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June 7, 1996

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96-98

**EX PARTE**

William F. Caton  
Acting Secretary  
Federal Communications Commission  
Mail Stop 1170  
1919 M Street, N.W., Room 222  
Washington, D.C. 20554

Dear Mr. Caton:

Re: *CC Docket No. 96-45, Universal Service*

On Thursday, June 6, Peter W. Geiler (Financial Manager, Product Economics and Public Policy Analysis for Pacific Bell) and James Stegeman (Director, INDETEC International) met with Anthony Bush, Bill Sharkey, Katherine Schroder and Bob Loube to discuss the Cost Proxy Model. The attached materials were distributed. As the meeting extended late into the afternoon, this notice is being filed one day after the meetings occurred.

We are submitting two copies of this notice in accordance with Section 1.1206(a)(1) of the Commission's rules.

Please stamp and return the provided copy to confirm your receipt. Please contact me should you have any questions.

Sincerely,



cc: A. Bush  
B. Loube  
K. Schroder  
B. Sharkey

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# Cost Proxy Model Reports

- ⇒ The Handouts Contain Sample Reports from the California Model
  - ⇒ Detail Reports
    - ⇒ State Total
  - ⇒ Summary Reports
    - ⇒ Company
    - ⇒ Density Type
    - ⇒ Terrain Type
    - ⇒ CLLI

**SAMPLE CPM DETAIL REPORT: STATEWIDE AVERAGE**

COST PROXY MODEL (CPM) STATEWIDE AVERAGE							
STATEWIDE AVERAGE LINES		: 12794983					
MISSING LINES		: 0					
FAMILY	ELEMENT	N-CABLE QUANTITY	CABLE LENGTH (FT)	INVESTMENT (\$)	REVENUE (\$/MO)	OPERATING EXPENSE (\$/MO)	CAPITAL COST (\$/MO)
DST	AER_CU		342	19.04	\$0.00	\$0.00	\$0.30
	BUR_CU		1,623	153.12	\$0.00	\$0.00	\$2.16
	COND_CU	538 (FT)		23.49	\$0.00	\$0.00	\$0.24
	DROP	1.00		51.98	\$0.00	\$0.00	\$0.73
	POLE_CU	342 (FT)		18.17	\$0.00	\$0.00	\$0.20
	TERMINAL	1.00		53.38	\$0.00	\$0.00	\$0.77
	UGD_CU		538	19.88	\$0.00	\$0.00	\$0.29
DST	XXX		2,503	339.07	\$0.00	\$0.00	\$4.69
FDR	AER_CU		214	4.70	\$0.00	\$0.00	\$0.07
	AER_FO		839	6.28	\$0.00	\$0.00	\$0.08
	BUR_CU		51	2.25	\$0.00	\$0.00	\$0.03
	BUR_FO		221	3.12	\$0.00	\$0.00	\$0.04
	COND_CU	2,655 (FT)		25.24	\$0.00	\$0.00	\$0.26
	COND_FO	3,852 (FT)		8.39	\$0.00	\$0.00	\$0.08
	COND_FO9	2,523 (FT)		6.90	\$0.00	\$0.00	\$0.07
	PAIR_GN	0.43		141.88	\$0.00	\$0.00	\$2.45
	POLE_CU	214 (FT)		3.20	\$0.00	\$0.00	\$0.04
	POLE_FO	839 (FT)		10.55	\$0.00	\$0.00	\$0.12
	SAI	1.00		22.96	\$0.00	\$0.00	\$0.33
	UGD_CU		2,655	39.43	\$0.00	\$0.00	\$0.57
	UGD_FO		6,374	11.35	\$0.00	\$0.00	\$0.14
FDR	XXX		10,355	286.27	\$0.00	\$0.00	\$4.27
REVENU	REVENU_T	0.00		0.00	\$15.60	\$0.00	\$0.00
STDSVC	ACCT	1.00		0.00	\$0.00	\$0.00	\$0.00
	ADV_MKT	1.00		0.00	\$0.00	\$0.00	\$0.00
	BILLING	1.00		0.00	\$0.00	\$0.22	\$0.00
	COMMON	1.00		0.00	\$0.00	\$2.98	\$0.00
	DA	1.00		0.00	\$0.00	\$1.02	\$0.00
	EMPSUPT	1.00		0.00	\$0.00	\$0.09	\$0.00
	ENG_MV	1.00		0.00	\$0.00	\$0.00	\$0.00
	GPC_IS	1.00		0.00	\$0.00	\$0.13	\$0.00
	MISC	1.00		0.00	\$0.00	\$0.16	\$0.00
	NREC	1.00		0.00	\$0.00	\$0.37	\$0.00
	NVS_EXP	1.00		0.00	\$0.00	\$0.04	\$0.00
	NVS_INV	1.00		0.00	\$0.00	\$0.00	\$0.00
	OCS	1.00		0.00	\$0.00	\$0.07	\$0.00
	C_MINUS	1.00		0.00	\$0.00	\$0.12	\$0.00
	PMO_DIFF	1.00		0.00	\$0.00	\$0.00	\$0.00
	REPR_MTC	1.00		0.00	\$0.00	\$3.61	\$0.00
	SALES	1.00		0.00	\$0.00	\$0.05	\$0.00
	SEC_INV	1.00		0.00	\$0.00	\$0.00	\$1.11
	SHARED	1.00		0.00	\$0.00	\$4.01	\$0.00
	TESTING	1.00		0.00	\$0.00	\$0.00	\$0.00
	WP_LIST	1.00		0.00	\$0.00	\$0.34	\$0.00
STDSVC	XXX			0.00	\$0.00	\$13.23	\$1.12
SW/IO	SW_LT	1.00		112.88	\$0.00	\$0.00	\$1.65
	SW_MSG_F	119.22		117.88	\$0.00	\$0.00	\$1.73
	SW_SHR	8.36		8.36	\$0.00	\$0.00	\$0.12
SW/IO	XXX			239.13	\$0.00	\$0.00	\$3.50
XXX	XXX		12,858	864.46	\$15.60	\$13.23	\$13.58
SUBSIDY PER LINE:		\$11.20	TOTAL COMPANY SUBSIDY: \$143,347,586				

**SAMPLE CPM SUMMARY REPORT:****DENSITY ZONES**

Cost Proxy Model: Universal Service Edition  
 STATE AVERAGE  
 DENSITY TYPE SPECIFIC DATA - ALL COMPANIES

DENSITY TYPE	CABLE LENGTH (ft)	INVESTMENT (\$/line)	REVENUE (\$/line/mo)	OPERATING EXPENSE (\$/line/mo)	CAPITAL COST (\$/line/mo)	SUBSIDY (\$/line/mo)	LINES
Z1	47,557.15	\$7,482.82	\$16.55	\$16.47	\$100.82	\$100.74	77,082
Z2	35,548.46	\$2,604.57	\$16.20	\$16.26	\$37.56	\$37.63	268,128
Z3	24,257.52	\$2,013.53	\$15.98	\$15.04	\$29.37	\$28.43	348,418
Z4	18,103.45	\$1,112.19	\$16.03	\$14.31	\$17.42	\$15.69	768,422
Z5	13,385.93	\$866.70	\$15.90	\$13.40	\$13.81	\$11.31	3,260,958
Z6	11,421.61	\$725.18	\$15.52	\$12.93	\$11.67	\$9.08	5,820,827
Z7	8,379.08	\$526.72	\$15.08	\$12.63	\$8.58	\$6.12	2,251,089

**SAMPLE CPM SUMMARY REPORT:****TERRAIN TYPE**

Cost Proxy Model: Universal Service Edition  
 STATE AVERAGE  
 TERRAIN TYPE SPECIFIC DATA - ALL COMPANIES

TERRAIN TYPE	CABLE LENGTH (ft)	INVESTMENT (\$/line)	REVENUE (\$/line/mo)	OPERATING EXPENSE (\$/line/mo)	CAPITAL COST (\$/line/mo)	SUBSIDY (\$/line/mo)	LINES
H	17,187.07	\$1,307.79	\$15.34	\$13.01	\$19.57	\$17.24	470,916
M	16,517.20	\$1,133.23	\$15.63	\$13.68	\$17.36	\$15.42	1,562,440
N	12,141.80	\$809.73	\$15.59	\$13.15	\$12.80	\$10.36	10,648,540
W	12,060.86	\$988.29	\$17.60	\$15.30	\$15.29	\$12.99	113,027

**SAMPLE CPM SUMMARY REPORT:****COMPANIES**

Cost Proxy Model: Universal Service Edition  
 STATE AVERAGE  
 COMPANY SPECIFIC DATA - ALL COMPANIES

COMPANY	CABLE LENGTH (ft)	INVESTMENT (\$/line)	REVENUE (\$/line/mo)	OPERATING EXPENSE (\$/line/mo)	CAPITAL COST (\$/line/mo)	SUBSIDY (\$/line/mo)	LINES
CALAVERAS	22,986.66	\$3,545.27	\$20.08	\$50.85	\$52.90	\$83.66	1,838
CALIF-OREGON	16,431.02	\$1,815.81	\$23.85	\$42.33	\$28.70	\$47.18	1,681
CITIZENS	18,915.78	\$1,490.87	\$21.35	\$18.30	\$22.34	\$19.28	59,926
CITIZENS TUOLOMNE	28,793.69	\$2,035.58	\$15.70	\$39.06	\$31.56	\$54.92	5,325
CONTEL	15,769.83	\$1,293.13	\$20.35	\$19.73	\$19.84	\$19.22	278,198
CP NATIONAL	8,850.33	\$1,094.70	\$20.35	\$38.68	\$18.53	\$36.86	9,762
DUCOR	15,909.55	\$2,312.05	\$20.35	\$74.36	\$38.25	\$92.26	598
EVANS	11,074.86	\$1,262.11	\$20.35	\$33.19	\$20.29	\$33.13	10,190
FORESTHILL	25,564.35	\$1,986.98	\$14.15	\$27.08	\$30.20	\$43.13	2,143
GTE-C	13,407.73	\$833.03	\$20.75	\$15.59	\$13.35	\$8.19	2,685,264
HAPPY VALLEY	24,387.34	\$2,469.07	\$20.35	\$36.93	\$37.05	\$53.63	2,640
HORNITOS	32,946.79	\$5,954.28	\$14.75	\$62.40	\$85.65	\$133.31	409
KERMAN	14,385.17	\$1,411.04	\$22.90	\$26.47	\$22.07	\$25.63	5,485
PACIFIC	12,490.32	\$848.09	\$13.97	\$12.05	\$13.26	\$11.34	9,620,458
PINNACLES	18,524.79	\$4,689.92	\$20.35	\$83.81	\$72.64	\$136.11	15
PONDEROSA	30,389.63	\$2,728.59	\$21.35	\$60.51	\$42.68	\$81.84	5,346
ROSEVILLE	15,131.80	\$890.98	\$14.30	\$18.05	\$14.58	\$18.33	68,421
SIERRA	36,084.98	\$2,552.20	\$20.35	\$43.32	\$38.79	\$61.76	14,034
SISKIYOU	25,110.82	\$2,133.03	\$18.70	\$49.70	\$33.50	\$64.50	3,108
VOLCANO	21,220.38	\$1,939.67	\$20.35	\$35.91	\$30.24	\$45.81	4,407
WEST COAST	22,180.74	\$1,472.59	\$14.60	\$64.47	\$25.85	\$75.72	13,810
WINTERHAVEN	22,705.53	\$1,869.49	\$20.35	\$31.96	\$28.79	\$40.39	1,865

**SAMPLE CPM SUMMARY REPORT:****CBGs**

Cost Proxy Model:Universal Service Edition  
STATE AVERAGE  
CENSUS BLOCK GROUP SPECIFIC DATA

CENSUS BLOCK GROUP	CABLE LENGTH (ft)	INVESTMENT (\$/line)	REVENUE (\$/line/mo)	OPERATING EXPENSE (\$/line/mo)	CAPITAL COST (\$/line/mo)	SUBSIDY (\$/line/mo)	LINES
60014511002	53,429.72	\$8,320.75	\$20.35	\$33.19	\$112.15	\$124.99	57
60470001002	53,105.91	\$4,120.76	\$20.35	\$33.19	\$58.13	\$70.97	4
60470002001	35,545.30	\$2,730.15	\$20.35	\$33.19	\$40.52	\$53.36	123
60470002002	13,471.06	\$1,420.22	\$20.35	\$33.19	\$22.56	\$35.40	92
60470002006	12,015.71	\$1,350.38	\$20.35	\$33.19	\$21.38	\$34.22	12
60470003011	5,956.07	\$770.76	\$20.35	\$33.19	\$13.55	\$26.38	377
60470003012	4,604.18	\$580.73	\$20.35	\$33.19	\$10.93	\$23.77	394
60470003013	13,391.98	\$1,460.31	\$20.35	\$33.19	\$23.61	\$36.44	230
60470003021	27,437.57	\$2,420.62	\$20.35	\$33.19	\$36.89	\$49.73	355
60470003022	10,805.52	\$1,160.68	\$20.35	\$33.19	\$19.19	\$32.02	905
60470003023	637.85	\$360.21	\$20.35	\$33.19	\$8.04	\$20.88	422
60470003024	3,915.07	\$540.90	\$20.35	\$33.19	\$10.44	\$23.28	323
60470003025	5,603.57	\$750.61	\$20.35	\$33.19	\$13.28	\$26.11	157
60470003026	6,680.99	\$690.44	\$20.35	\$33.19	\$12.37	\$25.21	172
60470004005	34,032.45	\$2,370.59	\$20.35	\$33.19	\$35.74	\$48.57	4
60470005013	21,887.45	\$2,150.96	\$20.35	\$33.19	\$33.63	\$46.47	16
60470005014	22,452.77	\$2,040.94	\$20.35	\$33.19	\$31.89	\$44.73	24
60470005015	28,075.15	\$2,300.90	\$20.35	\$33.19	\$35.19	\$48.03	184
60470005022	35,161.02	\$2,360.15	\$20.35	\$33.19	\$35.52	\$48.35	40
60470005023	30,001.52	\$2,300.40	\$20.35	\$33.19	\$35.04	\$47.88	134
60470009001	47,265.67	\$3,530.87	\$20.35	\$33.19	\$50.64	\$63.47	59
60470301003	18,748.65	\$2,060.53	\$20.35	\$33.19	\$32.58	\$45.41	12
60855127982	38,093.49	\$6,690.97	\$20.35	\$33.19	\$92.52	\$105.35	27
60855135963	33,915.67	\$5,900.16	\$20.35	\$33.19	\$83.06	\$95.90	1
60855135973	38,350.92	\$6,400.14	\$20.35	\$33.19	\$89.29	\$102.12	0
60855135983	43,372.23	\$6,980.26	\$20.35	\$33.19	\$96.34	\$109.17	1
60990032001	5,525.25	\$630.43	\$20.35	\$33.19	\$11.57	\$24.41	954
60990032002	2,823.53	\$480.97	\$20.35	\$33.19	\$9.64	\$22.47	925
60990032003	6,465.07	\$670.72	\$20.35	\$33.19	\$12.20	\$25.04	481
60990032004	3,203.24	\$460.58	\$20.35	\$33.19	\$9.32	\$22.16	750
60990032005	7,140.45	\$730.72	\$20.35	\$33.19	\$12.93	\$25.77	356
60990032007	4,470.91	\$610.98	\$20.35	\$33.19	\$11.39	\$24.23	698
60990033981	15,741.49	\$1,830.04	\$20.35	\$33.19	\$28.37	\$41.20	369
60990033982	11,530.48	\$1,470.43	\$20.35	\$33.19	\$23.71	\$36.55	234
60990033983	53,385.84	\$4,740.18	\$20.35	\$33.19	\$67.11	\$79.94	34
60990033984	16,359.45	\$2,290.12	\$20.35	\$33.19	\$35.09	\$47.93	90
60990033985	15,712.35	\$1,650.58	\$20.35	\$33.19	\$26.32	\$39.16	484
60990033986	19,769.98	\$2,000.50	\$20.35	\$33.19	\$31.15	\$43.99	307
60990033987	12,232.60	\$1,450.25	\$20.35	\$33.19	\$22.84	\$35.67	15
60990034981	30,300.51	\$2,510.14	\$20.35	\$33.19	\$37.96	\$50.79	54
60990034982	20,742.88	\$2,390.66	\$20.35	\$33.19	\$36.77	\$49.61	7
60990041972	38,350.92	\$6,400.14	\$20.35	\$33.19	\$89.29	\$102.12	0

**SAMPLE CPM SUMMARY REPORT: CENTRAL OFFICE**

Cost Proxy Model: Universal Service Edition  
STATE AVERAGE  
CLLI SPECIFIC DATA - ALL COMPANIES

CLLI	CABLE LENGTH (ft)	INVESTMENT (\$/line)	REVENUE (\$/line/mo)	OPERATING EXPENSE (\$/line/mo)	CAPITAL COST (\$/line/mo)	SUBSIDY (\$/line/mo)	LINES
ABRYCAXF	37,269.10	\$2,803.43	\$21.35	\$60.51	\$43.70	\$82.86	2,672
ACTNCA11	17,396.98	\$1,960.19	\$13.97	\$12.05	\$28.63	\$26.71	2,072
ADINCAXF	7,628.03	\$1,286.03	\$21.35	\$18.30	\$19.66	\$16.61	154
ADLNCAXF	11,991.70	\$1,223.39	\$20.35	\$19.73	\$18.87	\$18.25	6,396
AGDLCA11	22,855.24	\$2,180.23	\$13.97	\$12.05	\$31.52	\$29.60	1,146
AGORCA11	15,477.39	\$1,103.86	\$13.97	\$12.05	\$17.10	\$15.18	21,474
ALBYCA11	8,258.29	\$607.32	\$13.97	\$12.05	\$9.67	\$7.75	31,773
ALGHCA11	18,442.28	\$2,083.46	\$13.97	\$12.05	\$30.03	\$28.11	29
ALHBCA01	9,337.44	\$613.30	\$13.97	\$12.05	\$9.92	\$8.00	42,418
ALMDCA11	9,802.15	\$653.31	\$13.97	\$12.05	\$10.42	\$8.50	33,902
ALPGCAXF	5,156.17	\$963.41	\$20.35	\$19.73	\$15.21	\$14.59	342
ALPICA12	20,671.44	\$1,740.65	\$13.97	\$12.05	\$25.26	\$23.34	7,292
ALPNCAXF	15,324.46	\$3,263.25	\$20.35	\$19.73	\$47.33	\$46.71	80
ALTRCAXF	27,695.47	\$1,867.20	\$21.35	\$18.30	\$27.09	\$24.04	1,911
ANCMCA01	14,830.64	\$1,607.79	\$13.97	\$12.05	\$23.51	\$21.59	2,207
ANGWCA11	13,908.45	\$1,750.99	\$13.97	\$12.05	\$25.22	\$23.30	1,464
ANHMCA01	13,513.97	\$827.07	\$13.97	\$12.05	\$13.25	\$11.33	61,845
ANHMCA11	11,354.65	\$710.98	\$13.97	\$12.05	\$11.53	\$9.61	55,951
ANHMCA12	6,319.21	\$533.58	\$13.97	\$12.05	\$8.54	\$6.62	6,667
ANNPCA11	13,903.41	\$2,743.57	\$13.97	\$12.05	\$39.58	\$37.66	129
ANTCCA11	11,212.81	\$783.23	\$13.97	\$12.05	\$12.39	\$10.47	28,079
ANZACAXF	58,821.12	\$3,563.78	\$20.75	\$19.59	\$49.57	\$44.41	3,359
APTSCA12	11,132.49	\$893.96	\$13.97	\$12.05	\$13.92	\$11.99	10,671
APVYCAXF	16,013.77	\$1,003.98	\$20.35	\$19.73	\$16.30	\$15.69	15,821
ARBCCAXF	12,495.08	\$1,373.56	\$20.35	\$33.68	\$22.53	\$40.87	1,218
ARCDCA11	10,631.33	\$783.34	\$13.97	\$12.05	\$12.60	\$10.68	21,042
ARCTCA11	10,736.66	\$873.68	\$13.97	\$12.05	\$13.53	\$11.61	8,921
ARGRCA12	13,560.73	\$1,013.06	\$13.97	\$12.05	\$15.70	\$13.78	17,961
ARHDCAXF	10,983.53	\$1,173.20	\$20.75	\$19.59	\$17.88	\$12.72	2,250
ARMSCA11	13,400.28	\$1,680.98	\$13.97	\$12.05	\$25.01	\$23.09	892
ARNLCA11	14,596.48	\$1,443.73	\$13.97	\$12.05	\$21.20	\$19.28	2,840
ARSNCA11	13,757.92	\$1,263.03	\$13.97	\$12.05	\$18.83	\$16.90	8,352
ARTNCA11	15,009.36	\$933.13	\$13.97	\$12.05	\$14.73	\$12.81	47,288
ARTSCAXF	10,992.53	\$713.71	\$20.75	\$19.59	\$11.69	\$6.53	32,814
ARVNCA11	7,044.68	\$873.85	\$13.97	\$12.05	\$13.25	\$11.33	3,655
ASMTCA11	28,429.33	\$4,613.51	\$13.97	\$12.05	\$62.85	\$60.93	133
ATSCCA11	12,523.55	\$963.77	\$13.97	\$12.05	\$14.87	\$12.95	11,309
ATWRCA12	11,615.93	\$873.50	\$13.97	\$12.05	\$13.60	\$11.68	14,858
AUBNCA01	19,789.79	\$1,243.76	\$13.97	\$12.05	\$19.05	\$17.13	17,537
AUBNCA11	13,419.13	\$1,383.08	\$13.97	\$12.05	\$20.62	\$18.70	4,228
AVBHCA11	11,020.16	\$1,553.96	\$13.97	\$12.05	\$22.77	\$20.85	830
AVLNCA11	5,979.25	\$733.69	\$13.97	\$12.05	\$11.26	\$9.34	1,685
AVNLCA12	14,062.60	\$1,003.28	\$13.97	\$12.05	\$14.63	\$12.71	2,574
AZUSCAXF	14,693.83	\$823.97	\$20.75	\$19.59	\$13.46	\$8.30	25,263
BAKRCA11	42,085.77	\$8,093.01	\$13.97	\$12.05	\$107.96	\$106.04	6
BALBCA01	9,558.51	\$663.19	\$13.97	\$12.05	\$10.27	\$8.35	5,555
BBYCAXF	12,303.28	\$1,253.51	\$20.35	\$19.73	\$19.27	\$18.65	2,809
BBLKCAXF	15,986.56	\$1,423.14	\$20.35	\$19.73	\$21.87	\$21.25	5,176
BCWYCA11	9,035.44	\$863.40	\$13.97	\$12.05	\$13.36	\$11.44	2,462
BDBACA11	13,548.96	\$1,583.87	\$13.97	\$12.05	\$23.36	\$21.43	693
BDGRCAXF	10,928.01	\$2,563.43	\$20.75	\$19.59	\$36.88	\$31.72	141
BEALCA11	30,658.47	\$2,253.37	\$13.97	\$12.05	\$32.54	\$30.62	1,530
BELLCA11	6,686.92	\$493.79	\$13.97	\$12.05	\$8.08	\$6.16	26,255
BELRCAXF	10,955.64	\$783.65	\$20.75	\$19.59	\$12.69	\$7.53	9,936
BGCKCAXF	9,790.62	\$1,323.37	\$21.35	\$60.51	\$23.56	\$62.71	47
BGGSCA11	9,953.53	\$1,253.07	\$13.97	\$12.05	\$18.81	\$16.89	1,182
BGPICAXF	5,174.66	\$733.87	\$20.35	\$19.73	\$11.96	\$11.35	733
BGSRCA11	54,312.55	\$3,353.95	\$13.97	\$12.05	\$46.15	\$44.23	364
BGVLCA11	26,688.25	\$4,863.56	\$13.97	\$12.05	\$67.69	\$65.77	126

# Cost Proxy Model Presentation of Methodology

*given by*

*INDETEC International*

*and*

*Pacific Bell*

*May 30-31, 1996*

# Cost Proxy Model

## Significant Design Features

- ⇒ CPM is Efficient and Easy to Use
- ⇒ Based on a Consistent/Uniform Unit of Geography
- ⇒ Accurately Assesses Density for Sizing Plant
- ⇒ Separates Operating Expenses From Investment
- ⇒ Separately Develops Structure Costs
- ⇒ Accounts for Efficiency of LEC Size
- ⇒ Based on Sound Economic, Financial , and Management Accounting Principles.
- ⇒ Provides a Superior Estimate of The TSLRIC of Universal Service

# Cost Proxy Model

## Customer Engine: The “Grid” Vs CBG

### ⇒ Size

- ⇒ There are Approximately 22,000 Census Block Groups in California
- ⇒ There are Approximately 350,000-400,000 Census Blocks in California
- ⇒ There are Approximately 6 Million Zip 4 Postal Points in California

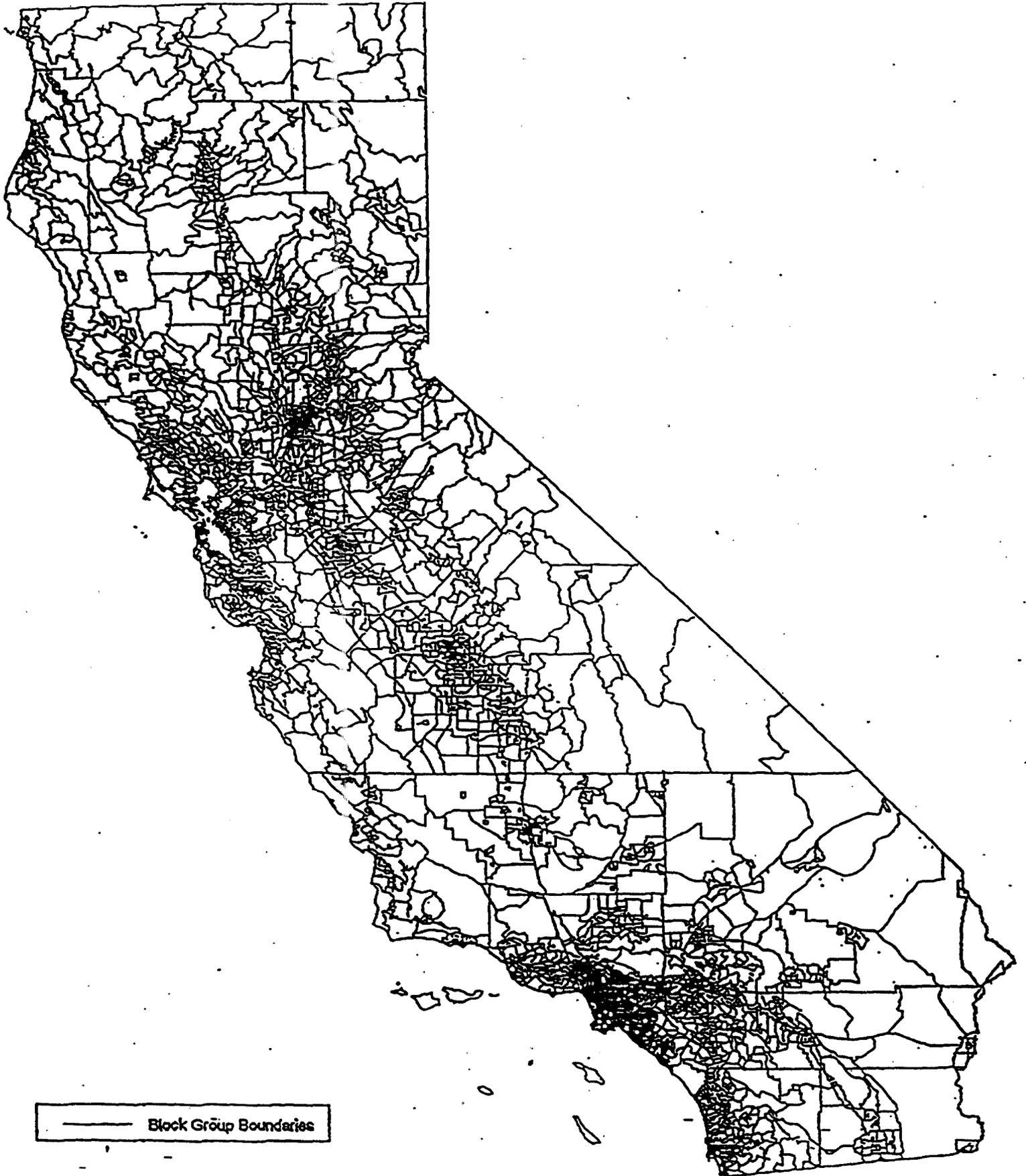
### ⇒ Flexible

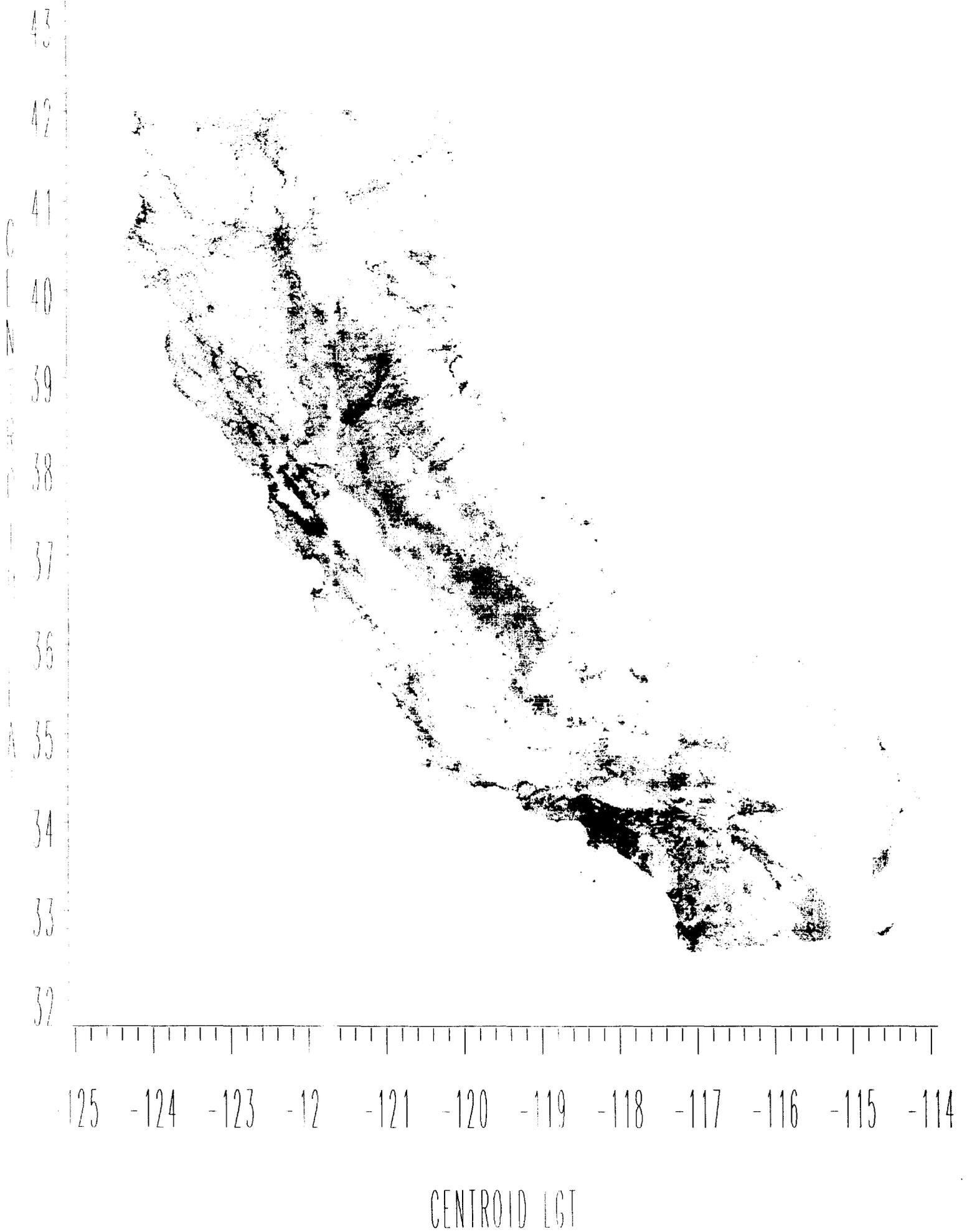
- ⇒ Various Dimensions are Attached
  - ⇒ CLLI, CBG, State, Political Boundaries, Density, Etc...
- ⇒ Other Dimensions are also Available
  - ⇒ Ethnicity, Income, Sex, Age, Etc...

### ⇒ Consistent/Uniform Unit of Geography

- ⇒ All Grids are ~0.4 Sqmi (~3000Ft X 3000Ft)

# BLOCK GROUP BOUNDARIES IN CALIFORNIA



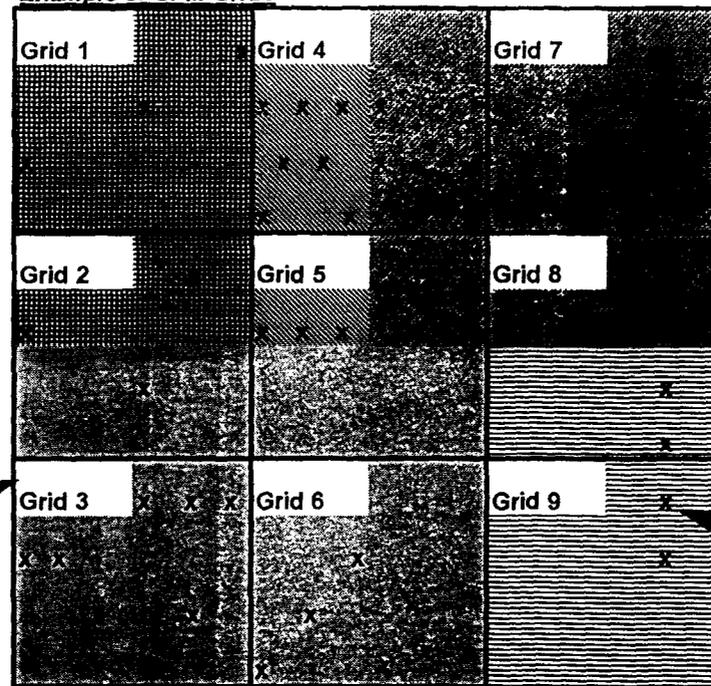


# Cost Proxy Model

## Customer Engine: The “Grid”, Part 1

- ⇒ Current California Model uses Census Block Household data apportioned to “Grids” based on Land Mass
- ⇒ Currently developing improved file using Zip4 data Points as apportioning unit

*Example of CPM Grids*



**Grids**

- Defined by 1/100 of Degree Lat and Long (- or ~ 3000 ft. \* 3000 ft)
- There are ~ 350,000 in CA

**Census Blocks**

- Subsets of CBGs (average of 28)
- There are ~ 350,000 in CA

**Zip 4**

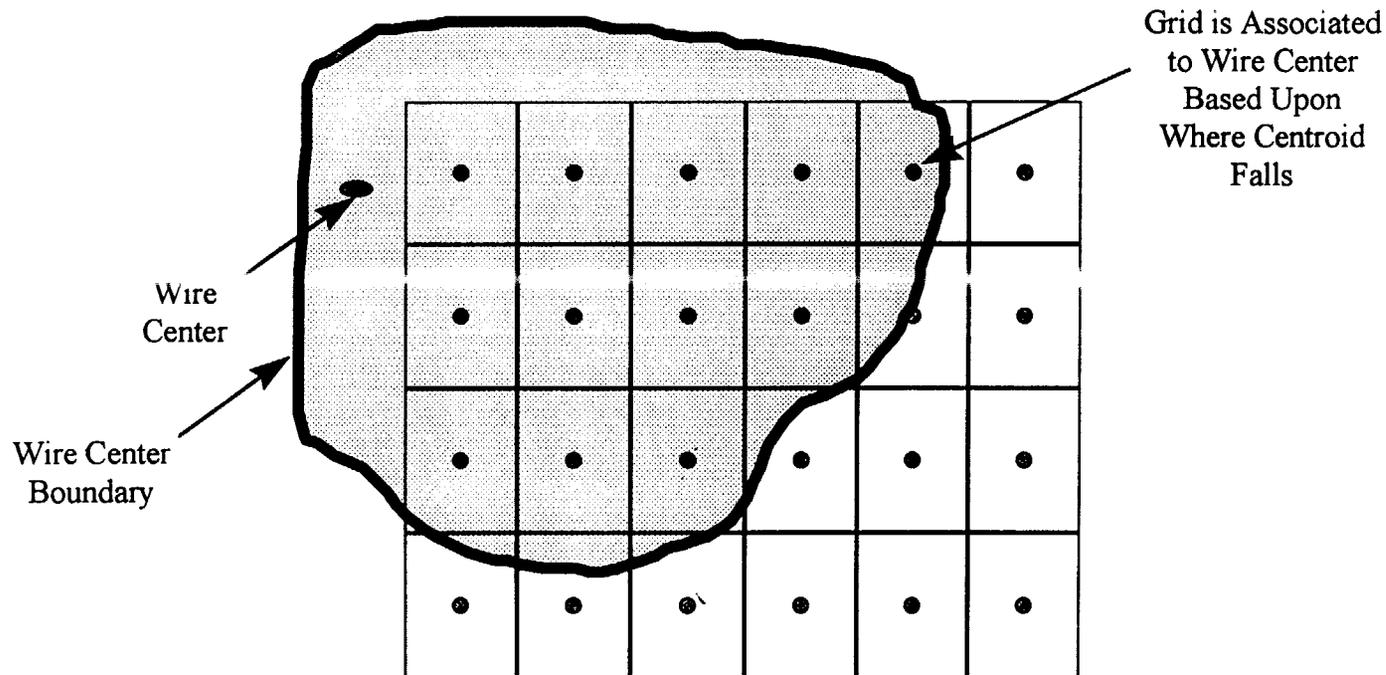
- Can be Geocoded to exact Latitude and Longitude
- ~150M in US

|----- ~3000 ft -----|

# Cost Proxy Model

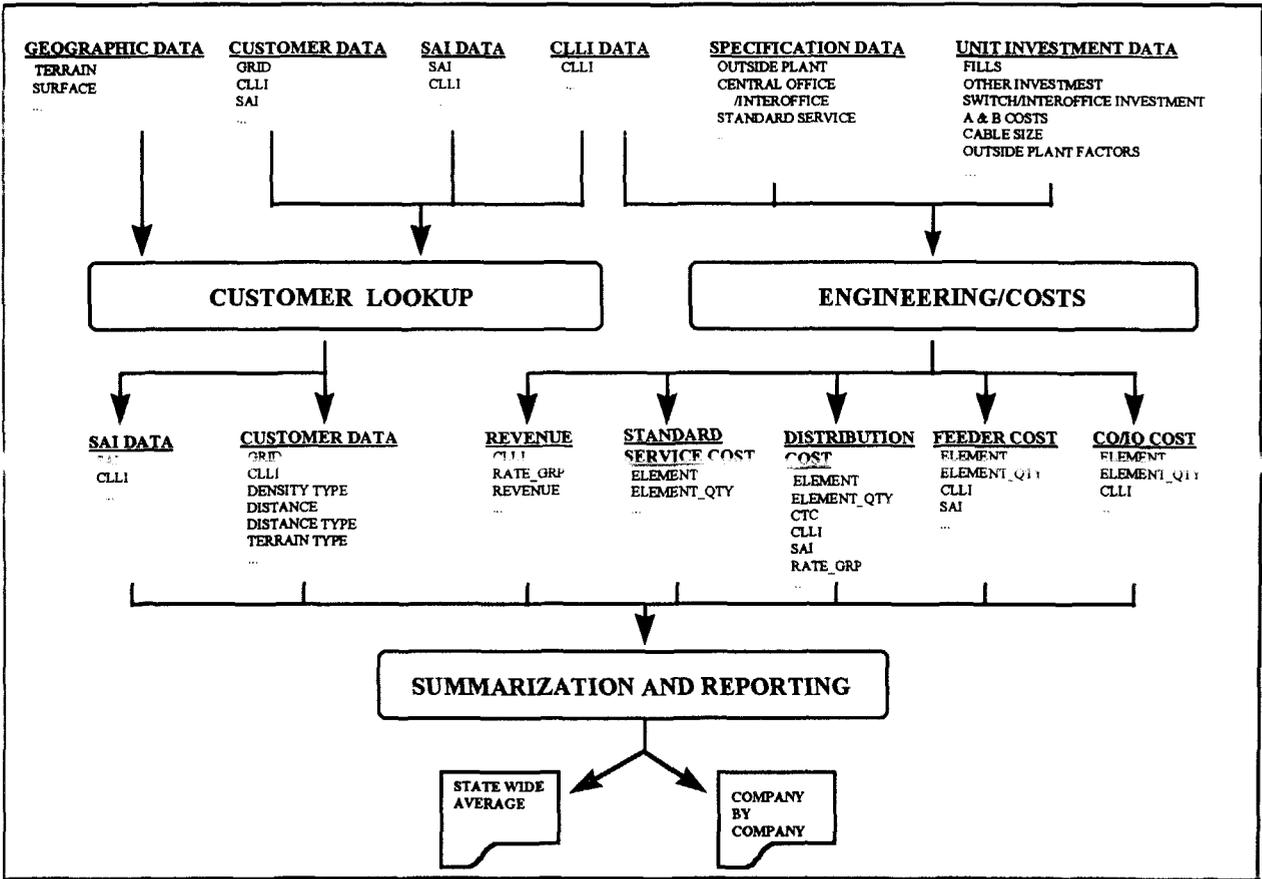
## Customer Engine: The “Grid”, Part 2

- ⇒ Commercial Data Source Provides Wire Center Boundaries Along With the Lata, NXX, Switch Type, Rate Center, and Company
- ⇒ Using the Boundary, We can Then Assign the “Grids” to a Wire Center



# Cost Proxy Model System Design

## Basic System Design



# Cost Proxy Model

## System Design

### Customer Lookup Engine

- **Customer:** The lookups for customer provide the terrain type, density type, and the conversion of the distance into a route distance.
- **SAI:** The lookups for SAI provide the terrain type, density type, technology type, and the conversion of the distance into a route distance.
- **CLLI:** The lookups for CLLI provide the density type and switch usage characteristics.

### Engineering/Costs Engine

Costs are unitized at the pertinent dimensional level (density type, terrain type, technology type, switch type, and distance). For example, aerial cable installed cost per foot/per month in a rural central office, in sandy soil, in a low density cell is \$0.05. Aerial cable installed cost per foot/per month in an urban central office, in bedrock, in a high density cell is \$0.25.

### Summarization and Reporting Engine

The SAI, customer, and all cost data is joined and summarized into files for reporting purposes. Detail and summary reports can be generated by company, state representative and senate districts, census block group, density type, terrain type, CLLI, and class of service. This model also generates a statewide average report.

# Cost Proxy Model

## System Design: Customer Data

### Geographic Data

- **Household file at Grid level. (CENSUS.CSV)** Census level data or some other substitute for Residential lines. This file contains household count information at the grid level.
- **Daytime population file at Grid level. (DAYPOP.CSV)** Census level data or some other substitute for Business lines. This file contains daytime population values at the grid level.
- **State Grid file (ST\_GRID.CSV)** State information at grid level that provides the political district, CLLI, distance to CLLI from the center of the grid, and square mile area of each grid
- **Terrain file (TERRAIN.CSV)** State information that provides the terrain characteristics of each Grid.

# Cost Proxy Model

## System Design: Lookup/Decode Data

### Customer/Lookup Data

- **Usage Values file (USAGE.CSV)** Provides the monthly number of messages per service as well as the associated shared switching investment.
- **Wire Center file (WC.CSV)** State information that provides location, owner, tariffed rates, and switch type for each CLLI (wire center) within the state.
- **Operating Exp. Ratios file (OPX\_RTO.CSV)** Provides ratios to estimate a company's operating expenses as compared to the statewide average operating expenses .
- **Feeder Route/Air Ratios file (FDR\_RTO.CSV)** Converts air feet to estimated route feet in the feeder plant.
- **Density Type file (DENS\_TYP.CSV)** Provides the definition of the Density types used in the model.
- **Distance Type file (DIS\_TYP.CSV)** Converts air feet to estimated route feet in the distribution plant.
- **Engineering Rules file (ENG\_RUL.CSV)** Provides some of the basic engineering rules.
- **Feeder % W/O SAI file (MIS\_SAI.CSV)** Provides the ratio of feeder to distribution plant for a given total distance.
- **Surface Classifications file (SURF.CSV)** Provides the indication of which soil types affect installation costs.
- **Factors file (FACTORS.CSV)** Provides conversion factors for census data. These conversions are for Households to Residence lines and Daytime population to Business lines.

# Cost Proxy Model

## Customer Engine: Customer File

O B S	C L I	S A I	L A T C	L O N G C	C C G	C O S	S E N	S R E P	T T S	D E R T P	S T A N T E	C O M P A N Y	D I S T A N C E	L I N E S	F D R I D I S T
78	SNRACA13	1100	38.005	-120.375	61090012001	1FR	12	25	Z4	N	CA	PACIFIC	3.78132	67	7.0861
79	SNRACA13	1101	38.005	-120.445	61090021988	1FR	12	25	Z2	M	CA	PACIFIC	8.57932	9	18.3612
80	SNRACA13	1101	38.005	-120.435	61090021988	1FR	12	25	Z2	M	CA	PACIFIC	7.53037	9	16.1163
81	SNRACA13	1101	38.005	-120.425	61090021988	1FR	12	25	Z2	M	CA	PACIFIC	6.51978	12	13.9535
82	SNRACA13	1101	38.005	-120.415	61090051002	1FR	12	25	Z3	H	CA	PACIFIC	6.74975	9	10.6725
83	SNRACA13	1101	38.005	-120.405	61090051002	1FR	12	25	Z3	H	CA	PACIFIC	5.71223	112	9.0320
84	SNRACA13	1101	38.005	-120.395	61090011002	1FR	12	25	Z4	M	CA	PACIFIC	3.56791	125	9.3593
85	SNRACA13	1110	38.005	-120.365	61090012001	1FR	12	25	Z3	N	CA	PACIFIC	4.53817	6	7.1756
86	SNRACA13	1110	38.005	-120.355	61090012001	1FR	12	25	Z2	N	CA	PACIFIC	5.24437	6	8.2923
87	SNRACA13	1111	38.005	-120.345	61090012002	1FR	12	25	Z3	N	CA	PACIFIC	6.19477	16	9.7950
88	SNRACA13	1111	38.005	-120.335	61090022007	1FR	12	25	Z3	N	CA	PACIFIC	7.29543	31	11.5353
89	SNRACA13	1111	38.005	-120.325	61090022007	1FR	12	25	Z3	N	CA	PACIFIC	5.72880	38	16.3272
90	TLMNCAXF	1101	38.005	-120.245	61090032002	1FR	12	25	Z2	N	CA	CITIZENS TUOLOMNE	7.57075	16	16.2027
91	TLMNCAXF	1111	38.005	-120.235	61090032002	1FR	12	25	Z2	N	CA	CITIZENS TUOLOMNE	7.49444	20	16.0394
92	TLMNCAXF	1111	38.005	-120.225	61090031985	1FR	12	25	Z2	N	CA	CITIZENS TUOLOMNE	7.59699	11	16.2589

# Cost Proxy Model

## Customer Engine: SAI File

OBS	CLLI	SAI	DISTANCE	TECH_TYP	DENS_TYP	TERR_TYP
1	SNRACA13	1000	1	CF	Z3	N
2	SNRACA13	1001	1	SLC	Z3	N
3	SNRACA13	1010	1	CF	Z3	N
4	SNRACA13	1011	1	SLC	Z3	N
5	SNRACA13	1100	1	CF	Z3	N
6	SNRACA13	1101	1	SLC	Z3	N
7	SNRACA13	1110	1	CF	Z3	N
8	SNRACA13	1111	1	SLC	Z3	N
9	TLMNCAXF	1000	1	CF	Z3	N
10	TLMNCAXF	1001	1	SLC	Z3	N
11	TLMNCAXF	1010	1	CF	Z3	N
12	TLMNCAXF	1011	1	SLC	Z3	N
13	TLMNCAXF	1100	1	CF	Z3	N
14	TLMNCAXF	1101	1	SLC	Z3	N
15	TLMNCAXF	1110	1	CF	Z3	N
16	TLMNCAXF	1111	1	SLC	Z3	N

# Cost Proxy Model

## Customer Engine: CLLI File

SW_TYP	COS	DENS_TYP	BH_MOU	BH_MSG	COMPANY	CLLI	CBG	LAT	LONG	TOT_LINE	REVENU_T
5E	1FR	Z3	404.7394	107.9707	PACIFIC	SNRACA13	61090012004	37.98	-120.37	12796.6	13.97
D100	1FR	Z3	406.1070	108.3355	CITIZENS	TLMNCAXF	.	37.96	-120.24	2542.7	15.00

# Cost Proxy Model

## System Design: Engineering Data

### Engineering/Cost Data

- **OSP (Outside Plant Specifications) Spec file (OSP\_SPC.CSV)** Provides percentage of aerial, buried, and underground cable used for a specific grid based on density. This file also contains some outside plant electronics used by a particular service (that is, 1FR).
- **CO/IO (Central Office/Interoffice) Spec file (SIO\_SPC.CSV)** Provides the switching and interoffice investment items consumed by a particular service.
- **Std Svc (Standard Service) Spec file (STD\_SPC.CSV)** Based on the definition of Basic Service, provides the operating expense items to include with a service.
- **A + B Cost file (AB\_CST.CSV)** Capitalized cost of outside plant equipment.
- **Outside Plt Adj (Plant Adjustment) file (OSP\_FCT.CSV)** Provides an adjustment to the capitalized value of cable plant based on the density value and terrain type.
- **Annual Chg Fctr ( Charge Factor) file (ACF.CSV)** Annual charge factor table. Used to convert investments into costs.
- **Operating Exp (Expense) file (OTH\_EXP.CSV)** Provides operating expenses at a line level in predefined categories (for example, billing)
- **Cable Size file (CBL\_SIZ.CSV)** Given certain density zones, this table provides the average outside plant cable size used.
- **Other Inv (Investment) file (OTH\_INV.CSV)** This is a file that contains those investment items driven only by lines (for example, terminal, drop, SAI).
- **Fill Level file (FILLS.CSV)** Provides the going forward actual plant utilization rates.
- **Switch / IO (Interoffice) file (SIO\_INV.CSV)** Switch and Interoffice investment by line, message, etc.

# Cost Proxy Model

## Cost Engine: End Product

⇒ Using These Cost Tables, the CPM Creates this Internal Cost Matrix for Each Cost Element

			TERR_TYP			
			High	Medium	Normal	Water
			UNIT INVEST.	UNIT INVEST.	UNIT INVEST.	UNIT INVEST.
OSP_TYP	ELEMENT	DENS_TYP				
Copper Dist.	BUR_CU	Z1	0.2172	0.1694	0.1159	0.2172
		Z2	0.1306	0.1090	0.0779	0.1306
		Z3	0.1367	0.1169	0.0943	0.1367
		Z4	0.1315	0.1077	0.0848	0.1315
		Z5	0.1448	0.1162	0.0867	0.1448
		Z6	0.1329	0.1092	0.0870	0.1329
		Z7	0.1292	0.1018	0.0783	0.1292

# Cost Proxy Model

## System Design: Specification Files

COS	ELEM_QT	ELEMENT	CUST_TY
1FR	1	ACCT	R
1FR	1	ADV_MKT	R
1FR	1	BILLING	R
1FR	1	COMMON	R
1FR	1	DA	R
1FR	1	EMPSUP	R
1FR	1	ENG_MV	R
1FR	1	GPC_IS	R
1FR	1	MISC	R
1FR	1	NREC	R
1FR	1	NVS_EXP	R
1FR	1	NVS_INV	R
1FR	1	O_MINI IS	R
1FR	1	OCS	R
1FR	1	PMO_DIF	R
1FR	1	REPR_MT	R
1FR	1	SALES	R
1FR	1	SEC_INV	R
1FR	1	SHARED	R
1FR	1	TESTING	R
1FR	1	WP_LIST	R