

Wildfire Risk Governance Committee
System Hardening Project Approvals

February 2, 2021

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Today's discussion will include mitigation recommendations, as well as additional remote grid projects to be scoped for 2021

The following 3 projects have recommended mitigations:

Order No.	CPZ	Work Bucket	Total MAVF Core Risk Value	Mean MAVF Core Risk Rank	Recommendation	WGC Request
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WGC Decision

1						Decision
2						Decision
3						Decision

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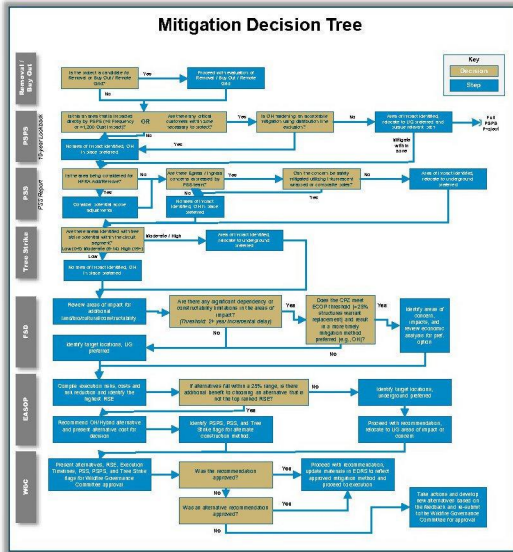
WGC Inform

1	35219282/ 35219283	North Dublin 2101CB	CWSP Top 250	13.07	47	Underground (3.65 mi)	Inform
2	35075103	Frogtown 17011623	WDDB Top 20%	0.63	721	Overhead (0.59 mi)	Inform
3	35219266	Mariposa 2102CB	CWSP Top 250	14.62	35	Overhead (5.31 mi)	Inform

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	Key Questions	Outcome		
PPSP	Is this an area that is impacted directly by PPS (>8 Frequency or >1,200 Cust Impact)?	Y	N	0 events, OH preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	
PSS	Is the area being considered for HFRA Add/Remove?	Y	N	Entire Zone
	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y	N	
Tree Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y	N	Low
	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y	N	
FSD	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y	N	Hybrid and UG within 100%
	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y	N	
		UG Preferred		

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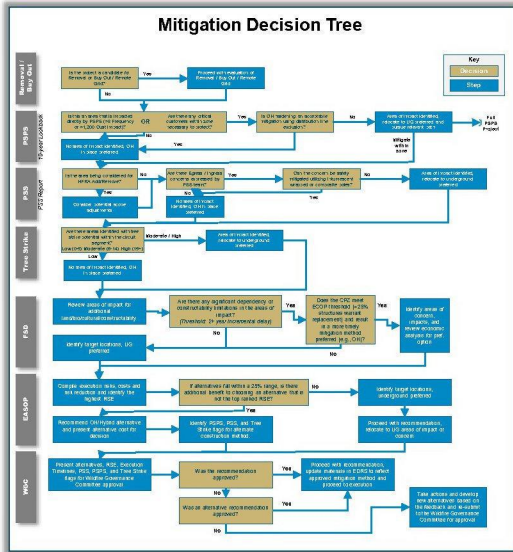
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Inform: CWSP TOP 250 – PM# 35219283 North Dublin 2101 CB

North Dublin 2101 (2.85 Miles)		No System Hardening	Overhead Hardening	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	8.10	12.56	9.67
Project Scope Residual Risk Value		13.07	4.97	0.51	3.40
Overall Miles Installed		2.85 Existing OH	2.85	3.65	2.91
OH System Hardening Cost	\$1.7M/risk-mile	-	\$5.0M	-	\$3.0M (1.74 mi)
UG System Hardening Cost	\$2.5M/risk-mile	-	-	\$7.2M	\$1.6M (1.17 mi)
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AAACE Class 5)		-	\$5.0M	\$7.2M	\$4.6M
Average O&M Cost (per year)		-	\$97k	\$48k	\$74k
NPV @ 6.8% discount rate		-	(-\$6.4M)	(-\$8.0M)	(-\$5.8M)
Primary Filter	\$ NPV per unit of risk (RSE)	-	(-\$791k) – 3 rd	(-\$636k) – 2 nd	(-\$596k) – 1 st
	PSS Preference (Ingress/egress/fire history)	-	Satisfactory	Satisfactory	Satisfactory
Secondary Filter	Strike Tree Potential	Low Fall-In Risk	Low Fall-In Tree Risk	N/A	Low Fall-In Tree Risk
	Ingress / Egress	LOW	Satisfactory	Satisfactory	Satisfactory
	PSPS Mitigation (4886 customers)	0 / 0 (No events)	0 / 0 (No events)	0 / 0 (No events)	0 / 0 (No events)
	Execution timeline (2021, 2022, 2022+)	-	2021	2022	2022+
	Other (Operational Considerations, etc.)	-	-	Preferred	-

Supporting Detail for Recommended Alternative (EDRS Link [2021-04306](#)):

- **Public Safety Specialist:** Predominantly annual grass with very few oak or other tree species. Population density is low to medium in immediate project area but a large area of high population density south and west of the project. The area around this project does not have significant fires history.
- **Strike Tree Potential:** Low total strike potential trees in the CPZ.
- **Egress Considerations:** No major egress concern, three 2 to 4 lane roads with bike lanes and shoulder.
- **PSPS Mitigation:** 10-year lookback does not show expected PSPS impacts, however it had actual impacts in the 2019 events. This will eliminate future PSPS impact of more than 4500 customers in this area.
- **Execution Timeline (Land/Bio/Cultural/Constructability):** Work required during the dry season (May 15 – Oct 15) and/or biomonitoring. No mitigation expenses expected as long as work is within the road ROW. Existing spurs from the substation exist improving cost assumptions & most connecting lines are UG. Completing these segments in UG is preferred, include ND 2103.



	Key Questions	Outcome		
PPSP	Is this an area that is impacted directly by PPS (>8 Frequency or >1,200 Cust Impact)?	Y	N	2 events, OH preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	
PSS	Is the area being considered for HFRA Add/Remove?	Y	N	N/A
	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y	N	
Tree Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y	N	Low
FSD	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y	N	
	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y	N	
EASOP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y	N	Hybrid and UG within 100%
				OH Preferred

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Inform: WDDb TOP 20% – PM# 35075103 Frogtown 1701 TS 1623

Frogtown 1701 (0.59 miles)		No System Hardening	Overhead Hardening	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	0.39	0.62	0.39
Project Scope Residual Risk Value		0.63	0.24	0.01	0.24
Overall Miles Installed		0.59 Existing OH	0.59	1.08	1.08
OH System Hardening Cost	\$1.8M/risk-mile	-	\$1.1M	-	\$2.0M (1.08 mi)
UG System Hardening Cost	\$7.1M/risk-mile	-	-	\$4.2M	\$0M (0 mi)
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AACE Class 5)		-	\$1.1M	\$4.2M	\$2M
Average O&M Cost (per year)		-	\$28k	\$14k	\$52k
NPV @ 6.8% discount rate		-	(\$1.5M)	(\$4.4M)	(\$2.7M)
Primary Filter	\$ NPV per unit of risk (RSE)	-	(\$3.83M) 1st	(\$7.11M) 3rd	(\$7.0M) 2nd
	PSS Preference (Ingress/egress/fire history)	-	Satisfactory	Satisfactory	Satisfactory
Secondary Filter	Strike Tree Potential	LOW(0-5)	Low Fall-In Tree Risk	N/A	Low Fall-In Tree Risk
	Ingress / Egress	LOW	Satisfactory	Satisfactory	Satisfactory
	PSPS Mitigation (5 customers)	10 / 10 (0%)	10 / 10 (0%)	10 / 10 (0%)	10 / 10 (0%)
	Execution timeline (2021, 2022, 2022+)	-	2021	2022+	2022
	Other (Operational Considerations, etc.)	-	-	-	-

Recommended

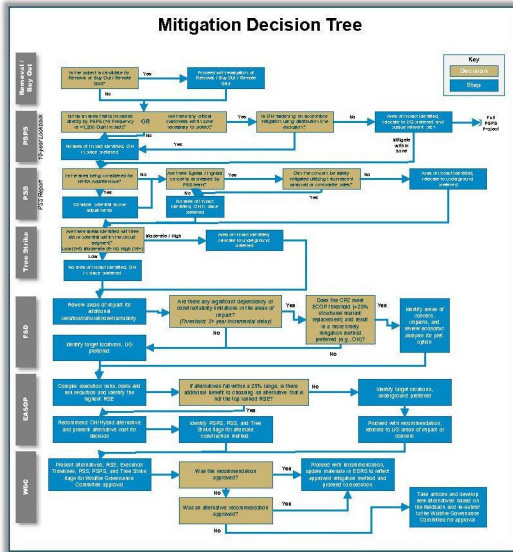
Supporting Detail for Recommended Alternative (EDRS Link [2021-04261](#)):

- Public Safety Specialist: Predominantly grass, heavy intermediate sized brush, and intermixed patches of Gray Pine. Population density is low in immediate project area but a large area of moderate to heavy population density surrounding the project. The area around this project has significant fires to the northeast and northwest.
- Strike Tree Potential: 445 total strike potential trees in the CPZ, LOW (0-5) tree strike potential in this segment does not suggest UG hardening is required.
- Egress Considerations: No major egress concern, project does not run along road.
- PSPS Mitigation: No mitigation potential due to limited scope of this hardening project; no critical / essential customers in this segment. To achieve PSPS reductions, additional scope would have to be included
- Execution Timeline (Land/Bio/Cultural/Constructability): No Constraints.

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	Key Questions	Outcome		
PPSP	Is this an area that is impacted directly by PPS (>8 Frequency or >1,200 Cust Impact)?	Y	N	0 events, OH preferred
	Are there any critical customers within zone necessary to protect?	Y	N	
	Is OH hardening an acceptable mitigation using distribution line exclusion?	Y	N	N/A
PSS	Is the area being considered for HFRA Add/Remove?	Y	N	
	Ingress/Egress concerns identified by PSS professionals cannot be mitigated by utilizing intumescent wrapped or composite poles.	Y	N	Ingress / Egress concerns
Tree Strike	Moderate (6-14) or high (15+) strike tree potential areas in the segment.	Y	N	Low
FSD	Are there any significant dependency or constructability limitations in the areas of impact? (Threshold: 2+ year incremental delay)	Y	N	
	Does the CPZ meet ECOP threshold (>25% structures warrant replacement) and result in a more timely mitigation method preferred (e.g., OH)?	Y	N	
EASOP	If alternatives fall within a 100% range, is there additional benefit to choosing an alternative that is not the top ranked RSE?	Y	N	Hybrid within 100%
				OH Preferred

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Inform: CWSP Top 250 Miles - Mariposa 2102 - CB - PM 35219266

Mariposa 2102 (5.31 miles)		No System Hardening	Overhead Hardening	Under-grounding	Hybrid
Project Scope Risk Reduced After Mitigation		-	9.06	14.47	10.10
Project Scope Residual Risk Value		14.62	5.56	0.15	4.52
Overall Miles Installed		5.31 Existing OH	5.31	6.72	6.72
OH System Hardening Cost	\$1.8M/risk-mile	-	\$9.7M	-	\$9.9M (5.43 mi)
UG System Hardening Cost	\$8.0M/risk-mile	-	-	\$42.4M	\$5M (1.29 mi)
Line Removal Cost	-	-	-	-	-
Total Capital Cost (AAACE Class 5)		-	\$9.7M	\$42.4M	\$14.9M
Average O&M Cost (per year)		-	\$188k	\$88k	\$209k
NPV @ 6.8% discount rate		-	(\$12.5M)	(\$44.1M)	(\$18.1M)
Primary Filter	\$ NPV per unit of risk (RSE)	-	(\$1.38M) 1st	(\$3.05M) 3rd	(\$1.79M) 2nd
	PSS Preference (Ingress/egress/fire history)	-	Satisfactory	Satisfactory	Satisfactory
Secondary Filter	Strike Tree Potential	LOW (0-5)	Low Fall-In Risk	N/A	Low Fall-In Risk
	Ingress / Egress	LOW	Satisfactory	Satisfactory	Satisfactory
	PSPS Mitigation (44 customers)	44 / 44 (0%)	44 / 44 (0%)	44 / 44 (0%)	44 / 44 (0%)
	Execution timeline (2021, 2022, 2022+)	-	2021	2022+	2022+
	Other (Operational Considerations, etc.)	-	-	-	-

Recommended

Supporting Detail for Recommended Alternative (EDRS Link [2021-04769](#)):

- Public Safety Specialist: Predominantly grass-oak woodland with patches of intermediate sized brush and some gray pine. Population density is low in immediate project area but a large area of high population density to the east at the end of the project. The area around this project has significant fires to the west and north.
- Strike Tree Potential: 16 total strike potential trees in the CPZ, LOW (0-5) tree strike potential in this segment does not suggest UG hardening is required.
- Egress Considerations: No major egress concern, this project is cross country with few road crossings.
- PSPS Mitigation: No historical PSPS operations.
- Execution Timeline (Land/Bio/Cultural/Constructability): May require work during the dry season (Jan 1 – Oct 15) and/or biomonitoring. Naturally occurring asbestos identified in project area. Caltrans ROW for UG and Hybrid options.

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