

METROPOLIAN AIRPORTS COMMISSION

2015 CAPITAL IMPROVEMENT PROGRAM



2015 - 2021 Capital Improvement Program							
August 21, 2014 - PRELIMINARY DRAFT							
			PRELIMINARY DRAFT				
Projects	2015	2016	2017	2018	2019	2020	2021
Noise Mitigation							
Noise Mitigation Consent Decree Amendment			\$3,200,000	\$7,500,000	\$7,500,000	\$4,300,000	
Subtotal Noise Mitigation Program	\$0	\$0	\$3,200,000	\$7,500,000	\$7,500,000	\$4,300,000	\$0
10 - Terminal 1-Lindbergh							
Safety/Security Projects							
Automated External Defibrillator Notification System			\$550,000				
Telecom Room Equipment Continuity and Security	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
Subtotal Safety/Security Projects	\$1,500,000	\$1,500,000	\$2,050,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
Facility Rehabilitation							
Electrical Infrastructure Rehabilitation Program	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$2,500,000
Terminal Miscellaneous Modifications	\$2,400,000	\$2,400,000	\$2,400,000	\$2,400,000	\$2,400,000	\$2,400,000	\$2,400,000
Emergency Power Upgrades	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$2,500,000
Lower Level Roadway/GTC Water Infiltration Mitigation		\$1,000,000		\$500,000			
Restroom Upgrade Program	\$8,500,000	\$4,500,000	\$4,500,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Air Handling Unit Replacement	\$1,500,000	\$1,500,000	\$2,000,000	\$2,000,000	\$2,500,000	\$2,500,000	\$3,000,000
Conveyance System Upgrades	\$2,900,000		\$2,700,000		\$1,500,000		
Food Court Service Elevator Replacement		\$2,000,000					
Passenger Boarding Bridge Replacements	\$4,500,000			\$7,000,000	\$7,000,000	\$6,000,000	\$6,000,000
Plumbing Infrastructure Upgrade Program	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Way-Finding Sign Backlighting Replacement			\$1,600,000	\$1,600,000	\$1,600,000		
Lighting Infrastructure Technology and Equipment (LITE)	\$1,600,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$2,250,000
T1 Tram Systems Upgrades and Retrofit	\$1,450,000	\$2,000,000	\$2,700,000				
MAC Public Address System (MACpas)	\$1,300,000	\$1,200,000	\$1,100,000	\$1,100,000	\$850,000		
T1 Public Walk Aisle Terrazzo Floor Installation			\$4,410,000	\$4,410,000	\$4,410,000	\$4,410,000	\$4,410,000
T1 Recarpeting Program				\$6,830,000	\$6,830,000	\$6,830,000	
D-Pod Outbound Conveyor/Ticket Counter Expansion					\$5,900,000		
MSP Employee Break Rooms	\$200,000						
East Mezzanine Rubber Floor Replacement				\$2,900,000			
Center Mezzanine Tile Removal and Replacement				\$450,000			
Folded Plate Repairs		\$1,000,000	\$8,500,000	\$8,500,000	\$8,500,000	\$8,500,000	
Mezzanine HVAC/AHU Replacements & Penthouses			\$8,000,000	\$8,000,000			
Telecom Relocation & Decommissioning		\$1,500,000	\$1,500,000	\$1,500,000			
C-G Connector Improvements		\$4,500,000					
Terminal Building Remediation Program	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
Subtotal Facility Rehabilitation	\$29,350,000	\$28,100,000	\$45,910,000	\$55,690,000	\$49,990,000	\$39,140,000	\$27,060,000
Passenger Amenities							
Art Display Areas	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	
Concessions Upgrades /Revenue Development	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	
Concessions Rebids	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000			
Terminal Seating Improvements	\$800,000	\$800,000					
Ticket Counter Upgrades to ADA		\$800,000					
Commission Chambers Telecoil Installation		\$200,000					
Concourse Service Center Upgrades		\$1,000,000	\$1,000,000				
Observation Deck Improvements				\$1,600,000			
EVIDs / MUFIDs Digital Signs	\$400,000		\$750,000				
EVIDs / MUFIDs / MUBIDs / PIDs Technology Upgrades - Equipment Replacement				\$600,000	\$600,000	\$600,000	
FIS Recheck Operational Improvements				\$8,400,000			
Subtotal Passenger Amenities	\$3,650,000	\$5,250,000	\$4,200,000	\$13,050,000	\$1,050,000	\$1,050,000	\$0

Projects	PRELIMINARY DRAFT						
	2015	2016	2017	2018	2019	2020	2021
Operational Improvements							
Intelligent Monitoring and Control Systems (formerly OABA)	\$1,500,000	\$1,500,000	\$1,500,000	\$800,000	\$1,800,000	\$1,800,000	\$1,800,000
Fiber Optic Cable Infrastructure Upgrade/Expansion	\$1,700,000	\$1,700,000	\$1,000,000	\$900,000	\$900,000		
Wireless Network Control System	\$600,000	\$1,000,000					
Landside Operations Offices Reconfiguration			\$500,000				
MACNet Upgrade - Connectivity Elements	\$2,500,000	\$1,000,000	\$2,000,000	\$2,000,000	\$3,000,000		
Mezzanine Operational Improvements						\$25,300,000	
Subtotal Operational Improvements	\$6,300,000	\$5,200,000	\$5,000,000	\$3,700,000	\$5,700,000	\$27,100,000	\$1,800,000
Concourse G Improvements							
Concourse G Roof Replacement	\$8,400,000						
Clerestory Glazing Replacement	\$3,400,000						
Exterior Panel/Sealant Replacement		\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,100,000	\$1,100,000
Concourse G Rehabilitation		\$2,000,000	\$2,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Concourse G HVAC			\$4,000,000	\$4,000,000	\$4,000,000		
Concourse G Electrical			\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
G Concourse Moving Walks			\$2,500,000	\$2,500,000	\$2,500,000		
G Concourse Fire Protection - Phase 4	\$700,000						
Subtotal Concourse G Improvements	\$12,500,000	\$3,000,000	\$12,500,000	\$15,500,000	\$15,500,000	\$9,100,000	\$9,100,000
T1-Lindbergh Expansion/Remodeling							
Long Term Comp Plan	\$500,000						
Concourse E Remodeling/Expansion							\$37,000,000
T1 Checkpoint Consolidation (CP1)	\$18,000,000						
Baggage Claim Expansion		\$34,075,000	\$20,275,000	\$20,075,000	\$20,075,000		
Vertical Circulation Improvements		\$13,100,000		\$13,100,000			
South Security Exit				\$4,100,000			
Ticket Lobby Operational Improvements		\$11,250,000	\$11,250,000	\$11,250,000	\$11,250,000	\$6,000,000	
Checkpoint Expansion - Mezzanine					\$10,000,000		
Checkpoint Expansion - CP6							\$24,000,000
Airside Operations Center				\$1,250,000			
Hotel Skyway or other connections		\$9,500,000					
Subtotal Terminal Remodeling	\$18,000,000	\$67,925,000	\$31,525,000	\$49,775,000	\$41,325,000	\$6,000,000	\$61,000,000
Concourse G Expansion							
CBP Primary Relocation Gates G8-G9 Infill & Penthouse							\$51,000,000
Subtotal Concourse G Expansion	\$0	\$0	\$0	\$0	\$0	\$0	\$51,000,000
Roadway Expansion							
East Curbside Upper Level Check-in				\$19,000,000			
Lower Level Curbside Expansion					\$10,000,000		
Subtotal Roadway Expansion	\$0	\$0	\$0	\$19,000,000	\$10,000,000	\$0	\$0
Subtotal T1-Lindbergh Expansion/Remodeling	\$18,000,000	\$67,925,000	\$31,525,000	\$68,775,000	\$51,325,000	\$6,000,000	\$112,000,000
Subtotal Terminal 1-Lindbergh	\$71,800,000	\$110,975,000	\$101,185,000	\$158,215,000	\$125,065,000	\$83,890,000	\$151,460,000
13 - Energy Management Center							
Energy Savings Projects		\$2,000,000		\$2,000,000		\$2,000,000	
Alternative Energy Projects	\$900,000						
Modular Cooling Tower Installation	\$3,000,000						
Subtotal Energy Management Center	\$3,900,000	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000	\$0
21 - Field and Runway							

Projects	PRELIMINARY DRAFT						
	2015	2016	2017	2018	2019	2020	2021
Airside Bituminous Rehabilitation/Electrical Construction		\$1,000,000		\$1,000,000		\$1,100,000	
Pavement Joint Sealing/Repair	\$650,000	\$650,000	\$650,000	\$650,000	\$650,000	\$650,000	\$650,000
Pavement Rehabilitation - Aprons	\$10,200,000						
Pavement Reconstruction				\$7,500,000			
Miscellaneous Airfield Construction	\$800,000		\$800,000		\$8,000,000		\$900,000
Baggage Quarantine Building						\$1,300,000	
SIDA Incursion Upgrades				\$1,600,000			
Sanitary Sewer Replacements							
Taxiway R				\$2,500,000			
34th Avenue			\$1,700,000				
Perimeter Gate Security Imps - Gates 222 & 269		\$1,200,000					
Runway Planing/Regrooving			\$450,000				
Establish Taxiway J				\$150,000			
Runway LED Lighting Upgrade				\$1,600,000	\$1,600,000	\$1,600,000	\$1,600,000
Runway 12L-30R Regrooving			\$350,000				
Taxiway C1 Construction				\$5,000,000			
Runway 4-22 In-Pavement Guard Lights		\$500,000					
4 & 22 Glide Slopes restoration		\$1,500,000					
Runway 12R-30L Tunnel Drainage Improvements - Phase 2			\$400,000				
Subtotal Field and Runway	\$11,650,000	\$4,850,000	\$4,350,000	\$20,000,000	\$10,250,000	\$4,650,000	\$3,150,000
26 - Terminal Roads/Landside							
Tunnel/Bridge Rehabilitation	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	
Upper Level Roadway Rehabilitation			\$2,000,000				
Upper Level Roadway Electrical System Rehabilitation				\$650,000			
Lower Level Roadway Rehabilitation			\$200,000			\$300,000	
Variable Message Signs Replacement	\$2,100,000						
Subtotal Terminal Roads/Landside	\$2,200,000	\$100,000	\$2,300,000	\$750,000	\$100,000	\$400,000	\$0
31 - Parking							
T1/T2 Parking Structure Rehabilitation	\$2,500,000	\$2,500,000	\$2,500,000	\$2,500,000	\$2,500,000	\$2,500,000	\$3,000,000
T1-Lindbergh Short Term Parking Redesignation				\$350,000			
T1-Lindbergh Valet/Commercial Entrance Lanes Mods				\$1,000,000			
T1-Lindbergh Intelligent Parking Guidance System				\$500,000			
T1 QTA Roadway Replacement				\$500,000			
Parking Ramp Railing Refinishing Project	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000		
T1 Parking Ramp Roadway Modifications		\$17,000,000					
T1 Parking Ramp Revenue Control Building Modifications			\$23,000,000				
T1 Parking Transit Center and Plaza Modifications			\$15,000,000				
T1 Parking Ramp Site Preparation and Utilities		\$114,000,000					
T1 Parking Ramp			\$250,000,000				
T1 Parking Underground Walkway Extension (future Tram)			\$15,000,000				
Orange Ramp Add 2 elevators (for 4 total)				\$1,900,000			
Subtotal Parking	\$3,500,000	\$134,500,000	\$306,500,000	\$7,750,000	\$3,500,000	\$2,500,000	\$3,000,000
36 - Terminal 2-Humphrey							
Passenger Amenities							
Skyway to LRT Flooring Installation					\$800,000		
Curbside Canopy Extension			\$750,000	\$750,000			
Subtotal Passenger Amenities	\$0	\$0	\$750,000	\$750,000	\$800,000	\$0	\$0

Projects	PRELIMINARY DRAFT						
	2015	2016	2017	2018	2019	2020	2021
Operational Improvements							
T2 Lobby Restrooms		\$1,500,000					
FIS Baggage Claim Improvements		\$1,000,000					
APC Kiosks	\$800,000						
T2 Public Walk Aisle Terrazzo Floor Installation			\$1,700,000				
T2 Recarpeting Program				\$475,000	\$475,000	\$475,000	\$475,000
Subtotal Operational Improvements	\$800,000	\$2,500,000	\$1,700,000	\$475,000	\$475,000	\$475,000	\$475,000
Terminal 2-Humphrey North Expansion							
Gates 11 - 13b Construction	\$35,000,000						
Gates 14 - 16 Design Fees		\$5,000,000 *					
Gates 14 - 16 Construction				\$65,000,000			
Fueling Expansion Gates 14 - 16				\$1,500,000			
Subtotal Terminal 2-Humphrey North Expansion	\$35,000,000	\$5,000,000	\$0	\$66,500,000	\$0	\$0	\$0
		* Project is unfunded					
Subtotal Terminal 2-Humphrey	\$35,800,000	\$7,500,000	\$2,450,000	\$67,725,000	\$1,275,000	\$475,000	\$475,000
39 - Public Areas/Roads							
Landside Pavement Rehabilitation	\$400,000	\$400,000	\$2,000,000	\$400,000	\$400,000	\$400,000	\$450,000
Roadway Fixture Refurbishment	\$125,000	\$125,000	\$125,000	\$150,000	\$150,000	\$150,000	\$150,000
Aircraft Viewing Area	\$200,000						
Subtotal Public Areas/Roads	\$725,000	\$525,000	\$2,125,000	\$550,000	\$550,000	\$550,000	\$600,000
46 - Hangars and other Buildings							
Roof Replacements	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Drivers Training Facility Rehabilitation		\$550,000					
FAA Building Parking Lot Upgrades			\$1,050,000				
Campus Parking Lot Reconstructions		\$650,000	\$650,000	\$650,000	\$650,000	\$650,000	\$650,000
Campus Building Rehab Program		\$2,000,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
Subtotal Hangars and other Buildings	\$1,000,000	\$4,200,000	\$4,200,000	\$3,150,000	\$3,150,000	\$3,150,000	\$3,150,000
56 - Trades/Maintenance Buildings							
South Field Maintenance Building Wash Bay					\$1,300,000		
Trades Bldg Pneumatic Controls Retrofit		\$400,000					
Subtotal Trades/Maintenance Buildings	\$0	\$400,000	\$0	\$0	\$1,300,000	\$0	\$0
63 - Police							
Public Safety Facility				\$35,000,000			
Perimeter Fence Intrusion Detection System			\$1,000,000	\$1,000,000	\$1,000,000		
iVSN Improvements	\$3,000,000	\$4,000,000	\$4,500,000	\$3,700,000	\$4,000,000	\$2,000,000	\$2,000,000
Card Access Modifications - Gate lobby areas concourse level			\$850,000				
Passenger Boarding Bridge Card Access Additions			\$3,500,000	\$3,500,000	\$3,700,000		
APD Operational Improvements	\$500,000						
Subtotal Police	\$3,500,000	\$4,000,000	\$9,850,000	\$43,200,000	\$8,700,000	\$2,000,000	\$2,000,000
66 - Fire							
MSP Campus Fire Alarm System Upgrade	\$850,000	\$850,000					
Campus Fire Protection			\$500,000	\$500,000	\$500,000	\$500,000	
ARFF #2			\$10,500,000				
Subtotal Fire	\$850,000	\$850,000	\$11,000,000	\$500,000	\$500,000	\$500,000	\$0

		PRELIMINARY DRAFT						
Projects		2015	2016	2017	2018	2019	2020	2021
70 - General Office / Administration								
	G.O. Building Valve Retrofit			\$250,000				
	GO Security Enhancements		\$500,000					
	GO Building Improvements		\$500,000					
	Subtotal General Office / Administration	\$0	\$1,000,000	\$250,000	\$0	\$0	\$0	\$0
76 - Environment								
	Environmental Improvements							
	Mother Lake Stormwater Diversion		\$850,000					
	Runway 12R-30L Glycol Forcemain						\$1,100,000	
	Concourses C and G Compactor Canopies			\$450,000				
	Runway 30R Deicing Pad Subdrain				\$800,000			
	Ground Service Equipment (GSE) Electrical Charging Stations	\$1,000,000			\$2,700,000	\$2,700,000		
	E85 Tank and Dispenser Modifications		\$550,000					
	Lift Station at ponds					\$500,000		
	Subtotal Environment	\$1,000,000	\$1,400,000	\$450,000	\$3,500,000	\$3,200,000	\$1,100,000	\$0
Reliever Airports								
81 - St. Paul								
	Long Term Comp Plan	\$50,000						
	Holman Terminal Sub drain			\$600,000				
	Joint and Crack Repairs		\$100,000		\$100,000		\$100,000	
	MAC Building Improvements		\$200,000		\$200,000		\$200,000	
	Pavement Rehabilitation							
	Runway 14-32	\$1,500,000						
	Runway 13-31					\$4,500,000		
	Taxiway E		\$1,500,000					
	Parking Lot/Bayfield				\$500,000			
	Airfield Signage/Wind Cone Upgrade		\$500,000					
	Roof Repairs / Replacement			\$200,000				
	Cold Equipment Storage Building				\$750,000			
	Storm Sewer Improvements Phase 2			\$1,500,000				
	Maintenance Building Improvements				\$200,000			
	Runway 14-32 Reconstruction							\$5,000,000
	MAC Security Gate Upgrades		\$250,000					
	Subtotal St. Paul	\$1,550,000	\$2,550,000	\$2,300,000	\$1,750,000	\$4,500,000	\$300,000	\$5,000,000
82- Lake Elmo								
	Long Term Comp Plan	\$50,000						
	Runway 14-32 Replacement		\$500,000	\$5,000,000 **				
	Airfield Modifications			\$5,000,000 **				
	Materials Storage Building				\$600,000			
	Parallel Taxiways Reconstruction	\$600,000	\$600,000			\$600,000		
	Pavement Rehabilitation							
	Runway 04-22					\$6,000,000		
	Alleyways - North Building Area	\$900,000						
	Alleyways - South Building Area				\$900,000			
	Subtotal Lake Elmo	\$1,550,000	\$1,100,000	\$10,000,000	\$1,500,000	\$6,600,000	\$0	\$0
** Project will not proceed unless Federal funding is received.								

		PRELIMINARY DRAFT						
Projects		2015	2016	2017	2018	2019	2020	2021
83 - Airlake								
	Long Term Comp Plan	\$50,000						
	Pavement Rehabilitation - Taxiway A Mill/Overlay		\$400,000					
	South Building Area Development				\$2,700,000			
	Runway 12-30 Extension						\$8,000,000	
	Existing Runway 12-30 Reconstruction						\$3,500,000	
	South Building Area Alleyway & Utilities Development					\$2,000,000		
	South Building Area Alleyway Development		\$1,200,000					
	Materials Storage Building				\$600,000			
	Subtotal Airlake	\$50,000	\$1,600,000	\$0	\$3,300,000	\$2,000,000	\$11,500,000	\$0
84 - Flying Cloud								
	Long Term Comp Plan	\$50,000						
	Pavement Rehabilitation							
	Taxiway A - Phase 1	\$800,000						
	Taxiway A - Phase 2		\$1,000,000					
	Taxiway D				\$600,000			
	Taxiway E					\$600,000		
	Alleyways - SE Building Area			\$500,000				
	Runway 10L-28R Reclaim/Overlay							\$1,500,000
	South Building Area Development					\$600,000		
	Roof Repairs / Replacement				\$100,000			
	Equipment Storage Building						\$2,500,000	
	Runway 18-36 Extension				\$1,500,000			
	Electrical Vault Modifications					\$500,000		
	Runway 10R-28L Grooving							
	Subtotal Flying Cloud	\$850,000	\$1,000,000	\$500,000	\$2,200,000	\$1,700,000	\$2,500,000	\$1,500,000
85 - Crystal								
	Long Term Comp Plan	\$50,000						
	Obstruction Removals		\$300,000					
	Pavement Rehabilitation							
	Alleyways				\$550,000		\$550,000	
	Taxiways					\$700,000		
	Runway 14R-32L & Taxiway E Modifications		\$500,000	\$1,000,000				
	Roof Repairs / Replacement	\$250,000						
	Materials Storage Building			\$600,000				
	Hangar Demolition - HFI		\$150,000					
	Subtotal Crystal	\$300,000	\$950,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000

		PRELIMINARY DRAFT						
Projects		2015	2016	2017	2018	2019	2020	2021
86 - Anoka County - Blaine								
	Long Term Comp Plan	\$50,000						
	Building Area Development - Xylite St. Relocation				\$1,000,000			
	Materials Storage Building			\$600,000				
	Roof Repairs / Replacement		\$250,000					
	Maintenance Building Improvements		\$200,000					
	Airfield Signage/Electrical Improvements	\$500,000						
	Pavement Reconstruction							
	Taxiway Foxtrot				\$600,000			
	Taxiway A1			\$500,000				
	Alleyways - North-Central Building Area					\$750,000		
	Alleyways - South-Central Building Area						\$750,000	
	Alleyways - West Building Area							\$750,000
	South Service Road & East Landside Road - Pavement Reconstruction							\$1,000,000
	Runways 09-27 and 18-36 Joint and Crack Repairs			\$200,000				
	Obstruction Removal					\$100,000		
	Air Traffic Control Tower Equipment Upgrades	\$200,000					\$100,000	
	Subtotal Anoka County - Blaine	\$750,000	\$450,000	\$1,300,000	\$1,600,000	\$850,000	\$850,000	\$1,750,000
	Subtotal Reliever Airports	\$5,050,000	\$7,650,000	\$14,400,000	\$10,650,000	\$15,950,000	\$15,450,000	\$8,550,000
	Total 2015-2021 CIP	\$140,975,000	\$279,950,000	\$462,260,000	\$325,490,000	\$181,040,000	\$120,965,000	\$172,385,000
2015-2017 100% Reimbursable Projects								
	IVISN Improvements	\$3,000,000	\$4,000,000					
	Subtotal 2014-2017 100% Reimbursable Projects	\$3,000,000	\$4,000,000	\$0				
2015-2017 Unfunded Projects								
	Gates 14 - 16 Design Fees		\$5,000,000 *					
	Subtotal 2015-2017 Unfunded Projects	\$0	\$5,000,000	\$0				
2015-2021 CIP Reductions								
		\$3,000,000	\$9,000,000	\$0	\$0	\$0	\$0	\$0
	Net 2015 - 2021 CIP	\$137,975,000	\$270,950,000	\$462,260,000	\$325,490,000	\$181,040,000	\$120,965,000	\$172,385,000
	Total Net 2015-2017 CIP	\$871,185,000						

2015 Capital Improvement Program Narratives

Minneapolis-St. Paul International Airport

10 –Terminal 1- Lindbergh **Safety/Security Projects**

Telecommunications Room Equipment Continuity and Security **\$1,500,000**

The MAC network (MACNet) carries credit card data from the Landside Parking Revenue Control System. The credit card industry has created security standards which merchants, like the MAC, are required to meet to protect card holder data. Among these requirements are security standards for the physical locations where MACNet equipment is located. Additionally the network equipment itself must have added security features to prevent unauthorized network access. This program will address these standards by providing security equipment and relevant network hardware for the 150 telecommunications rooms on the MAC campus. This program is being coordinated with the iViSN and Fiber Optic Cable Infrastructure Upgrade/Expansion programs to avoid duplication of effort and cost. This is a multi-year program.

Facilities Rehabilitation

Electrical Infrastructure Rehabilitation Program **\$1,500,000**

There are 53 electrical substations that serve the Terminal 1-Lindbergh complex. It is imperative that these substations be inspected, cleaned, and upgraded in order to ensure their continued performance. This is a continuation of a multi-year program that began in 2009.

Terminal Miscellaneous Modifications **\$2,400,000**

Each year, there is a list of maintenance projects that are beyond the capability of MAC's maintenance and trades staff to accomplish. These projects are prioritized and completed either as a series of contracts or as purchase orders. Typical work includes door replacements, emergency upgrades to mechanical or HVAC systems, loading dock work, etc. The list of potential projects will be compiled and prioritized in early 2015.

Emergency Power Upgrades **\$1,500,000**

A study and survey of Terminal 1-Lindbergh transfer switches and emergency lighting were completed in 2008. This year's project is part of a multi-year program that will continue the design and implementation of emergency power and lighting corrective work identified in this study.

Restroom Upgrade Program **\$8,500,000**

A study of all restrooms in Terminal 1-Lindbergh was completed in 2010 and a program developed to upgrade/modernize the restrooms at Terminal 1-Lindbergh. From this study, each restroom was prioritized based on its condition. This program will provide for the phased modernization of the T1-Lindbergh restrooms to include upgraded finishes, lighting, air quality, energy saving upgrades, and ADA compliance. This year's focus includes restrooms on Concourse C as well as other work within the terminal.

Air Handling Unit Replacement **\$1,500,000**

There are existing air handling units serving Terminal 1-Lindbergh that were installed with the original terminal construction in 1958-60 and are over 50 years old. A study of these units has been completed that evaluated each unit's age, condition, and its ability to adequately heat or cool the spaces it serves. A multi-year program has been implemented to provide for the replacement of the units that have been identified as needing replacement. The project costs include modifications to building walls to facilitate the removal of existing equipment and installation of the new units, upgraded electrical and temperature controls, and asbestos abatement.

Conveyance System Upgrades **\$2,900,000**

A study of the MSP campus conveyance systems including elevators, escalators, moving walks, dumbwaiters, and material lifts was completed by the Facilities Department's conveyance consultant. The study evaluated the useful life of each system including the availability of replacement parts and technical support of the equipment. Many of the systems are being operated by outdated technology

that is generally less efficient than modern control equipment. Some of the systems do not include safety devices or features that are commonly installed on modern equipment. This multi-year program modernizes and replaces elements of the conveyance systems and installs new conveyance systems if needed.

Passenger Boarding Bridge Replacements

\$4,500,000

Many of the passenger boarding bridges at Terminal 1-Lindbergh are at the end of their useful life. The current understanding between MAC and the T1 Airlines is to replace/refurbish the bridges over time starting with the ones in the worst condition. The new/refurbished passenger bridges will become the property of MAC. This project is part of a multi-phased program to replace/refurbish the bridges over time as funding allows.

Plumbing Infrastructure Upgrade Program

\$500,000

In 2010, MAC staff prepared a preliminary study of the reliability and maintainability of the existing plumbing infrastructure. Portions of the existing plumbing infrastructure serving Terminal 1-Lindbergh are over 40 years old, have systems that are undersized for today's demands, contain isolation valves that are either inaccessible or no longer functional, and utilize aging water meter systems. There are also deteriorated sections of the existing sanitary and storm water systems. This ongoing program was implemented in 2012 to upgrade the plumbing infrastructure system to meet current code requirements and MAC standards. The focus of the 2015 project is to continue the replacement of aging plumbing systems.

Lighting Infrastructure Technology and Equipment (LITE)

\$1,600,000

This is a multi-year program that addresses lighting system upgrades for the MSP campus. Light fixtures age and degrade due to time, heat, or exterior elements. Lighting technologies also change and upgrades will provide for more energy efficient lighting systems. Annual investment in lighting infrastructure is necessary to ensure its safe operation, reduce energy and maintenance costs, and implement technology upgrades that improve lighting quality.

T1 Tram Systems Upgrades and Retrofit

\$1,450,000

The MAC Hub and Concourse Tram systems were originally placed into public service in 2001 and 2004, respectively. As part of the installation, the automatic train control system utilized multiple components provided by GE Intelligent Platforms. In late 2011, GE indicated they would discontinue support of selected components prior to the year 2020. This project will replace and upgrade the GE components to Tram Control Systems on both the Hub and Concourse Trams.

MAC Public Address System

\$1,300,000

The MAC Public Address System (MACpas) project involves a multi-year update to eliminate discontinued components and replace them to maintain the operation and reliability of the system. The current public address system was installed in 1999, provides travelers with over 12,000 messages daily and has exceeded its expected life cycle.

MSP Employee Break Rooms

\$200,000

This project will provide for a MSP employee break room that will have a quiet area for employees who work multiple shifts on the campus and a separate area for employees to eat, read, etc. By providing this quality work support area, front line and other employees will be able to rest and eat out of view of the public.

Terminal Building Remediation Program

\$1,500,000

Continual maintenance of the terminal buildings is imperative to passenger comfort and safety as well as sustainability of the MAC asset. Age and weather contribute to building deterioration, mold and other health issues. Building envelope issues include: curtain wall systems, glazing, sealant repair/replacement, louver repair/replacement, metal panel repair/replacement, and soffit repair/replacement and insulation systems. In addition to the age of MAC's buildings, recent weather events including high winds, rain deluges, and the extreme heat and cold seasons have contributed to the need for this as an on-going program.

Passenger Amenities

Art Display Areas

\$250,000

This program is a continuation of the existing program, in partnership with the MSP Foundation, to provide opportunities and space build out for the display of permanent and temporary/rotating art exhibits. This year's project will provide doors, work surface, temporary stage, and other work at the short film space on the C Concourse and self-contained musical performance audio boxes for the main mall.

Concessions Upgrades/Revenue Development

\$200,000

This is an annual program to fund miscellaneous upgrades such as finishes, furniture, signage, and/or modified connections to utilities for the concession programs or other revenue generating programs at the airport.

Concessions Rebids

\$2,000,000

This four-year program, beginning in 2015, will provide support for lease required infrastructure to be brought to lease-lines, shell-space for new build-outs, and for other major changes required to implement the next phase of concessions at Terminal 1-Lindbergh.

Terminal Seating Improvements

\$800,000

This program is a continuation of the 2013 seating replacement in T1-Lindbergh. The next two year's projects will compete the change out of public seating to the new standards selected in 2013, including power, at locations such as Concourse C, ticket lobby, baggage claim, east mezzanine, vertical circulation towers, tram level, GTC atrium, GTC ground level, rental car locations, and common use gate hold areas. The improved seating standard will continue to replace Terminal 1-Lindbergh bucket seating and old as well as relocated Terminal 2-Humphrey seating throughout these areas.

EVIDSs/MUFIDs Digital Signs

\$400,000

This project will include new and replacement digital toppers, digital food courts signs, digital directories and brochure holders.

Operational Improvements

Intelligent Monitoring and Control Systems (IMACS)

\$1,500,000

This is a continuation of a multi-year program to upgrade all MAC building automation systems to an open architecture protocol so that MAC can bid maintenance and construction contracts more competitively. This project will replace sole-source controllers such as Siemens and Legacy Honeywell with controllers from Honeywell, Circon, Distech, and TAC systems that are LonMark certified products. (This project was formerly known as OABA, which is a component of IMACS.)

Fiber Optic Cable Infrastructure Upgrade/Expansion

\$1,700,000

This project provides for the upgrade/installation of air blown fiber optic cable at various airport locations and installation of manhole/duct bank with tube and fiber optic cable. The project also includes fiber modifications, repairs and upgrades as necessary to maintain and improve the fiber infrastructure at MSP. This multi-year program provides for the expansion of cabling infrastructure including replacing materials that don't meet current MAC standards and adding capacity between locations where existing capacity has been consumed.

Wireless Network Control System

\$600,000

This program provides campus-wide wireless network to be implemented in phases. This system will allow remote wireless access to the MAC Facilities Intelligent Monitoring and Control System (IMACS). The system will also allow access to data and drawings from the MAC network as well as from remote vehicles on the airfield.

MACNet Upgrade – Connectivity Elements

\$2,500,000

The MACNet provides the critical and required infrastructure to support all of the current and future MAC voice, data, and video systems. This includes systems supporting mission-critical applications and systems that are used by airside and landside operations, public safety, airport planning and development, environment and noise, finance and accounting, human resources, and overall MAC administration. This system has been modified over time to support the current systems in place as well as new systems, business, and operational requirements as they have been identified. The current version of MACNet, however, has reached its operational capacity and is not capable of

supporting future growth. The upgraded MACNet will be implemented over a number of years to provide the necessary infrastructure to support all next generation systems and applications to be implemented in upcoming years.

Concourse G Improvements

Concourse G Roof Replacement **\$8,400,000**

Approximately 113,500 SF of roofing including the area over the Mill-City Concessions has been re-roofed at Concourse G per roof studies prepared over the course of several years. This project would finish the re-roofing of 113,000 SF including the FIS roof, over-flow roof drains, fall protection, addition of ladders, etc. to provide an OSHA and Building Code compliant, energy efficient system.

Clerestory Replacement **\$3,400,000**

The Concourse G pod areas are raised above the general ceiling with clerestory windows. These windows and curtain wall system are leaking due to age. To complete the Concourse G building envelope securement, the entire clerestory curtain wall system needs to be replaced.

Concourse G Fire Protection – Phase 4 **\$700,000**

This project provides visual notification in multiple locations as required by the fire code and by MAAC standards, and repairs building air infiltration and exfiltration which has caused heating loss throughout the concourse.

T1-Lindbergh Expansion/Remodeling

Long Term Comprehensive Plan **\$500,000**

The MSP 2030 Long Term Comprehensive Plan (LTCP), previously completed in April 2010, is scheduled to be updated in 2015. While some efforts have already started with checkpoint modeling and parking analyses, the work in 2015 will continue the forecasting efforts and include preparation of the LTCP document for public review and Commission approval.

T1 Checkpoint Consolidation (CP1) **\$18,000,000**

This project consolidates existing Checkpoints 1, 2, 3 and 4 into one ten-lane checkpoint in the north lobby to improve lobby utilization, facility efficiencies, TSA staffing efficiencies, and guest way-finding. The project will also reduce lobby congestion by providing adequate queue space for the checkpoint. During construction, Checkpoint 5 may be temporarily reopened to ease the impact of the Checkpoint 1 closure. This project requires closure of the existing concession in the ticket lobby (Hot Dish), so costs for lease extinguishment are included in this project.

13 – Energy Management Center

Alternative Energy Projects **\$900,000**

As part of an ongoing program, this project will evaluate potential alternative energy projects including solar power, wind power, geothermal technology for heating and cooling of new buildings, and other alternative energy approaches for the MAC.

Modular Cooling Tower Installation **\$3,000,000**

This project includes installation of one additional cooling tower to provide redundancy and emergency back up for the Terminal 1-Lindbergh cooling system. While improvements over the years have made the EMC much more efficient than ever before, the plant is still short on cooling tower capacity. During 90 - 95 degree days, the system currently runs at 100% of its capacity.

21 - Field and Runway

Pavement Joint Sealing/Repair **\$650,000**

This is an ongoing program to provide for the resealing of joints, sealing of cracks, and limited surface repairs on existing concrete pavements. The areas scheduled for sealing will be as defined in the overall joint sealing program or as identified by staff inspection in the early spring of each year.

Pavement Rehabilitation – Aprons **\$10,200,000**

This project provides for reconstruction of approximately 22,000 square yards of concrete apron located along Concourse C between Gates C4 and C9. Work will include removals, storm sewer installation, concrete pavement, pavement marking and replacement of existing fuel utilities.

Miscellaneous Airfield Construction**\$800,000**

This is an ongoing program to consolidate various incidental repairs beyond the workload capabilities of the Field Maintenance personnel, or to handle airside problems requiring repair which come up unexpectedly.

26 - Terminal Roads/Landside**Tunnel/Bridge Rehabilitation****\$100,000**

The MSP Campus has MAC-owned bridges and tunnels. Bridge and tunnel inspections are conducted each year to identify maintenance and repairs which are then implemented in a timely fashion.

Variable Message Signs Replacement**\$2,100,000**

This project replaces variable message signs on the inbound roadways, parking ramps and valet at Terminal 1-Lindbergh and Terminal 2-Humphrey which are at end of life with signs compatible with new MACnet systems.

31 – Parking**T1/T2 Parking Structure Rehabilitation****\$2,500,000**

This is an annual program to maintain the integrity of the airport's multi-level parking structures. Projects typically include concrete repair, joint sealant replacement, expansion joint repairs, concrete sealing and lighting improvements.

Parking Ramp Railing Refinishing Project**\$1,000,000**

This multi-year project will address the parking ramp metal railings that have weathered and degraded over time. The paint has chipped and peeled away, which caused the exposed metal rail to rust and corrode. If not repaired, the degraded metal railings could become at risk for detachment. The rust has stained the concrete walls and concrete slabs creating an unsightly appearance for airport customers and resulting in concrete repair work in the surrounding areas.

**36 – Terminal 2 - Humphrey
Operational Improvements****T2 APC Kiosks****\$800,000**

This project includes installation of ten automated passport control (APC) kiosks that will provide expedited passenger processing for US and Canadian citizens, Visa Waiver, including legal residents, and green-card holders and students, similar to the Terminal 1-Lindbergh APC installation. The processing will not reduce Customs and Border Protection staffing requirements, but will reduce wait times in the primary processing area.

Terminal 2-Humphrey North Expansion**Gates 11 – 13b****\$35,000,000**

This project will provide three new gates with associated gate lobbies, and four new passenger boarding bridges for current and future fleet mixes, with ground boarding accommodation at the northern most gate, providing maximum short and long-term flexibility. The build-out will include: public walkways, gate lobby space, restrooms, vending, publicly accessible power, video display installations (EVIDs/MUFIDs), and way-finding signage revisions on the north end of the terminal.

39 – Public Areas/Roads**Landside Pavement Rehabilitation****\$400,000**

This is an ongoing program to construct or reconstruct bituminous pavements outside of the Air Operations Area (AOA). Inspection of pavements and appurtenances determines what areas are to be prioritized for rehabilitation under each year's project.

Roadway Fixture Refurbishment**\$125,000**

Many of the light poles, clearance restriction bards, sign units, fence sections, and canopies on the airport roadways are in need of repainting and maintenance. This project provides for refurbishment of these fixtures utilizing seasonal staff as available when bid.

Aircraft Viewing Area**\$200,000**

This project will create a parking area for the public to view and watch aircraft at MSP. The project includes the construction of a parking lot, outdoor seating or bleachers, landscaping, signage, a satellite restroom, and cameras.

46 – Hangars and other Buildings**Roof Replacements****\$1,000,000**

A report has been developed within the MAC that evaluates one-half of the roofs every other year. This on-going program allows these roofs that have been evaluated to be prioritized and programmed for repair. Emergency repairs may also be needed on some roofs; this program will provide dollars for such instances.

63 – Police**iViSN Improvements****\$3,000,000**

This project is the continuation of the program to systematically replace and integrate the approximately 1800 existing cameras into the new iViSN system and to expand the camera coverage with the terminals. A grant application has been approved by the TSA for 100% of the project costs.

APD Operational Improvements**\$500,000**

The Airport Police Department has a number of operational improvement projects that are needed to facilitate more efficient work within the department and accommodate growth in their operations. These projects include Badging Office remodeling, additional storage and office reconfigurations, Inventory Center relocation, T2 Patrol Operations Center, and remote evidence room improvements.

66 – Fire**MSP Campus Fire Alarm System Upgrade****\$850,000**

In an effort to improve monitoring reliability and eliminate the existing single point of failure configuration, this two-year project will include database redundant systems, device controller upgrades and the decentralization of the fire alarm master control equipment.

70 – General Office/Administration**G.O. Security Enhancements****\$500,000**

As a follow on project to the new lobby security upgrades, this project will provide for cameras at other G.O. building entries.

G.O. Building Improvements**\$500,000**

Continual maintenance of MAC buildings is necessary for comfort and safety as well as sustainability of the MAC asset. Age and weather contribute to building deterioration, mold and other health issues. The General Office Building, designed in the 1960's, has had a number of remodels and recently has experienced a number of window and building issues that need to be corrected, including window sealing and replacements, curtain wall sealing and roof repairs.

76 – Environment**Ground Service Equipment (GSE) Electrical Charging Stations****\$1,000,000**

This project will purchase and install charging stations for electric ground support equipment (GSE). These fast, energy-efficient charging stations allow for simultaneous charging, adjustable charging rates, and automatic shut-off when the GSE are fully charged. The charging stations are to be installed at Terminal 1-Lindbergh for use by Delta GSE. This project fits into the proposed long-term goal of converting all Delta GSE to electric power thereby reducing overall air emissions and noise pollution at MSP from fossil fuel-burning GSE. Delta will pay for electric usage of the charging units.

81 - St. Paul**Long Term Comprehensive Plan****\$50,000**

The long term comprehensive plan (LTCP) for the St. Paul Downtown Airport, previously adopted in 2010, is scheduled to be updated in 2015. Work will include updating the aircraft operations and based aircraft forecasts and preparing a document for public review and Commission approval.

Pavement Rehabilitation (Runway 14-32)**\$1,500,000**

This is an ongoing program to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, seal coats, or, in some instances, reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. This year's project includes rehabilitation of a portion of the Runway 14-32 pavement through the installation of a bituminous overlay. The runway lighting system will also be upgraded and repaired as required.

82 – Lake Elmo**Long Term Comprehensive Plan****\$50,000**

The long term comprehensive plan (LTCP) for the Lake Elmo Airport, previously adopted in 2008, is scheduled to be updated in 2015. Work will include reviewing potential airfield development alternatives, developing estimated costs and analyzing benefits, and preparing a document for public review and Commission approval.

Parallel Taxiways Reconstruction**\$600,000**

This project is part of an ongoing effort to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, seal coats, or, in some instances reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. The Lake Elmo Airport suffers from poor subgrade materials, which contribute to the overall deterioration of pavements. This project includes the full-depth reconstruction of the oldest portions of Taxiway Bravo parallel to Runway 04-22.

Alleyway Rehabilitation (Alleyways North Building Area)**\$900,000**

This is an ongoing effort to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, seal coats, or, in some instances, reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. This project includes rehabilitation of alleyways in the North Building Area.

83 – Airlake**Long Term Comprehensive Plan****\$50,000**

The long term comprehensive plan (LTCP) for the Airlake Airport, previously adopted in 2008, is scheduled to be updated in 2015. Work will include reviewing potential airfield development alternatives, developing estimated costs and analyzing benefits, and preparing a document for public review and Commission approval.

84 – Flying Cloud**Long Term Comprehensive Plan****\$50,000**

The long term comprehensive plan (LTCP) for the Flying Cloud Airport, previously adopted in 2010, is scheduled to be updated in 2015. Work will include updating the aircraft operations and based aircraft forecasts and preparing a document for public review and Commission approval.

Pavement Rehabilitation (Taxiway A – Phase 1)**\$800,000**

This is an ongoing program to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, seal coats, or in some instances, reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. This project includes the full-depth reconstruction of the portion of Taxiway Alpha which lies east of Runway 18-36, and will include taxiway lighting systems installation.

85 – Crystal**Long Term Comprehensive Plan****\$50,000**

The long term comprehensive plan (LTCP) for the Crystal Airport, previously adopted in 2008, is scheduled to be updated in 2015. Work will include updating the aircraft operations and based aircraft forecasts, and preparing a document for public review and Commission approval.

Roof Repairs/Replacement**\$250,000**

This project provides for a response to deficiencies in some of the roof structures on MAC buildings. This project accounts for identification of the exact type of roof deficiencies as well as completion of the most cost-effective repairs or replacements.

86 – Anoka County – Blaine

Long Term Comprehensive Plan

\$50,000

The long term comprehensive plan (LTCP) for the Anoka County - Blaine Airport, previously adopted in 2010, is scheduled to be updated in 2015. Work will include updating the aircraft operations and based aircraft forecasts and preparing a document for public review and Commission approval.

Airfield signage/Electrical Improvements

\$500,000

The existing airfield electrical system requires improvements and upgrades to increase reliability, replace old infrastructure, and add taxiway edge lighting to a portion of Taxiway Charlie. The project will address aging airfield signs, circuitry, and regulators with the primary focus being the airfield guidance sign systems.

Air Traffic Control Tower Equipment Upgrades

\$200,000

The Anoka County-Blaine control tower is owned by MAC. The equipment used by the air traffic controllers has been in service for over 15 years and needs to be replaced and/or updated to ensure continued reliability.

2016 Capital Improvement Program Narratives Minneapolis-St. Paul International Airport

10 –Terminal 1- Lindbergh Safety/Security Projects

Telecommunications Room Equipment Continuity and Security \$1,500,000

The MAC network (MACNet) carries credit card data from the Landside Parking Revenue Control System. The credit card industry has created security standards which merchants, like the MAC, are required to meet to protect card holder data. Among these requirements are security standards for the physical locations where MACNet equipment is located. Additionally the network equipment itself must have added security features to prevent unauthorized network access. This program will address these standards by providing security equipment and relevant network hardware for the 150 telecommunications rooms on the MAC campus. This program is being coordinated with the iViSN and Fiber Optic Cable Infrastructure Upgrade/Expansion programs to avoid duplication of effort and cost. This is a multi-year program.

Facilities Rehabilitation

Electrical Infrastructure Rehabilitation Program \$1,500,000

There are 53 electrical substations that serve the Terminal 1-Lindbergh complex. It is imperative that these substations be inspected, cleaned, and upgraded in order to ensure their continued performance. This is a continuation of a multi-year program that began in 2009.

Terminal Miscellaneous Modifications \$2,400,000

Each year, there is a list of maintenance projects that are beyond the capability of MAC's maintenance and trades staff to accomplish. These projects are prioritized and completed either as a series of contracts or as purchase orders. Typical work includes door replacements, emergency upgrades to mechanical or HVAC systems, loading dock work, etc. The list of potential projects will be compiled and prioritized in early 2015.

Emergency Power Upgrades \$1,500,000

A study and survey of Terminal 1-Lindbergh transfer switches and emergency lighting were completed in 2008. This year's project is part of a multi-year program that will continue the design and implementation of emergency power and lighting corrective work identified in this study.

Lower Level Roadway/GTC Water Infiltration Mitigation \$1,000,000

Water infiltration through the structural concrete slab above the Ground Transportation Center and lower level of Terminal 1-Lindbergh has required the use of buckets and other containers to collect the water. Long-term water infiltration of structural members will result in deterioration of the structural concrete and will shorten the life of the structure. This project will continue the efforts to determine the causes of the infiltration and complete repairs.

Restroom Upgrade Program \$4,500,000

A study of all restrooms in Terminal 1-Lindbergh was completed in 2010 and a program developed to upgrade/modernize the restrooms at Terminal 1-Lindbergh. From this study, each restroom was prioritized based on its condition. This program will provide for the phased modernization of the T1-Lindbergh restrooms to include upgraded finishes, lighting, air quality, energy saving upgrades, and ADA compliance. This year's project will construct a new restroom in the south end of the main mall area.

Air Handling Unit Replacement \$1,500,000

There are existing air handling units serving Terminal 1-Lindbergh that were installed with the original terminal construction in 1958-60 and are over 50 years old. A study of these units has been completed that evaluated each unit's age, condition, and its ability to adequately heat or cool the spaces it serves. A multi-year program has been implemented to provide for the replacement of the units that have been identified as needing replacement. The project costs include modifications to building walls to facilitate the removal of existing equipment and installation of the new units, upgraded electrical and temperature controls, and asbestos abatement.

Food Court Service Elevator Replacement **\$2,000,000**

This project replaces and upgrades the two side-by-side service elevators located in the central food court at Terminal 1-Lindbergh. These elevators are critical to keeping the vendors throughout the airport supplied and are nearing the end of their standard service life. The elevators will be removed in their entirety including cabs, hoist systems, and associated equipment and replaced with all new equipment and cabs that are designed to freight standards.

Plumbing Infrastructure Upgrade Program **\$500,000**

In 2010, MAC staff prepared a preliminary study of the reliability and maintainability of the existing plumbing infrastructure. Portions of the existing plumbing infrastructure serving Terminal 1-Lindbergh are over 40 years old, have systems that are undersized for today's demands, contain isolation valves that are either inaccessible or no longer functional, and utilize aging water meter systems. There are also deteriorated sections of the existing sanitary and storm water systems. This ongoing program was implemented in 2012 to upgrade the plumbing infrastructure system to meet current code requirements and MAC standards. The focus of the 2016 project is to continue the replacement of aging plumbing systems.

Lighting Infrastructure Technology and Equipment (LITE) **\$1,500,000**

This is a multi-year program that addresses lighting system upgrades for the MSP campus. Light fixtures age and degrade due to time, heat, or exterior elements. Lighting technologies also change and upgrades will provide for more energy efficient lighting systems. Annual investment in lighting infrastructure is necessary to ensure its safe operation, reduce energy and maintenance costs, and implement technology upgrades that improve lighting quality.

T1 Tram Systems Upgrades and Retrofit **\$2,000,000**

The MAC Hub and Concourse Tram systems were originally placed into public service in 2001 and 2004, respectively. As part of the installation, the automatic train control system utilized multiple components provided by GE Intelligent Platforms. In late 2011, GE indicated they would discontinue support of selected components prior to the year 2020. This project will replace and upgrade the GE components to Tram Control Systems on both the Hub and Concourse Trams.

MAC Public Address System **\$1,200,000**

The MAC Public Address System (MACpas) project involves a multi-year update to eliminate discontinued components and replace them to maintain the operation and reliability of the system. The current public address system was installed in 1999, provides travelers with over 12,000 messages daily and has exceeded its expected life cycle.

T1 Folded Plate Repairs **\$1,000,000**

This five-year program to rehabilitate the existing structure is the next step now that the previously constructed drainage improvements are complete. This year's project will apply the finish/film on the underside of the east and west cantilevers to provide a moisture barrier for the system, whilst allowing vapor to escape from the concrete system. Future projects will remove the existing roof layers, including asbestos material and wood structural pieces, and construct a new roof.

Telecom Relocation & Decommissioning **\$1,500,000**

This program involves vacating the current major MAC telecommunications area, constructing a new space and consolidating, relocating and/or replacing equipment (e.g. critical fiber and copper connections) as needed to the new, larger telecommunications room.

C-G Connector Improvements **\$4,500,000**

This project will correct two safety issues at Terminal 1-Lindbergh. In the past, high winds have caused the soffit panels to fall from the underside of the C-G Connector. The panels were temporarily secured and a study was undertaken to review the situation. The study revealed that the soffit panel system is in need of structural enhancements and, in some locations, full replacement. In addition, there is a high pressure steam pipe located 30 feet underground, which follows the line of this connector. The high pressure steam pipe is leaking and, in the confined space, has created a dangerous situation for MAC staff. As a part of the previously discussed study, a route was found through the C-G connector for the replacement of the high pressure steam pipe.

Terminal Building Remediation Program **\$1,500,000**

Continual maintenance of the terminal buildings is imperative to passenger comfort and safety as well as sustainability of the MAC asset. Age and weather contribute to building deterioration, mold and other health issues. Building envelope issues include: curtain wall systems, glazing, sealant repair/replacement, louver repair/replacement, metal panel repair/replacement, and soffit repair/replacement and insulation systems. In addition to the age of MAC's buildings, recent weather events including high winds, rain deluges, and the extreme heat and cold seasons have contributed to the need for this as an on-going program.

Passenger Amenities

Art Display Areas **\$250,000**

This program is a continuation of the existing program, in partnership with the MSP Foundation, to provide opportunities and space build out for the display of permanent and temporary/rotating art exhibits. This year's project will accomplish a portion of the remaining work identified in the 2008 Arts & Culture Committee's Master Plan: repair existing commissioned art, didactics for all existing commissioned artwork, permanent naming/monumentation at the Concourse C Art Gallery, and development of additional infrastructural support for the Arts & Culture program.

Concessions Upgrades/Revenue Development **\$200,000**

This is an annual program to fund miscellaneous upgrades such as finishes, furniture, signage, and/or modified connections to utilities for the concession programs or other revenue generating programs at the airport.

Concessions Rebids **\$2,000,000**

This four-year program, beginning in 2015, will provide support for lease required infrastructure to be brought to lease-lines, shell-space for new build-outs, and for other major changes required to implement the next phase of concessions at Terminal 1-Lindbergh.

Terminal Seating Improvements **\$800,000**

This program is a continuation of the 2013 seating replacement in T1-Lindbergh. The next three year's projects will compete the change out of public seating to the new standards selected in 2013, including power, at locations such as Concourse C, ticket lobby, baggage claim, east mezzanine, vertical circulation towers, tram level, GTC atrium, GTC ground level, rental car locations, and common use gate hold areas. The improved seating standard will continue to replace Terminal 1-Lindbergh bucket seating and old as well as relocated Terminal 2-Humphrey seating throughout these areas.

Ticket Counter Upgrades to ADA **\$800,000**

This project replaces the ground transportation center atrium counters. Ticket counters throughout the airport are being or have been upgraded to meet Minnesota's building code and the federal ADA standard. These are expected to be the last ticket counters required to be upgraded.

Commission Chambers Telecoil Installation **\$200,000**

This project will provide for equal access to amplified audio during Committee and Commission meetings, without identification/request for physical aids, for users of Telecoil-equipped hearing aids.

Concourse Service Center Upgrades **\$1,000,000**

This project will create new prototypical service centers, enhancing the Concourse C (adjacent Gate C3) installation, and looking at additional and innovative ways to provide business users and others work environments (not airline club environments) to accomplish work outside of crowded gate hold areas. Power, privacy, work surfaces, seating, and conversational arrangement varieties will provide for multi-generational work environments, enhancing the business traveler's experience.

Operational Improvements

Intelligent Monitoring and Control Systems (IMACS) **\$1,500,000**

This is a continuation of a multi-year program to upgrade all MAC building automation systems to an open architecture protocol so that MAC can bid maintenance and construction contracts more competitively. This project will replace sole-source controllers such as Siemens and Legacy Honeywell with controllers from Honeywell, Circon, Distech, and TAC systems that are LonMark certified products. (This project was formerly known as OABA, which is a component of IMACS.)

Fiber Optic Cable Infrastructure Upgrade/Expansion **\$1,700,000**

This project provides for the upgrade/installation of air blown fiber optic cable at various airport locations and installation of manhole/duct bank with tube and fiber optic cable. The project also includes fiber modifications, repairs and upgrades as necessary to maintain and improve the fiber infrastructure at MSP. This multi-year program provides for the expansion of cabling infrastructure including replacing materials that don't meet current MAC standards and adding capacity between locations where existing capacity has been consumed.

Wireless Network Control System **\$1,000,000**

This program provides campus-wide wireless network to be implemented in phases. This system will allow remote wireless access to the MAC Facilities Intelligent Monitoring and Control System (IMACS). The system will also allow access to data and drawings from the MAC network as well as from remote vehicles on the airfield.

MACNet Upgrade – Connectivity Elements **\$1,000,000**

The MACNet provides the critical and required infrastructure to support all of the current and future MAC voice, data, and video systems. This includes systems supporting mission-critical applications and systems that are used by airside and landside operations, public safety, airport planning and development, environment and noise, finance and accounting, human resources, and overall MAC administration. This system has been modified over time to support the current systems in place as well as new systems, business, and operational requirements as they have been identified. The current version of MACNet, however, has reached its operational capacity and is not capable of supporting future growth. The upgraded MACNet will be implemented over a number of years to provide the necessary infrastructure to support all next generation systems and applications to be implemented in upcoming years.

Concourse G Improvements

Exterior Panel/Sealant Replacement **\$1,000,000**

This will be the first project in a multi-year program to address the Concourse G exterior materials. The exterior wall system of porcelain or metal wall panels over studs and gypsum wall board will be replaced because to failure of sealants and panel color due to age. The curtain wall system was deemed in fairly good condition, with insulated glass, in 2010, but some of the gaskets are in need of replacement.

Concourse G Rehabilitation **\$2,000,000**

This multi-year program will provide operational improvements to the existing concourse over time, including expanding gate lobbies to meet seating standards, replacing elevators (that will be replaced with freight elevators), modifying structural systems, and making other changes that will be identified through master planning efforts beginning in 2016.

T1-Lindbergh Expansion/Remodeling

Baggage Claim Expansion **\$34,075,000**

This program will provide new baggage claim devices (carousels) to meet the level of service requirements for short- and medium-term growth of the O&D passengers, including walkways that meet required codes (mall code width), public seating areas, centralized meet and greet space, unclaimed baggage storage, baggage service offices, concessions (food & beverage and retail), improved lighting, fire protection throughout the space, structural enhancements, improved baggage information flags and sight lines, curbside lighting and access, and other operational improvements. This year's project addresses about half of the North end and center of the Baggage Claim level, in concert with North End Vertical Circulation and Ticket Lobby Operational Improvements projects.

Vertical Circulation Improvements **\$13,100,000**

This program will remove the existing scissors escalators (12 in total) and the original elevators and add new high-speed, smart elevators. It will also provide control enhancements for the existing central elevators to remain. Additional circulation will be provided with other operational improvement projects. This year's project will complete the work at the North end of the Ticket Lobby, while the South end is scheduled for 2018.

Ticket Lobby Operational Improvements**\$11,250,000**

This program addresses, with the Vertical Circulation Improvements Program, issues of congestion and functionality in the Terminal 1-Lindbergh Ticket Lobby. It will provide walkways that meet required codes (mall code width), ticket counter consolidations (due to abandoned checkpoints and checkpoint Consolidation), clear sight lines to the checkpoints and checkpoint wait time information, airline ticket offices, centralized meet and greet areas, improved vestibules and access, east mezzanine removal/reduction, structural enhancements, curtain wall replacement, and other operational improvements. This year's project will complete modifications north of the Lobby center.

Hotel Skyway or other Connections**\$9,500,000**

The development of the hotel at Terminal 1-Lindbergh will require connections to the terminal and potential site improvements for connections to the facility, differing based on where the hotel is developed. A skyway connection will allow the hotel to be connected to the terminal complex over existing roadway systems and expedite the travelers' journey to and from the terminal and hotel. A skyway at the east site will extend over the inbound and outbound roadway to the Concourse A/C rotunda's upper-most levels. A west site will require similar connections to the existing hub core building as well as site improvements for vehicular and pedestrian access. This project is included as a placeholder depending on how negotiations with a hotel development team progress.

13 – Energy Management Center**Energy Savings Projects****\$2,000,000**

This ongoing program provides for the implementation of projects that would save the MAC energy costs in its operating budget. Discussions with both Xcel and Centerpoint have identified additional projects that are eligible for energy saving rebates and will save the MAC additional energy costs. In order to qualify, projects must provide at least a ten-year pay back.

21 - Field and Runway**Airside Bituminous Rehabilitation/Electrical Construction****\$1,000,000**

This is an ongoing program to construct or reconstruct bituminous pavements within the Air Operations Area (AOA) and repair or replace airfield electrical circuitry, lighting and signage. Inspection of bituminous pavements, lighting, and electrical circuits determines what areas are to be prioritized for rehabilitation under each year's project.

Pavement Joint Sealing/Repair**\$650,000**

This is an ongoing program to provide for the resealing of joints, sealing of cracks, and limited surface repairs on existing concrete pavements. The areas scheduled for sealing will be as defined in the overall joint sealing program or as identified by staff inspection in the early spring of each year.

Perimeter Gate Security Improvements (Gates 222 & 269)**\$1,200,000**

Gate 222 is located near T2 Humphrey at the end of 34th Avenue. In 2007, a new type of security gate was installed to test the effectiveness of this system. The hardened security gate has not been reliable and creates a significant amount of effort from MAC Trades to keep it in working order. This project will install the standard security gate for entrance into the AOA. This gate services one of the primary access and highest-used points into and out of the airfield.

Gate 269 is located in the SW corner of MSP and needs some minor upgrades to the equipment and alignment of the keypad.

Runway 4-22 In-Pavement Guard Lights**\$500,000**

FAA has requested to have in-pavement guard lights installed in Runway 4-22 to warn aircraft and vehicles when they are approaching Runway 12R-30L. Runway 4-22 is frequently used to taxi aircraft for operational purposes. Aircraft taxiing on Runway 4-22 would need to stop at the intersection of Runway 12R-30L. These guard lights would provide another visual safety enhancement for aircraft to stop before entering the runway safety area. Guard lights are already provided at other entrances into the runway safety area.

4 & 22 Glide Slopes Restoration**\$1,500,000**

This project would install new glide slope systems at both ends of Runway 4-22. With glide slope equipment installed on the runway, pilots can execute precision approaches, which reduces the size of the approach surfaces. This approach surface currently has the potential to impact the ability to develop properties outside of the MSP campus.

26 - Terminal Roads/Landside

Tunnel/Bridge Rehabilitation

\$100,000

The MSP Campus has MAC owned bridges and tunnels. Bridge and tunnel inspections are conducted each year to identify maintenance and repairs which are then implemented in a timely fashion.

31 – Parking

T1/T2 Parking Structure Rehabilitation

\$2,500,000

This is an annual program to maintain the integrity of the airport's multi-level parking structures. Projects typically include concrete repair, joint sealant replacement, expansion joint repairs, concrete sealing and lighting improvements.

Parking Ramp Railing Refinishing Project

\$1,000,000

This multi-year project will address the parking ramp metal railings that have weathered and degraded over time. The paint has chipped and peeled away, which caused the exposed metal rail to rust and corrode. If not repaired, the degraded metal railings could become at risk for detachment. The rust has stained the concrete walls and concrete slabs creating an unsightly appearance for airport customers and resulting in concrete repair work in the surrounding areas.

T1 Parking Ramp Roadway Modifications

\$17,000,000

This project will include work to relocate a portion of the T1 outbound roadway to accommodate parking expansion at T1. The roadway modifications will begin near the C-G connector bridge and are envisioned to end on the east side of the Post Office processing facility. The work in this project includes demolition of the existing roadway and related above grade features, and the construction of the new roadway, lighting, and landscaping.

T1 Parking Ramp Site Preparation and Utilities

\$114,000,000

This project will prepare the site for a new parking ramp, focusing on major utilities that will need to be relocated before foundations for a parking ramp can be constructed. Included in this project is the relocation of two major trunk storm sewers, fuel tanks for the Terminal 1-Lindbergh RAC facility, trunk sanitary sewer, water main, gas main, and primary electrical and communication ductbank feeders.

36 – Terminal 2 - Humphrey

Operational Improvements

T2 Lobby Restrooms

\$1,500,000

This project will add restrooms in accordance with MAC's design standards on the first floor of Terminal 2-Humphrey, near Door 1. This will provide appropriate facilities at this end of the terminal and support future build-out of this area.

FIS Baggage Claim Improvements

\$1,000,000

This project will include the construction of a drop-down divider wall to segregate the FIS operations from domestic operations in the bag claim area. This will improve flexibility, efficiencies and operations within the bag claim space without increasing the building size.

Terminal 2-Humphrey North Expansion

Gates 14 – 16 Design Fees

\$8,000,000*

This project will finalize scope and provide design through construction documents for the future expansion of the North end of Terminal 2-Humphrey.

(*currently unfunded)

39 – Public Areas/Roads

Landside Pavement Rehabilitation

\$400,000

This is an ongoing program to construct or reconstruct bituminous pavements outside of the Air Operations Area (AOA). Inspection of pavements and appurtenances determines what areas are to be prioritized for rehabilitation under each year's project.

Roadway Fixture Refurbishment**\$125,000**

Many of the light poles, clearance restriction bards, sign units, fence sections, and canopies on the airport roadways are in need of repainting and maintenance. This project provides for refurbishment of these fixtures utilizing seasonal staff as available when bid.

46 – Hangars and other Buildings**Roof Replacements****\$1,000,000**

A report has been developed within the MAC that evaluates one-half of the roofs every other year. This on-going program allows these roofs that have been evaluated to be prioritized and programmed for repair. Emergency repairs may also be needed on some roofs; this program will provide dollars for such instances.

Drivers Training Facility Rehabilitation**\$550,000**

Building H is a one story concrete block structure that was built in 1985. The MAC Drivers Training Center (DTC) is located in this building. This facility is currently planned to remain in Building H for the foreseeable future, and the building requires upgrades to improve the current level of customer service and security. This project will add card access security to exterior doors as well as add a security system to exterior windows and doors. The driver's administration/check-in/licensing area would be remodeled including repair of roof top equipment, replacement of exterior doors and windows, enlargement of classroom and offices within existing warehouse space, remodel of existing restrooms to be code compliant and ADA accessible, and construct a new computer room.

Landside Parking Lot Reconstructions**\$650,000**

This ongoing program will replace, rehabilitate, and/or reconstruct bituminous and concrete parking lots that belong to MAC. There are over 85.3 acres of parking lots on the MSP campus that need to be replaced or reconstructed over the next several years. This program will systematically make improvements to the parking lots on the campus.

Campus Building Rehabilitation Program**\$2,000,000**

Continual maintenance of MAC non-terminal buildings is imperative in providing a stable infrastructure and meeting the MAC's sustainability goals. Age and weather contribute to building deterioration, mold and other health issues. Building envelope issues include curtain wall systems, glazing, sealant repair/replacement, louver repair/replacement, metal panel replacement and/or painting/tuck-pointing, structural repair and insulation systems. Recent weather events including high winds, rain deluges, and the extreme heat and cold seasons have contributed to the need for this on-going program. This project would also include repair/replacement related to interior issues. This will be the first year of an annual program to maintain MAC buildings as assets

56 – Trades/Maintenance Buildings**Trades Building Pneumatic Controls Retrofit****\$400,000**

This project upgrades the outdated pneumatic temperature controls at the Trades Building to the MAC's Open Architecture Building Automation (OABA) system. In the process, it integrates the existing OABA controls at Trades (including the domestic water meters, the solar heating system and the new cooling equipment) with this new building-wide OABA system. This project will improve the Trades Building's performance as the MAC's Energy Conservation Development Center, integrate the building with the rest of IMACS for better performance and reliability, and reduce the building's energy consumption to achieve a simple payback in less than 10 years.

63 – Police**iViSN Improvements****\$4,000,000**

This project is the continuation of the program to systematically replace and integrate the approximately 1800 existing cameras into the new iViSN system and to expand the camera coverage with the terminals. A grant application has been approved by the TSA for 100% of the project costs.

66 – Fire**MSP Campus Fire Alarm System Upgrade****\$850,000**

In an effort to improve monitoring reliability and eliminate the existing single point of failure configuration, this two-year project will include database redundant systems, device controller upgrades and the decentralization of the fire alarm master control equipment.

70 – General Office/Administration

G.O. Building Improvements \$500,000

Continual maintenance of MAC buildings is necessary for comfort and safety as well as sustainability of the MAC asset. Age and weather contribute to building deterioration, mold and other health issues. The General Office Building, designed in the 1960's, has had a number of remodels and recently has experienced a number of window and building issues that need to be corrected, including window sealing and replacements, curtain wall sealing and roof repairs.

76 – Environment

Mother Lake Stormwater Diversion \$850,000

This project provides for construction of a lift station and forcemain near the west end of Runway 12R-30L to capture stormwater which currently flows to Mother Lake and divert it to storm sewers flowing to MSP Pond No. 1 and the Minnesota River.

E85 Tank and Dispenser Modifications \$550,000

This project provides for the installation of a 6,000 gallon above-ground E85 fuel storage tank and dispenser at the North Fuel Island. Sensors will be integrated into the existing monitoring system. The project also provides for the relocation of the existing E85 dispenser at the South Fuel Island to comply with the fire code. The project assumes the existing above-ground storage tank and dispenser will be reused in the new system layout.

81 - St. Paul

Joint and Crack Repairs \$100,000

Given the extremely poor sub grade materials at this airport, the need for crack repair and joint sealing is critical to maintain pavement strength and pavement life. An inspection of the pavement will be completed to determine the areas most in need of repair.

MAC Building Improvements \$200,000

This is an ongoing program to provide for facility modifications to ensure continued efficient operation of MAC buildings or modifications necessary to meet the requirements of the tenants.

Pavement Rehabilitation (Taxiway E) \$1,500,000

This is an ongoing program to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, seal coats, or, in some instances, reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. This year's project includes reconstruction of the oldest portion of the Taxiway Echo pavement, from Runway 14-32 to Runway 13-31.

Airfield Signage/Wind Cone Upgrade \$300,000

The existing airfield signage system and wind cone are in need of replacement to eliminate old equipment and to stay current with FAA standards.

MAC Security Gate Upgrades \$250,000

Several of the existing airport security gates are aging and in need of upgrades – total gate system replacement in some cases, specific component replacement in other cases. The gates currently identified for total replacement include the Eaton Street and MAC Equipment Maintenance Building locations. The identification of specific component replacements will be based on system inspection and maintenance records current at the time of the project design, as well as taking into account the age and anticipated service life of the existing gate components.

82 – Lake Elmo

Runway 14-32 Replacement \$500,000

It is anticipated that in 2015, the updated long term comprehensive plan for this airport will propose relocating and extending the primary runway northeast of its current alignment. This year's scope includes the engineering/environmental effort involved prior to starting construction, which is currently envisioned for 2017.

Parallel Taxiways Reconstruction**\$600,000**

This project is part of an ongoing effort to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, seal coats, or, in some instances, reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. The Lake Elmo Airport suffers from poor subgrade materials, which contribute to the overall deterioration of pavements. This project includes the full-depth reconstruction of the oldest portions of Taxiway Alpha parallel to Runway 14-32.

83 – Airlake**Pavement Rehabilitation (Taxiway A Mill/Overlay)****\$400,000**

This project is part of an ongoing effort to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, seal coats, or in some instances, reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. This project includes rehabilitation of portions of Taxiway Alpha.

South Building Area Alleyway Development**\$1,200,000**

Many years ago, the south building area was graded and alignments laid out for the access road and alleyways. However, demand never warranted final completion of the pavements. In the last couple of years, the waiting list for hangars has been revisited, and there is some demand for additional hangar spaces at the airport. This project will include paving the entrance/service road and three alleyways in a portion of the South Building Area. No sewer and water is planned for these alleyways, but a stand-alone restroom facility is planned to be constructed on the north side of the airport.

84 – Flying Cloud**Pavement Rehabilitation (Taxiway A –Phase 2)****\$1,000,000**

This is an ongoing program to rehabilitate aircraft operational areas (runways, taxiways, aprons) through bituminous overlays, seal coats, or in some instances, reconstruction, to restore the surfaces to a smooth, even condition and improve overall operating conditions. This project includes the full-depth reconstruction of the portion of Taxiway Alpha which lies west of Runway 18-36, and will include taxiway lighting systems installation.

85 – Crystal**Obstruction Removals****\$300,000**

This project will address identification and removal of obstructions to the runway approaches located off of airport property. Typically, the obstructions consist of privately owned trees which must be acquired via individual negotiations and the homeowners compensated.

Runway 14R-32L & Taxiway E Modifications**\$500,000**

Runway 14R-32L will be removed as part of the long term comprehensive plan for Crystal. As part of the runway removal, modifications/improvements will be needed to reconstruct the runway as a parallel taxiway. The project will include pavement, signage, electrical circuits, and regrading of the area, along with signage removal for Runway 6R-24L, which is the sod runway at Crystal. Because environmental review is required prior to beginning any construction, this year's scope will include the engineering/environmental work necessary.

Hangar Demolition (HFI)**\$150,000**

The HFI hangars were inherited by MAC when the tenant failed to pay the lease. The southern portion of the facility was not maintained and now has structural and mold issues. The cost to rehabilitate and repair this portion of the facility is not justified. This project will demolish the southern portion of the facility, while maintaining the northern two hangars that are useable.

86 – Anoka County – Blaine**Roof Repairs/Replacement****\$250,000**

This project provides for a response to deficiencies in some of the roof structures on MAC buildings. This project accounts for identification of the exact type of roof deficiencies as well as completion of the most cost-effective repairs or replacements.

Maintenance Building Improvements

\$200,000

This project provides for facility maintenance to ensure continued efficient operation of MAC buildings, specifically the exterior façade of the MAC Maintenance Building.

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