EVERSOURCE

Supplement Authorization Form

Project Title: [redacted] **Remediation**	**Project Number: CD01701**
Date Prepared: 11/13/2023	**Company:** Eversource CT
Organization: Distribution Engineering	**Project Category:** RIGHT OF WAY LINES
Project Initiator: [redacted]	**Project Type:** Specific
Initiating Organization: Distribution	**Capital Investment part of original Op Plan:** Yes
Project Manager: [redacted]	**Emergency Related Request?** No
Project Sponsor: [redacted]	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Current Authorized Amount: $5,399K	**Approved In-Service Date:** 12/31/2024
Supplement Request: $1,037K	**Estimated In-Service Date:** 12/31/2024
Total Capital Request: $6,436K	**Authorization Type:** Supplement Request
	Reason: Cost Overage

1. Project Background

Supplemental funding is being requested for this project. The total capital request is $6,436K which is $1,037K (19%) more than the current authorized amount of $5,399K.

CD01701 was created in response to drone patrols completed by Eversource of all distribution ROWs in November 2020. These findings were categorized into five priority levels: P1-P5. CD01701 specifically covers the list of priority poles found in [redacted] that were not addressed previously. Based on the inspections and the aging infrastructure, bare wire, poor pole conditions, and the difficulties to access the ROW, the ROW was rebuilt to our current standards with steel structures and 556 tree wire. This will prevent the need to revisit the ROW in the future, prevent reoccurring matting charges and reduce the likely hood of outages and abnormal system configurations. The entire ROW will have tree trimming completed.

2. Supplement Justification Overview

This project's variance of $1,037K is due to a portion of the material, outside services, internal labor, removals, and overheads coming in higher than the estimate primarily due to using estimated legacy units for the estimate.

3. Supplement Justification Overview

CD01701 began as a project request in response to drone patrols finding priority poles to be replace in [redacted]. The decision was made to rebuild the entire ROW with steel structures and 556 tree wire.

From the time of this project being estimate to the time of the work being completed; the material cost rose simply due to inflation. The legacy estimating units used to produce the estimate are about 30% lower than the actual costs today. This resulted in an actual cost for material being approximately **$355K** more than the estimate.

When this project was first estimated there was not a bid in place for the actual contractor costs for this portion of work due to CD01701 being a multi-year project. The actual bid came in at **$505K** greater than when this project was estimated. The winning bid was for $1,186K and was completed to that amount.

The last reason for the variance is that the indirects/overheads came in higher than anticipated due to the increases mentioned above. The difference from estimate to actual for this portion is **$175K**.

4. Supplement Cost Summary (Project Total)

Capital Costs	Inception to date spend	Prior Authorized	Supplement Request	**Total** (Add Prior and Supplement Request)
Internal Labor & Equipment	40.9	167.0	-127.2	39.8
Outside Services	2,443.6	1,457.0	990.5	2,447.5
Materials	1,322.8	549.0	841.9	1,390.9
Removals	313.3	1,132.0	-889.7	242.3
Risk and Contingency	0.0	15.0	43.7	58.7
Other	2.3	0.0	2.4	2.4
SUBTOTAL Direct Cost	**4,123.0**	**3,320.0**	**861.6**	**4,181.6**
Indirects / Overheads	2,143.3	2,061.0	82.3	2,143.3
AFUDC	110.6	18.0	92.6	110.6
SUBTOTAL Indirect Cost	**2,253.9**	**2,079.0**	**174.9**	**2,253.9**
TOTAL Capital Request	**6,376.8**	**5,399.0**	**1,036.5**	**6,435.5**
Less Total Customer Contribution	0.0	0.0	0.0	0.0
TOTAL Project Cost	**6,376.8**	**5,399.0**	**1,036.5**	**6,435.5**

5. New Total Request by Year (if applicable)

Note: If multi-year project, include actuals for current and years past, and then show forecasted spend for upcoming years.

Capital Costs	2022	2023	2024	Projected Spend
Internal Labor & Equipment	1.1	10.4	28.4	39.8
Outside Services	0.7	1,381.4	1,065.5	2,447.5
Materials	0.0	913.3	477.6	1,390.9
Removals	0.3	107.8	134.2	242.3
Risk and Contingency			58.7	58.7
Other	0.0	1.4	1.0	2.4
SUBTOTAL Direct Cost	**2.0**	**2,414.3**	**1,765.3**	**4,181.6**
Indirects / Overheads	2.7	943.4	1,197.1	2,143.3
AFUDC	0.0	81.7	28.9	110.6
SUBTOTAL Indirect Cost	**2.8**	**1,025.1**	**1,226.0**	**2,253.9**
TOTAL Capital Request	**4.8**	**3,439.4**	**2,991.3**	**6,435.5**
Less Total Customer Contribution				
TOTAL Project Cost	**4.8**	**3,439.4**	**2,991.3**	**6,435.5**

6. Lessons Learned

Project Title: [redacted] Remediation	Project Number: CD01701
Date Prepared: 11/13/2023	Company: Eversource CT
Organization: Distribution Engineering	Project Category: Lines - ROW
Project Initiator: [redacted]	Project Type: Specific
Initiating Organization: Distribution	Capital Investment part of original Op Plan: Yes
Project Manager: [redacted]	Emergency Related Request? No
Project Sponsor: [redacted]	Facility Type (check all that apply): ☐ PTF ☐ non-PTF ☒ Distribution ☐ N/A (General Plant)
Required in service date: 12/31/2024	
Total Capital Request: $5,334K	Authorization Type: Full Funding

7. Executive Summary

Project CD01701 – [redacted] Remediation - was created to address damaged utility poles in Right-of-Way [redacted]

Eversource completed drone patrols of all distribution ROWs in November 2020 and categorized all findings into five priority levels: P1, P2, P3, P4, and P5.

[redacted] had the following list of priority poles: 7 P1, 54 P2, 6 P3, and 2 P4 poles. Of those poles, 4 of the P1 poles, 5 of the P2 poles, and 1 each of the P3 and P4 poles have been repaired.

The remaining poles will be addressed under this project. Those poles in [redacted] to the west of pole [redacted] were addressed in 2023: 3 P1, 37 P2, and 5 P3 poles. The poles that are to the east of Packard St will be addressed in 2024: 12 P2, and 1 P4.

- Project Location
  - Division: Central
  - District: Hartford AWC
  - City/Town: Bloomfield

The Partial Funding estimate for this project was $5,399K capital dollars and was approved at the 3/2/2023 CTPAC. The full funding estimate for this project is $5,334K, a reduction of $65K, or 99.99% of Partial Funding Estimate.

8. Project Cost Summary

Note: Dollar values are in thousands.

Capital Costs	2022	2023	2024	Total
Internal Labor and Construction Equipment	1.0	8.4	177.0	186.7
Outside Services	0.7	1,239.8	361.3	1,601.5
Materials	0.0	769.0	305.0	1,074.0
Removals	0.3	280.0	119.6	399.8
Risk and Contingency	0.4	247.3	124.5	372.1
Other	0.0	0.7	0.0	0.7
Subtotal	**2.4**	**2,545.2**	**1,087.3**	**3,634.8**

Indirect Capital Costs	2022	2023	2024	Total
Indirects/Overheads (including benefits)	2.7	960.2	696.8	1,659.7
Capitalized interest or AFUDC, if any	0.0	39.5	0.0	39.5
Subtotal	**2.8**	**999.7**	**696.8**	**1,699.2**

Total Capital Costs (Gross)	**5.2**	**3,544.9**	**1,784.0**	**5,334.0**
Less Total Customer Contribution	**0.0**	**0.0**	**0.0**	**0.0**
Project Costs (Net of Reimbursement)	**5.2**	**3,544.9**	**1,784.0**	**5,334.0**

9. Technical Justification

Background, Project Need/Justification, and Project Scope

a. Background

The 3B11 and 3B12 in [redacted] will be rebuilt to improve reliability. The [redacted] will be reconductored with 556 175 Mil tree wire inside [redacted]. Additionally, the entire ROW will have tree trimming completed. This will greatly increase reliability and reduce the likelihood of future tree related outages on the [redacted]

b. Project Need

The project was created to repair priority 1 and 2 poles in [redacted]. 50% of the poles in [redacted] are priority 1 or priority 2 and need repair. Due to the high number of poles, several options were reviewed. The design selected was to rebuild the entire length of [redacted] with steel structures and 556 tree wire.

c. Project Scope

The scope of this project is to rebuild [redacted] from [redacted] in Bloomfield to [redacted] in Bloomfield. The following is the scope of work for each option:

Rebuild [redacted]

- Reconductor [redacted] from [redacted] with 556 Tree Wire
- Replace all [redacted] poles with steel poles.
- Replace all [redacted] poles on [redacted] from [redacted] with class 1 wood poles as these poles are located along the roadway.

Major Material:

2023:

- Cross arms composite, 243
- Steel Utility Poles, 68
- Wood Utility Pole, 13
- Three phase cutouts, 7

- 556 Al Tw 175 Mil, 17,000 Ft.
- Matting 8"X4'X16', 1100 mats

2024:

- Steel Utility Poles, 41
- Wood Utility Pole, 20
- Three phase cutouts, 3
- Re-hang three phase Recloser, 1
- Cross arms composite, 183
- 556 175 Mil TW 7,000 Ft.
- Matting 8"X4'X16', 1100 matts, 1750 mats

10. Alternatives Considered

There were four options considered for [redacted]. Option four was selected to rebuild all of [redacted] in place. The sections of [redacted] from [redacted] that run along the road will use wooden class 1 poles as they feed local load within the ROW. All other poles in the ROW will be replaced with steel structures. All cable will be replaced with 556 TW.

Option 1 - Reconductor the western portion of [redacted] but reroute the Eastern portion – Cost $5,160,310 (Total cost; capital and expense dollars)

- The [redacted] in [redacted] west of [redacted] would be reconductored to improve reliability. This option would abandon the eastern portion of [redacted] from [redacted]. to [redacted]. Currently the [redacted] act as backup circuits for the [redacted] substation. The [redacted] would be rerouted and would remain a backup for [redacted] via existing road side lines between [redacted]. The [redacted] can also be used as a backup to [redacted] via the two GOABs that will be installed on [redacted]. This connection would allow either the 3B07 or the [redacted] back up the [redacted] The [redacted] would be rerouted north from [redacted] to meet with itself on [redacted] by reconductoring with 556 spacer cable, and the [redacted] would be connected via GOAB to the 24J1 on [redacted]. The entire ROW would have tree trimming completed. This option was not selected to maintain reliable ties within the ROW between the [redacted] and [redacted] substations as the ROW would not be subjected to vehicle accidents. In addition, these two ROW lines would be available as two future circuits to be supplied from the recently expanded [redacted] substation to support future load additions in the area.

Option 2 - Repair P1 and P2 poles only – Cost $3,975,497 (Total cost; capital and expense dollars)

- Repair all P1 and P2 poles currently located inside [redacted] from [redacted] and from [redacted] substation. This option was not selected due to wetlands and the high matting cost required to gain access to the P1 and P2 poles. Due to the high access cost, the lower priority poles should be replaced at the same time to avoid spending the same access cost again within the next 5 years.

Option 3 - Reconductor [redacted] with 795 TW – Cost $5,986,724 (Total cost; capital and expense dollars)

- Reconductor inside [redacted] from [redacted], and from [redacted] substation with 795 TW. This option was not selected as this newer size conductor has not been fully reviewed by Standards and will not be available before the project is designed.

Option 4 – Reconductor the entire ROW with steel poles and 556 TW – Cost $5,334,000 (Capital Cost)

- This option was selected to replace all poles within the ROW since over 50% of the poles within the ROW were P1 or P2 to avoid the need to re-enter the ROW within the next 5 years to replace lower priority poles. This will also provide reliable ties between Bloomfield and [redacted] substations that are not subjected to vehicle accidents and provide future circuits for the recently expanded [redacted] substation.

Design Criteria	Option			
	1 –Rebuild Western portion of ROW, eliminate Eastern	2 – Replace P1 & P2 poles only	3 – Replace all poles and Reconductor with 795 kcmil	4 – Replace all poles and Reconductor with 556 TW
Authorization Type	Partial	Partial	Partial	Full
Capital Cost	$	$	$	$5,334K
Expense Cost	$	$	$	$
Total Cost	$5,160K	$3,975K	$5,988K	$
Preferred option				X

11. Project Schedule

Milestone/Phase Name	Estimated Date
Partial Approval	5/20/21
100% Detailed Engineering Completion	12/1/21
Fully Funded	11/30/23
Construction Start	6/1/22
In Service Date	6/30/24

12. Regulatory Decisions

N/A

13. Codes and Standards

N/A

14. Risk and Contingencies

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2024	Medium	Included contingency costs are in the funding request. Detailed Field Analysis and walk down for project development were performed to avoid potential issues.
Internal construction resources not available to perform the work.	2024	High	External resources are planned to perform the work. Competitive bidding will be used to ensure lowest outside labor cost.

Materials Shortage or long lead times	2024	High	Material procurement has been a challenge in recent years. This issue is anticipated to persist in the foreseeable future.
Storm delays	2024	Medium	Storm delays are always a concern with Utility work
Wetlands / Environmentally sensitive area	2024	Medium	Wetlands or environmentally sensitive areas are typically found in ROWs such as this project.

15. References

References
1.

16. Attachments (One Line Diagrams, Images, etc.)

Attachment	Included in Submittal?
A. Cost Estimate	*YES*
B. Geographic Map	*YES*
C. Initial Funding PAF	*YES*

Attachment A: Cost Estimate

Design Alternative CD01701-01

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$245,100
Contingency Amount:	$58,824
Estimate:	$303,924
Reimbursement:	$0
Net Amount:	**$303,924**
Description:	Steel Pole adder for western portion

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER Adder for steel poles, $4300 additional per pole 57 poles	16-ALL14	[redacted]		$245,100.00

Design Alternative CD01701-02

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$163,892
Contingency Amount:	$45,890
Estimate:	$209,782
Reimbursement:	$0
Net Amount:	**$209,782**
Description:	Reconductor with spacer cable

Item Description	CU	$ / Per	Qty	Amount
OTHER OTHER 8% adder for 556 -> 795 cable	16-ALL14	[redacted]		$148,992.00
OTHER OTHER Sub-Contractor adder	16-ALL14			$14,900.00

Supplement Authorization Form

Segment CD01701-03

Estimate

Preliminary Estimate Summary

Revision Number:	0
Contingency:	28.00%
SubTotal:	$1,607,574
Contingency Amount:	$450,121
Estimate:	$2,057,694
Reimbursement:	$0
Net Amount:	**$2,057,694**

Description: ROW 039 reroute OH

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$7,019.20
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14			$98,196.00
SECTIONALIZE OH - Cutouts or Arresters - 3ph	16-OH20			$6,945.60
OH WIRE OH - Reconductor Open Wire Secondary w/ Triplex	16-OH30			$50,400.00
OH WIRE OH - Remove circuit wire (3 phase)	16-OH37A			$32,921.60
SECTIONALIZE OH - Recloser - 3ph	16-OH38			$95,979.20
SECTIONALIZE OH - Recloser Control	16-OH39			$19,709.60
SECTIONALIZE OH - Remove Recloser (any)	16-OH42			$5,656.00
SECTIONALIZE OH - GOAB Switch	16-OH44			$61,699.20

XF OH - OH XF - 1ph	16-OH45	[redacted]	$25,315.20
TREE OH - SYSTEM RESILENCY Tree Trimming - Lateral	16-OH63		$37,904.00
TRAFFIC OH/DB/UG - Traffic Control - Police Officer 2 officers for 30 days	16-ALL18		$120,000.00
OH WIRE OH - Reconductor w/Spacer Cable - 556 kcmil Reconductor along the road	16-OH29		$716,800.00
OTHER OTHER Sub-Contractor adder 10%	16-ALL14		$329,028.00

Design Alternative CD01701-04

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$3,206,046
Contingency Amount:	$769,451
Estimate:	$3,975,497
Reimbursement:	$0
Net Amount:	**$3,975,497**

Description: P1 and P2 only

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$49,134.40
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14			$135,604.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph	16-OH17A			$80,073.60
SECTIONALIZE OH - Cutouts or Arresters - 3ph	16-OH20			$16,206.40
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil	16-OH27			2,047,088.00
SECTIONALIZE OH-Vertical Disconnect Switches-600/900 amp 3-1ph	16-OH43			$10,283.20
TREE OH - SYSTEM RESILENCY Tree Trimming - Lateral	16-OH63			$56,856.00
OTHER OTHER Matting 8"X4'X16' at 450, 1800 units	16-ALL14			$810,000.00
OTHER OTHER Railroad flagger 2K/day Metro North, and 400/day all others. 2 days needed.	16-ALL14			$800.00

Supplement Authorization Form

Segment CD01701-05

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	24.00%
SubTotal:	$2,257,009
Contingency Amount:	$541,682
Estimate:	$2,798,691
Reimbursement:	$0
Net Amount:	**$2,798,691**
Description:	Reconductor Western portion of ROW 039

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$7,019.20
POLETOP OH - Replace wood xarm with composite xarm - 3ph	16-OH17A			$80,073.60
SECTIONALIZE OH - Cutouts or Arresters - 3ph	16-OH20			$16,206.40
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil	16-OH27			$1,319,200.00
OH WIRE OH - Remove circuit wire (3 phase)	16-OH37A			$54,400.00
TREE OH - SYSTEM RESILENCY Tree Trimming - Lateral	16-OH63			$37,904.00
OTHER OTHER Cpntractor Adder, 10%	16-ALL14			$247,206.00
OTHER OTHER Matting 8"X4'X16' at $450, 1100 Units needed	16-ALL14			$495,000.00

Supplement Authorization Form

Design Alternative CD01701-06

Estimate

	Preliminary Estimate Summary
Revision Number:	0
Contingency:	28.00%
SubTotal:	$2,089,318
Contingency Amount:	$585,009
Estimate:	$2,674,327
Reimbursement:	$0
Net Amount:	**$2,674,327**
Description:	ROW 039 Reconductor Eastern Portion

Item Description	CU	$ / Per	Qty	Amount
SWITCHING OH/DB/UG - SWITCHING NonNetwork - Average	16-ALL17	[redacted]		$7,019.20
POLE OH - POLE - 3ph (CL&P custodian)	16-OH14			$121,576.00
POLETOP OH - Replace wood xarm with composite xarm - 3ph	16-OH17A			$73,049.60
SECTIONALIZE OH - Cutouts or Arresters - 3ph	16-OH20			$6,945.60
OH WIRE OH-Reconductor w/175 Mil Tree Wire-3ph- 556 kcmil	16-OH27			$543,200.00
OH WIRE OH - Remove circuit wire (3 phase)	16-OH37A			$22,400.00
TREE OH - SYSTEM RESILENCY Tree Trimming - Lateral	16-OH63			$18,952.00
OTHER OTHER 10% Contractor Adder	16-ALL14			$237,086.00
OTHER OTHER Matting 8"X4'X16', 1750 units need at $450 ea.	16-ALL14			$787,500.00

SECTIONALIZE OH - Recloser - 3ph Move 3B11-60R to new steel structure	16-OH38	[redacted]	$47,989.60
OTHER OTHER Steel structure adder $4300 pre pole, 52 poles	16-ALL14		$223,600.00

Attachment B: Geographic Map



Attachment C: Initial Funding PAF

Operations Project Authorization Form

Project Title: [redacted] **Remediation**	**Project Number: CD01701**
Date Prepared: 12/15/2022	**Company:** Eversource CT
Organization: Electric Field Operations	**Class(es) of Plant:** D Line
Project Initiator: [redacted]	**Project Category:** RIGHT OF WAY LINES
Project Manager: [redacted]	**Project Type:** Specific
Project Sponsor: [redacted]	**Capital Investment part of original Operating Plan:** Yes
Estimated in service date: 12/31/2024	**Emergency Related Request?** No
Eng./Constr. Resources Budgeted? Yes	**Facility Type** (check all that apply)**:** ☐ PTF ☐ non-PTF ☒ Distribution
Total Gross Capital Request: $5,399K	**Authorization Type:** Initial Funding

Executive Summary

Eversource has completed drone patrols of all distribution Right of Ways (ROW) and has categorized all findings into five priority levels: P1, P2, P3, P4, and P5. [redacted] had the following list of priority poles: 7 P1, 54 P2, 6 P3, and 2 P4 poles. Of those poles, 4 of the P1 poles, 5 of the P2 poles, and 1 each of the P3 and P4 poles have already been repaired. The remaining poles will be addressed by this proposal. Those poles in [redacted] to the west of pole [redacted] will be addressed in 2023: 3 P1, 37 P2, and 5 P3 poles. The poles that are to the east of [redacted] will be addressed in 2024: 12 P2, and 1 P4.

Given the amount of work required in [redacted] several options were discussed for a long-term solution. These included repairing only the problem poles, rebuilding in place, and/or rerouting 3B11 and 3B12 out of the eastern portion of [redacted] The design selected was to rebuild the entire ROW in place.

Project Costs Summary

Note: Dollar values are in thousands

Capital Costs	Year 2023	Year 2024	Year 2025+	Total
Direct Capital Costs				
Internal Labor and Construction Equipment	$90	$77	$0	$167
Outside Services	$782	$674	$0	$1,457
Materials	$295	$254	$0	$549
Removals	$608	$524	$0	$1,132
Risk and Contingency	$8	$7	$0	$15
Other	$0	$0	$0	$0
Subtotal – Direct Costs	**$1,783**	**$1,537**	**$0**	**$3,320**
Indirect Capital Costs				
Indirect/Overheads (including benefits)	$1,107	$954	$0	$2,061
Capitalized interest or AFUDC, if any	$10	$8	$0	$18
Subtotal – Indirect Costs	**$1,117**	**$963**	**$0**	**$2,080**
Total Gross Capital Costs	**$2,900**	**$2,499**	**$0**	**$5,399**
Customer Contribution	**$0**	**$0**	**$0**	**$0**
Total Net Capital Project Costs	**$2,900**	**$2,499**	**$0**	**$5,399**

Technical Justification:

Project Need Statement

The project was created to repair priority 1 and 2 poles in [redacted]. 50% of the poles in [redacted] are priority 1 or priority 2 and need repair. Due to the high number of poles, several options were reviewed. The design selected was to rebuild the entire length of [redacted] with steel structures and 556 tree wire.

Project Objectives

The 3B11 and 3B12 in [redacted] will be rebuilt to improve reliability. The 3B11 and 3B12 will be reconductored with 556 175 Mil tree wire inside [redacted]. Additionally, the entire ROW will have tree trimming completed. This will greatly increase reliability and reduce the likelihood of future tree related outage(s) on the 3B11 and 3B12.

Project Scope

The scope of this project is to rebuild [redacted] from [redacted] in Bloomfield to [redacted] in Bloomfield. The following is the scope of work for each option:

Rebuild [redacted]

- Reconductor [redacted] from [redacted] with 556 Tree Wire
- Replace all [redacted] poles with steel poles.
- Replace all [redacted] from [redacted] with class 1 wood poles as these poles are located along the roadway.

Major Material:

2023:

- Cross arms composite, 243
- Steel Utility Poles, 68
- Wood Utility Pole, 13
- Three phase cutouts, 7
- 556 Al Tw 175 Mil, 17,000 Ft.
- Matting 8”X4’X16’, 1100 matts

2024:

- Steel Utility Poles, 41
- Wood Utility Pole, 20
- Three phase cutouts, 3
- Re-hang three phase Recloser, 1
- Cross arms composite, 183
- 556 175 Mil TW 7,000 Ft.
- Matting 8”X4’X16’, 1100 matts, 1750 matts

Background / Justification

Customers currently served by the [redacted] as they travel through [redacted] are as follows. 3[redacted]. However, no customers are served by the portion of the [redacted] that traverses [redacted].

The 3B11 and 3B12 outage history is shown below. In summary:

[redacted]

[redacted]

Business Process and / or Technical Improvements:

The performance improvements expected for any of the options listed below will improve the reliability of the [redacted] those circuits traverse [redacted]

Alternatives Considered:

Were alternative solutions considered/applicable? Include any cost/benefit analysis.

Alternatives were considered (please describe below)

There are four options being considered for [redacted]. The design selected is to rebuild all of [redacted] in place (O4). The sections of [redacted] from [redacted] that run along the road will use wooden class 1 poles. All other poles in the ROW will be replaced with steel structures. All cable will be replaced with 556 175 kcmil TW for both circuits.

Estimates below are total project dollars (capital and expense dollars):

O1 - Reconductor the western portion of [redacted] but reroute the Eastern portion – Cost $5,160,310

- The [redacted] in [redacted] west of [redacted] would be reconductored to improve reliability. This option would abandon the eastern portion of [redacted] from [redacted]. to [redacted]. Currently the [redacted] act as backup circuits for the [redacted] substation. The 3B11 would be rerouted and would remain a backup for [redacted] via existing road side lines between [redacted]. The [redacted] can also be used as a backup to [redacted] via the two GOABs that will be installed on [redacted]. This connection would allow either the [redacted]. The [redacted] would be rerouted north from [redacted] to meet with itself on [redacted] by reconductoring with 556 spacer cable, and the [redacted] would be connected via GOAB to the 24J1 on [redacted]. The entire ROW would have tree trimming completed. This option was not selected to maintain reliable ties within the ROW between the Bloomfield and [redacted] substations as the ROW would not be subjected to vehicle accidents. In addition, these two ROW lines would be available as two future circuits to be supplied from the recently expanded [redacted] substation to support future load additions in the area.

O2 - Repair P1 and P2 poles only – Cost $3,975,497

- Repair all P1 and P2 poles currently located inside [redacted] from [redacted], and from [redacted] substation. This option was not selected due to wetlands and the high matting cost required to gain access to the P1 and P2 poles. Due to the high access cost, the lower priority poles should be replaced at the same time to avoid spending the same access cost again within the next 5 years.

O3 - Reconductor [redacted] 795 TW – Cost $5,986,724

- Reconductor inside [redacted] from [redacted], and from [redacted] substation with 795 TW. This option was not selected as this newer size conductor has not been fully reviewed by Standards and will not be available before the project is designed.

O4 – Reconductor the entire ROW with steel poles and 556 TW – Cost $5,776,942 (proposed option)

- This option was selected to replace all poles within the ROW since over 50% of the poles with the ROW were P1 or P2 to avoid the need to re-enter the ROW within the next 5 years to replace lower priority poles. This will also provide reliable ties between Bloomfield and [redacted] substations that are not subjected to vehicle accidents and provide future circuits for the recently expanded [redacted] substation.

Connecticut Light & Power
A Northeast Utilities Company

Specific Project Proposal - Project #: CD01701
ROW 039 Remediation

Project Option Summary

ID	Description	Segments	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)	Prfrd
O1	Reroute Eastern portion of ROW039	1,3,5	$5,160,310	$0	100%	$0.00	$0.00	☐
O2	P1 & P2 Only	4	$3,975,497	$0	100%	$0.00	$0.00	☐
O3	Reconductor 795 TW, and Steel Structures	1,2,5,6	$5,986,724	$0	100%	$0.00	$0.00	☐
O4	Reconductor Enire ROW 039 with 556 TW, and Steel Structres	1,5,6	$5,776,942	$0	100%	$0.00	$0.00	☑

Segments

ID	Title	Preliminary Estimate	Construction Estimate	Variance	IEEE $/CMS	All (w/Storm)
1	Steel Pole Adder for the Western portion	$303,924			$0.00	$0.00
2	Reconductor in place with 795 TW	$209,782			$0.00	$0.00
3	ROW 039 Reroute Eastern Portion	$2,057,694			$0.00	$0.00
4	P1 and P2 poles only	$3,975,497			$0.00	$0.00
5	ROW 039 Reconductor Western Portion	$2,798,691			$0.00	$0.00
6	ROW 039 Reconductor Eastern Portion	$2,674,327			$0.00	$0.00

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Regulatory Approvals:

Are Regulatory body approvals needed for the project?

Yes

The alternative options that require entering the Eastern portion of [redacted] will need approval from environmental due to wetlands.

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Initial Funding Authorization	May 2021
2023 Detail Design	October 2022
2024 Detail Design	October 2023
Construction Begin	April 2023
In Service Date	December 2024

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2023/2024	Medium	Work in the ROW could be delayed due to access and terrain
Internal construction resources not available to perform the work.	2023/2024	High	Plan external resources to complete this project. Use competitive bidding to ensure lowest outside labor cost.

Internal engineering resources not available to perform the work.	2023	Low	Internal resources tentatively planned to support this project, particularly within the areas of construction supervision, equipment settings.
Materials Shortage or long lead times	2023/2024	Low	Pre-order long lead time material; minimize the use of non-standard and non-stocked material.
Storm delays	2023/2024	Low	Contractors will manage weather delays as necessary.
System abnormal configuration	2023/2024	Low	Schedule work to minimize system abnormal time. Install temporary bypasses/equipment if system will be abnormal for extended periods.
Wetlands / Environmentally sensitive area	2023/2024	High	Use of mats and specialty equipment, only work during certain times of the year.