

Charting of Transmission Lines & Obstacles on VFR Charts

FAA Control # ACF-CG RD 15-01



AERONAUTICAL CHARTING FORUM Charting Group

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Recommendation

Request that the Charting Group consider and approve updates of US VFR charts to provide more prominent markings of charted obstacle hazards to save lives and preserve property through improved pilot situational awareness and avoidance of charted obstacle hazards.



Background

On January 22, 2004 a USMC UH-1 Huey struck power transmission lines and crashed at Camp Pendleton, CA.

- Three aircrew died on scene, the fourth later in the hospital
- UH-1 replacement cost was \$26.2 million



Background

On September 16, 2007 a Coast Guard MH-60T experienced a near miss (<200') of power transmission lines near Homer, AK.

- Day VMC
- Power lines were charted
- Co-Pilot was actively scanning for power lines in VFR sectional, did not ID them until post-event analysis



Background

On July 7, 2010 a Coast Guard MH-60T Jayhawk helicopter struck power transmission lines and crashed off the coast of La Push, WA.

- Three aircrew died; one survived with serious injury
- MH-60T replacement cost was \$30 million
- Ground power repair cost was \$366 thousand



Mishap Injury and Damage





Causal Factor (one of several)

Breakdown in Visual Scan

Lack of easily discernible wire hazard identification in accordance with FAA guidelines

- Structure Visibility (missing warning markers)
- Acquisition Policy (failure to maintain)
- Procedural Guidance (maintenance inspections)



Coast Guard Vice Commandant Directed Actions

- Several actions focused on evaluation, design and maintenance of wire structures for FAA compliance
- “Coordinate with necessary stakeholders to put forth a change recommendation to the FAA to revise and model current U.S. VFR sectionals after Canadian VFR sectionals chart color contrast and hazard symbology.”



Let's do the numbers.

- Power lines claim an average of 2 helicopters a week
- Account for ~5% of all rotorcraft accidents
- Average age 43 years, 4000+ hrs
- 85% occur day VMC
- 30% are fatal



— *Source Stuart Lau, 2012*





How do we combat this?

What the experts say...

- On-board wire detection systems (76%)
- Wire Cutters (49%)
- **Training (56%)**
 - International Helicopter Safety Team
 - Flight Safety Foundation
 - NASA

– *Source Stuart Lau, 2012*



Training and Markings

- Where does training fit in here?
 - Improve chart markings
 - Teach pilots to recognize newer chart markings
 - Charts easier to interpret, pilots more likely to ID the hazards
 - For student pilots, Law of Primacy is key



VFR Chart Legends

Power / Prominent Transmission Lines

US



Alternatives

ICAO



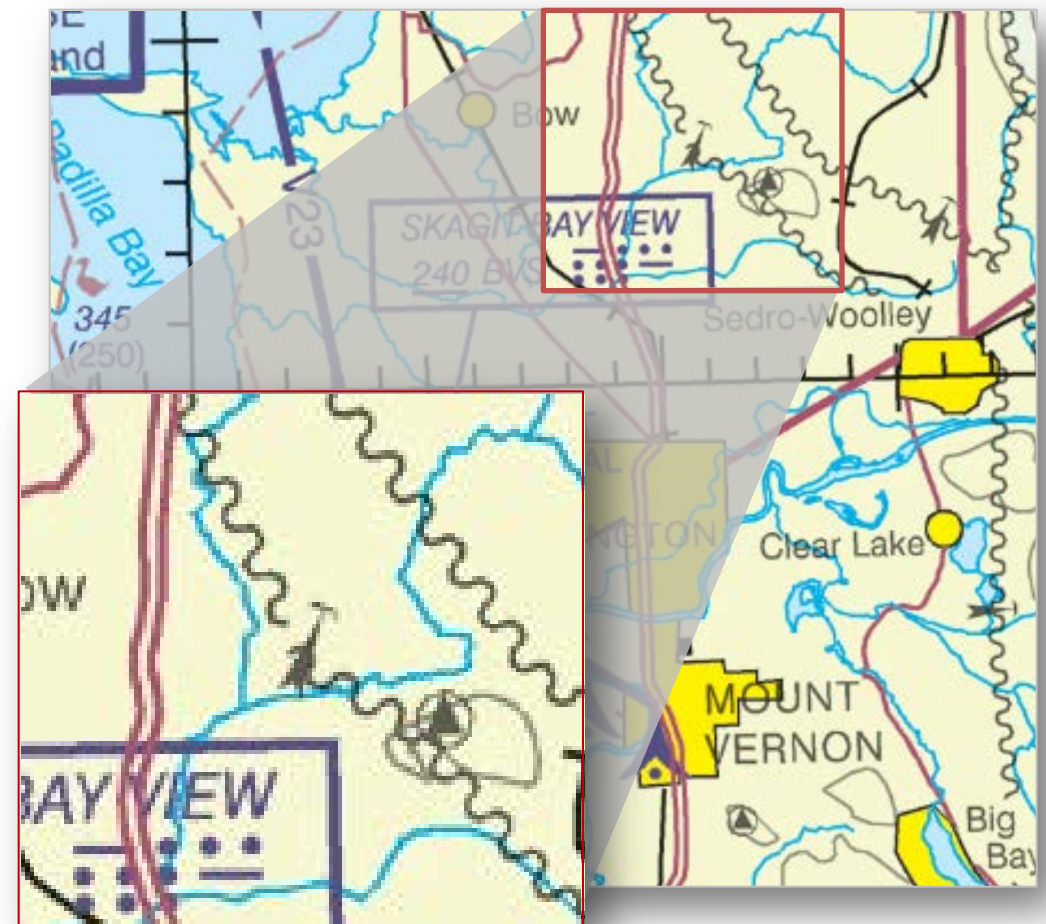
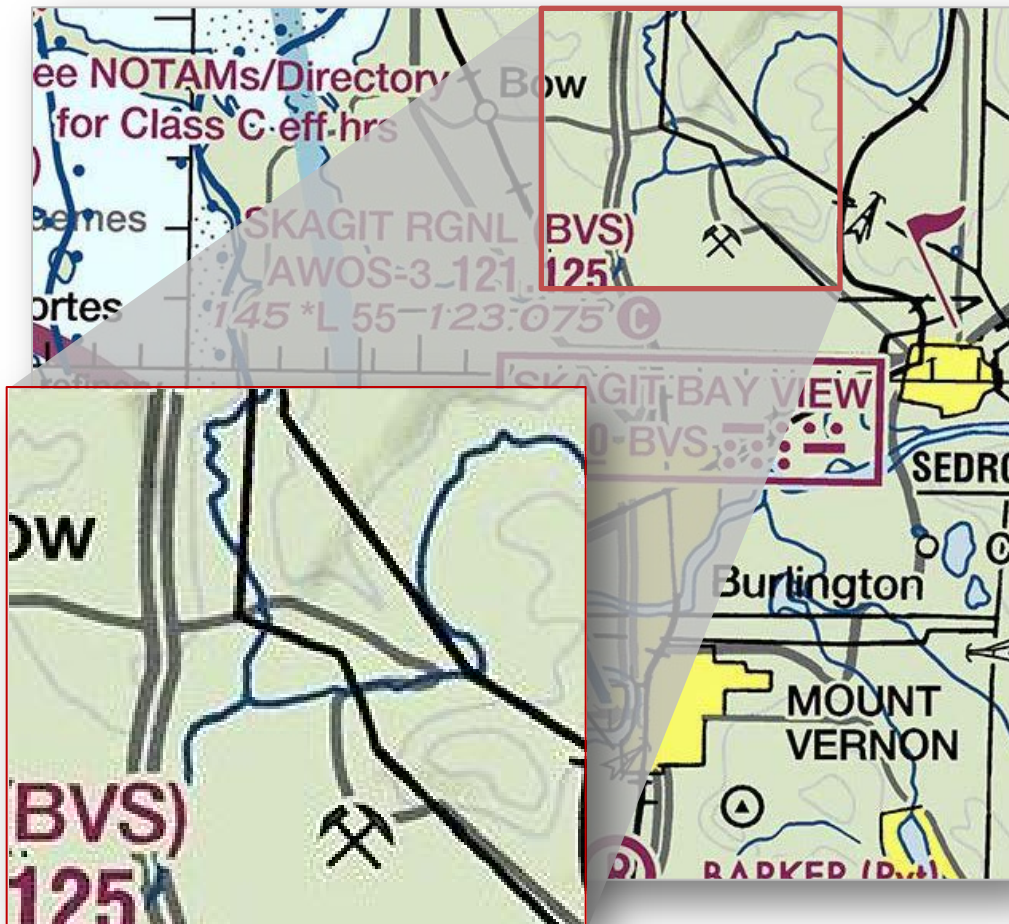
Canada



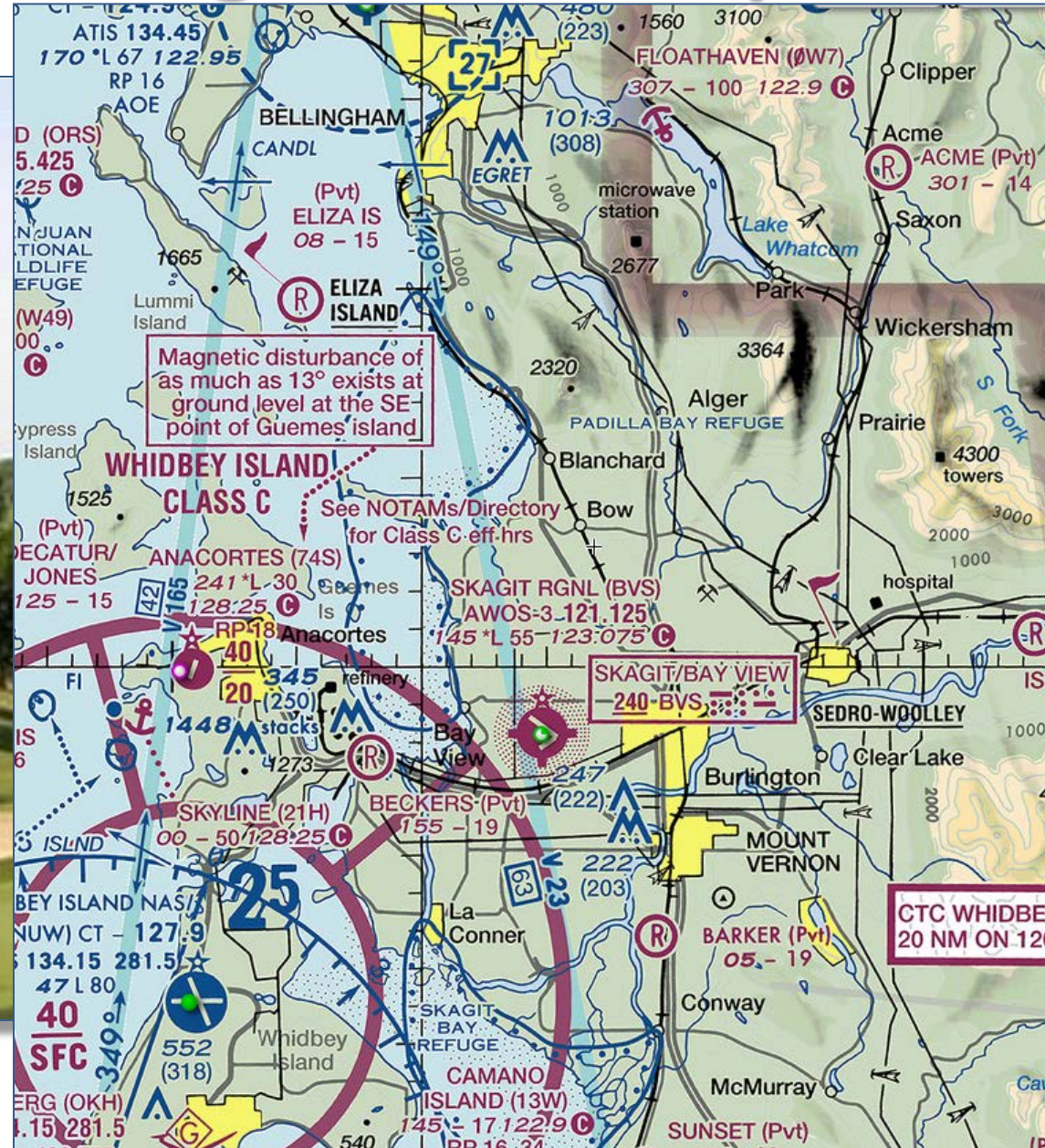
VFR Chart Wire Depictions

US

Canada



For Navigational Purposes Only



VFR Chart Wire Depictions

