

wire center investment

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[illegible]

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[illegible]

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[illegible]

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[illegible]

[illegible]

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[illegible]

[illegible]

tandem and STP investment

	Tandem investment calculations		
	total tandems in service area		#N/A
	total business lines in service area		0
	total residential lines in service area		0
	total public access lines in service area		0
	total tandem-routed interoffice CCS		#DIV/0!
	total special access lines in service area		-
	total tandem DS-3s		#DIV/0!
	total common equipment investment		#N/A
	per-line switch common equipment investment		#N/A
	total wire center investment		#N/A
	per-line wire center investment		#N/A
	STP investment calculations		
	total STP pairs in service area		#N/A
	total STP investment		#N/A
	total STP wire center investment		#N/A
	STP wire center investment per line		#N/A
	total investment per line		#N/A
	excess STP capacity, links		#N/A
	excess STP capacity required		#N/A
	Total tandem-routed BHCA		
		business	#DIV/0!
		residential	#DIV/0!
	Excess tandem real time capacity, BHCA		#N/A
	Excess tandem trunk capacity, trunks		#N/A
	Excess tandem switches, real-time basis		#N/A
	Excess tandem switches, trunk basis		#N/A
	Signaling link calculations		
		NECA company code	0
		total tandems	#N/A
		total tdm/STP distance	#N/A
		avg tdm/STP distance	#N/A
		avg D link investment, per link	#DIV/0!
		total links	-

tandem and STP investment

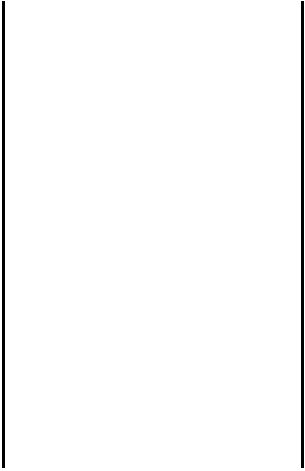
		total link investment	\$	-
		average link inv	\$	-
		total tandem A links		#N/A
		total C links		#N/A
		equiv tdm A links/C links/line		#N/A
		Total SCP investment per line		#DIV/0!
		Total SCP wire center investment per line		#DIV/0!
		Average ring distance per node, mi		-
		Average tandem distance, mi		#DIV/0!
		Ring + interconnector distance adjustment factor		-

tandem and STP investment

[illegible]

wire center	operating company indicator	area, sq mi	total lines

loop db inputs



loop db inputs

business lines	res lines	public lines
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loop db inputs

loop db inputs

loop db inputs

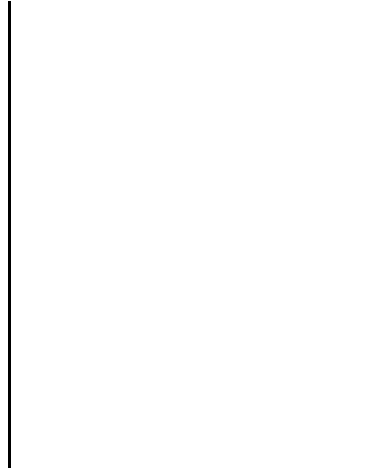
loop db inputs

SA lines	DLC lines	feeder pole inv

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loop db inputs



loop db inputs

feeder buried copper plcmt		
feeder buried fiber plcmt inv	inv	feeder u/g fiber plcmt inv

loop db inputs

loop db inputs

loop db inputs

loop db inputs

feeder u/g copper plcmt inv

feeder manhole inv

distance inputs

wire center	STP A link distance sum	local tandem distance	OS Tandem Distance	Ring Distance	NECA Company Code

distance inputs

NECA Vert Coord	NECA Horiz Coord	Serving Tandem	Tandem NECA Company Code	NECA Tandem Vert Coord	NECA Tandem Horiz Coord

distance inputs

Tandem LATA (From NECA Data)	WC Connects to BOC CLLI	Total DS-3 Equivalents in Ring		Company Code	Total tandems in study area	Total OS tdms in study area

distance inputs

Total tandem/STP A-Link distance	Total STP pairs in study area	Total STP/STP distance	Total Tandem Mesh Distance	Total Inter-Ring Distance	Total Number of Ring Connectors

distance inputs

Total Inter-Ring System Distance	Total Number of Inter-Ring System Connectors	Total Number of Rings Intersecting a Tandem	total unidentified tdm distance

Remote	Remote Vert (NECA)	Remote Horiz (NECA)	NECA Co Code	Host
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Host Vert (NECA)

Host Horiz (NECA)

Wire Center

WC Vert (NECA)

WC Horiz (NECA)	NECA Co Code	Tandem	Tandem Vert (NECA)	Tandem Horiz (NECA)
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Remote	Remote Connects to CLLI (CLLI #1)	Distance From Remote to CLLI #1, mi.	Remote Connects to CLLI (CLLI #2)
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Distance from Remote to CLLI #2, mi.	Ring Connector Node #1	Ring Connector Node #2	Ring Connector Distance, mi
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Wire Center	Wire Center Connects to CLLI (CLLI #1)	Distance from Wire Center to CLLI #1, mi.	Wire Center Connects to CLLI (CLLI #2)	Distance from Wire Center to CLLI #2, mi.
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DS-3 Equivalents	DS-3 Equivalents from Spur(s)	Ring Connector Node #1	Ring Connector Node #2	Ring Connector Distance, mi.
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Total Ring Connector Distance (mi)	Total Number of Ring Connectors
---------------------------------------	------------------------------------

CLLI	Distance (mi)	DS-3 Equivalents	DS-3 Equivalents from Spur(s)
------	---------------	---------------------	-------------------------------------

Spur- Connecte d CLLI	Spur Connects To CLLI	Spur Distance, mi.	Spur CLLI DS-3 Equivalent s
-----------------------------	-----------------------------	--------------------------	--------------------------------------

System Interconne ction CLLI #1	CLLI #1 Homes on Tandem	CLLI #1 Connects to CLLI (CLLI #2)
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CLLI # 2 Homes on Tandem	System Interconne ctor Distance,
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Host	Remote	NECA Co Code	total local switched lines per host	total local residential lines per host
			#DIV/0!	#DIV/0!

total local business + public lines per host	total HR ring traffic per host, CCS	total BHCA per host	total interoffice traffic per host, CCS	total switched lines per remote
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

total residential lines per remote	total business + public lines per remote	cumulative BHCA	total BHCA per remote	total interoffice traffic per remote,CCS
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

switch inv per host	total per line wire center inv per system	switch inv per remote	cumulative switch inv per system	repeated wire center inv per line
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

total					
avg switch inv per line in system	repeated average switch inv per line	total lines in system	residential lines in system	total business + public lines in system	DLC lines per host wire center
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0

DLC lines per remote wire center	repeated HR ring term inv/line	cumulative local direct traffic, CCS	total local direct trunks per host	cumulative local tandem traffic, CCS
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

total local tandem trunks per host	cumulative intraLATA direct traffic, CCS	total intraLATA direct trunks per host	cumulative intraLATA tandem traffic, CCS	total intraLATA tandem trunks per host
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

cumulative OS traffic, CCS	total OS trunks per host	cumulative direct- routed access traffic, CCS	total direct- routed access trunks per host	cumulative tandem-routed access traffic, CCS
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

total tandem-routed access trunks per host	total A links per host	SA lines per host	SA lines per remote	cumulative SA lines	total SA lines per system
#DIV/0!	#DIV/0!	#N/A	#N/A	#N/A	#N/A

[illegible]

total HR ring
DS0s, host trfc
only
#DIV/0!

cumulative
remote DS0s
#DIV/0!

> OC3
determination
#DIV/0!

HR ring >
OC3 ind
#DIV/0!

cumulative HR
ring terminal
investment
#DIV/0!

HR ring
terminal inv per
line
#DIV/0!

				BOCs and la			
		1	2	3	4		
constant EO switching investment term, small ICO	\$ 416.11						
constant EO switching investment term, BOC and large ICO	\$ 242.73	line size	standalone fixed inv	host fixed inv	remote fixed inv		
multiplicative EO switching investment term	-14.922		0 \$ 175,000	\$ 183,750	\$ 10,000		
			640 \$ 175,000	\$ 183,750	\$ 55,000		
			5000 \$ 175,000	\$ 183,750	\$ 70,000		
			10000 \$ 475,000	\$ 498,750	\$ 225,000		
host/remote calculations enabled	FALSE						
switch capacity limits							
	lines	real-time (BHCA)	traffic (BHCCS)				
	0	10,000	30,000				
	1,000	50,000	150,000				
	10,000	200,000	600,000				
	40,000	600,000	1,800,000				
initial switch maximum equipped line size	80,000						
switch port administrative fill	0.98						
switch max processor occupancy	0.90						
processor feature loading multiplier -- normal	1.20						
heavy business	2.00						
business penetration threshold	0.30						
MDF/protector investment per line	\$ 17.50						
analog line circuit offset for DLC lines, per line	\$ 5.00						
switch installation multiplier	1.1						
Interoffice parameters							
operator traffic fraction	0.02						
total interoffice traffic fraction	0.65						
local DEM fraction (no OS)	0.732						
local interoffice traffic fraction of total traffic	0.382						
local interoffice traffic fraction of local traffic	0.522						
Transmission parameters							
maximum trunk occupancy, CCS	27.5	Total access lines in study area					
trunk port, per end	\$ 100.00						
entrance facility distance, miles	0.5		residential			-	
direct-routed fraction of local interoffice	0.98		business			-	
POPs per tandem location	5		public telephone			-	
threshold value for off-ring wire centers, total lines	5000		special			-	
tandem-routed fraction of total intraLATA traffic	0.2						
remote-host fraction of interoffice traffic -- remote	0.1	total annual bus DEMs per line	#DIV/0!				
host-remote fraction of interoffice traffic -- host	0.05	total annual res DEMs per line	#DIV/0!				
tandem-routed fraction of total interLATA traffic	0.2						
traffic threshold for trunk engineering	1512.5	local DEMs/line					
intertandem fraction of tandem trunks (additive)	0.10	bus	#DIV/0!				
Traffic inputs		res	#DIV/0!			total bus BH usage/line, min	
local call attempts	5,268,412,000	intrastate DEMs/line				total res BH usage/line, min	
call completion factor	0.70	bus	#DIV/0!			local intraoffice BH usage/line, min	
intraLATA calls completed	133,013,000	res	#DIV/0!				
interLATA intrastate calls completed	108,934,000						
interLATA interstate calls completed	491,191,000	interstate DEMs/line					
local DEMs, thousands	20,587,660	bus	#DIV/0!			total local interoffice BH usage/line, min	
intrastate DEMs, thousands	2,528,338	res	#DIV/0!			tandem	
interstate DEMs, thousands	4,274,395						
total DEMS, thousands	27,390,393					direct	
		total BHCA	-				
local bus/res DEMs	1.1	total TCAP messages/s(BH)	-				
intrastate bus/res DEMs	2	total SCP investment per line	#DIV/0!			intraLATA BH usage/line, min	
interstate bus/res DEMs	3					tandem	
		total per-BHCA message loading factor	0.0000117				
BH fraction of daily usage	0.10					direct	
Annual to daily usage reduction factor	270						
residential holding time multiplier	1.0	intraLATA fraction of toll calls	0.181			access BH usage/line, min	
business holding time multiplier	1.0	interLATA fraction of toll calls	0.819			tandem	
		local fraction of total DEMs, less OS	0.732				
(offered load assumed for afternoon busy hour)		intraLATA fraction of total traffic	0.045			direct	

call attempts/BH		offered load, CCS	interLATA fraction of total traffic	0.203		
residential	1.3	#DIV/0!				
business	3.5	#DIV/0!	Derived per-line BH traffic, CCS			OS BH usage/line, min
average holding time, seconds			residential -- total offered load	#DIV/0!		
residential		#DIV/0!	local			
business		#DIV/0!	intraswitch	#DIV/0!		
ICO per line values	equipment	wire center	interoffice direct	#DIV/0!		
per-line ICO STP investment (wire ctr incl STP and SCP)	\$ 5.50	\$ 0.40	interoffice tandem	#DIV/0!		
per-line ICO local tandem investment	\$ 1.90	\$ 2.50	OS	#DIV/0!		
per-line ICO OS tandem investment	\$ 0.80	\$ 1.00	intraLATA tandem	#DIV/0!		
per line ICO SCP investment/tdm A link+C link inv	\$ 2.50	\$ 0.30	intraLATA direct	#DIV/0!		
Tandem switching parameters			interLATA tandem	#DIV/0!		
real time limit, BHCA	750,000		interLATA direct	#DIV/0!		
port limit, trunks	100,000		business -- total offered load	#DIV/0!		
common equipment investment	\$ 1,000,000		local			
maximum initial trunk port occupancy	0.90		intraswitch	#DIV/0!		
maximum real time occupancy	0.90		interoffice direct	#DIV/0!		
common equipment intercept factor	0.50		interoffice tandem	#DIV/0!		
Signaling parameters			OS	#DIV/0!		
STP link capacity	720		intraLATA tandem	#DIV/0!		
STP maximum link fill	0.8		intraLATA direct	#DIV/0!		
max STP investment, per pair	\$ 5,000,000		interLATA tandem	#DIV/0!		
min STP investment, per pair	\$ 1,000,000		interLATA direct	#DIV/0!		
link termination, both ends	\$ 900					
signaling link bit rate	56,000					
link occupancy	0.4					
C link cross section	24					
ISUP messages per interoffice BHCA	6					
ISUP message length, bytes	25					
TCAP messages per transaction	2					
TCAP message length, bytes	100					
fraction of BHCA requiring TCAP	0.10					
SCP investment/transaction/second	\$ 20,000					
Operator position parameters						
investment per position	\$ 6,400		equivalent facility investment per DS0	\$ 138.08		
maximum utilization per position, CCS	32					
operator intervention factor	10		equivalent terminal inv per DS0	\$ 111.62		
Public telephone inputs						
equipment investment, per station	\$ 760					
Wire center parameters						
lot size, multiplier of switch room size	2					
tandem/EO wire center common factor	0.40					
1	2	3	4	5	6	7
served lines in wire center	power	switch room size, sq ft	construction/sq ft	land/sq ft	total sw room	total wire center w/o land
0	\$ 5,000	500	\$ 75	\$ 5.00	\$ 37,500	\$ 42,500
1,000	\$ 10,000	1,000	\$ 85	\$ 7.50	\$ 85,000	\$ 95,000

	5,000	\$	20,000		2,000	\$	100	\$	10,000	\$	200,000	\$	220,000
	25,000	\$	50,000		5,000	\$	125	\$	15,000	\$	625,000	\$	675,000
	50,000	\$	250,000		10,000	\$	150	\$	20,000	\$	1,500,000	\$	1,750,000
	Transmission terminal investment												
	ring transiting traffic factor		0.40										
	maximum SONET transmission rate -- OC-		48										
	OC-48 ADM, installed, 48 DS-3s	\$	50,000										
	OC-48 ADM, installed, 12 DS-3s	\$	40,000										
	OC-3/DS-1 terminal multiplexer, installed, 84 DS-1s	\$	26,000										
	inv per 7 DS-1s	\$	500										
	maximum nodes per ring		16										
	Number of fibers		24										
	Pigtails, per strand	\$	60.00		total inv	\$	1,440						
	Optical distribution panel	\$	1,000										
	EF&I, per hour	\$	55		total EF&I	\$	1,760						
	EF&I hours		32										
	regional labor factor		1.00										
	Total OC-48 ADM inv per location	\$	54,200										
	Total OC-48 (12 DS3) ADM inv per location	\$	44,200										
	Total OC-3 term mux inv per location	\$	30,200										
	channel bank investment, per 24 lines	\$	5,000										
	fraction of SA lines requiring multiplexing		-										
	Regenerator, installed	\$	15,000										
	Regenerator spacing, mi		40										
	DCS, installed, per DS-3	\$	30,000										
	transmission terminal fill (DS-0 level)		0.90										
	Fiber investment per foot, installed												
	fiber cable	\$	3.50										
	number of strands per ADM		4										
	buried fraction		0.60										
	buried placement	\$	1.77										
	buried sheath addition	\$	0.20										
	underground fraction		0.20										
	conduit	\$	0.60										
	spare tubes per route		1										
	conduit placement	\$	16.40										
	pullbox spacing		2,000										
	pullbox investment	\$	500										
	aerial fraction		0.20										
	pole spacing, ft		150										
	pole investment												
	material	\$	201										
	labor (basic)	\$	216										
	total pole inv/ft, w/regional labor adj	\$	2.78										
	fraction poles and buried/ug plcmnt common w/feeder		0.75										
	fraction of aerial structure assigned to telephone		0.33										
	fraction of buried structure assigned to telephone		0.33										
	fraction of u/g structure assigned to telephone		0.33										
	total fiber cable inv, per foot	\$	3.50	per foot									
		\$	18,480	per mile									
	total structure	\$	1.87	per foot		\$	9,888.60	per mile					
	total aerial structure	\$	0.18	per foot		\$	968.77	per mile					
	total buried structure	\$	0.35	per foot		\$	1,850.43	per mile					
	total u/g structure	\$	1.08	per foot		\$	5,715.07	per mile					
	total pullbox structure	\$	0.02	per foot		\$	87.12	per mile					
	total conduit	\$	0.24	per foot		\$	1,267.20	per mile					

inputs

[illegible]

[illegible]

\$	40,000	702.0	30					
\$	150,000	732.0	31					
\$	400,000	763.0	32					
		794.0	33					
		825.0	34					
		856.0	35					
		887.0	36					
		918.0	37					
		950.0	38					
		981.0	39					
		1013.0	40					
		1044.0	41					
		1076.0	42					
		1108.0	43					
		1140.0	44					
		1171.0	45					
		1203.0	46					
		1236.0	47					
		1268.0	48					
		1300.0	49					
		1332.0	50					
		1364.0	51					
		1397.0	52					
		1429.0	53					
		1462.0	54					
		1494.0	55					
		1527.0	56					
		1559.0	57					
		1592.0	58					
		1625.0	59					
		1657.0	60					
		1690.0	61					
		1723.0	62					
		1756.0	63					
		1789.0	64					
		1822.0	65					
		1855.0	66					
		1888.0	67					
		1921.0	68					
		1954.0	69					
		1987.0	70					
		2020.0	71					
		2053.0	72					
		2087.0	73					
		2120.0	74					
		2153.0	75					
		2186.0	76					
		2219.0	77					
		2253.0	78					
		2286.0	79					
		2319.0	80					
		2353.0	81					
		2386.0	82					
		2420.0	83					
		2453.0	84					
		2487.0	85					
		2521.0	86					
		2554.0	87					
		2588.0	88					
		2621.0	89					
		2655.0	90					
		2688.0	91					
		2722.0	92					
		2756.0	93					
		2790.0	94					
		2823.0	95					
		2857.0	96					

inputs

	2891.0	97						
	2925.0	98						
	2958.0	99						
	2992.0	100						