MINNEAPOLIS/ST. PAUL INTERNATIONAL AIRPORT

ASSESSMENT OF ENVIRONMENTAL EFFECTS METROPOLITAN AIRPORTS COMMISSION'S SEVEN YEAR CAPITAL IMPROVEMENT PLAN 1993-1999

FOR THE
METROPOLITAN AIRPORTS COMMISSION

BY
HOWARD NEEDLES TAMMEN & BERGENDOFF

HNTB

SEPTEMBER 1992

ASSESSMENT OF ENVIRONMENTAL EFFECTS

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

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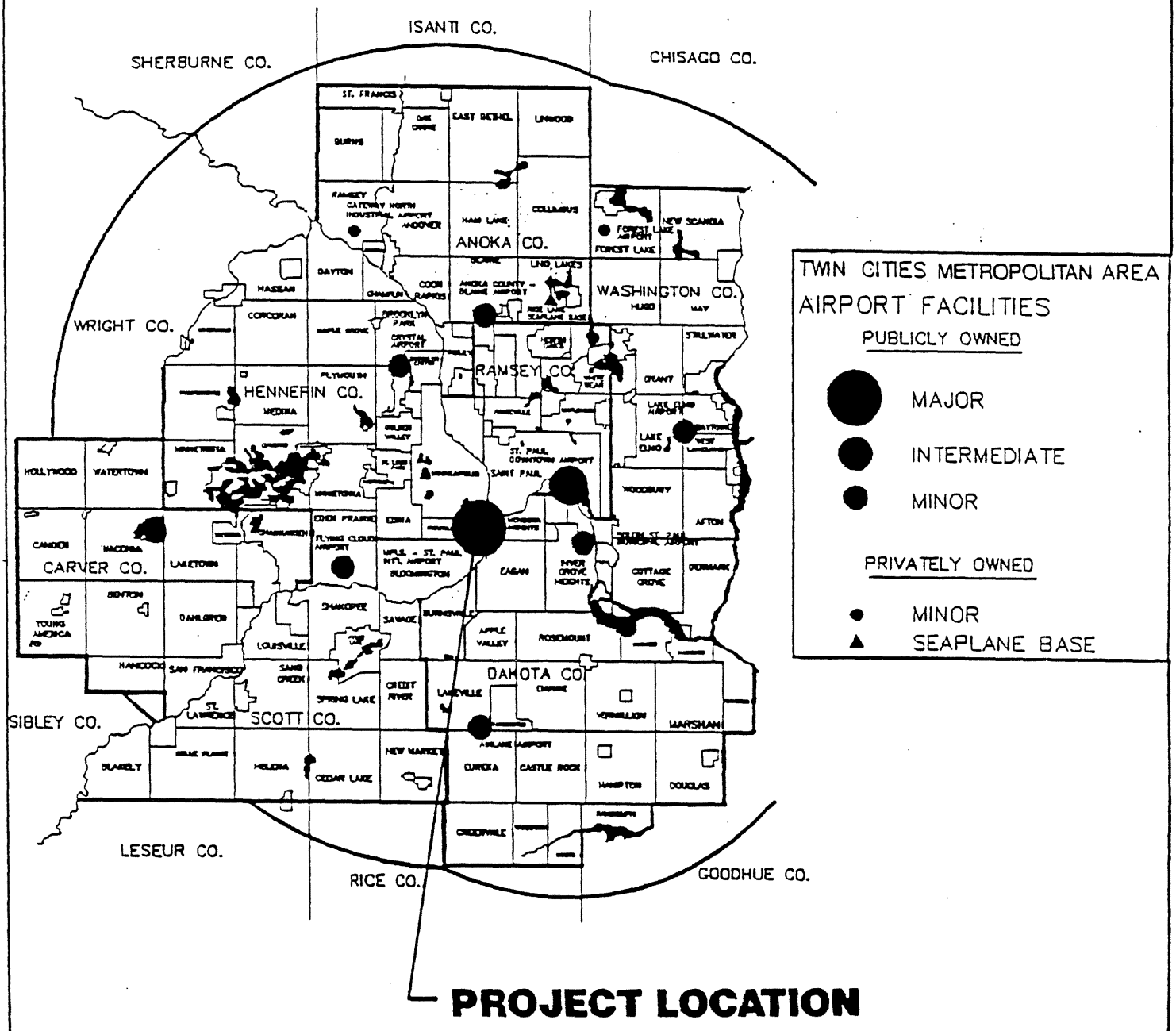

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ASSESSMENT OF ENVIRONMENTAL EFFECTS

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 (1993-1999) for Minneapolis-St. Paul International Airport.

This assessment examines the cumulative environmental effects of all the listed capital improvement projects at the airport from 1993 to 1999. 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 1993 through 1999. 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	1993	1994	1995	1996	1997	1998	1999
	FIELD & RUNWAYS							
*	Airfield Drainage Adjustments		$200,000					
(1)	Airfield Signage	$650,000						
^ *	Airside Bituminous Construction	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000
(3)	Apron Lighting Upgrade		$250,000					
(1)	Electrical Modifications	$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)	Pavement Rehabilitation - Aprons, Taxiways, etc.	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000
(1)	Pavement Rehabilitation - Navy Ramp		$500,000					
(1)	Pavement Rehabilitation - Runway 11L / 29R Seg. 2				$14,000,000			
(1)	Pavement Rehabilitation - Runway 11R / 29L		$2,600,000				$11,500,000	$23,500,000
(1)	Pavement Rehabilitation - Runway 4 / 22 Seg. 3				$10,200,000			
(1)	Pavement Rehab. - Rwy 4 / 22 & Rwy 11R / 29L Int.		$800,000					
^ *	Retention Basin Improvements		$300,000					
^ * *	Runway 4 / 22 Extension		$12,500,000					
(1)	Runway Tunnel / Tunnel Ventilation Rehabilitation		$100,000					
^ *	Taxiway B Construction					$6,000,000	$10,000,000	
^ *	Taxiway C / D Complex			$6,500,000	$8,000,000			
(3)	Underground Storage Tank Management		$400,000					
	FIELD & RUNWAYS SUBTOTALS	**$4,075,000**	**$20,925,000**	**$9,925,000**	**$35,475,000**	**$9,425,000**	**$24,775,000**	**$26,925,000**
	ENVIRONMENTAL							
^ *	Noise Suppressor	$6,000,000						
^ * *	Part 150 Implementation (Noise Projects)	$17,000,000	$25,300,000	$28,800,000	$11,600,000	$4,000,000	$4,000,000	$4,000,000
	ENVIRONMENTAL SUBTOTALS	**$23,000,000**	**$25,300,000**	**$28,800,000**	**$11,600,000**	**$4,000,000**	**$4,000,000**	**$4,000,000**
	SELF-LIQUIDATING							
(3)	NWA Concourse Modifications		$1,000,000					
	SELF-LIQUIDATING SUBTOTALS	**$0**	**$1,000,000**	**$0**	**$0**	**$0**	**$0**	**$0**

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.

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

See Note	Project Description	1993	1994	1995	1996	1997	1998	1999
	LANDSIDE							
(1)	Auto Rental Building Refurbishing		$500,000					
^ * *	Automated People Mover System (Rental Car Parking)		$9,000,000	$2,000,000				
(1)	Communications / Operations Center Modifications		$400,000					
*	Commercial Roadway Cashier, Starter, Passenger Booth	$100,000						
(1)	Concession Area Development		$500,000	$4,000,000				
^ * *	Elevated Roadways Construction	$19,200,000	$1,200,000		$900,000			
(3)	Energy Management Center Expansion		$1,000,000					
(3)	Fuel Farm Fire Supression System		$1,000,000					
^ * *	Ground Trans Center Middle, West, & Valet Const.	$8,400,000	$4,200,000					
(1)	Green Concourse Insulation Removal		$400,000					
(3)	Green Concourse Interior Rehabilitation		$500,000					
^ *	Green Concourse Mechanical Systems Conversion		$3,350,000					
^ *	Ground Level Roadways Construction	$1,980,000	$1,200,000		$900,000			
^ *	Ground Transporation Control System	$300,000						
(1)	Informational / Directional Signage Adjustments	$200,000	$50,000		$50,000		$50,000	
(1)	Landside Bituminous Construction	$400,000	$300,000	$200,000	$200,000	$200,000	$200,000	$200,000
(3)	Lindbergh Terminal Alternative Cooling System		$3,000,000					
(3)	Lindbergh Terminal Concourse Door Replacement	$150,000						
(3)	Lindbergh Terminal Electrical Modifications	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
(3)	Lindbergh Terminal Entrance Door Replacement		$500,000					
(3)	Lindbergh Terminal Interior Rehabilitation	$500,000	$500,000	$1,500,000	$1,500,000			
(3)	Lindbergh Terminal Mechanical Modifications	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
(3)	Lindbergh Terminal Miscellaneous Modifications	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
(3)	Lindbergh Terminal Pubic Address System		$2,000,000					
(3)	Lindbergh Terminal Temperature Control Upgrade	$450,000						
*	Lindbergh Terminal Tug Drive Ventilation	$200,000						

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.

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

See Note	Project Description	1993	1994	1995	1996	1997	1998	1999
	LANDSIDE (Continued)							
(3)	Parking Structure Rehabilitation	$500,000		$500,000		$500,000		$500,000
(3)	Primary Distribution System Upgrade			$1,000,000				
^ *	Public Safety Storage Building	$270,000						
(3)	Rental Car Deck Lighting Upgrade		$200,000					
^ *	Snow Removal Equipment Building Addition		$3,500,000					
*	Terminal Area Equipment Storage Building		$200,000					
(3)	Terminal Complex Sprinkler System Additions	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
^ *	Trades Shop Building		$2,000,000					
(1)	Tug Drive Concrete Sealing	$500,000						
(3)	West Terminal Area Rehabilitation	$200,000		$100,000		$100,000		$100,000
	LANDSIDE SUBTOTALS	**$34,000,000**	**$36,150,000**	**$9,950,000**	**$4,200,000**	**$1,450,000**	**$900,000**	**$1,450,000**
	YEARLY TOTALS	**$61,075,000**	**$83,375,000**	**$48,675,000**	**$51,275,000**	**$14,875,000**	**$29,675,000**	**$32,375,000**

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.

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 lengthening of Runway 4/22 and the rehabilitation of Runway 11L/29R 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. 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.

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 consists of projects that may produce a minor increase in aircraft noise. This group includes only the Taxiway B Construction.

The second group consists of projects that should produce a reduction in aircraft noise reception. This group includes Part 150 Implementation beginning in 1993 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 project in the first group is expected to have only insignificant noise impacts. The Taxiway B construction should not increase operations because the number of taxiing aircraft along Runway 11R/29L will not change. Because the residents of the new Ford Town and Rich Acres neighborhoods of Richfield will be relocated for noise abatement *(See Section I.I)*, the slight noise impact on the closest residential areas will be temporary and persist only until all residents have been relocated from these neighborhoods.

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 Part 150 Implementation are summarized in Section I.I 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.H 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.F and contains a summary of the Draft Environmental Impact Statement prepared for this project. In brief, the Draft EIS prepared for the project (as supplemented) concludes that if the preferred alternative is chosen, initially slightly more people will be placed in the DNL 65 contour than for the no-build option (39,731 vs. 36,938). However, by the year 2000, the project would slightly decrease the number of people in the Ldn 65 contour (23,791 vs. 24,108). In general, the proposed project will not result in the creation of any additional noise at MSP when compared with the no-build option.

The highest noise levels would remain in south Minneapolis, but the increased use of Runway 4-22 made possible by the project would produce a more even distribution of noise in the area surrounding MSP than the "No-Build" alternative.

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 few projects have an effect on airport traffic and the overall flow entering and leaving the airport.

The automated people mover, underground parking garage improvements, the commercial vehicles operations, and new elevated and ground level roadways, when completed, along with the vertical circulation improvements, will all increase circulation/movement efficiency of the internal roadway traffic and pedestrian flow. No additional inbound or outbound trips will be generated by these facilities.

D.3 Air Quality

Analysis of MAC's Capital Improvement Plan on a project-by-project basis found four projects with the possibility of impacting the environment's air quality. These are the Ground Transportation Control System *(Section I.E)*, the Elevated Roadways Construction *(Section I.C)*, the Ground Level Roadways Construction *(Section I.D)*, and the Commercial Roadway Cashier, Starter, and Passenger Booth *(Section I.B)*.

The Ground Transportation Control System and Commercial Roadway Cashier, Starter, and Passenger Booth projects are expected to have a slightly positive impact on air quality. The projects will control and manage the flow of taxicabs, limousines and the courtesy vehicles in the vicinity of the Lindbergh Terminal, and eventually include a sophisticated tracking system to record user fees. The reduction in number of stacking and idling vehicles is expected to improve air quality slightly.

The Elevated and Ground Level Roadway Construction projects associated with the Ground Transportation Center should provide a slight improvement in air quality on the new roadway. 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 ground level roadways. 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 continued compliance with the State Carbon Monoxide air quality levels.

In summary, the individual projects integrated into the new roadway system is expected to maintain air quality in the roadway at the entrance 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 listed for 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 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. Modifications to the detention ponds or piping are considered in the the CIP *(see Section II.D).*

In summary, the drainage basins of Mother Lake and Lake Snelling can handle the additional runoff from the proposed projects in those basins. The Minnesota River-North and South Drainage Basins may need the aforementioned modifications in order to handle the additional runoff of the proposed projects such that the minimum 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 of extracted groundwater (MG/Y). The airport presently uses an average of 400 MG/Y.

The Blue and Red Concourse conversions, which have already been 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 650 MG/Y of ground water to be used.

The MAC is currently coordinating with the MPCA to determine and implement the new requirements for NPDES permits at the airport as well as reviewing with MPCA violations of its current permit which have occurred over the past several years. Corrective measures will be implemented as required.

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 no projects in the MAC's Capital Improvement Plan that will significantly impact MSP's existing sanitary sewerage capacity.

D.7 Wetland Impact

The project in the MAC's Capital Improvement Plan that will have an impact upon wetlands is the Runway 4-22 Extension. Less than 0.5 acre of marsh will need to be filled as part of this project. Tentative mitigation plans are being explored by U.S. Fish and Wildlife Service, the DNR, and the MAC.

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, other than for noise abatement program (LU6) implementation (New Ford Town and Rich Acres neighborhoods of Richfield). A comprehensive residential relocation plan is being prepared in conjunction with an Environmental Assessment for this noise abatement project.

APPENDIX A

ENVIRONMENTAL ANALYSIS OF INDIVIDUAL PROJECTS

IMPACTS

I. PROJECTS BEGINNING IN 1993

I.A Airside Bituminous Construction
I.B Commercial Roadway Cashier, Starter, Passenger Booth
I.C Elevated Roadways Construction
I.D Ground Level Roadways Construction
I.E Ground Transportation Control System
I.F GTC Middle, West and Valet Construction
I.G Lindbergh Terminal Tug Drive Ventilation
I.H Noise Suppressor
I.I Part 150 Implementation
I.J Public Safety Storage Building

II. PROJECTS BEGINNING IN 1994

II.A Airfield Drainage Adjustments
II.B Automated People Mover System
II.C Green Concourse Mechanical Systems Conversion
II.D Retention Basin Improvements
II.E Runway 4/22 Extension
II.F Snow Removal Equipment Building Addition
II.G Terminal Area Equipment Storage Building
II.H Trades Shop Building

III. PROJECTS BEGINNING IN 1995

III.A Taxiway C/D Complex

IV. PROJECTS BEGINNING IN 1996

IV.A Pavement Rehabilitation - Runway 11L/29R (Segment 2)

V. PROJECTS BEGINNING IN 1997

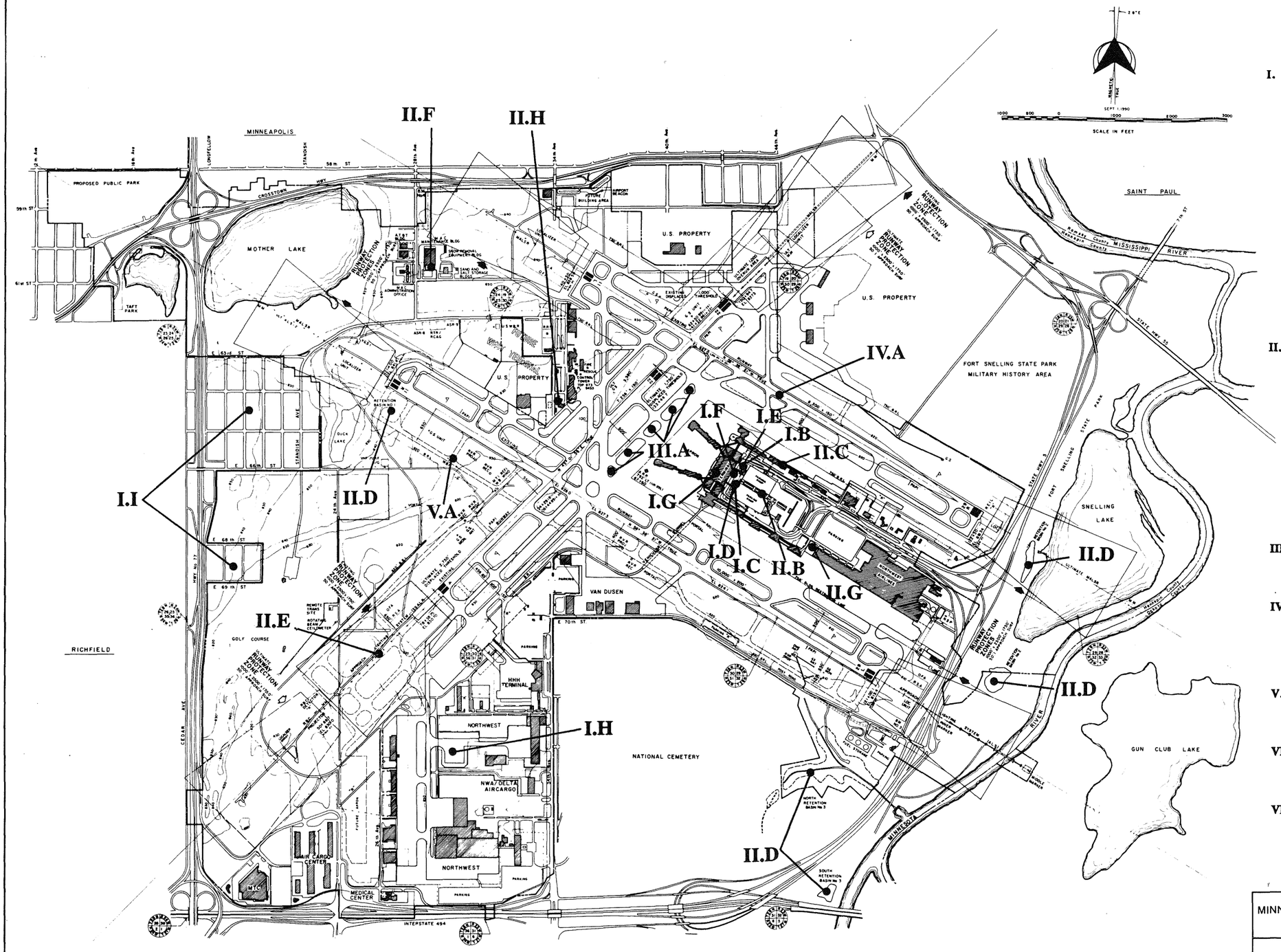
V.A Taxiway B Construction

VI. PROJECTS BEGINNING IN 1998

(No Projects With Impacts)

VII. PROJECTS BEGINNING IN 1999

(No Projects With Impacts)



CIP IMPACTS

I. PROJECTS BEGINNING IN 1993

- I.A Airside Bituminous Construction
- I.B Commercial Roadway Cashier, Starter, Passenger Booth
- I.C Elevated Roadways Construction
- I.D Ground Level Roadways Construction
- I.E Ground Transportation Control System
- I.F GTC Middle, West and Valet Construction
- I.G Lindbergh Terminal Tug Drive Ventilation
- I.H Noise Suppressor
- I.I Part 150 Implementation
- I.J Public Safety Storage Building

II. PROJECTS BEGINNING IN 1994

- II.A Airfield Drainage Adjustments
- II.B Automated People Mover System
- II.C Green Concourse Mechanical Systems Conversion
- II.D Retention Basin Improvements
- II.E Runway 4/22 Extension
- II.F Snow Removal Equipment Building Addition
- II.G Terminal Area Equipment Storage Building
- II.H Trades Shop Building

III. PROJECTS BEGINNING IN 1995

III.A Taxiway C/D Complex

IV. PROJECTS BEGINNING IN 1996

IV.A Pavement Rehabilitation - Runway 11L/29R (Segment 2)

V. PROJECTS BEGINNING IN 1997

V.A Taxiway B Construction

VI. PROJECTS BEGINNING IN 1998

(No Projects With Impacts)

VII. PROJECTS BEGINNING IN 1999

(No Projects With Impacts)

Note:
The following projects do not appear on this graphic:

- I.A Airside Bituminous Construction
- I.J Public Safety Storage Building
- II.A Airfield Drainage Adjustments

MINNEAPOLIS – ST. PAUL INTERNATIONAL AIRPORT
WOLD – CHAMBERLAIN FIELD

AIRPORT LAYOUT PLAN

Metropolitan Airports Commission

FIGURE 2

A.L.P. Drawing No. 3
Current Update: May 1991

I. 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.

I.A Airside Bituminous Construction
I.B Commercial Roadway Cashier, Starter, Passenger Booth
I.C Elevated Roadways Construction
I.D Ground Level Roadways Construction
I.E Ground Transportation Control System
I.F GTC Middle, West and Valet Construction
I.G Lindbergh Terminal Tug Drive Ventilation
I.H Noise Suppressor
I.I Part 150 Implementation
I.J Public Safety Storage Building

I.A AIRSIDE BITUMINOUS CONSTRUCTION

This project involves construction or reconstruction of bituminous pavements in various areas within the Air Operations Area. The 1993 work includes stabilization of various eroded turf 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. However, assuming that the 1993 airside bituminous construction amount of impervious surface area per dollar of construction is consistent with the 1992 airside bituminous construction, and the relative locations as they relate to drainage areas are the same, an assumption has been made that the impervious surface area will very likely remain approximately the same as was completed for this multi-year project during 1992.

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 COMMERCIAL ROADWAY CASHIER, STARTER, PASSENGER BOOTH

This project is intertwined with other ground transportation improvement projects discussed herein *(see I.D Ground Level Roadways Construction, I.C Elevated Roadways Construction, and I.E Ground Transportation Control System).*

The proposed project consists of the installation of a starter booth, cashier, and passenger waiting enclosure for commercial vehicles. The project will be installed on existing impervious surfaces and under the proposed elevated roadways between the parking structure and Lindbergh Terminal. The project is also directly related to the development of an automated toll system, which will increase vehicle operating efficiency and better disperse stacking commercial vehicle air pollution. The automated toll is expected to be fully operational with the completion of the Ground Transportation Control System.

- **Traffic Impacts**

  The proposed project will increase the capacity for and efficiency of commercial passenger vehicles without affecting external roadways by generating additional inbound/outbound trips.

- **Air Quality Impacts**

  (See I.E, Ground Transportation Control System)

I.C ELEVATED ROADWAYS CONSTRUCTION

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, as part of a series of projects associated with the Ground Transportation Center. In order to accommodate traffic during the period it is necessary to construct an elevated roadway adjacent to (east of) the existing 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 140' wide (seven-12" roadway lanes 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 existing 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 traffic movement will improve and the present congestion related problems will be alleviated. This should also improve air quality.

- **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.

I.D GROUND LEVEL ROADWAYS CONSTRUCTION

As the work on the Elevated Roadways is completed *(see Section I.C),* the Ground Level Roadway Construction will begin in phases. In addition to improving vehicle circulation, a mechanical ventilation system will be installed which will supply fresh air over the lower level roadway/ sidewalk area in front of the terminal building. 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 new roadways requires that the MPCA review the ventilation system. This roadway system will provide separate lanes for airport patrons, commercial vehicles, and taxicabs.

- **Traffic Impacts**

  No external roads will be affected. The new ground level roadways 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. This system was not expressly designed with consideration of the new elevated roadway. During final design for the new ground level roadway the proposed ventilation system will be reanalyzed to verify if it has adequate capacity with the additional area covered by the new ground level roadways. 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.

I.E 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 an improvement in air quality due to more efficient traffic flow of taxicabs, limousines, courtesy vehicles, etc. in the area of the Lindbergh Terminal.

I.F GTC MIDDLE, WEST, AND VALET CONSTRUCTION

This project is a continuation of the construction of the Ground Transportation Center and includes the construction of the middle and west phases of the GTC and the expansion of the valet parking area to the south and east of the existing terminal basement. An EAW was prepared for this and other GTC projects in 1991. The EAW does not suggest there will be any permanent environmental effects associated with this project -- that impacts would be limited to short-term, construction activities. In addition, the Minnesota Department of Natural Resources (MnDNR), the Minnesota Pollution Control Agency (MPCA), and the Minnesota Historical Society (MHS) have previously stated that their respective agencies have no further concerns about this project after reviewing the EAW.

I.G LINDBERGH TERMINAL TUG DRIVE VENTILATION

The area beneath the Lindbergh Terminal where airline tugs operate is the source of airline employee complaints about poor air quality due to tug exhaust and high temperatures. This project will provide an expanded ventilation system to improve air quality and the employees' working environment.

- **Air Quality**

  An expanded ventilation system with better exhaust dispersion capabilities will improve the air quality for airline employees. No increase or decrease in airline tug emissions will occur as a result of this project and therefore the project will have no significant impact on the overall air quality near the Lindbergh terminal.

I.H 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.I PART 150 IMPLEMENTATION

The FAR Part 150 Program (Noise Control and Compatibility Planning for Airports) which have been approved by the FAA includes the following implementation projects:

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, schools, nursing homes, convalescent homes and community centers within Ldn 65 contours are candidates for noise insulation.

The Capital Improvement Plan has $89.9 million programmed for the above possible projects from 1993 to 1999. This includes the acquisition and residential relocation of the New Ford Town and Rich Acres neighborhoods of Richfield, for which an Environmental Assessment is currently being prepared (Item LU6). Item LU7 by itself has an estimated cost of $60 million. All of the above items could 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 most of the Part 150 Implementation program.

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. The relocation of an estimated 1,000 residents from New Ford Town and Rich Acres, for which a detailed relocation study is also currently being prepared, is viewed to be one of the most visible of the Part 150 implementation projects.

No other alternatives or noise mitigation measures are considered necessary.

I.J PUBLIC SAFETY STORAGE BUILDING

This facility is being constructed to centralize the airport's safety/security/drug enforcement units. The building will house civil protection equipment and will be connected to existing sewer, water, and drainage systems. It will be located on a pervious 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.

II. PROJECTS BEGINNING IN 1994

The following projects are included in the MAC's Capital Improvement Program for 1994 and have the potential to effect the environment.

II.A Airfield Drainage Adjustments
II.B Automated People Mover System
II.C Green Concourse Mechanical Systems Conversion
II.D Retention Basin Improvements
II.E Runway 4/22 Extension
II.F Snow Removal Equipment Building Addition
II.G Terminal Area Equipment Storage Building
II.H Trades Shop Building

II.A AIRFIELD DRAINAGE ADJUSTMENTS

This project will provide for the regrading and turf establishment along various runways and taxiways to improve stormwater drainage as a result of winter runway sanding and the removal of subsequent sand build-up in turf areas from snow plowing and sweeping activities. The sand build-up has impeded the normal drainage flow in many areas and results in inadequate runway and taxiway drainage. The project will restore proper drainage and reduce potential skidding aircraft hazards.

- **Water Quality**

  These would be positive water quality impacts as a result of this project, in that existing drainage would be restored so that runoff can properly flow to the respective drainage and detention areas. No change in wastewater quantity output would be expected as a result of this maintenance project.

II.B 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 in to 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. Safety will be enhanced by reducing the number of passenger/vehicle conflicts on the road systems.

The project is related to a number of other improvements in the immediate vicinity including the Ground Transportation Center, construction of new upper and lower level roadways and the expansion of the valet parking area.

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

II.C 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 522 MG/year.

  The Green Concourse will bring the estimated total to 562 MG/year. MAC's existing permit allows for an amount of 650 MG/year to be pumped from their wells and discharged into the Minnesota River-North Drainage Area.

II.D 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 Permit.

- **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.

  The positive effects of this project include the ability to collect and filter drainage without interruption during construction and the additional basin capacity that will be created to accept larger quantities of runoff. It is noted, however, that additional improvements to the retention basins will probably be required when a new National Discharge Permit is issued in 1993.

II.E RUNWAY 4/22 EXTENSION

An Environmental Assessment (EA) was completed for this project in September 1988. An Environmental Impact Statement (EIS) was completed by Mn/DOT in 1991 and a supplement

to it was prepared in 1992. The following description of the project was taken from the draft EIS:

> "Until June, 1990, the FAA air traffic control tower operated a preferential runway system (PRS) at MSP for noise exposure abatement. The PRS, first implemented in 1972, was designed to divert as much air traffic as possible away from noise sensitive areas and route it over more noise compatible areas, such as open space, transportation corridors and commercial/industrial areas. The PRS assigned use priorities to each runway for take-off and landing and utilized the northeast-southwest runway, Runway 4-22, to divert traffic away from the predominant northwest-southeast traffic flow of the parallel runways.
>
> Use of the PRS was limited to hours with fewer than 60 operations. Above 60 operations, the parallel runways (Runways 11L/11R and 29L/29R were used because of their greater hourly capacity (up to 108 operations). Therefore, as total operations increased at MSP, use of the PRS decreased. This change resulted in an overall shift in community noise exposure. Thus, the current runway use system (RUS) was developed, tested and recently implemented in an attempt to return to a more traditional distribution of noise by maximizing the overall use of Runway 4-22.
>
> The primary purpose of this project is to permit increased use of Runway 4-22 by providing additional length on Runway 22, allowing aircraft departing on Runway 22 to start their takeoff roll southwest of the intersection with Runway 11L/29R. This would permit Runway 11L/29R to be operated independently of departures on Runway 22 and would enable use of Runway 4-22 and 11L/29R to accommodate up to 90 operations per hour.
>
> The secondary purpose of the project is to provide an 11,000 foot runway at MSP for use by long-haul intercontinental flights. An extension of 2,750 feet would make Runway 4-22 the longest runway at MSP at 11,000 feet. Currently, under some conditions, a greater runway length than is available at MSP is required for certain intercontinental flights. An extended Runway 4-22 would be sufficient under most conditions for takeoff for most intercontinental flights."

The draft EIS (as supplemented) summarizes the proposed action, describes the purpose and need for action, defines alternatives, analyzes the affected environment in a wide variety of areas (though focuses on noise), examines the positive and negative environmental consequences of the extension and discusses the project's citizen involvement and agency coordination. A review of the impact categories used to assess environmental effects in this document are discussed below. For a more complete description of the Alternative and documentation of the impacts related to the construction and operation of the runway extension, please refer to the Draft EIS (dated 10/10/91) and the Supplement to the Draft EIS (dated 4/7/92).

- **Aircraft Noise**

Aircraft noise has the potential to be the environmental impact of most concern. Extensive analysis of the day/night sound levels (pp. 52-148 in the DEIS and pp. 4-12 in the Supplement) was conducted to assess potential noise in 1992 and 2000.

The following is the summary of the effects of aircraft noise on the affected population, as excerpted from the Draft EIS (p. 85), and confirmed in the Supplement to the DEIS (p. 5). The data are summarized in Table 4.44 (DEIS, p. 85). Table 4.15 (DEIS, p. 86) provides detail regarding the affected populations with the various communities.

The total population within the overall 65 DNL contour falls to 24,108 for the no-build condition by the year 2000. The various alternatives range from affected populations of 21,891 for Alternatives 1 and 2C, to a high of 25,623 for Alternatives 3 and 4D. Alternative 1A, the proposer's preferred alternative, has an affected population of 23,791, which is less than the no-build alternative. The large reductions from the 1992 figures represent the impact of aircraft fleet composition incorporating new technology Stage 3 Aircraft.

The number of persons within the 65 DNL contour varies significantly within the various jurisdictions for the different alternatives. The number of persons affected in Minneapolis range from a high of 19,101 for the no-build condition, to a low of 13,290 under the proposer's preferred alternative. The number of persons in Bloomington increases from a low of 0 under the no-build alterative, to a high of 5,915 under Alternatives 1,2,3 and 4D. North Richfield ranges from a high of 3,580 under the no-build alternative, to a low of 1,875 under Alternatives 1,2,3 and 4D. South Richfield, conversely, ranges from a low of 233 under the no-build alternative, to a high of 2,976 under Alternatives 1,2,3 and 4D. None of the remaining communities of Fort Snelling, Mendota Heights, Eagan, or St. Paul are significantly affected with a maximum change of 65 persons between the various alternatives."

The following summary tables show populations within the DNL 65 contour for 1992 and 2000.

MSP RUNWAY 4-22 EXTENSION - Draft EIS
POPULATION WITHIN 1992 DNL 65 NOISE CONTOURS
BY JURISDICTION AND ALTERNATIVE

JURISDICTION	ALTERNATIVES								
	No Build	1&2A	1&2B	1&2C	1&2D	3&4A	3&4B	3&4C	3&4D
Minneapolis	24742	18560	18345	20713	18611	18915	13784	20975	19074
North Richfield	6692	3216	3286	3014	3318	3216	3286	3014	3318
South Richfield	1937	4330	4101	2172	4935	4330	4101	2172	4935
Bloomington	1430	11632	11688	7120	13080	11632	11688	7012	13080
Fort Snelling	91	80	42	67	53	46	47	62	54
Mendota Heights	972	932	894	962	886	932	894	962	886
Eagan	1074	981	968	1257	1027	981	968	1257	1027
St. Paul	0	0	0	0	0	0	0	0	0
TOTAL	36938	39731	39323	35305	41910	40051	39768	35562	42374

Source: Draft Environmental Impact Statement for Proposed Extension of Runway 4-22, Table 4.13, 1980 Census Data.

MSP RUNWAY 4-22 EXTENSION - Draft EIS
POPULATION WITHIN 2000 DNL 65 NOISE CONTOURS
BY JURISDICTION AND ALTERNATIVE

JURISDICTION	ALTERNATIVES								
	No Build	1&2A	1&2B	1&2C	1&2D	3&4A	3&4B	3&4C	3&4D
Minneapolis	19101	13290	13443	13656	13547	13485	13564	13754	13693
North Richfield	3580	1909	1916	1936	1875	1909	1916	1932	1875
South Richfield	233	2284	2015	1155	2976	2284	2015	1155	2976
Bloomington	0	5106	4632	3981	5915	5160	4632	3981	5915
Fort Snelling	20	27	27	26	27	32	40	28	28
Mendota Heights	386	322	381	368	352	322	381	368	352
Eagan	789	799	774	772	785	799	774	772	785
St. Paul	0	0	0	0	0	0	0	0	0
TOTAL	24108	23791	23189	21891	25477	23991	23323	21990	25624

Source: Draft Environmental Impact Statement for Proposed Extension of Runway 4-22, Table 4.15.

By 1992, the alternatives (except for the D alternatives) will result in a small reduction in the number of facilities within the contours, especially schools which are probably the most sensitive category of receptor. By the year 2000, this trend is expected to continue with even fewer noise sensitive facilities within the contours and the A,B, and C alternatives providing benefits in reducing the number of affected facilities as compared with the no-build condition.

The DNL noise analysis shows that the most significant changes occur to the northwest and southwest of the airport. When compared to the No-Build alternative, each of the build alternatives trades a reduction in aircraft noise in mostly residential areas northwest of the airport for increases in aircraft noise southwest of the airport in residential and some commercial areas.

To the southwest of the airport, there is little difference among the build alternatives in impacts upon land use. The changes in contours among the alternatives occur mostly over vacant land or highway corridors.

Compared to the No-Build alternative, the build alternatives all result in a reduction of residential land within the DNL 65 contour northwest of the airport. This reduction in community noise affects parts of South Minneapolis and the northeast part of Richfield.

To the southwest of the airport, the DNL 65 noise contour expands with the Build alternative. The area of increase consists of residential areas, but also commercial or mixed uses, especially in the I-494 and Cedar Avenue corridors. The comparable reduction in South Minneapolis consists almost entirely of residential areas."

The proposed project will not cause an increase in the overall level of sound generated by aircraft at MSP, but the changes in the numbers and patterns of aircraft flights on different runways caused by the project would cause differences in sound levels at various locations surrounding the airport.

Homes which would be within the 65 DNL noise contour due to the proposed project would be within the threshold criteria to be considered for noise mitigation measures as specified in the FAA's FAR Part 150 noise study.

- **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 Draft EIS found that the project is "exempt from State of Minnesota Pollution Control Agency indirect source review. Therefore no further air quality analysis was 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 proposed extension of Runway 4-22 and associated taxiways would add 21 acres

of impervious surface to the Minnesota South Drainage Area (MnSDA), which is a 6% increase over current conditions. Airport wide, the runway extension represents a 9.6% increase in a runway surface area. The extension of the Queuing Taxiway would add 6.6 acres of impervious surface to the Minnesota North Drainage Area (MnNDA), a 1% increase over current conditions. Airport wide, the taxiway extension would not represent a significant increase in taxiway surface area.

The increase in surface area in the MnSDA and MnNDA will increase the stormwater discharge to North Retention Basin #3 and South Retention Basin #3. The current basins' capacity will not be affected by the increased discharge, although their function may be diminished. A hydraulic analysis failed to show any change in basin function. Any incremental change in treatment efficiencies does not appear to be a major concern.

In a qualitative sense, the project would likely increase the maximum rate of runoff, the total volume of runoff, decrease the existing treatment system efficiencies and cause an incremental increase in pollutant loading to the Minnesota River.

- **Light Emissions**

  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**

  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. According to the Draft EIS, of all the wetlands in the area, this wetland also has the least value for wildlife, flood water storage and water quality because it is the smallest and most isolated.

  As the wetland is less than 2.5 acres, it is not a protected wetland under Department of Natural Resources (DNR) jurisdiction. Since Federal funds will be used, however, Executive Order 11990 requires the avoidance of adverse impacts, as well as compensation for unavoidable impacts.

  The MAC has committed to mitigation of unavoidable wetlands impacts caused by the extension of Runway 4-22 and associated taxiways. On-site mitigation is not desirable because of the increased potential for bird strikes. The concept of an off-site mitigation area is being explored by the MAC in coordination with the USFWS and the DNR. A mitigation site will be identified through ongoing coordination between these agencies.

II.F SNOW REMOVAL EQUIPMENT BUILDING ADDITION

The snow removal equipment storage building includes maintenance bays that were part of the original building constructed in 1965. The Commission's fleet of motorized equipment now exceeds 200 units which can no longer be maintained in the existing space in an efficient, safe manner. The project involves the construction of a 43,300 sq. ft. addition on the south side of

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the existing building for equipment storage and additional maintenance areas. Reconfiguration of the office and crew areas including providing facilities for female maintenance workers would also be accomplished.

- **Sewage**

  The proposed project will add new bathroom areas and will therefore increase sewage discharged into the sanitary sewer system. The expansion will add some 12 employees. Using an estimate of 15 gallons/employee/day (Minnesota Plumbing Code 4715.3600 Subp. 2), 180 additional gallons of wastewater may be generated per day. However, this increase should not affect peak flow to the sewer, nor will it cause any difficulties to either the on-site collection systems and related MWCC interceptor or wastewater treatment facilities. New maintenance areas may necessitate additional bathroom facilities if additional employees are added to this facility; however, the impact, although unknown at the present time, should not increase the sewerage discharge beyond the capacity of the existing sanitary sewerage system, but will be reevaluated as additional employee needs are determined.

II.G TERMINAL AREA EQUIPMENT STORAGE BUILDING

This project is proposed as a result of limited equipment storage in the terminal area and need to centralize most of the maintenance equipment in one area to improve the operational efficiency. The project involves the construction of a small structure on existing impervious surface area at the exit of the Lindbergh Terminal near outbound Glumack Drive. The building will have sanitary facilities for employees that will work on the premises.

- **Sewage**

  The proposed project's bathroom areas will increase sewage discharge into the sanitary sewer system. Using an estimate of 15 gallons/employee/day (Minnesota Plumbing Code 4715.3600 Subp. 2), it is estimated that 150 additional gallons of wastewater may be generated per day by the employees of the building. However, since the building will not be staffed 24 hours per day, this increase is slight and should not affect peak flow to the sewer, nor will it cause any difficulties to either the on-site collection systems and related MWCC interceptor or wastewater treatment facilities.

II.H 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.

III. PROJECTS BEGINNING IN 1995

The following projects are included in the MAC's Capital Improvement Plan for 1995 and have the potential to effect the environment.

III.A 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.

IV. PROJECTS BEGINNING IN 1996

The following projects are included in the MAC's Capital Improvement Plan for 1996 that may have the potential to effect the environment.

IV.A PAVEMENT REHABILITATION - RUNWAY 11L/29R (SEGMENT 2)

Pavement Rehabilitation of Runway llL/29R Segments 1 and 3 have been completed. The last segment to be completed, Segment 2 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.

During construction of this project Runway 11L/29R will be closed, diverting air traffic to other runways. The project will add approximately 80,000 square feet of impervious surface to the Minnesota River-North Drainage Area. Therefore, the only categories to be impacted by the pavement rehabilitation project are aircraft noise (from aircraft using other airport runways) and water quality (due to increased runoff).

- **Aircraft Noise**

  Since Runway 11L/29R will be closed during construction, air traffic will be directed to the south parallel runway or the crosswind runway if it has been lengthened as proposed. The total number of flights and therefore the total volume of noise will not change. However, the distribution of the aircraft noise will change during construction. Once construction of the project is completed, the runway will be reopened and the noise level will return to the original distribution.

- **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 affect any other impact categories.

V. PROJECTS BEGINNING IN 1997

The following projects are included in the MAC's Capital Improvement Program for 1997 and have the potential to effect the environment.

V.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.

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 is noted that an increase of 1.8 DBA is almost undiscernible. It is also noted that the affected neighborhood (New Ford Town) will be acquired and the residents affected by such noise will be relocated *(see I.I Part 150 Implementation).*

- **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.

VI. PROJECTS BEGINNING IN 1998

There are no projects included in the MAC's Capital Improvement Plan for 1998 that may potentially effect the environment.

VII. PROJECTS BEGINNING IN 1999

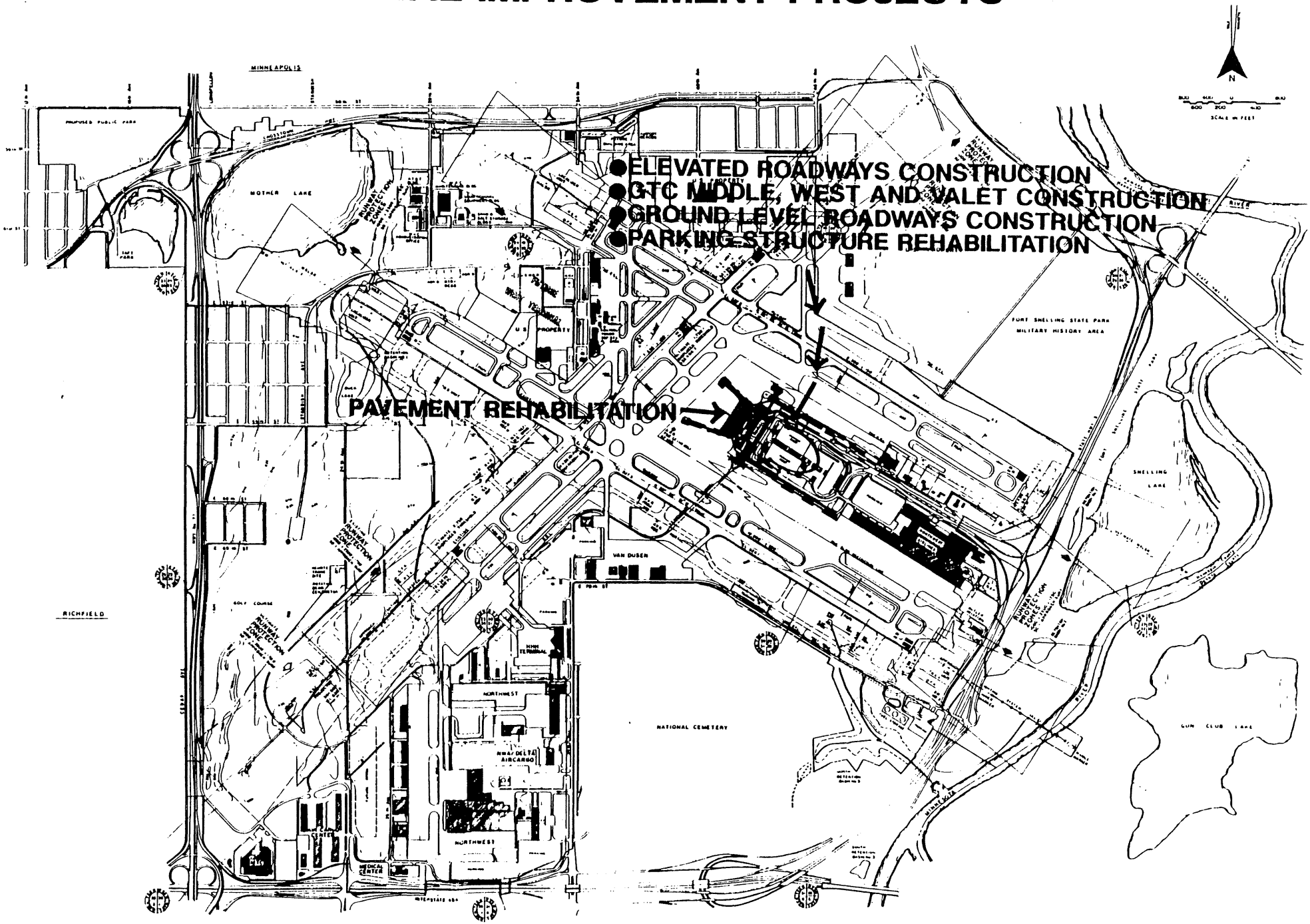
There are no projects included in the MAC's Capital Improvement Plan for 1999 that may potentially effect the environment.

APPENDIX B

1993 CAPITAL IMPROVEMENT PROJECTS

1994 CAPITAL IMPROVEMENT PROGRAM

1993 CAPITAL IMPROVEMENT PROJECTS



MINNEAPOLIS - ST. PAUL INTERNATIONAL AIRPORT

JANUARY 1992

1993 CAPITAL IMPROVEMENT PROJECTS
MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

FIELD AND RUNWAYS

AIRFIELD SIGNAGE - $650,000

Runway incursions in Detroit and Los Angeles have prompted the FAA to make major revisions to the Advisory Circular on Standards for Airport Sign Systems. This will result in an expensive program to install airfield signage and to change the conventional meaning of certain existing signs. Currently, MSP has a system with approximately 190 signs. The proposed changes in the Advisory Circular will add approximately 180 additional signs to the system and require electrical upgrades including conductors, connections and larger regulators. Phase I of this program was completed in 1992 and Phase II is scheduled for 1993.

AIRSIDE BITUMINOUS CONSTRUCTION - $500,000

A project to construct or reconstruct bituminous pavements on various areas within the Air Operations Area. This year's work will consist of stabilization of various eroded turf areas within the air operations area adjacent to runways and taxiways.

DEICING APRONS/CONTAINMENT FACILITIES - $2,500,000

The increasing number of aircraft accidents which have occurred as a result of deicing problems has prompted the FAA to issue in July, 1992 a Notice of Proposed Rule Making (NPRM) requiring that each air carrier develop an aircraft deicing plan for its operation. MAC along with other airport operators was requested to set up meetings with their air carriers and local FAA air traffic control representatives. The purpose of this meeting is to assess the impacts of the air carriers' deicing activities on airport operations and to identify actions that can be taken by the air carrier, the control tower and the airport operator to maximize the effectiveness and efficiency of operations during these periods. Some of the issues to be discussed include locating aircraft deicing sites closer to the runways and the feasibility of having a secondary application of deicing fluid available near runway departure ends. Both of these alternatives could require the construction of concrete deicing pads along with containment and collection facilities to prevent uncontrolled release of deicing fluids into the environment. If these alternatives were to be implemented, it would result in large capital expenditures in 1993 and subsequent years.

ELECTRICAL MODIFICATIONS - $150,000

The conditions of portions of existing underground field lighting circuits have 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. The project being proposed for 1993 includes revisions to the salt storage building.

PAVEMENT REHABILITATION - APRONS, TAXIWAYS, ETC. - $2,500,000

This is a continuation of a program to replace sections of concrete pavement 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 include the first phase of reconstruction of the pavement between the Red and Blue Concourses. This project was bid in 1992 but because only one bid was received, it was returned unopened and the project moved to 1993. It is anticipated that the pavement reconstruction between the Red and Blue Concourses will be phased over a 2 to 3 year period. Previously approved by the Commission.

ENVIRONMENTAL

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.

PART 150 IMPLEMENTATION - $17,000,000

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. The extent of the work will depend on the amount of federal aid available for each type of project. Land acquisition would include the New Ford Town and Rich Acres developments in Richfield as well as selected residences around the airport. The insulation of houses would be a continuation of the program which was initiated in 1992 in the cities of Minneapolis, Richfield, Bloomington, Eagan and Mendota Heights.

LANDSIDE

COMMERCIAL ROADWAY CASHIER, STARTER, PASSENGER BOOTH - $100,000

The ground level roadway system between the parking structures and the terminal building will be reconstructed along with the development of the Ground Transportation Center and the replacement of the elevated roadway. The ground level roadway system will include a lane for "commercial" vehicles including off-airport taxis, limos, etc. It is proposed to have in place an ordinance which will allow for the changing of a fee for off-airport commercial vehicles. This

will require a starter booth to monitor these vehicles and a cashier booth to collect the designated fees.

ELEVATED ROADWAYS CONSTRUCTION - $19,200,00

Two alternatives for reconstruction of the elevated roadway were studied in 1991. The two alternatives included: constructing a new elevated roadway adjacent to the existing, re-routing traffic to this new structure and then reconstructing the existing structure; or temporarily displacing the traffic from the elevated roadway to other locations, demolishing the existing structure and reconstructing it as quickly as possible. The alternative to construct a second elevated roadway prior to reconstructing the existing was selected as the alternative which impacted airport users the least and will be implemented in phases during the 1993 to 1995 time period. Included with this project will be the expansion of the existing elevated roadway system from 4 lanes to 7 lanes, with sidewalks for passenger loading and unloading at both the terminal building and the parking ramp. Those people utilizing the 3 new lanes of traffic adjacent to the parking ramp will be directed to the vertical circulation system at the parking ramp with access to the terminal via the skyway system. This will reduce the passenger/vehicle conflicts associated with patrons trying to cross seven lanes of traffic. This project will also allow for the completion of the mechanical ventilation system required for dispersion of carbon monoxide as the various dispersion fans and associated duct work will be suspended from the elevated roadway. Previously approved by the Commission.

GTC MIDDLE, WEST AND VALET CONSTRUCTION - $8,400,000

This project is a continuation of the construction of the Ground Transportation Center which was started in 1992 and includes the construction of the middle and west phases of the GTC and the expansion of the valet parking area to the south and east of the existing terminal basement. The final realignment of the garage entrance and exit will be completed with this project. Previously approved by the Commission.

GOLD CONCOURSE CHILLED WATER MODIFICATIONS - $150,000

With the addition of the skyways and the elevator towers at the parking structures, there has been an additional demand imposed on the Energy Management Facility for cooling and heating. The Gold Concourse is on the end of the chilled water line and, with the additional cooling demands on the chilled water system, does not receive adequate cooling. Modifications to the existing system will include the installation of an additional chilled water line to the Gold Concourse.

GROUND LEVEL ROADWAYS CONSTRUCTION - $1,980,000

Another of the projects associated with the Ground Transportation Center series of projects involves the construction of the ground level road system to its ultimate configuration. This will be accomplished in phases starting in 1993 as work on the elevated roadways is completed. As part of this project, the major underground air supply conduits for the mechanical ventilation system will be installed which will supply fresh air over the lower level roadway/sidewalk area in front of the terminal building for those times when carbon monoxide levels approach the levels specified in the Commission's Indirect Source Permit. This roadway system will provide separate lanes for airport patrons, for commercial vehicles and for taxicabs. Previously approved by the Commission.

GROUND TRANSPORTATION CONTROL SYSTEM - $300,000

In 1992, the first phase of the computerized Ground Transportation Control system was implemented which controls taxicabs only. This system will be expanded in 1993 to control other ground transportation vehicles. Previously approved by the Commission.

INFORMATIONAL/DIRECTIONAL SIGNAGE ADJUSTMENTS - $200,000

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 flexible, comprehensive system. The new signage format was installed on the Red and Blue Concourses in 1992. Previously approved by the Commission.

LANDSIDE BITUMINOUS CONSTRUCTION - $400,000

Much of the roadway system serving the airport as well as many of the Commission's parking lots are constructed of bituminous pavements. Some of these roadways and parking lots are in need of major reconstruction. Starting in 1993, the Commission will begin a program to reconstruct those roadways and parking lots outside of the air operations area which require major repair. 34th Avenue and 62nd Street, and the employee parking lots on 34th Avenue will be reviewed in 1992 for future reconstruction projects.

LINDBERGH TERMINAL CONCOURSE DOOR REPLACEMENT - $150,000

The doors to the entrances to the Red, Blue and Green Concourses in the Lindbergh Terminal have deteriorated to the point where routine maintenance is unable to keep the doors operational. It is proposed to replace these doors with coiling type doors which would require less maintenance and would provide an unrestricted opening into the concourses. This project was originally scheduled for completion in 1992, but time constraints have forced this project to be moved to 1993. Previously approved by the Commission.

LINDBERGH TERMINAL ELECTRICAL MODIFICATIONS - $150,000

It is proposed that the program be continued to address electrical issues in the Lindbergh Terminal requiring attention due to age and deterioration of the existing systems or modifications necessary for improved operations be continued. This project typically includes: additional area lighting units and circuitry revisions for improved safety and security, replacement/relocation of fixtures to reduce maintenance costs, etc. Potential projects will be evaluated in early 1993.

LINDBERGH TERMINAL INTERIOR REHABILITATION - $1,550,000

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 established 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. Several concepts were reviewed in 1992, however more study is needed. This project will most likely be scaled back and re-evaluated for implementation in 1993. Previously approved by the Commission.

LINDBERGH TERMINAL TEMPERATURE CONTROL UPGRADE - $450,000

The existing Energy Management Control System (EMCS) serving the Lindbergh Terminal consists of four separate systems which monitor approximately 4,440 points within the terminal complex. As the four systems have been installed as the terminal has been expanded, the various system components are of various levels of technological advancements and do not work well together. To allow for more efficient operator control and system interface, the EMCS systems should be integrated into the two most modern and expandable state-of-the-art systems. This will be accomplished by replacing the two most antiquated systems.

LINDBERGH TERMINAL MECHANICAL MODIFICATIONS - $150,000

A number of pieces of mechanical equipment have been identified which require replacement/modifications. A program initiated in 1992 will be continued in subsequent years to address mechanical issues requiring attention due to age and deterioration of the existing systems or modifications necessary for improved operations. Potential projects are currently being evaluated for implementation in 1993.

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. A list of potential projects will be compiled and evaluated in the spring of 1993.

LINDBERGH TERMINAL TUG DRIVE VENTILATION - $200,000

The area beneath the Lindbergh Terminal in which the tugs from the various airlines operate has been a source of complaints over the past several years. Specifically, the air quality due to tug exhaust and high temperatures have been a source of complaints from the airline employees who work in this area. Several mitigation measures have been employed over the past years, however, the complaints persist. Phase I of this project to increase the air movement through the tug drive area was completed in 1992. Phase II is proposed to be completed in 1993 to provide an expanded ventilation system to provide a more tolerable working environment. Previously approved by the Commission.

PARKING STRUCTURE REHABILITATION - $500,000

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. It is also proposed to upgrade the lighting system on each level of the first structured parking ramp such that it is equal to the system in the new parking structure. Three levels remain to be upgraded and will be completed in 1993 along with the joint sealant replacement and concrete repair.

PUBLIC SAFETY STORAGE BUILDING - $270,000

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. This facility would also include a "secured" storage are in the event a vehicle is used in a felony. Previously approved by the Commission.

TERMINAL COMPLEX SPRINKLER SYSTEM ADDITIONS - $100,000

Staff and our architectural/engineering consultants meet on a yearly basis with the Commission's 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.

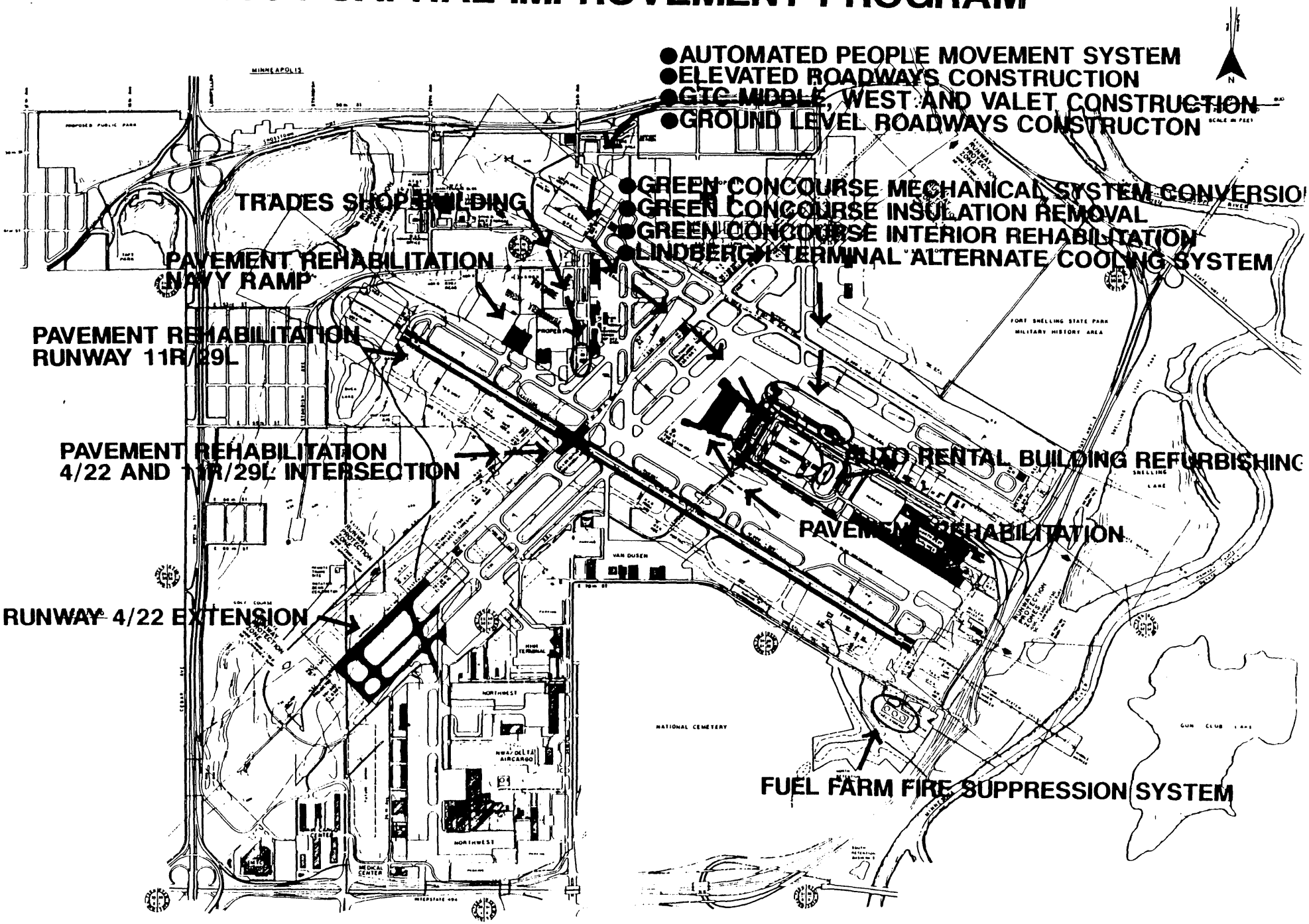
TUG DRIVE CONCRETE SEALING - $500,000

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 and also damages cars parked in the garage area. A project to evaluate various manufacturers' products was completed in 1991 and evaluated in 1992. Completion of the entire tug drive area will be phased starting in 1993. Previously approved by the Commission.

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.

1994 CAPITAL IMPROVEMENT PROGRAM



MINNEAPOLIS - ST. PAUL INTERNATIONAL AIRPORT

JANUARY 1992

1994 CAPITAL IMPROVEMENT PROGRAM
MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

FIELD AND RUNWAYS

AIRFIELD DRAINAGE ADJUSTMENTS - $200,000

Each winter, tons of sand are applied to the runway and taxiway systems to provide traction for aircraft. Much of the sand ends up in the turfed areas adjacent to the runways and taxiways as a result of snow plowing and sweeping operations. Through the years, this sand has continued to build up to the point where water drainage from the paved surfaces has been impaired. This project will provide for the regrading and turf establishment along various runways and taxiways to improve stormwater drainage. Specific project areas will be evaluated in 1993.

AIRSIDE BITUMINOUS CONSTRUCTION - $500,000

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 1993 and will be presented for approval when the CIP is updated for the 1994 construction season.

APRON LIGHTING UPGRADE - $250,000

The existing apron lighting system has been a source of concern from the various airlines in regards to the safety of airline personnel working around the aircraft in the gate positions. Requests have been made by the airlines to upgrade the existing light levels. A pilot project involving installing new ballasts and light fixtures in several apron light standards was completed in 1992. These lights will be evaluated in 1993; if the resulting increase in light levels is significant, a project to upgrade all of the existing apron lights will be implemented in 1994.

DEICING APRONS/CONTAINMENT FACILITIES - $5,000,000

This project will involve the construction of concrete aprons for deicing fluid containment and collection. This will be a continuation of the program started in 1993.

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. Projects will be compiled and evaluated in 1993.

PAVEMENT REHABILITATION - APRONS, TAXIWAYS, ETC. - $2,500,000

This is a continuation of a program to replace sections of concrete pavement in the aircraft operational areas that have deteriorated to a point where maintenance is no longer a viable option. This year's project will be a continuation of the reconstruction of the apron adjacent to the Red and Blue Concourses which was begun in 1993.

PAVEMENT REHABILITATION - NAVY RAMP - $500,000

The Commission currently owns and utilizes a portion of what is known as the "Navy" Ramp for parking layover or delayed aircraft and for cargo operations involving Airborne Express and DHL Worldwide Express. Prior to 1992, to access the Commission's portion of this ramp from Taxiway A, aircraft had to cross over a section of the ramp which is owned by the U.S. Navy. In 1991, a pavement condition survey of the common use portion of the ramp indicated that the strength of the ramp in this area was insufficient to allow regular usage by large aircraft. The Navy required that this portion of the ramp be replaced in order for the Commission's continued use of the ramp. In the late fall of 1991, the Commission removed the concrete and replaced it with a full depth bituminous pavement. In addition, in 1992 a new exit taxiway was constructed to allow access to the ramp without crossing the Navy's property. The Navy has requested that the bituminous be replaced with a permanent concrete pavement. The Commission will monitor the condition of the bituminous patch during 1993 and subsequent years to see when replacement is required. Previously approved by the Commission.

PAVEMENT REHABILITATION - RUNWAY 11R/29L - $2,600,000

The original concrete pavement on Runway 11R/29L was overlaid with bituminous in 1974 and again in 1983. This overlay was continuing to deteriorate from age and use and the center 80 feet of the runway was therefore milled to a depth of 4 inches and replaced with 4 inches of new bituminous in 1991. It is proposed to monitor the condition of the runway in 1993 and subsequent years to see if the outer edges require reconstruction. This would be accomplished by milling the outer 60 foot edges to a depth of 4 inches and installing a new 4 inch bituminous surface. Previously approved by the Commission.

PAVEMENT REHABILITATION - 4/22 AND 11R/29L INTERSECTION - $800,000

The intersection of Runways 4/22 and 11R/29L was last reconstructed in 1970 and consists of 14 inch concrete pavement. This is in contrast with the 18 inch pavement currently being constructed on all new runways. It is proposed to study alternatives for replacement of this intersection such that a plan is in place when pavement conditions require the intersection to be reconstructed. As work on this intersection involves the closing of two runways, the alternative which involves the shortest construction time will most likely be selected.

RETENTION BASIN IMPROVEMENTS - $300,000

There are four (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 Permit. A new discharge permit will be issued in 1993 which will most likely require additional modifications to each basin in 1994.

RUNWAY 4/22 EXTENSION - $12,500,000

The Environmental Assessment process for the extension is scheduled for completion in mid 1994 which will allow the construction of the extension of Runway 4/22 to begin in the latter part of 1994. The extension will add 2750 feet to Runway 4/22. Previously approved by the Commission.

RUNWAY TUNNEL/TUNNEL VENTILATION REHABILITATION - $100,000

The vehicle tunnel under Runway 11R/29L was constructed in 1970. Major maintenance is now required on the tunnel ventilation doors which are located at ground level between the runway and the terminal apron. The tunnel vent opening will be lowered and new doors constructed such that airport maintenance equipment can work around them without causing damage to the doors.

UST MANAGEMENT - $400,000

In 1992, a detailed inventory of all underground storage tanks (USTs) and above ground storage tanks (ASTs) located at MSP was compiled to determine whether UST/AST systems are in compliance with the state and federal rules and regulations. Now that the inventory is complete, tank system upgrades, removals, etc. have begun in 1992 and will continue into 1993 and 1994 to comply with the new federal requirements.

ENVIRONMENTAL

PART 150 IMPLEMENTATION - $25,300,000

This item is intended to cover projects identified as part of the FAR Part 150 program (noise control and compatibility planning for airports) which has been approved, in part, by the FAA. Projects would include items such as property acquisition and soundproofing of homes, schools and public buildings. This is a continuation of the program started in 1992. Extent of the property acquisition and home insulation is dependent on the amount of federal aid available.

SELF LIQUIDATING

NWA CONCOURSE MODIFICATIONS - $1,000,000

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.

LANDSIDE

AUTO RENTAL BUILDING REFURBISHING - $500,000

As the demand for rental cars grows at MSP, there is also a demand by the rental car companies for increased operating space at the rental car building located at the east end of the parking ramp. It is proposed to study alternative expansion options in 1993 and to possibly implement the selected alternative in 1994.

AUTOMATED PEOPLE MOVEMENT SYSTEM - $9,000,000

This project is a continuation of the construction of an automated people movement system to transport airport patrons from the Ground Transportation Center in the terminal building to the rental car building. During 1992, the various technologies inolving people movement systems were evaluated. The selected alternative will be studied in detail during 1993. During 1994, the equipment would be purchased with the tunnel system and required modifications to the rental car building scheduled for 1995 and 1996. Previously approved by the Commission.

COMM/OPS CENTER MODIFICATIONS - $400,000

It is proposed that the construction of additional space to the Comm/Ops center be evaluated during 1993. There is inadequate space for the efficient operation of the department by communication and operations personnel who coordinate the day-to-day airfield activities, including emergency response, snow removal and construction.

CONCESSION AREA DEVELOPMENT - $500,000

A concession study for the Lindbergh Terminal will be completed in 1993 which will review the types and level of concessions currently offered and recommend what new services could be offered to the public. Minor space modification will be completed in 1994 with the majority of the recommendations expected to be implemented in 1995. Previously approved by the Commission.

ELEVATED ROADWAYS CONSTRUCTION - $1,200,000

This is a continuation of the project to replace and expand the elevated roadway in front of the terminal building will begin in 1993.

ENERGY MANAGEMENT CENTER EXPANSION - $1,000,000

The construction of additional facilities at the terminal building including the skyways and vertical circulation system and the ground transportation system will result in additional heating and cooling loads on the Energy Management Center. It is proposed in 1993 to do a detailed study of the capacity of the chillers and boilers to meet the future cooling and heating demands to determine if additional units are required.

FUEL FARM FIRE SUPPRESSION SYSTEM - $1,000,000

As a result of the 1990 fuel storage tank fire in Denver, there have been several meetings between Commission, MSP Fueling Committee and Butler Aviation staff to discuss improvements and projects required to upgrade the alarm and fire suppression capabilities at the MSP fuel farm located on Post Road. One recommendation of the Commission's fire department was to increase the volume of water available at the fuel farm. A study was made of the water supply system and a recommendation made that a new 18-inch main and associated fire hydrants be installed on Post Road as far as the SuperAmerica station. This new main was constructed in 1992. Additional revisions to the piping and valving associated with the above ground storage tanks and additional fire suppression equipment and facilities will be evaluated in 1993 for implementation in 1994.

GTC MIDDLE, WEST AND VALET CONSTRUCTION - $4,200,000

This project is a continuation of the construction of the Ground Transportation Center and includes the remaining finish construction within the lobby area of the GTC.

GREEN CONCOURSE INSULATION REMOVAL - $400,000

Prior to proceeding with the replacement of the individual mechanical units under the Green Concourse Mechanical System Conversion project, it will be required to remove asbestos insulation from existing piping. A separate asbestos contractor will be retained for this project.

GREEN CONCOURSE INTERIOR REHABILITATION - $500,000

The recent Red and Blue Concourse Rehabilitation projects 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. Previously approved by the Commission.

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. Previously approved by the Commission.

GROUND LEVEL ROADWAYS CONSTRUCTION - $1,200,000

This project is a continuation of the construction of the ground level roadways begun in 1992 as part of the Ground Transportation Center series of projects. Construction of the ground level roadway adjacent to the terminal building will begin during 1993.

INFORMATIONAL/DIRECTIONAL SIGNAGE ADJUSTMENTS - $50,000

This project will continue the upgrading of the signage in the terminal building which was started in 1992 and continued into 1993. The system will be more flexible and comprehensive while fitting with the new terminal building decor.

LANDSIDE BITUMINOUS - $300,000

This is a continuation of the program which began in 1993 to reconstruct the airport's bituminous roadways and parking lots. Potential projects will be evaluated in 1993 for completion in 1994.

LINDBERGH TERMINAL ALTERNATE COOLING SYSTEM - $3,000,000

The Energy Management Center utilizes groundwater pumped via deep wells in its chillers for the cooling of the Lindbergh Terminal. The State of Minnesota has mandated that all facilities utilizing groundwater for cooling purposes must convert to systems which do not rely on groundwater. The Commission has until the year 2000 to complete this conversion. It is proposed to begin studying alternative systems in 1993 with possible phasing of the new system to begin in 1994. The Commission is currently paying a "groundwater utilization fee" of approximately $80,000 per year. This fee could be increased at any legislative session which is why a new system is being evaluated at this time.

LINDBERGH TERMINAL ELECTRICAL MODIFICATION - $150,000

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 1992 and a recommendation will be available when the CIP is updated for the 1993 construction season.

LINDBERGH TERMINAL ENTRANCE DOOR REPLACEMENT - $500,000

The sliding entrance doors at door nos. 2-5 on both the upper and lower levels are requiring a considerable amount of maintenance to ensure continued operation. It is proposed the door equipment be replaced and the entrances renovated. Previously approved by the Commission.

LINDBERGH TERMINAL INTERIOR REHABILITATION - $1,500,000

This is a continuation of the program which was implemented in 1993 to provide a more "Minnesota Image" to the terminal building.

LINDBERGH TERMINAL MECHANICAL MODIFICATIONS - $150,000

It is proposed that a program initiated in 1992 be continued in subsequent years to address mechanical issues requiring attention due to age and deterioration of the existing systems or modifications necessary for improved operations. The items to be addressed will be analyzed in 1993 and a recommendation will be available when the CIP is updated for the 1994 construction season.

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 requirement of various tenants, however, the items will be consolidated into a single project when possible.

LINDBERGH TERMINAL PA SYSTEM - $2,000,000

The public address (PA) system provides airline flight announcements, general paging, security and emergency notices and background music throughout the public areas of the terminal complex. The PA system was updated by the airlines in 1967-68. Since then numerous changes to the system have occurred through building expansion and remodeling, airline adjustments within gate lobbies, and modifications of airline owned equipment.

As a result of these modifications, the system has been compromised and the age of the equipment has resulted in less than desirable performance, and upgrading with state-of-the-art equipment has been requested by the various airlines. The system will be studied in 1993 with the recommended alternative possibly implemented in 1994.

RENTAL CAR DECK LIGHTING UPGRADE - $200,000

The rental car companies have requested that additional lighting be provided in the parking deck where rental cars are returned. This would provide a safer area both for rental car staff and also for the people returning the cars.

SNOW REMOVAL EQUIPMENT BUILDING ADDITION - $3,500,000

The snow removal equipment storage building includes maintenance bays that were part of the original building constructed in 1965. The Commission's fleet of motorized equipment now exceeds 200 units which can no longer be maintained in the existing space in an efficient, safe manner. It is proposed to construct an addition on the south side of the existing building to provide the additional maintenance areas required. In addition, reconfiguration and expansion of the office and crew areas including providing facilities for female maintenance workers is required. Previously approved by the Commission.

TERMINAL AREA STORAGE BUILDING - $200,000

Requests have been received from MAC maintenance staff for a terminal area equipment storage and fueling facility. Currently, there is limited equipment storage in the terminal area and all equipment must be transported to and from the maintenance building located across from the General Office.

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.

TRADES SHOP BUILDING - $2,000,000

Currently, the Commissions'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. In addition, new state and federal regulations require areas for the storage of hazardous materials such as are used by the painting crews. It is proposed a centralized facility capable of housing the three maintenance functions be evaluated. Each trade area would include a workshop, material storage area and foreman's office; common vehicle garage, toilet facilities and lunch/break room would also be provided.