NETWORK MANAGEMENT ADMINISTRATION

PREPLANNING

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1. GENERAL

1.01 The network manager is responsible for controlling and maintaining service in the network at all times. During normal periods this responsibility may be fulfilled by a surveillance of the network, and with occasional controls taken to compensate for isolated peaks in traffic volumes or facility failures. During periods of severe overloads, major facility failures, or on peak days, the network manager's responsibilities become more acute and are more difficult to carry out. These periods could be caused by accelerated traffic due to peak day calling, natural disaster or serious weather conditions, important or international events, or a routing mass-calling problem. Overloads can also be caused by loss of telephone capacities or facilities due to equipment or cable failure (both those caused by people and those caused by nature) and loss of facilities due to fire, flood, etc. Minimizing the degradation of service due to a shortage of trunks or switching equipment for any reason is the responsibility of the network manager. However, this responsibility does not supersede the authority and responsibility of others involved in network servicing and network design.

1.02 Whenever this section is reissued the reason for reissue will be contained in this paragraph.

1.03 The preplanning of the means, actions, and controls required to ensure the minimization of service degradation is an important attendant responsibility of the network manager. This section provides the network manager with guidelines and recommendations for preplanning. Although this section is directed mainly towards preplanning for overload or disaster conditions, it is not intended to imply that preplanning is not necessary for other, less volatile, periods.

1.04 The provision of adequate service to ***essential*** users during periods of serious overload

and/or disaster is the responsibility of the network manager; but the preplanning of methods and means to carry out the responsibility is shared with the network administrator and others.

1.05 Preplanning is a necessity because of the requirement for systematic and immediate control of nonmessage attempts. Time is of utmost importance to the network manager during an overload due to the rapid buildup and spread of congestion. Preplanning allows the network manager time to anticipate and evaluate the effects of nonmessage attempts and control action taken. With this knowledge, intelligent traffic-affecting decisions can be made with the confidence that all factors have been considered.

1.06 Well planned office procedures and control action will mean the difference between completing as many messages as possible and ineffective use of facilities and machines.

2. SITUATIONS REQUIRING PREPLANNING

2.01 Planning for network overloads is the key to a smooth, efficient, responsive network management operation. Some network overload conditions which can be eased by adequate preplans are as follows:

(a) Those occurring on peak days

(b) Recurring national events, such as news election service

(c) Many local events, such as telethons or planned radio/television give-away shows.

Most overloads, however, are due to unpredictable occurrences such as earthquakes, floods, fires, major loss of telephone equipment or facilities, assassinations, etc. While events such as these cannot be predicted, the effects can be. Therefore, plans can and must be prepared in advance to handle the additional traffic, to handle all or some of the involved traffic on alternate facilities, or to restrict traffic which will have little or no chance of completion.

2.02 The following situations require consideration by the network manager in the formulation of a preplanning scheme.

(a) ***Known Peak Days***—Preplanned control action (such as cancellation, reroutes, traffic overload reroute control [TORC] and augments) adapts the trunking and routing pattern of the message network, which is designed for average business day (ABD) needs, to the pattern of traffic during the overload. These controls must be changed as conditions change; office procedures and some portion of control must be preplanned to allow the network manager time to analyze and decide the best course of action.

(b) ***Total Machine Failure***—A systematic course of action must be followed to determine what traffic has been affected and where the trouble is located. The plan would be implemented following failure verification. After this has been determined, decisions can be made to insure maximum message completion. Table A of this section includes recommended procedures for dealing with a total machine failure.

(c) ***New Switching Machines***—Before new machines are cut over (ie, the No. 4 ESS), the network manager must preplan, determining affected traffic and the availability and nature of controls.

(d) ***Other Conditions***—Situations, such as telethons, disasters, and events of national interest, require preplanning to the highest possible degree. There will not always be forewarning of these events; however, there are many procedures that can be developed to prevent confusion. Contact lists can be prepared, office procedures can be developed, attempt limiting plans can be made, characteristics of the local and subtending network should be reviewed, weakspot identification, both machine and facilities should be made, etc. Load service curves should also be plotted. Being prepared for the unexpected is just as important as being prepared for known peak days.

2.03 Generally, plans for peak days are expansive in nature in that routing changes, key reroutes, traffic overload reroute control, etc, are employed to take advantage of available capacity in switching and trunking to maximize message completions. Plans to handle most other types of situations are a combination of expansive and protective controls; but unless the situation occurs in an off-peak period or consists of fairly short duration, the plan probably will be more protective

than expansive in nature. For example, a key reroute is established to route direct traffic between points A and B via point C (via A to C to B) in event of a facility failure between A and B. During an off-peak period, there may be sufficient spare capacity between A and C, within C, and from C to B to handle all of the expected normal A-to-C and C-to-B traffic in addition to the rerouted A-to-B traffic; if so, the plan would be considered expansive. On the other hand, if the failure occurred during a busy or peak period when the A-to-C route and/or the C-machine and/or the C-to-B route were/was working at or near capacity, restrictions (less than total access—A to C) would have to be applied to prevent overloads that could seriously affect all or several segments of the involved traffic. The plan, therefore, should be expansive but yet protective in nature.

2.04 All preplans for network overload expansive controls should be developed with a minimum of deviation from the standards outlined in the general transmission and direct distance dialing (DDD) routing plans and authorized by all involved (directly or indirectly) departments and/or companies before being adopted as an approved preplan. All network management preplans should include the following:

(a) A report procedure to advise all involved departments and/or companies when the plan was put into and released from operation

(b) As much data as possible relative to the effect of the plan.

2.05 Should it become necessary to take action or institute expansive controls during an emergency or due to major facility failure for which no preplan has been developed, the network manager should have the authority to apply nonstandard routing and to accept some transmission penalties, if required, to provide partial service for an affected area.

2.06 Network management plans are not normally designed to be activated for administrative purposes to provide capacity that should have been provided by good network administration and/or trunk servicing. Should it becomes necessary to activate a network management preplan (or any other reroute plan) to offset an administrative deficiency, agreement in writing will be required from a level specified by the affected department and/or company on a case-by-case basis.

3. KNOWLEDGE OF THE SWITCHING MACHINE AND THE NETWORK

3.01 Proper administration of any business requires detailed knowledge of what is taking place, both currently and on a historical basis. In network management, the need for detailed knowledge is just as important since decisions affecting the movement of traffic during an overload period must be made rapidly and with a high degree of accuracy. Most decisions in network management are based on conditions that currently exist in the network; however, much of the network manager's time will be spent in developing trend studies and analyzing data. In this way, the network manager becomes aware of trouble spots in the network and develops a feeling for the movement of traffic in that area of responsibility.

3.02 Before the network manager can attempt to generate network adjustments, specific knowledge regarding the switching machine and the network must be obtained. The following list is representative of the types of knowledge required to manage the system.

(a) Machine volatility

(b) Machine switching capacity

(c) Source(s) of traffic

(d) Status of out-of-service equipment

(e) Trouble spots in the network and where controls are most effective during an overload

(f) Sources of data and their relative accuracy (current, historical and reference data)

(g) Load service curve

(h) Routing.

4. ITEMS SUBJECT TO INCLUSION IN A PREPLAN

4.01 The following items should be contributing factors to the formulation of a preplan.

(a) ***Data Handling and Recording***—Network managers must have data available in an

orderly manner and in a form that can be analyzed quickly. This can be accomplished by having adequate recording charts and the required number of people to keep data moving smoothly.

Note: The collection and analyzation of network performance data are sometimes confused with similar functions performed by the network (machine) administrator; in fact, many overlaps of function are in this area of the task. However, the purpose for which the network manager performs these duties is much different than that of the administrator. The network manager will collect and analyze only sufficient amounts of "normal" trunk and switching machine data to allow for preplanning of peak days, overloads, or loss of trunk or switching capacity. During a period of overload and/or network management control or activity, detailed logs will be kept, and data must be collected so that a postoperative analysis can be made of what happened, what effect the controls or management had on the network, and what changes should be made in the preplans for future occurrences.

(b) ***Reporting of Data***—Qualitative and/or quantative data and control action taken must be made available quickly and accurately for use by network managers throughout the network. Traffic-affecting decisions at all control switching points (all class 1, 2, and 3 offices) are based on the results of control action and the effects of nonmessage attempts. Preplanning the flow of this data will allow rapid dissemination to all offices.

(c) ***Control Application***—Preplanning control measures which include augments, reroutes, cancellation, etc, maximize message completion by allowing calls that have the best chance of completing to penetrate the intertoll network. Maintaining the proper message-nonmessage relationship during an overload prevents machine congestion and a further degradation of the network.

(d) ***Controls Needed But Not Available***—There will be situations where controls are not provided to properly control nonmessage attempts. During the preplanning period these can be recognized. Appropriate steps can be taken to request installation of additional controls or reassign existing controls to meet the immediate need.

(e) ***Coverage***—Adequate, trained coverage for any situation must be planned well in advance of the overload. Assignment of specific duties and responsibilities prior to an overload will provide a smooth flow of information.

(f) ***Simplified Method of Requesting Control***—The rapid buildup of an overload is possible unless immediate action is taken to alleviate the condition. Adequate attempt-limiting may require application of many controls in many different locations. A simplified method of requesting control, such as plan numbers and lamp signals, can provide the immediate relief needed.

(g) ***Sequence of Contacts***—An orderly method of locating causes of an overload should be developed. Nonmessage attempts and plant failures can be isolated quickly when a systematic procedure of analysis and elimination is employed. Decisions can then be made more quickly to alleviate the overload.

5. INFORMATION REQUIRED

5.01 Certain sources of information should be readily available to the network manager in dealing with an overload. These sources are as follows:

(a) ***Data***—Reliable and accurate data is the backbone of intelligent preplanning. Circuit data (such as attempts per circuit per hour (ACH), connections per circuit per hour (CCH), percentage of overflow, and traffic usage) are used to plan reroutes, cancellation, augments, etc. This information is obtained from peak day trunk studies and historical data compiled by individual offices. A detailed analysis of message completion figures can reveal a shortage of trunks in the intertoll or toll-completing network. Machine data (such as common control peg count, usage, holding times, and service delay sender, dial tone, etc) are used to determine efficiency.

(b) ***Controls Available***—The location of controls in the local and subtending network must be known to restrict nonmessage attempts as close to the source as possible. Monthly

reports of this information to the higher ranking office have proven beneficial in many regions.

(c) ***Routing***—Information concerning routing by destination code should be used to determine what traffic will be affected by various controls. Controls can have a different affect on first-routed and alternate-routed traffic. For instance, using regular cancellation or cancel to direct or alternate route (DAR) on a trunk group with a low percentage of first-routed traffic can cause inefficient use of that group. Also, it may be necessary to restrict attempts to certain numbering plan areas (NPAs). Knowing how this traffic is routed will allow immediate restriction of attempts that have little chance of completing.

6. INITIATION OF CORRECTIVE ACTION AND/OR CONTROL

6.01 Corrective and/or control actions can and will be varied by the multiplicity of events that occur within and without the sphere of control and/or influence. Therefore, it would be impossible to itemize all of the actions that can or will be taken. The following steps, however, should cover the greater portion of the situations:

(a) If investigation indicates that invalid data or indicators were received, steps should be taken to have them corrected. Invalid data could be caused by defective registers, incorrect wiring, incorrect lead or register assignment, incorrect manual or computer calculations, etc.

(b) Some of the "abnormal" readings, calculations, or indicators are due to normal traffic peaking to slightly higher than normal levels or to momentary equipment failures; and no further action is required. However, when investigation indicates that the abnormality is something more than outlined above but still not enough to require control or corrective action, further monitoring is necessary.

(c) When readings, calculations, and/or indicators require corrective or control action, one of the first decisions to be made is whether the control should be ***expansive*** or ***protective.*** Expansive controls include the manipulation of routing to divert traffic from its normal route to other facilities that have spare capacity. Protective controls (sometimes incorrectly referred to as restrictive controls) usually involve blocking, restriction, or certain categories of traffic to prevent the spread of congestion, but may in itself be an expansive control.

(d) One important consideration that must be given to any type of control (expansive or protective, automatic or manual) is that ***the network or machines should neither knowingly be overcontrolled nor controlled longer than necessary.*** Surveillance must be continued for control to be changed or removed, as appropriate, at the proper time.

6.02 The following list of controls or control measures (Table B) is presented to show some of the more important ones and the way that they are normally used. New controls available with common channel interoffice signaling (CCIS) are also shown (Table C).

7. COMMUNICATION

7.01 Network management people must make network-affecting decisions rapidly and accurately. The information on which these decisions are based is gathered from and the decisions are disseminated to one or more locations. Thus, the network management job depends on rapid and reliable communications.

7.02 Communication with other network managers and others involved in network performance is a prime necessity. Voice communication between network managers (both on- and off-network) has been the basic medium for many years, with the use of the teletypewriter to support the basic medium and to transmit reports, requests, and data requiring hard copy and no instantaneous reaction.

7.03 Another form of communication has been introduced to the network manager with the electronic translator system (ETS). The manager now can communicate directly with the switching machine via the teletypewriter and ETS console. The development of peripheral bus computer (PBCs) Engineering Administration Data Acquisition System network management (EADAS/NM), and the No. 4 Electronic Switching System (ESS) further expands the communication spectrum and allows the manager to communicate directly with many switching machines by using the teletypewriter and cathode-ray tube (CRT) via a computer interface. This expansion of communication between the manager and the

machine will greatly enhance the ability to react to and manage the network. However, it does not minimize the requirement to communicate with people. Regardless of the degree of hardware sophistication, the network manager must continue the following:

(a) Advise other network managers of action taken within the sphere of responsibility

(b) Receive information and requests for aid, assistance, and guidance

(c) Exchange data and experiences.

In addition, there is also a continuing need for the network manager to communicate with others, such as the network administrator and network design (traffic) engineer, so that together they can more intelligently respond to needs in the future.

8. IMPLEMENTATION

8.01 Preplanning for any situation, whether it is a known peak or some unforeseen overload, requires a thorough review of data and office procedures. The review can reveal new ways of improving the flow of traffic. Implementing new methods of control and office procedures will require meetings with other offices to insure a common understanding; engineers should be consulted for the provision of additional control devices and reroutes needed; and a "dry run" should be conducted to insure workable office procedures during an overload.

8.02 Check lists or a summary sheet should be readily accessible to insure the application of all pertinent items. The following check list should serve as a guide in the development of a more detailed list tailored to an individual office or specific type of emergency situation.

COMMUNICATIONS

8.03 Recognize any pending hurricanes, strikes, civil disturbances, unusual advertising campaigns, or other situations that might stimulate heavy traffic to a specific area or community within the area.

8.04 Keep maintenance and administrative forces informed of the developments of the situation.

8.05 Request maintenance forces to provide updates of any facility or equipment troubles that could aggravate the situation.

8.06 Notify the Network Operations Center via network lines of the pending situation.

8.07 Notify higher management and ascertain where they may be reached in an emergency out of hours if this is not already known.

8.08 Ascertain that the local operating company in the threatened locality is appropriately apprised of the circumstances. Verify the local operating company's "out of hours notification list".

8.09 Establish communications with the affected locality (disaster center or permanently established emergency center) so that data necessary to the proper administration of the network can be obtained. These data might include reports of storm damage, facilities and equipment outages (including number of stations out of order), as well as normal traffic data such as ACH-CCH on circuit groups, marker peg count information, etc. Obtain phone numbers or establish a tie line if necessary and/or feasible.

8.10 Verify that all existing aids to network management are available and working. This would include full periods, status boards, telemetry and sequentially coded automatic transmitter start (SCATS) TTY System.

8.11 Verify that all offices, both higher ranking and subtending Network Management Centers, are aware of the available controls or of those that have been placed in effect.

8.12 Ensure that all data requested by the Network Operations Center or other offices are available in a timely and orderly manner. Verify that all SCATS messages pertaining to the situation are understandable and clearly typed in the proper format to avoid the need for clarification.

8.13 Ascertain that the affected office and local operating company management people are fully aware of the relief that interregional and intraregional network controls can provide. Verify that they understand the need for and the importance of timely data necessary to effectively control office overloads in their territory.

8.14 Investigate the advantages of holding meetings with subtending offices to review plans for disasters. Provide and maintain up-to-date call lists so that all necessary people throughout the area can be reached to implement controls. Available controls must be recorded and updated.

8.15 If appropriate, arrange for conference call with all threatened offices and the Network Operations Center.

8.16 Acquaint operating forces with all available facts of the problem and request that operating units keep network forces advised of unusual operating problems and unusual traffic patterns.

COVERAGE

8.17 Arrange for sufficient, competent coverage if it is required for several days duration at the affected regional and subtending offices. This should include evening hours.

8.18 Keep the Network Operations Center and the Regional Network Control Centers advised of the situation so that coverage requirements for collecting and analyzing data, as well as implementing controls, can be scheduled and satisfied.

8.19 Verify that network maintenance (plant) will have adequately trained personnel on duty to perform any traffic recommended controls, directionalization, card changes, etc, as well as to solve any abnormal maintenance problems.

8.20 If a disaster or emergency center has been established by the local operating company, verify the hours of coverage.

8.21 If additional personnel is required due to extended coverage requirements, investigate the possibility of borrowing them from other Network Centers. Regional Centers might want to borrow from the Network Operations Center or other Regional Network Control Centers; Sectional Centers from other sectionals in their own region or from their home Regional Center, etc.

8.22 Identify the inward board for handling emergency calls on a patched trunk basis, from inward operator to inward operator.

DATA COLLECTION AND RECORDS

8.23 Verify that appropriate register and pen recorder readings have been started, or arranged for, on critical items (including dynamic overload control [DOC]) in the affected regional and subtending offices.

8.24 Where applicable, start or be prepared to start cameras and ascertain the availability of several days' supply of film. Turn on traffic usage recorders (TURs) at affected offices for the duration of the abnormal condition.

8.25 In No. 4 ETS offices with PBC, the network manager must ensure that exception report thresholds are correctly set.

8.26 Maintain a chronology of all significant events as they occur.

8.27 Be prepared to collect trunk group data at regional and subtending offices as required to aid in implementing and regulating network controls.

8.28 Arrange for the affected office to collect marker peg count, sender delay, no circuit, (NC) and other pertinent data on a frequent and real-time basis. Be prepared to forward these data for analyzation and administration of intraregional and/or interregional controls.

8.29 Consider the desirability of preparing easel charts to provide a ready display of circuit groups, circuit quantities, controls, routing, transaction, or other information pertaining to a given problem.

PLANNING CONTROLS

A. Trunking and Routing

(a) Identify the major circuit groups into the affected machine and the central office codes (NNX) in the affected area. This should include centralized automatic message accounting (CAMA) and combined line and recording (CLR) trunk groups.

(b) Identify any peculiar communities of interest that might create unusually high attempts and give consideration to implementing special controls on groups to those areas.

(c) Identify all controls available within the metropolitan area and at subtending machines. Include possible operator attempt controls and turn down of CAMA trunks.

(d) Identify all controls (types of keys, circuit busy announcement [CBA], etc) available on groups to the threatened office(s) and to the higher ranking and subtending offices. Do not overlook the possibility of arranging for any of these controls (changing translator cards, keys or cross-connects) temporarily, if available data indicate a need.

(e) Be prepared to record and analyze 15-minute data, such as carried attempts, ACH and CCH on the affected trunk groups. Use these data for administering controls and to verify the need for, or the effectiveness of, intraregional and/or interregional controls. Establish thresholds for adjusting controls to enable traffic to flow out of disaster areas.

(f) When directionalizing in a disaster, determine whether it is better to turn down one-way-in groups prior to directionalization of 2-way circuits or directionalize all 2-way circuits first.

(g) Washington, D.C., state capitols, disaster centers, etc, should not be directionalized in favor of the disaster switching center without careful analysis and concurrence from the Network Operations Center.

(h) Identify and remove key reroutes that would adversely affect the threatened switching center if it is used as a via or terminating office.

(i) Ascertain that the actual working circuit quantities are known and used in computing data for trunk groups under analysis.

(j) Maintain an accurate chronology of all control actions. Analyze all data before and after increasing or decreasing controls.

(k) Review the desirability of applying or denying the application of normal daily controls (directional reservation equipment [DRE], DOC) with respect to the affected office.

(l) Alert network maintenance to the potential need for initial and subsequent directionalization of trunks.

(m) Ascertain that adequate outward service is provided in cases where damage is heavy and only a few circuits remain.

B. Switching Machines

(a) Identify all limiting factors at the threatened machine(s). Where any equipment is out of service due to Western Electric modification or functional irregularity, determine that every effort is made to restore equipment to service as soon as possible.

(b) Determine the practical marker peg count capability of the threatened machine(s) at maximum switching efficiency. Know the normal marker peg count for the morning, afternoon and evening busy hours so that abnormal patterns can be identified.

(c) Determine if recent equipment additions or trunk assignments have created an imbalance in sender groups, switching trains or foreign area translators (ie, if all traffic to the affected area is confined to one train, accessed by a limited number of foreign area translators, or if all AMA or machine trunks access one sender group).

(d) Be prepared to immediately gather appropriate data if calls begin overflowing the 121, 131, and 555-1212 trunks at an abnormally high rate. Determine what use could be made of special translator cards and/or CBA trunks to prevent such overflows.

(e) Have an "X" type (abnormal condition) announcement prepared and arranged for implementation when required. Be positive that the announcement will be received only by those subscribers dialing the affected locality. Requests for posting announcements must be forwarded to the Network Operations Center to obtain the necessary concurrence in format and wording.

(f) Keep abreast of news media releases which "play up" the disaster. Be prepared for sudden surges stimulated by these releases.

(g) Consider the merits of turning off reorder traps at affected offices for the duration of the emergency.

(h) Be prepared to gather such data as may be required to determine if traffic volumes to specific NNX codes are overflowing heavily and/or are so great as to virtually block traffic from reaching other codes in the NPA. Determine if it is necessary to 6-digit translate at some distant points and route a certain percentage of that traffic to no circuit.

(i) If necessary, limit operators to one attempt of emergency only. Washington, D.C., state capitols and disaster centers should not be limited except in extreme situations and only as a last resort.

(j) If network maintenance, network administration, or operating personnel are generating "curiosity" or "nuisance" calls into the affected area, consider requesting the Network Operations Center to arrange for a telegram to all companies concerning these calls.

(k) Verify that the automatic features of DOC are considered and, if appropriate, regulated in consideration of the machine load, directionalization, alternate route cancellation, damage to facilities or nearby offices, or lack of sender delays at unaffected offices.

(l) Impress network maintenance with the importance of notifying network management of any equipment outages and with the need for the quick restoral of any equipment that fails.

(m) Gather all data available on the affected locality so that controls can be planned and administered in the most advantageous manner.

TABLE A

TOTAL MACHINE FAILURE PLAN
(FAILED MACHINE'S PLAN)

1. MACHINE FAILURE VERIFICATION

A. Without Peripheral Bus Computer (PBC) — Incoming Trunk Link Frame (ITLF) or Marker Peg Count (MPC)

B. With PBC — ITLF or MPC

*** If PBC is also down, there is no method of making positive verification unless MPC is brought out on resettables.

C. No. 1 ESS — Machine Congestion (MC-3) Indicates Total Failure

D. No. 4 ESS — MC-3 Indicates Total Failure

2. IMPLEMENTATION

A. Notification
1. NOC or next higher ranking NM office
2. Local Network Manager
3. Subtending Offices (Toll Center, End Office, Operator Units, etc.)
4. Intra-Regional Offices

B. Collect and Forward five minute data — MPC or ITLF peg count and percent Sender Attachment Delay Recorder (SADR)

C. NOC will implement Inter-Regional Plan

PLAN SHOULD INCLUDE

1. Controls (Cancellation, Trunk Make Busy, Directionalization, Skip Route, Code Blocking, etc.)
2. Operator Restrictions (List of affected NPAs, NNXs, and TC Codes). There should also be a note to inform the office being used as the via office for emergency calls.
3. Expansive Controls (Reroutes, TORCs, Emergency Routes, etc.). There should also be a note to inform the via office.
4. Data Collection Requirements

D. Implement Intra-Regional Plan

PLAN SHOULD INCLUDE

1. Controls (Cancellation, Trunk Make Busy, Directionalization, Skip Route, Code Blocking, etc.)
2. Operator Restrictions (List of affected NPAs, NNXs, and Toll Center Codes)

TABLE A (Cont)

TOTAL MACHINE FAILURE PLAN
(FAILED MACHINE'S PLAN)

D. Implement Intra-Regional Plan (Cont)

3. Expansive Controls (Reroutes and Emergency Routes). Should include a note to inform the via offices.

4. Data Collection Requirements — Should include list of Trunk Groups and TRI numbers and instructions for changing data block "C" assignments.

E. Notification of Local Offices (Toll Centers, End Offices, Operator Units, etc.).

PLAN SHOULD INCLUDE

Who to contact

How to contact

What you are going to have them do.

1. Method for Access Trunk Turndown
   This sould be pre-arranged with an intermediate organization such as a Local Emergency or Reports Center, 17C Test Board Forces, Toll Centers, or Higher Management.

F. Notification of Local Network Manager

PLAN SHOULD INCLUDE

1. When — Time (out of hours)
2. How — (Notification and Call Out List with a minimum of three choices)
3. Procedures for Notification of Higher Management
4. Procedures for obtaining additional personnel support
5. Detailed work assignments for additional personnel

TABLE B

NETWORK MANAGEMENT CONTROLS

CONTROL: Line load control (LLC)

Type: Protective

Where Used: In class 5 offices

Mode Of Operation: Manual in electromechanical offices

Dynamic with manual override in ESS offices

Purpose: To reserve availability to serving office equipment for *essential* subscribers

CONTROL: Subscriber overload announcement

Type: Protective

Where Used: In class 5 offices

Mode of Operation: Dynamic with manual override

Purpose: To space calls of nonvital nature

CONTROL: Key reroute

Type: Expansive

Where Used: In class 1 through class 5 offices (each requires T-801)

Mode of Operation: Manual

Purpose: To take advantage of idle switching and trunking capacity available

CONTROL: Recorded announcement

Type: Protective

Where Used: In class 1 through class 4 offices

Mode of Operation: Manual

Purpose: To advise customers of the reason the call failed and to provide operator spacing of subsequent attempts

CONTROL: Directional reservation equipment (DRE)

Type: Protective

Where Used: In class 1 through class 4 offices

Mode of Operation: Dynamic after manual activation

Purpose: To give preference to traffic from the higher class office on a 2-way final trunk group

CONTROL: Dynamic overload control (DOC)

Type: Protective

Where Used: In No. 4 crossbar and crossbar tandem offices of class 1 through class 4

Mode of Operation: Dynamic after manual triggered at a reset threshold

Purpose: To give instantaneous reaction to certain impending overloads by operating automatic overload controls

TABLE B (Cont)

NETWORK MANAGEMENT CONTROLS

CONTROL: Automatic alternate-route cancellation

Type: Protective

Where Used: In No. 4 crossbar and crossbar tandem offices of class 1 through class 4

Mode of Operation: Manual

Purpose: To deny use of a trunk group to all or part of the alternate-routed traffic

CONTROL: Selective code cancellation

Type: Protective

Where Used: In ESS and No. 4 crossbar/ETS offices of class 1 through class 5

Mode of Operation: Manual

Purpose: To deny access to the network specific traffic that has little or no chance of completing

CONTROL: Traffic overload reroute control

Type: Expansive

Class 1 offices

Mode of Operation: Manual

Purpose: To reroute traffic from overloaded to unloaded inter-regional center trunk groups

CONTROL: Skip route

Type: Expansive

Where Used: ESS and No. 4 crossbar/ETS Class 1 through Class 5

Mode of Operation: Manual

Purpose: To advance traffic offered to an overloaded trunk group to the next in-chain alternate route

CONTROL: Cancel from

Type: Protective

Where Used: ESS and No. 4 crossbar/ETS Class 1 through 5

Mode of Operation: Manual

Purpose: To deny access to any other route after a trail has been made on the route in question

CONTROL: Cancel to

Type: Protective

Where Used: ESS and No. 4 crossbar/ETS Class 1 through Class 5

Mode of Operation: Manual

Purpose: To deny access to a given route

For a detailed description of control devices, refer to Dial Facilities Management Practices, Division I, Section 3, Control Facilities.

TABLE C

4A ETS PBC CCIS NETWORK MANAGEMENT CONTROLS

Cancel To (CANT) – Cancel From (CANF) and Finalized Cancel To (FCANT)	**Cancel To (CANT) and Cancel From (CANF)**
NEW Maximum: 1022 CCIS and 128 Conv (shared with Skip)	*OLD* Maximum: 210 (20 Manual) (shared with Skip)
Percentages: 25, 50, 75, 87½, 100	Percentages: 25, 50, 75, 100
Capability: Manual and Preprogram	Capability: Manual and Preprogram
Skip (SKP)	**Skip (SKP)**
NEW Maximum: 1022 CIS and 128 Conv (shared with Cancels)	*OLD* Maximum: 210 (20 Manual) (shared with Cancels)
Percentages: 25, 50, 75, 87½, 100	Percentages: 25, 50, 75, 100
Capability: Manual and Preprogram	Capability: Manual and Preprogram
Reroute (RR) and Immediate Reroute (IRR)	**Reroute (RR)**
NEW Maximum: 64	*OLD* Maximum: 20
Percentages: 25, 50, 75, 87½, 100	Percentages: 25, 50, 75, 100
Capability: Manual and Preprogram	Capability: Preprogram
Code Block (CB–)	**Code Block (CB–)**
NEW Codes: 3D, 6D, 7D and 10D	*OLD* Codes: 3D and 6D
Maximum: 128 (shared with HTR)	Maximum: 18 Local and 2 Remote
Percentages: 25, 50, 75, 87½, 100	Percentages: 25, 50, 75, 100
Capability: Manual and Preprogram	Capability: Manual and Preprogram
Hard To Reach (HTR)	**Hard To Reach (HTR)**
NEW Codes: 3D, 6D, 7D and 10D	*OLD* Codes: 3D (AC and NAC)
Maximum: 128 (shared with CB–)	Maximum: No limit
Capability: Manual and Preprogram	Capability: Remote Preprogram
Application: All controls	Application: Remote CANT only

TABLE C (Cont)

4A ETS PBC CCIS NETWORK MANAGEMENT CONTROLS

SELECTIVE DYNAMIC OVERLOAD CONTROL (SDOC)

CANCEL TYPE TRAFFIC	MC 1 (SQL) RESPONSE CATEGORIES A	B	C	D	E	F	CANCEL TYPE TRAFFIC	MC 2 (SQH) RESPONSE CATEGORIES A	B	C	D	E	F
AR — HTR	0	0	100	100	100	100	AR — HTR	100	100	100	100	100	100
DR — HTR	0	0	0	100	100	100	DR — HTR	0	100	100	100	100	100
AR	0	0	0	0	0	100	AR	0	0	0	100	100	100
DR	0	0	0	0	0	0	DR	0	0	0	0	75	75
OOC	100	100	100	100	100	100	OOC	100	100	100	100	100	100

Note: For STR and SDOC a CANT control will be applied when condition is encountered, unless a SKP control is specifically set via a TTY input.

NEW **Out Of Chain Routing (OOC)**

(1) Initial link out-of-chain TCM
(2) Subsequent link out-of-chain TCM
TCM = Traveling Class Mark
(3) Via office capability for AOOC
AOOC = Automatic Out Of Chain
(4) Manual override of OOC

TABLE C (Cont)

4A ETS PBC CCIS NETWORK MANAGEMENT CONTROLS

Trunk Make Busy (TMB)

NEW Non-CCIS: Hardware application
CCIS: Software application
Manual Input (TTY 2)
75%-80%-85%-90%-95%-100%

Trunk Make Busy (TMB)

OLD Hardware application

Trunk Reservation

NEW Non-CCIS: Hardware (DRE)
CCIS: Software application
Manual Input (TTY 2)
2 Thresholds (SRL1 and SRL2)
Range: 1 through 15
Category Response

Trunk Reservation

OLD Hardware (DRE)
Range: 1 through 5

SELECTIVE TRUNK RESERVATION (STR)

CANCEL TYPE TRAFFIC	SRL 1 RESPONSE CATEGORIES A	B	C	D
AR — HTR	100	100	100	100
DR — HTR	0	0	0	0
AR	0	0	0	100
DR	0	0	0	0

CANCEL TYPE TRAFFIC	SRL 2 RESPONSE CATEGORIES A	B	C	D
AR — HTR	100	100	100	100
DR — HTR	75	0	100	100
AR	0	100	100	100
DR	0	0	0	200

Dynamic Control (DOC)

NEW Maximum: 1022-CCIS and 5 Remote Preprogram (50) — Conv

Percentages: 25, 50, 75, 87½, 100

Capability: Manual and Preprogram
4 Thresholds → MC 0 = No machine congestion
Category Response → MC 1 = Sender Queue Low
MC 2 = Sender Queue High
MC 3 = Machine incapable of processing calls

Dynamic Overload Control (DOC)

OLD Maximum: 5 Remote Preprogram (50)

Percentages: 25, 50, 75, 100

Capability: Remote Preprogram