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STAFF STUDY

[CONTINENTAL OPERATIONS RANGE]

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ABBREVIATIONS

AFCOR	Air Force Continental Operations Range
AFTEC	Air Force Test and Evaluation Center
COR	Continental Operations Range
CORAG	Continental Operations Range Advisory Group
DCP	Development Concept Paper
DDR&E	Director of Defense Research and Engineering
DOD	Department of Defense
DSARC	Defense Systems Acquisition Review Council
EWJT	Electronic Warfare Joint Test
O&M	Operation and Maintenance
OT&E	Operational Test and Evaluation
PMD	Program Management Directive
PMP	Program Management Plan
RDT&E	Research, Development, Test and Evaluation
TAC	Tactical Air Command
TEMO	Test and Evaluation Management Office
TESPO	Test and Evaluation Systems Program Office
TFWC	Tactical Fighter Weapons Center, Nellis Air Force Base
W/H/D	Wendover, Hill and Dugway

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SUMMARY

SYSTEM DESCRIPTION

The Continental Operations Range (COR) program was originated in 1972 to provide improved capabilities for operational testing, aircrew training, and limited developmental test and evaluation not available at other Department of Defense (DOD) ranges and test facilities. The program called for improving and integrating three existing range complexes located in the western part of the United States. COR was planned to provide a realistic combat environment where strike size air forces could be tested against a large scale multi-defended area.

The COR capability was to be developed incrementally in the following phases:

near-term (to be completed in fiscal year 1977)--consisted primarily of improvements to be made at the Tactical Fighter Weapons Center (TFWC) test ranges at Nellis Air Force Base adding ground targets, threat simulators, extensive communications, and instrumentation to track multiple participants.

mid-term (fiscal years 1978 and 1979)--consisted of installation of instrumentation, communications, threat simulators and ground targets to the Hill Air Force Base test range and the integration of the Wendover, Hill, and Dugway (W/H/D) test ranges with the TFWC complex.

far-term (fiscal years 1980 through 1982)--consisted of the addition of communications for purposes of air-to-air and air-to-ground missions using the Fallon Naval Air Station for staging purposes.

The Air Force was given the responsibility to define and manage the COR program which was estimated in May 1974 to cost about $203 million, excluding required operation and maintenance and military personnel funding. (See Chapter 2)

STATUS AND COMING EVENTS

In December 1973, Congress denied fiscal year 1974 COR procurement funds. The Air Force later requested COR procurement funds as part of the DOD fiscal year 1974 supplemental request and Congress again denied the request. On September 18, 1974, Congress denied COR funding for fiscal year 1975. The Air Force now plans to request funding for the improvement of TFWC ranges, which was intended to be provided as a portion of the near-term phase of COR. A total of $15.3 million had been spent by the Air Force on COR planning up to the time COR funding was denied.

Although the Air Force does not plan further range improvements under the COR program, it estimates that $42.6 million will be needed for improvements to the TFWC test ranges during fiscal years 1975 through 1979 to accommodate basic Air Force tactical mission requirements. (See Chapter 4 and Appendix III)

ORIGINATION OF COR CONCEPT

The DOD and the Air Force have extensively studied the adequacy of test and evaluation since the early 1970's. Many of these studies have pointed out a need for a test range having a large unrestricted area and a realistic environment for operational testing and training. Three major reports were issued; the DOD sponsored Blue Ribbon Defense Panel Report of July 1970, the Air Force's "HAVE EDGE" report issued in October 1970,

and the DOD Test and Evaluation Facility Base Review dated June 1971. All of these studies called for improved operational test capability. The DOD Test and Evaluation Facility Base Review recommended the location for a Continental Operations Range and represented the basic document that justified the need for a COR as it was later defined. (See Chapter 2)

COR MANAGEMENT PLAN

COR was originally conceived as a DOD range to provide previously unavailable operational test and evaluation and training capability for use by all three services. In the early planning stages, the Army and Navy discontinued their participation in COR and the Air Force was given program management responsibility. Within the Air Force, the Tactical Air Command (TAC), as the primary user and owner of existing ranges in the COR area, was given overall management and operating responsibility for COR. TAC began the planning for COR with the establishment of a COR Group at Nellis Air Force Base and the writing of a COR development plan identifying tasks, responsibilities, and requirements. Later the primary planning responsibility was shifted to the Air Force Systems Command's Test and Evaluation Systems Program Office (TESPO) located at Kirtland Air Force Base. TESPO wrote a program management plan, divided the COR tasks functionally, and set up a management structure to handle the various tasks identified. There was participation by a number of other Air Force organizations in the planning of COR. At the time COR funds were denied by the Congress, limited participation by the other services in COR planning had begun and further involvement was planned. (See Chapter 3)

CONGRESSIONAL DENIAL OF COR FUNDS

The Air Force requested $3.8 million for fiscal year 1974 COR investment funds. This request was denied by a Congressional conference committee after the House committee recommended denial and the Senate committee recommended restoration of the funds. As part of the fiscal year 1974 DOD supplemental request, the Air Force again requested the $3.8 million and the conference committee denied the request after the House committee recommended denial and the Senate committee recommended restoration.

During March and May 1974, Subcommittees of the House and Senate Appropriations Committees held hearings on the fiscal year 1975 DOD appropriations. The Air Force's fiscal year 1975 request for COR investment funds amounted to $29.6 million. In August 1974, House and Senate committee reports were issued. The House report recommended denial of all fiscal year 1975 funds associated with COR. The Senate report recommended restoration of COR funds. A conference report issued on September 18, 1974 upheld the denial of COR funds proposed by the House. (See Chapter 4)

COR TERMINATION AND AIR FORCE PLANS TO ACQUIRE COR-TYPE CAPABILITIES

On December 19, 1974, the Department of the Air Force forwarded a message to COR participants that stated that all planning actions, agreements, organizations, and other activities directly related to the COR program were terminated. The message further stated that since the COR program encompassed a broad scope of Air Force range activities, functions, and interagency agreements which existed prior to initiation of the COR

planning or would have evolved as a result of revised management concepts, only those specific items that could be clearly differentiated from the COR program were to be retained or revised as appropriate.

Although fiscal year 1975 funding for COR has been denied and the Air Force does not plan to request COR funding in the future, improved range capabilities at existing operational ranges, which were started under the COR program, are still planned. Improvement of the TTTC and W/B/P Ranges during the period 1974 through 1976 will result in significant improvements in instrumentation (e.g., threat, scoring, tracking, and time-space-position-information systems) and communications. (See Chapter 4)

MATTERS FOR CONSIDERATION

The Air Force still feels that many of the improved test range capabilities planned for COR are urgently needed for Air Force operational testing and training requirements. Since the Congress eliminated COR funding, it may want to closely review current Air Force plans for obtaining similar capabilities. The Congress may also want to obtain information concerning the loss in operational test capability with the cancellation of COR, the effect on future weapon system operational testing, and the Air Force's plan to satisfy future test requirements.

QUESTIONS

Although not fully developed in this staff study we believe there are some matters relating to test and evaluation which warrant further attention. The following questions are provided for use by the Congressional committees during fiscal year 1976 hearings.

1. What is the feasibility of centralizing the direction and management of operational test and evaluation (OT&E) activities of the military services to achieve the maximum OT&E capability at minimum cost?

2. With the dissolution of TESPO (see page 23), how does the Air Force intend to provide for management of its OT&E capabilities needed in the future?

3. What is the nature and cost of planned range improvements during the next five years at the Hill, Wendover, and Dugway Ranges? How will the capability derived from these improvements compare with that which was to be developed or acquired during mid-term COR?

AGENCY REVIEW

A draft of this study was reviewed by Department of Defense officials associated with the management of the program, and their comments were incorporated in this report as we believe appropriate. We know of no residual difference with respect to the factual material presented herein.

CHAPTER 1

INTRODUCTION

The Continental Operations Range (COR) was to be formed by the improvement and integration of the existing range complexes at Nellis Air Force Base, Las Vegas, Nevada, the Wendover, Hill and Dugway (W/H/D) Ranges near Salt Lake City, Utah, and the Fallon Naval Air Station range near Reno, Nevada. COR was planned to provide a realistic combat environment where strike size forces could be fully exercised against a large scale multi-defended area. COR was to provide a capability to perform operational test and evaluation, aircrew training and limited developmental test and evaluation not available at other Department of Defense (DOD) ranges.

The missions to be performed on COR were to include tactical, strategic and operational support missions including offensive strike, air defense, reconnaissance, combat search and rescue, combat airlift, and command and control. These integrated mission areas would include most types of weapon employment such as air-to-air, air-to-ground, electronic warfare, drone and remotely piloted vehicles, helicopter, and airlift.

The most important capability to be provided by COR was improved operational test and evaluation. Operational test and evaluation is that testing carried on by an organization independent of the developer, in a realistic environment, to show a system's probable military utility and operational effectiveness. Operational test and evaluation usually follows development test and evaluation, which is conducted by the developer to prove that a system technically meets the requirements placed upon the developer.

The second major capability to be provided by COR was improved training. In terms of sorties or flights, 80 percent of initial COR utilization was to be training and only 20 percent was to be testing. In terms of workload and resources expenditure, 60 percent of the range usage was to be testing and 40 percent training.

The planning for COR began in fiscal year 1972 with the development of COR planned to run through fiscal year 1982. In late 1973, Congress denied an Air Force request for $3.8 million for fiscal year 1974 COR investment funds and in late 1974 Congress denied $22.2 million directly attributable to the development of COR for fiscal year 1975. In December 1974, the Air Force terminated all planning, agreements, organizations, and activities directly associated with the COR development and acquisition program.

Although fiscal year 1974 and 1975 COR funding was denied and the Air Force does not plan to request COR funding in the future, the Congress approved funds for improved operational test and evaluation and the Air Force plans continuing improvement of the TFWC and W/H/D Ranges. Improvement of the TFWC ranges during 1974 and 1975 will result in the ranges having a significant improvement in range capability similar in nature but reduced in scope to that planned to be developed during near-term COR. Integration of the W/H/D Ranges to a single major test facility under the Department of Defense is under study. This could result in significant future improvements to these ranges.

As a part of our continuing program of reviewing major acquisitions, we selected the COR program for review during 1974. In late July, field

work was begun at the principal COR program management office, the Air Force's Test and Evaluation Systems Program Office (TESPO) in Albuquerque, New Mexico. Audit work was also conducted at the Tactical Fighter Weapons Center at Nellis Air Force Base, Nevada.

CHAPTER 2

THE COR CONCEPT

The Department of Defense (DOD) and the Air Force in a number of studies established that there was a need for a range providing a large operational test and evaluation (OT&E) and training environment emphasizing operational realism beyond the capability of any present facility. Three major studies were done; the DOD sponsored Blue Ribbon Defense Panel Report, the DOD Test and Evaluation Facility Base Review, and the Air Force "HAVE EDGE" study. Following these conceptual studies, a developmental concept paper was written which specified the COR area and the general capabilities COR would provide. The first detailed capability requirements were defined by the Tactical Air Command. Later, COR capability requirements were further defined and developed by the TESPO.

The Blue Ribbon Defense Panel Report, dated July 1970, was the result of a year-long study of the Department of Defense by a panel of prominent individuals. The report concluded that within DOD, OT&E had been too infrequent, poorly designed and executed, and generally inadequate. The report stated that existing ranges were marginally adequate to support the OT&E which had been performed, and expressed doubt that they were adequate for OT&E which should have been but was not performed. The report pointed out that, although in most actual combat environments the United States must conduct combined operations, there were no effective methods for conducting OT&E which cuts across service lines.

In early 1966, the Air Force developed a general concept for an integrated air offensive/defensive test environment. Numerous in-house

and contractor supported studies were done including a joint Air Force/ contractor effort known as "HAVE EDGE" issued in October 1970. "HAVE EDGE" called for the creation of a very sophisticated facility covering a large area including the air space over most of Utah and Nevada with the Hill Air Force Base and Dugway ranges as its center. Cost estimates for acquiring and operating the "HAVE EDGE" ranges varied from about $480 million to $1.5 billion over a 20-year period and it was rejected by the Air Force as being too expensive.

As a result of the Blue Ribbon Defense Panel Report, the DOD directed a detailed study of existing test facilities in order to determine a logical approach to implementing the panel's recommendations. This study, called the DOD Test and Evaluation Facility Base Review, dated June 1971, was a separate but coordinated action with the Air Force "HAVE EDGE" effort. The study defined areas of the country where suitable OT&E could be conducted and recommended the creation of several ranges by tying together existing ranges. One of these was the Continental Operations Range.

The first specific capability requirements for COR were developed by Tactical Air Command (TAC) as the manager of the COR program, the manager of existing ranges, and one of the major range users. Later, when TESPO took over prime management responsibility, an effort was made to involve other major Air Force range users in the requirements determination effort. Standard missions to be run on COR were identified and from these, capability requirements were to be derived. OT&E needs of specific future weapons systems were not identified and used in the COR capability requirements definition effort. Other services had no direct participation in identifying COR requirements.

As defined in the April 1973 COR Development Concept Paper (DCP), COR was to provide

—a range facility which would permit operational test and evaluation of equipment and strike-sized air warfare elements in a realistic combat environment,

—large land and airspace areas where unconstrained exercises can be conducted to train military air warfare elements in a realistic but simulated combat environment, and to evaluate tactics, performance, and capabilities of those elements, and

—a combat-like environment for selected development test and evaluation which cannot be accomplished at existing research and development ranges.

The DCP specified that the COR would be developed in the Las Vegas, Salt Lake City, Reno area since the western United States is the only geographical area in the Continental United States that has the land and air space necessary and which is sufficiently free from encroachment and electromagnetic interference to support the COR concept.

Broad mission areas were defined in the DCP in terms of all types of weapons employment involving supersonic/subsonic, air-to-air, air-to-ground, electronic warfare, remotely piloted vehicle, reconnaissance, helicopter, and airlift missions. The missions were to be conducted during continuous day and night, all-weather range operations. The facility would support live, inert, captive, and simulated weapons deliveries. While major COR activity would be operational test and training designed to

accommodate the offensive mission, other missions such as air defense, combat search and rescue, combat airlift, and exercise of the Tactical Air Control System including the Airborne Warning and Control System would also be accommodated.

COR was to be developed incrementally permitting termination at any given level and still provide an increased capability for testing and training. COR development was to take place in three phases; near-term, which was originally scheduled to be completed during fiscal year 1976 and later slipped to fiscal year 1977; mid-term, which was originally scheduled for completion during fiscal year 1978 and later slipped to 1979; and far-term, scheduled for completion during fiscal year 1982.

NEAR-TERM PHASE

Near-term development was to be concentrated within the Nellis area with some improvements beginning at W/H/D. The TFWC ranges consist of a North Range, the South Range, and the Caliente Range. Improvements to be made to the North Range included the additional ground targets, threat simulators, and instrumentation to track multiple participants. The South Range was to receive additional ground targets and instrumentation to track multiple participants. The Caliente Electronic Warfare Range was to receive additional threat simulators, multiple participant tracking capability, and communications to tie to a control center to be added at Nellis. Drone/remotely piloted vehicle routes were to be established between TFWC Ranges and the W/H/D area along with a backbone communications system.

COR near-term operations were to continue existing air-to-ground missions conducted on the TFWC South Range; initiate electronic warfare and air-to-air on the North Range; expand tactical defense suppression training on the Caliente Range; and continue drone/remotely piloted vehicle operations on the W/H/D Ranges.

MID-TERM PHASE

Preliminary planning for COR mid-term called for the addition of threat simulators to the Hill Range and the addition of multi-participant tracking and communications to each of the W/H/D Ranges. A data link connecting TFWC ranges with W/H/D Ranges, and with Hill Air Force Base as well as a local range control center for the W/H/D Range complex were to be completed. Special gap filler radars were to be added to provide extended coverage of the drone/remotely piloted vehicle corridor.

During mid-term COR, the same type missions as outlined for near-term were to be run on the TFWC Ranges with increased use of the TFWC-W/H/D corridor. The Wendover, Hill, Dugway ranges were to be used for expanded air-to-air, air-to-ground, and drone/remotely piloted vehicle missions, and refined electronic warfare testing. Integrated air and ground operations with strike size forces were to be conducted.

FAR-TERM PHASE

During far-term COR, the ranges at Fallon Naval Air Station were to be linked with the other COR ranges with communication and an air corridor. Operational arrangements between the Navy and Air Force were to be expanded to allow the Air Force to use Fallon ranges.

The far-term COR phase would provide for air-to-air and air-to-ground missions using the Fallon ranges principally as staging areas as well as previously described missions on the other COR ranges.

COR DEVELOPMENT PLAN

The COR development plan written by TAC primarily addressed near-term COR and included a definition of specific capability requirements for land and air-space, threat environment, evaluation, and range data. These requirements were developed using the "HAVE EDGE" Report, aircraft performance data, weapon systems performance data, data from completed OT&E evaluations, and a TAC list of outstanding OT&E requirements.

PROGRAM MANAGEMENT PLAN

The program management plan (PMP) written by TESPO after they assumed overall management responsibility for COR included an annex devoted to the identification of COR requirements. In preparing the requirements annex, the DCP and the TAC development plan were used as beginning points. To further identify requirements potential Air Force COR users were surveyed. The results of preliminary survey work were included in the requirements annex to the PMP.

FIELD VISITS

Field visits to major Air Force commands were made to further identify user requirements. Between May and September 1974, TESPO developed a number of OT&E and basic or standard training missions using the information received from the commands. The missions developed were strategic penetration, air superiority, defense suppression, integrated strike search and rescue, close air support, airlift, interdiction, and fighter/bomber defense, OT&E of air-to-air and air-to-ground weapons systems, and training. The missions were divided into phases with the actions taking place in each phase identified in detail, so that an analysis of each mission could be made to develop specific capabilities needed for

COR. This work was nearing completion at the time COR funding was cancelled.

INPUT BY THE AIR FORCE TEST AND EVALUATION CENTER

A second major source of requirements for OT&E was to be the Air Force Test and Evaluation Center (AFTEC). AFTEC began operations in 1974 and was chartered with managing the Air Force's OT&E program. AFTEC was still in the process of identifying OT&E requirements for major weapons systems being developed at the time COR funding was denied and had not yet had a major input to the definition of COR requirements. In contrast to the basic or standard missions identified for COR as a basis for requirements, the capability needs identified by AFTEC would have been related directly to specific weapons systems.

COR COSTS

In hearings before a House Appropriations Subcommittee, in September 1973, the Air Force estimated that the total investment cost of COR through fiscal year 1982 would be $162.8 million. This included $73.2 million in research, development, test and evaluation (RDT&E), $79.. million in other procurement, and $5.2 million in military construction. COR near-term and mid-term were estimated to cost $112.8 million through fiscal year 1978, with an additional $50 million required to complete COR far-term.

TESPO identified capability requirements in some detail for incorporation into the May 1974 program management plan. The cost of these requirements was estimated by TESPO to be in excess of $287 million. A budget ceiling of $207.9 million for the total program was imposed by Headquarters Air Force and TESPO prepared a COR acquisition program on this basis. Requirements to be funded were based on a priority list prepared by TESPO.

In hearings before Congress in May 1974, the Air Force testified that the estimated total investment cost of COR would be $207.9 million consisting of $34.1 million for RDT&E, $109 million in other procurement, and $14.8 million in military construction. The Air Force explained the increase in the cost estimates to have resulted from a further definition of requirements and a refinement of costs, and to represent increased cost of material and labor and more precise estimates based on detailed systems engineering.

Appendix II shows the investment costs presented to Congress as later modified by the Director of Defense Research and Engineering (DDR&E) and the Air Force to distribute some of the funds into fiscal year 1981 and 1982. Although the costs presented to Congress were shown to be incurred only through fiscal year 1980, some of the costs were planned to be deferred to fiscal years 1981 and 1982.

When COR operations and maintenance costs and military personnel costs attributable to COR estimated to be incurred through fiscal year 1982 are added to the investment cost of $207.9 million a total cost of $384.3 million results. These costs, by year, are shown in Appendix II.

At the time Congress denied COR funding in September 1974, the Air Force had spent a total of $15.3 million in the COR planning effort.

As discussed in Chapter 4 of this report, TFWC ranges will continue to operate and be improved in the future. Appendix III shows a comparison of costs planned to be incurred for COR with those estimated to be incurred at TFWC after cancellation of the COR program through fiscal year 1979.

CHAPTER 3

MANAGEMENT RESPONSIBILITIES

COR was originally conceived as a DOD range to provide previously unavailable operational test and evaluation capability for use by all three services. In the early planning stages, the Air Force was given responsibility for the program. Within the Air Force, TAC, as the primary user and owner of existing ranges in the COR area, was given overall management and operating responsibility for COR. TAC began the planning for COR with the establishment of a COR Group and the writing of a COR development plan identifying tasks, responsibilities, and requirements. Later the primary planning responsibility was shifted to TESPO. TESPO wrote a program management plan, divided the COR tasks functionally, and set up a management structure to handle the various tasks identified. There was participation by a number of other Air Force organizations in the planning of COR. At the time COR funds were denied by the Congress, limited participation by other services in COR planning had begun and further involvement was planned.

Following the recommendations of the 1971 DOD Test and Evaluation Facility Base Review that a COR be established, the DOD Tri-Service Coordination Committee for Integrated Offensive/Defensive Test Environment began work on a DCP for COR. On May 5, 1972, DDR&E dissolved the Tri-Services Coordination Committee and assigned

completion of a draft DCP for COR to the Air Force. The Air Force draft, dated July 1972, resulted in the final DCP issued in April 1973.

The Air Force was the prime mover among the services in establishing COR and with the drafting of the DCP became responsible for planning and managing COR development and operation. DDR&E's role became one of monitoring the Air Force's planning and budgeting for COR. Overall responsibility for the management and operation of COR was assigned to TAC with the Air Force Systems Command charged with the responsibility of supporting TAC by development and acquisition of necessary COR hardware. The assignment of TAC as the supervisor of the COR program was on the basis that TAC was the principal operating command responsible for Air Force tactical OT&E and training exercise functions and was the major owner and operator of the equipment and facilities which would be integrated during near-term COR.

To carry out their respective responsibilities TAC established a COR Group at Nellis Air Force Base and Systems Command established a Test and Evaluation Management Office (TEMO) in Albuquerque, New Mexico.

In May 1972, the Chief of Staff, Air Force directed TAC to prepare a development plan for COR to include near-term improvements for OT&E/training and far-term development of COR. The TAC AFCOR

Development Plan 72-1 was published in response to this direction. In June 1973, Headquarters, Air Force, issued a program management directive (PMD), directing TAC to implement COR near-term. This PMD assigned overall responsibility for managing and operating near-term COR to TAC, assigned development, acquisition, and technical responsibility to Systems Command, and identified support to be provided by other commands to TAC and Systems Command.

In August 1973, TAC with assistance from other commands updated the original plan in consonance with the June 1973 PMD and redesignated it, AFCOR Development Plan 73-1. This plan dealt with requirements, acquisition schedules, costs, manpower and organizational structure, implementation schedules, and major milestones for COR.

During 1973, questions were raised within the Air Force as to the approach being used to manage the acquisition of COR. Some officials felt that near-term COR was being developed without sufficient long term planning or consideration of the workload of all other Air Force commands. In November 1973, the Air Force Chief of Staff directed that acquisition of COR would be done as a normal systems acquisition by Air Force Systems Command. This direction was formalized in a program management directive, dated February 1974. Although TAC was no longer the manager of the program, they were to continue to operate the ranges at Nellis.

With the shift in primary COR development and acquisition responsibility to Systems Command, TFSPO (formerly TFMO) became

the centralized management agency responsible for COR development and acquisition. In May 1974, TESTO issued a program management plan (PMP) for the development and acquisition of COR. The PMP categorized the program into several management areas and discussed in some detail the management of each.

The PMP called for the establishment of 14 working groups to provide the needed interface between the large number of participating organizations concerned with COR. The working group charters specified the Air Force organizations and in some cases the other services to be represented on the working groups. Army or Navy participation was specified for the facilities, intelligence, safety, target, threat simulator, and project officers working groups. Participation by other services in the facilities and safety areas concerned the Army's Dugway Range which was to be included as part of COR.

A Continental Operations Range Advisory Group (CORAG) was established as an executive group to review program management decisions and make recommendations to Systems Command and TAC prior to the commitment of resources. The CORAG was co-chaired by the Commanders of the Special Weapons Center (the parent organization of TESTO) and the Tactical Fighter Weapons Center (the parent organization of the COR Group) and met quarterly to review the status of plans and actions occuring in the development and implementation of COR.

In an effort to obtain the involvement of the other services in the planning of COR, the Assistant Secretary of the Air Force for Research and Development in an April 1974 memo to his Army and Navy counterparts requested participation by appropriate Army and Navy officials in the CORAG. The Air Force considered this to be an initial step toward achieving and objective of full time participation by working level personnel.

In July 1974, representatives of the Army and Navy participated in the CORAG meeting and expressed interest in placing representatives on the COR working groups. In August 1974, TESPO formally invited membership by the Army and Navy in several working groups. With the denial of fiscal year 1975 COR funding in September 1974, no further efforts were made toward tri-service coordination.

TESPO RESPONSIBILITIES FOLLOWING COR CANCELLATION

Following the cancellation of COR funding, TESPO was left with its basic mission of improving Air Force test and evaluation capability. A headquarters Air Force directive, dated November 15, 1974, designated Systems Command as the implementing command for the development of equipment designed to improve Air Force capability to conduct OT&E. TESPO program objectives set out in the directive were to provide an improved capability to conduct operational test and evaluation and training at existing Air Force test ranges and to establish a continuing RDT&E program.

TESPO officials stated that efforts in fiscal year 1975 would be in line with the November 15, 1974, directive as follows:

—a threat definition study which consolidates threat intelligence information as it applies to OT&E ranges with emphasis on the Nellis ranges.

—an effort to update the latest intelligence estimate on certain threat systems.

—an effort to determine the most cost effective approach for satisfying OT&E and training requirements for expendable, mobile, remotely controlled vehicular ground targets that visually portray representative enemy targets.

—participation in the procurement of an air combat maneuvering instrumentation system.

—participation in the acquisition of a Time-Space-Position-Information System.

—an electromagnetic compatibility study in support of the development and acquisition of emitting test and training equipment.

In February 1975, Systems Command stated that it planned to disband TESPO at the end of fiscal year 1975. The functions of TESPO would be transferred to the Armament Development and Test Center, Eglin Air Force Base, Florida.

CHAPTER 4

CONGRESSIONAL ACTIONS AND FUTURE RADAR IMPROVEMENTS

CHRONOLOGY OF CONGRESSIONAL ACTIONS RELATING TO COR

For fiscal year 1974, the Air Force requested $3.8 million for COR procurement funds. The House Appropriations Committee recommended that the appropriation be delayed until completion of a Congressional staff review of military plans, requirements, and alternatives to COR. The Senate Appropriations Committee report recommended restoration of the $3.8 million. A conference report, issued on December 19, 1973, upheld the deletion of COR funds proposed by the House.

The Air Force again requested the $3.8 million as part of the DOD fiscal year 1974 supplemental request. Again the House Committee recommended deletion of the funds, the Senate committee restored the funds, and the conference committee upheld the House position.

During March and May 1974 the House Appropriations Committee and the Senate Appropriations Committee held hearings on fiscal year 1975 DOD appropriations. COR funds for fiscal year 1975 were part of the funds requested by the Air Force. In August 1974, committee reports were issued by the House and the Senate. The House committee report addressed the issue of COR negatively and recommended denial of

—the $12.9 million requested for other procurement, Air Force,

—the entire $4.2 million request for COR - research, development, test and evaluation (RDT&E), and

—the $1.1 million for operation and maintenance (O&M).

The Senate committee report, in addressing COR, recommended restoration of the above funds.

A conference report, which was a joint effort of the House and Senate committees, was issued on September 18, 1974. This report upheld the original denial and deletion of COR funds as proposed by the House.

During May 1974, the subcommittees of the House Committee on Appropriations held hearings on the fiscal year 1975 military construction appropriation. The House committee report dated November 19, 1974, denied the Air Force request for $5.2 million at various locations to provide facilities in support of the proposed tactical operations range. This report stated that it became clear during the hearings that the concept of a tri-service range was not based on need and that both the Navy and Army stated that no requirement existed for such a range.

The Senate committee report dated December 3, 1974, stated that the committee recognized the importance of COR. However, the committee restricted its approval for funding to provide $1.2 million for tactical operations range facilities at TFUC without regard to the COR concept.

In a conference report dated December 17, 1974, the House and Senate committees agreed to provide the $1.2 million for the tactical operations range facilities. The remaining portion of the $5.2

million requested by the Air Force was not funded.

[illegible] RANGE IMPROVEMENTS AT TFWC AND W/I/D RANGES

Although fiscal year 1976 and 1977 COR funding has been denied and the Air Force does not plan to request COR funding in the future, improvement of the TFWC and W/I/D Ranges is planned. Improvement of the TFWC Ranges during 1976 through 1977 will result in the ranges having a significant improvement in range capability similar to that planned to be developed during near-term COR. Integration of the W/I/D Ranges to a single major test facility under the Department of Defense is under study.

A direct comparison of planned TFWC improvements to COR improvements is not possible since decisions on improvements to be made are not firm and COR planning was not completed. What follows is a discussion of the improvements made or planned for the TFWC and W/I/D Ranges and the general capabilities that were to be added during COR.

TFWC Ranges

During 1974 a major joint test under the sponsorship of DOD was conducted on the TFWC Ranges. This test, called the Electronic Warfare Joint Test (EWJT), involved the Air Force and Navy. A considerable amount of DOD and Navy owned equipment was moved into the Nellis area for the tests. Additionally, an Army system for testing of weapons systems was moved to Nellis and used to enhance the TFWC capabilities. Following completion of EWJT in late 1974, the

Navy equipment was removed from Nellis; however, the Air Force retained custody of much of the DOD owned equipment and the Army equipment.

During near-term COR, the TTAT ranges were to receive multiple participant tracking capability at the North, South, and Caliente Ranges, threat simulators at the North and Caliente Ranges, and additional ground targets at the North and South Ranges. A large central control facility was to be built at Nellis and communications were to be provided between this facility and each of the TTTC ranges, and the E/E/D Ranges.

A building at Nellis was converted into a central control facility for TTJT. Data collection and reduction capability and communications were installed in the range central using DOD and Army furnished equipment. TTTC has retained the range central and its capabilities following TTJT. This facility provides much of the capability which was planned to be added during near-term COR but has limited growth potential. To obtain the full capability planned for COR, the present range central would have to be enlarged or a new building built and additional equipment added.

Multiple participants tracking capability has been added at Nellis with DOD and Army equipment obtained during TTJT. Additional capability to track and score air-to-air multiple engagements will be added with the acquisition of new air combat maneuvering instrumentation being purchased by the Air Force.

Several threat simulators were purchased during 1974 for delivery to TFWC in 1974 and 1975. With the exception of one simulator which might have been delivered to COR but now will be delivered to Eglin AFB, Florida, the threat simulators received by TFWC will be the same as those planned for near-term COR.

Wendover, Hill, and Dugway Ranges

Improvements planned for mid-term COR included the addition of threat simulators to the Hill Range and the addition of multiparticipant tracking and communications to each of the W/H/D Ranges. A local range control center was to be established and special gap filler radars were to be added. The ranges were to be used for expanded air-to-air, air-to-ground, drone/remotely piloted vehicle missions, and refined electronic warfare testing.

In fiscal year 1973, the Air Force began improvements at Hill Air Force Base and the W/H/D Ranges in support of the drone/remotely piloted vehicle program managed at Hill Air Force Base. Remodeling of a building at Hill into a range central facility was begun. The facility was to serve as a range control and data gathering and reduction facility. Hill was planning the procurement of a multiple participant tracking system and improved communications equipment for the ranges. These improvements and others proposed through fiscal year 1977 were in addition to the COP to permit early support of the drone/remotely piloted vehicle program.

CCE CHRONOLOGY

The Blue Ribbon Defense Panel Report, July 1970

This report was the result of a year-long study sponsored by the DOD. The report concluded that within DOD OT&E had been too infrequent, poorly designed and executed, and generally inadequate. The report stated that existing ranges were marginally adequate to support the OT&E which had been performed, and expressed doubt that they were adequate for OT&E which should have been but was not performed.

"HAVE EDGE" Study, October 1970

This study called for the creation of a very sophisticated test facility covering a large area including the air space over most of Utah and Nevada with the Hill Air Force Base and Dugway ranges as its center. Cost estimates for acquiring and operating the "HAVE EDGE" ranges varied from about $600 million to $1.5 billion over a 20-year period of operation and it was rejected by the Air Force as being too expensive.

DOD Test and Evaluation Facility Base Review, June 1971

As a result of the Blue Ribbon Defense Panel Report, DOD directed a detailed study of existing test facilities in order to determine a logical approach to implementing the panel's recommendations. The study defined areas of the country where suitable OT&E could be

conducted and recommended the creation of several ranges by tying together existing ranges. One of these was the Continental Operations Range.

TAC ATCOP Development Plan 72-1, July 1972

This plan was published in response to a May 1972 Chief of Staff, Air Force, directive to TAC to prepare a development plan for COR to include near-term improvements for OT&E and training and far-term development of COR.

Draft Development Concept Paper, July 1972

Following the recommendations of the 1972 DOD Test and Evaluation Facility Base Review that a COR be established, the DOD Tri-Service Coordination Committee for Integrated Offensive/Defensive Test Environment began work on a development concept paper for COR. On May 5, 1972, DDR&E dissolved the Tri-Service Coordination Committee and assigned completion of a draft DCP for COR to the Air Force.

Systems Command Directive, February 1973

Systems Command gave the Air Force Special Weapon Center at Kirtland Air Force Base, Albuquerque, New Mexico, the responsibility of organizing a Test and Evaluation Management Office to be responsible for improving the operational test and evaluation capability of using

commands in the Nellis Air Force Base area, and satisfying Systems Command's immediate development, test and evaluation capability needs in the Wendover/Hill/Dugway area.

COR Development Concept Paper, April 1973

The COR Development Concept Paper specified that the COR would be developed in the Las Vegas, Salt Lake City, Reno area since the western United States is the only geographical area in the Continental United States that has the land and air space necessary and which is sufficiently free from encroachment and electronagnetic interference to support the COR concept. It also discussed the issues of why there should be COR, and how soon should a COR capability be achieved.

Headquarters Air Force Directive, June 1973

This directive gave TAC responsibility for implementing near-term COR as well as the overall responsibility for managing and operating COR. It assigned development, acquisition, and technical support responsibilities to Systems Command.

TAC AFCOR Development Plan, 73-1, September 1973

In August 1973 TAC with assistance from other commands updated the original TAC AFCOR Development Plan 72-1, in consonance with the June 1973 directive. This plan dealt with requirements, acquisition schedules, cost, manpower and organizational structure, implementation schedules, and major milestones for COR.

House Appropriations Subcommittee Hearings, September 1973

In testimony the Air Force estimated that the total investment cost of COR through fiscal year 1982 would be $162.8 million. This included $78.2 million in RDT&E, $79.4 million in other procurement, and $5.2 million in military construction. COR near-term and mid-term were estimated to cost $112.6 million through fiscal year 1978, with an additional $50 million required to complete COR far-term.

Headquarters Air Force Directive, February 1974

In November 1973, the Chief of Staff, Air Force, directed that acquisition of COR would be done as a normal systems acquisition by Air Force Systems Command. In a Headquarters Air Force program management directive, dated February 15, 1974, Systems Command was designated the implementing command for the development and acquisition of COR. TAC was designated the COR operator pending a Chief of Staff Air Force decision on the final COR management system.

Air Force Systems Command Directive, March 1974

In March 1974, Systems Command designated TESPO as the lead organization for the development and acquisition of COR. TESPO was given responsibility for preparing a program management plan (PMP) for COR. In addition, TESPO was to be the responsible test organization for the program.

TESPO Program Management Plan, May 1974

In May 1974, TESPO issued a PMP for the development and acquisition of COR. The PMP categorized the program into several management areas and discussed in some detail the management of each. It set out requirements in some detail based on surveys of using commands.

House Appropriations Subcommittee Hearings, May 1974

In testimony, the Air Force estimated that the total investment cost of COR through fiscal year 1980 would be $297.9 million. This included $64.1 million for RDT&E, $109 million in other procurement, and $14.8 million in military construction. The Air Force explained the increase in the cost estimates from the previous year to have resulted from a further definition of requirements and a refinement of cost.

Development Concept Paper Revision A, July 1974

This was the first revision to the April 1973 DCP and revised completion dates for the three COR phases. Near-term COR completion was set for end of fiscal year 1977, mid-term for fiscal years 1978 and 1979, and far-term for fiscal years 1980 through 1982.

Defense Systems Acquisition Review Council (DSARC) Briefing, July 1974

In July 1974, TESPO gave a DSARC briefing covering COR planning and costs. DSARC approved the DCP and approved the COR program.

Congressional Conference Report, September 1974

On September 18, 1974, Congress denied CDR funding for fiscal year 1975. As presented in a conference report of the Committee of Conference, House of Representatives, the amount of funding denied was: other procurement $12.6 million, RDT&E $4.2 million, and O&M $1.1 million.

Headquarters Air Force Directive, November 1974

Systems Command was designated the implementing command for the development of equipment designed to improve Air Force capability to conduct OT&E. TESPO program objectives set out in the directive were to provide an improved capability to conduct operational test and evaluation and training at existing Air Force test ranges and to establish a continuing RDT&E program.

Congressional Committee Reports, November and December 1974

The House committee report dated November 19, 1974, denied the Air Force request for $5.2 million for Military Construction at various locations to provide facilities in support of the proposed tactical operations range. The Senate committee report dated December 3, 1974, restricted its approval for funding to provide $1.2 million for ongoing tactical operations range facilities at TESPO without regard to the CDR concept.

Congressional Conference Report, December 1974

The House and Senate committees agreed to provide $1.2 million for the tactical operations range facilities. The remaining portion of the $5.2 million requested by the Air Force was not funded.

Message from Chief of Staff, USAF, to COR Participants, December 1974

The message dated December 19, 1974, specified, among other things, that all planning actions, agreements, organizations, and other related activities directly associated with the COR development/acquisition program were terminated. The message further stated that only those specific items that can be clearly differentiated from the COR program may be retained as appropriate.

TOTAL COR FUNDING
FISCAL YEARS 1973 THROUGH 1982

Program Funding	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	Total
					(millions of dollars)						
RDT&E	--	[a]2.3	10.5	9.5	13.3	14.0	14.0	14.0	1.0	1.0	79.6
Other procurement including spares	--	--	13.9	16.2	17.6	20.9	20.9	18.5	6.5	2.1	116.6
Military construction	--	[a]5	5.2	3.0	3.0	--	--	--			11.7
Total Investment Costs		2.8	29.6	28.7	33.9	34.9	34.9	32.5	7.5	3.1	207.9
Operation and maintenance	1.1	1.1	9.9	19.6	12.1	11.6	11.6	11.6	11.6	11.6	99.2
Military personnel	3.1	4.1	5.7	7.4	8.9	9.6	9.6	9.6	9.6	9.6	77.4
Total	4.4	7.4	41.2	56.1	54.9	56.1	56.1	53.7	28.7	24.3	384.3

[a]Although these costs were shown as COR cost in Congressional testimony, $2.3 million was used for urgent minor construction during fiscal year 1974 and $0.7 million was redistributed to other programs by Headquarters Air Force in fiscal year 1974.

PROPOSED LEVEL OF FUNDING BY HEADQUARTERS AIR FORCE

CAP PROGRAM

FISCAL YEARS (BEGINNING AFTER CAP WAS DENIED)

	1975	1976	1977	1978	1979	Totals
	(millions of dollars)					
RDT&E	10.5	9.5	13.3	14.0	14.0	61.3
Other procurement	13.0	16.2	17.5	20.9	20.9	89.5
Military construction	5.2	3.9	3.9	--	--	13.2
Operations and maintenance	5.9	10.6	14.1	13.6	13.6	55.8
Military personnel	5.7	7.2	8.9	9.6	9.6	41.0
Total	41.2	46.5	54.9	58.1	58.1	258.8

TFAC PROGRAM

FISCAL YEARS (AFTER CAP WAS DENIED)

	1975	1976	1977	1978	1979	Totals
	(millions of dollars)					
RDT&E	--	--	--	--	--	--
Other procurement	--	8.6	14.9	5.1	13.7	41.4
Military construction	1.2		--	--	--	1.2
Operations and maintenance	4.7	7.8	9.6	10.9	11.9	44.7
Military personnel	6.0	7.4	8.3	9.0	9.8	40.5
Total	11.9	23.8	31.9	24.9	35.7	127.8