

VLB ARRAY MEMO No. 486

NATIONAL RADIO ASTRONOMY OBSERVATORY
Green Bank, West Virginia

VLBA MEMORANDUM

September 9, 1985

FROM: George Seielstad

SUBJECT: Cost Savings

I propose to solve two problems with the existing VLBA design: (1) projected cost overruns (Romney, 8/28/85 Memo, "Program and Reference Documents"), and (2) the lack of a specific "New England" site (Walker, VLBA Project Book 850826, pp. 1-4 and 1-9).

The proposed solution is to locate one of the ten antennas at NRAO-Green Bank. The "New England" antenna is the most likely candidate, although antennas scheduled for OVRO and Fort Davis can also be considered. This change does not degrade UV-coverage (Seielstad's blind test), and, in fact, reinforces Walker's "strong bias...to sites with existing radio astronomy activity" (VLBA Project Book 850826, p. 1-7).

The Green Bank site meets nearly all of Peery's "Requirements of a Typical Station" (VLBA Project Book 850826, pp. 2-2--2-4). In particular, it provides better RFI protection than any site that has been considered.

In addition, locating an antenna at Green Bank saves money. That is because (1) much of the infrastructure for developing a site already exists (land, roads, water, sewer, power, telephone, buildings, vehicles, etc.), (2) some VLBA-related electronics equipment has been or will be purchased (maser, NAVSTAR station, electronics test equipment, tools, etc.), and (3) trained personnel with the skills necessary to operate a radio telescope are already in NRAO's employ.

The attached table details upfront savings of \$543k. This is a conservative estimate; larger savings are probably realizable. The figures are from File CTC32, 27-Aug-85, "VLBA COST ESTIMATE." The table does not include operations savings, which could be significant and would extend over the life of the array.

The estimated savings either reduce the negative contingency by a very significant amount (54%) or permit many options that will otherwise be eliminated (see Romney, "Options List," VLBA Project Book 850826, pp. 13-1--13-12). Simultaneously, the quality and reliability of the array are improved.

Attachment

ESTIMATED SAVINGS, GREEN BANK OPTION

Ident. No.	Description	Savings(\$k)	Comments
51.01	Land	9	minimum estimate
51.02	Survey		Expect<<\$15k, but will not include.
51.03	A/E Design	20	
51.04	Site Work		Expect<<\$80k, but will not include.
51.06	Building	190	Available building by Tatel Telescope Some work necessary, but not so much as to cancel 51.02 + 51.04.
51.08	Sta. Outfit	35	minimum estimate
53.003	Sta. Test Eq	14	
53.308	Maser Procur	250	
p. 6-8	Navstar Rcvr	25	
TOTAL SAVINGS		543	Conservative estimate