

EVLA ADVISORY COMMITTEE PROJECT OVERVIEW

Scope

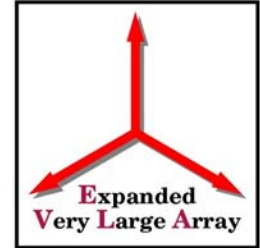
Organization

Schedule

Budget, personnel



Project Scope

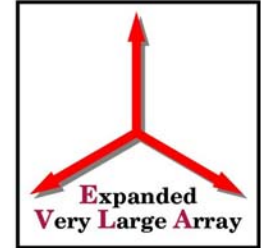


Phase I (funded)

- Continuous frequency coverage 1-50 GHz in 8 rx bands
- 16 GHz IF bandwidth per antenna (8 GHz/polarization) with new local oscillator system
- Fiber optic communication link for digital IF transmission, LO reference distribution and monitor/control
- New correlator (from Canada) to process this bandwidth with good spectral resolution
- New Monitor and Control system
- New End-to-end data management software



Project Scope (cont)

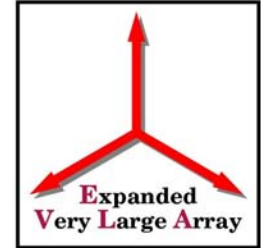


Phase II (funding not yet requested)

- New Mexico array – approx. 8 new antenna stations on baselines up to 300 km
- Enhanced low frequency capability 300-1000 MHz
- E Array – most compact VLA array possible



Project Organization

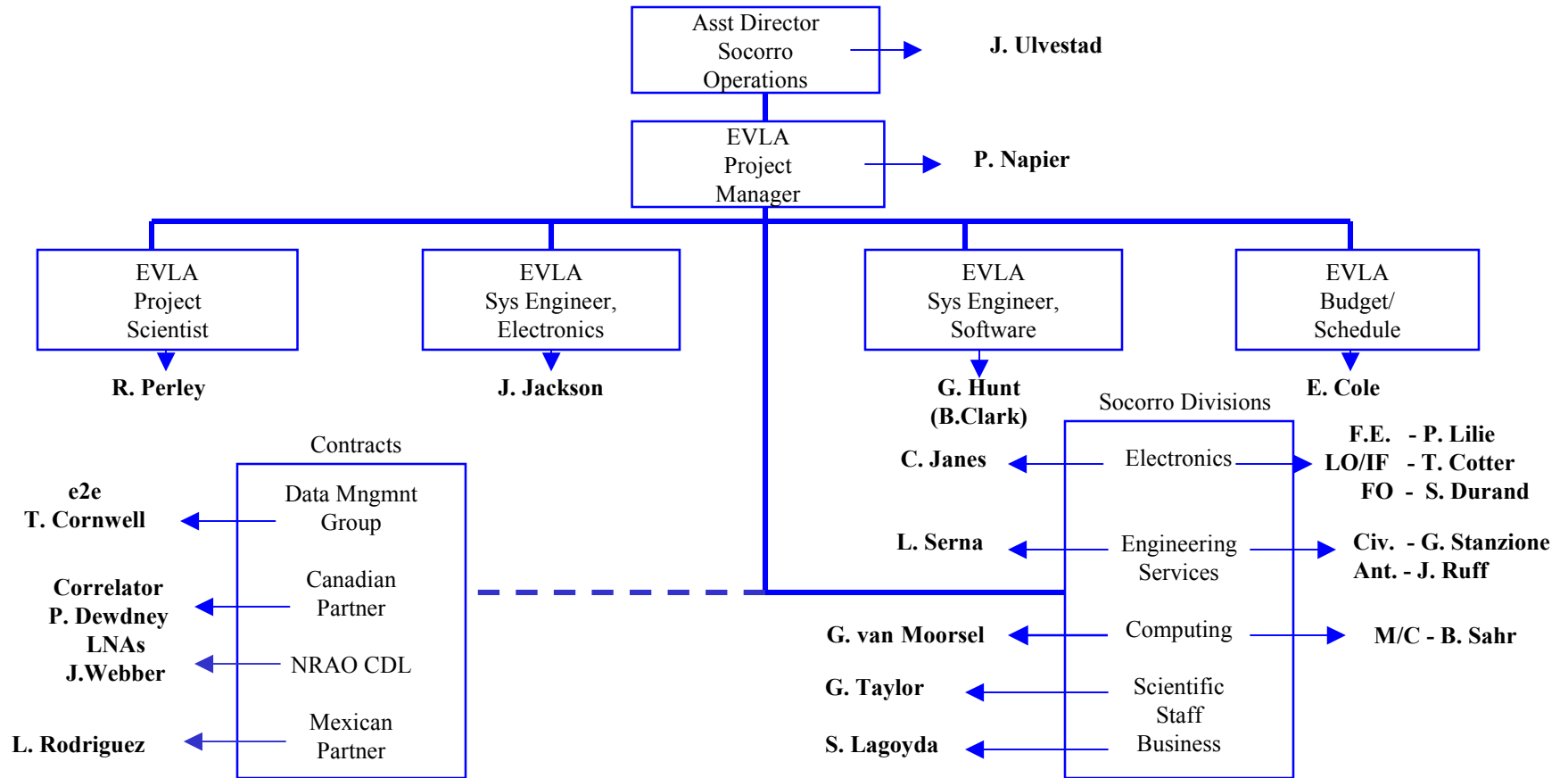


EVLA Work Breakdown Structure (WBS)

6.01	Project Management	(P.Napier)
6.02	System Integration and Testing	(J.Jackson, G.Hunt)
6.03	Civil Construction	(G.Stanzione)
6.04	Antennas	(J.Ruff)
6.05	Front End Systems	(P.Lillie)
6.06	Local Oscillator System	(T.Cotter)
6.07	Fiber Optic System	(S.Durand)
6.08	Intermediate Frequency System	(T.Cotter)
6.09	Correlator	(P.Dewdney, Canada)
6.10	Monitor & Control System	(W.Sahr)
6.11	Data Management and Computing	(T.Cornwell)
6.12	Education and Public Outreach	(R. Harrison)

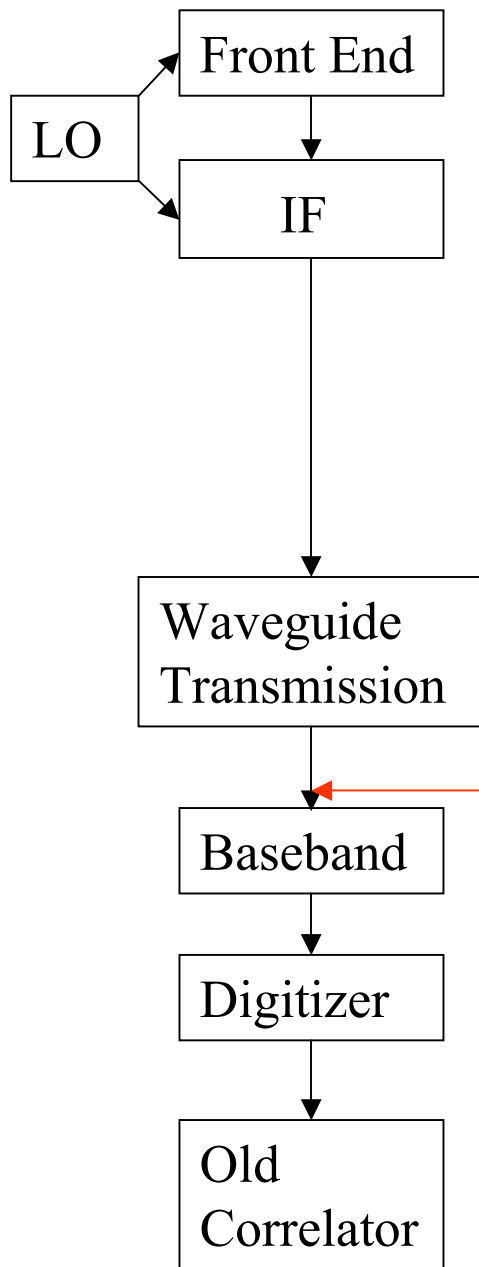
WBS is maintained at Level 4, Updated Quarterly. Weekly Progress Meetings

EVLA MANAGEMENT CHART

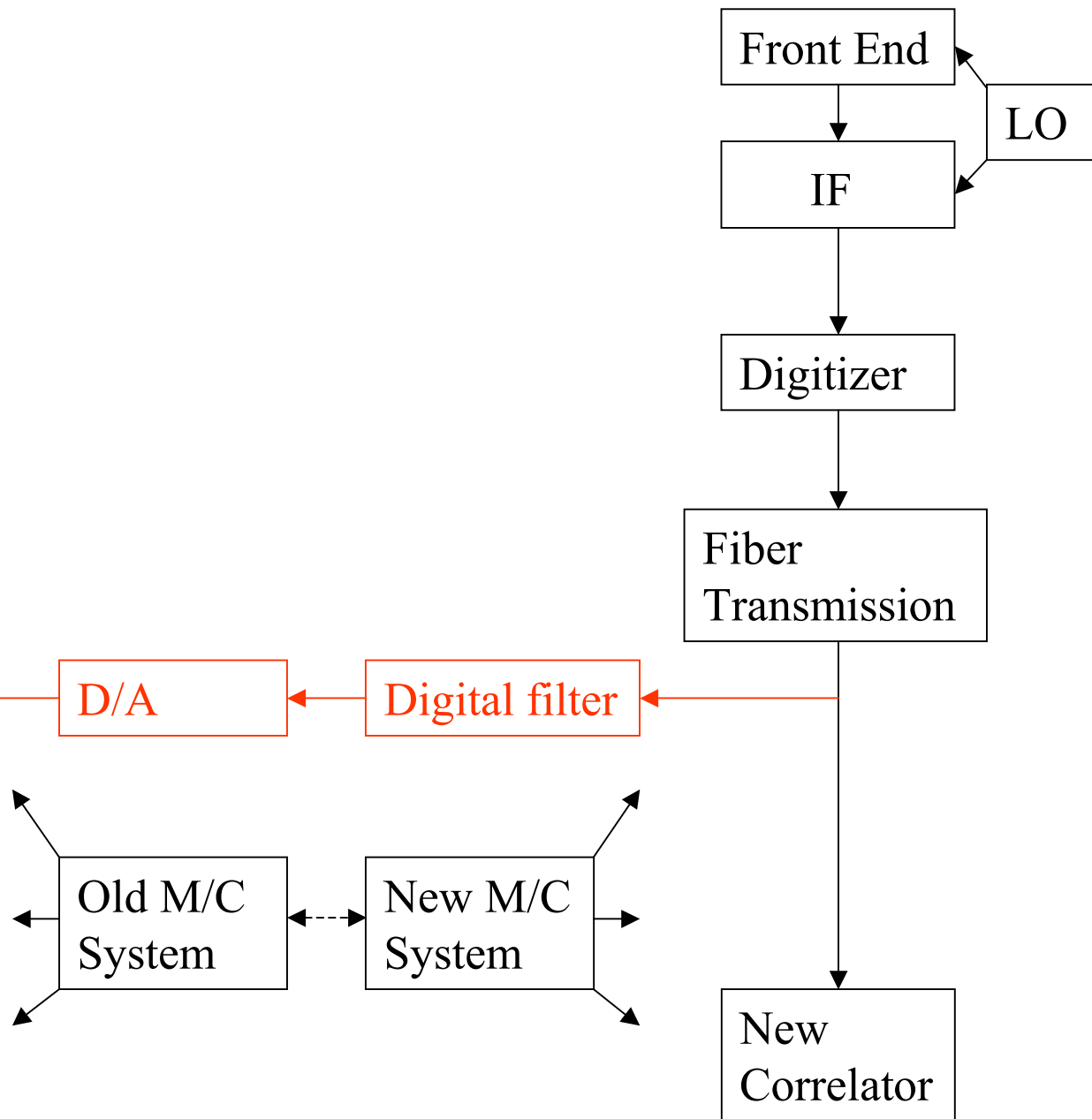


EVLA Transition Hardware

Old Systems



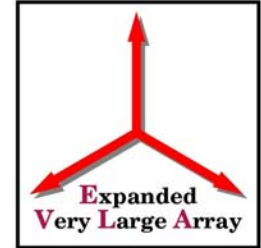
New Systems





EVLA Schedule

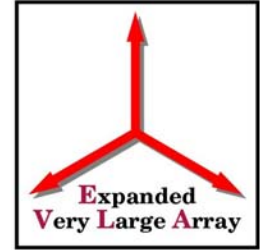
(Calendar years)



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- **Start installation of fiber optics cables on Y** **Q4 2002**
 - **Prototype EVLA system lab integration and test** **Q1 2003**
 - **Install prototype EVLA system on EVLA Test Antenna** **Q2 2003**
 - **Subsystem CDRs** **Q4 2003**
 - **Start EVLA electronics production** **Q4 2003**
 - **Start retrofitting 7 antennas/year with new system** **Q2 2004**
 - **Start observing in “transition” mode** **Q2 2004**
 - **Test of prototype correlator on 3 or 4 antennas** **Q4 2005**
 - **Start outfitting new correlator room** **Q2 2006**
 - **Start tests of first correlator subset at VLA** **Q4 2006**
 - **First “shared-risk” science with new correlator subset** **Q2 2007**
 - **Last antenna retrofitted to EVLA design** **Q1 2008**
 - **New correlator declared “operational”** **Q1 2009**
 - **Last EVLA receiver installed** **Q1 2010**
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Funding Sources (\$M 2001)



New NSF Funds	51.5
NRAO Operations (personnel)	12.0
Canadian Correlator	12.0
Mexican Contribution	2.0
Total	77.5

Budget and antenna schedule summary sheet for current (Q2 2002) 9 year plan

VLA EXPANSION PROJECT BUDGET

Note: All monetary amounts are listed in \$k (FY2002)

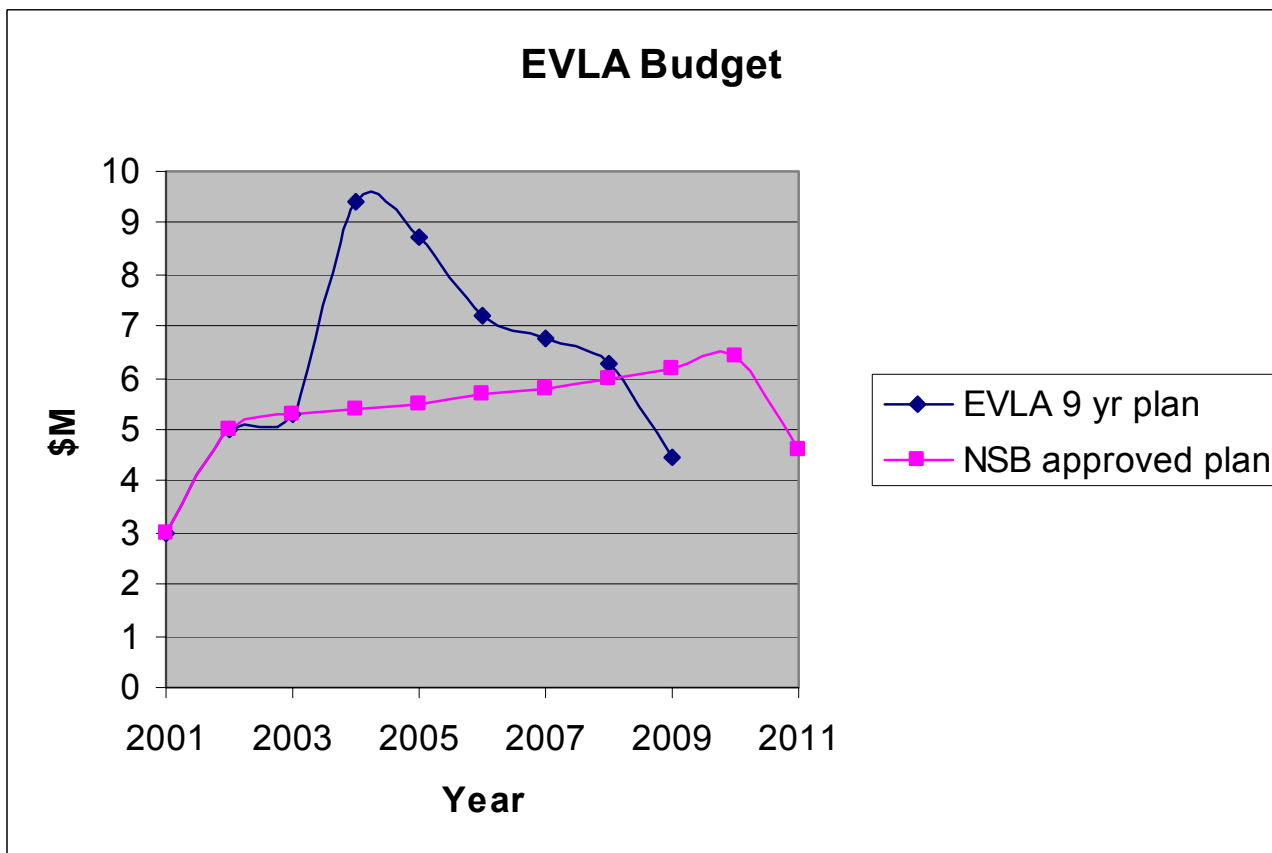
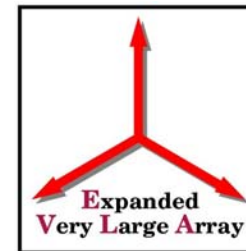
	Actual	Budgeted								Sub-total
	2001	2002	2003	2004	2005	2006	2007	2008	2009	
6.01 Project Management	80.0	267.4	269.1	398.3	338.8	285.6	262.4	205.8	117.8	2225
6.02 System Integration & Testing	213.0	832.8	279.7	145.1	137.1	137.1	138.6	76.6	24.6	1985
6.03 Civil Construction	0.0	311.0	95.0	160.0	485.0	40.0	0.0	0.0	0.0	1091
6.04 Antennas	46.9	153.9	516.6	327.7	232.3	196.3	155.0	149.4	15.2	1793
6.05 Front End Systems	338.5	412.4	1419.6	2602.9	1650.0	683.0	378.7	167.3	0.0	7652
6.06 Local Oscillator System	14.1	328.0	552.5	489.8	463.5	458.5	453.5	453.5	453.5	3667
6.07 Fiber Optic System	7.8	854.4	1010.1	1064.3	944.3	924.3	824.3	700.0	0.0	6330
6.08 Intermediate Frequency System	0.0	202.3	643.5	730.5	730.5	730.5	730.5	730.5	725.0	5223
6.09 Correlator	149.0	366.3	159.3	622.3	41.3	4285.8	1879.0	45.0	17.0	7565
6.10 Monitor & Control System	0.0	384.9	441.1	406.4	255.0	237.7	204.3	172.1	64.0	2166
6.11 Data Management & Computing	3.0	7.3	114.5	266.5	85.5	33.0	184.0	126.0	526.0	1346
6.12 Education & Public Outreach							250.0	250.0		500
Sub-Total M&S	852	4121	5501	7214	5363	8012	5460	3076	1943	41542
NRAO Wages & Benefits	275	2690	3611	4009	3398	3197	2792	2543	1963	24479
Canadian Labor	54	383	641	490	468	365	624	321	136	3482
Total M&S+W/B	1181	7194	9753	11713	9229	11574	8876	5940	4042	69504
Contingency	0	0	1322	1234	1036	1230	987	1001	800	7610
Redirected NRAO Effort	-148	-1523	-1818	-1781	-1546	-1534	-1318	-1147	-923	-11737
Canadian Contribution	-203	-749	-800	-1113	-506	-4642	-2503	-366	-153	-11035
Mexican Contribution			-1000	-1000						-2000
EVLA Project Funds	830	4922	7457	9053	8213	6628	6043	5429	3767	52342
Carryover to next yr	2170	2248								
Carryover from prior yr		-2170	-2248							
NSF Funded	3000	5000	5209	9053	8213	6628	6043	5429	3767	52342
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010

EVLA antennas available		1	5	11	17	22	28	Rework & spare components		
Rcvr prototypes	2	4	6	8						
Rcvrs available		4	32	62	102	142	176	206	240	



NSF Budget

(Fiscal years, Current year \$)



**TOTAL PROJECT EFFORT
(FTEs)**

WBS		2001	2002	2003	2004	2005	2006	2007	2008	2009	9 yr Avg
6.01	Project Management	1.1	2.8	2.8	3.3	3.3	3.3	3.3	3.3	2.3	25.1
6.02	System Integration & Testing	0.3	2.5	3.2	3.3	3.1	2.8	2.8	2.4	1.4	21.8
6.03	Civil Construction	0.1	3.4	10.9	11.6	7.1	4.7	2.5	0.0	0.0	40.3
6.04	Antennas	0.5	5.1	8.4	8.1	7.9	7.9	7.5	7.2	5.7	58.3
6.05	Front End Systems	0.3	5.9	6.3	9.0	8.8	8.6	7.3	4.6	1.0	51.8
6.06	Local Oscillator System	0.6	3.8	4.3	4.6	3.9	3.9	3.7	3.7	3.7	32.2
6.07	Fiber Optic System	0.6	3.8	3.2	3.1	3.1	2.2	2.2	2.2	1.0	21.4
6.08	Intermediate Frequency System	0.1	3.3	3.7	3.7	3.3	3.3	3.3	3.3	3.3	27.3
6.09	Correlator	0.0	0.4	0.4	0.6	0.8	1.8	1.3	0.0	0.0	5.2
6.10	Monitor & Control System	1.4	8.9	11.1	12.1	8.6	8.3	8.0	7.8	7.0	73.2
6.11	Data Management & Computing	0.0	1.1	2.4	3.3	2.8	2.2	1.6	1.6	1.0	16.0
6.12	Education & Public Outreach							0.0	0.0		0.0
	Total FTE's	5.0	41.0	56.7	62.6	52.6	48.9	43.4	36.1	26.4	372.5
	Redirected NRAO Effort	3.1	23.2	29.4	27.6	24.2	23.9	20.8	17.5	13.2	182.7
	EVLA FTE's	1.9	17.8	27.3	35.0	28.4	25.0	22.6	18.6	13.2	189.8

EVLA FTE's by Division

Project Mgmt	0.9	2.5	2.5	3.0	3.0	3.0	3.0	3.0	2.0	22.9
Electronics	1.0	10.1	11.4	13.9	14.0	13.0	12.8	10.7	6.5	93.4
Eng Services	0.0	3.2	11.3	12.3	8.3	6.3	4.1	1.8	1.3	48.6
Data/Computing	0.0	2.1	3.5	6.3	4.0	3.5	3.5	3.5	3.0	29.4
Scientific Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EVLA Total	1.8	17.9	28.7	35.5	29.3	25.8	23.4	19.0	12.8	194.2

Redirected NRAO FTE's by Division

Project Mgmt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electronics	0.9	9.6	9.7	10.4	9.0	9.6	7.8	5.5	3.9	66.3
Eng Services	0.6	5.3	8.0	7.4	6.7	6.3	5.9	5.4	4.4	50.0
Data/Computing	1.4	6.9	10.0	9.1	7.4	7.0	6.1	5.9	5.0	58.8
Scientific Staff	0.3	0.7	1.8	1.0	1.0	1.0	1.0	1.0	1.0	8.8
NRAO Total	3.2	22.5	29.5	27.9	24.1	23.8	20.8	17.8	14.3	183.9

