

2021-2025 Chugach Electric Association, Inc. Distribution Facilities

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2021-2025 Underground Project Summary Sheets

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I. INTRODUCTION

On March 1, 2005, the Anchorage Assembly adopted certain revisions to Section 21.07.050, Utility Distribution Facilities, of the Anchorage Municipal Code. These revisions require an electric utility to “include as part of its annual capital improvement plan, a five-year undergrounding program” (21.07.050F1). In each of the years of this program the electric utility shall plan on expending “at least two percent of a three-year average of its annual gross retail revenues derived from utility service connections within the municipality” (21.07.050G1a). In accordance with this requirement, Chugach Electric Association (Chugach) targets approximately \$6.6 million annually to underground existing overhead facilities. Over-expenditures or under expenditures may be carried over as an adjustment to the following year’s obligation.

When developing the five-year undergrounding program, the electric utility can choose which existing lines to underground. Specifically, priorities of the program “shall be based on undergrounding in conjunction with the electric utility’s essential system improvements and then by target area” (21.07.050F1).

This document contains Chugach’s anticipated five-year undergrounding plan, comprising 34 projects with a total estimated capital cost of \$54,495,000 to be expended on undergrounding of non-conforming overhead lines between 2021 to 2025. The inclusion of a project within this plan does not guarantee that the project will be constructed in the designated year. Every effort is made to complete the projects according to the schedule in Part IV, but circumstances may cause a project to be completed earlier or later than planned.

The projects were chosen to best serve Chugach's overall system needs and with consideration of the designated target areas.

II. PROJECT IDENTIFICATION

To reduce the financial impact of the ordinance on utility ratepayers and to equitably apply the 2% undergrounding surcharge, Chugach identifies projects with the greatest potential to improve system safety, reliability, and resiliency. Projects are identified by analysis of system outage data, results of routine inspection, load growth projections, community input, and construction efficiencies gained by partnering with other utilities or agencies.

Overhead transmission lines operated at 69,000 volts or greater are cost-prohibitive to build and maintain underground and are never considered for conversion as part of this program. Additionally, lines are exempted from consideration that would be overly costly to build or maintain due to soil condition, slope, terrain, or the presence of waterways.

III. PROJECT SELECTION

Chugach’s undergrounding projects are intended to implement one or a combination of five main objectives. These objectives are listed in order of priority; however, the priority

of a project can change depending on the specific project and how it relates to maintaining the integrity of the Chugach system.

1. **Safety:** These projects will improve the safety of our system by retiring overhead facilities where clearances or strength requirements are less than mandated by the National Electric Safety Code (NESC). Lines over residential houses or buildings, although not necessarily a code violation, pose a potential safety concern and will attempt to be relocated underground as part of this plan.
2. **Non-reimbursable Portions of Relocation Projects:** State and Municipal road projects often include the relocation of existing utility facilities at the expense of the road project. Under this category, Chugach will fund any betterment completed by the utility in conjunction with the relocation work and additional small system improvements adjacent to the scope of the road project and most efficiently constructed at the same time.
3. **Load Growth Improvements:** Existing overhead facilities are sometimes insufficient to handle the additional load of a large commercial or residential development. Instead of reconductoring an existing pole line with larger conductor, these projects will install larger underground conductor and retire the overhead facilities.
4. **Reliability:** As part of Chugach's core mission to provide reliable electrical service we routinely analyze system performance metrics to ensure reliability remains at an acceptable standard. Some areas have higher numbers of wind related or tree related outages. These areas may benefit by retiring overhead systems and replacing them with underground facilities and may require additional circuit construction in accordance with our looping requirements.
5. **Target Areas:** Existing overhead facilities located in target areas as defined in "*Designation of Target Areas*" (21.07.050F) emphasize locations that would benefit significant numbers of people or the general public good. Some of the areas specifically listed include central business district areas, major traffic corridors, parks and recreational areas, and school and university areas.

IV. LIST OF PROJECTS

The following spreadsheet lists the undergrounding projects anticipated to be constructed from 2021 to 2025. Project summary sheets describing the scope and boundary of each project are included in Appendix A.

**2021 - 2025 Overhead to Underground Projects
Chugach Electric Association, Inc.**

Project Description	Page Number	Grid	Work Order	Cost Estimate	2021	2022	2023	2024	2025
Patterson and Tudor - 4/0 ACSR	A-1	1740	E1813854	\$ 500,000	\$ 500,000	\$ -	\$ -	\$ -	\$ -
O'Malley Road - Livingston to Hillside	A-2	2538, 2539	E1813812	\$ 2,000,000	\$ 2,000,000	\$ -	\$ -	\$ -	\$ -
Rockridge Drive	A-3	2638	E2013958	\$ 400,000	\$ 400,000	\$ -	\$ -	\$ -	\$ -
Alyeska Subdivision	A-4	4816	E1913914	\$ 250,000	\$ 250,000	\$ -	\$ -	\$ -	\$ -
Girdwood Entry Sub	A-5	5012	E1913879	\$ 80,000	\$ 80,000	\$ -	\$ -	\$ -	\$ -
Shaun Landing Circle	A-6	2327	E1913886	\$ 40,000	\$ 40,000	\$ -	\$ -	\$ -	\$ -
Jewel Lake Road - Strawberry to 84th	A-7	2125, 2225	E2013957	\$ 1,700,000	\$ 1,700,000	\$ -	\$ -	\$ -	\$ -
Arctic Blvd Raspberry to Dimond - 4/0 ACSR	A-8	2129, 2130, 2230	E2013962	\$ 1,700,000	\$ 1,700,000	\$ -	\$ -	\$ -	\$ -
Old Seward Hwy - O'Malley Rd to Huffman Rd	A-9	2632, 2732	E1813853 E2020058	\$ 4,000,000	\$ 4,000,000	\$ -	\$ -	\$ -	\$ -
CBD: 4th/5th Alley - Gambell St. to Karluk St.	A-10	1231, 1232	P2000046	\$ 500,000	\$ 500,000	\$ -	\$ -	\$ -	\$ -
Glacier St. & 22nd Ave.	A-11	1537	TBD	\$ 2,100,000	\$ 100,000	\$ 2,000,000	\$ -	\$ -	\$ -
Arctic to Aurora	A-12	1430, 1530	P1900123	\$ 2,525,000	\$ 525,000	\$ 2,000,000	\$ -	\$ -	\$ -
Gambell St. - 3rd Ave. to 15th Ave.	A-13	1231,1331, 1431	P1900043	\$ 2,100,000	\$ 100,000	\$ 2,000,000	\$ -	\$ -	\$ -
Huffman Road - Lake Otis to Old Seward - 4/0 ACSR	A-14	2832, 2833	E1813852	\$ 4,000,000	\$ -	\$ 4,000,000	\$ -	\$ -	\$ -
Baxter Road	A-15	1739	E1613634	\$ 850,000	\$ -	\$ 850,000	\$ -	\$ -	\$ -
CBD: 7th/8th Alley - Gambell St. to Ingra St.	A-16	1331, 1332	TBD	\$ 350,000	\$ -	\$ 350,000	\$ -	\$ -	\$ -
Roosevelt Park	A-17	1728	TBD	\$ 1,800,000	\$ -	\$ 600,000	\$ 1,200,000	\$ -	\$ -
Turnagain Park Subdivision	A-18	1526, 1527	TBD	\$ 2,200,000	\$ -	\$ -	\$ 700,000	\$ 750,000	\$ 750,000
Old Seward Hwy - Dimond Blvd to O'Malley Rd	A-19	2332, 2432, 2532	TBD	\$ 4,000,000	\$ -	\$ -	\$ 4,000,000	\$ -	\$ -
Green Valley	A-20	1726, 1727	TBD	\$ 250,000	\$ -	\$ -	\$ 250,000	\$ -	\$ -
Aero Acres	A-21	1726	TBD	\$ 800,000	\$ -	\$ -	\$ 800,000	\$ -	\$ -
CBD: Frontierland Park - 10th & E St.	A-22	1231, 1232	TBD	\$ 350,000	\$ -	\$ -	\$ 350,000	\$ -	\$ -
Dimond Blvd. - Jewel Lake to Roy	A-23	2425-2427	TBD	\$ 2,500,000	\$ -	\$ -	\$ -	\$ 2,500,000	\$ -
Lake Otis Parkway	A-24	1834, 1934	TBD	\$ 2,000,000	\$ -	\$ -	\$ -	\$ 2,000,000	\$ -
Glacier St. & 24th Ave.	A-25	1537	TBD	\$ 2,600,000	\$ -	\$ -	\$ 100,000	\$ 500,000	\$ 2,000,000
Logan St. - 17th Ave. to 20th Ave.	A-26	1434	TBD	\$ 2,150,000	\$ -	\$ -	\$ 50,000	\$ 2,100,000	\$ -
W. 9th & P St.	A-27	1328	TBD	\$ 1,150,000	\$ -	\$ -	\$ 50,000	\$ 200,000	\$ 900,000
Midtown: Blueberry Rd.	A-28	1529, 1530	TBD	\$ 500,000	\$ -	\$ -	\$ -	\$ 500,000	\$ -
Needle Circle	A-29	1732, 1733	TBD	\$ 1,600,000	\$ -	\$ -	\$ -	\$ 100,000	\$ 500,000
Westpark Subdivision	A-30	2031, 2032	TBD	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ 500,000
Wickersham Park	A-31	1833, 1834	TBD	\$ 750,000	\$ -	\$ -	\$ -	\$ -	\$ 750,000
Wisconsin Street	A-32	1626-1726	TBD	\$ 2,500,000	\$ -	\$ -	\$ -	\$ -	\$ 2,500,000
35kV: Debarr Sub to Anchorage Sub	A-33	1335-1339 1435, 1535-1536	TBD	\$ 5,250,000	\$ -	\$ -	\$ -	\$ 250,000	\$ 5,000,000
Elmore and Tudor - 4/0 ACSR	A-34	1835, 1836	TBD	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ 500,000
				\$ 54,495,000	\$ 11,895,000	\$ 11,800,000	\$ 7,500,000	\$ 8,900,000	\$ 13,400,000

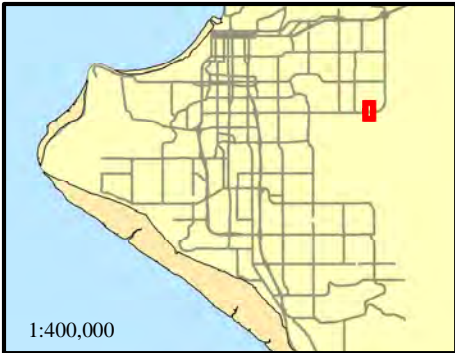
Appendix A

2021 - 2025 Underground Project Summary Sheets

TITLE 21 PROJECT PATTERSON & TUDOR

PROJECT NUMBER: E1813854

PROJECT COST: \$500,000



VICINITY MAP



PROJECT DESCRIPTION:

The project will underground approx. 1/4 mile of 4/0 ACSR 3-phase overhead, and replace the 750 kcmil direct-bury crossing under Tudor Road on feeder BF 512. This project is required as the last phase of the BF 512 feeder improvement for capacity out of the substation, and for contingency support of DL 512.

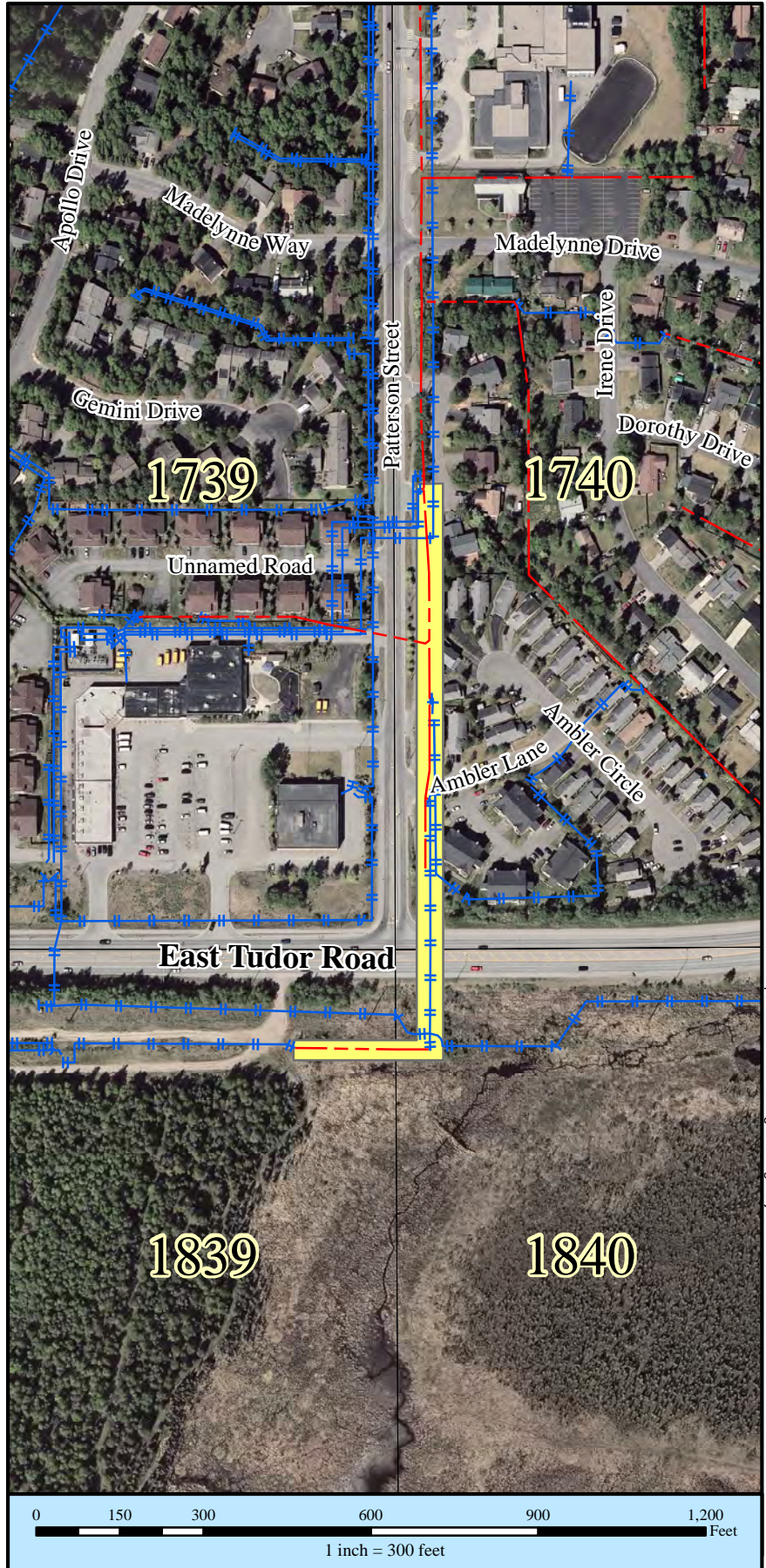
NOTES:

This is for reference and review purposes only of proposed Undergrounding Projects and is for official Chugach Electric Association use only.

For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- +— Primary Underground Conductor
- Project Area



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-1 Patterson & Tudor.mxd

TITLE 21 PROJECT

O'MALLEY ROAD - LIVINGSTON TO HILLSIDE



PROJECT NUMBER: E1813812

PROJECT COST: \$2,000,000

PROJECT DESCRIPTION:

This project will underground approx. one mile of 336 ACSR 3-phase overhead line supporting OMSS 212 & OMSS 312 feeders. The feeders will be replaced with parallel runs of underground 750 kcmil cable. The project will be constructed in conjunction with the upper O'Malley road improvements to remedy pole location and easement conflicts.

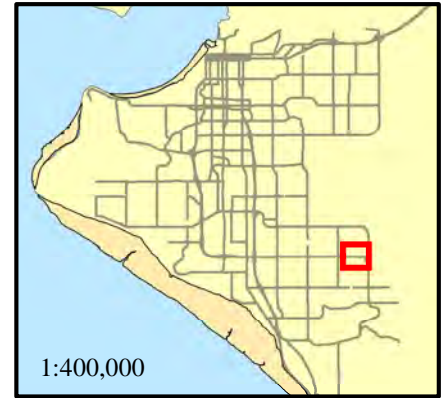
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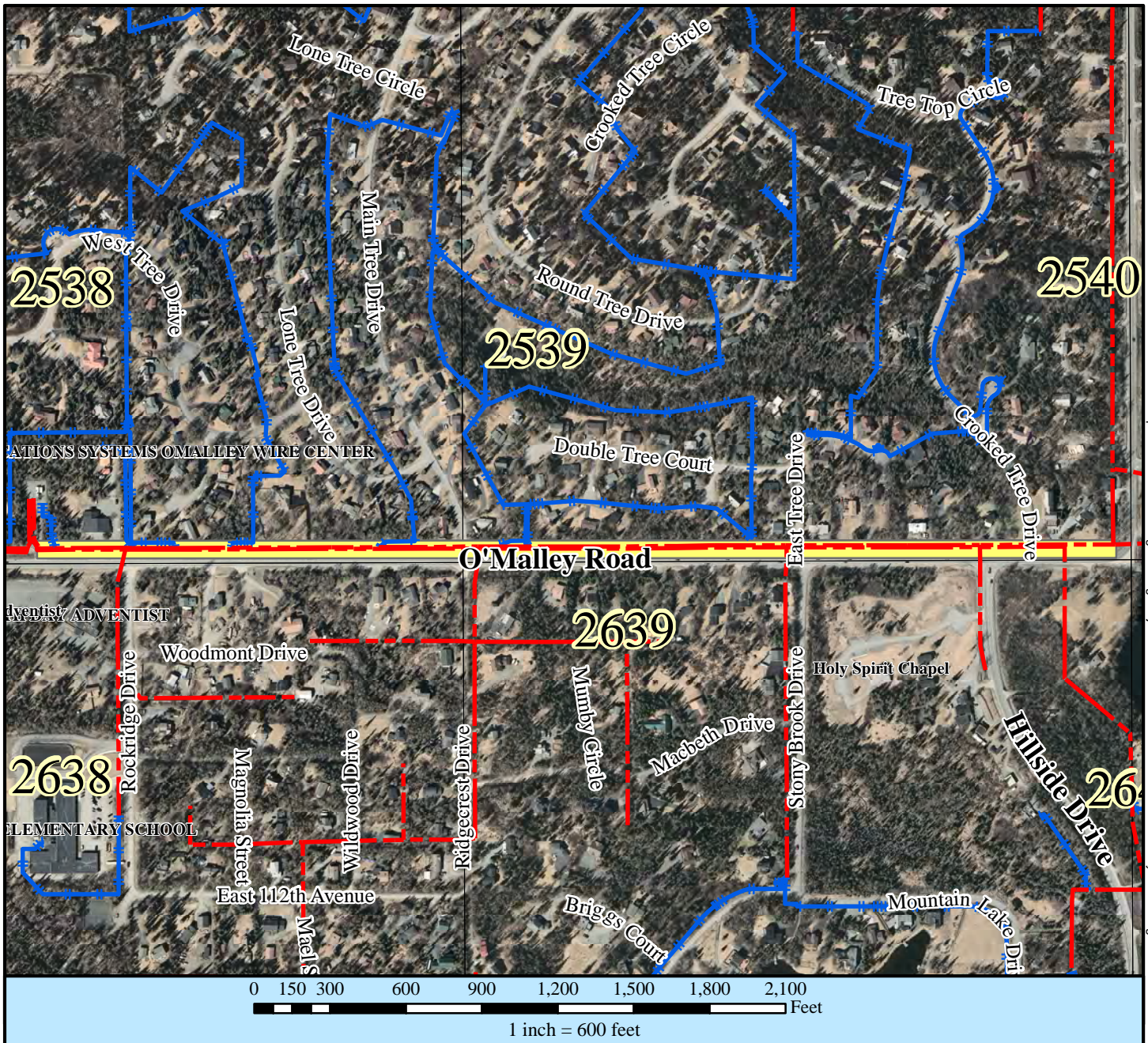
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



Document Path: j:\GIS\Custom Maps\Distribution\Undergrounding Project\Five Year Plan\2021-2025\A-2 O'Malley Rd - Livingston to Hillside.mxd

TITLE 21 PROJECT ROCKRIDGE DRIVE



PROJECT NUMBER: E2013958

PROJECT COST: \$400,000

PROJECT DESCRIPTION:

This project will underground approx. 1/4 mile of #2 ACSR 3-phase overhead on OMSS 212. There will be loop closures required as part of this project due to the undergrounding of feeders along O'Malley Road.

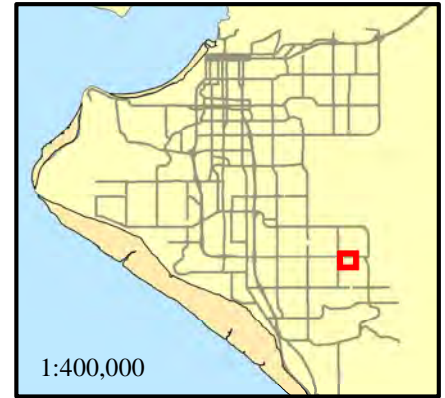
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For additional information concerning this project, please contact Brad Jackson at 762-4458.

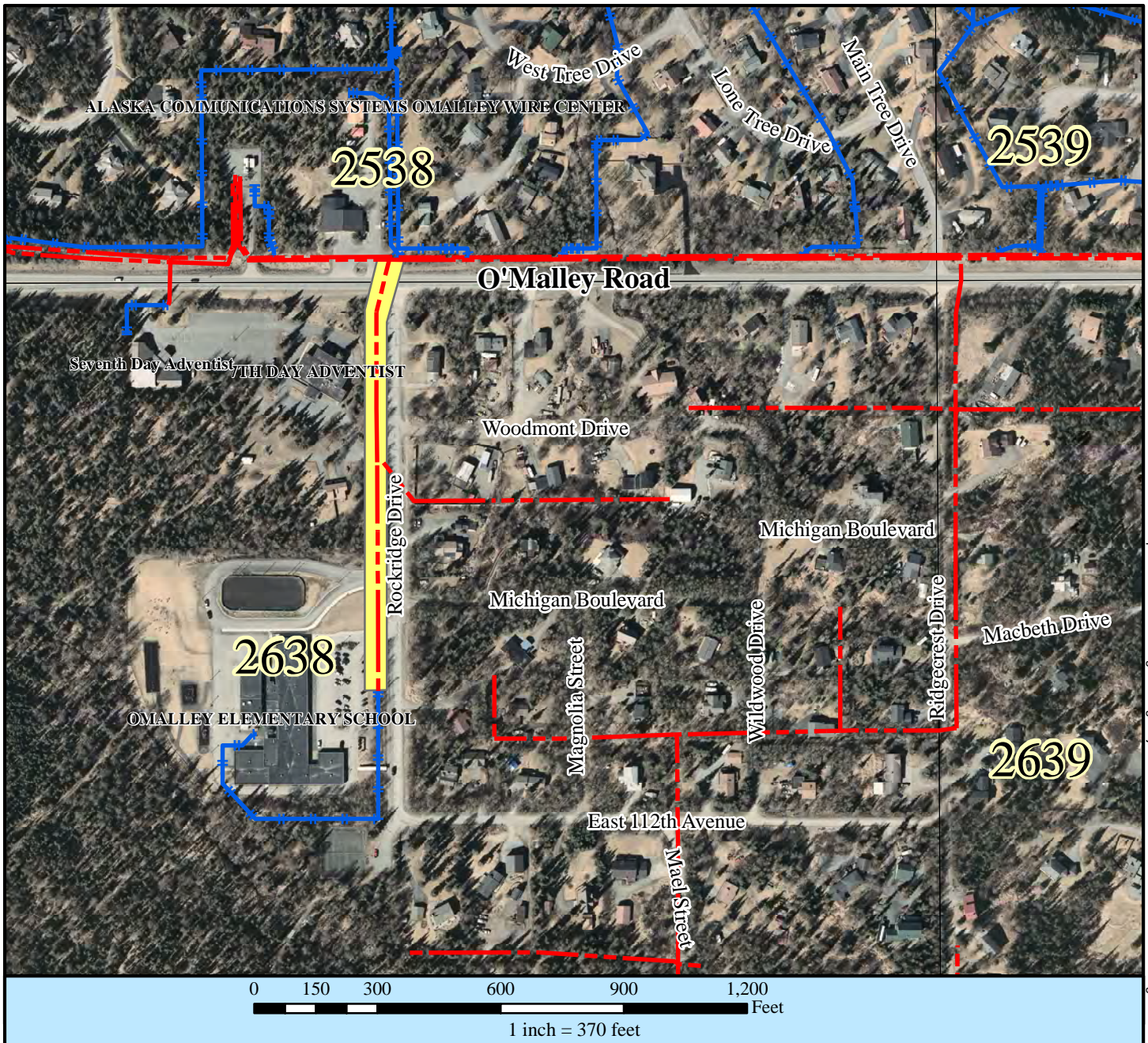
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



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TITLE 21 PROJECT

ALYESKA SUBDIVISION

Alyeska at Arlberg

PROJECT NUMBER: E1913914

PROJECT COST: \$250,000



PROJECT DESCRIPTION:

This project will retire older overhead lines in the Alyeska Subdivision in Girdwood.
 This project will provide increased system capacity and reliability for residents in the area.

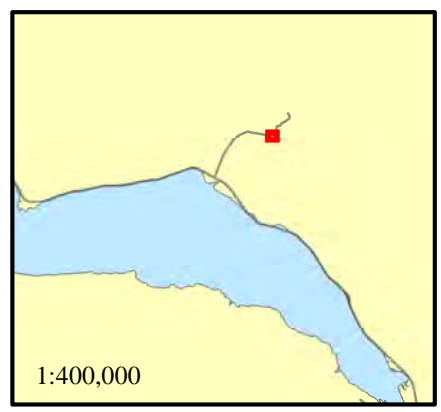
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For additional information concerning this project, please contact Brad Jackson at 762-4458.

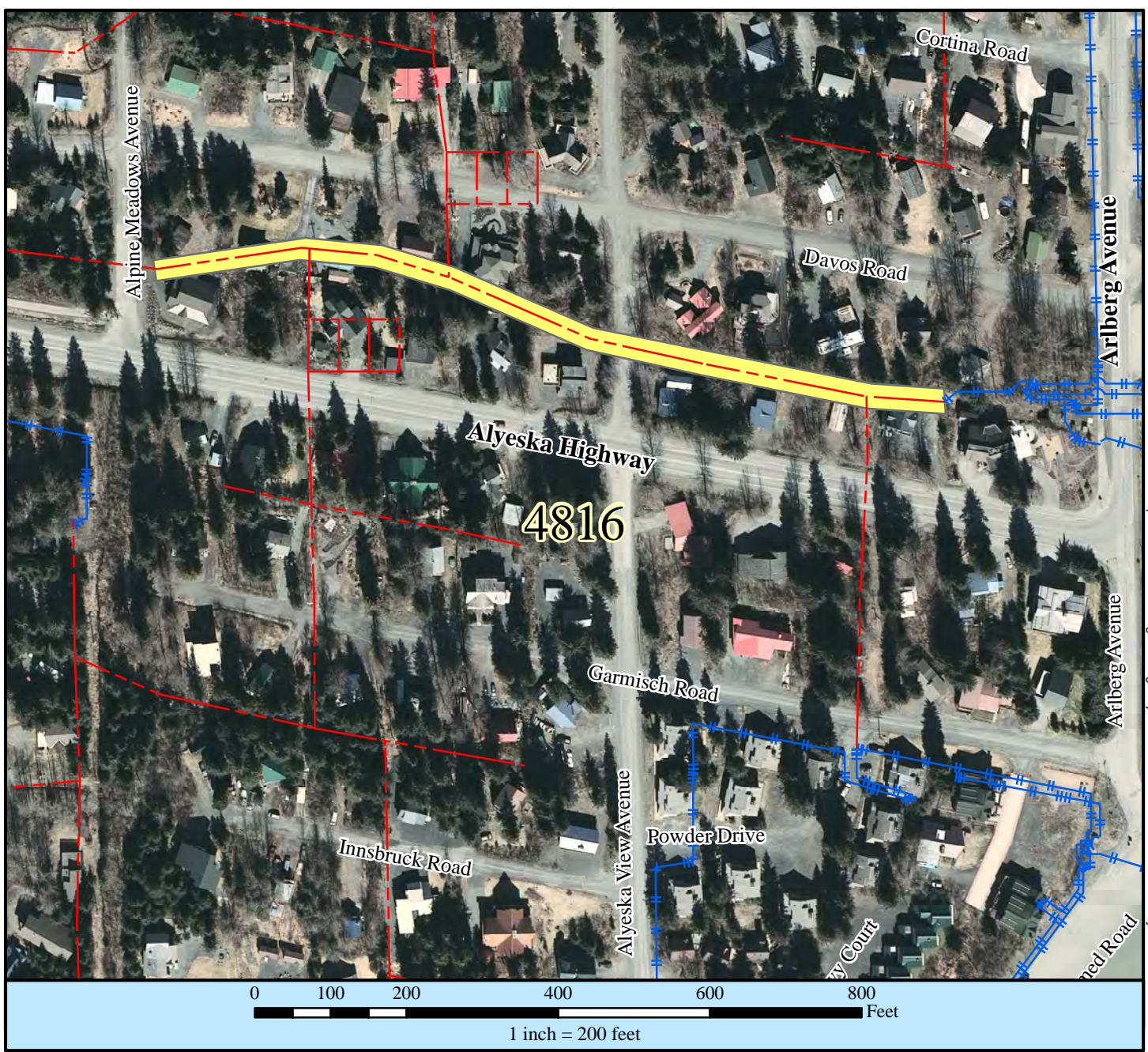
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



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TITLE 21 PROJECT GIRDWOOD ENTRY SUBDIVISION

PROJECT NUMBER: E1913879

PROJECT COST: \$80,000



PROJECT DESCRIPTION:

This project will underground approximately 1400 feet of OH three-phase conductor to mitigate aging pole foundations across wetlands in the Girdwood Entry Subdivision. This project will provide increased system capacity and reliability for residents in the area.

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



VICINITY MAP



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TITLE 21 PROJECT SHAUN LANDING CIRCLE

PROJECT NUMBER: E1913886

PROJECT COST: \$40,000



PROJECT DESCRIPTION:

This project will underground approximately 1000 feet of OH single-phase conductor and install junction boxes to mitigate aging pole foundations and improve reliability for the residences around Shaun Landing Circle.

This project will provide increased system capacity and reliability for residents in the area.

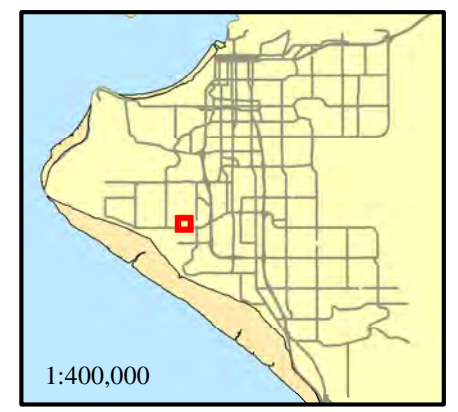
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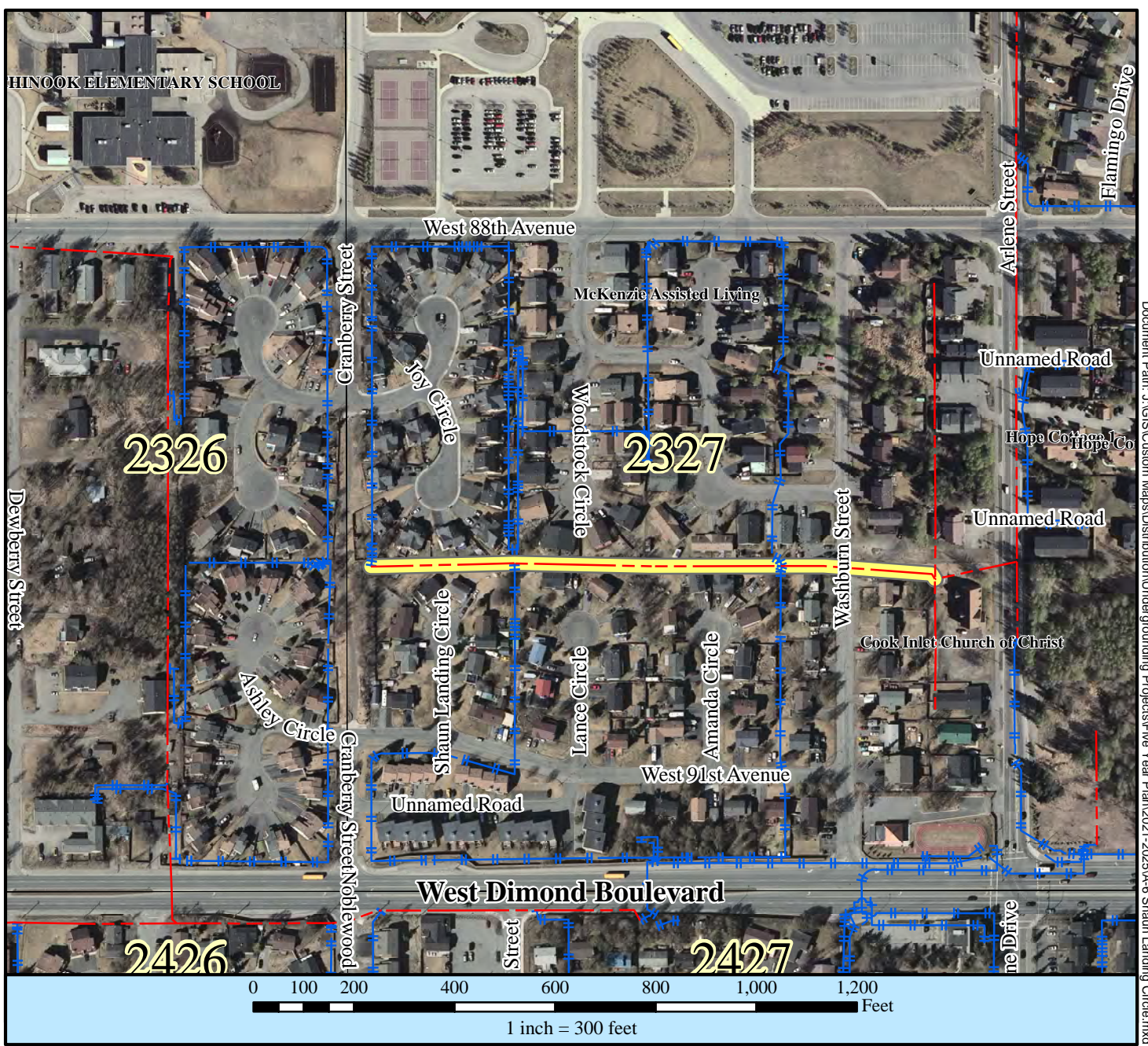
For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



VICINITY MAP



Coordinate System: Alaska State Plane Zone 4, NAD83

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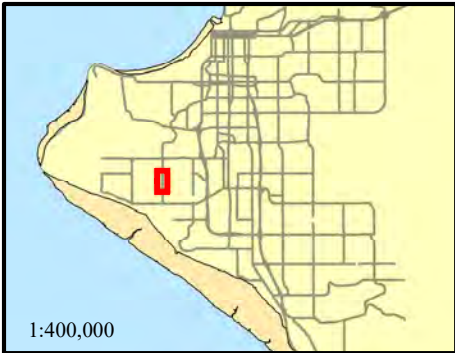
TITLE 21 PROJECT JEWEL LAKE ROAD

Strawberry to 84th Avenue



PROJECT NUMBER: E2013957

PROJECT COST: \$1,700,000



1:400,000

VICINITY MAP



PROJECT DESCRIPTION:

Under this project, the existing 1/0 ACSR three-phase line between Riser Pole 9866 (Grid 2125) and Riser Pole 9708 (Grid 225) will be replaced with Chugach's standard 750 kcmil underground cable specified for main feeder circuits. Approximately 2200 feet of overhead Raspberry 212 main feeder circuit and 2800 feet of Jewel Lake 132 main feeder circuit along Jewel Lake Road, south of the Raspberry Road intersection, would be retired within the scope of this project.

The first phase of this project from Raspberry to Strawberry was completed in 2012. The second phase is scheduled for 2021.

Replacement of this 1/0 ACSR circuit with 750 kcmil cable would increase the feeder transfer capacity from 6 MVA to 13 MVA. This area has also been documented as an area with tree trimming difficulties. By relocating the facilities underground, the reliability associated with tree related outages should improve.

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- +— Primary Underground Conductor
- Project Area



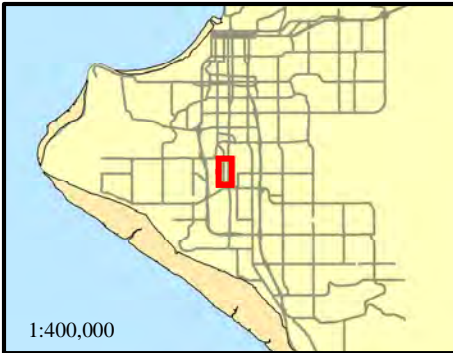
Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-7 Jewel Lake Road Strawberry to 84th.mxd

TITLE 21 PROJECT ARCTIC BLVD - RASPBERRY TO DIMOND



PROJECT NUMBER: E2013962

PROJECT COST: \$1,700,000



VICINITY MAP



PROJECT DESCRIPTION:

This project will underground approx. 0.75 miles of 4/0 ACSR 3-phase overhead to support feeder load growth on AT 412 and contingency support of SL 812.

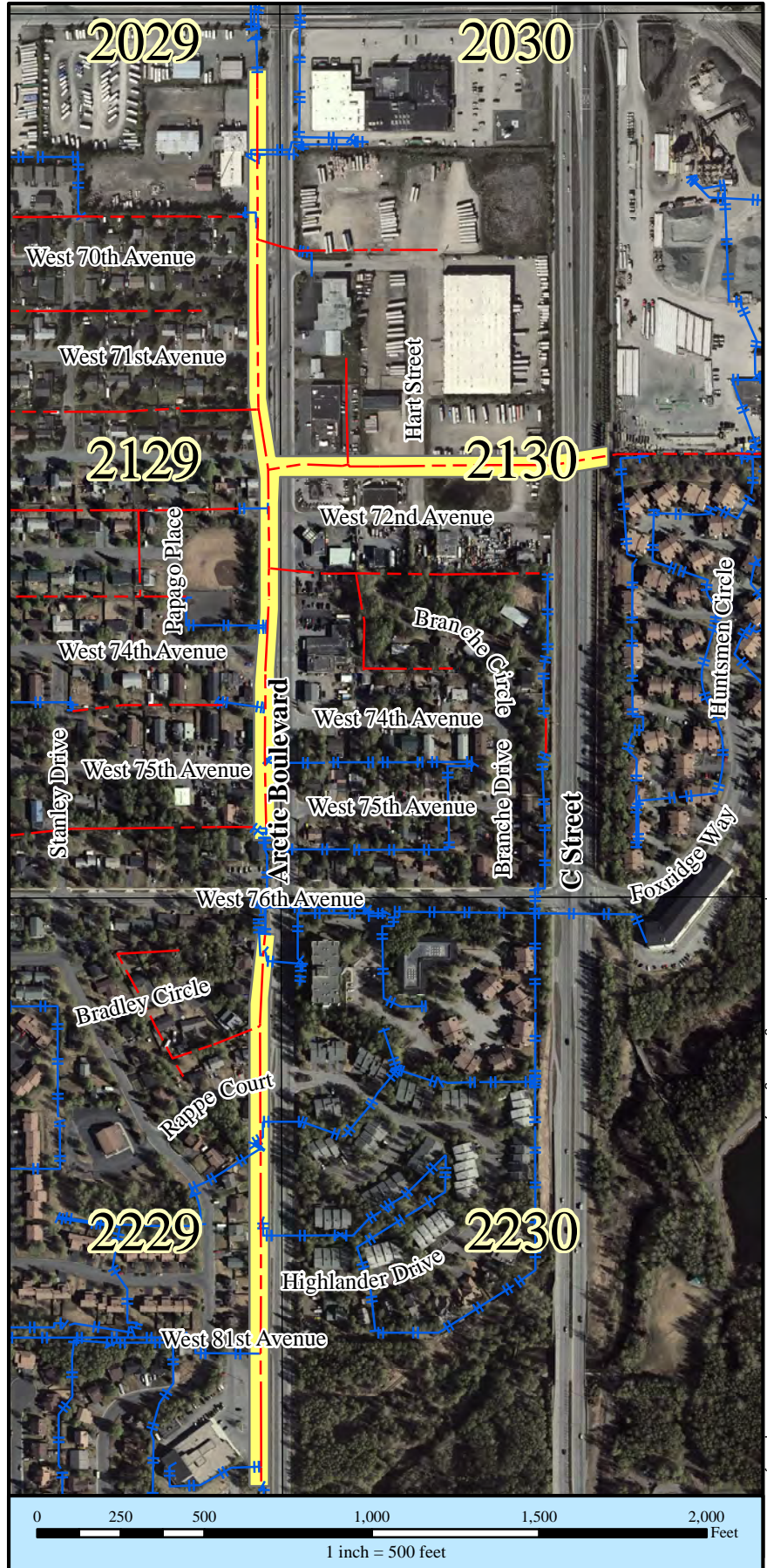
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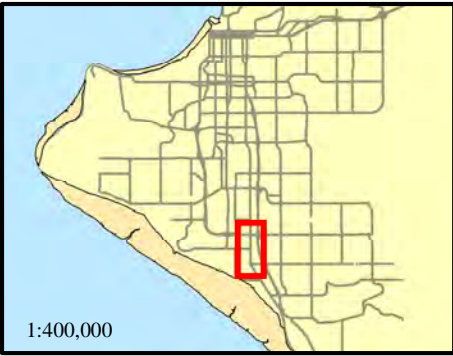
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



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TITLE 21 PROJECT
OLD SEWARD HWY O'MALLEY TO HUFFMAN
 OH to UG Conversion KLSS 412 and KLSS 812
PROJECT NUMBER: E1813853 & E2020058 PROJECT COST: \$4,000,000



VICINITY MAP

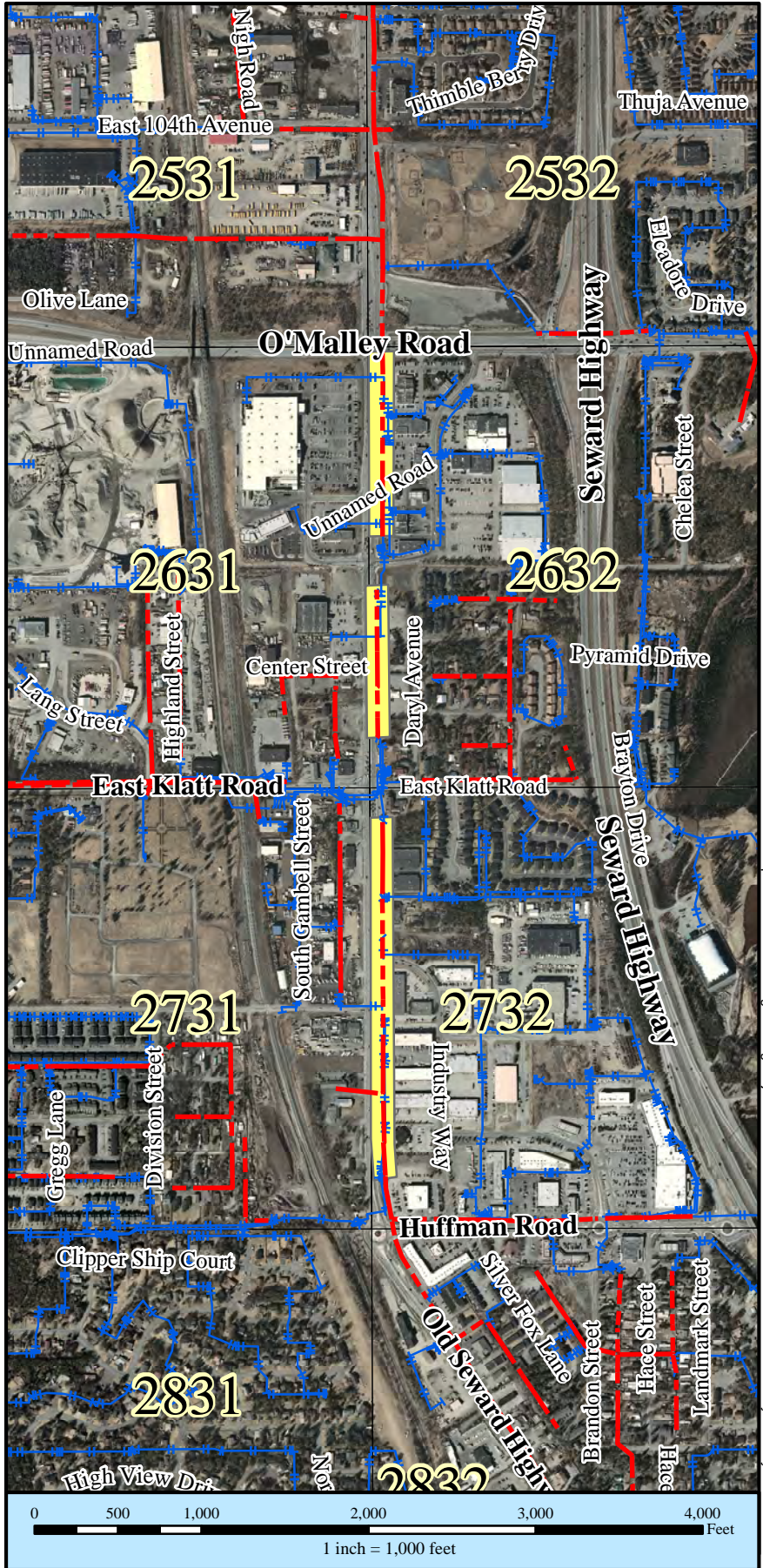


PROJECT DESCRIPTION:
 This project will improve the safety and load capacity of the distribution and sub-transmission circuits along Old Seward Highway by replacing 0.9 miles of 336 and 226 ACSR overhead with 750 kcmil (distribution) and 1000 kcmil (sub-transmission) circuits in duct and vault. Underground this circuit along a Title 21 Target Area roadway will avoid conflicts with commercial development, increase load transfer capability between Sandlake and Klatt substations, and remove poles that can no longer safely support dual-circuits due to age.

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 For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Project\Five Year Plan\2021-2025\A-9 Old Seward Hwy O'Malley to Huffman.mxd

TITLE 21 PROJECT
4th/5th Alley: Gambell St. to Karluk St.
 Fairview Community Council: East Addition Subdivision
PROJECT NUMBER: P2000046 **PROJECT COST: \$500,000**

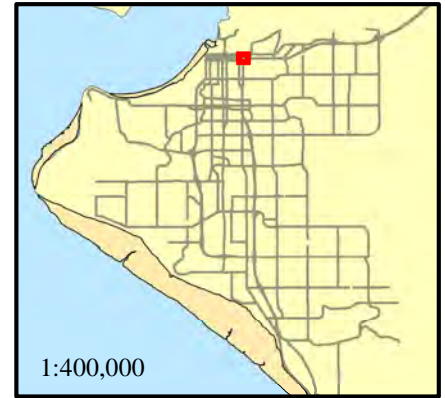


PROJECT DESCRIPTION:
 This project will underground overhead conductors in the 4th/5th Avenue Alley between Gamble Street and Karluk Street. This project is in a Target Area described in the Title 21 Underground Ordinance because it is in the area described in the Central Business District.

NOTES:
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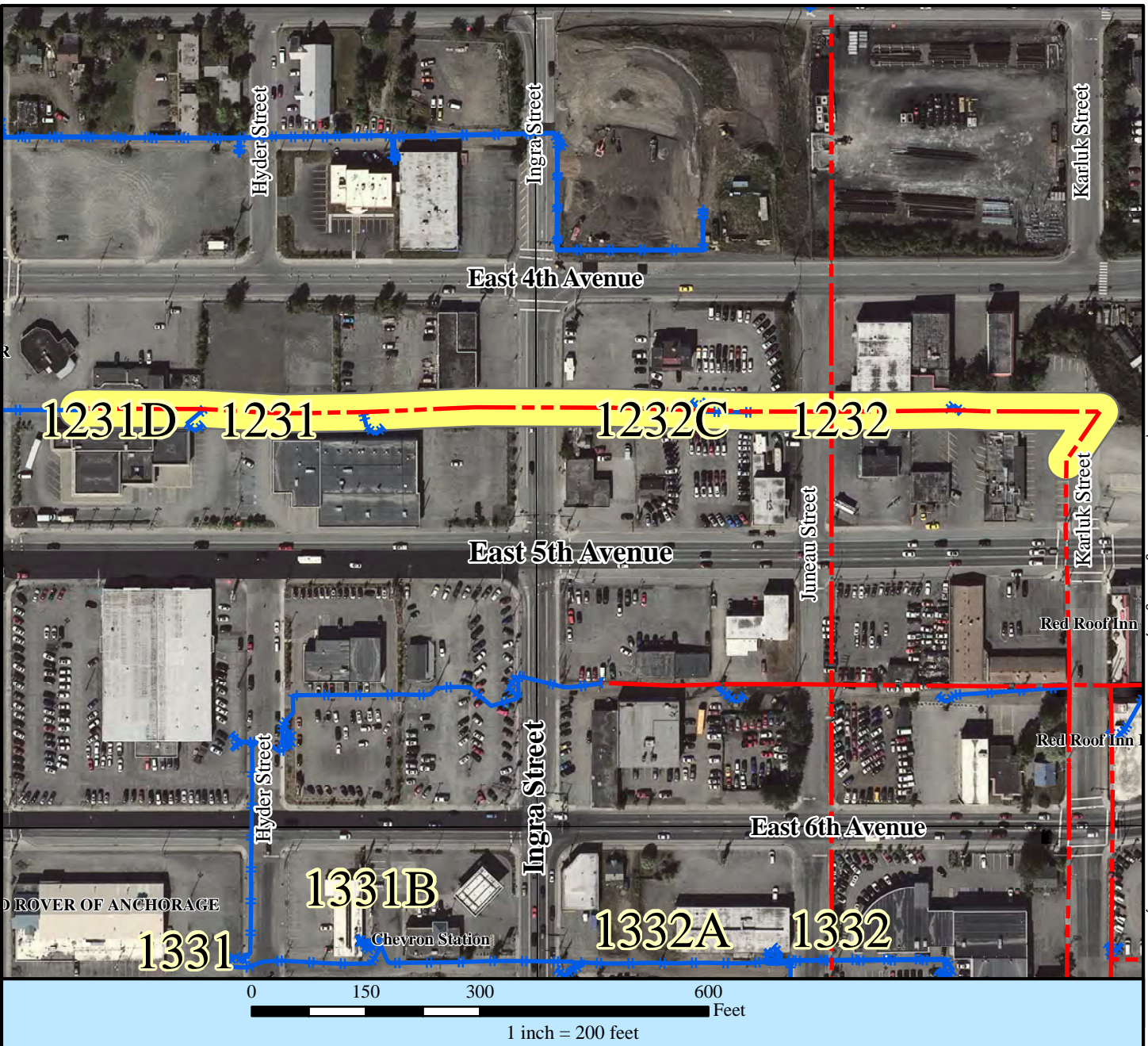
 For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND
 — Primary Overhead Conductor
 — Primary Underground Conductor
 ■ Project Area



1:400,000

VICINITY MAP



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TITLE 21 PROJECT
Glacier Street & 22nd Avenue
 Russian Jack Community Council
 PROJECT NUMBER: TBD PROJECT COST: \$2,100,000



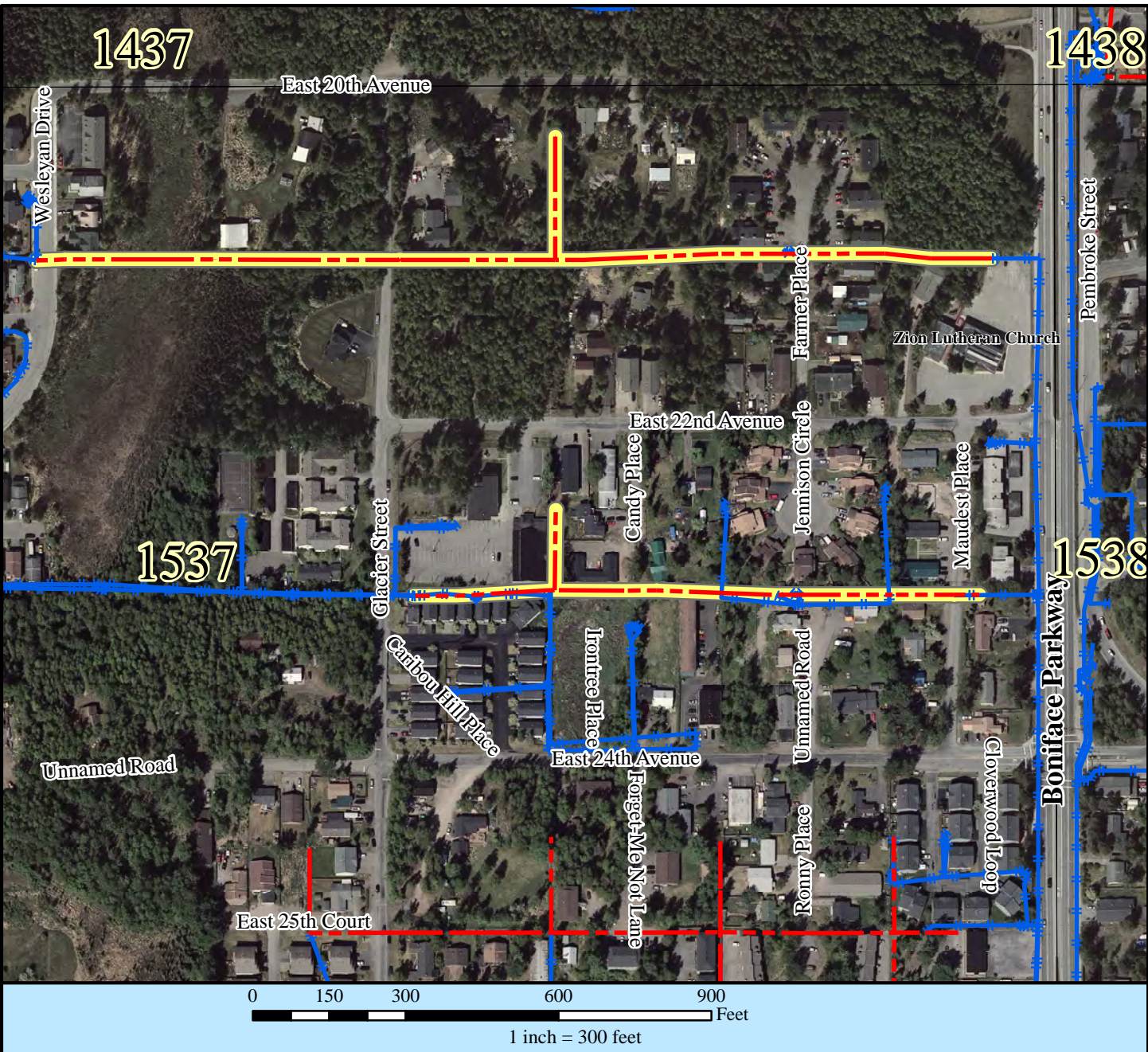
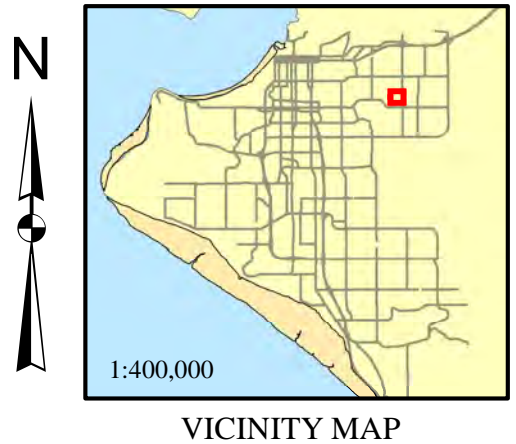
PROJECT DESCRIPTION:
 This project will remove overhead electric lines west of Boniface Parkway and north of E. 24th Avenue. The new underground lines will connect primary loops for increased reliability. This area has seen a very high number of outages, especially due to high winds and squirrels. Restoring outages have been difficult due to accessibility issues. This project is in the Target Area described in the Title 21 Underground Ordinance because undergrounding these overhead lines will eliminate the power outage risk associated with the high winds. The MOA Planning Department issued a "Three Second Gust Wind Zones" map. This project is inside the highest wind speed in ML&P territory, 120 MPH.

NOTES:
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 For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025A-11 Glacier St. & 22nd Ave.mxd

TITLE 21 PROJECT

Arctic to Aurora

North Star Community Council: Thompson Subdivision

PROJECT NUMBER: P1900123

PROJECT COST: \$2,525,000



PROJECT DESCRIPTION:

This project will underground power lines in the neighborhood east of Arctic Blvd., south of 19th Avenue, north of 22nd Avenue and west of Aurora Drive. Currently there are access issues as the lines are located in backyards. This project has been requested by the neighborhood and is the top priority underground project in the North Star Community Council.

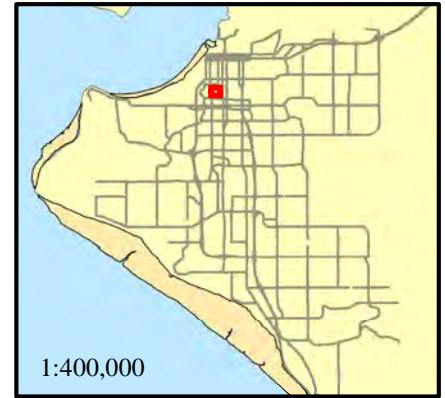
NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



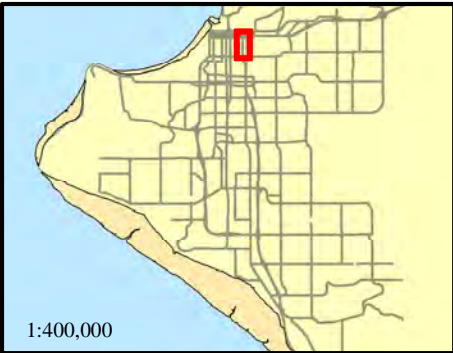
1:400,000

VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-12 Arctic to Aurora.mxd

TITLE 21 PROJECT
Gambell Street: 3rd Avenue to 15th Avenue
 Downtown Community Council: Anchorage Townsite East Addition Subdivision
PROJECT NUMBER: P1900043 **PROJECT COST: \$2,100,000**



VICINITY MAP

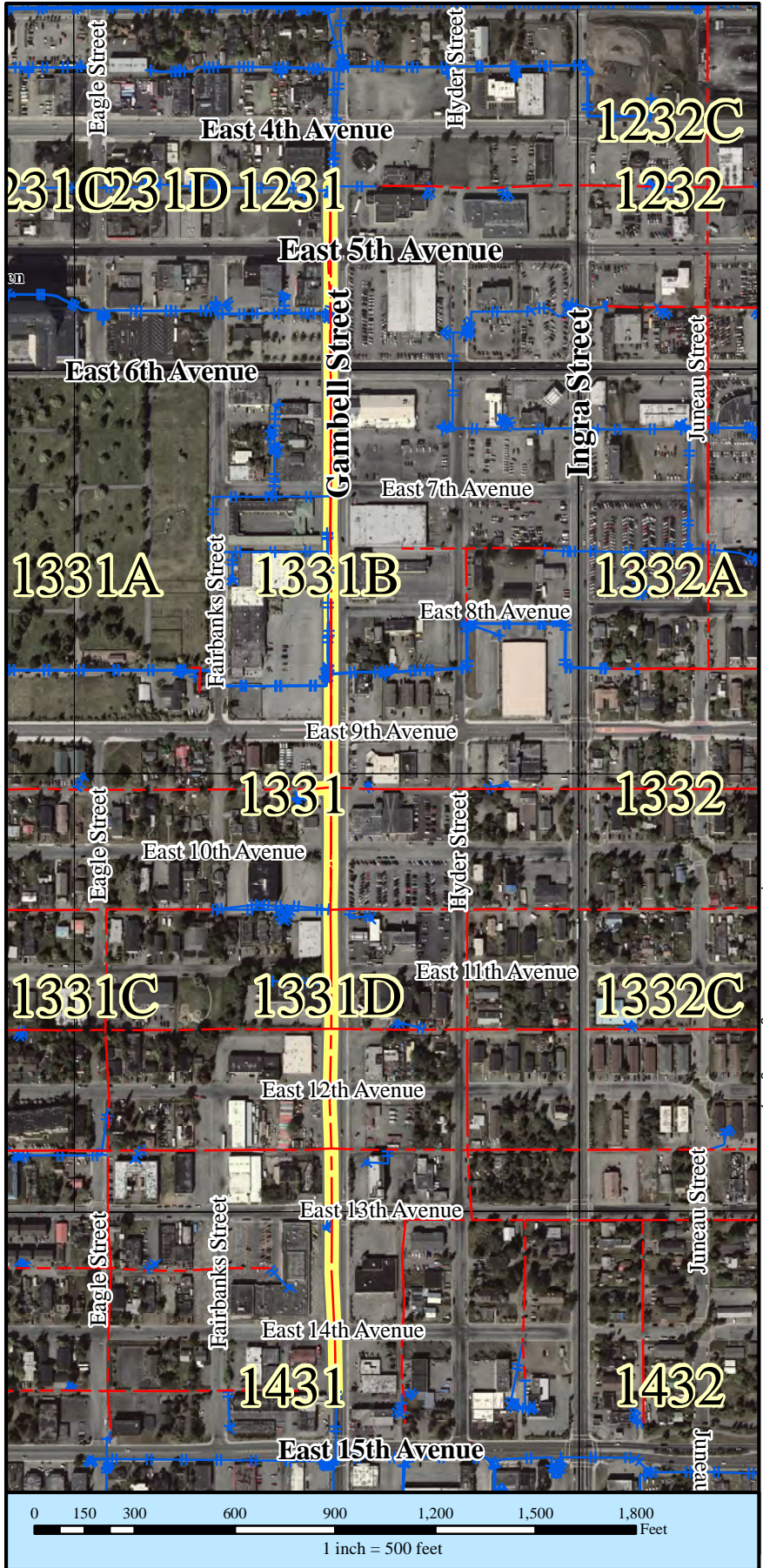


PROJECT DESCRIPTION:
 This project will underground overhead powerlines along Gambell Street from 3rd Avenue to the south side of 15th Avenue. This line has multiple system voltages on it. This project is planned to be in conjunction with an Alaska DOT project that will also be upgrading the street lighting. This project will not be occurring without participation of Alaska DOT. Gambell Street is described as a Target Area outlined in the Title 21 Underground Ordinance.

NOTES:
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 For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- +— Primary Underground Conductor
- Project Area



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025A-13 Gambell St - 3rd Ave to 15th Avenue.mxd

TITLE 21 PROJECT HUFFMAN ROAD

Huffman Road - Lake Otis to Old Seward (HNSS 312 TO KLSS 812)

PROJECT NUMBER: E1813852

PROJECT COST: \$4,000,000



PROJECT DESCRIPTION:

This project will replace 0.8 miles of 4/0 ACSR 3-phase overhead with 750 kcmil underground on the Hane 312 to Klatt 812 tie (Grids 2732 and 2834). This upgrade will improve the system capacity for existing and new load growth in addition to improving reliability. The summer peak loading is near the capacity limit of the 4/0 ACSR circuit under n-1 contingency conditions.

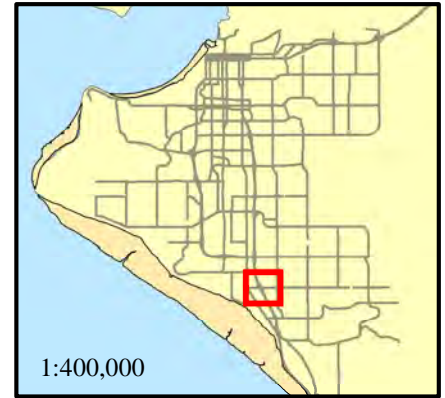
NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

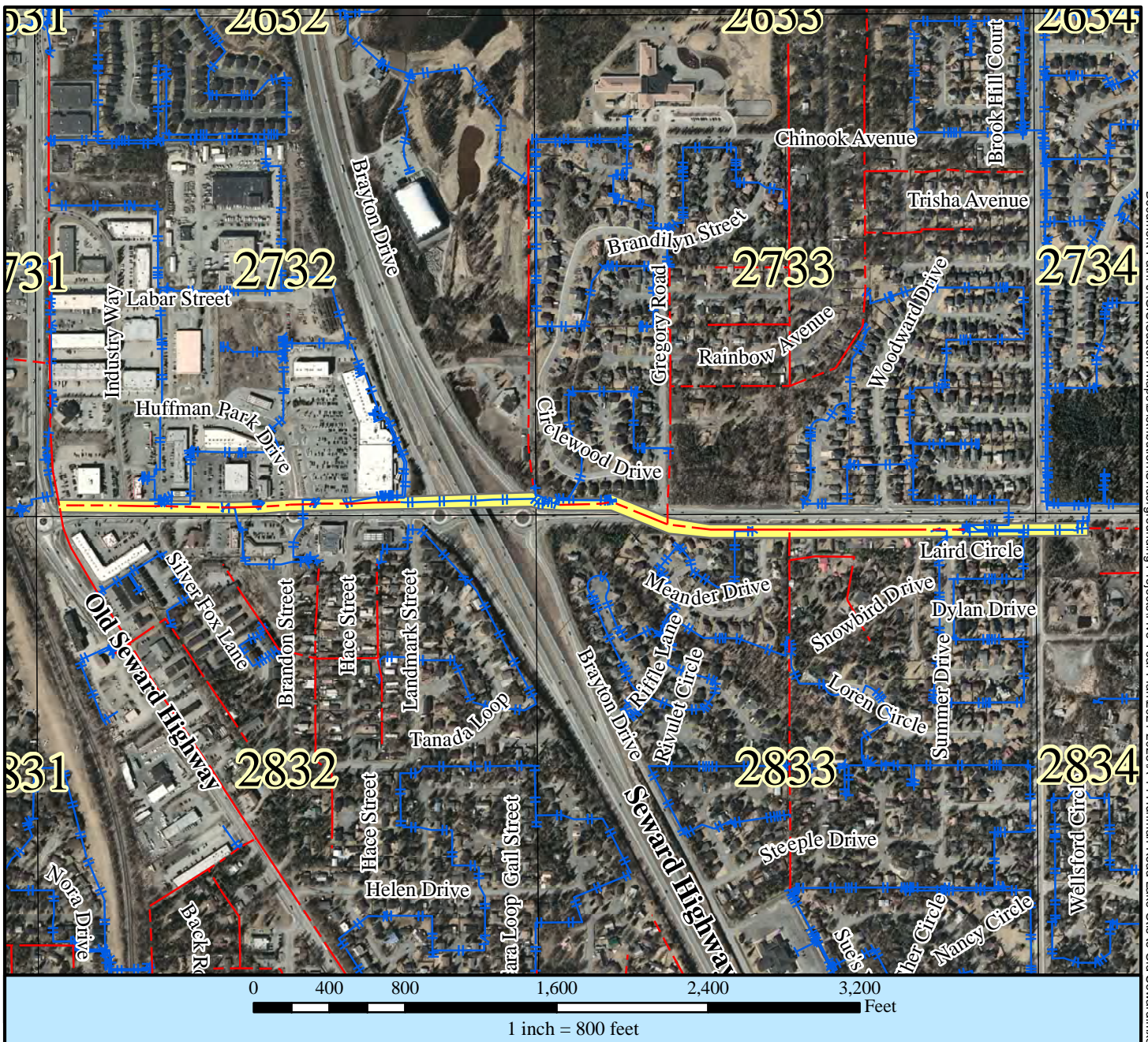
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-14 Huffman Road Lake Otis to Old Seward.mxd

TITLE 21 PROJECT

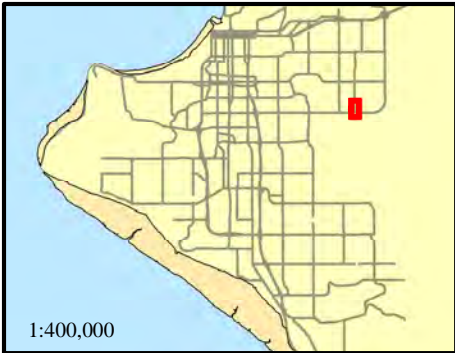
BAXTER ROAD

Baxter at Tudor



PROJECT NUMBER: E1613634

PROJECT COST: \$850,000



1:400,000

VICINITY MAP



PROJECT DESCRIPTION:

The source for this feeder on the south side of Tudor failed resulting in a pole fire. Switching was able to restore power to all but 200 customers for the duration of the repair. Undergrounding a section from pole 0203 in Grid 1739 to pole 0263 in Grid 1739 will tie together two 3-phase radials (BFSS 412 & BXSS 282) to provide increased reliability for the area.

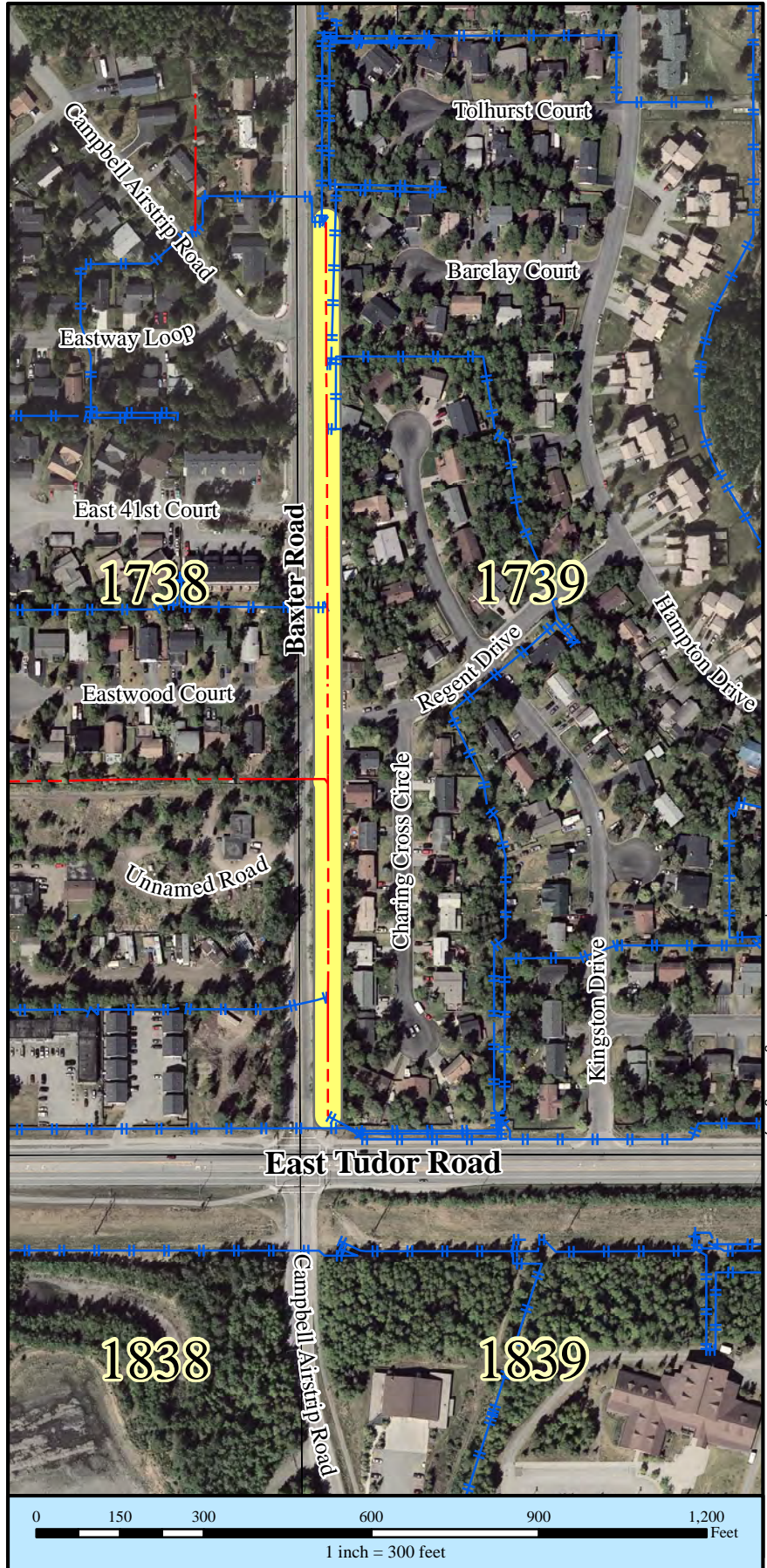
NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- +— Primary Underground Conductor
- Project Area



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-15 Baxter Road Baxter at Tudor.mxd

TITLE 21 PROJECT
7th/8th Alley: Gambell St. to Ingra St.
 Downtown Community Council:Original Subdivision
PROJECT NUMBER: TBD **PROJECT COST: \$350,000**

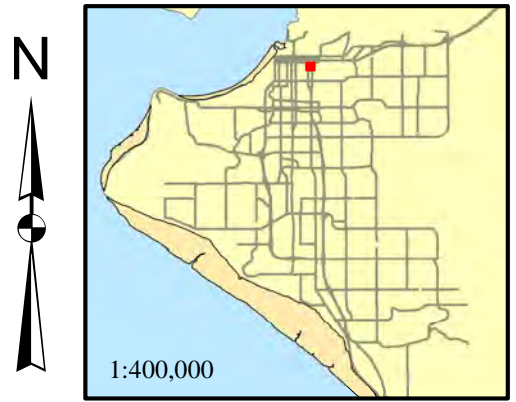


PROJECT DESCRIPTION:
 This project will underground overhead conductors in the 7th/8th Avenue Alley between Gambell Street and Ingra Street and underground overhead conductors along Hyder Street between 7th Avenue and 8th Avenue. This project is in a Target Area described in the Title 21 Underground Ordinance because it is in the area described in the Central Business District.

NOTES:
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 For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND
 - Primary Overhead Conductor
 - Primary Underground Conductor
 - Project Area



VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025A-16 7th-8th Alley-Gambell to Ingra.mxd

TITLE 21 PROJECT ROOSEVELT PARK

PROJECT NUMBER: TBD

PROJECT COST: \$1,800,000



PROJECT DESCRIPTION:

This project will underground approx. 0.6 miles of OH single-phase and approx. 0.25 miles of OH three-phase residential conductor due to age-related strength issues identified on a large number of poles within the subdivision.

NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

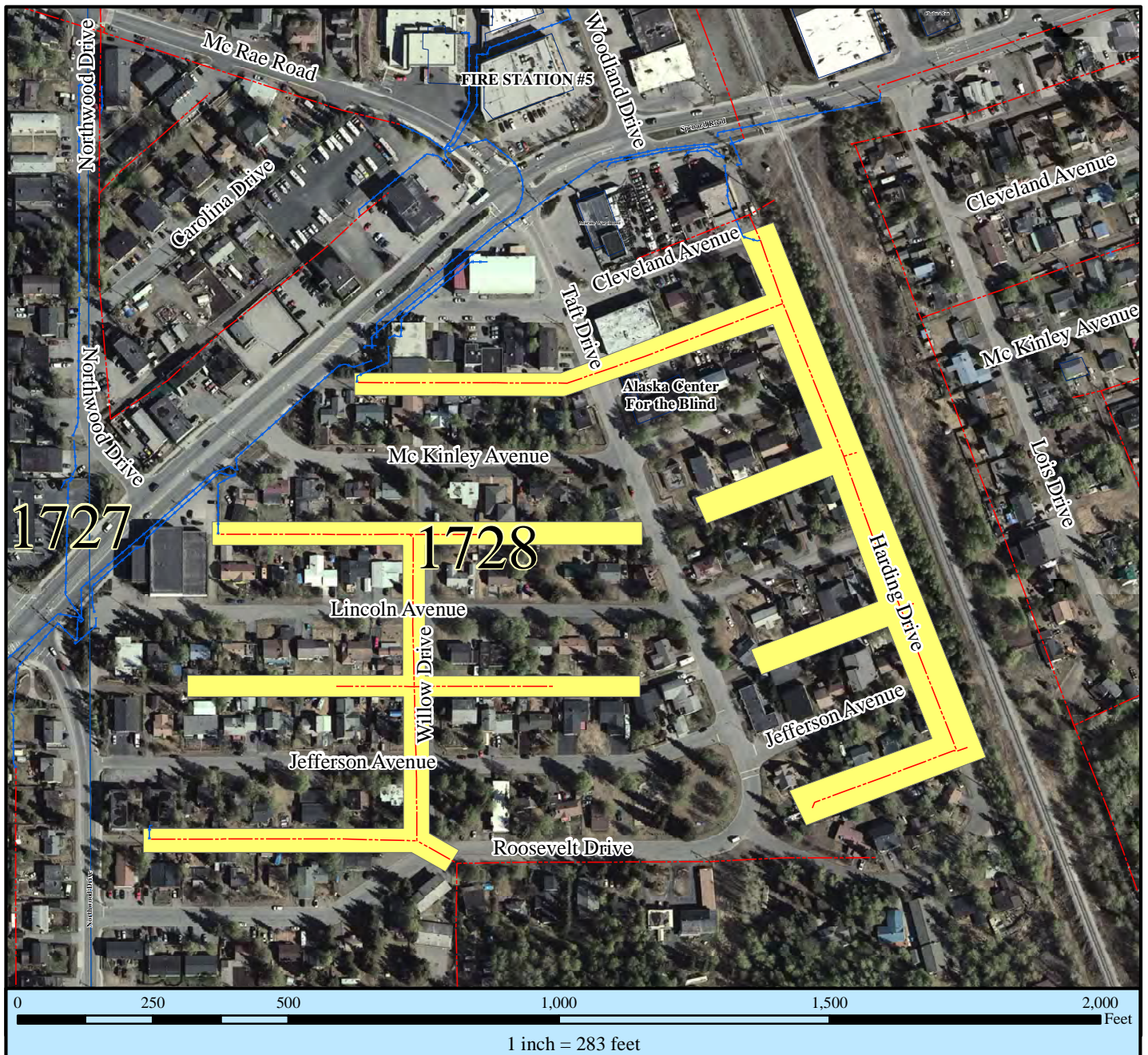
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025A-17 Roosevelt Park.mxd

Coordinate System: NAD83, State Plane, Alaska Zone 4, FIPS 5004 Feet

TITLE 21 PROJECT TURNAGAIN PARK SUBDIVISION

PROJECT NUMBER: TBD

PROJECT COST: \$2,200,000



PROJECT DESCRIPTION:

This project will underground approximately 1/2 mile of #4 ACSR 3-phase and #2 ACSR 1-phase overhead line on Turnagain Substation feeder 142. This project will be a multi-year phased undergrounding effort building a backbone underground circuit in the first year, with smaller undergrounding and loop closure projects in subsequent years.

NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

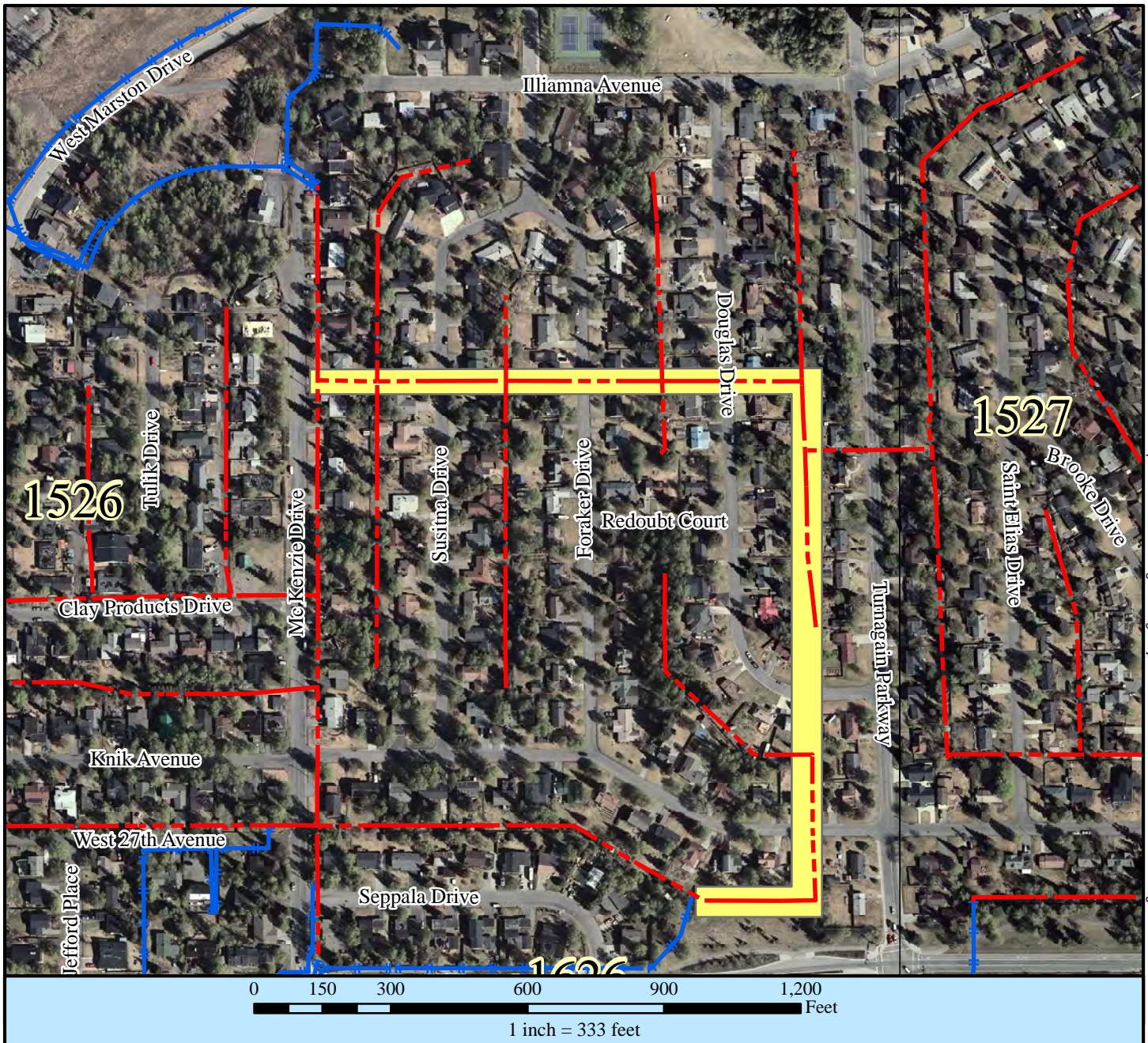
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



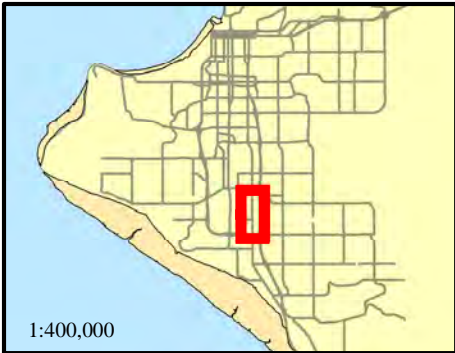
Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025A-18 Turnagain Park Subdivision.mxd

TITLE 21 PROJECT OLD SEWARD HIGHWAY

Dimond Blvd. to O'Malley

PROJECT NUMBER: TBD

PROJECT COST: \$4,000,000



VICINITY MAP



PROJECT DESCRIPTION:

This project will improve the safety and load capacity of the distribution and sub-transmission circuits along Old Seward Highway by replacing 1.3 miles of 336 and 226 ACSR overhead with 750kcmil (distribution) and 1000kcmil (sub-transmission) circuits in duct and vault. Underground this circuit along a Title 21 Target Area roadway will avoid conflicts with commercial development, increase load transfer capability between Sandlake and Klatt substations, and remove poles that can no longer safely support dual-circuits due to age.

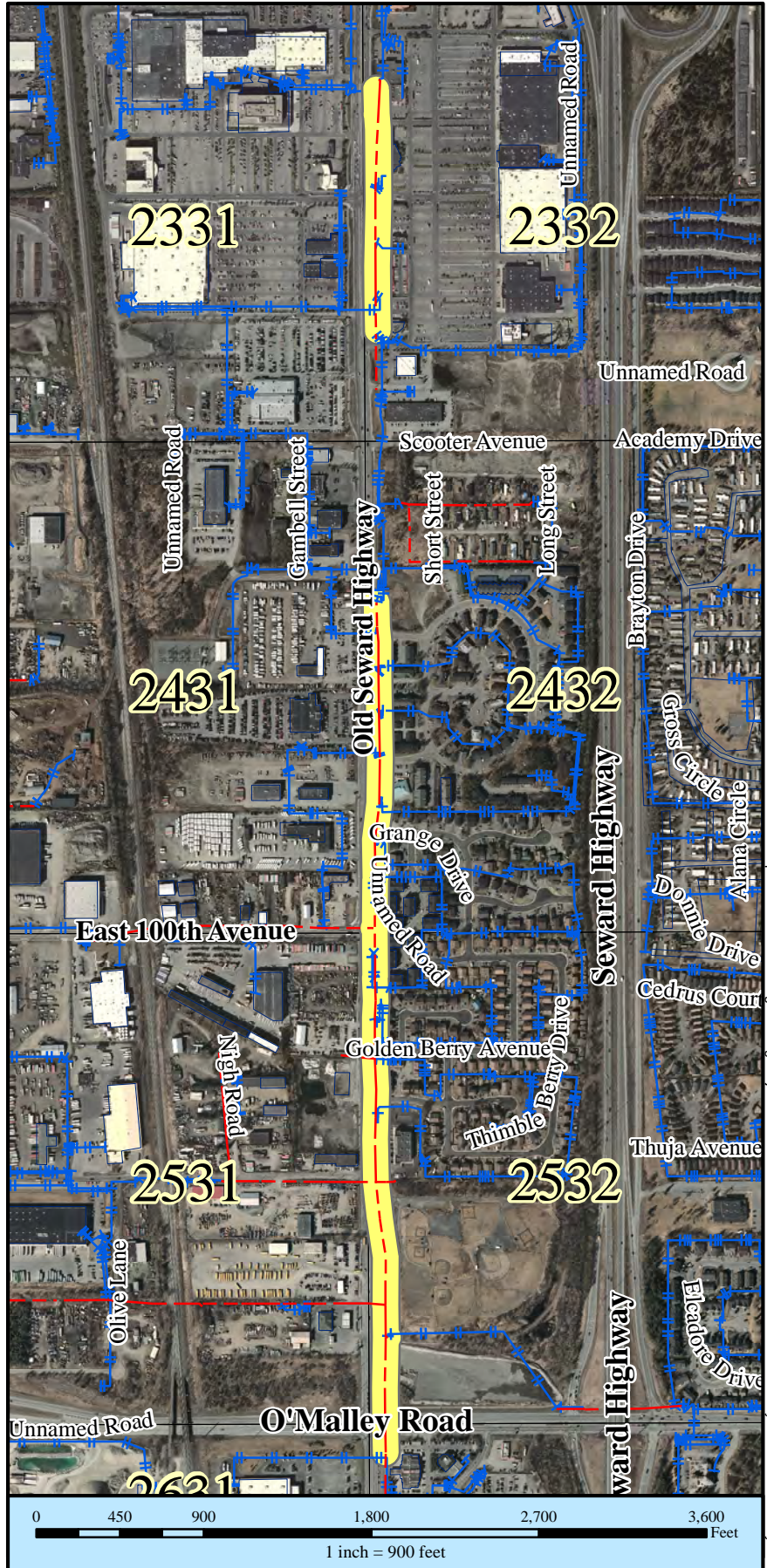
NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- +— Primary Underground Conductor
- Project Area



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-19 Old Seward Hwy Dimond to O'Malley.mxd

TITLE 21 PROJECT GREEN VALLEY

PROJECT NUMBER: TBD

PROJECT COST: \$250,000



PROJECT DESCRIPTION:

This project will underground approx. 0.25 miles of OH three-phase conductor due to age-related strength issues identified on a large number of poles within the subdivision.

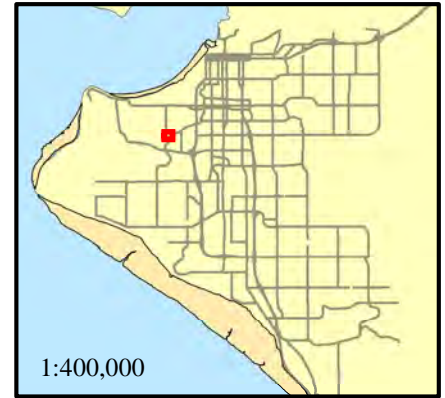
NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025A-A-20 Green Valley.mxd

Coordinate System: NAD83, State Plane, Alaska Zone 4, FIPS 5004 Feet

TITLE 21 PROJECT

AERO ACRES
ROSELANDS SUBDIVISION

PROJECT NUMBER: TBD

PROJECT COST: \$800,000



PROJECT DESCRIPTION:

This project will underground approx. 0.5 miles of OH single-phase residential conductor due to age-related strength issues identified on a large number of poles within the subdivision.

NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- + Primary Underground Conductor
- Project Area



VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-21 Aero Acres.mxd

Coordinate System: NAD83, State Plane, Alaska Zone 4, FIPS 5004 Feet

TITLE 21 PROJECT
Frontierland Park: 10th & E Street
 South Addition Community Council: South Addition Subdivision
PROJECT NUMBER: TBD **PROJECT COST: \$350,000**

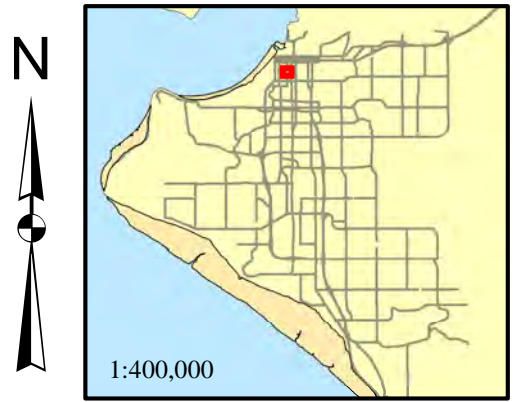


PROJECT DESCRIPTION:
 This project will underground overhead conductors near the intersection of 10th Avenue and E Street. This project is in a Target Area described in the Title 21 Underground Ordinance because it is in the area described in the Central Business District and because of its proximity to two parks, Frontierland Park and The Park Strip.

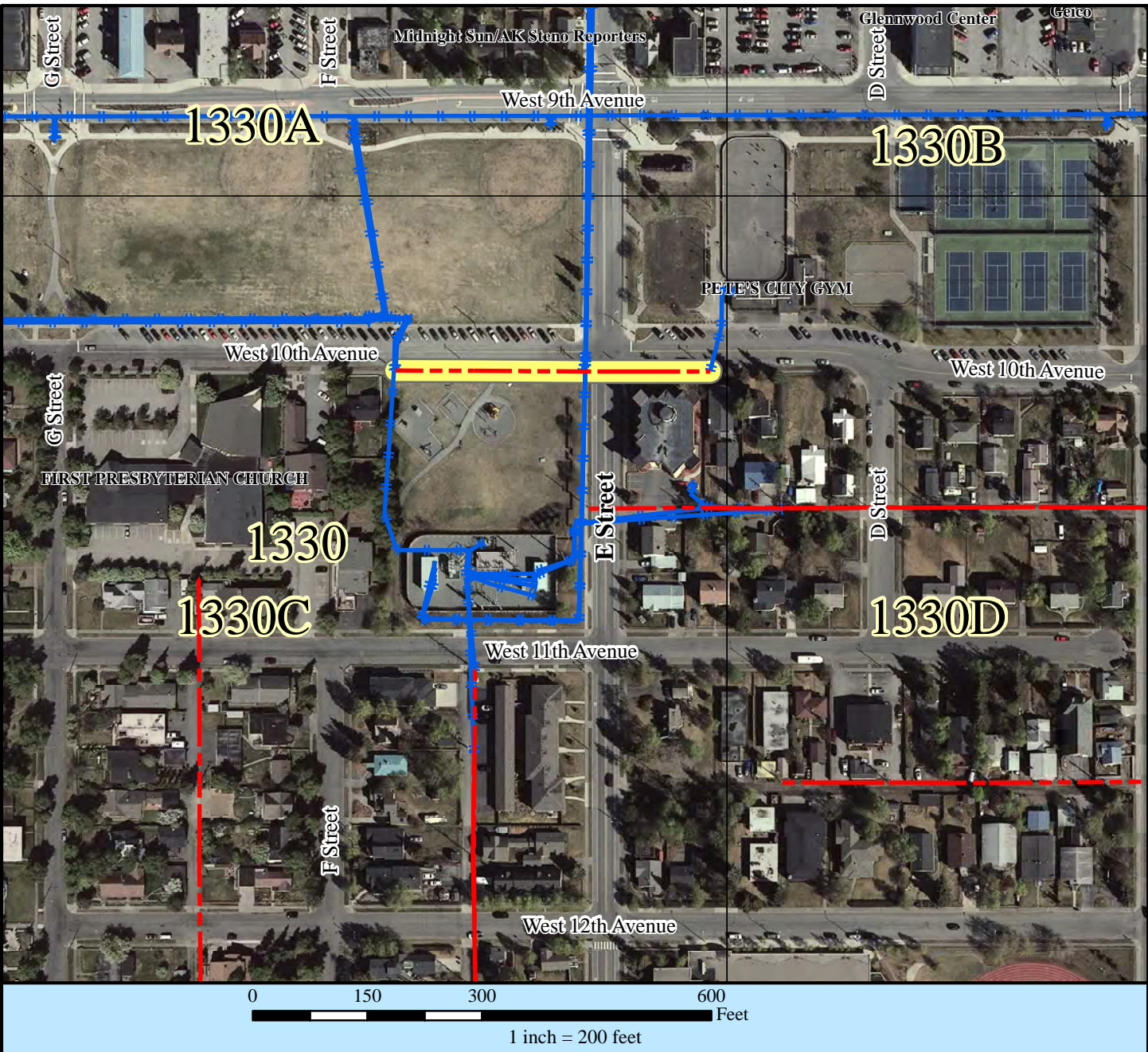
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 For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND
 - Primary Overhead Conductor
 - Primary Underground Conductor
 - Project Area



VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-22 Frontierland Park - 10th & E Street

TITLE 21 PROJECT DIMOND BOULEVARD Jewel Lake Road to Roy Street



PROJECT NUMBER: TBD

PROJECT COST: \$2,500,000

PROJECT DESCRIPTION:

This project will underground approx. 3/4 mile of 4/0 ACSR 3-phase overhead feeder on Campbell Lake Substation feeder 212. This project will provide improved feeder capacity along W. Dimond Blvd. and contingency support to Raspberry Substation 712 & Jewel Lake Substation 142 feeders.

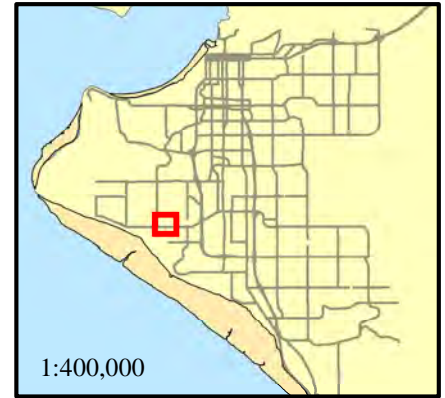
NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

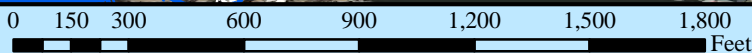
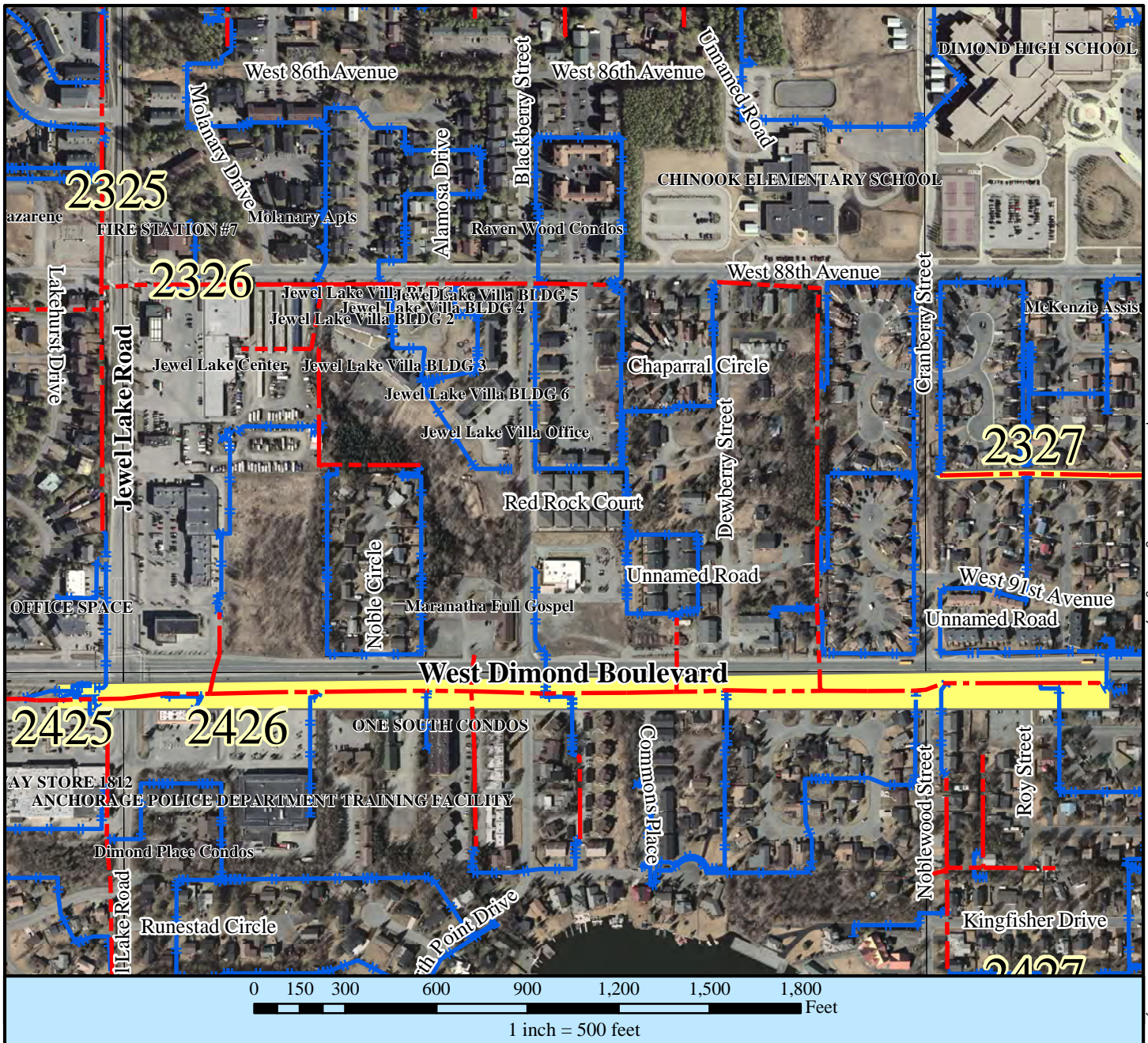
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



1 inch = 500 feet

Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-23 Dimond Blvd - Jewel Lake to Roy.rxd

TITLE 21 PROJECT LAKE OTIS PARKWAY

PROJECT NUMBER: TBD

PROJECT COST: \$2,000,000



PROJECT DESCRIPTION:

This project will underground approx. 0.75 miles of three-phase #4 & #4/0 ACSR to improve backbone feeder capacity between LASS 177 & DLSS 412.

NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

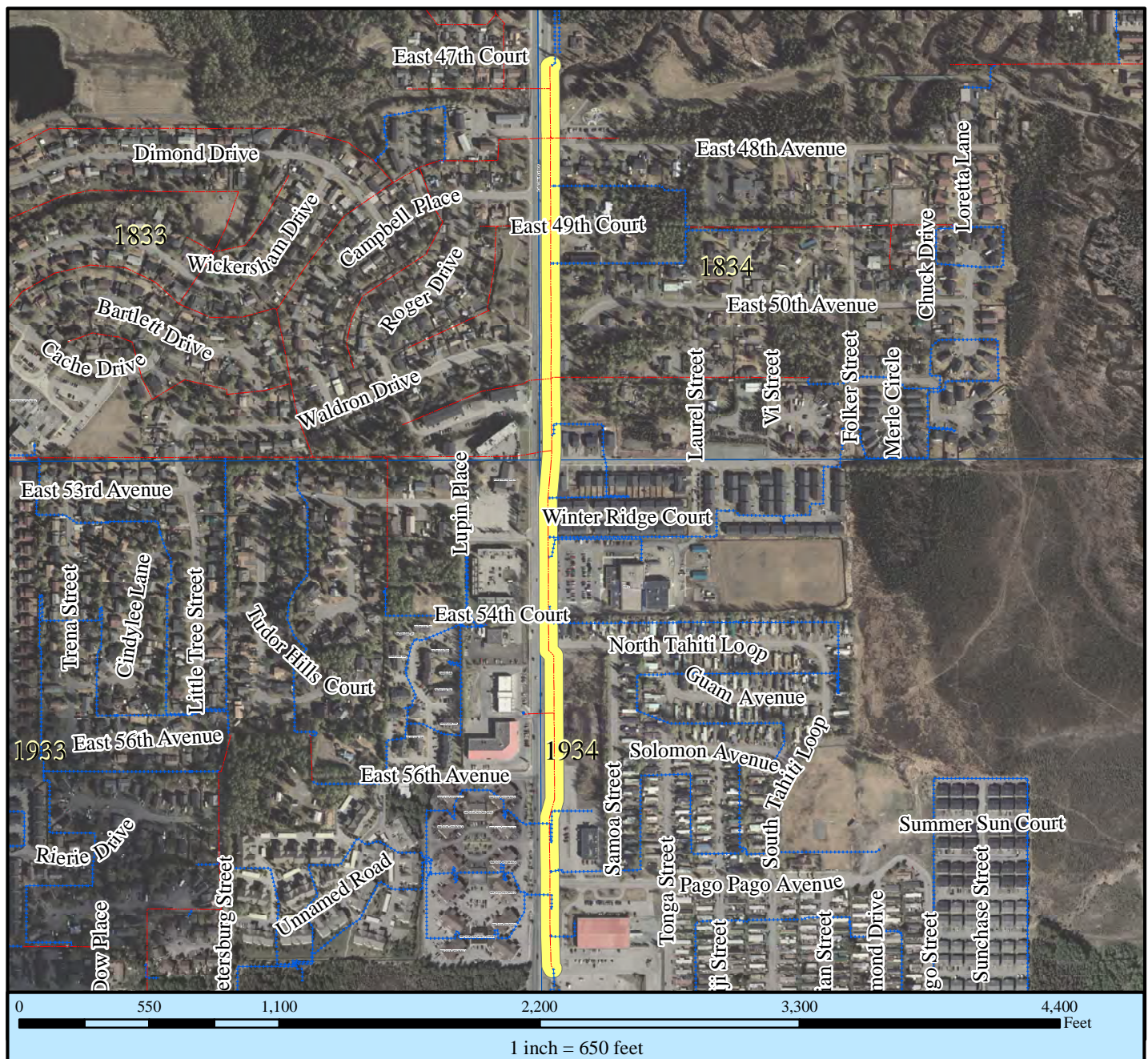
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



Coordinate System: NAD83, State Plane, Alaska Zone 4, FIPS 5004 Feet

Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding\Project\Five Year Plan\2021-2025A-24 Lake Otis Parkway.mxd

TITLE 21 PROJECT
24th Avenue & Glacier Street
 Russian Jack Community Council
PROJECT NUMBER: TBD **PROJECT COST: \$2,600,000**



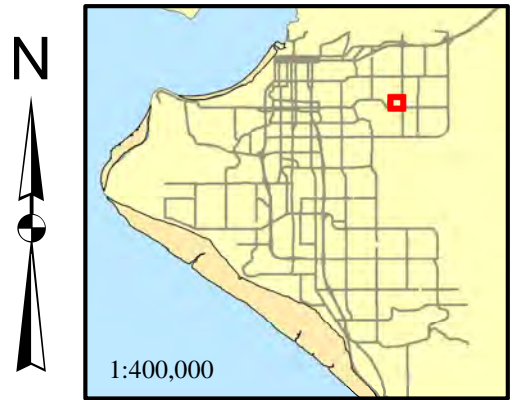
PROJECT DESCRIPTION:
 This project will remove overhead electric lines west of Boniface Parkway, south of E. 24th Avenue, north of Northern Lights Boulevard. The new underground lines will connect primary loops for increased reliability. This area has seen a very high number of outages, especially due to high winds and squirrels. Restoring outages have been difficult due to accessibility issues. This project is in the Target Area described in the Title 21 Underground Ordinance because undergrounding these overhead lines will eliminate the power outage risk associated with the high winds. The MOA Planning Department issued a "Three Second Gust Wind Zones" map. This project is inside the highest wind speed in ML&P territory, 120 MPH.

NOTES:
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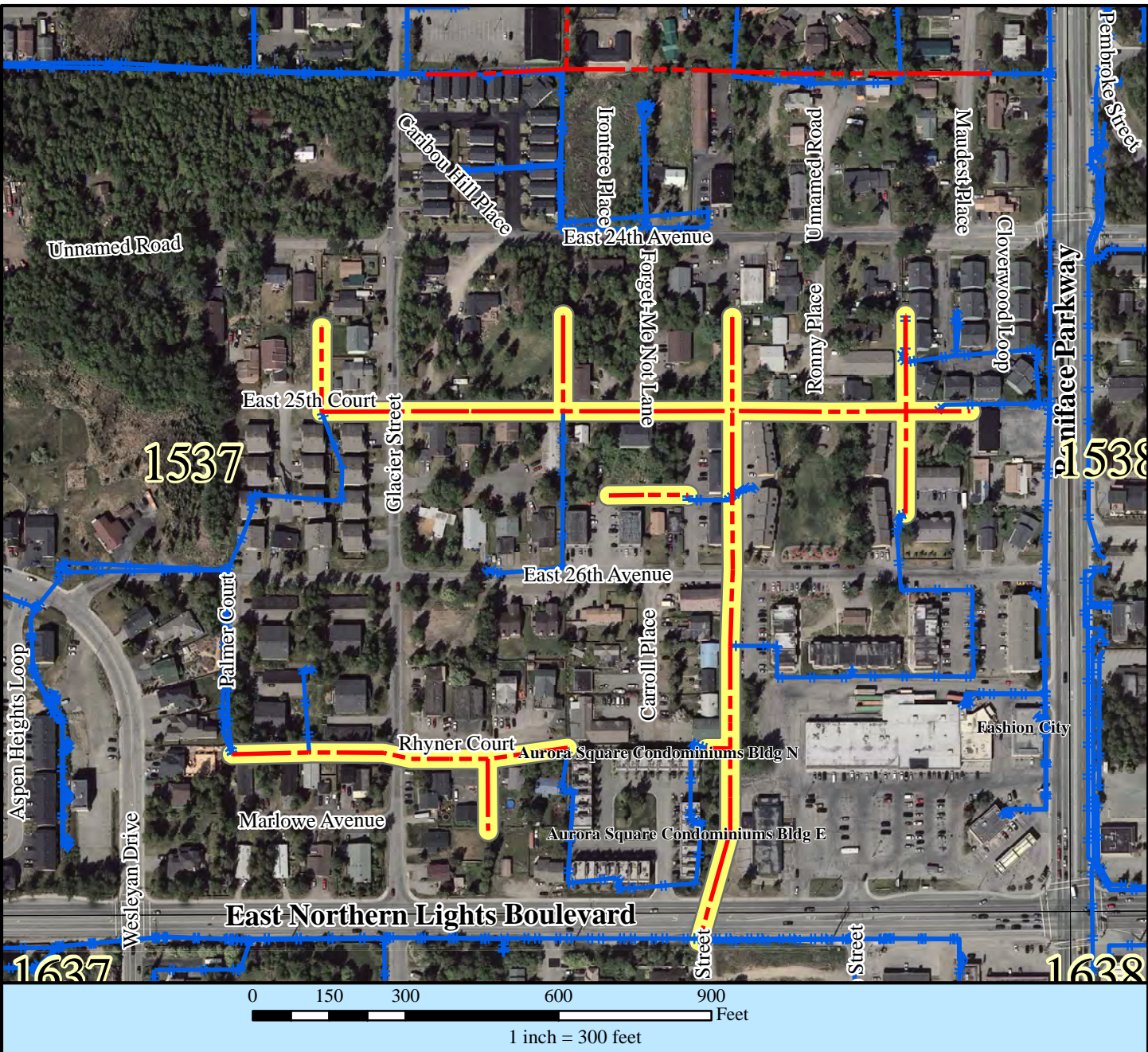
 For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



VICINITY MAP



TITLE 21 PROJECT

Logan Street: E 17th Ave to E 20th Ave

Airport Heights Community Council: City View Subdivision

PROJECT NUMBER: TBD

PROJECT COST: \$2,150,000



PROJECT DESCRIPTION:

This project will underground overhead conductors in east and west back lot lines of Logan Street from E. 17th Avenue to E. 20th Avenue. Multiple customers have requested these lines be undergrounded. The existing poles are some of the oldest in ML&P territory and there is safety and access issues resolved by undergrounding this area.

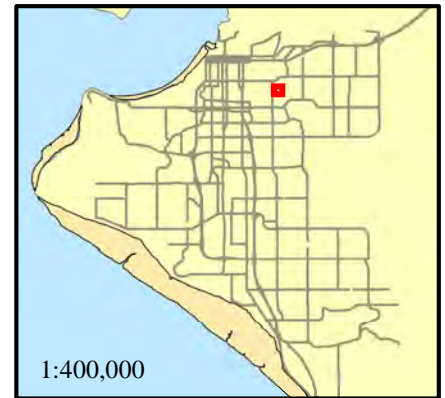
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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-26 Logan St - 17th Ave to 20th Ave.mxd

TITLE 21 PROJECT

W. 9th Avenue & P Street

South Addition Community Council: L Street Slide Replat Subdivision

PROJECT NUMBER: TBD

PROJECT COST: \$1,150,000



PROJECT DESCRIPTION:

This project will underground overhead conductors along P Street, R Street, David Place, and W. 9th Avenue. Multiple customers have requested these lines be underground. This project is in a target area described in the Title 21 Underground Ordinance because existing overhead lines are adjacent to the Delany Park Strip.

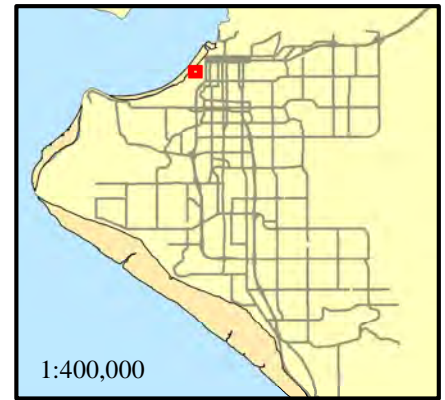
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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-27 W 9th & P Street

TITLE 21 PROJECT

Blueberry Road

Midtown Community Council

PROJECT NUMBER: TBD

PROJECT COST: \$500,000



PROJECT DESCRIPTION:

This project will underground overhead powerlines along Blueberry Road between Fireweed Lane and Northern Lights Boulevard. This project is in the Target Area described in the Title 21 Underground Ordinance because it will remove overhead lines that are adjacent to a school, Steller Secondary School.

NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-28 Midtown - Blueberry Rd.mxd

TITLE 21 PROJECT

Needle Circle

Tudor Area Community Council

PROJECT NUMBER: TBD

PROJECT COST: \$1,600,000



PROJECT DESCRIPTION:

This project will underground overhead powerlines that have a high outage rate mostly due to falling trees and branches. Access to these overhead lines is currently very difficult because of the developed backyards and lots of trees.

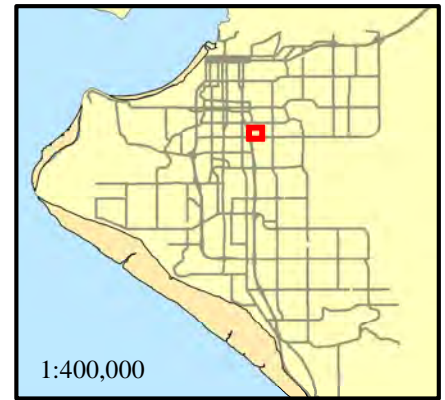
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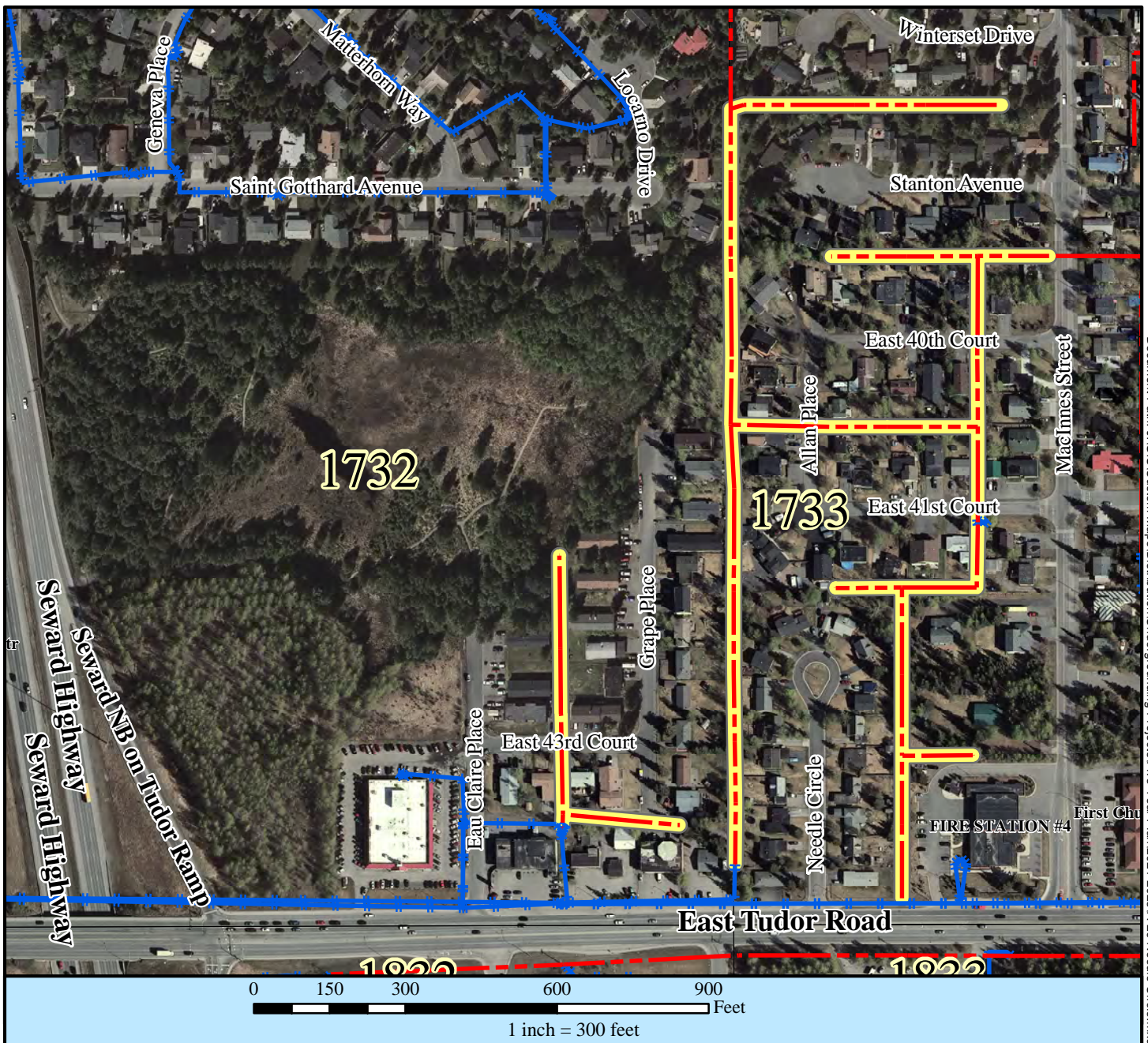
For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



VICINITY MAP



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-29 Needle Circle.mxd

TITLE 21 PROJECT WESTPARK SUBDIVISION

South of Dowling Road

PROJECT NUMBER: TBD

PROJECT COST: \$500,000



VICINITY MAP



PROJECT DESCRIPTION:

This project will underground approx. 0.35 miles of 4/0 ACSR 3-phase overhead to support feeder load growth on LaTouche Substation feeder 122 and contingency support of Sand Lake Substation feeder 712.

NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- +— Primary Underground Conductor
- Project Area



Document Path: j:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-30 Westpark Subdivision South of Dowling Road.mxd

TITLE 21 PROJECT WICKERSHAM PARK

PROJECT NUMBER: TBD

PROJECT COST: \$750,000



PROJECT DESCRIPTION:

This project will underground approx. 0.5 miles of three-phase #4 & #4/0 ACSR to improve backbone feeder capacity between LASS 177 & DLSS 412.

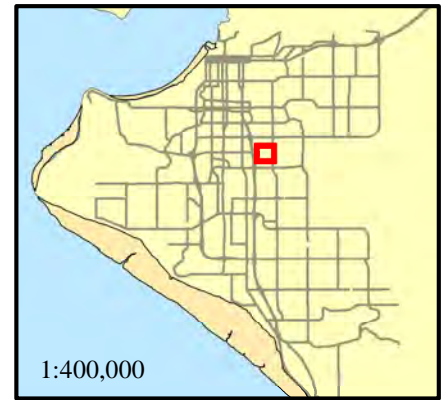
NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- - - Primary Underground Conductor
- Project Area



1:400,000

VICINITY MAP



Coordinate System: NAD83, State Plane, Alaska Zone 4, FIPS 5004 Feet

TITLE 21 PROJECT WISCONSIN STREET Northern Lights to 44th Avenue



PROJECT NUMBER: TBD

PROJECT COST: \$2,500,000



VICINITY MAP



PROJECT DESCRIPTION:

This project will retire 36 spans of overhead double-circuit primary conductor along the west side of Wisconsin Drive from Northern Lights Boulevard to W 44th Avenue. The northernmost 26 spans will be retired in addition to the poles, guy spans, and guy wires. The southernmost 10 spans are underbuilt on 138 kV structures and will only have the conductor and any additional distribution facilities removed. These overhead facilities are located on Grids 1626 and 1726 and have a total distance of 5200 feet.

Turnagain Substation is located on the east side of Wisconsin Drive on Grid 1627 and has four distribution feeders: Turnagain 112, 122, 132, and 142. All four feeders leave the substation as underground circuits and rise up to the pole structures on Wisconsin. Turnagain 112 and 122 go south as a double-circuit, and Turnagain 132 and 142 go north as a double-circuit. Double-circuit horizontal construction using one crossarm, as found on Wisconsin Street, creates working clearance problems and requires extra equipment and crew time whenever maintenance is needed.

The majority of the poles supporting the 4/0 ACSR double-circuit overhead line do not meet the NESC grade C minimum strength requirements. Also, under an n-1 contingency, the Turnagain 132 circuit is undersized and not capable of picking up Woodland Park 242 under summer or winter peak loads without complex switching of the load. The total load provided by the Turnagain 122 tie with Spenard 212 is also approaching winter and summer capacity limits. Replacing the circuits with 750 kcmil would resolve both the NESC strength problem and contingency loading capacities.

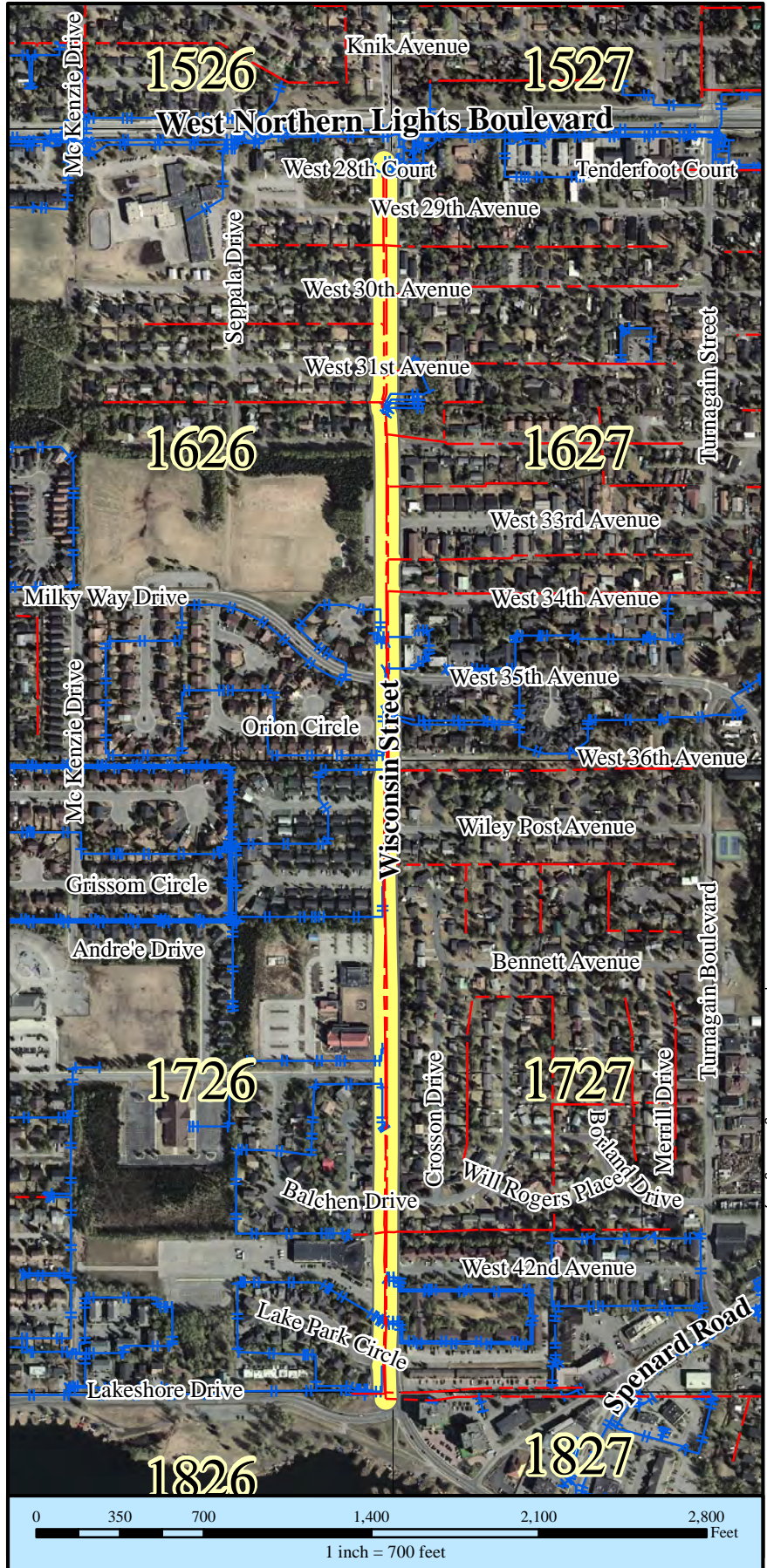
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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- Project Area



Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Projects\Five Year Plan\2021-2025\A-32 Wisconsin Street.mxd

TITLE 21 PROJECT

35kV: Debarr Sub to Anchorage Sub



PROJECT NUMBER: TBD

PROJECT COST: \$5,000,000

PROJECT DESCRIPTION:

The section of Chugach's 34.5 kV loop in east Anchorage that runs from Anchorage Substation to Debarr Substation was constructed in the 1950s and has reached the end of its useful life. During a 2016 inspection, significant pole rot was discovered in this section. To maintain a high level of reliability, this section of line will be replaced with a new underground circuit. This project would retire the existing overhead circuit that goes from Anchorage Substation north along Bragaw to East 6th Avenue and a new underground circuit would be installed in new and existing easements.

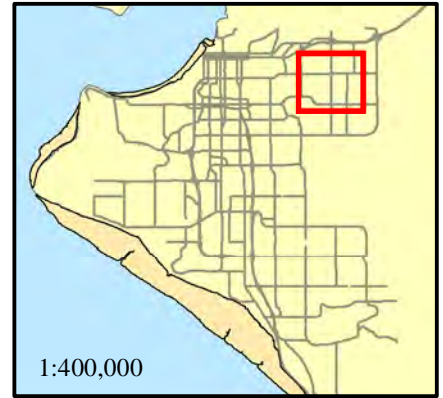
NOTES:

This is for reference and review purposes only of proposed Undergrounding Projects and is for official Chugach Electric Association use only.

For additional information concerning this project, please contact Brad Jackson at 762-4458.

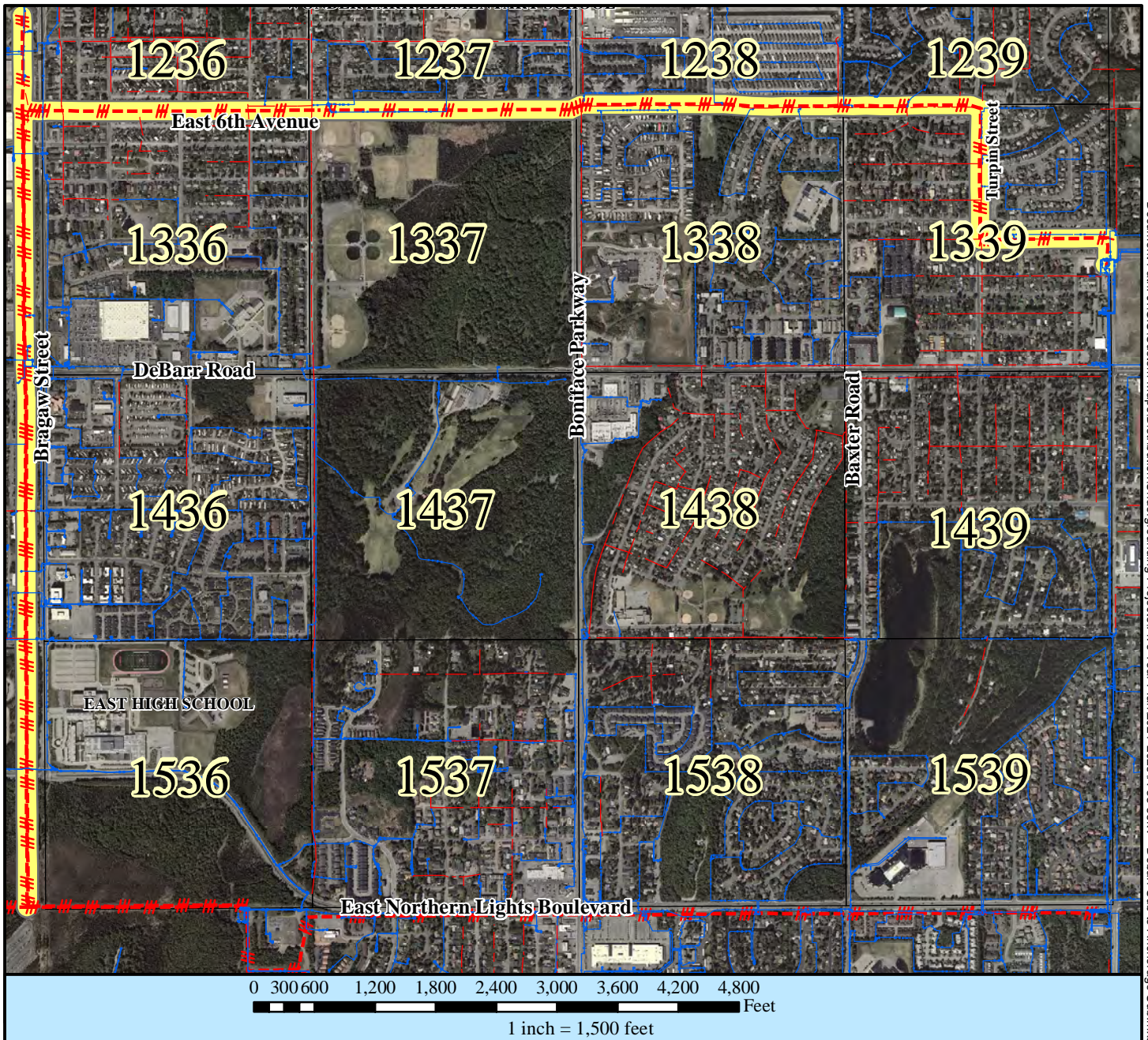
LEGEND

- Primary Overhead Conductor
- Primary Underground Conductor
- - - 34.5 kV Transmission Overhead
- Project Area



1:400,000

VICINITY MAP



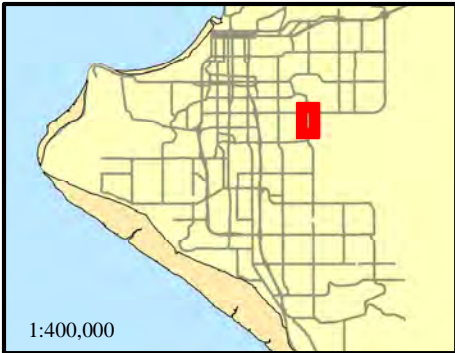
Document Path: J:\GIS\Custom Maps\Distribution\Undergrounding Project\Five Year Plan\2021-2025\A-33 35kV - Debarr Sub to Anchorage Sub.mxd

TITLE 21 PROJECT ELMORE & TUDOR-4/0 ACSR



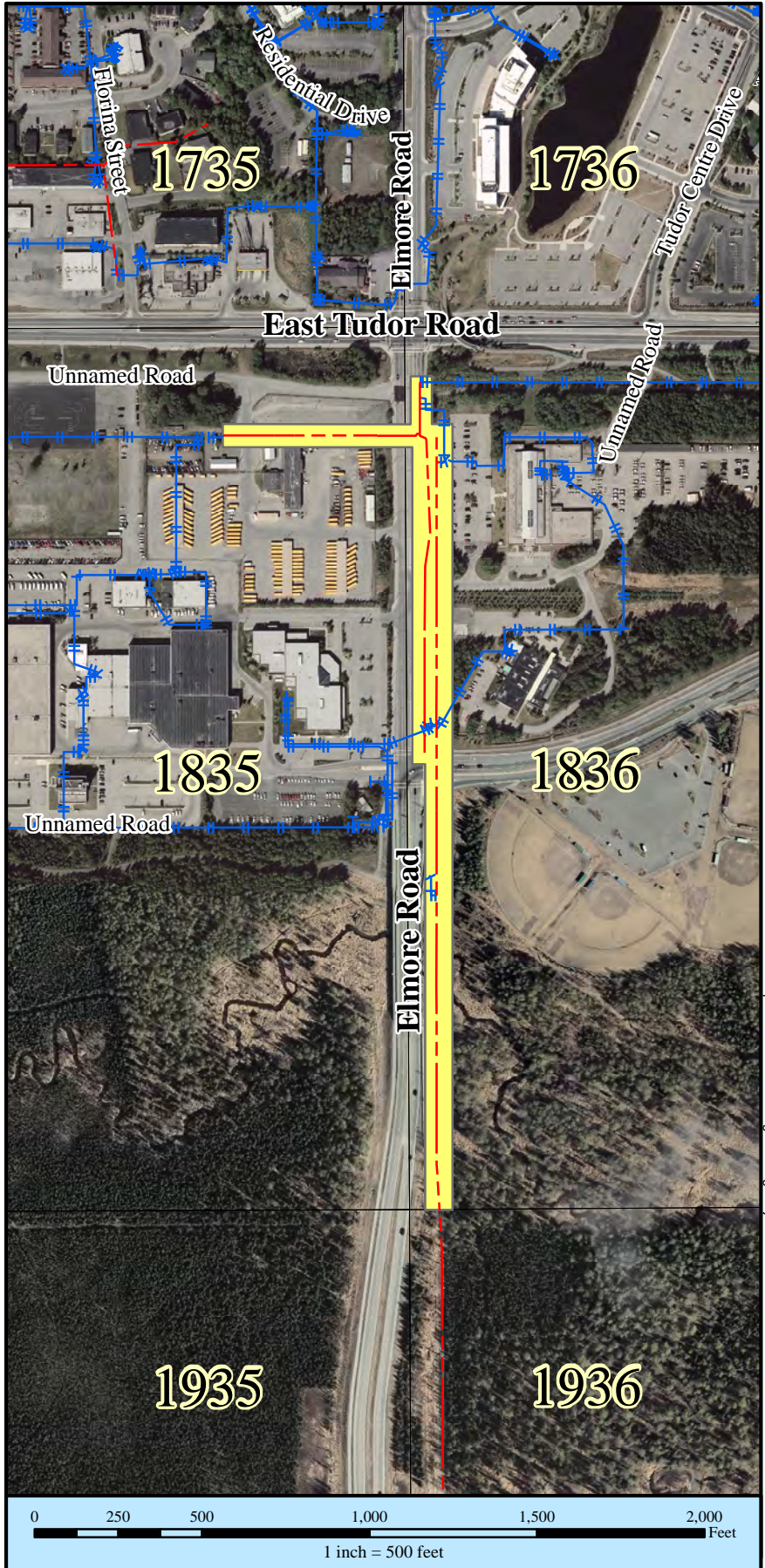
PROJECT NUMBER: TBD

PROJECT COST: \$500,000



1:400,000

VICINITY MAP



PROJECT DESCRIPTION:

This project will underground approx. 0.75 miles of 4/0 ACSR 3-phase overhead to support feeder load growth on Dowling Substation feeder 512 and contingency support of Boniface Substation feeder 512.

NOTES:

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For additional information concerning this project, please contact Brad Jackson at 762-4458.

LEGEND

- Primary Overhead Conductor
- - - Primary Underground Conductor
- Project Area