MINNEAPOLIS / ST. PAUL INTERNATIONAL AIRPORT

# ASSESSMENT OF ENVIRONMENTAL EFFECTS OF THE METROPOLITAN AIRPORTS COMMISSION'S SEVEN YEAR CAPITAL IMPROVEMENT PLAN

FOR THE
METROPOLITAN AIRPORTS COMMISSION

BY
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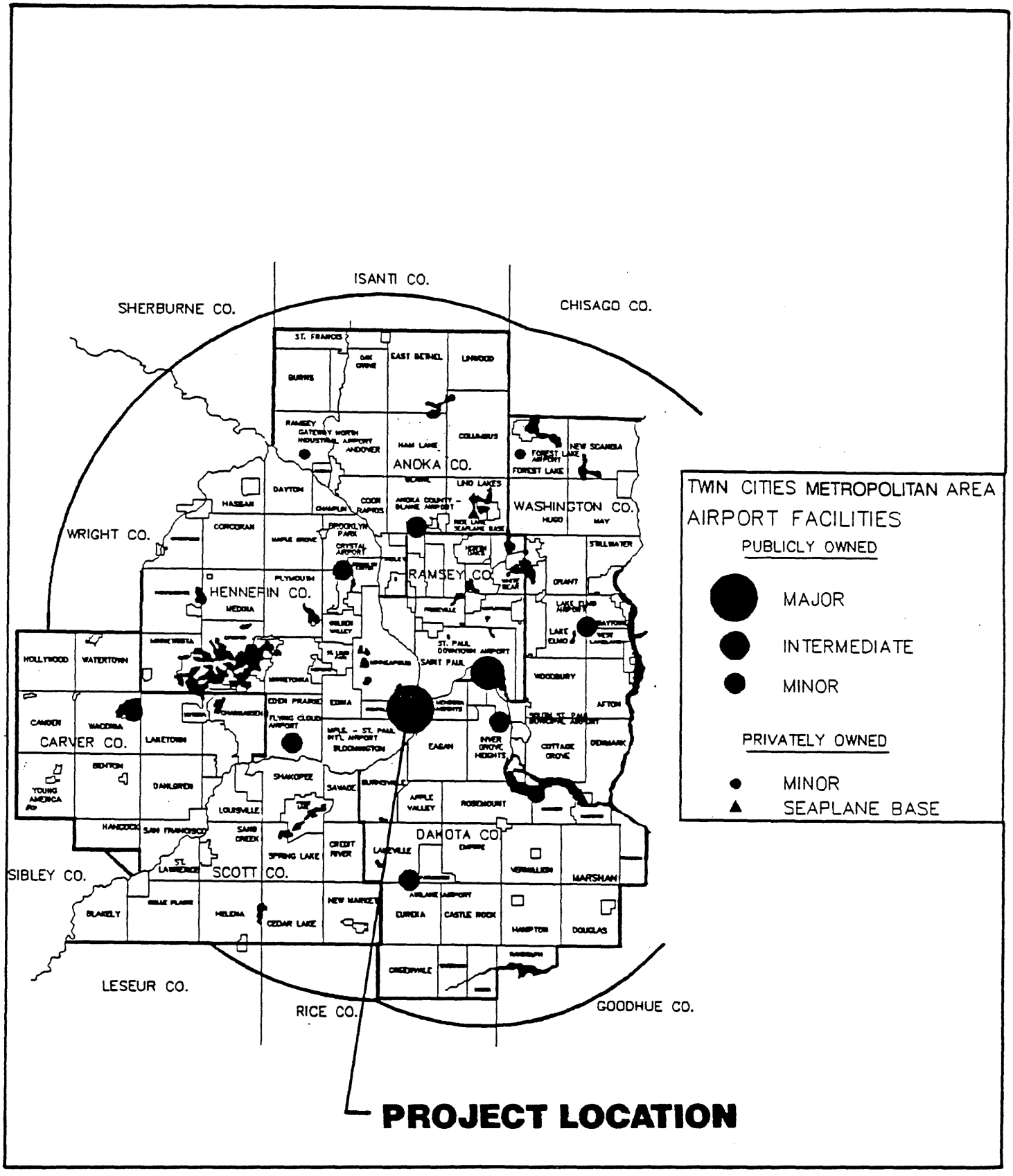
# ASSESSMENT OF ENVIRONMENTAL EFFECTS
Minneapolis/St. Paul International Airport
Metropolitan Airports Commission Seven Year Capital
Improvement Plan

## TABLE OF CONTENTS




| ASSESSMENT OF ENVIRONMENTAL EFFECTS<br>**MINNEAPOLIS/ST. PAUL INTERNATIONAL AIRPORT** | FIGURE<br>1 |
|---|---|

# ASSESSMENT OF ENVIRONMENTAL EFFECTS

Minneapolis/St. Paul International Airport
Metropolitan Airports Commission Seven Year Capital
Improvement Plan

## A. INTRODUCTION

This report, prepared in response to the requirements of Minnesota Statutes 1986, Chapter 473, amended by Minnesota Statutes 1988, Chapter 664, presents an assessment of the environmental effects of projects in the Metropolitan Airports Commission's Seven-Year Capital Improvement Plan (1991-1997) for Minneapolis-St. Paul International Airport.

This assessment examines the cumulative environmental effects of all the listed capital improvement projects at the airport from 1991 to 1997. Many of the projects listed entail only repair or rehabilitation of existing facilities. Such work would not affect the before/after usage of the facilities, and as such would not add to or subtract from the cumulative environmental effects. The anticipated measurable effects during construction are discussed in general terms under Paragraph C. The projects included in the cumulative evaluation are those that have the potential of altering, creating, or in some manner affecting the environmental impact categories listed below.

### IMPACT CATEGORIES USED TO ASSESS ENVIRONMENTAL EFFECTS

#### Aircraft Noise

The types of projects which might impact the effects of noise on the environment are new or lengthened runways, new or lengthened taxiways, new maintenance hangars, additional aircraft gates or facilities that may increase operations, and noise insulation and other noise mitigation measures.

#### Vehicular Traffic

The types of projects which might impact the effects of traffic at the airport or to the surrounding community are new buildings or building additions, new parking spaces or structures, and new or modified roadways or roadway systems.

#### Air Quality

Air quality impacts at the airport will be primarily caused by changes in vehicular or aircraft activity. Projects which might have an impact will generally be the same projects which affect aircraft noise or vehicular traffic.

Water Quality

Projects which might affect water quality are those which create additional runoff (new pavements or buildings), fire suppression systems, new retention basins, or projects which might affect the groundwater.

Light Emissions

Projects evaluated under this category are airport beacons, lights associated with new runways or taxiways and lights associated with new roadways, parking lots, or ramps.

Sewage

Those projects which have the potential to increase sewage discharged into the sanitary sewer system are new or expanded buildings or other changes that significantly alter the number of people using a facility.

Wetland Impact

All projects are evaluated to see if they would entail the full or partial filling of wetlands.

Residential Relocation Impacts

Residential relocation impacts are associated with land acquisition projects that will displace occupied residential units.

## B. PROJECTS WITH POTENTIAL ENVIRONMENTAL EFFECTS

Table 1 is a listing of all the projects included in the MAC's Capital Improvement Plan for the years 1991 through 1997. Those projects determined to not contribute to the cumulative environmental effects at the airport are so noted on Table 1 with a numerical code. The notations are coded by number in order to better explain the type of work the project entails and why this type of project will not contribute to the cumulative environmental effects. As further discussed in the next section, environmental effects of construction activities will also be controlled.

# TABLE 1
# MINNEAPOLIS / ST. PAUL INTERNATIONAL AIRPORT
# METROPOLITAN AIRPORTS COMMISSION

| See Note | Project Description | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|
| | FIELD & RUNWAYS | | | | | | | |
| (2) | Airfield Access Control System | $3,600,000 | | | | | | |
| ^* | Airside Bituminous Construction | $750,000 | $750,000 | $500,000 | $500,000 | $500,000 | $500,000 | $500,000 |
| ** | Apron Paving-SW Hangar/Cargo Area | $6,000,000 | | | | | | |
| (1) | Electrical Modifications | $150,000 | $150,000 | $150,000 | | $150,000 | | $150,000 |
| (1) | Miscellaneous Construction | $275,000 | $275,000 | $275,000 | $275,000 | $275,000 | $275,000 | $275,000 |
| (1) | Pvmt Rehab-Aprons, Txys, etc. | $2,000,000 | | $2,500,000 | $2,500,000 | $2,500,000 | $2,500,000 | $2,500,000 |
| (1) | Pvmt Rehab-Runway 11R/29L | $3,500,000 | | | | | | |
| (1) | Perimeter Security Fence Replacement | $200,000 | $200,000 | $200,000 | $200,000 | $200,000 | | |
| ^* | Site Preparation | $100,000 | $100,000 | | $100,000 | | $100,000 | |
| * | Stormwater Containment Basin | $100,000 | | | | | | |
| * | Taxiway M Construction | $800,000 | | | | | | |
| ^* | Retention Basin Improvements | | $300,000 | | | | | |
| ^** | Runway 4/22 Extension | | $11,000,000 | | | | | |
| (1) | Storm Sewer Rehabilitation | | $250,000 | | $250,000 | | $250,000 | |
| ^* | Taxiway C Reconstruction | | $3,000,000 | | | | | |
| ^* | Taxiway C/D Complex | | $4,500,000 | $5,300,000 | | | | |
| ^* | Pvmt Rehab-Runway 11L/29R | | | $5,000,000 | | | | |
| (1) | Pvmt Rehab-Runway 4/22 | | | $5,500,000 | | | | |
| * | Runway 11L/29R Holding Aprons | | | $3,200,000 | | | | |
| ^* | Taxiway C Construction | | | $3,000,000 | | | | |
| ^* | Taxiway B Construction | | | | $5,700,000 | | $8,000,000 | |
| | FIELD & RUNWAYS SUBTOTALS | $17,475,000 | $20,525,000 | $25,625,000 | $9,525,000 | $3,625,000 | $11,625,000 | $3,425,000 |
| | ENVIRONMENTAL | | | | | | | |
| ^* | Land Use Modifications | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 |
| (2) | Noise Monitoring System | $1,350,000 | | | | | | |
| ^* | Noise Suppressor | $6,000,000 | | | | | | |
| | ENVIRONMENTAL SUBTOTALS | $11,350,000 | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 | $4,000,000 |

NOTES:
- ^ Items discussed in previous Assessment of Environmental Effects.
- * The items marked with an asterisk have potential effects that are discussed in the text.
- ** Projects which are covered in the text and also in other environmental documents (EA/EIS/EAW).
- (1) A rehabilitation project which does not physically alter the original size.
- (2) An electrical or mechanical device that monitors or indicates existing conditions.
- (3) A structural, mechanical or electrical modification that does not increase size or passenger capacity.
- (4) Years and costs to be determined based upon NWA's location determination.

# TABLE 1
# MINNEAPOLIS / ST. PAUL INTERNATIONAL AIRPORT
# METROPOLITAN AIRPORTS COMMISSION

| See Note | Project Description | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|
| | SELF-LIQUIDATING | | | | | | | |
| * | Maint & Admin Complex | $1,600,000 | | | | | | |
| ^** | NWA Main Base Modifications | $42,000,000 | $14,000,000 | | | | | |
| (3) | NWA World Club | $2,000,000 | | | | | | |
| (3) | Green Concourse Moving Walks | | | | $6,600,000 | | | |
| * | FIS Facility-Lindbergh Terminal | | | | | $12,000,000 | | |
| (4) | NWA Heavy Maintenance Facility | | | | | | | |
| | SELF-LIQUIDATING SUBTOTALS | $45,600,000 | $14,000,000 | $0 | $6,600,000 | $12,000,000 | $0 | $0 |
| | LANDSIDE | | | | | | | |
| ** | Auto People Move Sys (Rent Car Pkg) | $6,000,000 | $6,125,000 | | | | | |
| (3) | Blue Concourse Interior Rehab | $250,000 | | | | | | |
| (3) | CFR Station Upgrade | $75,000 | | | | | | |
| (3) | Green Concourse Interior Rehab | $500,000 | | | | | | |
| * | Green Concourse Mech Sys Conv | $3,350,000 | | | | | | |
| (1) | HHH Air Handling/Lighting Modif | $175,000 | | | | | | |
| (3) | HHH FIS Modifications | $1,500,000 | | | | | | |
| (3) | HHH Gate 1 Modifications | $675,000 | | | | | | |
| (1) | Info/Directional Signing Adjmts | $400,000 | | $50,000 | | $50,000 | | $50,000 |
| (3) | Lindbergh Electrical Modification | $200,000 | $100,000 | | $100,000 | | $100,000 | |
| (3) | Lindbergh Misc Modifications | $250,000 | $250,000 | $250,000 | $250,000 | $250,000 | $250,000 | $250,000 |
| (1) | MAC Ceiling/Lighting Upgrade | $150,000 | | | | | | |
| (1) | North Disposal Compactor Pvmt Rehab | $25,000 | | | | | | |
| (3) | NWA Concourse Modifications | $1,650,000 | | | | | | |
| (3) | NWA Ramp Equipment Wash Facility | $250,000 | | | | | | |
| (3) | Parking Structure Rehabilitation | $4,500,000 | $150,000 | $150,000 | $150,000 | $150,000 | $150,000 | $400,000 |
| (3) | Police Department Remodeling | $200,000 | | | | | | |
| ^* | Public Safety Building | $150,000 | | | | | | |

NOTES:
- ^ Items discussed in previous Assessment of Environmental Effects.
- * The items marked with an asterisk have potential effects that are discussed in the text.
- ** Projects which are covered in the text and also in other environmental documents (EA/EIS/EAW).
- (1) A rehabilitation project which does not physically alter the original size.
- (2) An electrical or mechanical device that monitors or indicates existing conditions.
- (3) A structural, mechanical or electrical modification that does not increase size or passenger capacity.
- (4) Years and costs to be determined based upon NWA's location determination.

# TABLE 1
# MINNEAPOLIS / ST. PAUL INTERNATIONAL AIRPORT
# METROPOLITAN AIRPORTS COMMISSION

| See Note | Project Description | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|
| | LANDSIDE (CONTINUED) | | | | | | | |
| (3) | Relocate Garage Ent/Exit Ramps | $1,500,000 | | | | | | |
| * | Remote Revenue Control Building | $100,000 | | | | | | |
| * | Salt Storage Building | $275,000 | | | | | | |
| (3) | Terminal Sprinkler System Addition | $100,000 | | $100,000 | | $100,000 | | $100,000 |
| ^* | Trash Compactor/Dumpster | $50,000 | | | | | | |
| (3) | Tunnels & Term Basement Modif | $3,500,000 | | | | | | |
| (3) | West Terminal Area Rehabilitation | $200,000 | | $100,000 | | $100,000 | | $100,000 |
| (1) | Bag Conveyor/Carrousel System Rehab | | $1,000,000 | | | | | |
| (3) | Basement Concrete Restoration | | $300,000 | | | | | |
| (3) | Boiler Plant Modifications | | $100,000 | | | | | |
| (1) | Comm Ops Center Modification | | $100,000 | | | | | |
| * | Concession Area Development | | $4,000,000 | | | | | |
| ^** | Elevated Roadway Rehabilitation | | $18,250,000 | | | | | |
| ^* | Ground Trans Control System | | $500,000 | | | | | |
| (3) | Lindbergh Interior Rehabilitation | | $1,000,000 | | | | | |
| ^** | Pkg Struc Mech Ventilation System | | $1,500,000 | | | | | |
| * | Trades Shop Building | | $1,000,000 | | | | | |
| (1) | Auto Rental Facility Upgrade | | | $300,000 | | | | |
| (3) | Limousine Counter Relocation | | | $100,000 | | | | |
| (3) | Primary Distribution Sys Upgrade | | | $750,000 | | | | |
| (3) | Taxicab & Limo Shelter Replacement | | | $250,000 | | | | |
| | LANDSIDE SUBTOTALS | $26,025,000 | $34,375,000 | $2,050,000 | $500,000 | $650,000 | $500,000 | $900,000 |
| | YEARLY TOTALS | $100,450,000 | $72,900,000 | $31,675,000 | $20,625,000 | $20,275,000 | $16,125,000 | $8,325,000 |

NOTES:
- ^ Items discussed in previous Assessment of Environmental Effects.
- * The items marked with an asterisk have potential effects that are discussed in the text.
- ** Projects which are covered in the text and also in other environmental documents (EA/EIS/EAW).
- (1) A rehabilitation project which does not physically alter the original size.
- (2) An electrical or mechanical device that monitors or indicates existing conditions.
- (3) A structural, mechanical or electrical modification that does not increase size or passenger capacity.
- (4) Years and costs to be determined based upon NWA's location determination.

## C. IMPACTS DURING CONSTRUCTION

As noted, it is assumed in this assessment that normally practiced mitigation measures will be used during construction to minimize adverse environmental effects caused by noise, dust, erosion, etc. Since the environmental effects during construction will be of a temporary nature, they have not been included in the cumulative, long-term effects of the CIP.

Nonetheless, it is recognized that the planned repair/rehabilitation of Runway 11L/29R and 11R/29L plus, the lengthening of Runway 4/22 during the seven year program will require rerouting of air traffic for temporary periods. This rerouting will cause temporary changes in overflight noise levels. The greater noise levels from more flights concentrated on two of the three runways will be partially offset by reduced levels under the approaches of the runway temporarily out-of-service for repair/rehabilitation. The project having the greatest impacts will be the rehabilitation of Runways 11L/29R and 11R/29L. They will be completed during the closed window season, as much as possible, as was done in Spring 1989 with Runway 4/22, or at least phased to coincide with multiple closed window seasons. In addition, MAC, working with the Metropolitan Aircraft Sound Abatement Council (MASAC), will utilize whatever noise control/reduction measures are feasible during construction of the runway repair/rehabilitation projects, including:

1) Scheduling the work during the closed window season to the extent feasible.

2) Requiring longer working days and weeks by the contractors to expedite the work.

3) Balancing the effects of night construction noise with aircraft operating noise.

4) Enforcing stringent penalties on contractors for delays in work.

## D. CUMULATIVE ENVIRONMENTAL EFFECTS

Following is a summary of the cumulative environmental effects by impact category. Appendix A contains an analysis of environmental effects on a project-by-project basis.

The possible Northwest Airlines Heavy Maintenance Facility is not evaluated in this document. This is because of the uncertainty of the project actually being built at MSP plus the uncertainty of where it would be located if it is built. If MSP is chosen by Northwest Airlines for the maintenance facility the MAC will conduct an environmental analysis of the project at that time. It is expected that a mandatory Environmental Impact Statement will be required.

### D.1 Aircraft Noise

Analysis of MAC's Capital Improvement Plan on a project-by-project basis found several projects that may impact the noise environment at/near the airport. These projects can be grouped into three general categories. The first group is projects that may produce a minor increase in aircraft noise; however, if each project is assessed alone, the increase is insignificant. This group includes Taxiway B Construction and Apron Paving at Southwest Hangar/Cargo Area.

The second group consists of projects that should produce a reduction in aircraft noise reception. This group includes Land Use Modifications beginning 1991 and the Noise Suppressor.

The third grouping consists of projects that will produce a definite change in noise. The only project in this grouping is the Runway 4/22 Extension.

In order to determine the cumulative environmental effects of the CIP on noise, the cumulative effects for each group were first determined, and the effects of each group were then combined for an overall effect.

As discussed in Appendix A, the two projects in the first group when evaluated by themselves are expected to have only insignificant noise impacts. The possible exception would be the Southwest Cargo Apron Area. It is estimated that a maximum of 20 additional operations per day could occur by cargo operators using the new facility. This represents an increase in airport operations of 1.9%. The noise impact created by this very small increase will be insignificant in most cases. The only exception to this is if all the increased operations occurred in the middle of the night. This situation would result in a noticeable increase in aircraft noise. The MAC has a policy of encouraging aircraft users to voluntarily avoid operations during the nighttime hours. Assuming most of the new users follow this policy, the increased noise will be negligible. The cumulative impacts of the first group of projects will be insignificant. This is because the impacts of the two projects are

located on different parts of the airport and therefore will not be additive and not result in a significant impact. The apron paving project will at most lead to an increase in operations of less than 2 percent. Taxiway B involves a minor increase in ground maneuvering noise in the location of the new taxiway.

The cumulative overall impact on noise from the first group of projects is, therefore, judged to be an insignificant to very minor increase.

For the second group, the cumulative effects of the Land Use Modifications are summarized in Section I.D of Appendix A. This indicates that there would be a significant positive impact to the environment concerning aircraft noise, primarily because of land use changes and corrective measures. An analysis of the Noise Suppressor (Section I.E of Appendix A) found that if constructed, it would have a limited positive impact on airport noise. However, with a cost of $6,000,000, it has a low benefit to cost ratio in comparison with other possible beneficial projects. The cumulative impact from the second group of projects would, therefore, have a significant positive impact to the environment.

The Runway 4/22 Extension, which is the only project in the third group, is covered in Section II.G of Appendix A. Section II.G contains a summary of the Environmental Impact Assessment prepared for this project. In brief, the summary findings state that the proposed project will not result in the creation of any additional noise at MSP when compared with the no-build option. The effect of the project would be to decrease noise in some areas while increasing it in others.

In summary, the insignificant to very minor increase in noise impact from group one, added to the potential for a significant decrease in noise impact from group two, added to no increase in overall noise from group three, indicates that the overall cumulative impact upon the environment from noise will be positive (i.e. less noise) for the whole of the MAC's Capital Improvement Plan. It should be noted, however, that principally because of the Runway 4/22 extension, some areas would experience an increase in noise levels while other, larger geographical areas, would experience a decrease.

D.2 Cumulative Effects of Vehicular Traffic

Analysis of MAC's seven year CIP on a project-by-project basis reveals that several projects have an affect on airport traffic and the overall flow entering and leaving the airport.

The NWA main base modification project will have a definite impact to traffic on 34th Avenue and Glumack Drive. Modifications and expansions to Complex B will generate additional vehicular traffic due to an increase in the number of employees as well as additional truck traffic due to increased capacity and efficiency of the stores and maintenance facilities. This portion of the project will increase traffic on

Glumack Drive by 550 vehicles per day (vpd). The estimated total traffic for Glumack Drive will then be 20,550 vpd or an increase of 2.75 percent. The roadway will be adequate on a daily basis to meet the increased demand.

The modifications and expansion to Complex C will not increase the number of employees, but it will increase truck generated vehicular traffic. It is estimated that there will be an increase of 80 vpd to traffic on 34th Avenue South. The existing Average Daily Traffic (ADT) of 34th Avenue including the additional traffic generated by the NWA B-747-400 facility is 12,460. Combining the increase due to the main base modifications will increase the 34th Avenue ADT by 0.6 percent to 12,540 vpd. The capacity of 34th Avenue South is 15,000 vpd which will be adequate to handle the increased demand.

Construction of a new air cargo apron and associated hangar, freight storage and equipment buildings in the southwest corner of the airport will increase employment, and therefore traffic, along 26th Avenue South. The existing ADT of 26th Avenue is about 3,200 vpd. By the time the new cargo area is fully built up, the ADT is anticipated to have increased 100 percent to 6,400 vpd. The capacity of 26th Avenue is large enough to handle this increase in traffic.

The intersections of 26th Avenue South and East 78th Street, and 24th Avenue South and East 78th Street will feel the greatest effect of the increased traffic volumes. Both should be able to handle the higher volumes. Geometric modifications or signalization can improve the functioning of the latter intersection if delays become unacceptable.

The automated people mover, skyways, underground parking garage improvements, and the new elevated roadway, when completed, along with the vertical circulation improvements will increase circulation/movement efficiency of the internal roadway traffic and pedestrian flow. No additional inbound or outbound trips will be generated by these facilities. Skyways will greatly reduce the number of pedestrians crossing the elevated roadway.

The construction of the Maintenance and Administration Complex - MSP Fueling Committee will add approximately 80 vehicle trips to the peak hour traffic volume on Norhtwest Drive. The roadway can easily handle this increase in traffic.

D.3 Air Quality

Analysis of MAC's Capital Improvement Plan on a project-by-project basis found three projects with the possibility of impacting the environment's air quality. These are the Ground Transportation Control System (Section II.D), the Elevated Roadway Rehabilitation (Section II.B), and the Parking Structure Mechanical Ventilation System (Section II.F).

The Ground Transportation Control System is expected to have a slightly positive impact on air quality. The system will control the flow of taxicabs, limousines and the courtesy vehicles into the vicinity of the Lindbergh Terminal. The reduction in number of idling vehicles is expected to improve air quality slightly.

The Elevated Roadway Rehabilitation should provide a slight improvement in air quality on the elevated roadway itself. The added lanes will provide more efficient vehicle movements and less traffic congestion resulting in a corresponding decrease in auto emissions. The Elevated Roadway Rehabilitation could, by itself, possibly create air quality problems on the lower level roadway. However, the ventilation system which is a mitigative measure for the new seven level parking ramp and which will be installed in the same area is expected to assure attainment of meeting the State Carbon Monoxide levels.

In summary, the Mechanical Ventilation System is expected to maintain air quality in the roadway in front of the Lindbergh Terminal.

D.4 Water Quality

The airport is divided into four (4) drainage areas with four (4) discharge points. They are the Mother Lake Drainage Area, Snelling Lake Drainage Area, Minnesota River-South Drainage Area, and Minnesota River-North Drainage Area.

The estimated cumulative additional runoff has been calculated for each basin. The total runoff was calculated by adding together the total runoff calculated for each individual project. These totals are under each project in Appendix A. The estimated cumulative additional discharge based on a five year storm, of 12.6 cubic feet per second (cfs) and 7.4 cfs can apparently be handled by the Snelling Lake and Mother Lake Drainage Areas. The estimated additional discharge of approximately 46.4 cfs to the Minnesota River-South Drainage Area and discharge point is an increase of 12.7%. The estimated additional runoff of 29.1 cfs to Minnesota River-North Drainage Area is an increase of 6.8%. The Minnesota River Drainage Basin storm detention is at or near capacity. Further development in the basin may require modifications to the detention ponds or piping.

In summary, the drainage basins of Mother Lake and Lake Snelling can apparently handle the additional runoff from the proposed projects in those basins. The Minnesota River-North and South Drainage Basins may need modifications in order to handle the additional runoff of the proposed projects such that a minimum 3 hour detention time can be accomplished. This will insure that the quality of the runoff will not have an adverse impact. The present treatment basins are designed to adequately protect the quality of the discharged water.

Another impact to water quality involves using ground water for the mechanical air conditioning upgrades. The addition of the green concourse conversion is estimated

to add 40 million gallons per year (MG/Y). The airport presently uses an average of 400 MG/Y.

The Blue and Red Concourse conversions which are already initiated are anticipated to add 122 MG/Y. The addition of the Green Concourse could bring the total to 560 MG/Y. MAC currently has a permit which allows for 500 MG/Y of ground water to used. It appears the permitted amount could be exceeded necessitating MAC to pay for water in excess of the permitted amount in accordance with the terms of the permit.

The final project to impact water quality is the Stormwater Containment Basin. This project will provide a positive impact to water quality since it will further reduce the chance of fuel spills reaching the environment.

D.5 Light Emissions

Analysis of MAC's Capital Improvement Plan found that none of the projects evaluated will have any significant impact from a light emissions standpoint. All of the projects which will create light emissions are in general scattered across the airport. Therefore, the cumulative effects from light emissions are not expected to have any significant impact upon the environment.

D.6 Sewage and Industrial Waste

There are two projects in the MAC's Capital Improvement Plan that will increase sewage flows. The Northwest Airlines Main Base Modifications project will generate approximately 3000 gallons/day of domestic sewage. In addition there will be an increase in the volatile wastes generated within the maintenance shops. At this time there is not sufficient information available to estimate how much, however, such materials are currently being disposed of by approved methods. The Maintenance and Administration Complex - MSP Fueling Committee will generate approximately 2,500 gallons/day of domestic sewage. It will also generate wastes associated with truck washing and maintenance activities. Inflammable waste traps will be installed to separate out harmful wastes from this activity. The existing collection/treatment system is adequate to handle these additional flows.

D.7 Wetland Impact

The projects in the MAC's Capital Improvement Plan that will have an impact upon wetlands are the Runway 4-22 Extension and Apron Paving at the Southwest Cargo Hangar Area. Less than 0.5 acre of marsh will need to be filled as part of both projects. Tentative mitigation plans are being explored by U.S. Fish and Wildlife Service and the MAC. The tentative mitigation would consist of a cash payment to the Minnesota Valley Wildlife Refuge which would be used to restore 2.1 acres of wetland to a depth of 4 to 6 inches. The location would be near old Cedar Avenue.

If this is not feasible, the required mitigation will be accomplished in some other manner.

D.8 Residential Relocation Impacts

Analysis of MAC's Capital Improvement Plan found that none of the projects evaluated will have any residential relocation impacts.

## IMPACTS

### I. PROJECTS BEGINNING IN 1991

- I.A Airside Bituminous Construction
- I.B Apron Paving - Southwest Hangar/Cargo Area
- I.C Automated People Mover System
- I.D Land Use Modifications
- I.E Noise Suppressor
- I.F NWA Main Base Modifications
- I.G Public Safety Building
- I.H Remote Revenue Control Building
- I.I Salt Storage Building
- I.J Site Preparation
- I.K Taxiway M Construction
- I.L Trash Compactor/Dumpster
- I.M Green Concourse Mechanical Systems Conversion
- I.N Maintenance & Admin Complex-Fueling Committee
- I.O Stormwater Containment Basin

### II. PROJECTS BEGINNING IN 1992

- II.A Concession Area Development
- II.B Elevated Roadway Rehabilitation
- II.C (Omit)
- II.D Ground Transportation Control System
- II.E Retention Basin Improvements
- II.F Parking Structure Mech Ventilation System
- II.G Runway 4/22 Extension
- II.H Taxiway C Reconstruction
- II.I Taxiway C/D Complex
- II.J Trades Shop Building

### III. PROJECTS BEGINNING IN 1993

- III.A Pavement Rehabilitation - Runway 11L/29R
- III.B Runway 11L/29R Holding Aprons
- III.C Taxiway C Construction

### IV. PROJECTS BEGINNING IN 1994

- IV.A Taxiway B Construction

### V. PROJECTS BEGINNING IN 1995

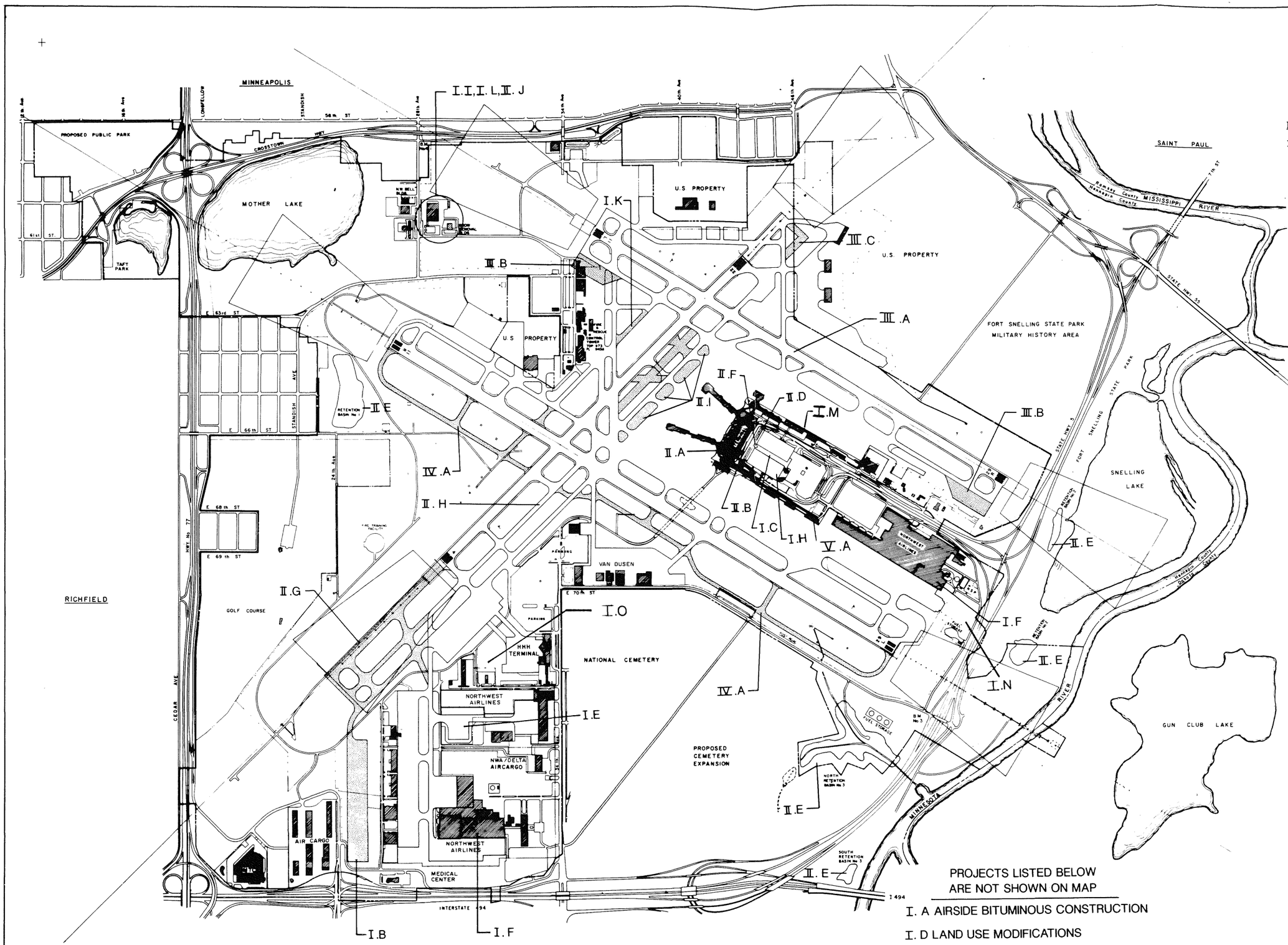
- V.A FIS Facility - Lindbergh Terminal

### VI. PROJECTS BEGINNING IN 1996

(No Projects With Impacts)

### VII. PROJECTS BEGINNING IN 1997

(No Projects With Impacts)




## IMPACTS

### I. PROJECTS BEGINNING IN 1991

- I.A Airside Bituminous Construction
- I.B Apron Paving – Southwest Hangar/Cargo Area
- I.C Automated People Mover System
- I.D Land Use Modifications
- I.E Noise Suppressor
- I.F NWA Main Base Modifications
- I.G Public Safety Building
- I.H Remote Revenue Control Building
- I.I Salt Storage Building
- I.J Site Preparation
- I.K Taxiway M Construction
- I.L Trash Compactor/Dumpster
- I.M Green Concourse Mechanical Systems Conversion
- I.N Maintenance & Admin Complex-Fueling Committee
- I.O Stormwater Containment Basin

### II. PROJECTS BEGINNING IN 1992

- II.A Concession Area Development
- II.B Elevated Roadway Rehabilitation
- II.C (Omit)
- II.D Ground Transportation Control System
- II.E Retention Basin Improvements
- II.F Parking Structure Mech Ventilation System
- II.G Runway 4/22 Extension
- II.H Taxiway C Reconstruction
- II.I Taxiway C/D Complex
- II.J Trades Shop Building

### III. PROJECTS BEGINNING IN 1993

- III.A Pavement Rehabilitation – Runway 11L/29R
- III.B Runway 11L/29R Holding Aprons
- III.C Taxiway C Construction

### IV. PROJECTS BEGINNING IN 1994

- IV.A Taxiway B Construction

### V. PROJECTS BEGINNING IN 1995

- V.A FIS Facility – Lindbergh Terminal

### VI. PROJECTS BEGINNING IN 1996

(No Projects With Impacts)

### VII. PROJECTS BEGINNING IN 1997

(No Projects With Impacts)

PROJECTS LISTED BELOW ARE NOT SHOWN ON MAP

- I. A AIRSIDE BITUMINOUS CONSTRUCTION
- I. D LAND USE MODIFICATIONS
- I. G PUBLIC SAFETY BUILDING
- I. J SITE PREPARATION

EXISTING AIRPORT LAYOUT PLAN

| AIRPORT DEVELOPMENT PLAN | MSP 2000+ | METROPOLITAN AIRPORTS COMMISSION<br>AIRPORT DEVELOPMENT PLAN<br>MINNEAPOLIS – ST. PAUL INTERNATIONAL AIRPORT | FIGURE 1 |
|---|---|---|---|

# APPENDIX A

# ENVIRONMENTAL ANALYSIS OF INDIVIDUAL PROJECTS

# I. PROJECTS BEGINNING IN 1991

The following projects are included in the MAC's Capital Improvement Plan for 1991 and have the potential to effect the environment.

- Airside Bituminous Construction
- Apron Paving - Southwest Hangar/Cargo Area
- Automated People Mover System
- Land Use Modifications
- Noise Suppressor
- NWA Main Base Modifications
- Public Safety Building
- Remote Revenue Control Building
- Salt Storage Building
- Site Preparation
- Taxiway M Construction
- Trash Compactor/Dumpster
- Green Concourse Mechanical Systems Conversions
- Maintenance and Administration Complex - MSP Fueling Committee
- Stormwater Containment Basin

## I.A AIRFIELD BITUMINOUS CONSTRUCTION

This project involves construction or reconstruction of bituminous pavements in various areas within the Air Operations Area. The 1991 work includes construction of bituminous shoulders adjacent to taxiways to enhance operational safety by reducing jet blast erosion typical of unsurfaced shoulders.

At this time the amount and locations of bituminous pavement construction and reconstruction is not known. Assuming that the 1991 airside bituminous construction amount of impervious surface area per dollar of construction is consistent with the 1990 airside bituminous construction, and the relative locations as they relate to drainage areas, are the same, an assumption could be made to proportionally increase the impervious surface area based on construction costs. The 1991 program calls for $750,000 of construction compared to the 1990 program of $500,000. The relative bituminous area and associated runoff would increase by 50 percent over the 1990 airside bituminous construction.

Based upon these assumptions, the project would add approximately 63,000 square feet of impervious surface area to the Minnesota River-South Drainage Area and approximately 21,000 square feet of impervious surface area to the Minnesota River-North Drainage Area.

- Water Quality

  The additional stormwater runoff caused by the bituminous paving for a predicted five year storm event is calculated to be approximately 1.52 cubic feet per second (CFS) for the drainage area tributary to the Minnesota River-South Drainage Area and approximately 0.48 cubic feet per second for the drainage area tributary to the Minnesota River-North. This additional incremental stormwater flow will cause no apparent problems for the associated stormwater collection, conveyance and treatment systems.

## I.B APRON PAVING AT SOUTHWEST HANGAR/CARGO AREA

Proposed for construction in 1991 is the expansion of the existing air cargo center in the southwest corner of the field. The project is for an additional apron west of and parallel to the existing cargo apron. The project will be the construction of an approximate 15 acre apron and an approximately 75 by 600 foot (1.033 acres) access taxiway. This is a total surface area of 16.03 acres.

In addition, two planned hangars and some freight storage and equipment buildings may be constructed as well as ground vehicle access and parking, but the extent of the additional buildings and ground vehicle facilities is not known at this time. There was an increase in building and apron space for all cargo and small package handlers in 1987 when about 87,500 square feet of building space was added.

These existing cargo facilities are projected to be less than 2/3 to 3/4 of their capacity by the year 1998 cargo demand. Therefore, the assumption is that the facilities that are associated with the new cargo apron will be small in scale and the building area will not be fully developed until the late 1990's and beyond.

The following environmental effects are also examined in an EAW which was prepared in August, 1990.

- Aircraft Noise

  It is estimated that a maximum of 20 additional operations per day could occur by cargo operators using the new facility. This represents an increase in airport operations of 1.9%. The noise impact created by this very small increase will be insignificant in most cases. The only exception to this is if all the increased operations occurred in the middle of the night. This situation would result in a noticeable increase in aircraft noise.

  The MAC has a policy of encouraging aircraft users to voluntarily avoid operations during the nighttime hours. Assuming most of the new users follow this policy, the increased noise will be negligible.

- Vehicular Traffic

  One road, 26th Avenue South, provides for circulation needs in the new cargo apron area. Its estimated ADT after full buildout along the new cargo apron, is 6,400 vehicles per day. This volume can be handled by the existing two lane road.

  At the intersection of 26th Avenue South and East 78th Street, peak hour turning and through movements are anticipated to be level of service (LOS) A and B, meaning predominantly little or no traffic delay in the peak hour. Thus, the intersection can easily handle the increased traffic volumes in its present form.

  The intersection of 24th Avenue South and East 78th Street will experience level of service D for only one turning movement in the peak period. Geometric adjustments or signalization can improve the functioning of this intersection.

- Air Quality

  The small increase in cargo operations will, by itself, have an insignificant affect on the overall air quality of the airport.

- Water Quality

  The new aircraft apron portion of the project will increase the affected area's estimated runoff by 18.29 cfs for a five year storm. The quality of the storm water will be similar to runoff from other aprons. It will be routed through the existing storm sewers. The retention basins are designed so that settlable pollutants will collect at the bottom and floatable pollutants will stay in the basin. Pollutant removal, if needed, can then be easily accomplished. The existing facilities are sized to accept this additional flow.

  All of the runoff from this project eventually ends up in the Minnesota River South Drainage Area. The increase should be easily handled by the existing storm water system.

- Light Emissions

  Light emissions from the unloading of cargo or the cargo aircraft themselves will not create an annoyance in the vicinity of the new apron. There is not any housing on that side of the field adjacent to the facility and the area will be screened from the highway by other buildings.

- Sewage

  The project will possibly generate an insignificant amount of sewage demand if some buildings are constructed. The existing buildings are expected to meet demand through the seven year CIP program.

- Wetland Impact

  There is one minor wetland that will be impacted. Proposed mitigation of the wetland is discussed in the EAW.

## I.C AUTOMATED PEOPLE MOVER SYSTEM

An Environmental Assessment Worksheet (EAW) was prepared for this project in August 1990. Summary findings of the EAW are presented here in order to incorporate the effects from this project into the cumulative effects from all projects.

The proposed project consists of a two-year acquisition and installation schedule for an automated people mover system between the main terminal building and the rental car facility at MSP. The automated people mover is comprised of a series of compartments and will operate like a horizontal elevator electronically in a tunnel under access roads and parking facilities. The project will replace a gasoline-powered bus which currently uses local access roadways to provide shuttle service to/from the rental car facility and main terminal. The system will increase efficiency and facilitate transit movement in a heavily-congested surface transportation corridor at MSP.

The project is related to a number of other improvements in the immediate vicinity including the Lindbergh Terminal vertical circulation project providing elevators/escalators within the terminal from garage level to mezzanine level, skyways and entrance/exit ramps at the ground level.

Based upon information obtained from the EAW, it appears this item will not have any significant impact upon the environment.

I.D LAND USE MODIFICATION

The Land Use Modification projects are expected to be those identified as part of the FAR Part 150 Program (Noise Control and Compatibility Planning for Airports) which have been approved by the FAA.

The following is a listing of the Land Use Projects currently identified in the FAR Part 150 submittal.

Preventive Land Use Measures

LU1. Amend Local Land Use Plans to Bring into Conformance with the Metropolitan Council's Noise Compatibility Guidelines.

In coordination with the Metropolitan Council, local jurisdictions would review their comprehensive plans to determine if amendments are required to conform with the Guidelines for Land Use Compatibility with Aircraft Noise contained in the Metropolitan Development Guide, Aviation Chapter. Implementation assistance may be available for jurisdictions within the Ldn 65 noise contour.

In terms of overall program effectiveness, this proposed NCP action is considered to be of moderate importance. It will not, in itself, eliminate non-compatible uses, but is a necessary action to apply regulatory actions which will inhibit non-compatible development.

LU2. Zone for Compatible Development.

Local jurisdictions review existing zoning in Airport Noise Zones to determine consistency with the Guidelines for Land Use Compatibility with Aircraft Noise and rezone for compatible development if consistent with other community development factors. Implementation assistance may be available for jurisdictions within the Ldn 65 contour.

The proposed action in the noise compatibility program is an important factor in terms of overall program effectiveness, providing the principal regulatory mechanism for prevention of non-compatible uses in the noise zones.

LU3. Application of Zoning Performance Standards.

In coordination with the Metropolitan Council, local jurisdictions may adopt the Model Ordinance for Aircraft Noise Attenuation developed by the Metropolitan Council. Implementation assistance may be available for jurisdictions within the Ldn 65 noise contour.

The proposed action is of moderate importance in terms of overall program effectiveness.

LU4. Public Information Program.

Develop and distribute informational materials concerning aircraft noise and Noise Compatibility Program elements. Materials would be distributed to land developers, planning agencies, housing authorities, local offices of FHA/VA, lending institutions, and realtors.

The proposed action is of relatively minor importance in terms of overall program effectiveness.

LU5. Building Code Revision.

The action is an important factor in the effectiveness of the NCP. The MAC "Noise Abatement Program" endorses a Metropolitan Council policy of encouraging jurisdictions within the MC Policy Contour to enact plans and land use controls which are consistent with the Guidelines. The policies would have less direct effect on the more fully developed areas of Minneapolis, St. Paul, Richfield, and Bloomington, but would have more effect on communities south and east of the Minnesota River, which are less developed. Any redevelopment within the area would be subject to the provisions of the Guidelines.

Corrective Land Measures

LU6. Acquire Property Developed in Incompatible Uses Then Clear or Sell for Compatible Uses.

The measure would be applied only at the initiative of the jurisdiction in which it lies, and presumably only in neighborhoods where the jurisdictions have established that there is a reasonable consensus among residents that they prefer to vacate the area. Redevelopment in a specific compatible use will be subject to jurisdictional approval.

The contribution of this measure in terms of overall program effectiveness is judged to be relatively small since only 22 dwellings are located in the Ldn 75 noise zone, and most residential areas affected by noise levels of Ldn 65 or more are very stable and probably not candidates for large-scale acquisition and "change of use."

The measure is a proposed action in the NCP to accommodate any areas which may elect for this form of corrective treatment.

LU7. Purchase Guarantee of Homes and Soundproofing of Homes.

The combination of these two measures would be the primary action applied in the Ldn 65-75 zones, with homeowners being offered the option of:

- purchase assurance,
- soundproofing in exchange for an aviation easement, or
- no action.

Purchase assurance will be selected by those who find the aircraft noise levels to which they are subjected intolerable, even with additional soundproofing. Individual owners who are bothered by aircraft noise, but not to the extent that they feel the need to leave the neighborhood, will be offered additional soundproofing at public expense in exchange for an aviation easement.

The strategy is a key item in program effectiveness, being the primary corrective measure, applicable to about 1,700 units (estimated) purchase assurance, and about 4,100 units (estimated) soundproofing, with a potential total cost of about $60 million.

LU9. Soundproofing of Other Public Buildings.

Other public buildings recommended for soundproofing are those where a quiet indoor environment is important to their functioning. Libraries, nursing homes, convalescent homes and community centers within Ldn 65 contours are candidates for noise insulation.

The Capital Improvement Plan has $28 million programmed for the above possible projects from 1991 to 1997. Item LU7 by itself has an estimated cost of $60 million. Therefore, all of the above items would obviously not be included in the present Capital Improvement Plan and it is not possible at this time to make an accurate assessment of the environmental effects of this item.

According to the FAR Part 150 Study, the preventive land use measures are expected to reduce the amount of additional non-compatible land use in the future. It is anticipated that the measures could prevent development of 450 new dwelling units in noise zones where this would be non-compatible. The effectiveness of the measures will depend upon the degree to which these preventive planning measures are implemented by the local jurisdictions. The corrective land use measures would improve compatibility for approximately 5,800 dwelling units.

The present Capital Improvement Plan, while not achieving all of the above results, will obviously still produce a significant positive impact to the environment concerning aircraft noise.

No alternatives or noise mitigation measures are considered necessary.

## I.E NOISE SUPPRESSOR

Minnesota Statutes require the construction of a noise suppressor to reduce run-up noise. The only impact category affected by the installation of this facility would be aircraft noise, specifically relating to run-ups.

The type of facility likely to be chosen would be the "hush house" technique. A hush house consists of an acoustically treated hangar. Typical reductions are 25-30 DBA. The environmental effect of the noise suppressor would be major reduction in noise from run-ups, but a limited reduction in overall noise impacts.

The value of the hush house is highly questionable. Community complaints about run-up noise events account for less than one percent of all noise complaints. This is considered a matter of minor community concern compared with noise resulting from aircraft overflight. The newer aircraft in the fleet are less noisy and require less frequent maintenance, thus reducing required maintenance run-ups both in intensity and frequency over the next 10 years.

There are alternatives for expenditures of this level of funding which would yield greater benefits in terms of compatibility with all aircraft events, not only run-ups. (For example, the estimated $6,000,000 cost could be applied towards the soundproofing/ guarantee purchase programs, as included in the Part 150 Study.)

The noise suppressor, if constructed, would have a limited positive impact on airport noise and has a very low benefit-to-cost ratio in comparison to other possible beneficial projects.

## I.F NWA MAIN BASE MODIFICATIONS

An Environmental Assessment Worksheet (EAW) was prepared for this project in August 1989. Summary findings of the EAW are presented here in order to incorporate the effects from this project into the cumulative effects from all projects.

Northwest Airlines is planning two years of expansion and modification to their existing aircraft maintenance and plant maintenance shops and stores facility at MSP International Airport. The modifications and expansions will occur at Complex B (original NWA main base) and Complex C (former Republic Airlines main base).

The expansion/modifications to Complex B include four building expansions, three of which occur during 1991 and the remaining in 1992. The building additions and modifications will make possible the reorganization of the maintenance shops and the installation of Automatic Storage/Retrieval Systems (AS/RS) for small parts and palletized material handling.

Complex C expansion/modifications include a 27,000 square foot building addition, installation of mini-load and unit-load AS/RS for small parts and palletized material handling, relocation of seven truck docks and a new volatile stores area.

The main base modifications are being done to support the new NWA B-747-400 maintenance hangar facility which was constructed as part of the 1989 CIP. An Environmental Assessment Worksheet (EAW) was prepared for that project in April 1988.

- Aircraft Noise

  Since the main base modifications are being done to support the B-747 hangar project, any increase in aircraft traffic and noise are a result of that project. Therefore, the main base modification project will not create any additional aircraft noise.

  The NWA B-747-400 maintenance hangar facility environmental effects are discussed in the MSP - Assessment of Environmental Effects dated October 12, 1988.

- Vehicular Traffic

  An additional 200 persons will be employed in the maintenance shops and stores as a result of the main base modifications. No increase is anticipated in the office personnel. The increased personnel will be employed at Complex B and the Average Daily Traffic (ADT) increase will occur on Glumack Drive. The automation of the maintenance stores will increase their capacity and efficiency and therefore increase truck traffic to the stores. Since this occurs at both Complex B and Complex C, traffic increases will occur on 34th Avenue South and Glumack Drive.

  The current (1986) ADT for 34th Avenue South, north of I-494 and Glumack Drive is 11,000 and 20,000 respectively. The estimated increases in ADT contributed by the project is 80 vehicles for 34th Avenue and 550 vehicles for Glumack Drive.

- Water Quality

  The majority of the project involves internal modifications to existing buildings. There are planned additions to Complex "B" which could increase the runoff except building additions occur in areas that are currently paved parking lots. Therefore, there is no expected increase in runoff due to the project.

- Sewage and Industrial Waste

  The total estimated increase to personnel due to the main base modifications is 200. Using an estimate of 15 gallons/employee/day (Minnesota Plumbing Code 4715.3600 Subp. 2), 3,000 additional gallons of wastewater may be generated per day. All of the 200 employees will be working during the second shift and therefore the increase should not affect the peak flow to the sewer. The additional 3000 gallons/day will not cause any difficulties to either the on-site collection systems and related MWCC Interceptor or wastewater treatment facilities.

  The increase to the maintenance shop areas will generate additional amounts of volatile chemicals used for parts cleaning operations. Space has been provided for additional safe storage of these hazardous materials as part of this project. These hazardous materials will be disposed of by approved environmentally safe methods.

## I.G PUBLIC SAFETY BUILDING

This facility is being constructed to centralize the airport's safety/security/drug enforcement units. The 2,400 square feet prefabricated building will house civil protection equipment and will be connected to existing sewer, water, and drainage systems. It will be located on a previous surface, but the effects of additional land coverage are not significant enough to adversely affect stormwater runoff increments, nor will the Minnesota River-North Drainage Basin collection, conveyance, and treatment systems be adversely affected.

## I.H REMOTE REVENUE CONTROL BUILDING

Because of the layout of the new parking facility, the short term exit booths are a considerable distance from the existing Revenue Control building. This new building would be constructed near these short term booths so that they will be closer to administrative areas.

The small building will be located on an already impervious surface. The building will not create additional vehicular traffic or have sewer and water. Therefore, no significant impacts are expected as a result of this project.

## I.I SALT STORAGE BUILDING

Presently, the salt and sand are stored in the same building and it is no longer adequate for both of these uses, therefore, a new salt storage building is needed. The building will be large enough to house 150 tons of roadway ice control salt utilized during winter months.

This new facility will alleviate the possibility of salt leaching into the soil and subsoil.

It will probably be located next to the existing sand and urea storage building. The building will add approximately 10,000 square feet of impervious surface to the Mother Lake Drainage Area.

- Water Quality

  The additional stormwater runoff in the Mother Lake Drainage Area caused by the increased impervious area for a predicted five year storm event is calculated to be 0.36 cubic feet per second. This additional incremental stormwater flow will cause no apparent problems for the associated stormwater collection, conveyance and treatment systems.

## I.J MISCELLANEOUS SITE PREPARATION

This item is programmed in the event incidental site preparation is necessary for existing or new tenants at the airport. No specific information is available on where these site improvements would be. The most likely areas would be along the existing apron or proposed new apron in the Southwest Hangar/Cargo Area. Any development along the existing apron would be small scale as there is very little remaining space for development.

Therefore, based upon information available at this time it appears this item will not have any significant impact upon the environment.

## I.K TAXIWAY M CONSTRUCTION

It is proposed a segment of Taxiway M, parallel to and northwest of Runway 4/22, be completed between the parallel runways to allow operational flexibility for upcoming construction projects. The project will add 71,250 square feet of impervious surface area. The only impact category effected is water quality.

- Water Quality

  The additional stormwater runoff caused by the increase in impervious surface for a predicted five year storm event is calculated to be 1.62 cubic feet per second (CFS) to the Minnesota River-North Drainage Area. This additional stormwater flow will cause no apparent problems for the associated stormwater collection, conveyance and treatment systems.

## I.L TRASH COMPACTOR/DUMPSTER

This project will provide a compactor/dumpster in the vicinity of the MAC Equipment Maintenance Building for disposal of all non-hazardous waste materials collected on the field.

The trash compactor will operate off of a 3 phase, 30 amp, 480 volt circuit. Estimates are that the unit gets 80% usage of the amperage it draws. The dumping chamber is about 60 by 60 inches and the ram is hydraulically driven.

The average compaction ratio is 4:1, meaning that about 160 cubic yards of loose material will be compacted into the 40 cubic yard compaction container. This ratio and the weight of the compacted trash can vary on the type of material fed into the compactor.

Two compactors are now used in the terminal area. The new compactor will be similar in design to the existing units and serve the west side building area. A new pad will be built approximately 12 foot by 35 foot of six inch thick reinforced concrete near the maintenance garage.

The pad will be designed so that any fluids that leak out of the trash will be captured and routed into a holding tank or the sanitary system. A trap will capture any oils. No fluids from the compactor will enter the storm water system.

There are no negative impacts expected as a result of this project. The only impact foreseen is that the unit will reduce solid waste volume from the airport with a small increase in electric power consumption.

## I.M GREEN CONCOURSE MECHANICAL SYSTEM CONVERSION

The Green Concourse was constructed in a number of segments (original section, two additions and the "pod"). The original section and first addition are presently served by numerous individual packaged air conditioning units. Most of these units are far beyond their normal life expectancy. In addition, as the concourse interior configuration has evolved over the years, the existing units have not offered the flexibility to provide temperature control zones necessary for total comfort. This project involves the removal of the existing units and replacement with centralized HVAC units utilizing chilled water for cooling.

- Water Quality

  The additional requirement for chilled water by the operation of the new air conditioning system is estimated at 40 million gallons per year. The current systems require approximately 400 MG/year.

The Blue Concourse and Red Concourse conversions which are already initiated are expected to require an additional 122 MG/year. The Green Concourse will bring the estimated total to 562 MG/year.

MAC's existing permit allows for an amount of 500 MG/year to be pumped from their wells and discharged into the Minnesota River-North Drainage Area.

## I.N MAINTENANCE AND ADMINISTRATION COMPLEX - MSP FUELING COMMITTEE

This project involves the construction of a combined maintenance/shops/dispatch area in conjunction with a single story office/administration building. The building will be used by the company that provides aircraft fueling at the airport.

- Vehicular Traffic

  A total of 125 employees will be at the fueling facility on a daily basis; 60 during the morning shift, 55 during the afternoon shift and 10 at night. Employees will enter the facility from Northwest Drive, which is presently used for access to the adjacent Northwest Airlines hangar. The new facility will add approximately 80 vehicle trips to the peak hour two-way volume on Northwest Drive. This will not be a noticeable increase to the existing peak hour traffic.

- Water Quality

  Construction of this project will increase runoff in the Snelling Lake Drainage Area by 3.59 cfs. This increased runoff can be accommodated by the drainage system.

  The site is being designed so that all fuel and hydrant cart trucks will park on impervious surfaces. The drainage system for this area will be equipped with a device to shutoff drainage if fuel is sensed entering the drainage system. The parking area is being designed such that the maximum probable fule spill can be contained within the boundaries of the impervious surfaces.

- Sewage and Industrial Waste

  The increase in sewage will not exceed the capacity of the sewer system. The building will be equipped with inflammable waste traps which will contain oil and cleaning fluids associated with the vehicle maintenance operations.

## I.O STORMWATER CONTAINMENT BASIN

This project provides for the construction of a small retention basin and associated stormwater piping modifications necessary to construct a containment basin to collect and mitigate potential jet fuel spills at the HHH Terminal fuel facility.

- Water Quality

  The only impact from this project is on water quality. The project will improve water quality by better insuring that fuel spills will be contained on airport property.

## II. PROJECTS BEGINNING IN 1992

The following projects are included in the MAC's Capital Improvement Program for 1992 and have the potential to effect the environment.

- Concession Area Development
- Elevated Roadway Rehabilitation
- Ground Transportation Control System
- Retention Basin Improvements
- Parking Structure Mechanical Ventilation System
- Runway 4/22 Extension
- Taxiway C Reconstruction
- Trades Shop Building

### II.A CONCESSION AREA DEVELOPMENT

A concessions study is expected to be completed for the Lindbergh Terminal in 1991 which will review the types and level of concessions currently offered and analyze/recommend the potential for additional services to be offered to the public. This project is programmed in anticipation of the need to develop additional concession space above the existing baggage make-up area in the southwest corner of the terminal. The development would also create additional mezzanine space for Commission use or rental.

The project is not expected to produce any negative environmental impacts.

### II.B ELEVATED ROADWAY REHABILITATION

An EAW was prepared for this project in August, 1989. The proposed project includes the rehabilitation of the existing elevated roadway at the Lindbergh terminal. In order to accommodate traffic during the period it is necessary to construct a new elevated roadway adjacent to (east of) the in place elevated roadway. Following opening of the new roadway the existing elevated roadway will be reconstructed. Upon completion of the rehabilitation project both the rehabilitated and new roadway will remain to handle the traffic in front of the Lindbergh terminal. The new structure will be approximately 42' wide (30' roadway plus sidewalks on both sides). Once both the new and rehabilitated roadway sections are open, the amount of curb space for departing passengers will be doubled. Presently during peak periods traffic congestion occurs on the in place elevated roadway and the queues extend back onto the access roadway, impeding traffic flow on this facility as well. With the new elevated roadway traffic operations in front of the terminal will improve and the present congestion related problems will be alleviated. This should also improve air quality.

In conjunction with the rehabilitation of the elevated roadway a new mechanical ventilation system will be installed. Vents will be installed over the lower level walkway and roadway in front of the terminal. The fans of the ventilation system will not operate continuously, but will be activated as needed to supply fresh air and reduce carbon monoxide concentrations to assure attainment of standards. The existing Indirect Source Permit (ISP) from the Minnesota Pollution Control Agency (MPCA) for the new 7 level parking facility just east of the elevated roadway requires that the MPCA review the ventilation system.

- Traffic Impacts

  No external roads will be affected. The new elevated roadway will increase the capacity for and efficiency of departure traffic movements. No additional inbound or outbound trips will be generated by the completion of this facility.

- Air Quality

  In April 1988, the Metropolitan Airports Commission received Indirect Source Permit ISP 78-8(88) for construction of the Phase II parking ramp. This permit included a description of the mechanical ventilation system proposed to ensure that air quality standards were not violated in the future. The proposed ventilation system has a design capacity of 350,000 cubic feet per minute (CFM) of ventilated air. This capacity is proposed to be achieved using twenty-two 16,000 CFM fans mounted individually in beams supporting a reconstructed upper level canopy. This system will not be activated continuously, but when needed for maintaining air quality standards it would vent air over the lower level walkway and roadway. This system was not expressly designed with consideration of the new elevated roadway. During final design for the new elevated roadway the proposed ventilation system will be reanalyzed to verify if it has adequate capacity with the additional area covered by the new elevated roadway. If the proposed system is found to be inadequate it will be re-sized to ensure adequate fresh air capacity. The design for the ventilation system will be submitted to the MPCA for review as required by the ISP.

II.C (Omit)

II.D GROUND TRANSPORTATION CONTROL SYSTEM

Presently, passengers requiring taxicab service at the airport are served by a taxicab starter/dispatcher service located directly across from the center of the baggage claim area in the plaza adjacent to the outer roadway. Taxi parking in this area is limited to those taxis required for immediate passenger loading and departure. Additional taxis are staged at two remote locations on the airport and called up as needed.

The present system is becoming overloaded and its users are experiencing delays, terminal congestion, and general inconvenience. It is proposed that a computerized vehicle access control system be installed to improve system operation, reduce personnel costs, and increase revenues derived from registration fees.

It is intended that the first phase of the Ground Transportation Control System will control taxicabs only. Subsequent phases will control all forms of transportation such as limousines, courtesy vehicles, etc.

- Air Quality

  The one expected impact from this project would be a slight improvement in air quality due to improved traffic flow of taxicabs, limousines, courtesy vehicles, etc. in the area of the Lindbergh Terminal.

## II.E RETENTION BASIN IMPROVEMENTS

There are four retention basins utilized to control stormwater runoff from the airport. Periodic rehabilitation is required to maintain the integrity of the basins to ensure compliance with the National Discharge Permits.

- Water Quality

  Operation of the Retention Basins will continue without interference during the proposed modifications. Temporary silt fences or other sedimentation control devices will be installed, as necessary during construction, to eliminate adverse impacts to water quality. After construction and site restoration, there will be no need for special erosion or sedimentation control structures. No adverse water quality impacts are foreseen from the implementation of this project.

## II.F PARKING STRUCTURE MECHANICAL VENTILATION SYSTEM

Ambient air quality is continuously monitored at the airport. All monitoring stations are in compliance with State and Federal standards except sites M1 and M2, the upper and lower level roadway sites next to the main terminal building. These sites have recorded two violations per year of the State Carbon Monoxide (CO) standards prior to 1986. There have not been any air quality violations monitored since 1986.

By comparing the wind direction with the monitored levels, violations can be correlated with certain wind directions. Northwest and west-northwest winds in wind tunnel tests appear to form a vortex on the leeward side of the terminal building. The vortex is believed to trap enough automobile exhaust near the monitoring sites to exceed the State CO standard.

Aerodynamic effects can be simulated with models, but only with the most simple of structures. Based on the wind tunnel studies, a passive wind deflector device was originally proposed. The deflector was described in the August, 1978, Application for an Indirect Source Permit and the Phase 2 addition to the Parking Ramp would have included the flow modification device.

Recent studies, including a Minneapolis-St. Paul International Airport Carbon Monoxide Monitoring Analysis, by BRW, Inc., July 1987, and an Air Quality Assessment and Recommendations for Mitigation by Greiner Engineering Sciences, Inc., March 1987; however, cast doubt as to the effectiveness of the deflector. A second Indirect Source Permit Application for the Phase 2 Parking Ramp was issued April 20, 1988 and stipulated that a mechanical ventilation system, instead, be used to assure attainment of the State CO standards.

The proposed ventilation system is based on the principal of diluting the air with high CO levels in the vicinity of the lower level roadway by introducing a sufficient volume of fresh air. The volume of fresh air that is needed to dilute the contaminated air is based on calculations of actual episodes when the standards were exceeded.

The system would deliver 350,000 cubic feet per minute (CFM) to the lower roadway level. The fans for the system will be mounted in ducts located in the beams supporting the upper level canopy. The fans will draw fresh air from above the upper level canopy and distribute it through vents to the lower level roadway and walkway.

Thus, the mechanical ventilation system will reduce monitored CO concentrations in three ways:

- The system will direct fresh air directly over the walkway in front of the terminal reducing the exposure of people on the walkway to high levels of CO.
- The system will direct air away from the terminal to prevent CO emitted in the roadway by automobiles from reaching the walkway area where people congregate.
- The system will provide approximately 350,000 CFM of fresh air to the lower level area which will sufficiently dilute the CO concentrations to assure attainment of the standards.

## II.G RUNWAY 4/22 EXTENSION

A formal Environmental Assessment (EA) was completed for this project in September 1988. A full Environmental Impact Statement (EIS) is being prepared by Mn/DOT. That analysis is not yet complete. The following description of the project is taken from the EA prepared by Hoyle, Tanner & Associates, Inc.

> "The concept of a more equal distribution of the aircraft noise around MSP is a key element of the Metropolitan Airports Commission Noise Program. The key to achieving this is to increase the use of the Preferential Runway System (PRS), especially in light of increasing air carrier operations at the airport. To do so, the capacity of the preferential runway system of runway use priorities which minimizes noise exposure. That system is currently under review by the Metropolitan Aircraft Noise Sound Abatement Council (MASAC). The project contributes to the flexibility of operations under the existing PRS or any other runway use program. The extension of Runway 4/22 will increase the PRS capacity by allowing Runway 4/22 to be used more independently of parallel runways than is currently possible. The PRS configuration will never have as high a capacity as the parallel runway configuration, requiring the airport to revert to parallel operation in the busiest traffic periods. However, the extension of Runway 4/22 will increase the capacity of the PRS sufficiently to allow the PRS to make a more significant contribution toward the goal of a more equal distribution of aircraft noise.
>
> This environmental assessment has documented all impacts related to construction and operation of the runway extension. It begins with an overview of the proposed action, describes the setting of the project, provides more detail as to the need and the justification for the project, defines alternatives, analyzes impacts in a wide variety of areas (though focuses on noise) and, finally, summarizes the positive and negative consequences of the extension.
>
> <u>OVERVIEW AND PURPOSE OF THE PROPOSED IMPROVEMENTS</u>
>
> The extension of Runway 4/22, as generally proposed in the 1977 Minneapolis-St. Paul International Airport Master Plan Study (AMP) is described below:

Extension of Runway 4/22

- Extension of Runway 4/22 on the southwest (Runway 4) end by 2,750 feet.

- Extension of Taxiway C and Taxiway D with two stub taxiways to serve the proposed extension to Runway 4/22.

- Provision of a queuing taxiway adjacent to the threshold for Runway 22 for aircraft departing the runway south of its intersection with Runway 11L/29R.

Changing Runway 4 Approach Lights

- Replacement of the existing Runway 4 end Simplified Short Approach Lighting System with Sequenced Flashers (SSALR) with Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR).

Displaced and/or Relocated Thresholds on Runway 4/22

- Displacing Runway 22 landing threshold and associated lights and glide slope equipment 2,750 feet to the southwest.

- Displacing the Runway 4 threshold 2,750 feet with displaced threshold markings.

Mitigation Flight Tracks

- Establishing four Runway 22 departure headings, two southerly departure headings (one along Cedar Avenue and one 15° to the east), 250° and 350° in place of the existing Runway 22 departure headings so as to shift overflights from residential areas of Bloomington to areas of mostly commercial use along, and east of Cedar Avenue.

  The PRS is a pattern of runway operation that incorporates Runway 4/22 operations with those of the parallel runways. The addition of runway length on the southwest end of Runway 4/22 will allow increased use of the PRS procedures as more air carrier operations at MSP will be able to depart Runway 22 south of Runway 11L/29R and remain independent of operations on that runway. This runway use configuration is an integral part of the PRS and would allow the PRS to be used during periods of higher traffic activity and, consequently, for a greater amount of the day than is possible at present.

  Increased use of the PRS through extension of Runway 4/22 is part of the Noise Abatement Program for Minneapolis-St. Paul International Airport submitted by MAC on April 30, 1986 to the Governor of Minnesota and incorporated into the FAR Part 150 Noise Study for MSP. The development background of the MAC Noise Abatement Program is described in Section 1.5.1, below.

H. Alternative 1A is the preferred alternative."

Table A1 summarizes the findings of the noise impact analysis.

- Vehicular Traffic

Vehicular traffic will not be impacted as a result of this project. The project will not have an effect upon the airport capacity, therefore, no impact on enplanements and therefore no impact upon traffic.

- Air Quality

The EA found that the project is "exempt from State of Minnesota Pollution Control Agency indirect source review. Therefore no further air quality analysis is required. Such a finding is consistent with national EPA findings that aircraft are very minor sources of air pollution and do not represent a concern in this area."

- Water Quality

The following, which is an excerpt from the EA shows that there are minor impacts on water quality.

> "As mentioned previously, stormwater runoff from the area of the airport near the southern portion of Runway 4/22 within the Minnesota River-South Drainage Area is routed to the Minnesota River via a drain pipe and catch basin system either side of the Humphrey Terminal and Northwest complex in a southerly direction, then east, north of I-494, then beneath I-494 to South Retention Basin No. 3 to the Minnesota River. The contributing area of the Minnesota River-South Drainage Area is 999 acres. The existing airport drainage system is in accordance with an existing National Discharge Elimination System (NPDES) permit.
>
> Drainage projects at MSP, since the 1977 Airport Master Plan, are sized to accommodate surface water runoff rates resulting from ultimate development of the airport. The "ultimate" development of the airport is as shown in the 1977 Airport Master Plan which includes a 2,750 foot extension to the Runway 4 end, with associated taxiways. This results in approximately 97,600 S.Y. of additional impervious surface but is not a significant part of the 999 acre Minnesota River South Drainage Area and will not significantly contribute to increased surface water runoff.
>
> The rate of surface water runoff to the Minnesota River South Drainage Area, assuming all manholes in this drainage system are surcharged, is 560 CFS. Simulations of the 100 year storm showed one occurrence of surface water runoff rates as high as 560 CFS. Therefore, the existing drainage system can adequately accommodate surface water runoff both as a result of the proposed Runway 4/22 extension and ultimate development of the airport.

The MnDNR has recommended that runoff entering the Minnesota River should be controlled by use of filter strips and holding ponds. As mentioned above, South Retention Basin No. 3 is a holding pond for the Minnesota River South Drainage Area. The MnDNR also recommended oil skimmers and debris traps be incorporated into the holding pond rather than the existing condition of being placed at the point where the runoff water enters the river.

The settlable pollutants settle before leaving the retention basin due to the three hour detention time at the basin. The outlet pipe from the detention basin is below the surface of the water in the basin so floatable pollutants will not leave the detention basin and enter the Minnesota River.

The EPA stated that if the project area was previously vacant and runoff from proposed runway and taxiways extension would not adversely affect groundwater and soils, they would have no objections to the proposed project.

The drainage system for proposed improvements is an extension of the existing drainage system serving Runway 4, Taxiway C, and Taxiway D. A storm drain system would be constructed approximately 150 feet either side, and 1,000 feet from the end of the proposed runway extension and approximately 50 feet either side of the proposed taxiways and holding apron. Drainage from the project area will be routed so as to tie in with the existing storm drain system. Any increase in runoff would then be negligible and would not affect soils. There would be no impact to groundwater as the runoff from proposed improvements will be directly routed to the storm drain system.

Region 5 of the EPA, which includes Minnesota, has stated there are no sole source aquifers in the area. Therefore, there is no potential for contamination of a soil source aquifer."

The drainage generated by a five year storm from the proposed improvement is estimated at 20.56 CFS to the Minnesota South Drainage Area.

- Light Emissions

The EA found that light emissions from the proposed project will not cause a negative impact and will decrease in off-airport areas, especially residential areas west of Cedar Avenue.

- Wetland Impact

The EA found that there is a less than 0.5 acre marsh located in the project area which will need to be filled by a taxiway to be built at the same time the runway is extended. This wetland will be filled at the time

the new Southwest Cargo Apron and taxiway are constructed, which is scheduled for 1991. Since Federal funds would be used for the runway and taxiway extensions, the provisions of the Fish and Wildlife Coordination Act and Executive Order/1990 Protection of Wetlands, must be followed. Tentative mitigation plans being discussed by USFWS and the MAC would consist of a cash payment to the Minnesota Valley Wildlife refuge which would be used to restore 2.1 Acres of wetland to a depth of 4 to 6 inches. The location would be near old Cedar Avenue. If this is not feasible, required mitigation will be accomplished in some other manner.

## II.H TAXIWAY C RECONSTRUCTION

This project provides for the total reconstruction of approximately 2,800 feet of Taxiway C. The project will provide new wider bituminous shoulders adding approximately 56,000 square feet of impervious surface area. Drainage for this area is provided by the Minnesota River-North and South.

- Water Quality

  The additional stormwater runoff caused by the increase in shoulder width for a predicted five year storm event is calculated to be 0.42 cubic feet per second (CFS) for the drainage area tributary to the Minnesota River-North Drainage Area and 0.91 CFS for the Minnesota River-South. This additional incremental stormwater flow will cause no apparent problems for the associated stormwater collection, conveyance and treatment systems.

## II.I TAXIWAY C/D COMPLEX CONSTRUCTION

This project will provide for additional taxiway maneuvering area adjacent to the Red and Blue Concourse. An additional 336,750 square feet of impervious surface will be added to the Minnesota River-North Drainage Area.

- Water Quality

  The additional stormwater runoff caused by the increased paving for a predicted five year storm event is calculated to be 7.65 cubic feet per second. This additional incremental stormwater flow will cause no apparent problems for the associated stormwater collection, conveyance and treatment systems.

## II.J TRADES SHOP BUILDING

Currently, the Metropolitan Airports Commission's carpentry, electrical and painting crews occupy individual buildings in the west terminal area. As the work crews, associated equipment, and material inventories have grown to meet the various maintenance demands, their existing facilities are not adequate for their functions. It is proposed a centralized facility capable of housing the three maintenance functions be evaluated. Each trade area would include a work shop, material storage area and foreman's office. Common vehicle garage, toilet facilities and lunch/break room would also be provided. About 20-25 people will utilize this facility.

The building will be approximately 15,000 square feet.

- Water Quality

  The additional stormwater runoff into the Minnesota River North caused by the increased impervious area for a predicted five year storm event is calculated to be 0.34 cubic feet per second. This additional incremental stormwater flow will cause no apparent problems for the associated stormwater collection, conveyance and treatment systems.

- Sewage and Industrial Waste

  Since the construction of the new Trades Shop Building is to necessitate consolidation of existing facilities, there will not be a net increase to the number of employees using the new facility. The sewage and industrial waste generated by the maintenance shop areas will remain the same, however, the associated sewage will be carried in a different trunk line sewer. This change will not cause any difficulties to either the on-site collection systems and related MWCC Interceptor or wastewater treatment facilities.

## III. PROJECTS BEGINNING IN 1993

The following projects are included in the MAC's Capital Improvement Plan for 1993 and have the potential to effect the environment.

- Pavement Rehabilitation - Runway 11L/29R
- Runway 11L/29R Holding Aprons
- Taxiway C Construction

## III.A PAVEMENT REHABILITATION RUNWAY 11L/29R

This project provides for the complete reconstruction of approximately 4,200 feet in the middle of Runway 11L/29R, which is experiencing continued deterioration from over 20 years of use and exposure to the elements. This project will replace the entire concrete pavement, provide new wider bituminous shoulders and regrade portions of the runway safety area to improve drainage. A new runway edge lighting system will be installed.

The project will add approximately 80,000 square feet of impervious surface to the Minnesota River-North Drainage Area.

- Water Quality

  The additional stormwater runoff caused by the increase in shoulder width for a predicted five year storm event is calculated to be 1.21 cubic feet per second (CFS) for the drainage area tributary to the Minnesota River-North Drainage Area and 0.96 CFS for the drainage area tributary to the Snelling Lake Drainage Area. This additional incremental stormwater flow will cause no apparent problem for the associated stormwater collection, conveyance and treatment systems.

  The project is not expected to effect any other impact categories.

## III.B RUNWAY 11L/29R HOLDING APRONS

This project adds holding aprons along the taxiway at both ends of Runway 11L/29R. The main purpose of the holding aprons is to enable an aircraft to clear the taxiway if a delay is issued by Air Traffic Control and not cause undue delay to other aircraft on the taxiway.

The holding aprons will not increase capacity or noise at the airport. The only foreseeable impact is to water quality created by additional runoff. The project will add approximately 103,300 square feet of impervious surface to the Minnesota River - North Drainage Area and 224,000 square feet to the Snelling Lake Drainage Area.

- Water Quality

  The additional stormwater runoff caused by the increase in impervious area for a predicted five year storm event is calculated to be 2.35 cubic feet per second (CFS) for the drainage area tributary to the Minnesota River-North Drainage Area and 8.06 CFS for the Snelling Lake Drainage Area. This additional incremental stormwater flow will cause no apparent problems for the associated stormwater collection, conveyance and treatment systems.

## III.C TAXIWAY C CONSTRUCTION

This project will extend Taxiway C northeast from Runway 11L/29R parallel to Runway 4/22, and provide a more efficient operating condition for takeoffs to the southwest. An additional 80,000 square feet of impervious surface will be added to the Minnesota River-North Drainage Area.

- Water Quality

  The additional stormwater runoff caused by the increased paving for a predicted five year storm event is calculated to be 1.82 cubic feet per second. This additional incremental stormwater flow will, by itself, cause no apparent problems for the associated stormwater collection, conveyance, and treatment systems.

## IV. PROJECTS BEGINNING IN 1994

The following project is included in the MAC's Capital Improvements Plan for 1994 and has the potential to effect the environment.

- Taxiway B Construction

## IV.A TAXIWAY B CONSTRUCTION

This project involves the construction of a new parallel taxiway south of Runway 11R/29L. With no parallel taxiway, aircraft originating in the Page (formerly Van Dusen) area, HHH Terminal, cargo area, and airline maintenance facilities must first cross Runway 11R/29L before taxiing to either end of the runway for takeoff. FAA policy is to minimize active runway crossings. It is understood that the majority of "ATC Operational Errors" are attributable to this situation.

The purpose for construction of Taxiway B is to reduce the number of aircraft crossing Runway 11R/29L. The taxiway will not increase the basic capacity of the airport. Therefore, the only categories to be impacted by construction of Taxiway B are aircraft noise (from aircraft taxiing on Taxiway B) and water quality (due to increased runoff).

- Aircraft Noise

  As Taxiway B does not increase the capacity of the airport, the number of aircraft taxiing along Runway 11R/29L will not change. The only potential change in noise impact occurs due to taxiing aircraft being closer to residential areas on proposed Taxiway B than they presently are on Taxiway A. The only residential area so affected is the area between East 63rd Street and East 66th Street east of Cedar Avenue. The taxiway will bring aircraft to a minimum distance of 1,040 feet from the residential area as opposed to the present minimum distance of 1,280 feet. This would result in an increase in sound from taxiing aircraft of approximately 1.8 DBA. This is considered a negligible effect since the noise associated with taxiing aircraft is very minimal compared to the noise generated by takeoffs in the same area. It should also be noted that an increase of 1.8 DBA is almost undiscernible.

- Water Quality

  The additional stormwater runoff caused by the increased paved area for a predicted five year storm event is calculated to be 13.14 CFS for the Minnesota River-North Drainage Area, 3.31 CFS for the Minnesota River-South Drainage Area, and 7.02 CFS for the Mother Lake Drainage Area. This additional incremental stormwater flow will, by itself, cause no apparent problems for the associated stormwater collection, conveyance, and treatment systems.

## V. PROJECTS BEGINNING IN 1995

The following project is included in the MAC's Capital Improvement Plan for 1995 and may potentially effect the environment.

### V.A FIS FACILITY - LINDBERGH TERMINAL

The proposed project consists of the construction of a Federal Inspection Service (FIS) facility atop the Gold Concourse. The project is intended to combine several operations in one location, and eliminate the need to transit Northwest's international passengers from the HHH terminal, as is currently done. Services to be allocated to the new space would include U.S. Customs, Immigration and Naturalization, the federal Department of Agriculture, the U.S. Public Health, and U.S. Fish and Wildlife Services.

It appears this item will not have any significant impact upon the environment.

## VI. PROJECTS BEGINNING IN 1996

There are no projects included in the MAC's Capital Improvement Plan for 1996 that may potentially effect the environment.

## VII. PROJECTS BEGINNING IN 1997

There are no projects included in the MAC's Capital Improvement Plan for 1997 that may potentially effect the environment.

# APPENDIX B

## 1991 CAPITAL IMPROVEMENT PROJECTS
## 1992 CAPITAL IMPROVEMENT PROGRAM

# 1991 CAPITAL IMPROVEMENT PROJECTS
# MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

## FIELD AND RUNWAYS

AIRFIELD ACCESS CONTROL SYSTEM - $3,600,000

The FAA has adopted more stringent standards regarding security as they felt existing control procedures associated with airport identification systems could allow an individual using forged, stolen or non-current identification to compromise secured airport operational areas. Accordingly, regulations were developed to require airport operators to submit for approval and inclusion in their approved security programs, amendments that provide for installation and use of a system, method or procedure that meets certain performance standards for controlling access to operational areas of airports. This new system is to supplement the existing security program.

A report outlining the proposed system for MSP was prepared and submitted to the FAA for comments/approval. It is expected implementation could begin in 1991.

AIRSIDE BITUMINOUS CONSTRUCTION - $750,000

A project to construct or reconstruct bituminous pavements on various areas within the Air Operations Area. This year's work will consist of construction of bituminous shoulders adjacent to taxiways to enhance operational safety by reducing jet blast erosion typical of unsurfaced shoulders.

APRON PAVING - SOUTHWEST HANGAR/CARGO AREA - $6,000,000

This project will provide approximately 2,500 lineal feet of apron and associated building sites west of 24th Avenue to accommodate airline and freight handler growth. A connecting taxiway to existing Taxiway D will also be required.

ELECTRICAL MODIFICATIONS - $150,000

The condition of portions of existing underground field lighting circuits has deteriorated to the extent that normal maintenance operations cannot provide adequate resistance to ground required for continued uninterrupted use. This deterioration is caused by such factors as age and rodent damage. This project would be a continuation of the program initiated in 1988 to replace various circuits based on a condition survey and circuit priority and will be coordinated with other construction projects to ensure minimal disruption to airport operations. Other improvements to the airfield lighting system will also be considered, such as, replacement of regulators, switches, etc. Previously approved by the Commission.

MISCELLANEOUS CONSTRUCTION - $275,000

It is proposed to continue the Commission's annual program of a miscellaneous construction project for the airport which consolidates various incidental items beyond the capabilities of our maintenance personnel, or projects too small to be accomplished independently. The items typically involve bituminous resurfacing, fencing and security gates, signage, etc.

PAVEMENT REHABILITATION - APRONS, TAXIWAYS, ETC. - $2,000,000

This is a continuation of a program to replace sections of concrete paving in the aircraft operational areas that have deteriorated to a point where maintenance is no longer a viable option. Depending upon continuing discussions with the airlines regarding construction effects on operations, this year's project will focus on areas adjacent to the Red and Blue Concourses or the apron area between Gates 3 through 7 on the Gold Concourse.

PAVEMENT REHABILITATION - RUNWAY 11R/29L - $3,500,000

The original concrete pavement on Runway 11R/29L was overlaid with bituminous in 1974 and again in 1983. The surface is continuing a gradual deterioration from age and use; additional rehabilitation is -required in 1991 to restore the runway to a safe operating condition and reduce maintenance efforts. It is expected the top 4 inches of the existing bituminous surface will be removed (by rotomill), cracks repaired and a new 4 inch bituminous surface applied. The runway in-pavement centerline light fixtures will also be replaced.

PERIMETER SECURITY FENCE REPLACEMENT - $200,000

It is proposed a phased program be initiated to replace the perimeter security fence system at MSP due to the age and condition of the existing fence.

SITE PREPARATION - $100,000

This item is programmed in the event incidental site preparation is necessary for existing or new tenants at the airport.

STORMWATER CONTAINMENT BASIN - $100,000

This project will provide for site grading, construction of a small retention basin and associated stormwater piping modifications necessary to construct a containment basin to collect and mitigate potential jet fuel spills at the HHH Terminal fuel facility. Previously approved by the Commission.

TAXIWAY M CONSTRUCTION - $800,000

It is proposed a segment of Taxiway M, parallel to and northwest of Runway 4/22, be completed between the parallel runways to allow operational flexibility for upcoming construction projects.

## ENVIRONMENTAL

LAND USE MODIFICATIONS - $4,000,000

This item is intended to cover projects identified as a part of the FAR Part 150 program (noise control and compatibility planning for airports) which has been approved, in part, by the FAA. The projects would include items such as property acquisition and sound proofing of homes, schools, and public buildings.

NOISE MONITORING SYSTEM - $1,350,000

This item is in the Commission's Noise Abatement Program submitted to Governor Perpich. The project includes the installation of a permanent off-airport noise monitoring system comprised of a series of microphones at appropriate locations in the surrounding communities feeding into computer equipment that would record and aggregate noise levels at each monitoring location. Equipment capable of determining aircraft flight tracks will also be included in the system. Previously approved by the Commission.

NOISE SUPPRESSOR - $6,000,000

Minnesota Statutes require the construction of a noise suppressor to reduce run-up noise. Noise monitoring data collected is being tabulated, analyzed and presented in a report to the Legislature for consideration and further direction on this item. Previously approved by the Commission.

## SELF-LIQUIDATING

MAINTENANCE & ADMINISTRATION COMPLEX - MSP FUELING COMMITTEE - $1,600,000

This project involves construction of a maintenance/shops/dispatch area in conjunction with a single story office/administration building that will allow the Fueling Committee's agent to consolidate their operations at a centralized location on the airport. The complex is intended to be built north of Runway 29L, within current leased property. Previously approved by the Commission.

NWA HEAVY MAINTENANCE FACILITY

Northwest Airlines is currently evaluating sites for construction of a maintenance facility to accommodate their fleet of A320 aircraft. The Commission has previously directed staff to aggressively pursue implementation of these facilities at Minneapolis-St. Paul International Airport.

NWA MAINBASE MODIFICATIONS - $42,000,000

Northwest Airlines has developed a Master Plan for the utilization of existing assets and the identification of additional requirements for their Aircraft Maintenance and Plant Maintenance Shops and Stores at MSP. The study identified operational needs, physical arrangements, space requirements, facility alterations, etc. based upon current information regarding their fleet plans and flight hours through 1993.

The study recommends implementation of a plan that includes modifications to Complex B (original NWA mainbase) and Complex C (former Republic mainbase). Northwest Airlines has requested that the Commission finance the work.

The Complex B modifications would include building additions for numerous shop maintenance activities, installation of an automatic storage/retrieval system for small parts, pneumatic tube system for parts delivery, a new automatic guided vehicle system for material handling, mechanical system improvements and replacement of electrical switch gear. The Complex C modifications primarily involve the construction of a building addition and installation of an automatic storage/retrieval system for both palletized materials and small parts, installation of an automatic guided vehicle system for material handling and installation of a pneumatic tube system for parts delivery.

The work will be phased/bid over a two year period beginning in 1991. Previously approved by the Commission.

NWA WORLD CLUB - $2,000,000

Staff has received a request from Northwest Airlines for the construction of a new World Club to serve Northwest Airline's passengers. Northwest is currently experiencing difficulties meeting passenger demands with the World Clubs located on the Gold and Red Concourses and feels that a more appropriate, centralized location can be provided in order to enhance customer service and to eliminate the need for maintaining two independent facilities.

AUTOMATED PEOPLE MOVEMENT SYSTEM - $6,000,000

The concept of a Ground Transportation Center at Minneapolis-St. Paul International Airport was approved by the Commission in 1985. It was to be a facility between the Lindbergh Terminal and parking facilities which would provide an enclosed waiting area for passengers utilizing the various modes of public ground transportation and provide access to the parking facilities.

A considerable amount of study has been completed and numerous alternatives evaluated on the concept and its inter-relationship with the parking facilities. A number of related construction projects have evolved from the concept of ground transportation center, including: the existing Lindbergh Terminal Vertical Circulation project providing elevators/escalators within the terminal from the garage level to mezzanine level; skyways from the Lindbergh Terminal to the parking structure, with associated vertical circulation at the parking structure, which are to be bid in late 1990; an automated people movement system; relocation of the entrance and exit to the underground parking garage and tunnels and terminal building modifications.

The automated people movement system is comprised of a series of individual compartments that will operate like a horizontal elevator between the Lindbergh Terminal and the parking and rental car facilities. The people movement system will replace the existing shuttle bus service operating between the Lindbergh Terminal and the rental car facility. The system will operate through a tunnel under the existing access roads and transition to an at-grade level at the auto rental building. It is expected the selection/bid of a specific movement system will occur in 1991. Once a specific system is selected, design criteria for that particular system can be prepared and it is expected the installation of the system would occur in 1992.

BLUE CONCOURSE INTERIOR REHABILITATION - $250,000

The recent Red Concourse Rehabilitation project established certain interior finish standards that will be carried through the remaining concourses. This project will address wall and floor finishes as ceiling and lighting items will be addressed in the mechanical systems conversion project which will be bid in late 1990. The public areas will receive new carpeting and the wall treatment will primarily consist of a ceramic tile wainscot with vinyl fabric wall covering.

CFR STATION UPGRADE - $75,000

The Crash/Fire/Rescue (CFR) station was constructed in 1965 and enlarged in 1978. Certain operational and occupancy issues are being addressed through an existing improvement project, however, other modifications are required to maintain the facility. This project will replace deteriorated personnel service doors and windows throughout the facility, modify a truck refilling system and possibly reconfigure the station office for a more efficient utilization of space. Consideration will also be given to the feasibility of converting part of the existing station space into a locker room that could be assigned as a woman's facility if women fire fighters become a part of the work force.

GREEN CONCOURSE INTERIOR REHABILITATION - $500,000

The recent Red Concourse Rehabilitation project established certain interior finish standards that will be carried through the remaining concourses. This project will address wall and floor finishes as ceiling and lighting items will be addressed in the mechanical systems conversion project. The public areas will receive new carpeting and the wall treatment will primarily consist of a ceramic tile wainscot with vinyl fabric wall covering.

GREEN CONCOURSE MECHANICAL SYSTEM CONVERSION - $3,350,000

The Green Concourse was constructed in a number of segments (original section, two additions and the "pod"). The original section and first addition are presently served by numerous individual packaged air conditioning units. Most of these units are far beyond their normal life expectancy. In addition, as the concourse interior configuration has evolved over the years, the existing units have not offered the flexibility to provide temperature control zones necessary for total comfort. A study was conducted to identify conversion options, costs, space requirements, etc. The study recommends the existing units be removed and replaced with centralized HVAC units utilizing chilled water for cooling. Inasmuch as the concourse ceiling will be affected by this construction, certain components of the interior upgrade packages will also be addressed. In addition, in order to clear the work areas for the Mechanical System Conversion, asbestos containing pipe insulation will have to be removed. Previously approved by the Commission.

HHH TERMINAL AIR-HANDLING/LIGHTING MODIFICATIONS - $175,000

This project will expand the capacity of the air-handing system serving the terminal to alleviate complaints from the non-smoking patrons utilizing the facility and will also expand the emergency lighting system.

HHH TERMINAL FIS MODIFICATIONS - $1,500,000

In order to decrease the processing time for the international arriving passenger at all US Gateway airports, the Federal Inspection Services intends to inaugurate an Inter Border Inspection System (IBIS). Basically, international arriving passengers will clear immigration and naturalization first and then claim their luggage and exit the area. To accommodate this revised processing, extensive changes to the interior of the international arrivals processing area will be required; including relocation of the baggage claim, new immigration primary counters, immigration secondary offices, customs service command center, customs service primary counters and additional immigration administrative area.

HHH TERMINAL GATE 1 MODIFICATIONS - $675,000

Gate 1 is the only gate at the HHH terminal that cannot service wide body aircraft and does not have an elevator for handicap access. It is proposed a project be evaluated to provide the necessary modifications to the facility to address those two issues.

INFORMATIONAL/DIRECTIONAL SIGNAGE ADJUSTMENTS - $400,000

Staff has received comments that signage in the Lindbergh Terminal Complex needs to be more comprehensive/informative. It is proposed the information kiosks be upgraded and the interior signage throughout the terminal be replaced with a more comprehensive system.

LINDBERGH TERMINAL ELECTRICAL MODIFICATIONS - $200,000

It is proposed the phased program be continued to address electrical issues requiring attention due to age and deterioration of the existing systems or modifications necessary for improved operations. The items might typically include: additional area lighting units and circuitry revisions for improved safety and security, replacement/relocation of fixtures to reduce maintenance costs, etc. The major emphasis for this year's project will be improvements to the lighting levels in the original sections of the underground parking garage and relocation of lighting fixtures within the existing parking deck helices. Previously approved by the Commission.

LINDBERGH TERMINAL MISCELLANEOUS MODIFICATIONS - $250,000

To keep abreast with the changing requirements in the terminal facilities, it is necessary to update and remodel areas periodically. This may be a series of individual projects to meet the requirements of various tenants, however, the items will be consolidated into a single project when possible.

MAC GENERAL OFFICE CEILING/LIGHTING UPGRADE - $150,000

The addition to the MAC General Office Complex in 1989 included a lay-in ceiling system and parabolic lighting fixtures. The ceiling system is considerably more accessible for maintenance purposes than the system in the remaining building; the parabolic light fixtures provide a more evenly distributed/diffused light level resulting in fewer "glare" problems for computer applications. It is proposed the older ceilings and lighting be upgraded to conform to the recent installation. It is also proposed the carpeting in the pre-addition portion of the office (approximately 10 years old) be replaced. Previously approved by the Commission.

NWA CONCOURSE MODIFICATIONS - $1,650,000

Northwest Airlines has completed a master plan pertaining to consolidation of their work forces resulting from the acquisition of Republic Airlines. The plan calls for modifications to space on all concourses at the airport to provide an improved working environment for all employees. Previously approved by the Commission.

NWA RAMP EQUIPMENT WASH FACILITY - $250,000

Northwest Airlines has requested a portion of the lower level Green Concourse be enclosed and provided with utilities such that they can install washing equipment for their ramp equipment. The Commission would provide the basic enclosure and Northwest Airlines would install all improvements. Previously approved by the Commission.

NORTH DISPOSAL COMPACTOR AREA PAVEMENT REHABILITATION - $25,000

There are currently (2) compactor/disposal units in the Lindbergh Terminal Complex utilized by the airlines to dispose of rubbish from arriving flights. The concrete surrounding the north unit has deteriorated to a point where maintenance activities are no longer feasible. The existing concrete will be removed and replaced and drainage patterns re-established.

PARKING STRUCTURE REHABILITATION - $4,500,000

When the first multi-level parking structure was constructed in 1979-80, the support structure for levels 3 through 7 were "punched through" the then existing single level deck. The existing deck was, therefore, incorporated into the new parking facility. That structure (now level 2 of the existing multi-level deck) has reached the point where replacement is necessary. It will also be necessary to complete a periodic maintenance project on the helices serving the multi-level parking structures, including items such as, concrete beam delamination repair, joint repair, and application of a concrete sealer.

POLICE DEPARTMENT REMODELING - $200,000

The Police Department's Watch Commander currently operates from an area adjacent to Carousel 14 on the baggage claim level of the Lindbergh Terminal. A need exists to reconfigure this space to provide for a better separation of persons in custody and the general public. A proposal to remodel the investigative/administrative and other support areas on the mezzanine is also being reviewed.

PUBLIC SAFETY BUILDING - $150,000

The increasing emphasis on safety/security/drug enforcement is resulting in a need to construct a multi-purpose centrally-located building capable of storing equipment such as the bomb trailer and associated x-ray equipment, the emergency response medical trailer and air-boat. Previously approved by the Commission.

RELOCATE GARAGE ENTRANCE/EXIT RAMPS - $1,500,000

This project evolved from the Ground Transportation Center study and is required to provide adequate area in the terminal garage to accommodate the automated people movement system. The existing garage entrance and exit will be moved from the "center" of the terminal to a more outboard location.

REMOTE REVENUE CONTROL BUILDING - $100,000

The construction and operation of separate short term exit booths has identified a need for a remote exit control building for proper security and operation of the cashiering facility.

SALT STORAGE BUILDING - $275,000

This project will provide for the construction of a salt storage facility large enough to receive/blend and store 150 tons of roadway ice control salt that is utilized during the winter season on non-aircraft operational areas. Under current operating practices, smaller quantities of salt are received and stored outside. This new facility will alleviate the possibility of salt leaching into the soil and sub-soils and will also minimize the salt clumps that presently form due to the direct exposure to the elements.

TERMINAL COMPLEX SPRINKLER SYSTEM ADDITIONS - $100,000

Staff and our architectural/engineering consultants have met with the fire insurance underwriters to identify areas within the terminal complex that, if covered by an automatic sprinkler system would result in fire insurance premium savings. A program was initiated in 1988 to address four key areas generally involving the restaurant/lounge, airline ticket offices and storage areas. This item is programmed to allow for further analysis of areas which, if sprinkled, would allow for further insurance premium reductions. It will also allow for extension of the sprinkled areas should space utilization changes occur. Previously approved by the Commission.

TRASH COMPACTOR/DUMPSTER - $50,000

This item will provide a compactor/dumpster in the vicinity of the MAC Equipment Maintenance Building for the disposal of all non-hazardous waste materials collected on the field by maintenance personnel. Previously approved by the Commission.

TUNNELS AND TERMINAL BASEMENT MODIFICATIONS - $3,500,000

This project evolved from the Ground Transportation Center study and is associated with the automated people movement system. The terminal modifications will create a new lobby for the garage parking patrons and will also provide waiting/circulation area for passengers utilizing the people movement system. The tunnel portion of the project will result in (2) underground connectors between the vertical circulation in the terminal and the parking structure with it's associated vertical circulation.

WEST TERMINAL AREA REHABILITATION - $200,000

A project or projects to modify or remodel areas to meet the needs of the various tenants and general public utilizing these facilities.

# 1991 CAPITAL IMPROVEMENT PROJECTS
# MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

## FIELD & RUNWAYS

| | | |
|---|---|---|
| # | Airfield Access Control System | $3,600,000 |
| # | Airside Bituminous Construction | 750,000 |
| # | Apron Paving - Southwest Hangar/Cargo Area | 6,000,000 |
| | Electrical Modifications | 150,000* |
| | Miscellaneous Construction | 275,000 |
| # | Pavement Rehabilitation - Aprons, Taxiways, etc. | 2,000,000 |
| # | Pavement Rehabilitation - Runway 11R/29L | 3,500,000 |
| # | Perimeter Security Fence Replacement | 200,000 |
| | Site Preparation | 100,000 |
| | Stormwater Containment Basin | 100,000 |
| # | Taxiway M Construction | 800,000 |
| | SUBTOTAL | $17,475,000 |

## ENVIRONMENTAL

| | | |
|---|---|---|
| # | Land Use Modifications | $4,000,000 |
| # | Noise Monitoring System | 1,350,000* |
| | Noise Suppressor | 6,000,000* |
| | SUBTOTAL | $11,350,000 |

## SELF LIQUIDATING

| | |
|---|---|
| Maintenance & Admin. Complex-MSP Fueling Comm. | $1,600,000 |
| NWA Main Base Modifications | 42,000,000* |
| NWA World Club | 2,000,000 |
| SUBTOTAL | $45,600,000 |

## LANDSIDE

| | |
|---|---|
| Auto. People Movement System (Rental Car-Parking) | $6,000,000 |
| Blue Concourse Interior Rehabilitation | 250,000 |
| CFR Station Upgrade | 75,000 |
| Green Concourse Interior Rehabilitation | 500,000 |
| Green Concourse Mechanical Systems Conversion | 3,350,000* |
| HHH Terminal Air Handling/Lighting Modifications | 175,000 |
| HHH Terminal FIS Modifications | 1,500,000 |
| HHH Gate 1 Modifications | 675,000 |
| Informational/Directional Signage Adjustments | 400,000 |
| Lindbergh Terminal Electrical Modifications | 200,000* |
| Lindbergh Terminal Miscellaneous Modifications | 250,000 |
| MAC General Office Ceiling/Lighting Upgrade | 150,000* |

## LANDSIDE CONT.

| | |
|---|---|
| NWA Concourse Modifications | 1,650,000 |
| NWA Ramp Equipment Wash Facility | 250,000 |
| North Disposal Compactor Area Pavement Rehabilitation | 25,000 |
| Parking Structure Rehabilitation | 4,500,000 |
| Police Department Remodeling | 200,000 |
| Public Safety Building | 150,000* |
| Relocate Garage Entrance/Exit Ramps | 1,500,000 |
| Remote Revenue Control Building | 100,000 |
| Salt Storage Building | 275,000 |
| Terminal Complex Sprinkler System Additions | 100,000* |
| Trash Compactor/Dumpster | 50,000* |
| Tunnels and Terminal Basement Modifications | 3,500,000 |
| West Terminal Area Rehabilitation | 200,000 |
| SUBTOTAL | $26,025,000 |
| **ANNUAL TOTAL** | **$100,450,000** |

* Previously approved by the Commission
# Eligible for Federal or State Aid

# 1992 CAPITAL IMPROVEMENT PROGRAM
# MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

## FIELD AND RUNWAYS

AIRSIDE BITUMINOUS CONSTRUCTION - $750,000

A project to construct or reconstruct bituminous pavements on various areas within the Air Operations Area. Typical items of work include taxiway shoulders, blast pads, roadways, etc. Items to be included in this category will be reviewed in more detail during 1991 and will be presented for approval when the CIP is updated for the 1992 construction season.

ELECTRICAL MODIFICATIONS - $150,000

The condition of portions of existing underground field lighting circuits has deteriorated to the extent that normal maintenance operations cannot provide adequate resistance to ground required for continued uninterrupted use. This deterioration is caused by such factors as age and rodent damage. This project would be a continuation of the program initiated in 1988 to replace various circuits based on a condition survey and circuit priority and will be coordinated with other construction projects to ensure minimal disruption to airport operations. Other improvements in the airfield lighting system will also be evaluated, such as, regulators, switches, etc.

MISCELLANEOUS CONSTRUCTION - $275,000

It is proposed to continue the Commission's annual program of a miscellaneous construction project for the airport which consolidates various incidental items beyond the capabilities of our maintenance personnel, or projects too small to be accomplished independently. The items typically involve bituminous resurfacing, fencing and security gates, signage, etc.

PERIMETER SECURITY FENCE REPLACEMENT - $200,000

This will be a continuation of the phased program initiated in 1991 to replace the perimeter security fence system at the airport due to the deteriorating condition of the existing fence.

RETENTION BASIN IMPROVEMENTS - $300,000

There are (4) retention basins utilized to control storm water run-off from the airport. Periodic rehabilitation is required to maintain the integrity of the basins to ensure compliance with the National Discharge Permits.

RUNWAY 4/22 EXTENSION - $11,000,000

In anticipation of all environmental studies being completed and approved in 1991, the extension to Runway 4/22 is being programmed for 1992. Obviously, no construction can be accomplished until the environmental process is completed.

SITE PREPARATION - $100,000

This item is programmed in the event incidental site preparation is necessary for existing or new tenants at the airport. If work of this nature is required, it will be more specifically defined when the CIP is updated for the 1992 construction season.

STORM SEWER REHABILITATION - $250,000

It is proposed to continue the repair or reconstruction of segments of the existing storm sewer system, based on condition surveys, location priority and potential for coordination with other construction work.

TAXIWAY C RECONSTRUCTION - $3,000,000

Taxiway C, southwest of Runway 11R, consists of forty-year old 12 inch concrete with a 6-inch bituminous overlay which was applied in 1980. It is anticipated that with additional development in the southwest hangar cargo area, the taxiway will receive increased use by wide bodied aircraft. Total reconstruction with 16 inch concrete is programmed to bring the taxiway up to current standards.

TAXIWAY C AND D COMPLEX - $4,500,000

This project will provide for additional taxiway capacity adjacent to the Red and Blue Concourses. Alternative layouts are now being evaluated and more detailed cost information will be available when the CIP is updated for the 1992 construction season. It is expected the project will be accomplished over a two year period. Previously approved by the Commission.

## ENVIRONMENTAL

LAND USE MODIFICATIONS - $4,000,000

This item is intended to cover projects identified as a part of the FAR Part 150 program (noise control and compatibility planning for airports) which has been approved, in part, by the FAA. The projects would include items such as property acquisition and sound proofing of homes, schools, public buildings. Previously approved by the Commission.

## SELF-LIQUIDATING

NWA HEAVY MAINTENANCE FACILITY

Northwest Airlines is currently evaluating sites for construction of a maintenance facility to accommodate their fleet of A320 aircraft. The Commission has previously directed staff to aggressively pursue implementation of these facilities at Minneapolis-St. Paul International Airport.

NWA MAINBASE MODIFICATIONS - $14,000,000

This is a continuation of the implementation of Northwest Airline's Master Plan for the improvement of their Aircraft Maintenance and Plant Maintenance Shops and Stores facilities at MSP. See the 1991 narrative for this item for a more complete description. Previously approved by the Commission.

## LANDSIDE

AUTOMATED PEOPLE MOVEMENT SYSTEM (RENTAL CAR - PARKING) - $6,125,000

This item provides for the actual installation of the automated people movement system between the Lindbergh Terminal and parking/auto rental facilities. See the 1991 narrative for this item for a more complete description.

BAGGAGE CONVEYOR/CAROUSEL SYSTEM REHABILITATION - $1,000,000

It is proposed a thorough inspection and review be completed for all baggage conveyors and carousels in the Lindbergh Terminal and HHH Terminal to determine the extent of rehabilitation required in an attempt to reduce reoccurring maintenance problems. It is intended the study be done in 1991 followed by appropriate rehabilitation in 1992.

BASEMENT CONCRETE RESTORATION - $300,000

A project to address leakage problems and structural deterioration in the terminal basement under the inner roadway was completed in 1986. A similar problem, that must be corrected, exists under the tug drive area in the baggage make-up area as the tugs and baggage carts carry water and salt-laden snow into the areas which leaks into the basement and perpetuates the deterioration. Previously approved by the Commission.

BOILER PLANT MODIFICATIONS - $100,000

It is proposed the boiler plant, originally constructed in 1959-60 be reviewed for periodic maintenance/rehabilitation including items such as roof repair/replacement, asbestos removal and power washing/repainting of the interior equipment and piping.

COMM/OPS CENTER MODIFICATIONS - $100,000

It is proposed the construction of an additional level to the Comm/Ops center be evaluated. The additional level would improve the line of site for communication and operations personnel who coordinate the day-to-day airfield activities, including emergency response, snow removal and construction. An elevator would need to be included to provide accessibility to all personnel.

CONCESSION AREA DEVELOPMENT - $4,000,000

A concessions study is expected to be completed for the Lindbergh Terminal in 1991 which will review the types and level of concessions currently offered and analyze/recommend the potential for additional services to be offered to the public. This project is programmed in anticipation of the need to develop additional concession space above the existing bag make-up area in the southwest corner of the terminal. The development would also create additional mezzanine space for Commission use or rental.

ELEVATED ROADWAY REHABILITATION - $18,250,000

The elevated roadway was constructed in the early 1960's and has been subject of numerous annual maintenance projects to attempt to correct reoccurring maintenance problems and insure it's structural integrity. These maintenance projects, however, are simply sustaining an aging, deteriorating facility and structural reviews indicate a major rehabilitation is required. It is proposed a new elevated roadway be constructed immediately east of the existing. Once the new roadway is put in operation, the existing can be reconstructed with the end result being a doubling of curb space for departing passengers and a lessening of the congestion that occurs during peak periods.

GROUND TRANSPORTATION CONTROL SYSTEM - $500,000

Presently, passengers requiring taxicab service at the airport are served by a taxicab starter/dispatcher service located directly across from the center of the baggage claim area in the plaza adjacent to the outer roadway. Taxi parking in this area is limited to those taxis required for immediate passenger loading and departure. Additional taxis are staged at two remote locations on the airport and called up as needed.

The present system is becoming overloaded and its users are experiencing delays, terminal congestion and general inconvenience. It is proposed a computerized vehicle access control system be installed to improve system operation, reduce personnel costs and increase revenues derived from registration fees.

It is intended that the first phase of the Ground Transportation Control System will control taxicabs only. Subsequent phases will control all other forms of transportation such as limousines, courtesy vehicles, etc.

LINDBERGH TERMINAL ELECTRICAL MODIFICATIONS - $100,000

This project would be a continuation of the program to address electrical issues requiring attention due to the age and deterioration of the existing system or modifications necessary for improved operations. The items to be addressed will be analyzed during 1991 and a recommendation will be available when the CIP is updated in for the 1992 construction season.

LINDBERGH TERMINAL INTERIOR REHABILITATION - $1,000,000

A Lindbergh Terminal Interior Design Standards and Guidelines study was completed with a major priority to incorporate a "Minnesota Image" into the Lindbergh Terminal building. The result was a document that establishes a framework for interior spaces and finishes that will improve the character and amenities of the physical facilities for the traveling public. A phased implementation schedule was proposed to accomplish the study recommendations.

This project will primarily provide for an upgrade of the bag claim area including wall treatments, carpeting and improved lighting. Previously approved by the Commission.

LINDBERGH TERMINAL MISCELLANEOUS MODIFICATIONS - $250,000

To keep abreast with the changing requirements in the terminal facilities, it is necessary to update and remodel areas periodically. This may be a series of individual projects to meet the requirements of various tenants, however, the items will be consolidated into a single project when possible.

PARKING STRUCTURE MECHANICAL VENTILATION SYSTEM - $1,500,000

A requirement of the Indirect Source Permit received from the MPCA for the construction of the Phase II Parking Structure was that a mechanical ventilation system be incorporated. The system is to basically assure a constant supply of fresh air be provided over the lower level sidewalk/roadway area in front of the terminal to minimize/eliminate carbon monoxide concentrations. This project will provide such a system. Previously approved by the Commission.

PARKING STRUCTURE REHABILITATION - $150,000

In order to maintain the integrity of the multi-level parking structure, it is proposed an annual project be programmed to address normal "maintenance" issues, such as, concrete repairs, joint sealant replacement, expansion joint repairs, etc.

TRADES SHOP BUILDING - $1,000,000

Currently, the Commission's carpentry, electrical and painting crews occupy individual buildings in the west terminal area. As the work crews, associated equipment and material inventories have grown to meet the various maintenance demands, their existing facilities are not adequate for their functions. It is proposed a centralized facility capable of housing the three maintenance functions be evaluated. Each trade area would include a work shop, material storage area and forman's office; common vehicle garage, toilet facilities and lunch/break room would also be provided.

# 1992 CAPITAL IMPROVEMENT PROGRAM
# MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

## FIELD & RUNWAYS

| | | |
|---|---|---|
| # | Airside Bituminous Construction | $750,000 |
| | Electrical Modifications | 150,000 |
| | Miscellaneous Construction | 275,000 |
| # | Perimeter Security Fence Replacement | 200,000 |
| | Retention Basin Improvements | 300,000 |
| # | Runway 4/22 Extension | 11,000,000 |
| | Site Preparation | 100,000 |
| | Storm Sewer Rehabilitation | 250,000 |
| # | Taxiway C Reconstruction | 3,000,000 |
| # | Taxiway C/D Complex | 4,500,000* |
| | SUBTOTAL | $20,525,000 |

## ENVIRONMENTAL

| | | |
|---|---|---|
| # | Land Use Modifications | $4,000,000* |
| | SUBTOTAL | $4,000,000 |

## SELF LIQUIDATING

| | |
|---|---|
| NWA Main Base Modifications | 14,000,000* |
| SUBTOTAL | $14,000,000 |

## LANDSIDE

| | | |
|---|---|---|
| | Auto. People Movement System (Rental Car-Parking) | $6,125,000 |
| | Baggage Conveyor/Carousel System Rehabilitation | 1,000,000 |
| | Basement Concrete Restoration | 300,000* |
| | Boiler Plant Modifications | 100,000 |
| | Comm/Ops Center Modifications | 100,000 |
| | Concession Area Development | 4,000,000 |
| # | Elevated Roadway Rehabilitation | 18,250,000 |
| | Ground Transportation Control System | 500,000 |
| | Lindbergh Terminal Electrical Modifications | 100,000 |
| | Lindbergh Terminal Interior Rehabilitation | 1,000,000* |
| | Lindbergh Terminal Miscellaneous Modifications | 250,000* |
| | Parking Structure Mechanical Ventilation System | 1,500,000 |
| | Parking Structure Rehabilitation | 150,000 |
| | Trades Shop Building | 1,000,000 |
| | SUBTOTAL | $34,375,000 |
| | **ANNUAL TOTAL** | **$72,900,000** |