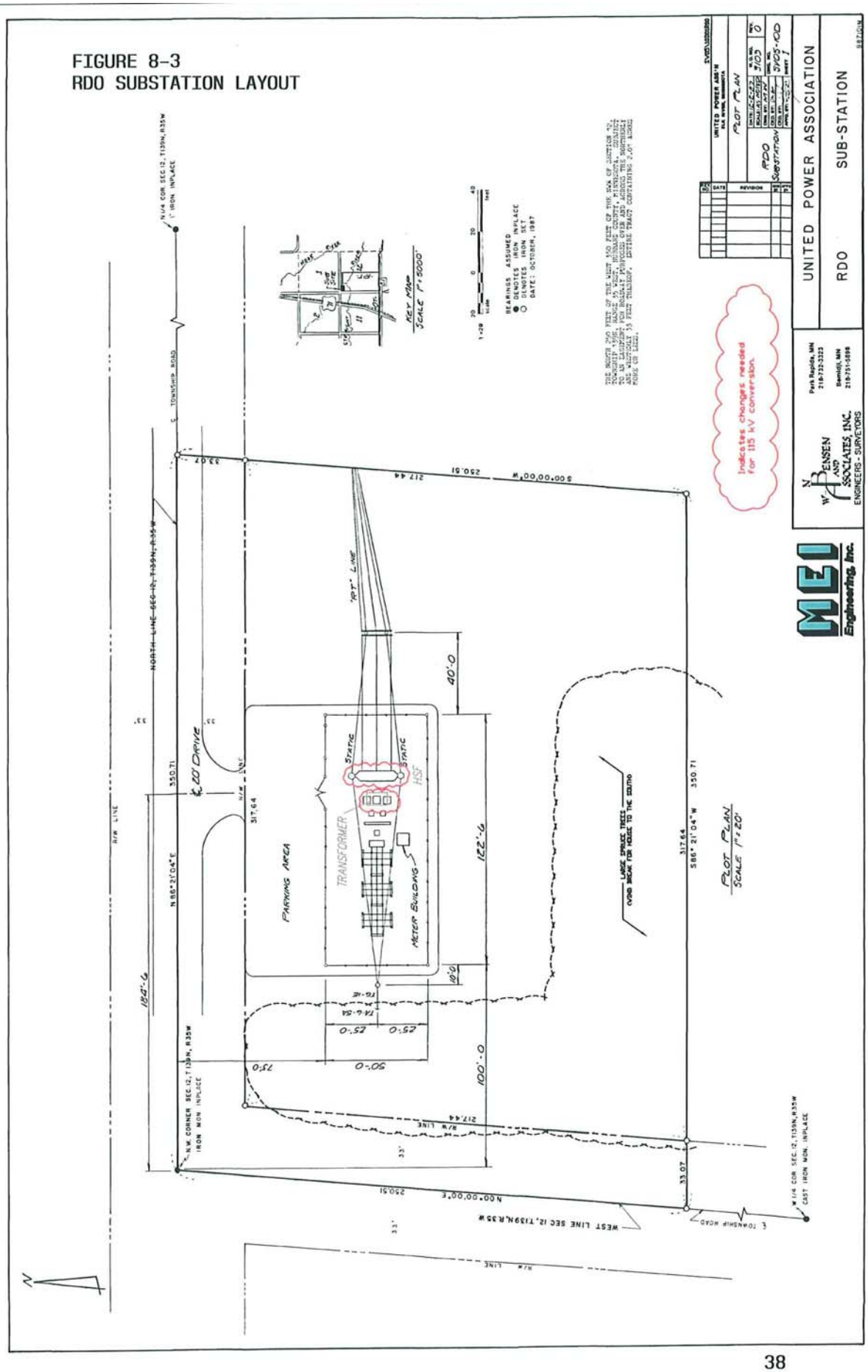



FIGURE 8-3
RDO SUBSTATION LAYOUT