Rochester Gas and Electric Corporation

Rochester Transmission Line Enhancement

Exhibit 3

Alternatives

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TABLE OF CONTENTS

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LIST OF TABLES

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LIST OF FIGURES

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EXHIBIT 3: ALTERNATIVES

Rochester Gas and Electric Corporation (RG&E or the Applicant) analyzed a number of alternatives to the Rochester Transmission Project Enhancement (RTP Enhancement or the Project) proposed in this Application. These included alternative line routes, alternative structure types, and other methods to fulfill the requirements to meet the energy need described in Exhibit E-4 of this Application.

3.1 Alternative Transmission Lines and Routes

The following summarizes the Applicant's alternatives analysis of one or more 115-kilovolt (kV) transmission lines instead of the Project proposed in this Application that would increase reliability between Station 48 and Station 418.

A review of maps and aerial photography and field reconnaissance were conducted to determine the routing constraints and opportunities between Station 48 and Station 418. The most significant routing constraint that was found was existing land development, including existing areas of single-family residential development. Existing transmission right-of-way (ROW) and active and inactive railroad ROWs were identified as routing opportunities. The Applicant identified five alternative routes between Station 48 and Station 418. These alternative routes are referred to as the Proposed Route and Alternatives 1, 2, 3, and 4. Each route incorporates occasional slight deviations to address specific constraints and optimize the route. Figure 3-1 is a single sheet showing an overview of all five route alternatives; Figure 3-2 is comprised of five sheets, each detailing one of the alternative routes.

The five alternative routes were evaluated by assessing four categories of impact screening criteria to identify the superior route. These categories were: land use, land resources, water resources, and cultural resources.

During field and Geographic Information Systems (GIS) assessments, a 100-foot-wide study area was analyzed for each alternative as a representation of a possible Project ROW. A complete list of criteria is set forth in the Routing Impacts Matrix (Table 3-1), which was developed based on existing mapped resources and field investigation data.

Mapped resources included freshwater wetlands mapped by New York State Department of Environmental Conservation (NYSDEC), NYSDEC stream classification mapping, United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil classification mapping, United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping, and Federal Emergency Management Agency (FEMA) 100-year floodplain and regulated floodway mapping.

3.1.1 Proposed Route

The Proposed Route is approximately 6.7 miles long and is located in the Town of Gates and the City of Rochester. The Proposed Route follows existing Applicant-occupied transmission ROWs and two active railroad ROWs between Station 418 and Station 48.

From Station 418, the Proposed Route follows an existing Applicant-occupied ROW southeast and crosses Buffalo Road. The route continues southeast along the same ROW crossing Coldwater Road, FEMA floodplains, NYSDEC-mapped wetlands, and NWI-mapped wetlands to where the route intersects an active railroad ROW. The Proposed Route turns northwest following an existing Applicant-occupied ROW along the north side of the railroad ROW. As it continues northwest, the Proposed Route crosses Interstate 490 (I-490), forested areas, successional shrubland areas, Pixley Road, NWI-mapped wetlands, NYSDEC-mapped wetlands, Howard Road, and Interstate 390 (I-390). Just past I-390 the route turns north along another existing Applicant-occupied ROW through an industrial area until it crosses Buffalo Road again and turns east, following the same ROW. The Proposed Route crosses the Erie Canal and continues until it crosses an active railroad where the route turns north and follows an existing Applicant-occupied ROW along the east side of the railroad ROW. The Proposed Route continues along the railroad ROW passing through industrial areas, crossing I-490, Lyell Avenue, an inactive railroad, Ferrano Street, NYSDEC-mapped wetlands, NWI-mapped wetlands, and Emerson Street. Just north of Emerson Street, the Proposed Route crosses an active railroad and continues on the northwest side, crossing Mount Reed Boulevard to where it enters Station 48.

3.1.2 Alternative 1

Alternative 1 is approximately 6.6 miles long and is located in the Town of Gates and the City of Rochester. Alternative 1 follows existing Applicant-occupied transmission ROWs, a corridor of land with no existing utility or other infrastructure (Greenfield ROW), and two active railroad ROWs between Station 418 and Station 48.

From Station 418, Alternative 1 follows an existing Applicant-occupied ROW southeast crossing Buffalo Road. Alternative 1 continues southeast along the existing Applicant-occupied ROW crossing Coldwater Road, FEMA floodplains, NYSDEC-mapped wetlands, and NWI-mapped wetlands until it intersects an active railroad ROW. Alternative 1 turns northwest, following an existing Applicant-occupied ROW along the north side of the railroad ROW. As it continues northwest, Alternative 1 crosses I-490, forested areas, successional shrubland areas, Pixley Road, NWI-mapped wetlands, NYSDEC-mapped wetlands, Howard Road, I-390, and the Erie Canal. Alternative 1 turns north where the two railroads intersect and follows along the east side of an active railroad ROW going north until it hits the existing Applicant-occupied ROW along the railroad ROW. Alternative 1 continues along the railroad ROW passing through industrial areas, crossing I-490, Lyell Avenue, an inactive railroad, Ferrano Street, NYSDEC-mapped wetlands, NWI-mapped wetlands, and Emerson Street. Just north of Emerson Street, Alternative 1 crosses an active railroad and continues on the northwest side, crossing Mount Reed Boulevard, until it enters Station 48.

3.1.3 Alternative 2

Alternative 2 is approximately 10.0 miles long and is located in the Towns of Gates, Ogden and Greece, and the City of Rochester. Alternative 2 follows existing Applicant-occupied transmission ROWs, Greenfield ROW, an inactive trolley bed, and an active railroad ROW.

From Station 418, Alternative 2 travels northwest along existing Applicant-occupied ROW crossing Manitou Road, NWI-mapped wetlands, and an NYSDEC-classified stream. Alternative 2 turns north into Greenfield ROW through forested area and successional shrubland area, crossing Shepard Road, and continues until it turns northeast towards State Highway 531. Before it crosses State Highway 531, Alternative 2 turns north crossing through more forested

area, agricultural area, Lyell Road, NWI-mapped wetland, State Highway 531, Spencerport Road, and FEMA Floodplains. Alternative 2intersects with the inactive trolley bed and turns southeast. As Alternative 2 continues along the trolley bed it travels through forested areas, successional shrubland areas, Manitou Road, residential areas, Elmgrove Road, NWI-mapped wetlands, FEMA floodways, FEMA floodplains, Long Pond Road, I-390, and Lee Road. Just past Lee Road, Alternative 2 intersects an existing Applicant-occupied ROW, crosses the Erie Canal, and continues through industrial areas until it crosses an active railroad and joins the existing Applicant-occupied ROW on the east side of the railroad ROW. Alternative 2 continues north passing through NYSDEC-mapped wetlands, NWI-mapped wetlands, and Emerson Street. Just north of Emerson Street, Alternative 2 crosses an active railroad and on the northwest side of the railroad ROW, crossing Mount Reed Boulevard until it enters Station 48.

3.1.4 Alternative 3

Alternative 3 is approximately 10.2 miles long and is located in the Towns of Gates, Ogden and Greece, and the City of Rochester. Alternative 3 follows existing Applicant-occupied transmission ROWs, Greenfield ROW, an inactive trolley bed, and the sides of public roads.

From Station 418, Alternative 3 travels northwest along existing Applicant-occupied ROW crossing Manitou Road, NWI-mapped wetlands, and an NYSDEC-classified stream. Alternative 3 turns north into Greenfield ROW through forested area, successional shrubland area, crossing Shepard Road, and continues until it turns to go northeast towards State Highway 531. Before it crosses State Highway 531, Alternative 3 turns north crossing through more forested area, agricultural area, Lyell Road, NWI-mapped wetland, State Highway 531, Spencerport Road, and FEMA Floodplains. Alternative 3 intersects with the inactive trolley bed and the route turns southeast. As Alternative 3 continues along the trolley bed, it travels through forested areas, successional shrubland areas, Manitou Road, residential areas, Elmgrove Road, NWI-mapped wetlands, FEMA floodways, FEMA floodplains, Long Pond Road, I-390. At Lee Road, Alternative 3 turns north, crossing Trolley Blvd and the Erie Canal. Alternative 3 continues roadside along Lee Road passing through industrial areas until Lexington Ave where it turns east, crossing Lee Road, and then Lexington Avenue. Alternative 3 continues east on the north side of Lexington Avenue crossing Pomona Street, Fisher Street, Andes Street, and

Pouse Road. Alternative goes around a United States Postal Service building and continues on, crossing Mount Reed Boulevard through industrial areas, until it turns south and crosses Lexington Avenue into Station 48.

3.1.5 Alternative 4

Alternative 4 is approximately 6.4 miles long and is located in the Town of Gates and the City of Rochester. Alternative 4 follows existing Applicant-occupied transmission ROWs, roadways, and active railroad ROWs.

From Station 418, Alternative 4 follows an existing Applicant-occupied ROW southeast, towards Buffalo Road. At Buffalo Road, Alternative 4 turns northeast and continues roadside passing commercial areas, Elmgrove Road, residential areas, Trabold Road, Horallo Lane, and I-490. After I-490, Alternative 4 enters a highly commercial area, still following Buffalo Road, crossing Pixley Road, NWI-mapped wetlands, FEMA floodplains, FEMA floodways, Marway Circle, Bermar Park, forested area, and Columbus Circle. As it continues along Buffalo Road past the Dolomite Quarry, Alternative 4 stays to the north side of the road to avoid the quarry. It continues to cross I-390, Dearcop Drive, and Varian Lane. Alternative 4 intersects with existing Applicant-occupied ROW, crosses the Erie Canal, and continues until it intersects an active railroad ROW. From there, Alternative 4 turns north and follows an existing Applicant-occupied ROW, along the east side of the railroad ROW. Alternative 4 continues along the railroad ROW passing through industrial areas, crossing I-490, Lyell Avenue, an inactive railroad, Ferrano Street, NYSDEC-mapped wetlands, NWI-mapped wetlands, and Emerson Street. Just north of Emerson Street, Alternative 4 crosses an active railroad and continues on the northwest side, crossing Mount Reed Boulevard, to where it enters Station 48.

3.1.6 Routing Impacts Matrix

Table 3-1 shows a complete list of the environmental, land use, and other factors that the Applicant considered and compared to identify the superior route for the Project.

Table 3-1 Routing Impacts Matrix

CRITERIA	Proposed Route	A1	A2	A3	A4
Length of Transmission Line (Miles)	6.7	6.6	10.0	10.2	6.4
Land Use					
Residential (Length in Miles)	0	0	0.22	0.22	0.36
Commercial (Length in Miles)	0.14	0.19	0.05	0.30	1.16
Institutional (Length in Miles)	0	0	0	0	0.13
Industrial (Length in Miles)	0.19	0.04	0.10	0.80	0.15
Vacant (Length in Miles)	1.56	1.37	3.66	4.46	0.84
Public (Length in Miles)	0	0	0	0	0.08
Parks (Length in Miles)	0	0	0	0	0
Utility and Railroad ROW (Length in Miles) [1]	4.31	4.49	4.34	2.67	2.12
Agricultural (Length in Miles)	0	0	0	0	0
Additional Land Use Types (Length in Miles) [2]	0.49	0.48	1.63	1.77	1.58
Number of Railroad Crossings	3	3	3	0	3
Airports (Length in Miles)	0	0	0	0	0
Land Resources					
Ag District (Length in Miles)	0	0	0.37	0.37	0
Ag District (Acres)	0	0	3.84	3.84	0
Active Farmland (Length in Miles) [3]	0	0	0.26	0.26	0
Active Farmland (Acres)	0	0	3.36	3.36	0
Prime Farmland (Length in Miles) [4]	2.60	2.47	6.37	6.60	3.23
Prime Farmland (Acres)	31.16	29.63	76.51	79.29	39.49
Farmland of Statewide Importance (Length in Miles) [4]	1.06	1.06	1.82	2.13	1.28
Farmland of Statewide Importance (Acres)	12.57	12.57	22.00	25.25	15.05
Hydric Soils (Length in Miles)	4.76	4.56	5.07	5.33	3.84
Hydric Soils (Acres)	58.32	56.00	61.94	65.60	46.35
Rare Plants and Animals (Length in Miles)	0	0	0	0	0
Rare Plants and Animals (Acres)	0	0	0	0	0
Critical Environmental Areas (Length in Miles)	0	0	0	0	0
Critical Environmental Areas (Acres)	0	0	0	0	0
Number of Oil, Gas, and Other Regulated Wells	0	0	0	0	0
Number of Remediation Sites	5	4	2	2	2
Water Resources					
NYSDEC Mapped Freshwater Wetlands (Length in Miles)	0.53	0.53	0.03	0.00	0.03
NYSDEC Mapped Freshwater Wetlands (Acres)	6.74	6.74	0.75	0.00	0.75
NYSDEC Mapped Freshwater Wetlands 100-Foot Check Zone (Length in Miles)	1.32	1.32	0.35	0.00	0.35

CRITERIA	Proposed Route	A1	A2	A3	A4
NYSDEC Mapped Freshwater Wetlands 100-Foot Check Zone (Acres)	16.24	16.24	3.62	0.04	3.58
NWI Mapped Forested/Shrub Wetlands (Length in Miles)	0.16	0.16	0.33	0.24	0.03
NWI Mapped Forested/Shrub Wetlands (Acres)	2.13	2.13	3.91	2.92	0.41
NWI Mapped Emergent Wetlands (Length in Miles)	0	0	0	0	0
NWI Mapped Emergent Wetlands (Acres)	0	0	0	0	0
Number NWI Mapped Riverine Wetlands	1	0	3	4	2
NWI Mapped Open Water (Ponds, Lakes, Other)(Length in Miles)	0.01	0.02	0.06	0.06	0.03
NWI Mapped Open Water (Ponds, Lakes, Other)(Acres)	0.14	0.18	1.10	1.14	0.27
Total Miles through Mapped NWI and NYSDEC Wetlands	0.57	0.57	0.45	0.34	0.09
Number of Protected NYSDEC Stream Crossings (A's, B's, T's, TS's)	1	1	1	1	1
Number of NYSDEC Stream Crossings (C's, D's without T or TS)	5	4	9	7	2
FEMA SFHA Floodplains 1% Annual Chance (Length in Miles)	0.73	0.73	0.43	0.43	0.08
FEMA SFHA Floodplains 1% Annual Chance (Acres)	9.53	9.53	6.06	6.03	0.56
Regulated Floodways (Length in Miles)	0	0	0.02	0.02	0.01
Regulated Floodways (Acres)	0	0	0.62	0.62	0.08
Number of Wild & Scenic Rivers	0	0	0	0	0
Number of Water Wells	0	0	0	0	0
Cultural Resources					
Archaeological Sensitive Areas (Length in Miles)	0.95	0.71	0.99	1.07	1.00
Archaeological Sensitive Areas (Acres)	11.45	8.61	11.95	12.99	12.05
Number of National Register Sites and Districts	1	1	1	1	1
Number of NYS Historic Sites and Parks	0	0	0	0	0
Other					
Number of Structures within 50 feet of Transmission Centerline [5]	7	8	3	5	3
Number of Structures within 100 feet of Transmission Centerline [6]	26	26	19	23	39
Number of New Parcels Impacted (No Existing ROW anywhere on Property) [7]	98	104	164	177	132
Number of Parcels Needing Additional ROW [8]	18	11	16	6	15
Area of New ROW (Acres) [9]	30.52	35.81	94.89	114.34	52.74
Forested Area to be Cleared (Acres) [10]	7.52	7.06	18.54	17.15	2.46

[1] Utility Land Use are parcels that are classified as utility per the property class codes including water supply, telecom, cell towers, sewage, electric substation, and electric transmission ROWs. Additionally this includes railroad ROWs.

[2] Additional Land Use types include unclassified parcels, roadsides, roadways, and areas with no parcel.

[3] This is to be considered approximate. Active Farmland is based on aerial imagery. This is because some active farmland are classified as a vacant property class code and therefore not a true representation of current conditions.

[4] Prime Farmland and Farmland of Statewide Importance are based on the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Classification. This is a soil classification type and does not mean that there is active farmland on this soil.

[5] This includes all the structures within a 50-foot wide ROW. Alternative 1 has 2 sheds and 5 commercial properties and Alternative 2 has 2 sheds and 6 commercial properties within the 50-foot ROW. Alternative 3 has 1 house and 2 commercial properties in the 50-foot ROW. Alternative 4 has 1 house, 1 industrial property, and 3 commercial properties and A5 have 3 commercial properties within the 50-foot ROW.

[6] This includes all structures within a 100-foot wide ROW. Alternative 1 has 14 commercial properties, 1 house, 7 sheds, 3 pools, and 1 apartment building within the ROW. Alternative 2 has 14 commercial properties, 1 house, 7 sheds, 3 pools, and 1 apartment building within the ROW. Alternative 3 has 8 commercial properties,1 house, 4 pools, and 6 sheds within the ROW. Alternative 4 has 11 commercial properties, 1 house, 1 industrial property, 4 pools, and 6 sheds. Alternative 5 has 30 commercial properties, 1 apartment building , and 8 houses within the ROW. Structures are counted in the 50-foot ROW and 100-foot ROW when they are located in both.

[7] All alternatives have a 100-foot ROW. Along existing RG&E ROWs and railroads the existing ROW is assumed to end at the parcel boundary. Therefore, the alternative routes' 100-foot ROWs extend past the existing ROWs and impacts new parcels.

[8] This includes all properties that will need additional ROW since the existing ROW is not 100 feet wide.

[9] This area is to be considered approximate. This assumes that the alternative routes include a 100-foot wide ROW. All areas outside of the existing ROWs utilized are additional areas.

[10] This area is to be considered approximate. This assumes that the alternative routes include a 100-foot wide ROW. Forested areas were determined based on the National Land Cover Database (NLCD) and aerial photography.

3.2 Evaluation of Alternative Routes

To identify the superior route for the Project, a number of environmental and land use factors associated with the alternative routes were evaluated and comparisons analyzed.

The detailed results of this analysis are set forth in Table 3-1. The significant determining aspects regarding each Alternative's viability are discussed below.

3.2.1 Proposed Route

The Proposed Route does not impact Agricultural Districts or active farmland. It utilizes a significant length of utility, vacant, and industrial classified parcels and no residential, public or park classified parcels. The Proposed Route traverses NWI- and NYSDEC-mapped wetlands, but primarily within disturbed, existing ROWs. Although there are a number of existing structures within 50 feet of the transmission centerline, the Proposed Route impacts the least number of parcels and would require the least amount of new Greenfield ROW, making it the least impactful to the surrounding communities.

3.2.2 Alternative 1

Alternative 1 follows the same path as the Proposed Route except for a small deviation that would create the need for Greenfield ROW near Mile Marker 4. Alternative 1 also transverses a small amount of NWI-mapped wetlands and a large amount of NYSDEC-mapped wetlands. In addition, Alternative 1 travels through the least amount of archaeological sensitive areas. Alternative 1 does not go through any Agricultural Districts or active farmlands, but it does have the largest number of existing structures within 50 feet of the transmission centerline.

3.2.3 Alternative 2

Alternative 2 is one of the longer routes that would require a largest amount of forested clearing and need a large amount of new parcel acquisition and Greenfield ROW. Alternative 2 also transverses several Agricultural Districts and active farmland. Although Alternative 2 only travels through a small amount of NYSDEC-mapped wetlands, it also traverses the largest amount of NWI-mapped wetlands. Alternative 2 utilizes an inactive trolley bed, which reduces the amount of existing structures within 50 and 100 feet of the transmission centerline, but Alternative 2 also crosses the most NYSDEC-classified streams.

3.2.4 Alternative 3

Alternative 3 follows the same path as Alternative 2, but deviates to a new path just after Mile Marker 8. Alternative 3 is the longest route, which means it will need the largest number of new parcels and Greenfield ROW. Alternative 3 travels through the least amount of NYSDEC-mapped wetlands, but through a large amount of NWI-mapped wetlands. Alternative 3 also crosses several Agricultural Districts and active farmland. Similar to Alternative 2, Alternative 3 utilizes an inactive trolley bed, which decreases the amount of existing structures within 50 and 100 feet of the transmission centerline; however, this route transverses through the greatest amount of archaeological sensitive areas.

3.2.5 Alternative 4

Alternative 4 is the shortest route, but travels approximately 3 miles along the side of Buffalo Road. Since Alternative 4 is roadside, it has the largest number of existing structures within

100 feet of the transmission centerline. However, the route travels through a small amount of NYSDEC-mapped wetlands and the smallest amount of NWI-mapped wetlands. Alternative 4 does not travel through any Agricultural Districts or active farmland and crosses the smallest number of NYSDEC-classified streams. Alternative 4 will require a large amount of Greenfield ROW and new parcel acquisition, creating a large impact to the surrounding community, particularly those residents along Buffalo Road.

3.2.6 Conclusions

The results of this effort determined that, due to the length of the routes and high amount of new ROW acquisition and land clearing, Alternatives 2 and 3 are significantly less favorable. In addition, Alternative 4 requires the most Greenfield ROW and is along a major road with several existing structures within 100 feet of the transmission centerline. Therefore, the Applicant determined that Alternative 4 is also inferior to the Proposed Route and Alternative 1.

Between the remaining routes, the Applicant determined that the Proposed Route is the least impactful and, therefore, the superior route. The Proposed Route utilizes the largest amount of existing Applicant-occupied ROW, which reduces the amount of clearing, new land acquisition, and Greenfield ROW construction. The Proposed Route does not impact active agricultural production areas. The Proposed Route would be the least impactful on the surrounding areas since it primarily utilizes existing utility ROWs and railroad ROWs. The Proposed Route is also located primarily in industrial and vacant areas, while the alternatives are located in populous residential areas. Where the Proposed Route intersects mapped wetlands, it is in disturbed areas already developed as existing ROWs; therefore, impacts will be minimized compared to an undisturbed area of mapped wetlands.

3.3 Alternative Methods to Fulfill Energy Requirements

3.3.1 No Action Alternative

A no-action alternative is not a viable alternative to the Project, as it would not allow the Applicant to address the N-1 and N-1-1 Contingency Events that cause high thermal overloads (past short-term emergency [STE]) on the Line 947 line segments from Station 418 to Station 70 and low-voltage on the 115kV portions of Stations 418 and 48. The Project will provide a

tertiary contingency in case of a power interruption affecting Existing Lines 916 and 926, preventing both thermal and voltage violations. It will also prevent low voltage at Station 418 following the loss of the 115kV Existing Line 910 followed by a power interruption affecting the capacitor at Station 113. The establishment of the Project will minimize the potential for low voltage and thermal violations by directly connecting Stations 418 and 48 and strengthening the 115kV network in Western Rochester. Therefore, a no-action alternative was not considered a viable alternative.

3.3.2 Alternative Transmission Line Technologies

The Project would be comprised of standard overhead double-circuit and single-circuit Alternating Current (AC) transmission lines.

Numerous existing single-circuit transmission lines are located along the Proposed Route, and the Applicant evaluated the alternatives of either double-circuiting the new line on structures with some or all of those existing lines, or instead installing the new line on single-structure poles without involving the existing lines. The Applicant determined that the double-circuiting alternative is superior because it minimizes the need to acquire additional ROW for the new line.

Alternative transmission line technologies such as High Voltage Direct Current (HVDC) were not considered practicable or feasible for this application. HVDC transmission lines can be a cost-effective technology for long transmission lines primarily due to reductions in conductors, ROW size, and line power loss. These benefits become feasible only for very long stretches of new transmission line, as high costs are incurred to tie this type of technology into a primarily AC system. Due to the relatively short route of the new Proposed Route, a total distance of 6.7 miles, the Applicant determined that based on the high cost of additional infrastructure that would be required, including two terminal Direct Current (DC) Converter Stations to support this approach, HVDC was not a viable alternative for the Project.

An underground transmission line also was considered and rejected for this Project. The Applicant made this determination based on the high cost and additional environmental impacts of underground construction. The Applicant's general estimate of the cost of underground

construction through an existing ROW of a single circuit 115kV transmission line was estimated to be significantly higher the cost of overhead construction.

Due to the significant difference in cost between the overhead and the underground options, the Applicant did not attempt a more detailed study of the cost of underground construction. The Applicant also did not conduct a site-specific analysis of environmental impacts between overhead and underground options. However, a general review of typical environmental impacts associated with the construction of a transmission line underground is discussed below. With the exception of visual impacts, the negative impacts to environmental resources that result from construction and future maintenance of an underground line tend to be greater than for an overhead line. Such general impacts can include:

Wetland Impacts: The Applicant would typically attempt to locate utility poles outside of the wetland and span it. However, installation of an underground line would require significant excavation within the wetland. Any future maintenance would again require disturbance of the wetland.

Stream Impacts: No utility poles will be located in a stream. In addition, the Applicant would attempt to avoid crossing any stream with equipment by approaching work areas from opposite directions. The installation of an underground line, however, might require significant excavation within the stream bed and banks. Any future maintenance might again require disturbance of the stream bed and banks.

Agricultural Impacts: The Applicant typically places mats in active agricultural fields for access and structure work locations to avoid soil disturbance and to minimize compaction impacts in active agricultural areas. An underground line would require excavation and potential impacts to any existing drainage networks within an agricultural field.

3.3.3 Energy Efficiency, Demand-Side Management, and Distributed Generation

Non-wires alternatives (NWAs) were considered as a mitigating measure to address the reliability issues associated with the existing electric grid topology in Western Rochester. An NWA solution can include a number of different types of resources such as: energy efficiency; demand-side management; and distributed generation. These resources can be effective in reducing demand, or peak-shaving, and, therefore, can mitigate marginal reliability criteria violations.

There are multiple critical contingencies that this Project intends to alleviate, including those that result in high thermal (past STE) loadings on 115kV lines, as well as low voltages at multiple Bulk Electric System substations. A significant amount of load reduction at multiple locations would be required to prevent these violations from occurring. This approach is not a feasible or cost-effective alternative for the Project.

Therefore, due to the severity of the reliability concerns in this area, NWAs (i.e., energy efficiency, demand-side management, and distributed generation) were not viable alternatives to the Project.

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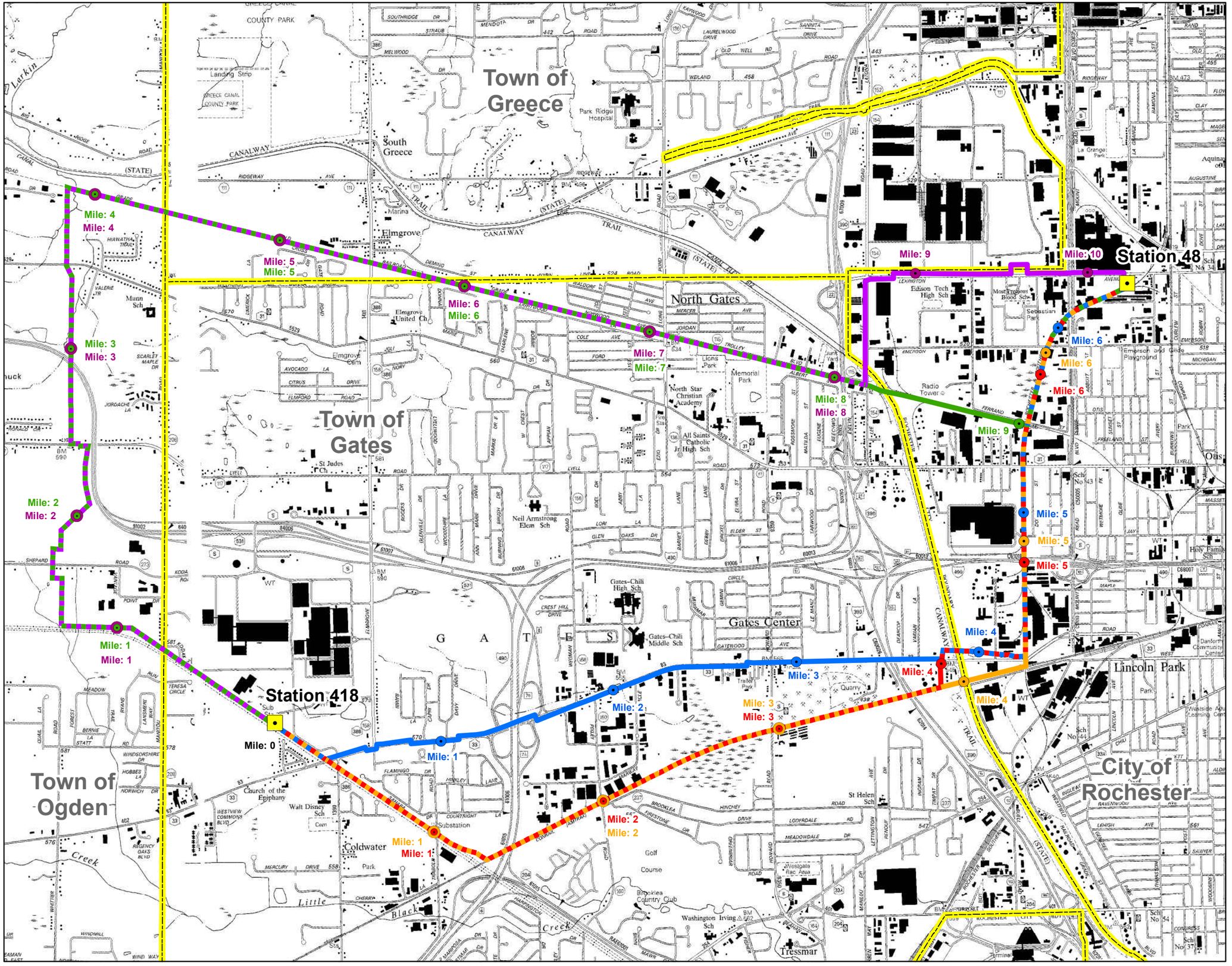


RG&E

Rochester Gas and Electric

Rochester Transmission Project Enhancement

Monroe County, NY

N

0 1,250 2,500 Feet

1:30,000

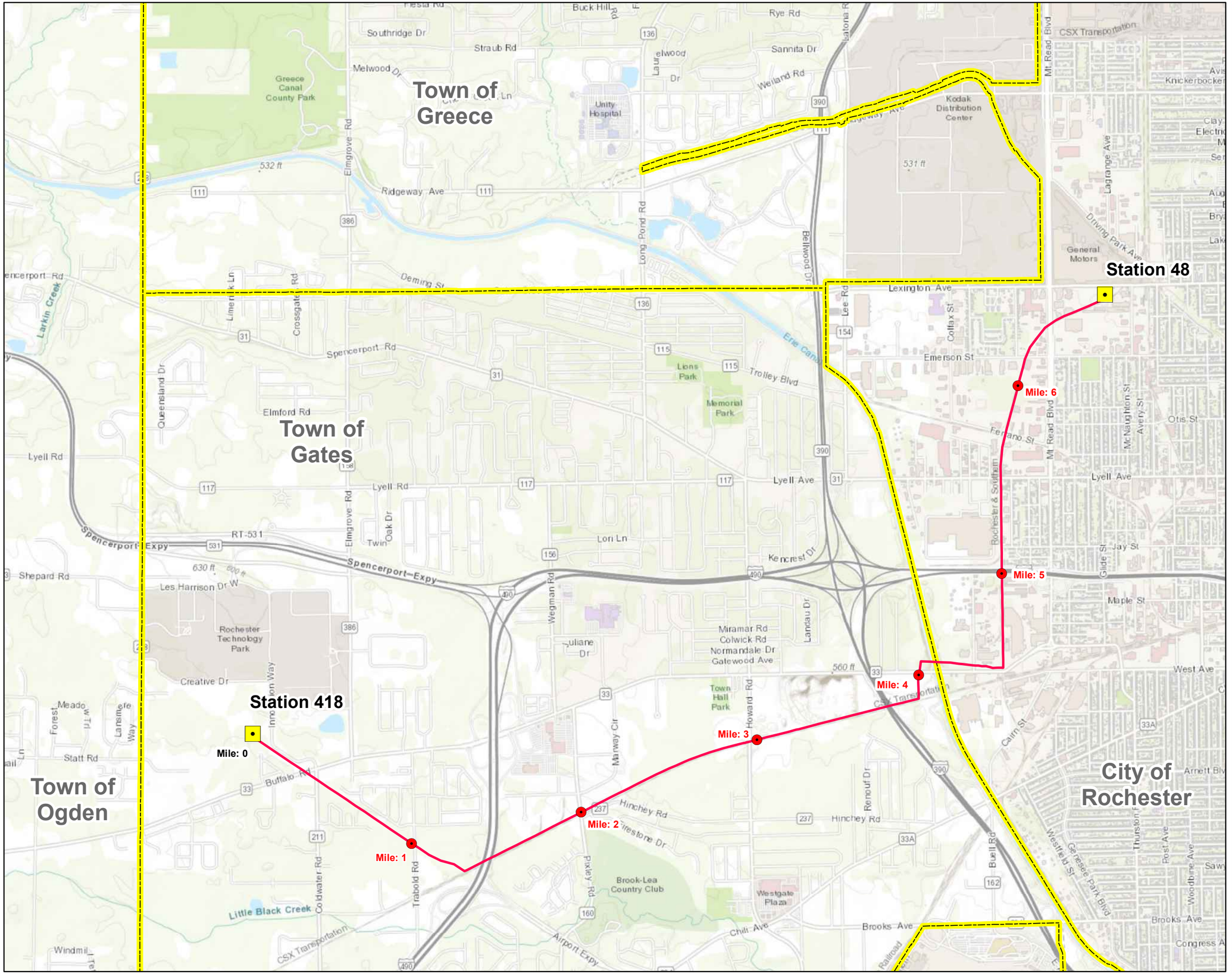
Legend

- Existing Substation
- Proposed Route- 6.69 Miles
- Alternative 1- 6.57 Miles
- Alternative 2- 10.00 Miles
- Alternative 3- 10.22 Miles
- Alternative 4- 6.42 Miles
- Proposed Route Mile Marker
- Alternative 1 Mile Marker
- Alternative 2 Mile Marker
- Alternative 3 Mile Marker
- Alternative 4 Mile Marker
- Municipal Boundary

Sources:
1. Basemap: NYSDOT Topographic Quadrangle 1:24,000 Edition Date- 1997
2. Municipal Boundary: NYSGIS Clearinghouse 2018

Route Alternatives Overview

FIGURE 3-1



RG&E

Rochester Gas and Electric

Rochester Transmission Project Enhancement

Monroe County, NY

N

0 1,250 2,500 Feet

1:30,000

Legend

- Existing Substation
- Proposed Route- 6.69 Miles
- Proposed Route Mile Marker
- Municipal Boundary

Sources:
1. Basemap: ESRI World Topographic Map, Updated: 2019
2. Municipal Boundary: NYSGIS Clearinghouse 2018

Proposed Route

FIGURE 3-2.1

RG&E

Rochester Gas and Electric

Rochester Transmission Project Enhancement

Monroe County, NY

N

0 1,250 2,500 Feet

1:30,000

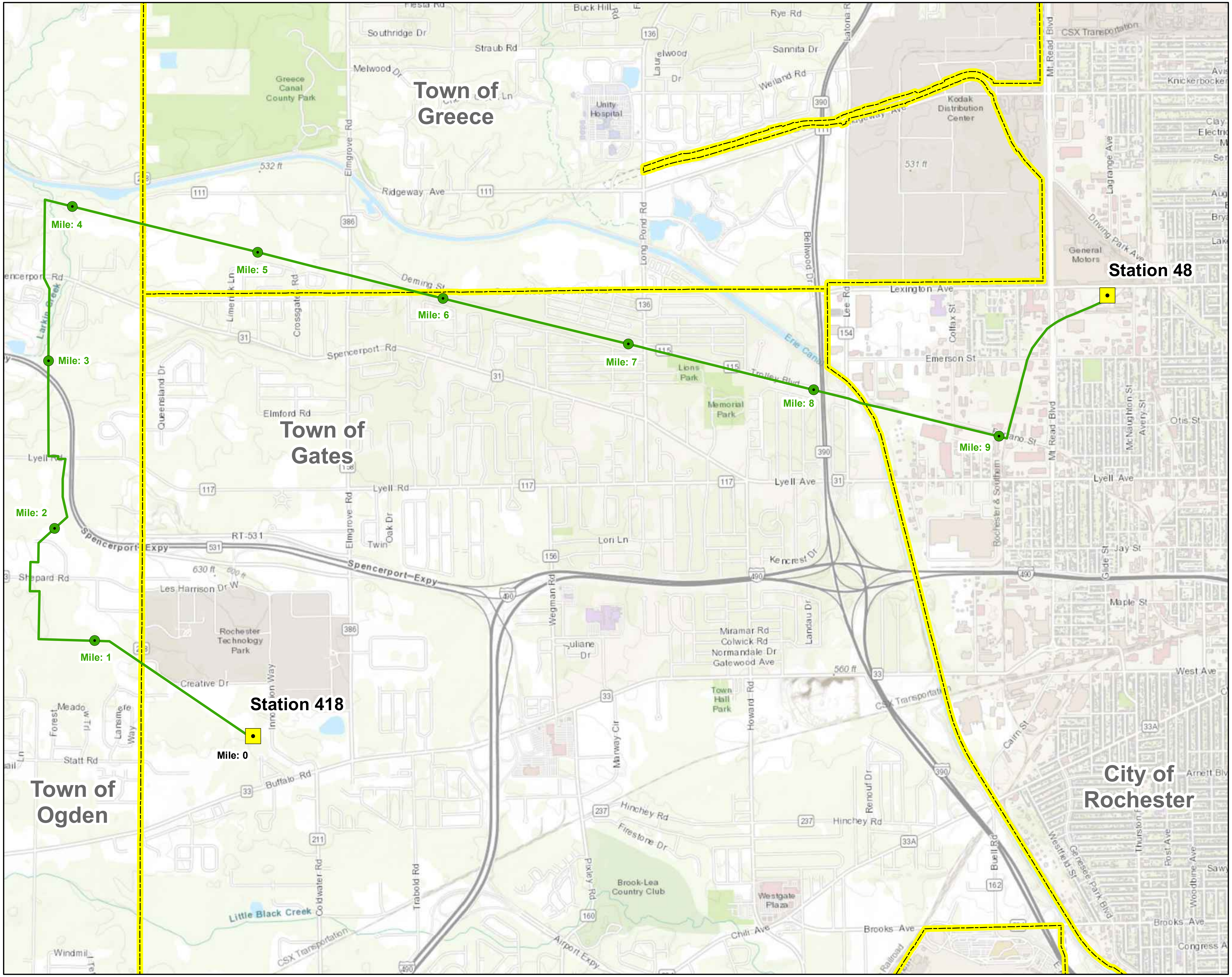
Legend

- Existing Substation
- Alternative 1- 6.57 Miles
- Alternative 1 Mile Marker
- Municipal Boundary

Sources:
1. Basemap: ESRI World Topographic Map. Updated: 2019
2. Municipal Boundary: NYSGIS Clearinghouse 2018

Alternative Route 1

FIGURE 3-2.2



Rochester Gas and Electric

Rochester Transmission Project Enhancement

Monroe County, NY

N

0 1,250 2,500 Feet

1:30,000

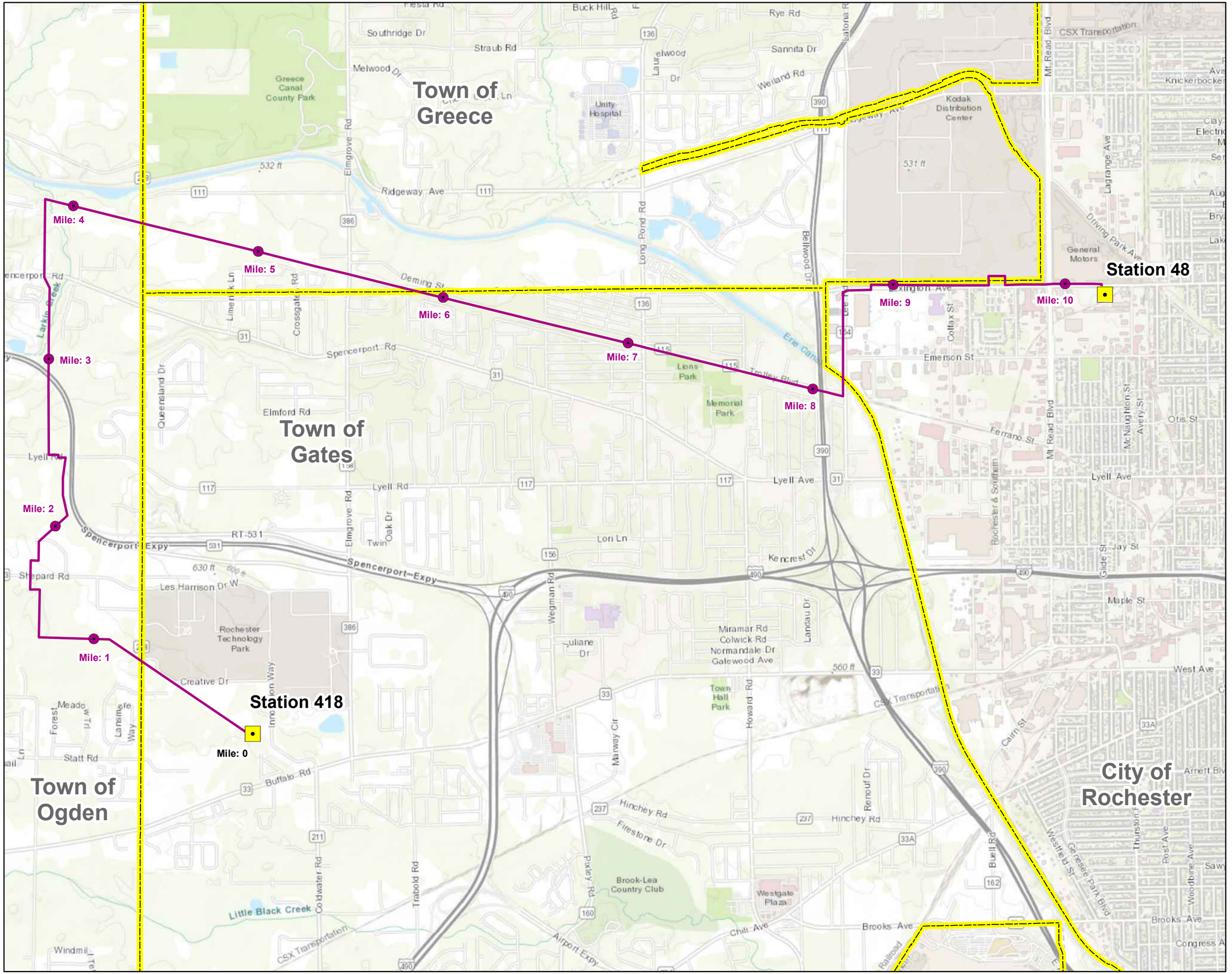
Legend

- Existing Substation
- Alternative 2- 10.00 Miles
- Alternative 2 Mile Marker
- Municipal Boundary

Sources:
1. Basemap: ESRI World Topographic Map. Updated: 2019
2. Municipal Boundary: NYSGIS Clearinghouse 2018

Alternative Route 2

FIGURE 3-2.3



Rochester Gas and Electric

Rochester Transmission Project Enhancement

Monroe County, NY

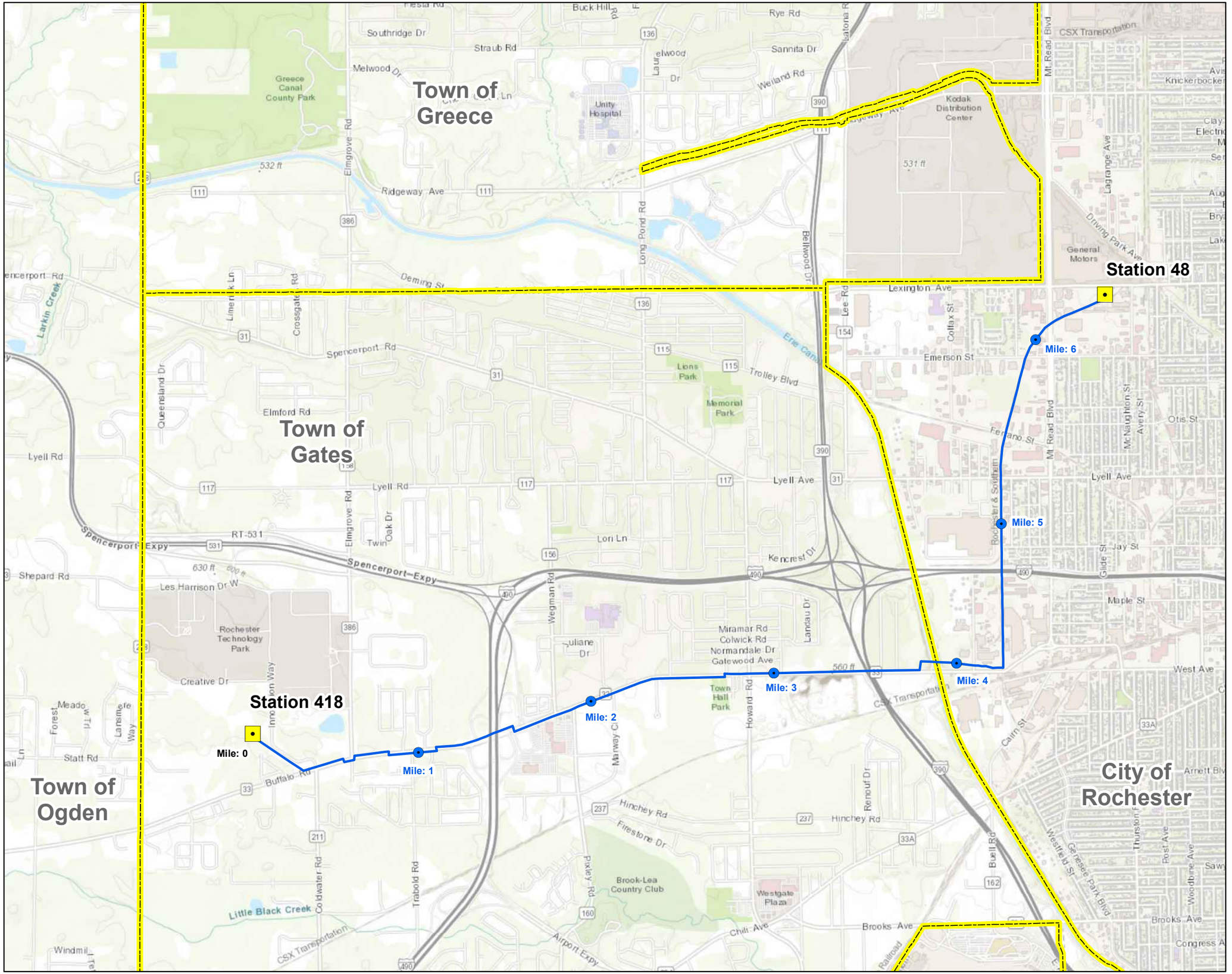
Legend

- Existing Substation
- Alternative 3- 10.22 Miles
- Alternative 3 Mile Marker
- Municipal Boundary

Sources:
1. Basemap: ESRI World Topographic Map. Updated: 2019
2. Municipal Boundary: NYSGIS Clearinghouse 2018

Alternative Route 3

FIGURE 3-2.4



Rochester Gas and Electric

Rochester Transmission Project Enhancement

Monroe County, NY

N

0 1,250 2,500 Feet

1:30,000

Legend

- Existing Substation
- Alternative 4- 6.42 Miles
- Alternative 4 Mile Marker
- Municipal Boundary

Sources:
1. Basemap: ESRI World Topographic Map. Updated: 2019
2. Municipal Boundary: NYSGIS Clearinghouse 2018

Alternative Route 4

FIGURE 3-2.5