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September 11, 1997

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M. St., NW, Room 222
Washington, D.C. 20554

RE: Ex Parte Presentation – Proxy Cost Models
CC Docket No. 97-160

Dear Mr. Caton,

On September 10, 1997, Rich Clarke and Mike Lieberman of AT&T, Chris Frentrup and Mark Bryant of MCI, Dick Chandler of Hatfield Associates, John Donovan of Telecom Visions, and Kevin Landis and Chris Antis of PNR, all representing the Hatfield Model participated in a meeting at the FCC concerning proxy cost models. Other meeting participants are listed on the attached sheet. At this meeting, the Hatfield Model Representatives ("HMR") provided the following views on proxy cost modeling issues.

The first item addressed were some clarification issues related the the Bureau's Public Notice Guidance on Switching and Interoffice aspects of the models. The HMR requested clarification of the following items.

- That until further notice, though the models should be capable of identifying the particular switch type (Host/Remote/Standalone) located in each wire center, the models need not so at this time. The Bureau staff affirmed this view.
- How the extra costs incurred at the host switch in order to support its subtending remotes should be spread among customers. In particular, should these extra costs be strictly the responsibility of the lines served off of the remotes that they benefit, should they be shared among lines served off of both the host and its remotes, or should they be shared across all lines – including those served off of adjoining standalone switches. The Bureau staff indicated that the Public Notice states that

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these costs should be shared among hosts and their associated remotes, though the staff found items of merit in each of the approaches.

- In response to a HMR question, the Bureau staff also indicated that switch costs need not be broken out by individual manufacturer in addition to being broken out by host/ remote/standalone switch type.
- The Bureau staff did confirm that they expected the switching and interoffice facilities engineered by the models to be "least cost, most efficient," subject to these facilities being generically available and installed according to reasonable engineering practices.
- On the issue of facilities redundancy, the Bureau staff indicated that it considered this requirement to be met by route diversity as is provided by a SONET ring. The HMR questioned whether it was economic or reasonable to connect SONET rings to very small wire centers when other network facilities such as DLCs or feeder cables may serve many more lines, but not be protected through diverse routing. In addition, even a minimal size SONET ring would have traffic capacity orders of magnitude in excess of the traffic loads that would be generated by small switches. The HMR suggested a threshold wire center size of 2000 lines. Above this threshold wire centers would be equipped with switches connected to the larger network via a ring archtitecture. Below this threshold, either a switch or a DLC could be placed in the wire center, and connection to the larger network would be by nondiversely routed facilities. The Bureau staff indicated that these concerns and proposals had merit, but could not come to a decision on them at this time.

The next set of items discussed at the meeting concerned the criteria upon which the FCC would chose a model platform. Among the several items proposed were model openness and verifiability. The HMR agreed with the importance of these criteria and indicated that they would welcome having equal opportunity to make use of any more granular data that has previously been held to be proprietary.

Issues related to how the models address customer location were dealt with next. The HMR reiterated that because both the new BCPM and the new Hatfield Model would normalize engineered line counts to match customer demands calculated at the Census Block ("CB") level, the most significant difference between the two models is in where they locate lines within CBs. While the Hatfield Model will locate these customers based on actual geocode customer locations within the CB, the new BCPM will locate them based on relative area or road mileage within its grids overlaying the CB.

Mr. Glenn Brown of US West then presented an aerial photograph of the Niwot, Colorado exchange. As an overlay to this photograph, Mr. Brown indicated that the population clusters that the BCPM sponsors believe were missed by the Hatfield geocoding presented at last week's meeting. On the basis of this visual analysis, Mr. Brown claimed that Hatfield had missed a number of significant population centers – including several of the more rural ones. As the meeting concluded, and, unfortunately after the telephone bridge had been dropped, the HMR were able to examine the aerial photograph more closely. It became rapidly evident that photo had been formed from overlapping strips of film, and that the cropping of these strips had been defective. As a result, an inch or so along the edge of each strip duplicated an inch or so of the strip immediately to its left. In addition, a portion of this aerial photo displayed areas outside of those areas that Hatfield had geocoded. As a result, with only one exception, the population clusters on the photo that Mr. Brown had identified as missing from the Hatfield geocodes *had already been accounted for on the adjoining strip of the photo – or were located in areas outside of those that Hatfield had geocoded!* In fact, the only cluster that the Hatfield geocodes may have missed was located in the downtown area. Thus, contrary to Mr. Brown's original intimations, the aerial photograph of Niwot, CO provided extremely strong support for the accuracy and completeness of the Hatfield geocoding. Mr. Brown indicated that an analysis of how well the new BCPM customer location process comported with the population clusters shown on this photograph was not yet available.

In response to concerns about how rural the Niwot wire center might be, Mark Bryant of MCI reported that the Hatfield Model 4.0 indicated total loop investment of about $1.8M, with a per loop investment of $718.68. The HMR also distributed printed copies of the Hatfield Model 4.0 input data that describe the CBGs mapped to each of the six test wire centers that will be used to examine more closely each of the models' performance at customer location. The HMR also asked whether the actual service area boundaries for these wire centers would be provided, and the BCPM sponsors indicated that theirs' would be available.

Then, relative to issues of model flexibility, the HMR then discussed how the new Hatfield Model will model loop plant. In particular, data from PNR will identify customer cluster locations, areas and line counts. These data will then be passed to the Distribution Module that, initially for the Hatfield Model, will then engineer an archetype distribution network consistent with these cluster data. (Later, the Hatfield Model will be extended to use actual strand mapping to engineer this distribution network). The locations of the cluster SAIs and line counts will then be passed to the Feeder Module that will determine feeder routing and engineering.

Two copies of this Notice are being submitted to the Secretary of the FCC in accordance with Section 1.1206(a)(1) of the Commission's rules. Because of the late hour of this meeting, this notice is being filed the following business day.

Sincerely,

Richard N. Clarke

Attachments

cc: S. Todd, C. Keller, R. Loube, N. Wales, E. Hoffnar, A. Bush, W. Sharkey, B. Wimmer, B. Clopton, W. Herriman, V. Gupta, State Staff Service List

MEETING ATTENDEES:

Natalie Wales, FCC
Rich Clarke, ATT
Mike Lieberman, ATT
Ed Barber, Bell Atlantic
Dave Dowds, FL PSC
Rowland Curry, TX PUC
Glenn Brown, USWest
Neill Whitehead, Australian Comms. Auth.
Warren Hannah, Sprint
Whit Jordan, BellSouth
Brad Wimmer, FCC
Chris Frentrup, MCI
Bob Roche, CTIA
Wade Herriman, FCC
Bill Sharkey, FCC
Gary Allan, RUS
John Harlig, RUS
Ed Cameron, RUS
Pam Fusting, NTCA
Bryan Clopton, FCC
Bob Loube, FCC
Chuck Keller, FCC
Mark Askins, Sprint
Dave Porter, WorldCom

BY PHONE:

Mark Kennet, FCC
Ann Dean, MD PSC
Sandra Makeef, IA UB
Brian Roberts, CA PUC
Kevin Schwenzfier, NY DPS
Peter Cassidy, NorTel
Kevin Landis, Chris Antis, PNR
Chris Babb, NECA
Glen Sims, SBC
Tad Burnet, Joe Ebs, GTE
Mark Bryant, MCI

SIX WIRE CENTER ANALYSIS

CO	GNSNCOMA	MOUNTAIN BEL	89636	8	81099776006	1	315.2	44.80006	124674.30	772.62	19%	0.04
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519637005	1	346.777	13.22335	2009.48	2.10	86%	257.27
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519637004	3	141.117	38.88327	1765.08	0.30	18%	6177.12
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519637003	3	170.235	9.765372	5381.73	1.47	15%	462.36
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519637002	2	114.145	24.14488	5421.58	0.35	27%	1542.35
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519637001	2	53.6132	36.3868	5299.23	1.40	27%	469.53
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519636005	4	254.099	15.9006	20945.29	47.02	85%	7.15
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519636004	3	148.624	31.37566	51780.82	172.09	32%	2.59
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519636003	2	116.962	26.96207	72017.22	123.68	58%	2.88
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519636002	1	23.2405	23.24053	23662.50	239.54	50%	1.81
CO	GNSNCOMA	MOUNTAIN BEL	89636	8	80519636001	1	35.5303	35.53025	122185.70	704.34	36%	0.31
CO	HYDNCOMA	MOUNTAIN BEL	89636	8	81079546003	4	289.951	19.95126	24788.30	362.48	36%	1.19
CO	HYDNCOMA	MOUNTAIN BEL	89636	8	81079546002	3	139.598	40.40162	452.11	0.26	9%	1118.73
CO	HYDNCOMA	MOUNTAIN BEL	89636	8	81079546001	2	87.3932	2.606821	53851.23	596.41	43%	0.38
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502033	4	251.913	18.08706	5591.57	4.02	4%	1812.05
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131210116033	3	140.964	39.03565	15018.57	8.36	5%	225.20
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131210116039	3	167.91	12.08957	23935.46	3.99	4%	852.79
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502032	1	353.808	6.192295	16664.99	0.26	0%	35.73
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350503142	4	268.155	1.845161	13726.23	0.29	6%	1858.39
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502034	4	297.626	27.62643	17095.98	1.30	30%	3769.62
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502035	1	318.273	41.72752	15182.93	0.75	74%	3347.19
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502036	1	321.536	38.46405	10249.91	3.53	35%	591.73
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502037	4	274.953	4.95279	11000.37	1.04	37%	1297.52
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502041	2	95.4514	5.451355	9668.28	2.15	59%	51.23
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502049	3	144.097	35.9028	6329.23	1.32	4%	955.25
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502031	3	165.67	14.32966	7243.37	1.96	15%	1715.60
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502042	1	8.00762	8.007624	9356.13	3.57	2%	91.05
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350503141	4	271.72	1.719529	17967.20	0.74	0%	1642.31
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502048	3	148.366	31.63371	10569.72	0.75	30%	171.67
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502047	1	15.2243	15.22425	17449.81	1.66	2%	264.83
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502046	2	54.0782	35.92179	21317.55	0.92	11%	254.73
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502045	2	51.6496	38.35045	17376.85	1.78	1%	478.27
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502044	1	6.06188	6.061884	4403.36	1.36	4%	1042.31
GA	DLTHGAHS	SOUTHERN BEL	139417	8	131350502043	2	68.6377	21.36233	7893.60	1.21	0%	724.51
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339508001	4	262.726	7.274061	88744.74	103.73	30%	1.99
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339504003	4	235.809	34.19148	5603.93	0.53	25%	975.96

SIX WIRE CENTER ANALYSIS

GA	WYBOGAES	SOUTHERN BEL	139417	8	130339503001	3	222.281	42.28055	64119.19	69.94	22%	4.30
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339504001	2	94.837	4.837027	8758.12	9.90	34%	99.55
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339504002	3	223.997	43.99662	16882.25	77.68	30%	8.11
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339501002	2	115.733	25.73292	34885.62	50.55	9%	14.25
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339504004	3	202.439	22.43899	459.74	0.35	19%	2253.69
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339505001	1	17.4108	17.41083	11754.47	19.81	24%	38.25
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339505002	4	309.399	39.39938	3084.87	0.52	26%	1241.14
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339505004	1	320.882	39.11807	36342.54	109.30	9%	4.65
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339501001	2	61.0312	28.96882	53077.60	107.97	10%	5.26
GA	WYBOGAES	SOUTHERN BEL	139417	8	130339505003	4	294.426	24.42579	11204.05	14.53	33%	43.82
TX	ALBYTXPO	SOUTHWESTER	489533	8	484179501002	3	150.517	29.48314	5277.62	3.66	37%	74.60
TX	ALBYTXPO	SOUTHWESTER	489533	8	484179501003	4	237.927	32.07279	4171.57	2.35	67%	133.96
TX	ALBYTXPO	SOUTHWESTER	489533	8	484179501004	3	184.566	4.565573	43380.17	783.39	8%	0.31
TX	VERNTXLI	SOUTHWESTER	489533	8	484879505005	3	148.913	31.08685	2168.33	0.28	10%	1875.90
TX	VERNTXLI	SOUTHWESTER	489533	8	484879502002	2	129.888	39.88765	45259.22	278.27	11%	0.92
TX	VERNTXLI	SOUTHWESTER	489533	8	484879503003	4	278.593	8.593013	71974.23	277.69	20%	1.19
TX	VERNTXLI	SOUTHWESTER	489533	8	484879504001	1	30.2838	30.28377	11057.02	2.32	78%	272.72
TX	VERNTXLI	SOUTHWESTER	489533	8	484879504002	2	65.9097	24.09027	2941.68	0.20	66%	1547.39
TX	VERNTXLI	SOUTHWESTER	489533	8	481559501003	4	226.474	43.52624	143309.10	0.83	8%	363.81
TX	VERNTXLI	SOUTHWESTER	489533	8	484879505004	3	182.762	2.76167	10853.52	10.60	5%	90.41
TX	VERNTXLI	SOUTHWESTER	489533	8	484879507004	1	338.747	21.25284	5461.44	0.42	10%	1413.40
TX	VERNTXLI	SOUTHWESTER	489533	8	484879505006	2	89.1925	0.807527	1861.90	0.16	8%	1602.09
TX	VERNTXLI	SOUTHWESTER	489533	8	484879506002	3	217.459	37.45907	4306.41	0.96	13%	1458.16
TX	VERNTXLI	SOUTHWESTER	489533	8	484879506003	4	258.315	11.68546	10534.64	9.23	10%	126.19
TX	VERNTXLI	SOUTHWESTER	489533	8	484879506004	4	242.612	27.38759	3594.04	0.25	6%	2066.69
TX	VERNTXLI	SOUTHWESTER	489533	8	484879506005	4	307.006	37.00639	2740.11	0.20	0%	1956.67
TX	VERNTXLI	SOUTHWESTER	489533	8	484879507002	1	15.6317	15.63174	8659.43	0.45	21%	608.08
TX	VERNTXLI	SOUTHWESTER	489533	8	484879507003	1	348.287	11.71321	11859.73	9.66	27%	18.44
TX	VERNTXLI	SOUTHWESTER	489533	8	484879505003	3	137.528	42.47171	6075.91	2.22	75%	155.22

SIX WIRE CENTER ANALYSIS

GNSNCOMA	50		CL	6	30.23	0.00	30.23	0.00	0.00	0.00	28.07	27.48
GNSNCOMA	60		FS	6	540.87	109.08	331.44	97.54	2.81	14.58	310.93	132.19
GNSNCOMA	60		FS	6	1853.14	738.04	436.16	659.92	19.02	73.39	410.25	188.12
GNSNCOMA	60		FS	6	680.51	78.91	529.00	70.56	2.03	9.20	495.54	216.46
GNSNCOMA	60		FS	6	534.76	78.91	383.26	70.56	2.03	11.23	358.43	226.32
GNSNCOMA	60		FS	6	656.08	140.41	386.50	125.55	3.62	11.96	363.83	99.56
GNSNCOMA	50		CL	6	336.21	44.10	251.55	39.43	1.14	5.93	235.35	100.45
GNSNCOMA	24.55		UWB	5.45	445.13	60.34	329.28	53.96	1.55	12.30	306.61	238.84
GNSNCOMA	60	SOFT	SICL	6	355.97	31.33	295.81	28.02	0.81	7.41	277.46	184.17
GNSNCOMA	50		SIL	6	433.85	52.22	333.60	46.69	1.35	5.85	312.00	217.69
GNSNCOMA	52.73		LS	6	221.15	33.65	156.54	30.09	0.87	5.38	146.83	133.42
HYDNCOMA	27.14		L	6	429.61	53.38	327.12	47.73	1.38	3.48	306.61	225.01
HYDNCOMA	53.33		SICL	6	291.56	1.16	289.33	1.04	0.03	0.31	272.06	169.51
HYDNCOMA	53.33		ST-L	4.67	224.83	4.64	215.92	4.15	0.12	1.51	201.89	122.00
DLTHGAHS	57		SCL	5.87	7278.99	2080.17	4332.20	841.12	25.50	125.65	3928.49	1420.73
DLTHGAHS	57		SCL	5.87	1881.62	807.91	737.12	326.68	9.90	25.65	667.89	620.85
DLTHGAHS	57		SCL	5.87	3398.98	511.25	2674.74	206.72	6.27	44.57	2427.61	2427.61
DLTHGAHS	57		SCL	5.87	9.12	1.17	7.46	0.47	0.01	0.57	6.39	6.39
DLTHGAHS	57		SCL	5.87	545.32	48.08	477.21	19.44	0.59	6.58	432.47	411.25
DLTHGAHS	55.7		CL	5.5	4903.41	1830.41	2310.44	740.13	22.44	82.36	2094.20	40.23
DLTHGAHS					2500.70	1640.45	176.82	663.32	20.11	57.74	176.82	176.82
DLTHGAHS	57		SCL	5.87	2091.37	746.94	1033.25	302.02	9.16	36.48	937.38	925.52
DLTHGAHS	57		SCL	5.87	1351.13	363.50	836.19	146.98	4.46	10.65	759.49	752.93
DLTHGAHS	55.7		SL	5.5	110.32	70.36	10.65	28.45	0.86	5.33	9.59	9.59
DLTHGAHS	57		SCL	5.87	1261.74	286.11	856.43	115.69	3.51	31.95	777.60	558.39
DLTHGAHS	57		SCL	5.87	3370.26	1232.39	1624.44	498.32	15.11	53.01	1472.12	544.19
DLTHGAHS	55.7		CL	5.5	324.92	109.05	170.43	44.09	1.34	12.60	154.46	154.46
DLTHGAHS	55.7		CL	5.5	1207.95	69.18	1109.95	27.97	0.85	9.23	1006.62	791.20
DLTHGAHS	57		SCL	5.87	128.19	36.35	76.69	14.70	0.45	4.40	69.24	69.24
DLTHGAHS	55.7		CL	5.5	439.88	255.62	77.76	103.36	3.13	4.16	70.30	70.30
DLTHGAHS	57		SCL	5.87	234.96	41.04	176.82	16.59	0.50	7.16	160.85	160.85
DLTHGAHS	55.7		SL	5.5	850.91	114.91	688.12	46.47	1.41	9.30	624.21	624.21
DLTHGAHS	57		SCL	5.87	1417.78	266.18	1040.71	107.63	3.26	21.04	944.84	885.20
DLTHGAHS	57		SCL	5.87	874.73	121.95	701.97	49.31	1.50	10.58	636.99	483.90
WYBOGAES	60		LS	3.5	206.09	9.38	192.80	3.79	0.12	1.47	175.76	146.62
WYBOGAES	60		LS	3.5	520.77	66.84	426.08	27.03	0.82	7.53	386.67	184.72

SIX WIRE CENTER ANALYSIS

WYBOGAES	60		LS	3.5	300.64	4.69	294.00	1.90	0.06	0.57	267.37	180.57
WYBOGAES	60		LS	4.7	985.22	343.57	498.52	138.92	4.21	18.50	452.71	174.28
WYBOGAES	60		LS	3.5	630.25	102.02	485.73	41.25	1.25	0.71	441.00	278.05
WYBOGAES	60		SL	4.7	720.59	9.38	707.30	3.79	0.12	1.88	641.25	256.63
WYBOGAES	60		LS	3.5	778.78	337.71	300.39	136.55	4.14	26.19	272.69	190.25
WYBOGAES	60		LS	3.5	757.52	180.58	501.71	73.02	2.21	9.47	455.91	223.01
WYBOGAES	60		LS	3.5	649.32	208.72	353.65	84.40	2.56	13.49	320.63	303.53
WYBOGAES	60		LS	3.5	507.80	83.25	389.87	33.66	1.02	2.79	353.65	226.25
WYBOGAES	60		LS	5.3	567.79	10.55	552.84	4.27	0.13	2.72	501.71	255.39
WYBOGAES	60		LS	3.5	636.71	53.94	560.30	21.81	0.66	5.44	508.10	462.60
ALBYTXPO	45.885		L	6	273.17	8.68	259.66	4.53	0.31	1.62	232.87	200.00
ALBYTXPO	50.5		C	6	315.30	0.00	315.30	0.00	0.00	0.00	280.26	202.45
ALBYTXPO	45.885		L	6	244.20	0.00	244.20	0.00	0.00	0.00	216.38	146.68
VERNTXLI	60		FSL	6	520.04	145.31	293.66	75.85	5.21	16.68	261.72	162.92
VERNTXLI	60		FSL	6	255.53	0.00	255.53	0.00	0.00	0.00	223.59	204.21
VERNTXLI	51.1		CL	6	331.78	0.00	331.78	0.00	0.00	0.00	293.66	266.96
VERNTXLI	60		SIL	6.1	633.59	244.00	253.47	127.36	8.75	27.46	226.68	159.34
VERNTXLI	60		LFS	6	304.10	168.09	42.25	87.74	6.03	10.76	37.09	35.35
VERNTXLI	60		CL	5.14286	302.85	3.25	297.78	1.70	0.12	1.35	264.81	235.07
VERNTXLI	60		LFS	6	958.72	275.44	529.62	143.78	9.88	20.44	470.88	285.62
VERNTXLI	60		FSL	6	594.28	103.02	433.79	53.78	3.70	13.50	386.39	314.24
VERNTXLI	60		FSL	6	259.18	58.56	167.95	30.57	2.10	6.18	150.44	115.43
VERNTXLI	60		FSL	6	1399.04	328.58	887.16	171.51	11.79	39.01	781.03	642.09
VERNTXLI	60		LFS	6	1164.17	99.77	1008.74	52.08	3.58	19.47	885.10	743.06
VERNTXLI	60		LFS	6	513.08	15.18	489.43	7.92	0.54	3.80	427.61	415.34
VERNTXLI	60		FSL	6	400.40	16.27	375.06	8.49	0.58	4.24	329.72	278.60
VERNTXLI	60		FSL	6	272.34	14.10	250.38	7.36	0.51	2.97	224.62	174.36
VERNTXLI	60		FSL	6	178.09	6.51	167.95	3.40	0.23	2.01	151.47	95.57
VERNTXLI	60		SIL	6.1	343.82	199.53	32.97	104.15	7.16	10.68	29.88	11.88

SIX WIRE CENTER ANALYSIS

GNSNCOMA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.85
GNSNCOMA	0.00	44.68	30.72	24.20	26.07	0.00	0.00	46.55	6.52	56.86	267.98	0.85
GNSNCOMA	2.89	10.13	20.98	5.79	25.32	76.70	0.00	74.52	5.79	291.27	2526.25	0.85
GNSNCOMA	8.05	27.73	21.47	50.98	0.00	0.00	0.00	170.84	0.00	37.13	316.45	0.85
GNSNCOMA	22.34	36.91	12.63	39.83	14.57	0.00	0.00	0.00	5.83	40.62	288.18	0.85
GNSNCOMA	23.26	53.04	13.96	15.82	93.05	60.48	0.00	0.00	4.65	47.58	557.50	0.85
GNSNCOMA	98.51	0.00	0.00	19.90	0.00	0.00	0.00	11.65	4.85	22.05	149.47	0.85
GNSNCOMA	0.00	4.70	0.00	0.00	0.00	0.00	0.00	63.07	0.00	38.29	141.39	0.85
GNSNCOMA	0.00	0.00	4.81	4.81	5.42	0.00	0.00	68.61	9.63	22.05	59.25	0.85
GNSNCOMA	0.00	3.88	12.92	0.00	0.00	0.00	0.00	68.47	9.04	24.37	207.38	0.85
GNSNCOMA	1.48	0.37	0.55	0.00	0.00	0.00	0.00	9.71	1.29	18.57	70.02	0.85
HYDNCOMA	0.00	10.71	14.01	0.00	1.65	0.00	0.00	55.22	0.00	16.25	226.23	0.85
HYDNCOMA	2.79	1.40	27.21	4.88	6.28	0.00	0.00	54.41	5.58	1.16	4.04	0.85
HYDNCOMA	1.24	0.00	0.00	0.00	0.00	0.00	0.00	76.17	2.48	4.64	14.81	0.85
DLTHGAHS	352.67	63.61	137.27	664.05	1089.26	161.83	0.00	32.37	6.70	611.86	7325.80	0.85
DLTHGAHS	18.81	15.05	0.00	0.00	0.00	0.00	0.00	13.17	0.00	125.12	3873.27	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.87	851.10	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	1.37	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.94	9.29	27.50	79.75	0.85
DLTHGAHS	0.00	0.00	200.17	243.42	1102.42	372.17	126.74	9.05	0.00	472.99	6051.21	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	386.36	7482.54	0.85
DLTHGAHS	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.12	2950.67	0.85
DLTHGAHS	6.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.00	999.60	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.87	262.62	0.85
DLTHGAHS	85.91	82.94	14.81	11.85	0.00	0.00	0.00	23.70	0.00	140.25	789.23	0.85
DLTHGAHS	242.79	0.00	65.58	400.47	206.52	0.00	0.00	12.56	0.00	296.99	4445.25	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.25	203.49	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	215.42	0.00	33.00	105.87	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.87	55.00	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.37	768.60	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.75	59.12	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.12	499.11	0.85
DLTHGAHS	18.83	14.13	0.00	0.00	0.00	0.00	0.00	26.68	0.00	94.87	444.11	0.85
DLTHGAHS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	153.10	0.00	49.50	380.86	0.85
WYBOGAES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.14	0.00	6.87	31.62	0.85
WYBOGAES	10.67	19.70	105.90	28.73	13.14	0.00	0.00	4.10	19.70	38.50	184.24	0.85

SIX WIRE CENTER ANALYSIS

WYBOGAES	3.21	0.00	0.00	0.00	0.00	0.00	0.00	81.44	2.14	2.75	9.62	0.85
WYBOGAES	1.03	45.89	23.72	33.00	2.58	31.45	0.00	138.19	2.58	82.50	969.35	0.85
WYBOGAES	5.67	59.18	11.35	0.00	0.00	0.00	0.00	86.74	0.00	5.50	688.86	0.85
WYBOGAES	11.81	31.50	3.94	0.00	0.00	0.00	0.00	337.36	0.00	6.87	17.87	0.85
WYBOGAES	37.35	28.19	11.27	0.00	0.00	0.00	0.00	5.64	0.00	114.12	596.73	0.85
WYBOGAES	5.33	25.12	62.41	3.04	4.57	0.00	0.00	132.43	0.00	50.87	569.23	0.85
WYBOGAES	6.41	0.00	6.41	4.28	0.00	0.00	0.00	0.00	0.00	75.62	752.10	0.85
WYBOGAES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	109.99	17.40	13.75	140.25	0.85
WYBOGAES	0.00	12.96	0.00	0.00	0.00	0.00	0.00	233.35	0.00	11.00	30.25	0.85
WYBOGAES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.81	5.69	27.50	145.75	0.85
ALBYTXPO	6.23	0.00	0.00	0.00	0.00	0.00	0.00	26.63	0.00	5.42	17.64	0.85
ALBYTXPO	1.32	0.00	0.00	43.52	0.00	0.00	0.00	29.02	3.96	0.00	0.00	0.85
ALBYTXPO	0.00	0.00	0.00	0.00	1.28	0.00	0.00	60.72	7.70	0.00	0.00	0.85
VERNTXLI	3.68	58.33	25.23	0.00	2.63	0.00	0.00	6.31	2.63	57.47	568.00	0.85
VERNTXLI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.38	0.00	0.00	0.00	0.85
VERNTXLI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.70	0.00	0.00	0.00	0.85
VERNTXLI	7.48	9.68	17.61	7.04	2.20	0.00	0.00	20.25	3.08	96.51	495.09	0.85
VERNTXLI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	39.04	456.28	0.85
VERNTXLI	0.00	20.02	0.00	0.00	0.00	0.00	0.00	1.14	8.58	3.25	5.88	0.85
VERNTXLI	9.65	18.66	37.31	21.23	48.25	36.67	0.00	13.51	0.00	83.50	1074.85	0.85
VERNTXLI	0.00	22.66	10.73	4.77	0.00	0.00	0.00	31.01	2.98	45.55	336.33	0.85
VERNTXLI	3.31	11.83	9.93	0.00	0.00	0.00	0.00	9.93	0.00	24.94	231.67	0.85
VERNTXLI	8.42	35.09	18.95	29.47	0.00	0.00	0.00	21.75	25.26	140.98	842.00	0.85
VERNTXLI	16.87	29.30	14.20	19.53	0.00	9.77	0.00	46.16	6.21	58.56	249.31	0.85
VERNTXLI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.26	7.01	9.76	18.82	0.85
VERNTXLI	23.86	4.26	7.67	0.00	0.00	0.00	0.00	11.08	4.26	11.93	31.75	0.85
VERNTXLI	9.93	17.37	0.00	0.00	0.00	0.00	0.00	22.96	0.00	8.68	21.17	0.85
VERNTXLI	0.00	10.62	0.00	0.00	0.00	0.00	0.00	45.27	0.00	5.42	11.76	0.85
VERNTXLI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.01	0.00	45.55	954.90	0.85

SIX WIRE CENTER ANALYSIS

HM 4.0 Model Results

WC	No. of Lines	USF Loop
Gunnison, CO	6088	$ 44.66
Hayden, CO	946	$ 103.00
Duluth, GA	34182	$ 11.70
Waynesboro, GA	7261	$ 38.87
Albany, TX	833	$ 75.32
Vernon, TX	8431	$ 25.85