1972

distance dialing coordinating handbook

AT&T

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1972

Vol. II Issue 1

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*Centerfold

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FOREWORD

This handbook is intended to provide information about future developments in the Distance Dialing program, current Distance Dialing statistics, pertinent historical facts and regional switching plan arrangements. The data included herein is kept current with information submitted in the Companies' Construction Program Summaries for the April 1972 View and the Long Lines Routing Plan. The Distance Dialing Committee acknowledges the important contributions made by the Distance Dialing Coordinators in keeping this handbook up to date. This material is prepared for Bell System purposes and is for the use of Bell System employees only. Its distribution is in no sense a publication. Neither the material nor any portion thereof is to be reproduced in any form by others without the written permission of the American Telephone and Telegraph Company.

Construction Plans Department

Chart 1

DISTANCE DIALING STATISTICS
APRIL, 1972 CONSTRUCTION PROGRAM VIEW

LONG DISTANCE MESSAGES-BELL OPERATED (During Year-Millions)	1971 (Actual)	1972	1973
Operating Companies	5727.1	6290.7	6929.6
Long Lines	1987.0	2208.0	2485.0
Total Bell System	7803.6	8598.0	9526.5
All Bell Companies + Canada	8234.0	9066.3	9673.4*

	1971 (Actual)		1972		1973	
	Bell System	Bell * Cos.	Bell System	Bell * Cos.	Bell System	Bell * Cos.
% Dialed by Customers (DDD)	70.6	70.9	73.0	73.2	74.8	75.0
% Dialed by Operators (DDD)	26.6	26.3	22.5	22.2	19.3	18.9
% Customer Dialed Operator Serviced	2.8	2.9	4.5	4.6	5.8	6.1

LOCAL CENTRAL OFFICE BUILDINGS (End of Year)

	1971 (Actual)		1972		1973	
Total	8420	8593	8482	8656	8505	8680
% Equipped for DDD	84.0	85.0	89.0	89.0	93.0	93.0

Toll Offices Data (End of Year)	1971 (Actual) Bell * Cos.	1971 (Actual) Non * Bell	1972 Bell * Cos.	1972 Non * Bell	1973 Bell * Cos.	1973 Non * Bell
Control Switch. Pts. (Cl 1,2,3 Ofcs. mtg. certain rqmts).	277	40	279	40	288	40
Toll Centers-(Class 4 Offices providing assistance in completing incoming calls.)	1038	491	1018	487	990	483
Toll Centers Equipped for CAMA	607	359	632	372	646	386
Total Toll Positions	68011	X	66896	X	65802	X
No. TSP and TSPS Positions	8348	X	12034	X	15810	X

TELEPHONES (End of Year) Main Tels. & Equivalent Main Tels. (Millions)		1971 (Actual) Bell Cos.	1971 (Actual) Non * Bell	1972 Bell Cos.	1972 Non * Bell	1973 Bell Cos.	1973 Non * Bell
Total		65.0	13.7	67.7	14.8	65.8*	15.6
Equipped for Outward DDD	Operator Identified*	10.2	X	9.4	X	8.0	X
	Automatically Identified - ANI*	27.2	X	28.6	X	30.3	X
	" " -LAMA*	21.2	X	23.7	X	26.3	X
	Total (Operator plus Automatically Identified)*	58.6	12.3	61.7	13.1	64.6	14.1
	Served by TSP or Equiv.*	14.9	X	20.7	X	25.9	X
	% of Total M.T. & Equiv. M.T.	96.5	X	97.6	X	98.2	X
With ANC Numbering *		55.9	NA	58.9	14.7	62.1	15.4

"Bell Companies" includes Bell System and Southern New England, Cincinnati Bell and the Bell Canada Companies. "Non-Bell Companies" includes Independent Companies in the Continental United States plus other Non-Bell Companies in Alaska, Hawaii and the territory of the Trans-Canada Telephone system. Reference for terms used - Construction Program Notes.

*Data for Canada not available

Chart 2

SUGGESTED NATIONWIDE CUTOVER DATES FOR DISTANCE DIALING ACTIVITIES REQUIRING NATIONWIDE CHANGES

Month	1973	1974	1975	1976	1977
January	7 -21	6 -20	5 -19	4 -18	9*-16
February	4 -25*	3 -24*	2 -23*	1 -22*	6 -27*
March	4 -18	3 -17-31#	2 -16	7 -21	6 -20
April	1 -15	21	6 -20	4 -25*	3 -17
May	6 -20	5 -19	4 -18	2 -16	1 -15
June	3 -24*	2 -23*	1 -22*	6 -27*	5 -26*
July	1 -15	7 -21	13*-20	11*-18	10*-17
August	5 -19	4 -18	3 -17	1 -15	7 -21
September	9*-16	8*-15	7 -21	12*-19	11*-18
October	14*-28*	6 -20	5 -19	3 -17	2 -16
November	4 -18	3 -17	2 -16	7 -21	6 -20
December	2 -16	1 -15	7 -21	5 -19	4 -18

NOTE:

The dates suggested are the first and third Sundays of each month except where they fall on or immediately adjacent to holidays.

* Deferred one week
\# Advanced one week

SUGGESTED CUTOVER HOUR	
	Sunday
Time Zone	Nationwide Time
Atlantic	3:01 a.m.
Eastern	2:01 a.m.
Central	1:01 a.m.
Mountain	12:01 a.m.
Pacific	11:01 p.m. (Sat.)
Alaska*, Hawaii	9:01 p.m. (Sat.)

* Anchorage, Fairbanks

Chart 3

PRINCIPAL NEW FACILITIES AND FEATURES FOR DISTANCE DIALING

Available or Planned for Shipment in the Next Three Years

Item	Information To Field	Design Info. BTL to WECo	Probable Initial Shipment (Note 1)
No. 4 Type Toll Crossbar System			
Dial Pulse Incoming Sender - Reduced Call Processing Time	E.L. 1318 (GL 71-07-052)	Issued	1Q'72
Use of Overseas Operator Bridged Access Trunk Circuits for IOTC Operation	E.L. 1436 (GL 71-09-003)	Issued	4Q'71
Manual Test Frame (MTF)	E.L. 1439 (GL 71-09-044)	Issued	4Q'71
Incoming Overseas Sender Improvements	GL 72-05-098	Issued	Now
ETS Generic Programs - SPC-1A Dial-Up Access To Remote Maintenance TTY	E.L. 1349 (GL 71-11-017)	-	-
Manual Test Frame (MTF) and Test and Make Busy (TMB) Jack Bay Equipment	E.L. 1561 (GL 72-02-037)	Issued	4Q'71
Auxiliary Recording of Sender Reorders, etc.- Use of a Small Computer as the Recording Dev.	E.L. 1716 (GL 72-02-203)	2Q'72	4Q'72
Controllers - Modification to Reduce Holding Time	~~E.L. 445 (GL 70-03-209)~~ E.L. 1642 (GL 72-05-083)	-	-
Actual Costs, Frames and CCS for Initial Jobs	GL 72-05-023	-	-
No. 5 Crossbar Systems			
Numbering Plan Changes, Dial Pulse Incoming Registers	E.L. 1211 (GL 71-04-122)	Issued	3Q'72
Trunk Maintenance Improvement Items	E.L. 1284 (GL 71-06-174)	Issued	1Q'73
Numbering Plan Changes Concerning Interchangeable Central Office and Numbering Plan Area Codes, and Foreign Area Directory Assistance Codes	E.L. 1556 (GL 71-12-012)	Issued	3Q'73
Trunk Maintenance Improvement Items	E.L. 1693 (GL 72-04-164)	Issued	3Q'73
Wink Start for 2-Way Intertoll Trunks	E.L. 1828 (GL 72-05-005)	-	-

Chart 3

PRINCIPAL NEW FACILITIES AND FEATURES FOR DISTANCE DIALING

Available or Planned for Shipment in the Next Three Years

Item	Information To Field	Design Info. BTL to WECo	Probable Initial Shipment (Note 1)
Crossbar Tandem Offices			
Modification to Ring Marker Frame (J28761B) - (To Facilitate Installing and Removing Jumpers)	E.L. 1554 (GL 71-12-006)	Issued	4Q'71
Automatically Directed Outgoing Trunk Test Frame (ADOT)	Note 2	-	-
Improved Trouble Recorder Recording and Trouble Analysis Feature (Reorder Trap)	Note 3	2Q'72	1Q'73
Expanded Remote Office Test Line (ROTL)	E.L. 1455/ P.L. 2533 (GL 72-03-110)	3Q'72	3Q'74
Tandem Cross-Section Program Modifications	GL 72-04-119	-	Now
Revision of TFP Div. D, Sect. 6-i-XBT CAMA	GL 72-04-153	-	Now
Traffic Service Postion System No. 1			
Real Time Capacity	E.L. 1240 (GL 71-05-053)	-	-
Performance Requirements Tests	E.L. 1340/ P.L. 2507 (GL 71-06-180)	-	-
Traffic Involvement in Performance Requirements Tests	GL 71-08-062	-	-
Transmission Improvements	E.L. 1287 (GL 71-09-004)	-	-
New Features, Generic Issue 4	E.L. 1689 (GL 72-02-120)	Issued	3Q'73
New Multiwink Signaling Arrangement for 5XBar Outgoing Coin Trunks to TSP(S)	E.L. 1829 (GL 72-05-006)	2Q'72	4Q'72
Other Facilities			
Numbering Plan Area Map	GL 71-04-148	-	-
Systems Planning - No. 1 ESS Combined Local and Toll Operation	E.L. 1151 (GL 71-05-021)	-	-

Chart 3

PRINCIPAL NEW FACILITIES AND FEATURES FOR DISTANCE DIALING

Available or Planned for Shipment in the Next Three Years

Item	Information To Field	Design Info. BTL to WECo	Probable Initial Shipment (Note 1)
Other Facilities			
Preliminary Information Regarding Proposed Signaling Network for CCIS System	GL 71-05-163	-	-
Network Service Improvement (New Plan - Building an Effective Network Trouble Analysis Bureau)	GL 71-06-107	-	-
17C Testboard - New Three-Bay Arrangement (Another E.L. will be issued in 3Q'72)	E.L. 1326 (GL 71-06-139)	-	-
Single Frequency Signaling - Changes in E2C and E4C Units and Introduction of E5C Signaling Unit	E.L. 1329 (GL 71-06-131)	Issued	-
SxS CAMA - System - New Numbering Plan	GL 71-06-158	Issued	4Q'71
Switching Systems - Screening Vacant Codes at Source	GL 71-06-162	-	-
Systems Planning - No. 4 ESS General Planning Information	E.L. 1224 (GL 71-07-129)	-	-
Installation Interval Guidelines for Various Stored Program Control Systems (No. 1 ESS, No. 2 ESS, No. 4XB - ETS, TSPS, AIS)	GL 71-08-208	-	-
Independent Company Participation in Network Service Improvement	GL 71-09-008	-	-
No. 1 ESS Toll Tandem Capabilities	E.L. 1560 GL 71-11-016	-	-
Impulse Noise Measurements on Trunks and Facilities	E.L. 1650 P.L. 2538 GL 72-02-071	-	-
Nationwide Numbering Plan and Dialing Procedures - Introduction of NO/1X Central Office Codes (Exhaust Date of NNX Codes in 213 and 212 NPA's expected to occur in 1Q'74 and 4Q'74, respectively)	GL 72-02-139 GL 72-04-201	- -	- -
Stored Program Control Systems - Distribution of Information to Technical Assistance Centers (No. 1 ESS 2- & 4-Wire)	GL 72-02-192		

Chart 3

PRINCIPAL NEW FACILITIES AND FEATURES FOR DISTANCE DIALING

Available or Planned for Shipment in the Next Three Years

Item	Information To Field	Design Info. BTL to WECo	Probable Initial Shipment (Note 1)
Other Facilities			
No. 1 ESS - Interchangeable Area and Office Codes	E.L. 1701 GL 72-03-003	-	-
Blocking DDD Access to Protected Codes	GL 72-02-191	-	-
Intertoll Trunks - Limited Patching Procedure (Recommends a Policy to Improve Service and Operating Efficiencies)	GL 72-03-069	-	-
Switching Systems - Routing Changes (Points Out Need for More Emphasis on Procedure and Initiates a New Control Operation)	GL 72-04-005	-	-
Methods for the Identification of Future Toll Switching Systems	GL 72-04-104	-	-
Carrier Transmission Maintenance System (CTM)	E.L. 1800	Issued	1Q'73
Small Toll Center Modernization (TSPS - Remote Trunk Arrangements)	E.L. 869 (GL 70-10-090)	4Q'73	1Q'76
Network Service - Use of NPA Code 900	GL 71-11-034	-	-
Large Metropolitan Area Traffic Study Group Activities	GL 71-09-035	-	-
Selection of Preferred Route for First Route Switched Traffic	GL 71-06-019	-	-
Metro. Area Toll Sector Tandem Arrangements	GL 69-11-014	-	-
Point-to-Point Attempt Recorder No. 1A	GL 72-05-071	Issued	2Q'72
Traffic Capacities for AMA Recorders	GL 71-09-178	-	-
International Direct Distance Dialing - Nationwide Numbering Plan			
Improvements in International Telephone Service	GL 69-07-029	-	-
Numbering Plan Arrangements - E Digit Unblocking	GL 69-08-061	Issued	
Numbering Plan Arrangements to Permit Customer Dialing to Mexico City	GL 69-11-053	-	-

Chart 3

PRINCIPAL NEW FACILITIES AND FEATURES FOR DISTANCE DIALING

Available or Planned for Shipment in the Next Three Years

Item	Information To Field	Design Info. BTL to WECo	Probable Initial Shipment (Note 1)
<u>International Direct Distance Dialing - Nationwide Numbering Plan</u>			
Nationwide Numbering Plan - Introduction of NO/1X Central Office Codes	E.L. 442 GL 70-04-210 GL 72-04-201	-	-
International Orginating Toll Center Operation (IOTC)	GL 71-01-079	-	-
(Recommends expansion of IDDD Concurrent with IOTC)	GL 71-07-183	-	-
No. 5 Crossbar	E.L. 1589 GL 71-12-156	Issued	3Q'72
No. 4 Crossbar	E.L. 780 GL 70-08-198	-	-
No. 1 ESS 2W	E.L. 1125 GL 71-03-056	-	-
IOTC/IDDD Coin Testing Procedure	GL 72-01-130	-	-

Note 1 - The date indicated for Probable Initial Shipment is a current view. It should not be viewed either as the earliest date desired by the Companies or a commitment by WE. Certain dates are based on intervals for similar developments, and are in advance of detail information.

Note 2 - Due to the improved schedule for availability of CAROT/ROTL the demand for ADOT is very low; therefore, development of ADOT has been cancelled. (See E.L. 1455/P.L. 2533 (GL 72-03-110 & GL 71-10-075.))

Note 3 - A decision has been reached to redirect the standard reorder trap development to use a minicomputer. A Planning Letter will be issued in the 3Q'72.

Chart 4

NO. 4-TYPE TOLL CROSSBAR OFFICES IN SERVICE - END OF 1972

(BASED ON APRIL 1972 CONSTRUCTION PROGRAM)

Location	Type/ Class	Service Date		CAMA	Machine* Responsibility			
		Office	ETS		T	E	A	M
NEW ENGLAND								
Boston 2, Mass.	4M/2	11-49		X	L	L	L	C
Boston 9, Mass.	4A/2	4-70	4-70	X	L	L	L	L
Springfield, Mass.	4A/2	5-63			L	L	L	C
Providence, R.I.	4A/3	6-72	6-72		L	L	L	L
NEW YORK								
Albany 2 ø	4A/2	4-50			C	C	C	C
Buffalo	4A/3	5-56	5-73	X	C	C	C	C
New York 4	4M/2	11-48			L	L	L	L
New York 7	4A/2	9-63			L	L	L	L
Suffolk	4A/2	6-70	6-70		L	L	L	L
Syracuse	4A/3	5-54		X	C	C	C	C
White Plains 2	4A/1	11-54	10-70		L	L	L	L
Varick St.	4A/3	12-71	12-71		C	C	C	C
New York 6	4A/3	8-72	8-72		L	L	L	L
NEW JERSEY								
Camden 2	4A/2	10-69	10-69		L	L	L	L
Newark 2	4A/2	8-53			L	L	L	L
New Brunswick	4A/3	8-70	8-70		C	C	C	C
Rochelle Park	4A/3	11-66	7-74		C	C	C	C
PENNSYLVANIA								
Harrisburg	4A/2	12-55	5-74	X	L	L	L	L
Philadelphia	4M/2	8-43			L	C	L	C
Pittsburgh 1 ø	4A/1	7-51	9-70		L	L	L	C
Pittsburgh 2	4A/3	11-70	11-70		L	L	L	L
Scranton	4A/3	5-53		X	C	C	C	C
Wayne	4A/1	5-57	6-71		L	L	L	L
Ft. Washington	4A/3	6-72	6-72		C	C	C	C
CHES. & POT.								
Baltimore 2 ø, Md.	4A/2	8-50	1976		C	C	C	C
Charleston, W.Va.	4A/2	3-61		X	C	C	C	C
Richmond, Va.	4A/2	6-54	5-72	X	C	C	C	C
Washington 1 ø, D.C.	4A/3	9-50			C	C	C	C
Washington 3, D.C.	4A/2	3-67	5-71		C	C	C	C
Norfolk 3, Va.	4A/3	5-72	5-72		C	C	C	C
Arlington 2, Va.	4A/3	2-72	2-72		C	C	C	C
SOUTHERN								
Atlanta 1 ø, Ga.	4A/2	10-51	5-74		C	C	C	C
Charlotte, N.C.	4A/2	11-54	4-72	X	C	C	C	C
Columbia, S.C.	4A/2	4-59		X	C	C	C	C
Greensboro, S.C.	4A/3	8-60	3Q-73	X	C	C	C	C
Jacksonville, Fla.	4A/2	12-55	5-73	X	C	C	C	C
Miami 2, Fla.	4A/3	11-57			C	C	C	C
Orlando, Fla.	4A/2	11-62	9-73	X	C	C	C	C
Rockdale, Ga.	4A/1	6-60	6-70		L	L	L	L
Columbus, Ga.	4A/4	11-71	11-71	X	C	C	C	C
Raleigh, N.C.	4A/4	8-71	8-71	X	C	C	C	C
SOUTHERN (Cont'd)								
Ojus 1, Fla.	4A/4	11-72	11-72	X	L	L	L	L
Florence, S.C.	4A/4	4-72	4-72	X	C	C	C	C
SOUTH CENTRAL								
Birmingham, Ala.	4A/2	8-57	2Q-76	X	L	L	L	L
Jackson, Miss.	4A/2	6-59	1-73	X	L	L	L	L
Knoxville, Tenn.	4A/3	2-61		X	C	C	C	C
Louisville, Ky.	4A/2	11-57	4-72	X	L	L	L	L
Memphis, Tenn.	4A/2	10-56	4-72	X	L	L	L	L
Nashville, Tenn.	4A/2	10-56	5-73	X	L	L	L	L
New Orleans, La. ø	4A/3	3-53	2-74		C	C	C	C
Baton Rouge, La.	4A/4	8-71	8-71		C	C	C	C
OHIO								
Dayton	4A/3	11-63	3Q-75	X	C	C	C	C
Cleveland 1	4M/2	6-49	6-72	X	L	L	L	L
Columbus	4A/3	10-56	11-71		C	C	C	C
Toledo	4A/3	8-61	4-73	X	C	C	C	C
Cleveland 2	4A/3	8-72	8-72		L	L	L	L
MICHIGAN								
Detroit	4A/2	10-53	12-70		L	L	L	L
Grand Rapids 1	4A/2	4-69	4-69		L	L	C	C
Plymouth	4A/3	7-69	7-69	X	C	C	C	C
Pontiac	4A/3	6-72	6-72	X	C	C	C	C
INDIANA								
Bloomington	4A/4	8-70	8-70		#	#	#	#
Indianapolis ø	4A/2	5-50	3-73	X	L	L	C	L
South Bend 1	4A/2	4-70	4-70		L	L	L	L
WISCONSIN								
Eau Claire	4A/2	5-70	5-70		C	C	C	C
Milwaukee 1	4A/2	5-55			L	L	L	L
ILLINOIS								
Chicago 2	4M/2	12-48		X	L	L	L	L
Chicago 3	4A/2	9-54			L	L	L	L
Chicago 6	4A/3	6-71	6-71		L	L	L	L
Norway	4A/1	12-62			L	L	L	L
Springfield	4A/2	9-60	8-74		L	L	L	L
Champaign	4A/3	11-72	11-72		C	C	C	C
Oak Brook	4A/4	8-72	8-72		L	L	L	L
NORTHWESTERN								
Des Moines, Ia.	4A/2	6-57	10-70	X	L	L	L	C
Minneapolis, Minn. ø	4A/2	2-51	6-71	X	L	C	L	C
Omaha, Neb.	4A/2	2-52	1-71	X	L	L	L	C
St. Paul 2, Minn. ø	4A/3	11-71	11-71	X	L	C	L	C

Chart 4

NO. 4-TYPE TOLL CROSSBAR OFFICES IN SERVICE - END OF 1972

(BASED ON APRIL 1972 CONSTRUCTION PROGRAM)

Location	Type/ Class	Service Date		CAMA	Machine* Responsibility			
		Office	ETS		T	E	A	M
SOUTHWESTERN								
Dallas 1 ø, Tex.	4A/1	11-51	6-71	X	L	L	L	C
Dallas 2, Tex.	4A/2	7-71	7-71	X	L	L	L	C
Fort Worth, Tex.	4A/2	7-60	10-72	X	C	C	C	C
Houston 1 ø, Tex.	4A/2	7-52	11-72	X	C	C	C	C
Houston 2, Tex.	4A/3	6-71	6-71		C	C	C	C
Kansas City ø, Mo.	4A/2	11-50	1-73	X	C	C	C	C
Little Rock, Ark.	4A/3	5-54	2-74	X	C	C	C	C
Oklahoma City, Okla.	4A/2	2-54	4-73	X	C	C	C	C
San Antonio, Tex.	4A/2	8-55	10-72	X	C	C	C	C
St. Louis 1, Mo.	4A/1	4-55	2-70		L	L	L	C
St. Louis 2, Mo.	4A/3	4-70	4-70	X	L	L	L	C
Tulsa, Okla.	4A/3	4-57	4-73	X	C	C	C	C
Wichita, Kan.	4A/3	10-57	4-74	X	C	C	C	C
Mission, Kan.	4A/3	4-72	4-72	X	C	C	C	C
MOUNTAIN								
Albuquerque, N.M.	4A/2	4-60	4-72	X	L	L	L	L
Colorado Springs, Colo.	4A/3	5-71	5-71	X	C	C	C	C
Denver 1, Colo.	4A/2	11-54	12-70	X	L	L	L	L
Phoenix 1, Ariz.	4A/2	12-66	3Q-73		L	L	L	L
Pueblo, N.M.	4A/3	8-69	8-69		C	C	C	C
Salt Lake City, Utah	4A/2	3-58	5-73	X	L	L	L	C
Cheyenne, Wyo.	4A/2	5-72	5-72	X	C	C	C	C
Denver 3, Colo.	4A/1	6-72	6-72		L	L	L	L
PACIFIC NW								
Portland 1, Ore.	4A/2	11-55	11-75	X	C	C	C	C
Seattle, Wash.	4A/2	1-59	1-72		C	C	C	C
Spokane, Wash.	4A/3	4-62		X	C	C	C	C
PACIFIC								
Anaheim	4A/2	12-64	4-72	X	C	C	C	C
Los Angeles 2	4A/2	5-54	4-72		C	C	C	C
Los Angeles 3	4A/3	3-62	9-69		C	C	C	C
Oakland-Franklin 3	4M/2	10-49	2-72		C	C	C	C

Location	Type/ Class	Service Date		CAMA	Machine* Responsibility			
		Office	ETS		T	E	A	M
PACIFIC (Cont'd)								
Redwood City	4A/3	2-70	2-70		C	C	C	C
Sacramento	4A/1	6-53			C	C	C	C
Fresno	4A/3	6-72	6-72	X	C	C	C	C
San Bernardino	4A/1	10-57	4-74		C	C	C	C
San Diego 1	4A/2	3-67	3-74		C	C	C	C
San Francisco 1	4A/3	6-69	1-72	X	C	C	C	C
San Jose 1	4A/2	6-58	4-73		C	C	C	C
Sherman Oaks 2	4A/3	4-71	4-71	X	C	C	C	C
SO. NEW ENGLAND								
New Haven 4	4A/3	5-68	5-71		L	L	L	L
CINCINNATI SUB.								
Cincinnati ø	4A/2	9-52	4-72	X	L	L	L	L
CANADA								
Montreal 1	4A/1	5-56	7-72	X	C	C	C	C
Toronto 1	4A/2	6-55		X	C	C	C	C
Toronto 3	4A/4	11-72	11-72	X	C	C	C	C
NON-BELL								
Clearwater, Fla.	4A/4		11-72	X				
Ft. Wayne, Ind.	4A/4							
Halifax 2, N.S.	4A/3							
Saskatoon, Sask.	4A/3			X				
St. Petersburg, Fla.	4A/4							
Tampa, Fla.	4A/3		2-74					
Vancouver 2, B.C.	4A/2		4-71					
Winnipeg, Man.	4A/2			X				
Fayetteville, N.C.	4A/3	5-72	5-72	X				
Honolulu, Haw.	4A/3	1-72	1-72	X				
Everett 1, Wash.	4A/3	4-72	4-72	X				
Las Vegas 1, Nev.	4A/4	11-72	11-72	X				
Edmonton, Alb.	4A/3	3-72	3-72					

ø Originally installed as A4A

* Machine Responsibility - T = Traffic Engineering
E = Equipment Engineering
A = Machine Administration
M = Machine Maintenance
C = Associated Company
L = Long Lines
# = Presently "C" but under negotiation

Chart 5

NEW CONTROL SWITCHING POINTS
AND OTHER 4A AND XBT OFFICES
IN SERVICE 1973-77
(BASED ON APRIL, 1972 CONSTRUCTION PROGRAM VIEW)

Co.	Location	Switching Class	Type Switching Eqpt.	Frames	Dates		CAMA	ANI	
					Ship	Service			
N.E.	Manchester 2, N.H.	3	XBT	107	7-72	5-73	X		
	Portland, Me.	3	4A	390	4-72	6-73			
	Lawrence, Mass.	3	4A	1,100	8-72	12-73			
	Cambridge, Mass.(Kendall Sq.)	3	4A	1,600	1-72	1-74			
	Framingham, Mass.	3	4A	750	2-73	8-74			
	Brockton, Mass.	3	4A	750	12-73	4-75			
	Worcester, Mass.	3	4A	936	5-74	10-75			
	Fairhaven, Mass.	3	4A	1,636	12-74	6-76			
	Salem, Mass.	3	4A	1,000	4-75	9-76			
	Cambridge, Mass.	-	ESS	80	1975	1977			
N.Y.	White Plains 4	3	4A	954	6-71	10-73	X		
	Garden City 1	3	4A	961	9-72	10-73	X		
	Williamsburg 1	4	ESS	560	1Q-73	2Q-74	X		
	New York 11	3	4A	1,000	4-73	4-74			
	W. 42 St. 1	4	ESS	400	2Q-73	3Q-74	X		
	W. 42 St. 2	4	ESS	500	1Q-74	2Q-75	X		
	Poughkeepsie	3	4A	250	1Q-74	2Q-75	X		
	Williamsburg 2	4	ESS	500	1Q-74	2Q-75	X		
	East Meadow	3	4A	835	1Q-74	5-75			
	New York 12	3	4A	1,235	7-74	9-75			
	Bronx	4	ESS	500	1Q-75	2Q-76	X		
	Elmira 2	4	4A	200	1Q-75	2Q-76	X		
	New York 13	3	4A	935	1Q-75	6-76			
	New York 4E	2	ESS	150	1974	1976			
	Mount Vernon	4	ESS	300	2Q-76	3Q-77	X		
	Albany 3	2	4A	300	1Q-76	3Q-77	X		
	New York 7E	2	ESS	170	1976	1977			
	White Plains 5	-	ESS	110	1976	1977			
N.J.	Newark 3	3	4A	657	3-72	5-73			
	Hamilton Square	3	4A	836	6-73	10-74			
	Rochelle Park 4	4	4A	936	1-74	6-75			
	Freehold	4	4A	936	12-74	5-76			
	Rutherford	4	4A	1,200	1-75	6-76			
	Irvington	4	4A	1,150	1-76	6-77			
	Newark	-	ESS	80	1976	1977			
	Pleasantville	3	ESS	80	1976	1977			
PA.	Philadelphia 3	3	4A	968	12-72	6-74			
	Wilmington, Del.	3	4A	533	3-74	6-75	X	X	
	Wayne 2	3	4A	630	12-74	6-76			
	Pittsburgh 3	-	ESS	80	1975	1977			
C.&P.	Baltimore 9, Md.	3	4A	627	10-72	5-74			
	Roanoke, Va.	3	4A	700	11-73	5-75			
	Richmond 2, Va.	4	4A	850	11-74	5-76	X		
	Washington 6, D.C.	3	4A	1,636	2-75	5-76			
SO.	Pensacola, Fla.	4	4A	311	1-72	5-73			
	Atlanta 3, Ga.	3	4A	221	1-73	1-74			
	Gainesville, Fla.	3	4A	434	6-73	8-74			
	Gastonia, N.C.	3	4A	714	12-73	3-75	X	X	
	Winston-Salem, N.C.	3	4A	530	1Q-74	4-75	X	X	
	Macon, Ga.	2	4A	834	12-73	5-75	X		
	Greenville, S.C.	3	4A	687	2-74	6-75	X		
	Ojus 2, Fla.	4	4A	936	6-74	8-75	X		
	West Palm Beach, Fla.	3	4A	630	6-74	9-75			
	Panama City, Fla.	3	4A	380	11-74	12-75			
	Savannah	4	4A	500	12-74	5-76	X		
	Charleston, S.C.	4	4A	635	3-75	7-76	X	X	
	Asheville, N.C.	3	4A	530	4Q-75	1Q-77	X	X	
	Augusta, Ga.	4	4A	505	12-75	5-77	X		

Chart 5

NEW CONTROL SWITCHING POINTS
AND OTHER 4A AND XBT OFFICES
IN SERVICE 1973-77
(BASED ON APRIL, 1972 CONSTRUCTION PROGRAM VIEW)

Co.	Location	Switching Class	Type Switching Eqpt.	Frames	Dates		CAMA	ANI	
					Ship	Service			
SO CN	Shreveport (Main), La.	3	4A	722	12-72	3-74	X	X	
	Decatur, Ala.	3	4A	459	1-73	4-74	X		
	Monroe, La.	4	4A	459	4-74	7-75	X	X	
	Montgomery, Ala.	3	4A	550	1Q-75	2Q-76			
	Chattanooga (9 St.) Tenn. (Replaces Chatt. Main XBT)	4	4A	550	4-75	5-77	X		
	Nashville, Tenn.	-	ESS	80	1975	1977			
	Louisville, Ky.	2	ESS	70	1976	1977			
OHIO	Akron 2	3	4A	459	7-72	11-73			
	Youngstown 2	3	4A	281	1-74	4-75			
	Columbus 2	-	4A	375	1-75	2-76			
MICH.	Traverse City 1	4	XBT	237	7-72	6-73	X		
	Detroit 2A	4	4A	851	9-72	11-73			
	Kalamazoo 2	3	4A	425	1-73	6-74			
	Saginaw 2	3	4A	375	8-73	12-74			
	Lansing 2	3	4A	400	1Q-74	2Q-75			
	Flint 2	3	4A	400	1Q-76	2Q-77			
IND.									
WISC.	Waukesha 2	3	4A	551	1-72	5-73			
	Madison 2	3	4A	585	8-74	1-76			
ILL.	Peoria	3	4A	496	6-72	8-73			
	Rock Island	4	XBT	246	1-73	9-73	X	X	
	Northbrook 2	4	4A	1,091	1-73	4-74			
	Chicago 7	HVT	ESS	700	6-73	7-74	X		
	Rockford 2	3	XBT	133	11-73	7-74	X	X	
	Collinsville	2	4A	834	1-74	4-75	X		
	Joliet	4	XBT	200	1-76	10-76	X	X	
N.W.	Grand Forks, N.D.	3	XBT	214	1-73	12-73	X		
	Fargo 1, N.D.	2	4A	700	3-74	6-75	X		
	Minneapolis 3, Minn.	4	4A	690	1Q-74	2Q-75	X		
	Davenport 1, Iowa	3	4A	515	4-74	7-75	X		
	Sioux Falls, S.D.	3	4A	700	12-75	4-77	X	X	
S.W.	Longview, Tex.	3	4A	466	8-71	1-73	X	X	
	Corpus Christi, Tex.	3	4A	579	5-72	6-73	X	X	
	Wichita Falls, Tex.	3	XBT	230	5-73	3-74	X	X	
	Austin Greenwood, Tex.	3	4A	860	1-73	4-74	X	X	
	Hou. 3 (Weslayan), Tex.	3	4A	1,200	7-73	11-74	X	X	
	Lawton, Okla.	3	4A	270	2-74	4-75			
	Dallas 3, Tex.	3	4A	1,502	12-73	4-75	X		
	San Antonio 2, Tex.	3	4A	819	1-74	5-75	X	X	
	Midland Mutual, Tex.	3	4A	543	11-74	2-76	X	X	
	Waco, Tex.	3	4A	457	1-75	3-76	X	X	
	Okla. City 2, Okla.	4	4A	300	1-75	6-76	X		
	Kansas City 2, Mo.	2	ESS	110	4Q-74	2Q-76	X	X	
	Springfield, Mo.	3	ESS	500	4Q-74	2Q-76	X		
	Lubbock, Tex.	3	4A	850	5-75	8-76	X	X	
	Amarillo 2, Tex.	2	4A	950	7-75	9-76	X	X	
	Beaumont (Replaces XBT)	3	4A	300	7-76	11-77	X	X	
	St. Louis 3, Mo.	3	ESS	80	1975	1977			

Chart 5

NEW CONTROL SWITCHING POINTS
AND OTHER 4A AND XBT OFFICES
IN SERVICE 1973-77
(BASED ON APRIL, 1972 CONSTRUCTION PROGRAM VIEW)

Co.	Location	Switching Class	Type Switching Eqpt.	Frames	Dates		CAMA	ANI	
					Ship	Service			
MTN.	Denver 4, Colo.	4	4A	784	1-73	4-74			
	Tucson, Ariz.	3	4A	854	2-73	6-74			
	Boise-Main 2, Idaho	3	4A	768	1-74	4-75	X	X	
	Mesa, Ariz.	4	4A	835	7-74	10-75			
	Greely, Colo.	3	4A	500	1974	1975	X		
	Peoria, Colo.	4	4A	1,000	1974	1976	X		
	Provo, Utah	3	4A	515	1-75	5-76	X	X	
	Twin Falls, Idaho	4	XBT	26 New	6-75	4-76	X	X	
	Idaho Falls, Idaho	4	XBT	0 New	-	4-76	X	X	
	El Paso 2, Tex.	2	4A	700	1Q-76	2Q-77			
	Denver 5, Colo.	4	ESS	80	1975	2Q-77			
PNB	Seattle 2, Wash.	3	4A	582	7-72	11-73	X	X	
	Portland 2, Ore.	3	4A	403	9-72	1-74			
PAC.	Hayward, Cal.	3	4A	600	12-71	3-73	X	X	
	Reno 3, Nev.	2	4A	399	3-72	5-73			
	Gardena (2IT), Cal.	3	4A	1,356	1-72	5-73			
	Oakland-Franklin, Cal.	3	4A	1,179	12-71	6-73	X		
	Anaheim 2, Cal.	3	4A	551	1-73	1-74			
	San Fran.-Folsom, Cal.	4	4A	614	12-72	3-74	X		
	Stockton, Cal.	2	4A	275	1-73	4-74			
	Sherman Oaks 3, Cal.	4	4A	1,164	11-72	10-74			
	Santa Rosa, Cal.	2	4A	292	1-74	1-75			
	Gardena (3IT), Cal.	4	4A	678	1-74	4-75			
	Sacramento 2, Cal.	2	4A	321	6-74	12-75			
	Redwood City, Cal.	4	4A	500	8-75	2-77			
	Walnut Creek, Cal.	4	4A	954	12-75	3-77	X		
	Salinas, Cal.	3	4A	440	12-75	4-77			
	Glendale, Cal.	3	4A	1,514	9-75	4-77			
	Riverside, Cal.	3	4A	526	1-76	4-77			
S.N.E.	Hartford 3, Conn.	3	4A	949	4-72	9-73	X		
	Bridgeport 4, Conn.	3	4A	886	11-73	4-74	X		
CIN.	Cincinnati 2, Ohio	3	4A	581	1-75	4-76			
CAN.	Ottawa 2	3	4A			4-73	X	X	
	Thunder Bay	3	SP1			1-74	X	X	
	Oshawa	4	SP1			4-75	X	X	
	St. Catherines	4	SP1			3-76	X	X	
	Montreal 3	4	4A			4-73	X		
	London 2	3	4A			3-76			
	Dryden	4	SP1			3-77	X	X	

Dates - The above ship and service dates are those indicated by the Companies in the April, 1972 Construction Program View. These in no way imply a firm schedule as ship and complete dates must be negotiated with the WECO in the usual manner.

Engrg. Responsibility - C = Associated Company
L = Long Lines

Chart 6

CROSSBAR TANDEMS IN SERVICE - END OF 1972
(BASED ON APRIL 1972 CONSTRUCTION PROGRAM)

Location	Service Date	Class+	TSP	CAMA	ANI	6-Digit Translation
NEW ENGLAND						
Bangor, Me.	10-69	4		X		
Boston (Dorchester)	1-64	4		X	X	X
(Harrison)	6-65	4	X	X	X	X
(Metro)	6-49	4	X			
(Malden)	12-67	4				X
(Newton)	6-55	4				
Brockton, Mass.	6-63	4		X		X
Fall River, Mass.	5-64	3		X	X	X
Framingham, Mass.	1-65	4		X	X	X
Lawrence, Mass.	11-60	3		X	X	X
Manchester, N.H. 1	6-63	3		X	X	X
Portland, Me.	4-62	3		X	X	X
Providence 1 (*), R.I.	9-56	3C		X	X	X
Providence (*), R.I.	3-49	4C				
White River Jct., Vt.	11-61	3		X		X
Worcester, Mass.	11-59	4		X	X	X
Lewiston, Me.	6-72	4		X		
Boston 17, Mass.	10-72	3		X		
Boston CAMA, Mass.	-	4		X		
NEW YORK						
- Upstate						
Albany 1	12-61	3C		X	X	X
Binghamton 1	6-59	3		X	X	X
Buffalo Erie	10-48	4C				
Buffalo Frontier	11-61	4				
Rochester 1 (Non-Bell)	3-58	4		X		X
Rochester 2 (Non-Bell)	4-69	4		X	X	X
Utica	10-63	4		X	X	X
Binghamton 2	5-72	3		X		
- Manhattan						
Amsterdam 1 (#)	8-48	L				
Amsterdam 2 (#)	11-59	4				X
Midtown 1 (#)	9-62	4				X
Midtown 2 (#)	9-64	4				X
Borough 3 (*)	10-52	3				
Borough 4 (*)	4-55	3				
City (#)	9-56	L				
Gotham 8 (#)	6-48	4				
Gotham 9 (#)	6-50	4				
Interzone (#)	10-41	L				
Chelsea 1 (*)	8-69	4C				X
Chelsea 2 (*)	8-69	4C				X
Connecticut	7-52	3				
Lexington	6-68	4C				X
Tenth Ave. 1 (#)	12-63	4				X
Tenth Ave. 2 (#)	8-65	3	X	X	X	X
Tenth Ave. 3 (#)	10-67	3		X	X	X
Vesey 1 (*)	10-49	4				X
Vesey 2 (*)	9-50	4				X
Vesey 3 (*)	9-54	4			X	
West St. 4 (*)	9-59	3		X	X	X
West St. 5 (*)	10-63	3	X	X	X	X
York 1 (#)	11-47	L				
York 2 (#)	10-51	L				
E-97th St. 4 DID	7-71	4				
West St. 6	5-72	3		X		
- Mid-State						
Bronx 1 (*)	2-60	3C		X	X	X
Bronx 2 (*)	7-64	3C	X	X	X	X
Tremont 1 (*)	7-63	4C				X
Tremont 2 (*)	11-65	4C				X
Mt. Kisco	3-58	3C		X	X	X
Mt. Vernon 1 (#)	10-49	4C				
Mt. Vernon 2 (#)	12-68	L				X
White Plains 1	3-50	4C				
Nyack	5-59	3C		X	X	X
Monticello	3-65	4	X	X	X	X
Poughkeepsie	11-65	3		X	X	X

Location	Service Date	Class+	TSP	CAMA	ANI	6-Digit Translation
NEW YORK (Cont'd)						
- Brooklyn-Queens						
Albemarle Rd. 1 (*)	2-59	3C		X	X	X
Albemarle Rd. 2 (*)	11-66	3C	X	X	X	X
Brooklyn (*)	9-48	4C				
Bushwick 1 (#)	9-63	4C				X
Bushwick 2 (#)	3-67	4C				X
Kings 1 (*)	8-64	4C				X
Kings 2 (*)	11-68	4C				X
Forest Hills 1 (#)	11-59	3C		X	X	X
Forest Hills 2 (#)	3-64	3C	X	X	X	X
Jamaica	8-47	L				
Richmond Hill 1 (*)	3-54	4C				
Richmond Hill 2 (*)	7-58	4C				
Queens 1 (#)	8-65	4C				X
Queens 2 (#)	12-70	4				X
Staten Island	1-67	4C				X
- Nassau-Suffolk						
Hempstead 1 (*)	7-50	4C				X
Hempstead 2 (*)	6-57	4C	X			X
Hempstead 3 (*)	8-66	3C		X	X	X
Hempstead 4 (*)	8-66	3C				X
Deer Park 1	11-65	4C				X
Deer Park 2	7-71	4C				
NEW JERSEY						
Asbury Park	2-66	4				X
Atlantic City	4-61	3		X	X	X
Camden	3-53	3	X	X		X
Hackensack	6-53	4C		X		X
Jersey City (Bergen)	1-55	4			X	
Morristown	1-55	3		X	X	X
Newark (Essex 1) (#)	11-57	4				
(Essex 2) (#)	3-61	4		X	X	X
(Jersey 1) (*)	10-47	4				
(Jersey 2) (*)	11-52	4				
(TSP Tdm) (*)	7-65	4	X	X	X	X
New Brunswick	6-57	4		X	X	X
Paterson	7-50	4		X	X	X
Trenton	3-57	3		X	X	X
PENNSYLVANIA						
Allentown	10-61	4		X	X	X
Altoona	11-57	3		X	X	X
Greensburg	8-59	4		X		X
Lancaster	5-62	4		X	X	X
Phila. (East A) (#)	3-53	3			X	
(East B) (#)	6-60	3		X	X	X
(North A) (*)	8-55	4			X	
(North B) (*)	10-64	3	X	X	X	X
(West)	8-55	3		X	X	X
Pitts. (Tandem A) (#)	4-55	4			X	
(Tandem B) (#)	8-57	4		X	X	X
Reading	11-59	4		X	X	X
Tullytown	3-59	4		X	X	X
Wilkes-Barre	11-62	4		X	X	X
Williamsport	5-61	3		X	X	X
Wilmington, Del.	3-59	3		X	X	X

Chart 6

CROSSBAR TANDEMS IN SERVICE - END OF 1972
(BASED ON APRIL 1972 CONSTRUCTION PROGRAM)

Location	Service Date	Class+	TSP	CAMA	ANI	6-Digit Translation
CHES. & POT.						
Arlington, Va. (Local)	9-51	L				X
(Toll)	3-66	4				X
Baltimore 3	10-48	3		X	X	X
Baltimore 6	11-62	4C				X
Baltimore 7	12-67	L				X
Clarksburg, W.Va.	10-64	3		X	X	X
Hyattsville, Md.	10-51	4C				X
Norfolk 1, Va.	10-61	4		X	X	X
Roanoke, Va.	5-57	3		X	X	X
Silver Spring (Local)	9-51	L				X
(Toll)	5-64	4		X	X	X
Wash., D.C. (Dupont)	11-64	L				X
(Uptown)	1-49	4		X	X	X
(Mt. Pleasant)	10-66	L				X
SOUTHERN						
Asheville, N.C.	6-66	3		X		X
Atlanta, Ga	10-60	3C		X	X	X
Atlanta-Decatur, Ga.	9-64	L				
Charleston, S.C.	4-66	4		X	X	X
Ft. Lauderdale, Fla.	12-64	4		X		X
Greenville, S.C.	8-60	3		X	X	X
Macon, Ga.	8-67	3		X	X	X
Miami, Fla.	9-59	4		X	X	X
West Palm Beach, Fla.	11-66	4		X		X
Miami-Biscayne	7-72	L				
SOUTH CENTRAL						
Chattanooga, Tenn.	9-57	3		X		X
Lafayette, La.	11-60	3		X	X	X
Mobile, Ala.	5-65	3		X	X	X
Montgomery, Ala.	7-62	3		X	X	X
New Orleans 2, La.	12-62	4		X	X	X
Paducah, Ky.	5-60	3		X	X	X
Shreveport, La.	9-61	3		X	X	X
OHIO						
Akron	11-57	3		X	X	X
Canton	6-60	3		X		X
Clev. (Clearwater 1)	1-59	3C	X	X	X	X
(Clearwater 2)	7-69	3				
(Garfield)	2-55	3		X	X	X
(Henderson 1)	4-48	L				
(Henderson 2)	9-66	L				
Columbus	7-58	4C		X		
Youngstown	8-56	3		X	X	X
MICHIGAN						
Detroit (Bell)*	5-48	L				
(Cadillac)*	7-58	3C		X	X	X
(Trinity)	10-41	L				
(University)	6-59	4				X
(Woodward)*	12-53	4C		X	X	X
Flint	6-57	4		X	X	X
Grand Rapids 2	4-57	3		X	X	X
Jackson	7-67	3		X	X	X
Kalamazoo	11-65	3		X	X	X
Lansing	8-64	4		X		X
Pontiac	4-58	L		X	X	X
Saginaw	6-61	3		X	X	X

Location	Service Date	Class+	TSP	CAMA	ANI	6-Digit Translation
INDIANA						
Evansville	10-58	3		X	X	X
Indianapolis	10-70	L				X
South Bend 2	8-56	3		X	X	X
WISCONSIN						
Appleton	5-62	3		X	X	X
Madison	5-63	2		X	X	X
Milwaukee 2	11-48	3		X	X	X
(Fairway Dr.)	11-65	L				
Racine	5-65	3		X	X	X
ILLINOIS						
Centralia	7-61	2		X	X	
Champaign	5-59	3		X	X	
Chicago (Belle Plaine 1)	8-54	4				
(Belle Plaine 2)	12-61	L				
(Congress)	9-62	L				
(Franklin 1)	7-55	L				
(Franklin 2)	5-59	L				
(Kedzie 1)	10-58	4				
(Kedzie 2)	7-69	4				
(Stewart 1)	11-52	4				
(Stewart 2)	10-66	4				
(Wabash 1)	9-46	L				
(Wabash 2)	5-61	4				
(Morton Grove)	9-67	L				
Chicago 5	7-69	3		X		
Decatur	12-68	4		X		
Peoria 1	9-61	3		X		X
Rockford	12-61	3C		X	X	X
Alton	12-72	4		X	X	X
DeKalb		4				
NORTHWESTERN						
Bismarck, N.D.	4-70	3		X		X
Cedar Rapids, Ia.	12-66	4		X	X	X
Davenport, Ia.	10-58	3		X	X	X
Fargo, N.D.	4-59	2		X	X	X
Grand Island, Neb.	5-70	3		X		X
Omaha, Neb.	2-69	L				
Rapid City, S.D.	3-70	4		X	X	X
St. Paul, Minn.	8-57	4C		X	X	X
Sioux City, Ia.	6-60	3	X	X	X	X
Sioux Falls, S.D.	11-58	3		X	X	X
Waterloo, Ia.	6-61	3		X	X	X
SOUTHWESTERN						
Abilene, Tex.	4-69	3		X	X	X
Amarillo, Tex.	8-55	2		X	X	X
Austin, Tex.	7-66	3		X	X	X
Beaumont, Tex.	5-66	3	X	X	X	X
Ft. Smith, Ark.	11-66	4		X	X	X
Harlingen, Tex.	8-71	3		X	X	
Joplin, Mo.	6-62	3		X	X	X
Kansas City, Mo.	9-49	L				
Lubbock, Tex.	7-57	3		X	X	X
St. Louis 1, Mo. (Jefferson)	8-49	L				
St. Louis 2, Mo.	4-61	4C		X	X	
(Chestnut)	9-66	4	X	X	X	X
Salina, Kan.	9-56	3		X	X	X
Springfield, Mo.	12-64	4	X	X	X	
Sikeston, Mo.	11-68	3		X	X	
St. Joseph, Mo.	6-70	4		X	X	
Sweetwater, Tex.	3-57	2				X
Waco, Tex.	12-67	3	X	X	X	X

Chart 6

CROSSBAR TANDEMS IN SERVICE - END OF 1972

Location	Service Date	Class+	TSP	CAMA	ANI	6-Digit Translation
MOUNTAIN						
Billings, Mont.	11-61	2		X	X	X
Boise, Idaho	12-62	3		X	X	X
Denver, Colo.	4-60	4		X	X	X
El Paso, Tex.	8-62	4		X	X	X
Phoenix 2, Ariz.	12-56	4		X	X	X
Tucson, Ariz.	11-61	3		X	X	X
Grand Jct., Colo.	3-68	3		X		X
PACIFIC NW						
Eugene, Ore.	6-65	4		X	X	X
Seattle (East), Wash.	9-54	L				
(Emerson)	10-58	L				
(Mutual)	4-48	3				
Tacoma, Wash.	5-64	3		X	X	X
Yakima, Wash.	8-58	3		X	X	X
PACIFIC						
Alhambra, Cal.	9-57	L				
Anaheim, Cal.	6-57	3		X	X	X
Bakersfield, Cal.	4-58	3		X	X	X
Compton, Cal.	12-58	3				X
Concord, Cal.	7-67	3		X	X	X
El Monte, Cal. 2/1960	~~3-60~~	3				X
Eureka, Cal.	1-59	4		X		X
Fresno, Cal.	10-56	3		X	X	X
Hollywood 3T#, Cal.	1-50	L				
Hollywood 4T#, Cal.	10-68	L				
Los Angeles 5T, Cal.	1-48	L				
Los Angeles 6T, Cal.	8-55	L				
Los Angeles 17T*, Cal.	11-49	L				
Los Angeles 18T*, Cal.	5-67	L				
Modesto, Cal.	6-62	3		X		X
Oakland (Franklin O)#	4-54	4		X	X	X
Oakland 1#, Cal.	1-42	L				
Oakland 4, Cal.	5-63	3		X	X	X
Oceanside, Cal.	5-63	4		X	X	X
Palo Alto, Cal.	7-60	4		X	X	X
Redding, Cal.	8-71	3		X		X
Reno, Nev.	1-60	3		X	X	X
Sacramento 2, Cal.	7-58	3		X	X	X
Salinas, Cal.	4-64	3		X	X	X
San Diego 2, Cal.	4-56	3		X	X	X

Location	Service Date	Class+	TSP	CAMA	ANI	6-Digit Translation
PACIFIC (Cont'd)						
San Francisco (Onon O)	8-54	4				X
(Bush O)*	12-41	4				X
(Bush 1)*	5-49	4		X	X	X
San Francisco 5(Mission)	5-65	4	X	X	X	X
San Francisco 6(Juniper)	8-59	4	X	X	X	X
San Jose 2, Cal.	12-51	3		X	X	X
San Rafael, Cal.	8-62	3		X		X
Santa Rosa, Cal.	6-57	3		X		X
Sherman Oaks 1, Cal.	12-58	3				X
Stockton, Cal.	8-57	2		1-73		X
Redding, Cal.	1-72	3		X		X
Chico, Cal.	12-72	3		X		X
SO. NEW ENGLAND						
Bridgeport, Conn.	3-59	4		X	X	X
Hartford 1, Conn.	6-56	4		X	X	X
Hartford 2, Conn.	8-65	4	X	X	X	X
Meriden, Conn.	10-58	4		X	X	X
New Haven 2, Conn.	4-57	4		X	X	X
New London, Conn.	5-62	4		X	X	X
Norwalk, Conn.	12-70	4		X	X	X
Stamford, Conn.	9-56	4		X	X	X
Waterbury, Conn.	11-57	4		X	X	X
CINCINNATI						
Cincinnati	10-49	4C		X	X	X
(St. Bernard)	5-63	L				X
CANADA (Bell)						
Barrie	5-64	4		X	X	X
Hamilton	2-61	4		X	X	X
Kitchener	9-64	4		X	X	X
London	8-60	3		X	X	X
Montreal	3-60	4		X	X	X
Ottawa	5-63	3		X	X	X
Quebec	9-63	2		X	X	X
Sherbrooke	3-66	3		X	X	X
Sudbury	12-64	3		X	X	X
Toronto	8-58	4		X	X	X
Windsor	5-62	4		X	X	X
CANADA (Non-Bell)						
Calgary	4-59	2		X	X	X
Regina	11-55	1		X		X
St. John	5-62	2		X		X
St. Stephen		4				

LOCATION: If two or more units (marker groups) with different names are located in the same building, these are indicated by alternating symbols (*) or (#) after the names.

+ SWITCHING CLASSIFICATION: If Local and Toll traffic is handled, the system is classed here as "C" Local - only systems are noted as "L".

Chart 7

NO. 5 CROSSBAR CSP'S IN SERVICE-END OF 1972

(All Class 3)

Location	Service Date	Type Mkr.*	CAMA	ANI
New York				
Plattsburg	1959	W	X	
Pennsylvania				
Warren	1959	W		
Warrington	1957	W	X	
Westchester	1956	B	X	
Ches. & Pot.				
Wheeling, W. Va.	1956	W	X	
Southern				
Chipley, Fla.	1956	W	X	
Laurinburg, N. C.	1957	W	X	
Thomasville, Ga.	1956	W	X	X
Waycross, Ga.	1957	W	X	X
South Central				
Danville, Ky.	1960	W	X	
Greenwood, Miss.	1958	W	X	X
Humboldt, Tenn.	1957	W	X	
Madisonville, Ky.	1957	W	X	X
Paintsville, Ky.	1957		X	
Tupelo, Miss.	1956	B	X	
Winchester, Ky.	1958	W	X	X
Michigan				
Escanaba	1958	W		
Wisconsin				
Oshkosh	1958	W	X	
Stevens Point	1957	W	X	
Watertown	1970		X	
Northwestern				
Mason City, Ia.	1957	W	X	X
Owatonna, Minn.	1961	W	X	
Sidney, Neb.			X	
St. Cloud, Minn.	1955	B	X	
Virginia, Minn	1956	F	X	X
Wadena, Minn.	1958	W	X	
Willmar, Minn.	1954	F	X	
Windom, Minn.	1958	W	X	X

Location	Service Date	Type Mkr.*	CAMA	ANI
Southwestern				
Clinton, Okla.	1959	W	X	X
Durant, Okla.	1961	W	X	X
Enid, Okla.	1955	B	X	X
Greenville, Texas	1955	F	X	X
Lawton, Okla.	1956	B		
Moberly, Mo.	1959	W	X	X
Parsons, Kan.	1961	W	X	X
Mountain				
Casper, Wyo.	1964	W	X	X
Great Falls, Mont.	1962	W	X	X
Helena, Mont.	1955	F	X	
Pocatello, Ida.	1958	W	X	X
Roswell, N.M.	1955	B	X	
Pacific N.W.				
Astoria, Ore.	1957	W	X	X
Bellingham, Wash.	1958	W		
Bend, Ore.	1956	B	X	X
Medford, Ore.	1962	W	X	X
Pendleton, Ore.	1957	W	X	X
Pacific				
El Centro, Cali.			X	
San Luis Obispo, Cali.	1951	W		
Canada (Bell)				
Chicoutimi, Quebec	1959	W		
North Bay, Ont.	1959	W		
Non Bell				
Newcastle, N.B.	1959	W	X	X
Rimouski, Quebec	1967	W	X	
St. John's, Nfld.	1956	W	X	X

* W - Wire Spring, F - Flat Spring, B - Both wire and flat spring markers

Chart 8

No. 5 CROSSBAR TP's IN SERVICE END OF 1972
(ALL CLASS 4)

Co.	Location	Co.	Location	Co.	Location
N.E.	Ayer, Mass.		Mt. Holly		Cartersville, Ga.
	Gardner, Mass.		Dover		Griffin, Ga.
	Marlboro, Mass.		Washington		Newnan, Ga.
	Milford, Mass.		Asbury Park		Morgantown, N.C.
	Plymouth, Mass.		Freehold		Newton, N.C.
	Salem, Mass.				Salisbury, N.C.
	Walpole, Mass.	Pa.	Coatesville		Goldsboro, N.C.
	Falmouth, Mass.		Kennett Square		Orangeburg, S.C.
	Hyannis, Mass.		Lansdale 5XB		De Land, Fla.
	Wareham, Mass.		Norristown 5XB		Lake City, Fla.
	Northampton, Mass.		Pottstown		Homestead, Fla.
	Pittsfield 2, Mass.		Warrington		Cocoa, Fla.
	Newport, R.I.		Pottsville		Fort Pierce, Fla.
	Woonsocket, R.I.		Stroudsburg		Melbourne, Fla.
	Portsmouth, N.H.		Bloomsburg		Sanford, Fla.
	Dover, N.H.		Du Bois		Titusville, Fla.
	Keene, N.H.		Connellsville		
	Laconia, N.H.		Rochester	SOCN	Decatur, Ala.
	Burlington 2, Vt.		Sharon		Huntsville, Ala.
			Washington		Sheffield, Ala.
N.Y.	Kingston		Dover, Del.		Tuscaloosa, Ala.
	Newburgh				Crowley, La.
	Amsterdam	C&P	Bel Air, Md.		Minden, La.
	Catskill		Cambridge, Md.		Monroe, La.
	Troy		Chestertown, Md.		Ruston, La.
	Malone		Cumberland, Md.		Covington, La.
	Saranac Lake		Easton, Md.		Hammond, La.
	Hornell		Elkton, Md.		Houma, La.
	Ithaca		Hagerstown, Md.		Gulfport, Miss.
	Oneonta		Havre du Grace, Md.		Columbus, Miss.
	Batavia		Westminster, Md.		Mc Comb, Miss.
	Dunkirk		Danville, Va.		Grenada, Miss.
	Olean		Fredericksburg, Va.		Columbia, Tenn.
	Geneva		Petersburg, Va.		Lebanon, Tenn.
	Herkimer		Norton, Va.		Shelbyville, Tenn.
	Newark		Leesburg, Va.		Athens, Tenn.
	Ogdensburg		Winchester, Va.		Harriman, Tenn.
	Oneida		Elkins, W. Va.		Morristown, Tenn.
	Oswego		Fairmont, W. Va.		Dyersburg, Tenn.
	Potsdam		New Martinsville, W.Va.		Union City, Tenn.
	Rome		Weirton, W. Va.		Middlesboro, Ky.
	Watertown		Lewisburg, W. Va.		Frankfort, Ky.
	Peekskill		Logan, W. Va.		Shelbyville, Ky.
	Riverhead		Williamson, W. Va.		Mayfield, Ky.
	Southhampton				
		SO.	Cordele, Ga.	OH.	Piqua
N.J.	Penns Grove		Dublin, Ga.		Coshocton
	Vineland		Millen, Ga.		Gallipolis
	Woodbury		Bainbridge, Ga.		Ironton
	Hammonton		Valdosta, Ga.		Lancaster
	Burlington		Brunswick, Ga.		Marietta

Chart 8

NO. 5 CROSSBAR TP's IN SERVICE END OF 1972
(ALL CLASS 4)

Co.	Location	Co.	Location	Co.	Location
OH.	Washington (Ct. Hse.)		Vandalia		Chanute, Kan.
	Kent		Belleville		Coffeyville, Kan.
	Alliance				Independence, Kan.
	East Liverpool	N.W.	Bemidji, Minn.		Pittsburg, Kan.
	Findlay		Shakopee, Minn.		Atchison, Kan.
	Sandusky		Crookston, Minn.		Lawrence, Kan.
	Tiffin		Thief River Falls, Minn.		Leavenworth, Kan.
			Anoka, Minn.		Olathe, Kan.
MICH	Monroe		Ames, Ia.		Ottawa, Kan.
	Niles		Boone, Ia.		Arkansas City, Kan.
	Iron Mountain		Creston , Ia.		El Dorado, Kan.
	Traverse City		Webster City, Ia.		Emporia, Kan.
			Charles City, Ia.		Mc Pherson, Kan.
IND.	Crown Point		Clinton, Ia.		Newton, Kan.
	Hammond		Ft. Madison, Ia.		Winfield, Kan.
	Crawfordsville		Iowa City, Ia.		Parsons, Kan.
	Kokomo		Keokuk, Ia.		Abilene, Kan.
	New Castle		Muscatine, Ia.		Concordia, Kan.
	Vincennes		Oelwein, Ia.		Ada, Okla.
	Auburn		Spencer, Ia.		Ardmore, Okla.
	Huntington		Storm Lake, Ia.		Chickasha, Okla.
			Grafton, N.D.		Norman, Okla.
WIS.	Baraboo		Jamestown, N.D.		Shawnee, Okla.
	Berlin		Valley City, N.D.		Stillwater, Okla.
	Fond du Lac		Aberdeen, S.D.		Elk City, Okla.
			Deadwood, S.D.		Altus, Okla.
ILL.	La Salle		Rapid City, S.D.		Duncan, Okla.
	Morris		Watertown, S.D.		Bartlesville, Okla.
	Sterling		Winner, S.D.		Claremore, Okla.
	Woodstock		Fremont, Neb.		Cushing, Okla.
	Arlington Hgts.		Norfolk, Neb.		Mc Alester, Okla.
	Barrington		Shenandoah, Ia.		Okmulgee, Okla.
	Blue Island		Atlantic, Ia.		Hereford, Tex.
	Chicago Hgts.		Mc Cook, Neb.		Waxahachie, Tex.
	Downers Grove		North Platte, Neb.		Cisco, Tex.
	Elgin				Graham, Tex.
	Geneva	S.W.	Flat River, Mo.		Wharton, Tex.
	Highland Park		Hannibal, Mo.		Beeville, Tex.
	La Grange		Mexico, Mo.		Seguin, Tex.
	Libertyville		St. Charles, Mo.		Sinton, Tex.
	Lombard		Chillicothe, Mo.		
	Riverdale		Sedalia, Mo.	MTN.	Miles City, Mont.
	Waukegan		Blytheville, Ark.		Logan, Utah
	Wheaton		Fayetteville, Ark.		Price, Utah
	Beardstown		Forrest City, Ark.		Provo, Utah
	Quincy		Jonesboro, Ark.		Vernal, Utah
	Danville		Magnolia, Ark.		Idaho Falls, Ida.
	Canton		Mc Gehee, Ark.		Twin Falls, Ida.
	Rock Island		Pine Bluff, Ark.		Boulder, Colo.
	Collinsville		Rogers, Ark.		Ft. Collins, Colo.
	Mount Vernon		West Memphis, Ark.		Greeley, Colo.

Chart 8

NO. 5 CROSSBAR TP's IN SERVICE END OF 1972
(ALL CLASS 4)

Co.	Location	Co.	Location	Co.	Location
MTN.	Sterling, Colo.		Walkerton, Ont.		
	Durango, Colo.		Chapleau, Ont.		
	Alamogordo, N.		Sault Ste. Marie, Ont.		
	Prescott, Ariz.		Geraldton, Ont.		
			Marathon, Ont.		
PNB	Salem, Ore.				
	Longview, Ore.	Non-	Donnacona, Que.		
	Aberdeen, Wash.	Bell	Montmagny, Que.		
	Auburn, Wash.		Moncton, N.B.		
	Olympia, Wash.		Sydney, N.S.		
	Walla Walla, Wash.				
PAC	Yuba City, Cal.				
	Red Bluff, Cal.				
	Fairfield-Suisun, Cal.				
	Santa Rosa, Cal.				
	Santa Cruz, Cal.				
	Jackson, Cal.				
	Dinuba, Cal.				
	Rialto, Cal.				
	Newhall, Cal.				
	Escondido, Cal.				
SNE	Danbury, Conn.				
	Danielson, Conn.				
	Stamford, Conn.				
CIN.	Batavia, Ohio				
CAN (Bell)	St. Anne de Bellevue Que.				
	St. Jerome, Que.				
	Valleyfield, Que.				
	St. Felicien, Que.				
	Lac Megantic, Que.				
	Brockville, Ont.				
	Kingston, Ont.				
	Smiths Falls, Ont.				
	Brampton, Ont.				
	Fort Erie, Ont.				
	Oshawa, Ont.				
	Peterborough, Ont.				
	Brantford, Ont.				
	Guelph, Ont.				
	Orangeville, Ont.				
	Stratford, Ont.				
	Chatham, Ont.				
	Owen Sound, Ont.				
	St. Thomas, Ont.				
	Simcoe, Ont.				
	Stratford, Ont.				

Chart 9

BELL SYSTEM

STEP-BY-STEP CAMA SYSTEMS IN SERVICE - END OF 1972

Company	Location	ANI
N.E.	Augusta, Me.	X
	Brattleboro, Vt.	X
	Concord, N. H.	X
	Fitchburg, Mass.	X
	St. Johnsbury, Vt.	X
	Littleton, N. H.	X
	Montpelier, Vt.	X
	Newburyport, Mass.	X
	Rockland, Me.	X
	Rutland, Vt.	
	Waterville, Me.	X
N.Y.	Glens Falls	
Pa.	Bradford	X
	Easton	X
	Hazleton	
	New Castle	X
C&P	Beckley, W. Va.	X
	Huntington, W. Va.	X
	Lynchburg, Va.	X
	Martinsburg, W. Va.	X
	Newport News, Va.	X
	Parkersburg, W. Va.	X
	Staunton Va.	X
So.	Augusta, Ga.	
	Delray Beach, Fla.	
	Daytona Beach, Fla.	
	Gainesville Fla.	
	Panama City, Fla.	
	Pensacola, Fla.	
	Savannah, Ga.	

Company	Location	ANI
Ohio	Ashtabula	
	Barnesville	X
	Hillsboro	X
	Middletown	X
	New Lexington	X
	Springfield	X
	Steubenville	X
	Upper Sandusky	X
	Winchester	X
	Xenia	X
	Zanesville	X
Ind..	Columbus	X
Ill.	Aurora	X
	Gary, Ind.	X
	Joliet	X
	Kankakee	X
	Peoria	X
Wisc.	Ashland	X
	Eau Claire	X
	Green Bay	X
	Hudson	X
	Janesville	
	Marinette	
	Rhinelander	X
	Sheboygan	X
	Superior	X
N.W.	Duluth, Minn.	X
	Marshall, Minn.	X
	Sheldon, Iowa	X

Company	Location	ANI
S.W.	Brenham, Texas	X
	Cleveland, Texas	X
	El Dorado, Ark.	X
	Garden City, Kan.	X
	Great Bend, Kan.	X
	Hays, Kan.	X
	Hope, Ark.	X
	Hutchinson, Kan.	X
	Liberal, Kan.	X
	Manhattan, Kan.	X
	Midland, Tex.	X
	Nacogdoches, Tex.	X
	Newport, Ark.	X
	Odessa, Texas	X
	Ponca City, Okl.	X
	Texas City, Texas	X
	Topeka, Kan.	X
	Woodward, Okl.	X
Mtn.	Artesia, N. M.	
	Cedar City, Utah	
	Clovis, N. M.	
	Deming, N. M.	
	Farmington, N. M.	
	Galleys, N. M.	X
	Glendive, Mont.	X
	Globe, Ariz.	X
	Las Cruces, N. M.	X
	Sante Fe, N. M.	X
	Rock Springs, Wyo.	X
Pac.	Salida, Cal.	X
	Ventura, Cal.	X

STEP-BY-STEP CSP's IN SERVICE - END OF 1972

(All Class 3)

Company	Location	Init. Serv.	CAMA	ANI
Wisc.	Janesville	'49	X	
SW	Longview, Tex.	'53		
PNW	Klamath Falls, Ore.	'40		X
	Roseburg, Ore.	'51		X
Canada (Non Bell)	Abbotsford	'53	X	
	Brandon	'52		X
	Campbell River	'55	X	
	Corner Brook	'47		
	Cranbrook	'55		
	Dauphin	'52		

Company	Location	Init. Serv.	CAMA	ANI
	Gander	'59		
	Halifax 1	'51		
	Kamloops	'61	X	X
	Nanaimo	'60	X	X
	Nelson	'62	X	X
	New Westminister	'56	X	
	Prince George	'58		
	Terrace	'68	X	X
	Vancouver 1	'59	X	
Canada (Bell)	Thunder Bay	'54	X	

Chart 10

BELL SYSTEM
STEP-BY-STEP TP's IN SERVICE END OF 1972
(ALL CLASS 4)

Co.	Location	Co.	Location	Co.	Location
NE	Fitchburg, Mass.		Elmira	SO	Gastonia, N.C.
	New Bedford, Mass.		Lockport		Lenoir, N.C.
	Taunton, Mass.		Niagara Falls		Rutherfordton, N.C.
	Haverhill, Mass.		Auburn		Shelby, N.C.
	Lowell, Mass.		Sodus		Statesville, N.C.
	Newburyport, Mass.				Wilmington, N.C.
	Greenfield, Mass.	NJ	Wildwood		Hendersonville, N.C.
	North Adams, Mass.				Burlington, N.C.
	Pittsfield 1, Mass.	PA	Allentown		Durham, N.C.
	Claremont, N.H.		Easton		Winston-Salem, N.C.
	Concord, N.H.		Lansdale, SxS		Aiken, S.C.
	Conway, N.H.		Lancaster		Florence, S.C.
	Exeter, N.H.		Lebanon		Sumter, S.C.
	Littleton, N.H.		Lewiston		Anderson, S.C.
	Nashua, N.H.		Hazilton		Spartanburg, S.C.
	Petersborough, N.H.		Wilkes-Barre, SxS		Albany, Ga.
	Augusta, Me.		Shamokin		Americus, Ga.
	Bangor, Me.		Sunbury		Eastman, Ga.
	Bath, Me.		Norristown SxS		Ft. Valley, Ga.
	Biddeford, Me.		Bellefonte		Savannah, Ga.
	Calais, Me.		Clearfield		Vidalia, Ga.
	Dover Foxcroft, Me.		Butler		Hazlehurst, Ga.
	Ellsworth, Me.		Charlerois		Jesup, Ga.
	Farmington, Me.		Indiana		Athens, Ga.
	Houlton, Me.		New Castle		Augusta, Ga.
	Lewiston, Me.		New Kinsington		Carrollton, Ga.
	Norway, Me.		Uniontown		Columbus, Ga.
	Presque Isle, Me.		Bradford		Gainesville, Ga.
	Rockland, Me.		Georgetown, Del.		La Grange, Ga.
	Waterville, Me.				Marietta, Ga.
	Bellows Falls, Vt.	C&P	Beckley, W. Va.		Rome, Ga.
	Bennington, Vt.		Huntington, W. Va.		Brooksville, Fla.
	Brattleboro, Vt.		Montgomery, W. Va.		Daytona Beach, Fla.
	Burlington 1, Vt.		Parkersburg, W. Va.		Gainesville, Fla
	Middlebury, Vt.		Morgantown, W. Va.		Palatka, Fla.
	Montpelier, Vt.		Sutton, W. Va.		St. Augustine, Fla.
	Morrisville, Vt.		Martinsburg, W. Va.		Panama City, Fla.
	Rutland, Vt.		Frederick, Md.		Pensacola, Fla.
	St. Albans, Vt.		La Plata, Md.		Hollywood, Fla.
	St. Johnsbury, Vt.		Leonardtown, Md.		Key West, Fla.
	Narragansett, R.I.		Oakland, Md.		Belle Glade, Fla.
			Salisbury, Md.		Delray Beach, Fla.
NY	Cobleskill		Annapolis, Md.		
	Glens Falls		Culpeper, Va.	SOCN	Anniston, Ala.
	Greenwich		Lynchburg, Va.		Gadsden, Ala.
	Hudson		Newport News, Va.		Jasper, Ala.
	Schenectady		Staunton, Va.		Flomaton, Ala.
	Ticonderoga		Norfolk 2, Va.		Monroeville, Ala.
	Bath		Onancock, Va.		Opelika, Ala.
	Corning		Christiansburg, Va.		Selma, Ala.
	Cortland		Radford, Va.		Biloxi, Miss.

Chart 10

BELL SYSTEM
STEP-BY-STEP TP IN SERVICE END OF 1972
(ALL CLASS 4)

Co.	Location	Co.	Location	Co.	Location
SOCN	Hattiesburg, Miss.		Fremont	ILL	Joliet
	Laurel, Miss.		Mansfield		Kankakee
	Meridan, Miss.		Upper Sandusky		Aurora
	Natchez, Miss.				Springfield Main
	Clarksdale, Miss.	MICH	Port Huron		Decatur
	Cleveland, Miss.		Ann Arbor		Peoria 1
	Greenville, Miss.		Mt. Clemens		Alton
	Corinth, Miss.		Hillsdale		
	New Albany, Miss.		Bad Axe	NW	Lake Minnetonka, Minn.
	Alexandria, La.		Bay City		Cloquet, Minn.
	Bunkie, La.		Cadillac		Duluth, Minn.
	Eunice, La.		Holland		Little Falls, Minn.
	Lake Charles, La.		Big Rapids		Sauk Centre, Minn.
	New Iberia, La.		Reed City		Pine City, Minn.
	Opelousas, La.		Battle Creek		Red Wing, Minn.
	De Ridder, La.		Benton Harbor		Montevideo, Minn.
	Leesville, La.		Marquette		Ortonville, Minn.
	Many, La.		Sault St. Marie		Albert Lea, Minn.
	Winnfield, La.				Austin, Minn.
	Winnsboro, La.	IND	Gary		Fairbault, Minn.
	Baton Rouge, La.		Anderson		Northfield, Minn.
	Bogalusa, La.		Attica		Preston, Minn.
	Covington, La.		Frankfort		Rochester, Minn.
	Donaldsonville, La.		Marion		Winona, Minn.
	Morgan City, La.		Muncie		Luverne, Minn.
	Plaquemine, La.		Shelbyville		Marshall, Minn.
	Maysville, Ky.		Bloomington		Grand Rapids, Minn.
	Williamstown, Ky.		Clinton		Hibbing, Minn.
	Pikeville, Ky.		Columbus		Brainerd, Minn.
	Bowling Green, Ky.		New Albany		Detroit Lakes, Minn.
	Owensboro, Ky.				Fergus Falls, Minn.
	Henderson, Ky.	WISC	Ashland		Marshalltown, Ia.
	Hopkinsville, Ky.		Eau Claire SxS		Oskaloosa, Ia.
	Clarksville, Tenn.		Hudson		Ottumwa, Ia.
	Dickson, Tenn.		Rice Lake		Perry, Ia.
	Cleveland, Tenn.		Superior		Algona, Ia.
	Hernando, Tenn.		Marinette		Iowa Falls, Ia.
	Huntingdon, Tenn.		Marshfield		Burlington, Ia.
	Lexington, Tenn.		Rhinelander		Decorah, Ia.
			Wausau		Dubuque, Ia.
OHIO	Middletown		La Crosse		Independence, Ia.
	Springfield		Beloit		Vinton, Ia.
	Xenia		Green Bay		Sheldon, Ia.
	Barnesville		Sturgeon Bay		Minot, N.D.
	New Lexington		Manitowoc		Wahpeton, N.D.
	Steubenville		Sheboygan		Dickenson, N.D.
	Zanesville		Waukesha		Williston, N.D.
	Ashtabula		West Bend		Grand Forks, N.D.
	Painesville		Kenosha		Huron, S.D.
	Akron		Lake Geneva		Madison, S.D.
	Salem		Beaver Dam		Mitchell, S.D.

Chart 10

BELL SYSTEM
STEP-BY-STEP TP IN SERVICE END OF 1972
(ALL CLASS 4)

Co.	Location	Co.	Location	Co.	Location
NW	Mobridge, S.D.		Mc Kinney, Tex.		Glenwood Springs, Colo.
	Pierre, S.D.		Terrell, Tex.		Alamosa, Colo.
	Yankton, S.D.		Tyler, Tex.		Canon City, Colo.
	Carroll, Neb.		Paris, Tex.		La Junta, Colo.
	Council Bluffs, Neb.		Marshall, Tex.		Lamar, Colo.
	Missouri Valley, Neb.		Mt. Pleasant, Tex.		Trinidad, Colo.
	Red Oak, Neb.		Cleburne, Tex.		Deming, N.M.
	Chadron, Neb.		Vernon, Tex.		Farmington, N.M.
			Weatherford, Tex.		Gallup, N.M.
SW	Eldon, Mo.		Wichita Falls, Tex.		Las Cruces, N.M.
	Festus, Mo.		Mexia, Tex.		Las Vegas, N.M.
	Union, Mo.		Temple, Tex.		Raton, N.M.
	Cape Girardeau, Mo.		Brenham, Tex.		Santa Fe, N.M.
	Kennett, Mo.		Cleveland, Tex.		Artesia, N.M.
	Poplar Bluff, Mo.		Freeport, Tex.		Clovis, N.M.
	Arkadelphia, Ark.		Galveston, Tex.		Payette, Ida.
	Camden, Ark.		Hearns, Tex.		Lewiston, Ida.
	El Dorado, Ark.		Huntsville, Tex		Cedar City, Utah
	Helena, Ark.		Liberty, Tex.		Ogden, Utah
	Hope, Ark.		Nacogdoches, Tex.		Richfield, Utah
	Hot Springs, Ark.		Rosenberg, Tex.		Flagstaff, Ariz.
	Newport, Ark.		Texas City, Tex.		Globe, Ariz.
	Searcy, Ark.		Silsbee, Tex.		Yuma, Ariz.
	Dodge City, Kan.		Alice, Tex.		Bisbee, Ariz.
	Garden City, Kan.		Corpus Christi, Tex.		Nogales, Ariz.
	Great Bend, Kan.		Cuero, Tex.		
	Harper, Kan.		Eagle Pass, Tex.	PNB	Bremerton, Wash.
	Hutchinson, Kan.		Kingsville, Tex.		Centralia, Wash.
	Liberal, Kan.		Laredo, Tex.		Pt. Angeles, Wash.
	Pratt, Kan.		Uvalde, Tex.		Ephrata, Wash.
	Willington, Kan.		Victoria, Tex.		Pasco, Wash.
	Manhattan, Kan.		Taylor, Tex.		Wenatchee, Wash.
	Marysville, Kan.		Alpine, Tex.		Albany, Ore.
	Sabetha, Kan.		Big Spring, Tex.		Corvallis, Ore.
	Topeka, Kan.		Midland, Tex.		Eugene, Ore
	Colby, Kan.		Odessa, Tex.		Newport, Ore.
	Hays, Kan.				Salem SxS, Ore
	La Crosse, Kan.	MTN	Glasgow, Mont.		The Dalles, Ore.
	Norton, Kan.		Glendive, Mont.		Medford, Ore.
	Oakley, Kan.		Havre, Mont.		Baker, Ore.
	Plainsville, Kan.		Shelby, Mont.		
	Ponca City, Okla.		Butle, Mont.	PAC	Ely, Nev.
	Hobart, Okla.		Missoula, Mont.		Winnemucca, Nev.
	Hugo, Okla.		Rock Springs, Wyo.		Chico, Cal.
	Woodward, Okla.		Sheridan, Wyo.		Marysville
	Miami, Okla.		Worland, Wyo.		Portland SxS
	Muskogee, Okla.		Fort Morgan, Colo.		Portola
	Vinita, Okla.		Granby, Colo.		South Tahoe
	Pampa, Tex.		Limon, Colo.		Willows
	Plainview, Tex.		Salida, Colo.		Dunsmuir
	Corsicana, Tex.		Craig, Colo.		Yreka

Chart 10

BELL SYSTEM
STEP-BY-STEP TP IN SERVICE END OF 1972
(ALL CLASS 4)

Co.	Location	Co.	Location	Co.	Location
PAC	Auburn		St. Hyacinthe, Que.		
	Grass Valley		St. Jean, Que.		
	Woodland		St. Jerome, Que.		
	Pittsburg		Soril, Que.		
	Hayward		Trois Rivieres, Que.		
	San Mateo		Drummondville, Que.		
	Fairfield - Suisun SxS		Victoriaville, Que.		
	Fort Bragg		Thetford Mines, Que.		
	Lakeport		La Malbaie, Que.		
	Napa		Riviere du Loup, Que.		
	Petaluma		Alma, Que.		
	Ukiah		Belleville, Ont.		
	Vallejo		Hawkesbury, Ont.		
	Monterey		Pembroke, Ont.		
	Watsonville		Renfrew, Ont.		
	Lodi		Clinton, Ont.		
	Sonora		Sarnia, Ont.		
	Coalinga		Tillsonburg, Ont.		
	Hanford		Woodstock, Ont.		
	Merced		Newmarket, Ont.		
	Visalia		Niagara Falls, Ont.		
	Whittier		Port Hope, Ont.		
	Downey		St. Catharines, Ont.		
	Mojave,		Welland, Ont.		
	Ventura CAMA		Beaverton, Ont.		
	Ventura		Bracebridge, Ont.		
	Paso Robles		Huntsville, Ont.		
			Lindsay, Ont.		
SNE	Ansonia Derby		Midland, Ont.		
	Bridgeport 1		Orillia, Ont.		
	Bristol		Parry Sound, Ont.		
	Canaan		Blind River, Ont.		
	Manchester		Dresden, Ont.		
	Meriden		Ft. Frances, Ont.		
	Middletown				
	New Britain,				
	New Milford				
	Norwalk				
	Norwich				
	Saybrook				
	Torrington				
	Waterbury				
	Willimantic				
	Windsor Locks				
CIN	Hamilton				
	Hillsboro				
	Winchester				
CAN	Granby, Que.				
	Joliette, Que.				

DISTANCE DIALING NET

(INCLUDING REGIONAL

In Service
DEC. 31, 1971

- REGIONAL
- SECTIONAL
- PRIMARY
- FINAL GROUPS

A NON - BELL CO. OFFICE IS UNDERLINED

NOTES:

1. For Interim Arrangements and more detailed information see charts 10 A through 10 H showing "Control Switching Points and their Homing Arrangements."
2. The Routing, Transmission, Switching Arrangements and adequacy of intercepting facilities should be investigated before distance dialing is authorized.

i NETWORK - END OF 1972

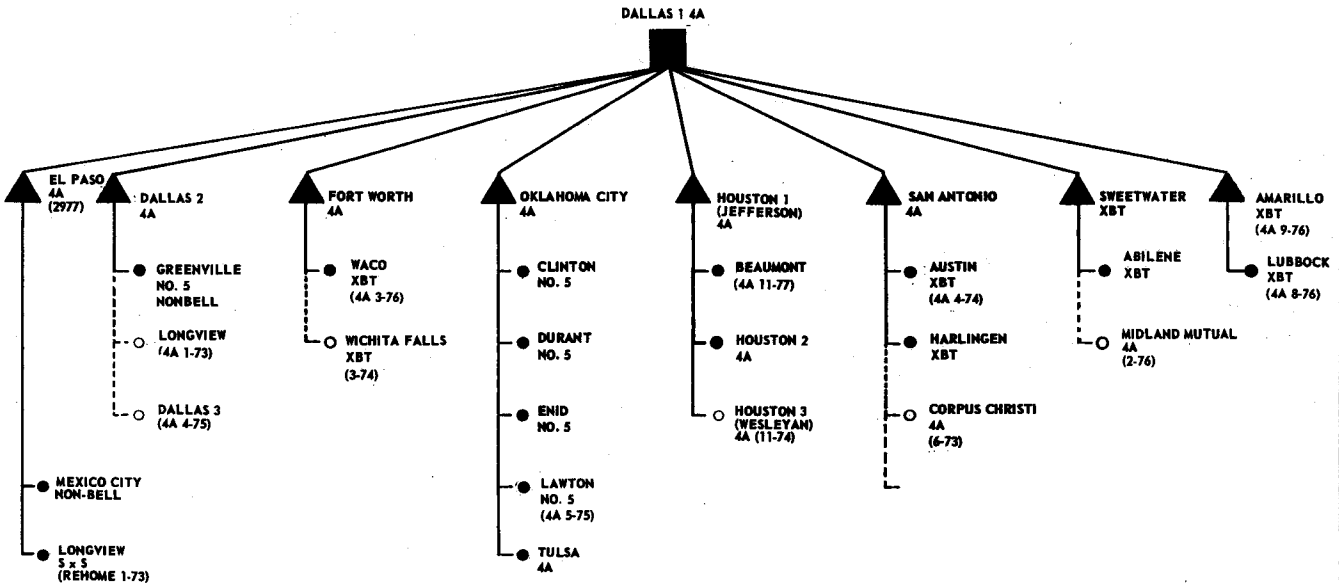
GIONAL AREA BOUNDARIES)

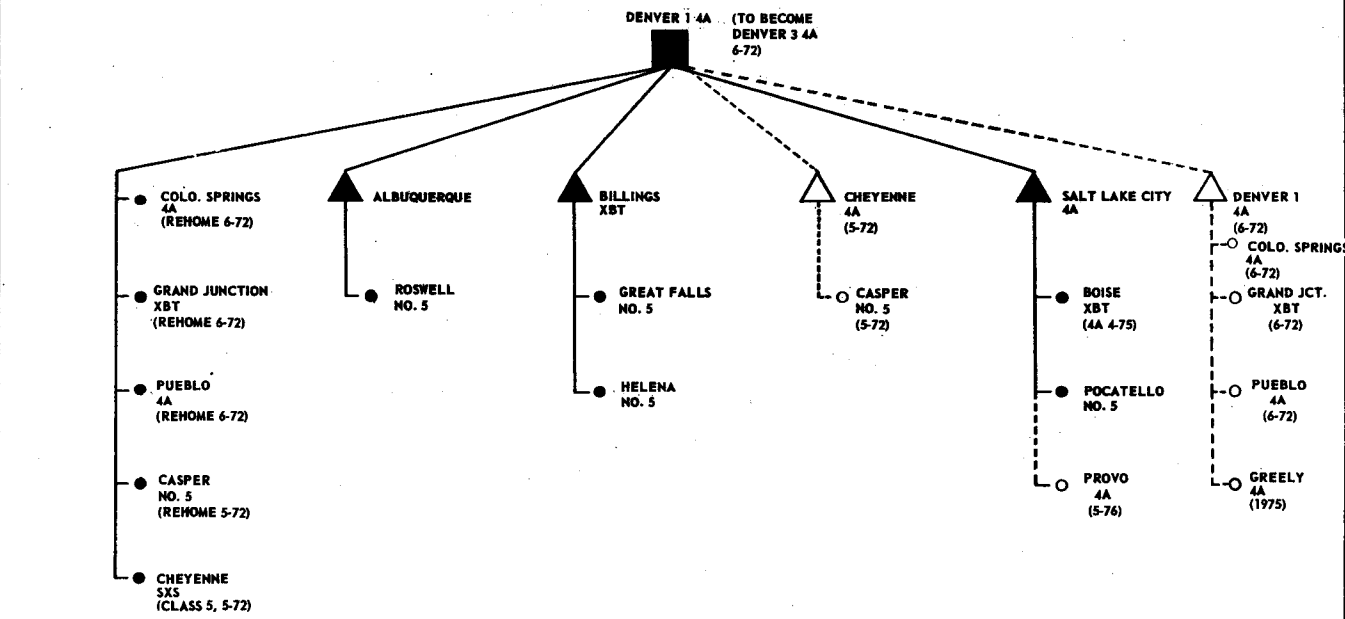
Chart 11A

CONTROL SWITCHING POINTS AND THEIR HOMING ARRANGEMENTS

(Present & Future Arrangements through 1977)

(Based on April 1972 Construction Program View)





SOME OF THE LOCATIONS HAVE NOT MET ALL OF THE REQUIREMENTS FOR CSP'S OF THE CLASSES SHOWN FOR DISTANCE DIALING. THEREFORE, THE ROUTING, SWITCHING, TRANSMISSION ARRANGEMENTS AND ADEQUACY OF INTERCEPTING FACILITIES SHOULD BE INVESTIGATED BEFORE DISTANCE DIALING IS AUTHORIZED TO GO THROUGH ANY SYSTEM.

EXISTING CSP FUTURE

REGIONAL CENTER (CLASS 1)

SECTIONAL " (" 2)

PRIMARY " (" 3)

PLANNED DATE IS SHOWN IN ( )

FINAL GROUP

IN SERVICE 1-1-72

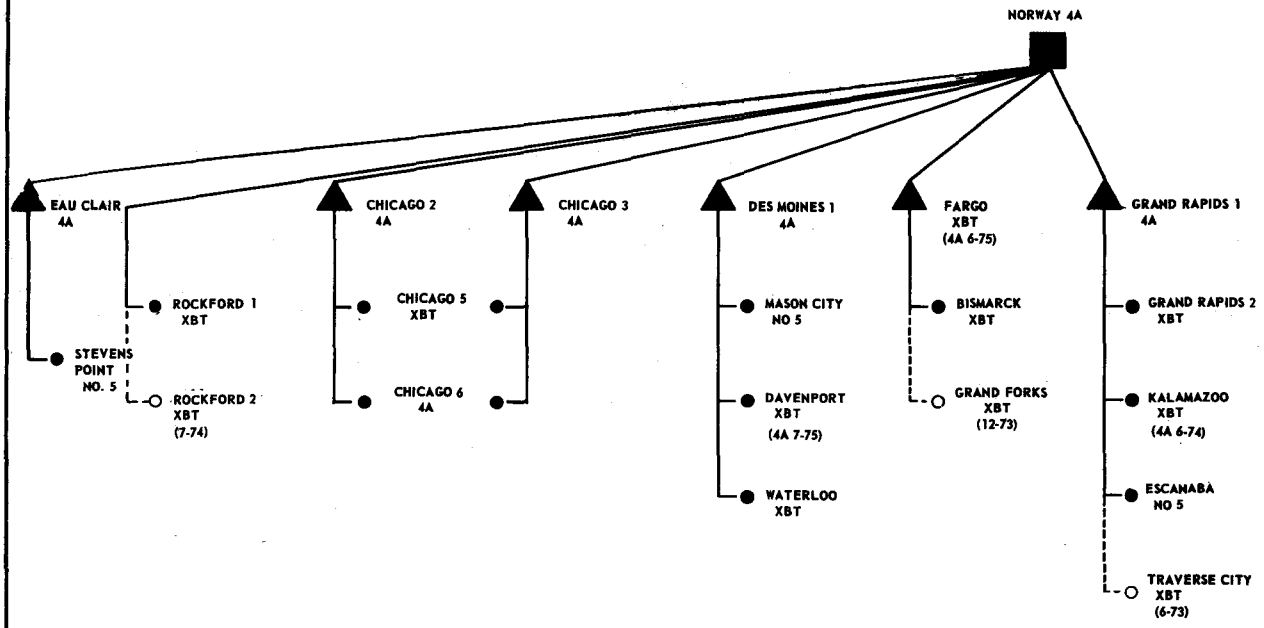
PLANNED BY END OF 1977

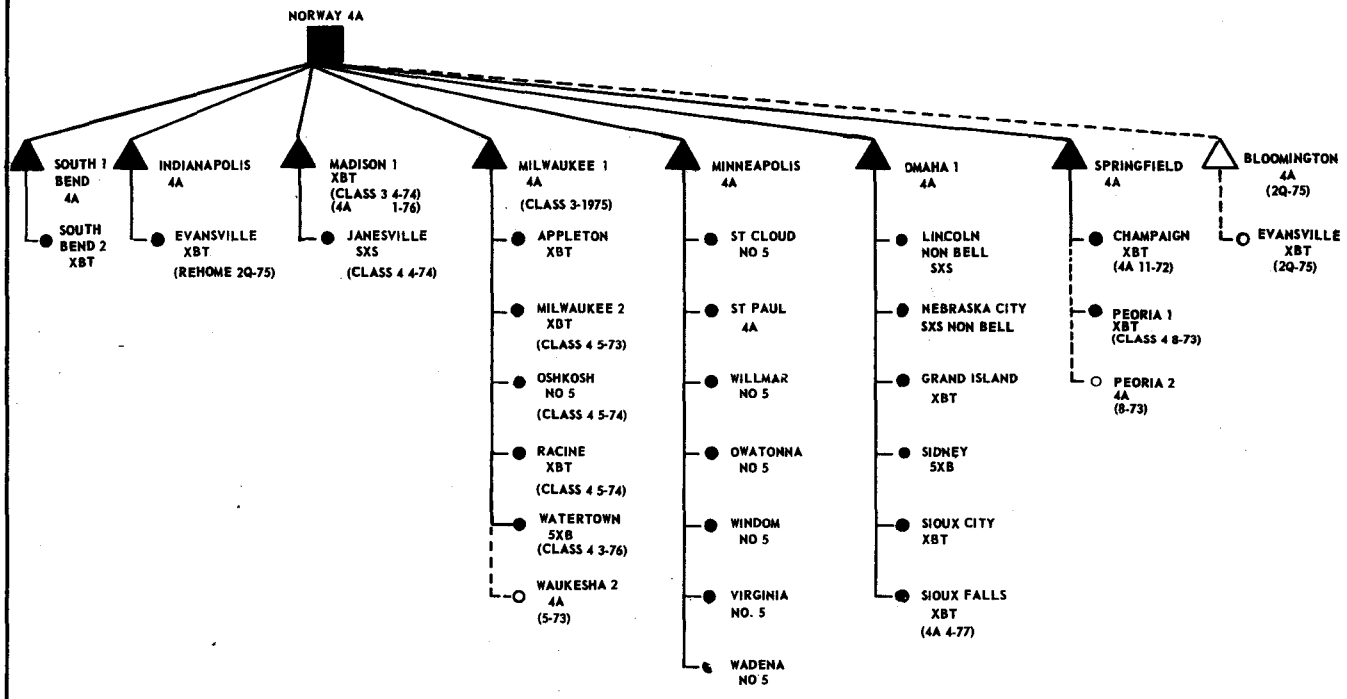
Chart 11B

CONTROL SWITCHING POINTS AND THEIR HOMING ARRANGEMENTS

(Present & Future Arrangements through 1977)

(Based on April 1972 Construction Program View)





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EXISTING CSP FUTURE

■ REGIONAL CENTER (CLASS 1) □

▲ SECTIONAL " (" 2) △

● PRIMARY " (" 3) ○

PLANNED DATE IS SHOWN IN ( )

FINAL GROUP

IN SERVICE 1-1-72 ————————

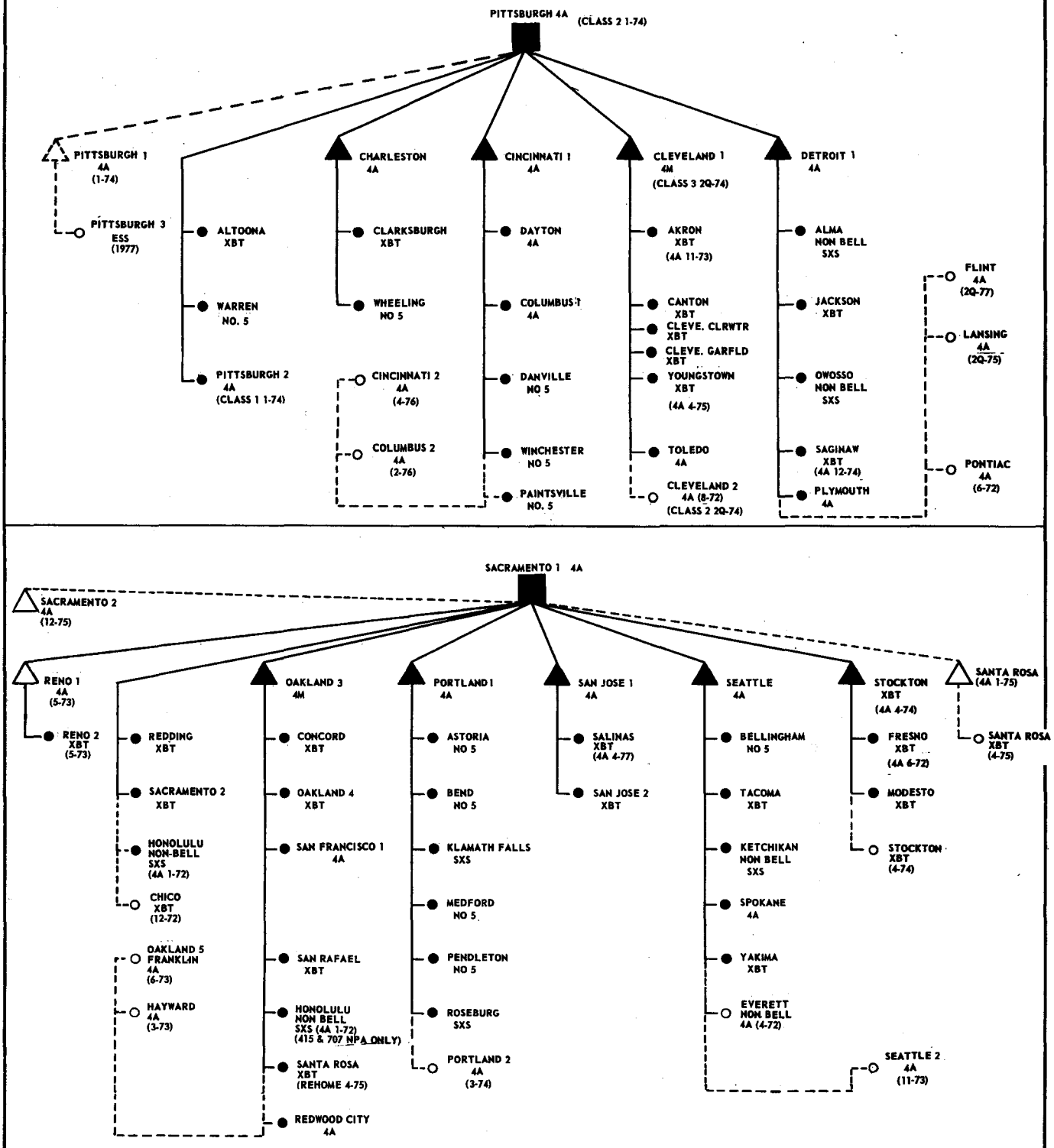
PLANNED BY END OF 1977 — — — — — —

Chart 11C

CONTROL SWITCHING POINTS AND THEIR HOMING ARRANGEMENTS

(Present & Future Arrangements through 1977)

(Based on April 1972 Construction Program View)



SOME OF THE LOCATIONS HAVE NOT MET ALL OF THE REQUIREMENTS FOR CSP'S OF THE CLASSES SHOWN FOR DISTANCE DIALING. THEREFORE, THE ROUTING, SWITCHING, TRANSMISSION ARRANGEMENTS AND ADEQUACY OF INTERCEPTING FACILITIES SHOULD BE INVESTIGATED BEFORE DISTANCE DIALING IS AUTHORIZED TO GO THROUGH ANY SYSTEM.

EXISTING	CSP	FUTURE
■	REGIONAL CENTER (CLASS 1)	□
▲	SECTIONAL " (" 2)	△
●	PRIMARY " (" 3)	○

PLANNED DATE IS SHOWN IN ( )

FINAL GROUP

IN SERVICE 1-1-72 _____

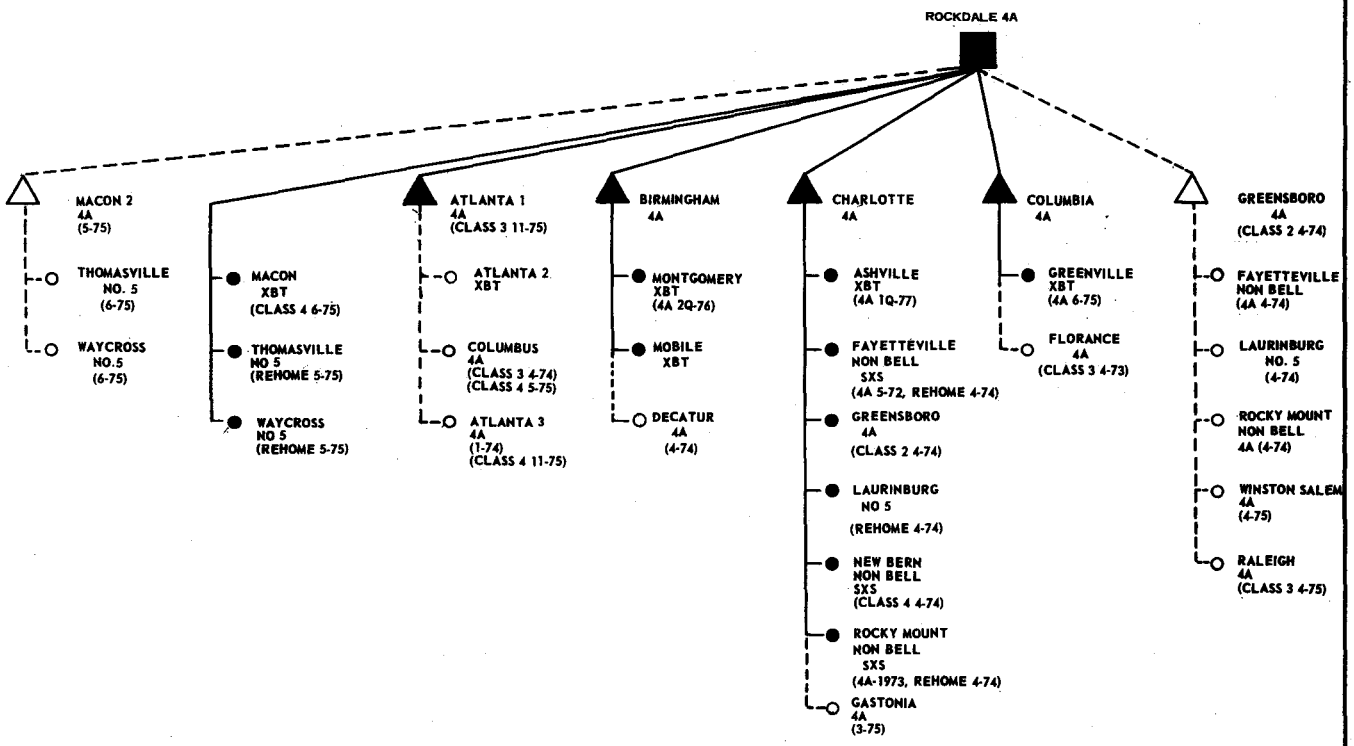
PLANNED BY END OF 1977 - - - - - - - -

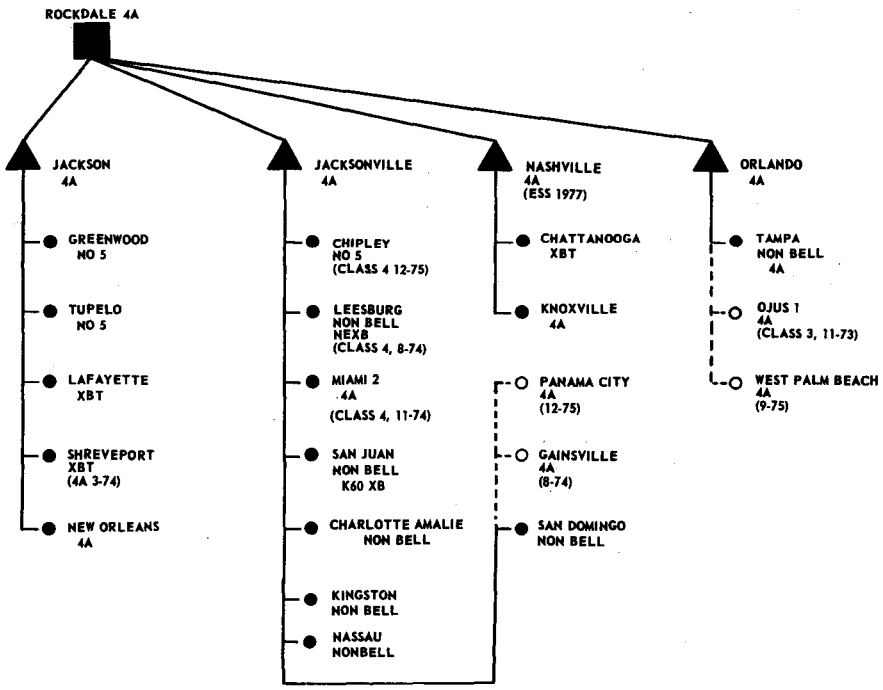
Chart 11D

CONTROL SWITCHING POINTS AND THEIR HOMING ARRANGEMENTS

(Present & Future Arrangements through 1977)

(Based on April 1972 Construction Program View)





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CSP

EXISTING		FUTURE
■	REGIONAL CENTER (CLASS 1)	□
▲	SECTIONAL " (" 2)	△
●	PRIMARY " (" 3)	○

PLANNED DATE IS SHOWN IN ( )

FINAL GROUP

IN SERVICE 1-1-72 _____

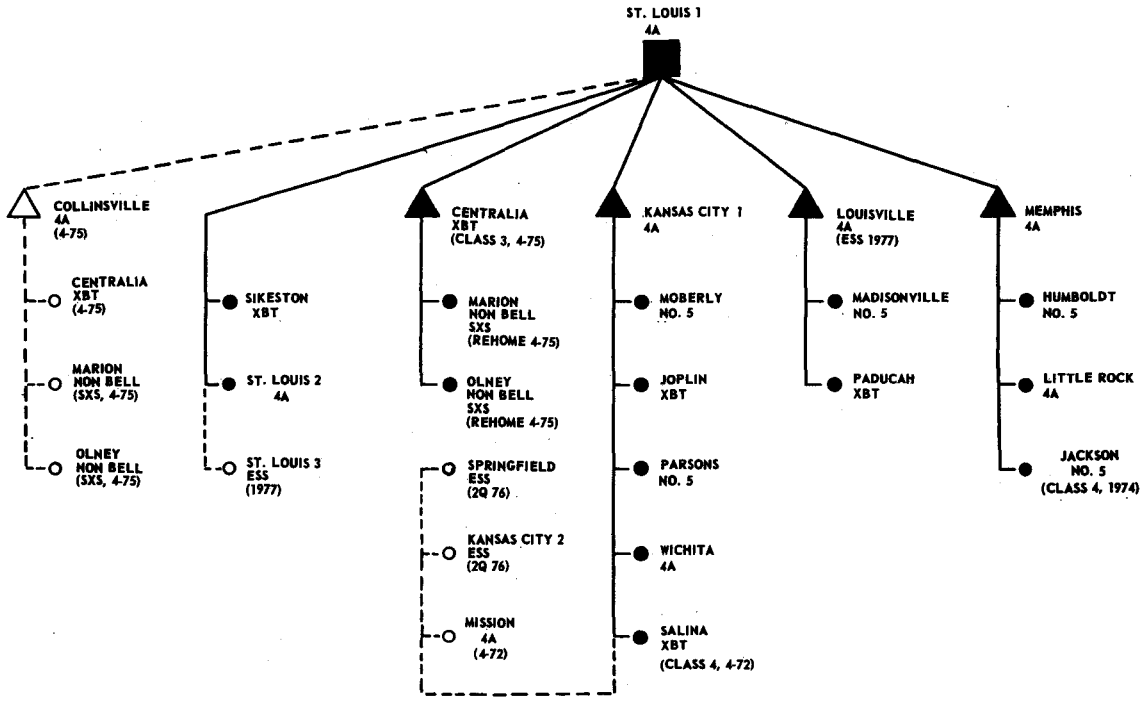
PLANNED BY END OF 1977 - - - - - - - -

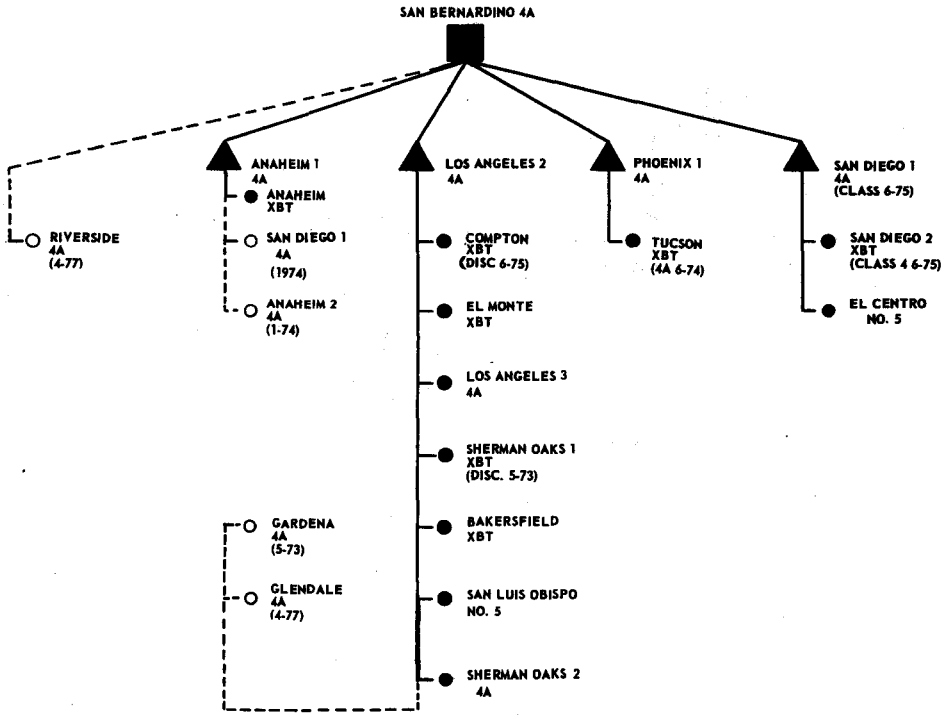
Chart 11E

CONTROL SWITCHING POINTS AND THEIR HOMING ARRANGEMENTS

(Present & Future Arrangements through 1977)

(Based on April 1972 Construction Program View)





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EXISTING	CSP	FUTURE
■	REGIONAL CENTER (CLASS 1)	□
▲	SECTIONAL " (" 2)	△
●	PRIMARY " (" 3)	○

PLANNED DATE IS SHOWN IN ( )

FINAL GROUP

IN SERVICE 1-1-72 ———

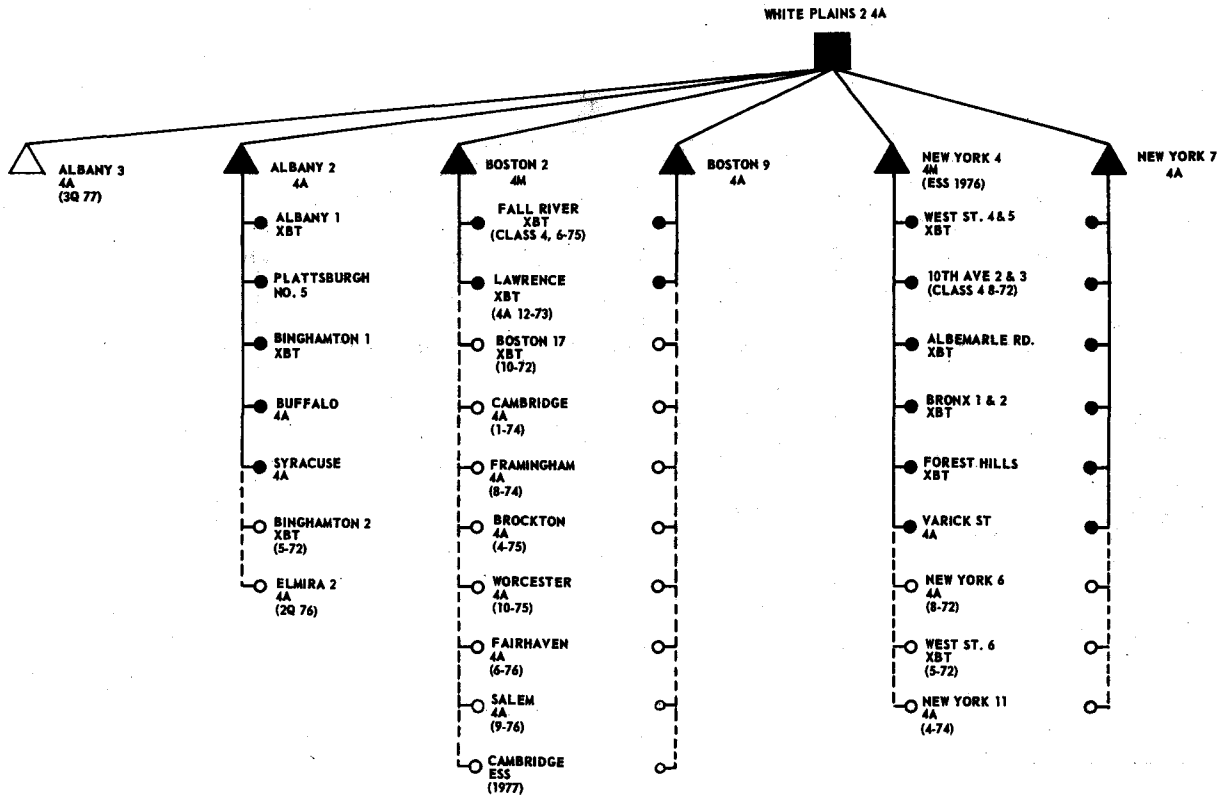
PLANNED BY END OF 1977 – – – – – –

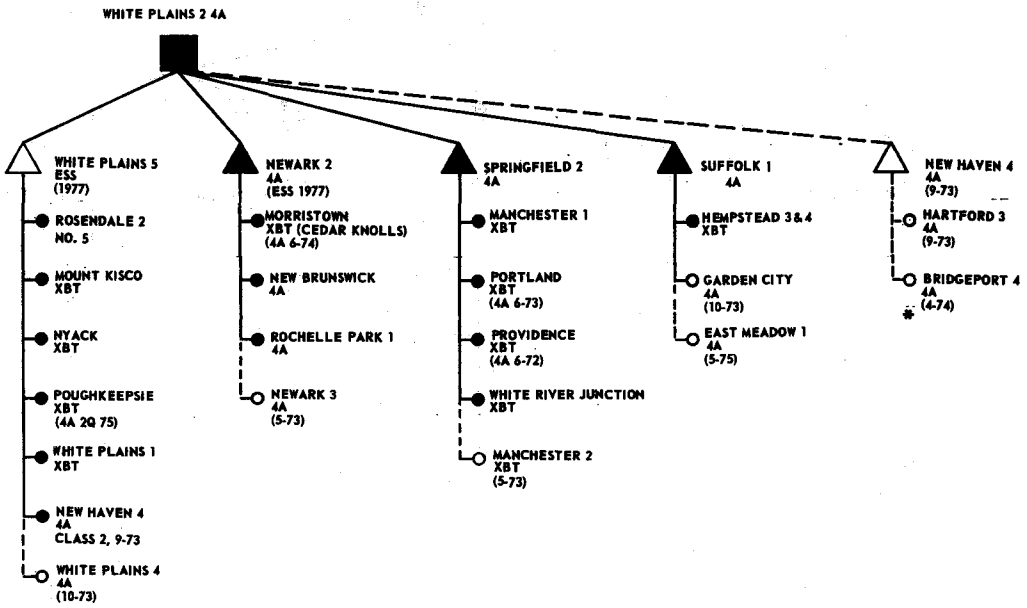
Chart 11F

CONTROL SWITCHING POINTS AND THEIR HOMING ARRANGEMENTS

(Present & Future Arrangements through 1977)

(Based on April 1972 Construction Program View)





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EXISTING	CSP	FUTURE
■	REGIONAL CENTER (CLASS 1)	□
▲	SECTIONAL " (" 2)	△
●	PRIMARY " (" 3)	○

PLANNED DATE IS SHOWN IN ( )

FINAL GROUP

IN SERVICE 1-1-72 _____

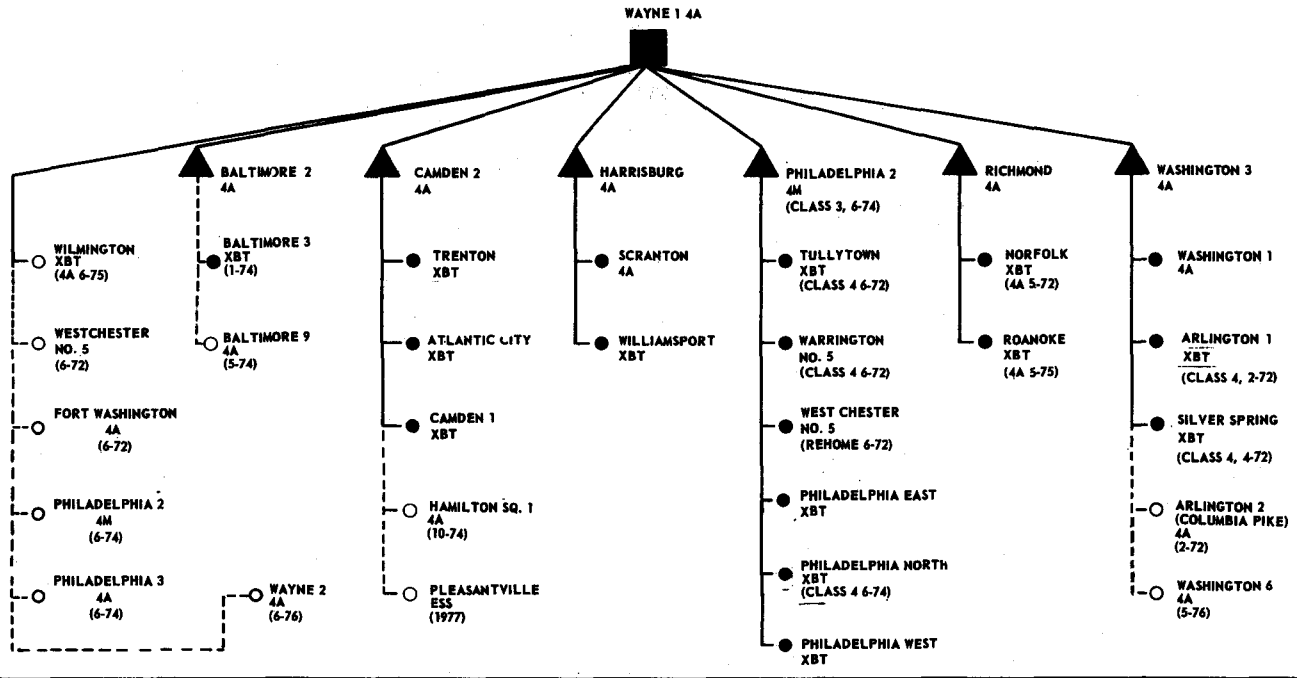
PLANNED BY END OF 1977 — — — — — — —

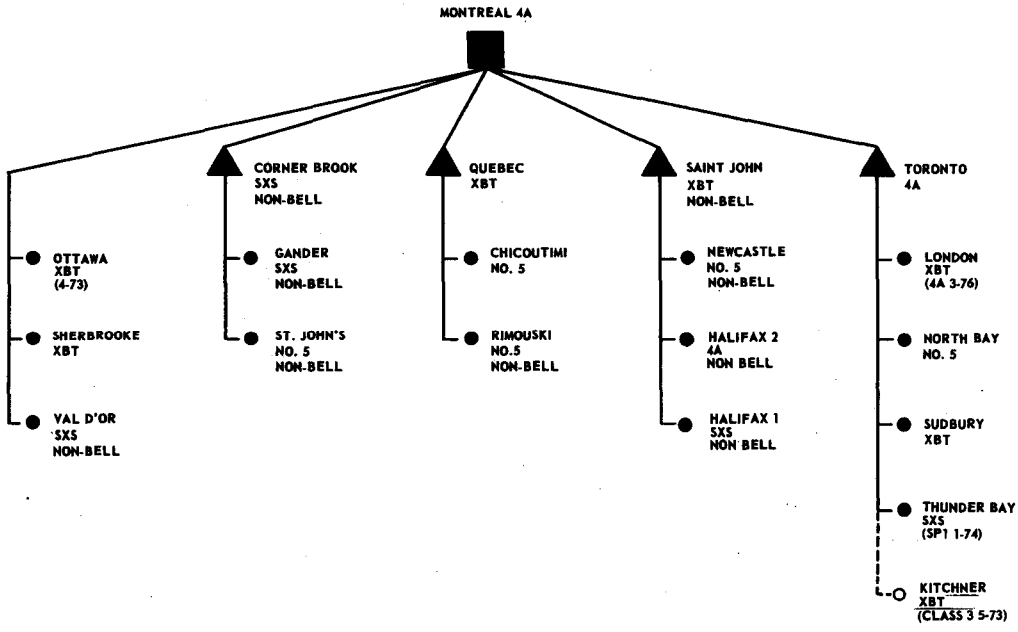
Chart 11G

CONTROL SWITCHING POINTS AND THEIR HOMING ARRANGEMENTS

(Present & Future Arrangements through 1977)

(BASED ON APRIL 1972 CONSTRUCTION PROGRAM VIEW)





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EXISTING	CSP	FUTURE
■	REGIONAL CENTER (CLASS 1)	□
▲	SECTIONAL " (" 2)	△
●	PRIMARY " (" 3)	○

PLANNED DATE IS SHOWN IN ( )

FINAL GROUP

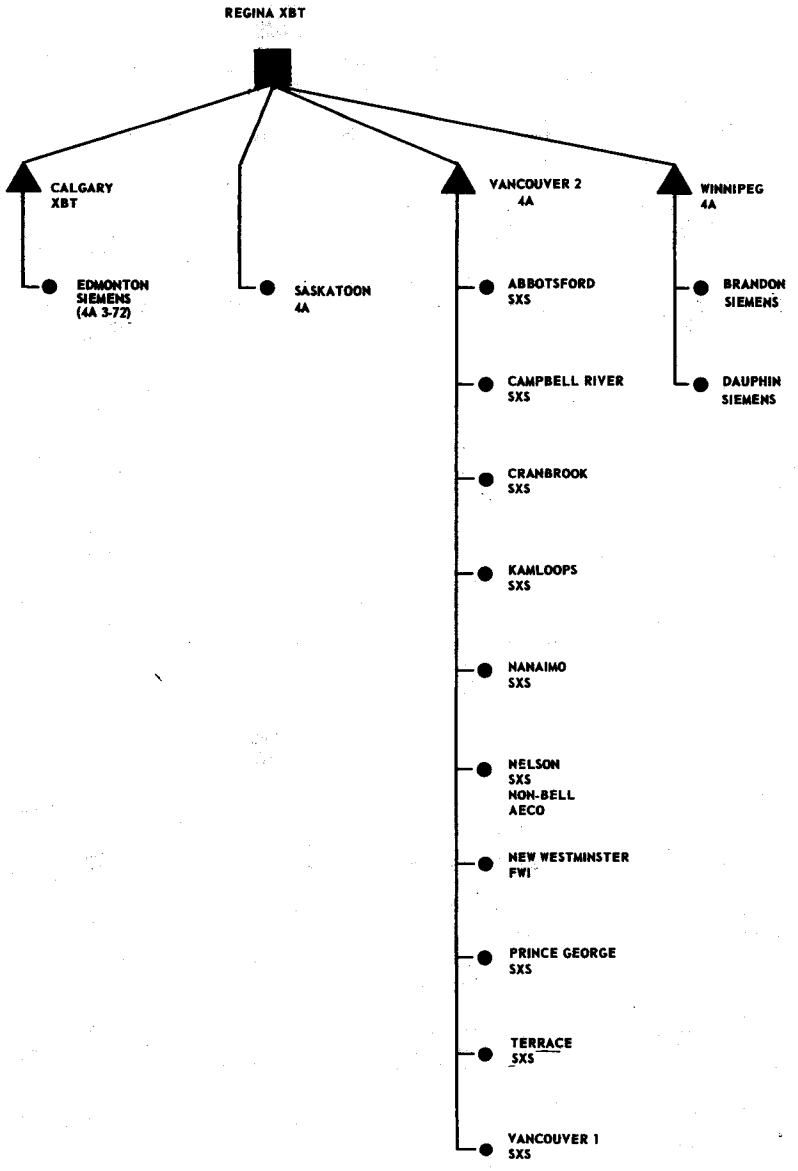
IN SERVICE 1-1-72 _____

PLANNED BY END OF 1977 - - - - - - - -

Chart 11H

CONTROL SWITCHING POINTS AND THEIR HOMING ARRANGEMENTS

(Present & Future Arrangements through 1977)



NOTE: ALL LOCATIONS ARE NON-BELL

SOME OF THE LOCATIONS HAVE NOT MET ALL OF THE REQUIREMENTS FOR CSP'S OF THE CLASSES SHOWN FOR DISTANCE DIALING. THEREFORE, THE ROUTING, SWITCHING, TRANSMISSION ARRANGEMENTS AND ADEQUACY OF INTERCEPTING FACILITIES SHOULD BE INVESTIGATED BEFORE DISTANCE DIALING IS AUTHORIZED TO GO THROUGH ANY SYSTEM.

EXISTING CSP FUTURE

REGIONAL CENTER (CLASS 1)

SECTIONAL " (" 2)

PRIMARY " (" 3)

PLANNED DATE IS SHOWN IN ( )

FINAL GROUP

IN SERVICE 1-1-72 _____

PLANNED BY END OF 1977 - - - - - - - -

Chart 12

DEFICIENT CSP'S

TYPES OF DEFICIENCIES AND DATES THEY WILL BE CORRECTED

(Based on April 1972 Construction Program View)

Location	Type of Deficiency	Type Switching Equipment	Completion Date
NEW ENGLAND - None			
NEW YORK			
Brooklyn-Queens			
Albemarle Rd. 1	A	XBT	1975
Albemarle Rd. 2	AD	XBT	1972
Forest Hills 1	A	XBT	1975
Forest Hills 2	AD	XBT	1972
NEW JERSEY - None			
PENNSYLVANIA - None			
CHES. & POT. - None			
SOUTHERN - None			
SOUTH CENTRAL			
Jackson, Miss.	ACD		4Q72
OHIO			
Akron #2	A*	XBT	NP
Youngstown #2	A*	XBT	NP
MICHIGAN - None			
INDIANA - None			
WISCONSIN - None			
ILLINOIS			
Centralia	CD*	XBT	NP
Champaign	CD*	XBT	NP
Peoria	CD*	XBT	NP
Rockford	CD*	XBT	NP
NORTHWESTERN			
Lincoln (Non-Bell)	ABCD	SxS	NP
Nebraska City (Non-Bell)	ABCD	SxS	NP
SOUTHWESTERN - None			
MOUNTAIN STATES - None			
PACIFIC NORTHWEST - None			
PACIFIC - None			
SOUTHERN NEW ENGLAND - None			
CINCINNATI - None			
CANADA - None			

TYPES OF DEFICIENCIES

A. Intertoll trunks not operating at VNL.

B. Toll connecting trunks not operating at VNL + 2.5.

C. Terminal balance objectives not met by actual test.

D. Through balance objective not met by actual test.

* Connecting Co. deficiency

Chart 13

NUMBERING PLAN AREA PRINCIPAL CITIES

Area Code	Location	Principal City
201	New Jersey	Newark
202	Dist. of Col.	Washington 1
203	Connecticut	New Haven 4
204	Manitoba	
205	Alabama	Birmingham
206	Washington	Seattle
207	Maine	Portland
208	Idaho	*Salt Lake City, Utah
209	California	Stockton
212	New York	New York 4 & 7
213	California	Los Angeles 2
214	Texas	Dallas
215	Pennsylvania	Philadelphia
216	Ohio	Cleveland
217	Illinois	Springfield
218	Minnesota	*Minneapolis
219	Indiana	South Bend 1
301	Maryland	Baltimore
302	Delaware	Wilmington
303	Colorado	*Denver 1
304	West Virginia	Charleston
305	Florida	*Rockdale, Georgia
306	Saskatchewan	Regina
307	Wyoming	*Denver 1, Colorado
308	Nebraska	*Omaha
309	Illinois	Peoria
312	Illinois	Chicago 2 & 3
313	Michigan	*Detroit
314	Missouri	St. Louis 1
315	New York	Syracuse
316	Kansas	Witchita
317	Indiana	Indianapolis
318	Louisiana	*Jackson, Mississippi
319	Iowa	*Des Moines
401	Rhode Island	Providence
402	Nebraska	*Omaha
403	Alberta	Calgary
404	Georgia	Atlanta
405	Oklahoma	Oklahoma City
406	Montana	Billings
408	California	San Jose 1
412	Pennsylvania	*Pittsburgh 1
413	Massachusetts	Springfield
414	Wisconsin	Milwaukee 1
415	California	Oakland 3
416	Ontario	Toronto
417	Missouri	Joplin
418	Quebec	Quebec
419	Ohio	Toledo
501	Arkansas	Little Rock
502	Kentucky	Louisville
503	Oregon	Portland
504	Louisiana	New Orleans
505	New Mexico	Albuquerque
506	New Brunswick	St. John
507	Minnesota	*Minneapolis
509	Washington	Seattle
512	Texas	San Antonio
513	Ohio	Cincinnati
514	Quebec	*Montreal
515	Iowa	*Des Moines
516	New York	Suffolk
517	Michigan	*Detroit
518	New York	Albany 2
519	Ontario	London
601	Mississippi	*Jackson
602	Arizona	Phoenix 1
603	New Hampshire	Manchester
604	British Columbia	Vanconver
605	South Dakota	Sioux Falls
606	Kentucky	Cincinnati
607	New York	Binghamton
608	Wisconsin	Madison
609	New Jersey	Camden 2
612	Minnesota	*Minneapolis
613	Ontario	Ottawa
614	Ohio	Columbus
615	Tennessee	Nashville
616	Michigan	*Grand Rapids 1
617	Massachusetts	Boston 2 & 9
618	Illinois	Centralia
701	North Dakota	Fargo
702	Nevada	Reno
703	Virginia	Richmond
704	North Carolina	*Charlotte
705	Ontario	Toronto
707	California	Santa Rosa
709	Newfoundland	*Montreal, Quebec
712	Iowa	*Omaha, Nebraska
713	Texas	Houston 1
714	California	*San Bernardino
715	Wisconsin	Eau Clair
716	New York	Buffalo
717	Pennsylvania	Harrisburg
801	Utah	*Salt Lake City
802	Vermont	White River Jct.
803	South Carolina	Columbia
805	California	Los Angeles 2
806	Texas	Amarillo
807	Ontario	Toronto
808	Hawaii	*Oakland 3, California
809	Virgin Island Puerto Rico	*Jacksonville, Florida
812	Indiana	Indianapolis
813	Florida	Orlando
814	Pennsylvania	*Pittsburgh 1
815	Illinois	Norway
816	Missouri	*Kansas City
817	Texas	Fort Worth
819	Quebec	*Montreal
901	Tennessee	Memphis
902	Nova Scotia and Prince Edward Island	Halifax
903	Mexico	*San Bernardino, Calif.
904	Florida	*Jacksonville
906	Michigan	*Grand Rapids 1
907	Alaska	*Seattle, Washington
912	Georgia	*Rockdale
913	Kansas	*Kansas City, Missouri
914	New York	White Plains 2
915	Texas	Sweetwater
916	California	Sacramento 1
918	Oklahoma	Tulsa
919	North Carolina	*Charlotte

* Principal city for more than one NPA.

Chart 14

TRAFFIC SERVICE POSITIONS SYSTEM NO. 1
IN SERVICE - END OF 1972

Location	Service Date
New England	
Framingham, Mass.	6-70
Franklin St., Mass.	4-72
New York	
Albany State	1-71
Dix Hills	5-71
Varick St. (NYC 1)	8-72
New Jersey	
Morristown	1-69
Rochelle Park 1	6-70
New Brunswick	6-71
Camden	4-72
Pennsylavania	
Philadelphia, Pa.	10-70
Pittsburgh, Pa.	11-71
Wilmington, Del.	10-71
Ches. & Pot.	
Washington, D.C.	5-70
Norfolk-Bute, Va.	9-72
Southern	
Miami 2, Fla.	9-69
Jacksonville, Fla.	12-70
Charlestown, S.C.	4-71
Rockdale, Ga.	4-71
Raleigh, N.C.	3Q71
Charlotte, N.C.	3Q71
Ft. Lauderdale, Fla.	11-71
Orlando, Fla.	10-72
South Central	
Memphis, Tenn.ϕ	7-70
New Orleans, La.	10-70
Nashville, Tenn.	4-71
Jackson, Miss.	5-72
Chattanooga, Tenn.	5-72
Birmingham, Ala.	6-72
Ohio	
Cleveland	1-71
Columbus	6-71
Dayton	4-72
Youngstown	9-72
Michigan	
Plymouth	6-71
Indiana	
Bloomington	8-70
Wisconsin	
Illinois	
Canal	10-71
Northwestern	
Minneapolis, Minn.	3Q71
Sioux Falls, S.D.	8-71
St. Paul, Minn.	2Q72
Southwestern	
Houston 1, Tex.	3-70
Dallas 1, Tex.	4-70
Fort Worth 1, Tex.	1-71
Kansas City, Mo.	5-71
San Antonio 1, Tex.	5-71
St. Louis, Mo.	6-71
Oklahoma City, Okla.	9-71
Dallas 2, Tex.	11-71
Houston Jefferson, Tex.	10-72
Mountain	
Denver, Colo.	5-71
Colorado Springs, Colo.	5-72
Pacific Northwest	
Portland, Ore.	5-71
Seattle 1, Wash.	12-71
Pacific	
San Francisco 1, Cal.	3-72
Redwood City, Cal.	3-72
Los Angeles 1, Cal.	4-72
Oakland-Franklin 1, Cal.	5-72
Anaheim 1, Cal.	6-72
So. New England	
Bridgeport	1-71
Norwalk	5-71
New Haven #2	7-72
Cincinnati	
Cincinnati	11-70

ϕ Long Lines Engineered

Chart 14

TRAFFIC SERVICE POSITIONS SYSTEM NO. 1
IN SERVICE - 1973-1977
(BASED ON APRIL 1972 CONSTRUCTION PROGRAM)

Location	Ship Date	Service Date
NEW ENGLAND		
Lawrence, Mass.	11-72	6-74
Providence Green, R.I.	3-74	2-75
Brockton, Mass.	1Q74	2Q75
Kendall Sq., Mass.	1Q75	2Q76
NEW YORK		
811 Tenth Ave. (NYC-2)	9-71	8-73
1095 A of A (NYC-4)	1-73	12-73
White Plains 4A	11-71	12-73
Williamsburg 1	6-73	11-74
New York (NYC-6)	2-74	1-75
Binghamton	1-74	6-75
Syracuse	2-74	8-75
Williamsburg 2	6-74	11-75
New York (NYC-7)	1-75	1-76
Wappingers Falls	1-75	4-76
Buffalo	10-74	6-76
Garden City	1-75	6-76
NEW JERSEY		
Newark	3-73	6-74
Trenton	2-74	3-75
Rochelle Park 2	1-75	2-76
Freehold	1-76	3-77
PENNSYLVANIA		
Fort Washington	5-73	6-74
Harrisburg	1Q74	2Q75
Pottstown	5-75	12-75
Greensburg	4-75	1-76
Dover	1976	1977
CHES. & POT.		
Richmond Grace, Va.	5-72	9-73
Baltimore, Md.	10-72	5-74
Columbia Pike, Va.	10-73	1-75
Roanoke, Va.	3-74	5-75
Washington S.W., D.C.	9-74	12-75
SOUTHERN		
Pensacola, Fla.	3-72	5-73
Atlanta 2, Ga.	1-72	5-73
Ojus 1, Fla.	3-72	7-73
Columbia, S.C.	12-72	12-73
Greensboro, N.C.	4Q72	1Q74
Atlanta 3, Ga.	3-73	5-74
Atlanta 4, Ga.	7-73	7-74
Ojus 2, Fla.	6-73	8-74
Gastonia, N.C.	4Q73	1Q75
Macon, Ga.	8-74	5-75
Greenville, S.C.	6-74	6-75
Columbus, Ga.	9-74	6-75
Winston-Salem, N.C.	1Q74	2Q75
Panama City, Fla.	11-74	12-75
Florence, S.C.	3-75	2-76
Savannah, Ga.	9-75	6-76
Daytona Beach, Fla.	7-75	8-76
Ojus 3, Fla.	9-75	9-76
Asheville, N.C.	4Q75	1Q77
Augusta, Ga.	8-76	5-77
Albany 5XB, Ga.	9-76	6-77
SOUTH CENTRAL		
Louisville, Ky. ø	12-71	4-73
Knoxville, Tenn.	5-73	5-74
Shreveport, La.	11-74	10-75
Baton Rouge, La.	10-74	3-76
Hattiesburg, Miss.	4Q74	2Q76
Montgomery, Ala.	4-75	6-76
Decatur, Ala.	4-75	6-76
Huntsville, Ala.	4-76	6-77
Lafayette, La.	9-76	10-77
OHIO		
Akron	7-72	11-73
Toledo	1-73	6-74
MICHIGAN		
Pontiac	6-73	1-75
Kalamazoo	1Q74	2Q75
Detroit	4Q74	3Q76
INDIANA		
Indianapolis	9-72	9-73
South Bend	7-72	12-73
WISCONSIN		
Wabash	9-72	12-73
Madison	1-75	3-76
ILLINOIS		
Wabash	9-72	12-73
Oakbrook	5-73	10-74
Northbrook 2	8-74	10-75
Stewart	3-75	5-76
Chicago 3	7-75	9-76
Norway	2Q76	3Q77
NORTHWESTERN		
Omaha, Neb.	2-74	3-75
Rochester, Minn.	3Q74	3Q75
Bemidji, Minn.	3Q75	3Q76
Des Moines, Ia.	1Q76	1Q77
St. Cloud, Minn.	3Q76	3Q77
SOUTHWESTERN		
Longview, Tex.	5-71	4-73
Tulsa, Okla.	7-72	12-73

ø Long Lines Engineered

Chart 15

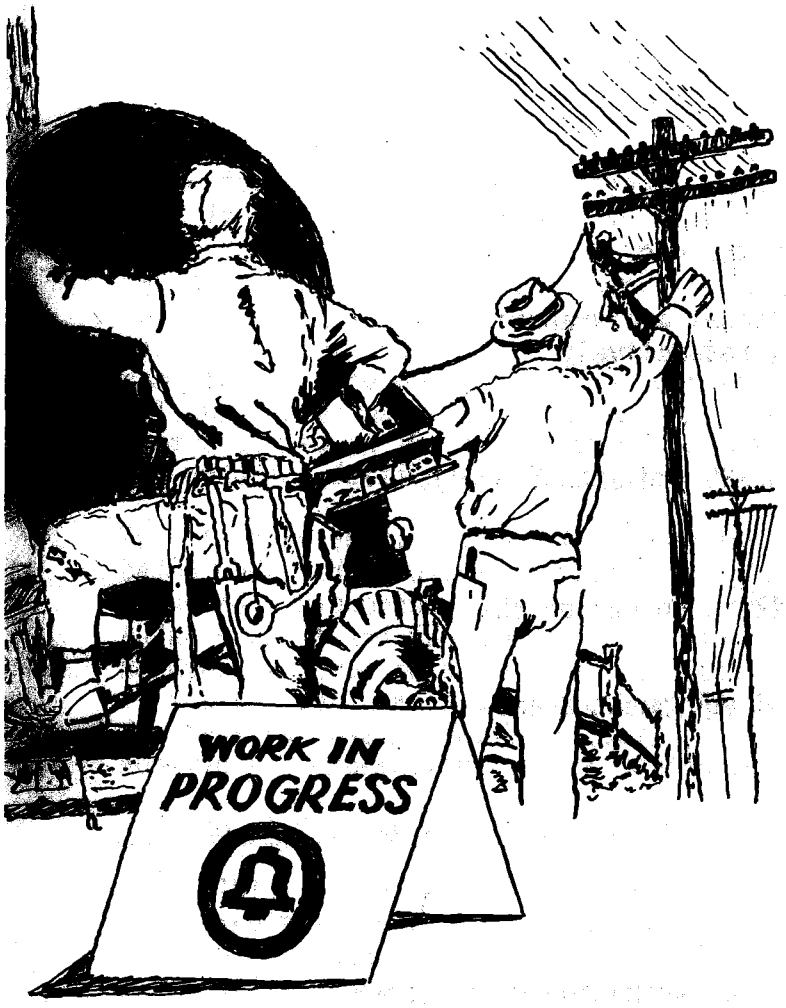
TRAFFIC SERVICE POSITIONS SYSTEM NO. 1
IN SERVICE - 1973-1977
(BASED ON APRIL 1972 CONSTRUCTION PROGRAM)

Location	Ship Date	Service Date	Location	Ship Date	Service Date
Wichita Falls, Tex.	1-73	3-74			
Little Rock, Ark.	5-73	6-74			
Austin-Greenwood, Tex.	4-73	9-74			
Mission, Kan.	1-74	4-75			
Houston Wesleyan, Tex.	6-74	6-75			
Corpus Christi, Tex.	8-74	2-76			
Lawton, Okla.	4-75	3-76			
San Antonio 2, Tex.	1-75	5-76			
Waco, Tex.	3-75	8-76			
Midland Mutual, Tex.	10-75	2-77			
Amarillo 2, Tex.	12-75	3-77			
Springfield, Mo.	1-76	5-77			
MOUNTAIN					
Salt Lake City, Utah	2-75	10-76			
Phoenix, Ariz.	4-76	12-77			
PAC. NORTHWEST					
Seattle 2, Wash.	5-76	9-77			
PACIFIC					
San Diego 1, Cal.	3-72	6-73			
Sherman Oaks, Cal.	2-72	7-73			
Sherman Oaks 3, Cal.	5-73	10-74			
Oakland-Franklin 2, Cal.	1-74	3-75			
Reno, Nev.	2-74	5-75			
Gardena, Cal.	1-75	3-76			
Hayward, Cal.	1-75	3-76			
San Jose, Cal.	1-75	3-76			
Anaheim 2, Cal.	6-75	6-76			
San Diego 2, Cal.	2-76	6-77			
SO. NEW ENGLAND					
Hartford 3	2-73	8-74			
CINCINNATI					
CANADA					

Chart 16

DISTANCE DIALING COORDINATORS - AS OF APRIL 15, 1972

Co.	Area	Location	Coordinator	Tel. No.
N.E.	Staff	Boston	T.T. Pettingell	617-743-4835
	Mass.	Framingham	W.L. Jewell	617-879-9375
	No. States	Manchester	W.T. Leavitt	603-669-9890
	Rhode Island	Providence	J.I. Macomber	401-525-2516
N.Y.	Staff	New York	A.B. Bortz	212-394-1248
	Eastern	Albany	R.S. Knapp	518-471-2878
	Western	Buffalo	D.D. Ince	716-857-6121
	Mid-State	New York	R. Turker	212-370-2810
	Central	Syracuse	D.W. Haller	315-422-1397
	Northern	Utica	J.D. Favaloro	315-738-7361
N.J.	Staff	East Orange	M.C. Hutchinson	201-649-7700
Pa.	Staff	Philadelphia	R.J. Portland	215-466-3284
	Philadelphia	Philadelphia	J.B. Berstler	215-466-3814
	Eastern	Philadelphia	H.A. Fisher	215-466-4377
	Central	Harrisburg	A.H. Peters	717-232-5904
	Western	Pittsburgh	R.H. Montgomery	412-633-4364
C&P	Washington	Washington	M.J. Dumas	202-392-3111
	Maryland	Baltimore	H.M. Pragel	301-393-3504
	Virginia	Richmond	C.W. Robertson	703-772-3506
	W. Virginia	Charleston	T.N. Brasselle	304-344-6572
So.	Staff	Atlanta	R.A. White	404-529-7271
	No. Florida	Jacksonville	R.A. Widell	904-353-2668
	So. Florida	Miami	H.E. Starr	305-350-8296
	S.E. Florida	Ft. Lauderdale	R.E. Moore	305-772-0223
	Georgia-Metro	Atlanta	R.W. Gunnin	404-256-2262
	Georgia-Outstate	Atlanta	H.T. Cowart, Jr.	404-877-3316
	No. Carolina	Charlotte	G.K. Robinson	703-372-1591
	So. Carolina	Columbia	W.A. Humphries	803-252-4385
So. Cn.	Staff	Birmingham	H.D. Adamson	205-321-8581
	Alabama	Birmingham	J.M. Staplef	205-321-3291
	Kentucky	Louisville	A.P. Crump	502-582-8719
	Louisiana	New Orleans	D.C. Caston	504-529-8541
	Mississippi	Jackson	G.L. Robertson	601-948-3725
	Tennessee	Nashville	V.E. Matthews	615-298-7470
Ohio	Northeast	Cleveland	E.W. Hubman	216-822-7679
	Southwest	Columbus	T.G. Andrian	614-463-7542
Mich.	Staff	Southfield	J.A. McGill	313-355-2971
Ind.	-	Indianapolis	L.B. Carr	317-630-5161
Wisc.	-	Milwaukee	W.F. Ribbens	414-393-2164
Ill.	Chicago	Chicago	J.W. Firth	312-727-6193
	State	Springfield	R.B. Fitts	217-789-5940
	Suburban	Chicago	B.C. Mason	312-727-1851
N.W.	Staff	Omaha	L.W. Blumer	402-422-2584
	Minnesota	Minneapolis	E.O. Bernard	612-334-6118
	Iowa	Des Moines	N.E. Bohner	515-281-6997
	Nebraska	Omaha	C.J. Raffensperger	402-344-3863
	So. Dakota	Sioux Falls	H.M. Scott	605-338-0956
	No. Dakota	Fargo	L.D. Reed	701-235-3355
S.W.	Staff	St. Louis	C.H. Strandberg	314-247-3804
	Arkansas	Little Rock	R.M. Bradley	501-376-9703
	Kansas	Topeka	J.E. Ayers	913-357-2791
	Kansas City	Kansas City	W.M. Schmit	816-275-8510
	St. Louis	St. Louis	F.F. Stiefferman	314-247-4469
	Oklahoma	Oklahoma City	F.W. Kamp	405-236-7258
	Dallas	Dallas	K.D. McBee	214-745-3836
	Houston	Houston	V.P. Bearden	713-521-8431
	San Antonio	San Antonio	J.L. Zumwalt	512-222-3909
Mtn.	Staff	Denver	F.E. Marick	303-266-4516
PNB	Staff	Seattle	G.D. Frampton	206-345-4060
	Wash-Idaho	Seattle	R.P. Kersten	206-345-3700
	Oregon	Portland	P.V. Perletti	503-226-5560
Pac.	Staff	San Francisco	S.H. Steere	415-399-3164
	No. Counties	Sacramento	G.R. Ashby	916-482-2566
	L.A. North	Pasadena	K.A. Polson	213-791-2582
	L.A. Central	Los Angeles	St. Angelton	213-621-1385
	So. Counties	San Diego	L.M. Kendrick	714-238-2210
	Cn. Counties	San Jose	E.D. Jackson	408-291-4586
	Nevada	Reno	H.W. Proctor	702-329-6582
	Bay	San Francisco	R.M. Ihnat	415-399-3310
L.L.	Staff	New York	D.R. Ferrantino	212-393-7453
	NE-States	White Plains	A.R. Klappas	914-320-2263
	NE-City	New York	R.W. Hoffmann	914-320-2959
	Central	Chicago	J.W. Duncan	312-641-8500
	Southern	Atlanta	J.F Cummings	404-529-6703
	Midwestern	Kansas City	H.A. Townsend	816-391-2100
	Eastern	Washington, D.C.	J. Potterveld	202-466-3551
	Western	San Francisco	F.J. Curran	415-442-2231
S.N.E.	-	New Haven	H.J. Beaudin	203-771-6569
Cin.	-	Cincinnati	R.E. Sigmon	513-397-4151
Can.	CCR	Ottawa	J.H. Carson	613-239-2571
	Trans-Can.	Ottawa	L.H.W. de Launay	613-239-2916



1. CURRENT PROGRAM AND REQUIREMENTS

1.01 Circuit Maintenance System No. 1A

The Circuit Maintenance System (CMS) No. 1A is a processor-controlled system which will provide enhanced operational and administrative capabilities for craft personnel in the trunk maintenance area. It is intended as a building maintenance system with the first application being the new No. 4 ESS toll switching system.

The hardware system itself consists of a considerable amount of outside supplier equipment.

CMS No. 1A will be programmed to provide many new features for craft personnel. These include:

Operational Functions

a. Establish and maintain work lists for the test position.

b. Provide trouble ticket function.

c. Interface with ESS, CAROT, SMAS, CTMS, etc.

d. Provide capability for both operational and transmission tests on demand via ESS and CAROT, respectively.

e. Provide the dispatch function.

f. Set up calls for test positions to ESS and SMAS (local).

g. Handle incoming 101 calls.

   (1) Provide trace if incoming call is on one of the test positions.

h. Automatic referral of work to local equipment area.

Administrative Functions

a. Present activity logs.

b. Print daily reports.

c. Handle data base administration and coordination with other data bases.

Data Storage

a. Circuit layout record cards.

b. Action lists (test position and control position).

c. Trouble records, work requests.

d. Number translations.

J. S. Fleishman

1.02 Use of Minicomputers in Crossbar Tandem and No. 4 Crossbar Reorder Traps

Development of the standard Crossbar Tandem Auxiliary Recording (Reorder Trap) feature has recently been redirected to use a minicomputer and TTY's for trouble recording and exception reporting rather than a card punch, business machine cards, and a card sorter. The same general types of troubles which were to be recorded with the card punch arrangement (sender reorders, vacant codes, CAMA ANI failures, etc.) will be recorded with the minicomputer system. However, this new arrangement can directly provide exception reports of troubles involving any particular incoming trunk, sender, ABC digits or outgoing trunk when a preselected threshold number of troubles associated with each of

these four items has been reached. The cost of this new standard arrangement is expected to compare favorably with the original card punch system since the office modifications involved will be significantly reduced. Also, savings in plant operating effort are possible and office trouble data can be presented in a more complete and timely manner. Further automation of plant maintenance, operating and administrative functions using this same computer is also possible. The availability of this new standard arrangement will be approximately the same as the card punch system with an initial shipment expected in 1Q'73. Further information regarding the features, price and ordering details will be published as it becomes available.

The standard auxiliary trouble recording feature for No. 4 Crossbar is also being modified to use a minicomputer in place of the card punch. The new standard arrangement will employ and interface circuit different from the AUXRC circuit and functions in addition to reorder recording will be provided. However, to provide as soon as possible the benefits a minicomputer can offer in the reorder trap application, an "interim arrangement" is being developed for this purpose. E.L. 1716 (GL72-02-203) further describes this plan and additional information will be published as it becomes available.

W. A. Wenzel

1.03 No. 1 ESS Two-Wire Toll Application

E.L. 1151, issued May 7, 1971, described the use of No. 1 ESS as a combined local and toll switching system with a limited Class 4P or 4C function. E.L. 1851, issued May 1972, expands the use of the No. 1 ESS two-wire toll application, including the use of No. 1 ESS as an interlocal tandem and toll switching system with no Class 5 or line switching function.

The CTX-7 generic program will include a 2048 terminal Trunk Link Network configuration with a capacity of 225,000 CCS and a real time capacity of 100,000 peak busy hour attempts. First office applications are scheduled for cutover in 1974.

The Bell Telephone Laboratories are developing four-wire operation for the No. 1 ESS with the first office cutover estimated for 1976.

J. F. Walsh

1.04 No. 4 ESS Status and Handbook

Chicago 7, the first No. 4 ESS installation, is now scheduled for service in January 1976. Kansas City, Missouri, is being considered for a No. 4 ESS with a service date later in 1976. It is presently estimated that nine additional systems will cutover in 1977.

E.L. 1224, issued July 20, 1971, contains the planning information for No. 4 ESS. Within the next four months, a No. 4 ESS Handbook will be issued to provide a single source for the planning information from a switching, transmission, and traffic engineering standpoint. It is planned to update the handbook as required to provide the latest available information on No. 4 ESS.

J. F. Walsh

1.05 Stored Program Control Systems - Installation Interval Guidelines

Western Electric has revised the installation interval guidelines for various Stored Program Control Systems. With certain exceptions, installation interval guidelines are available for the following systems and may be used in your planning for systems shipping during 1972 and 1973.

System	Shipment
No. 1 ESS	After June 30, 1972
No. 2 ESS	1972, 1973
No. 4A Crossbar Equipped with ETS	1973
No. 4A Crossbar Conversion to ETS	1973
TSPS	1972, 1973
AIS-CIB	1972, 1973

The specific intervals are outlined in GL71-08-208, dated August 30, 1971, and are to be used for planning purposes only. Firm intervals must be negotiated with your Western Electric Regional Organization.

R. J. Craig

2. PROGRESS IN DISTANCE DIALING

2.01 International Communications

A. Extension of Operator Dialing

Subscribers in over 30 countries outside the North American network can now be dialed directly by U. S. operators at five International Operating Centers (IOC) located in New York, N.Y., White Plains, N.Y., Pittsburgh, Pa., Jacksonville, Fla. and Oakland, Cal. Two additional IOC's will be placed in operation in Denver, Colorado and Springfield, Mass. in June 1972 and September 1973 respectively. Operator dialing is planned to be extended to about 30 additional countries by the end of 1973.

B. International Originating Toll Center (IOTC) Operation

IOTC operation permits North American Originating Toll Center operators to gain access to international switching centers through which they can complete calls to subscribers in foreign countries. IOTC operation can be achieved from any type of cord switchboard which is capable of 2-phase multifrequency outpulsing. Cord switchboards of the No. 3 series and many No. 1 installations have this capability. Modifications scheduled to complete in late 1974 will permit IOTC operation from TSPS installations.

IOTC operators in more than 60 operating units in the Pacific Company presently handle all types of calls to the United Kingdom, France,

Germany, Australia, Japan and Hong Kong. Extension of IOTC operation from many large metropolitan areas is scheduled to begin in the second quarter of 1972.

C. International Direct Distance Dialing (IDDD)

IDDD permits direct distance dialing of international calls from subscribers in the U. S. to those in countries outside from the North American network. Initial implementation of IDDD is limited to international, station-to-station, sent-paid calling from subscribers served by modified No. 5 crossbar and No. 1 ESS local offices equipped with SP/CC-CTX-4 or later vintage generic programs. IDDD of all types of international calls will be possible from subscribers served by modified No. 5 crossbar, No. 5A crossbar, SxS and No. 1 ESS offices with SP/CC-CTX-6 or later vintage generic programs. This latter capability, however, is dependent on TSPS modifications expected to be available in late 1974. TSPS will record, provide operator assistance and perform the principal processing functions for IDDD calls.

IDDD is presently available to New York City subscribers served by a number of modified No. 5 crossbar and one No. 1 ESS local offices. These subscribers are able to dial station-to-station calls to twenty foreign countries. It is planned to introduce IDDD from additional major U. S. cities in 1972.

Several foreign countries now offer their subscribers IDDD to the United States.

D. Distance Dialing in North America

DDD with the states of Hawaii and Alaska and with the Bahama Islands was introduced in the past year. DDD service with Puerto Rico and the American Virgin Islands has been in operation since 1966 and 1968 respectively.

V. C. Butler

2.02 High Volume Tandem Concept for Metropolitan Areas

In multimachine Metropolitan Areas, the toll sector tandem configuration is preferred in the range of up to 2-5 sectors. Beyond this range, a different configuration is needed which can avoid the further splintering of intercity trunk groups which happens when more sectors are created. The most promising configuration so far explored is one based on a switching and trunking arrangement called a "high volume tandem." The significant features of a high volume tandem configuration are:

1. Each high volume tandem switches specified items of traffic load for all end offices in a metropolitan area. A high volume traffic item may consist of the total traffic load between two metropolitan areas or between a metropolitan area and an NPA or, in rare cases, between

NPA's. In the latter cases, the high volume tandem for completing traffic must be arranged to act as a principal city for this traffic item.

2. If there are two or more high volume tandems serving a metropolitan area, all end offices must have access, originating and terminating, to all high volume tandems. This makes the toll connecting trunking arrangements more complex.

3. A metropolitan area with high volume tandems looks as though it were a single office city for traffic to and from each distant point terminated on a high volume tandem. This simplifies the intercity trunk plant.

4. The distant ends of trunk groups terminated at a high volume tandem for a given traffic item may be other high volume tandems or may be sector tandems of a distant metropolitan area not yet provided with a high volume tandem for this particular traffic item. These trunk groups are engineered on a full group basis. No traffic from high volume tandems is permitted to overflow to the hierarchical network.

5. When the economical number of sectors (maximum of 3 to 5) is reached for a metropolitan area, all subsequent net growth is taken on high volume tandems by transferring specific items of high volume traffic loads to these tandems. Thus, the number of sectors ought not to increase once high volume tandems are provided.

6. For the use of high volume tandems to be feasible, end offices must be equipped for alternate routing and the translation of a minimum of three digits. Six-digit translation may be required for some items of high volume traffic.

7. Trunking between end offices and the high volume tandems which serve them is preferably on a high usage basis - final or full groups would be more costly. Overflow from the end offices is alternate-routed via the sector tandem using a full group between it and the high volume tandem for both originating and terminating traffic.

8. Studies indicate that trunk rearrangement costs, as additional switching systems are added, can be significantly reduced by the introduction of high volume tandems as compared to adding more sector tandems beyond a maximum in the range of 3 to 5 sectors.

9. High volume tandems may be equipped with CAMA and TSPS services. The total recording requirements for the whole metropolitan area must be examined and evaluated.

Studies are now in progress to provide more detailed information on the high volume tandem concept, in particular, the point at which the number of sectors should be frozen and the high volume tandems provided for subsequent net growth. Additional information may be found in E.L. 461, issued April 23, 1970.

J. F. Walsh

2.03 PICTUREPHONE® Toll Network Planning

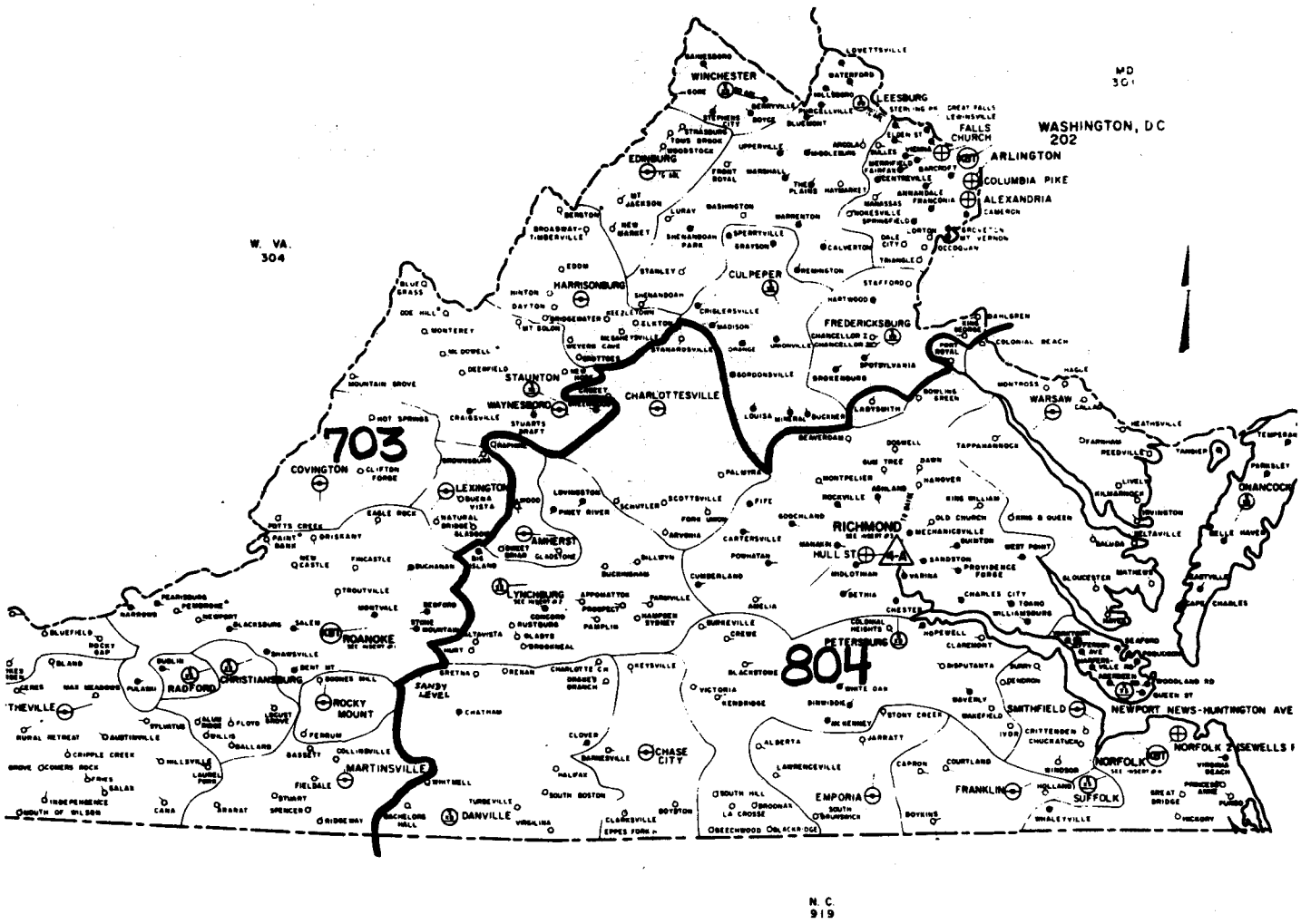
PICTUREPHONE toll network planning can proceed at a somewhat more leisurely pace in light of some recent developments concerning the service.

For a variety of reasons, it has been decided to concentrate on the development of exchange PICTUREPHONE service before inaugurating any intercity routes. Since New York is not yet ready to offer exchange service, and demand other than in Chicago has been rather disappointing to date, the early timetables for expansion of the service have been revised. Considerable attention is now being given to various Market Reasearch efforts looking toward a better understanding of how the service would be used in the business environment.

Over 150 sets are now installed and working for customers in the Chicago "Loop" and another hundred or so are installed on "internal" systems for customers throughout Illinois and in five other Operating Company territories. The Illinois Public Service Commission recently approved the offering of exchange service in the Oakbrook exchange which is located about 20 miles from downtown Chicago. This exchange, which begins commercial service June 1st of this year, brings to six the number of wire centers in the Chicago area that are arranged for PICTUREPHONE exchange service.

J. M. Heller

2.04 Establishment of 804 NPA Code



The introduction of a new NPA code for Eastern Virginia has been scheduled for June 24, 1973. The new 804 code will include the major cities of Richmond, Newport News, Norfolk, Danville, Lynchburg and the Eastern Shore area. The present code, 703, will be retained by those customers in the western and northern portions of the state, including Arlington, Alexandria, Culpiper, Fredericksburg, Staunton, Roanoke and Martinsville. The dividing line of the two areas will be adjacent to Fredericksburg, and extend south through the Blue Ridge Mountains, Roanoke and the southwestern portion of the state. Roughly 300 local central office codes will be involved in this change, and a System letter is available which discusses this matter more thoroughly.

The change in Virginia will bring the number of NPA's assigned to 132 in the North American DDD network, leaving only 20 NPA-type codes unassigned. This points out the need to maintain stringent code conservation efforts.

R. J. Cooper

3. OTHER

3.01 Network Completion Studies

Network completion is a measurement of subscriber-dialed toll service, and is expressed as the percent completed messages to subscriber-originated attempts. The results are obtained from Revenue Accounting analyses of CAMA/LAMA recording equipment data sampled once each month and on Christmas and Mother's Day. All AMA/CAMA recorder groups in the Bell System offices are included, with the exception of No. 4 ESS, TSP, and TSPS. The data is summarized to show attempts and messages by NNX, toll center, company network region, and Bell System, and are broken down by HNPA and FNPA traffic.

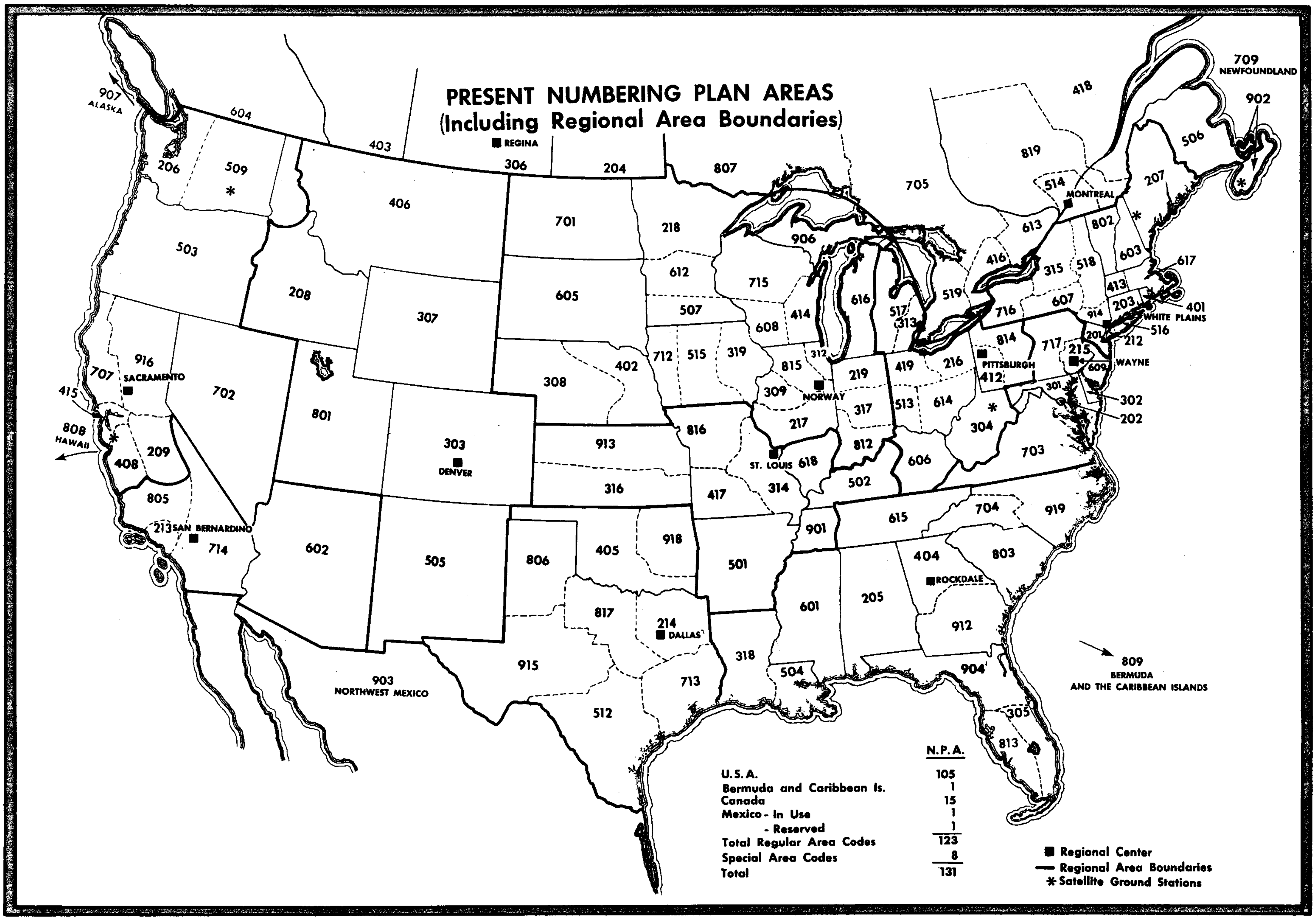
This measurement is made at the point of obtaining a toll trunk and entering the call details into the recorder. Therefore, attempts which fail to access a trunk into or out of the recording location are excluded from the count of messages.

G. R. Rosenberger

3.02 Routing Audit

A study is being made of the methods by which routing changes are processed for the message network. Included in this review are all steps in the process, from preparation of the order requesting the change to the implementation of the change itself, and encompasses the duties of the routing engineer, the dial administrator and the plant maintenance forces. Phase I of the study will concentrate on No. 4 Crossbar and Crossbar Tandem switching machines, and new administrative practices and standard verification tests will be issued as they are developed.

C. W. Holm



PRESENT NUMBERING PLAN AREAS
(Including Regional Area Boundaries)
907
ALASKA
808
HAWAII
709
NEWFOUNDLAND
902
809
BERMUDA AND THE CARIBBEAN ISLANDS
903
NORTHWEST MEXICO
REGINA
SACRAMENTO
SAN BERNARDINO
DENVER
DALLAS
ST. LOUIS
NORWAY
PITTSBURGH
ROCKDALE
MONTREAL
WHITE PLAINS
WAYNE
604
403
306
204
807
705
418
819
514
613
416
519
506
207
802
603
617
518
315
413
401
203
607
716
914
516
212
201
814
717
215
609
302
202
301
412
304
703
206
509
406
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218
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503
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316
417
314
502
213
714
602
505
806
405
918
501
901
615
704
919
404
803
817
214
601
205
912
915
713
318
504
904
512
305
813
N.P.A.
U.S.A. 105
Bermuda and Caribbean Is. 1
Canada 15
Mexico - In Use 1
- Reserved 1
Total Regular Area Codes 123
Special Area Codes 8
Total 131
■ Regional Center
— Regional Area Boundaries
* Satellite Ground Stations