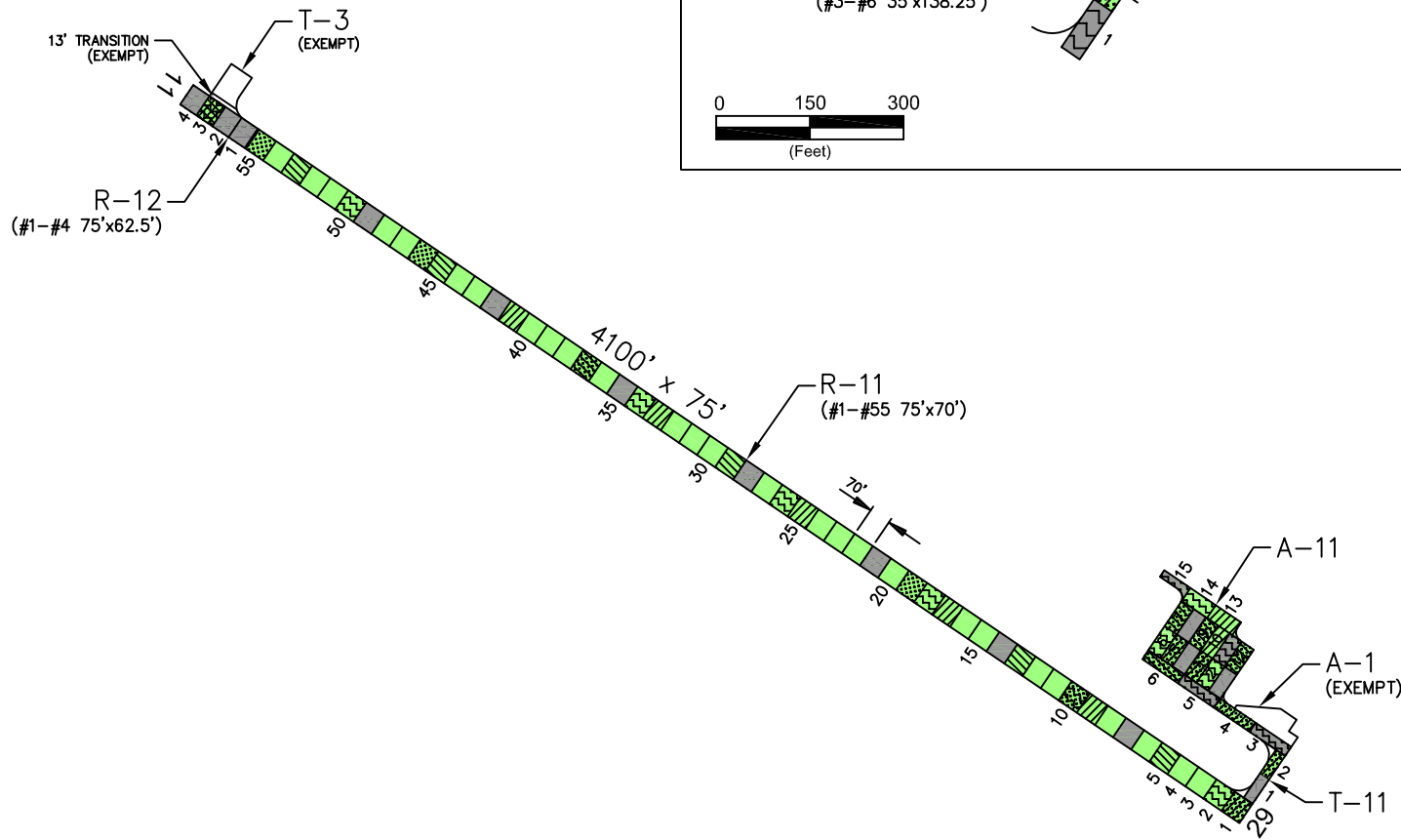
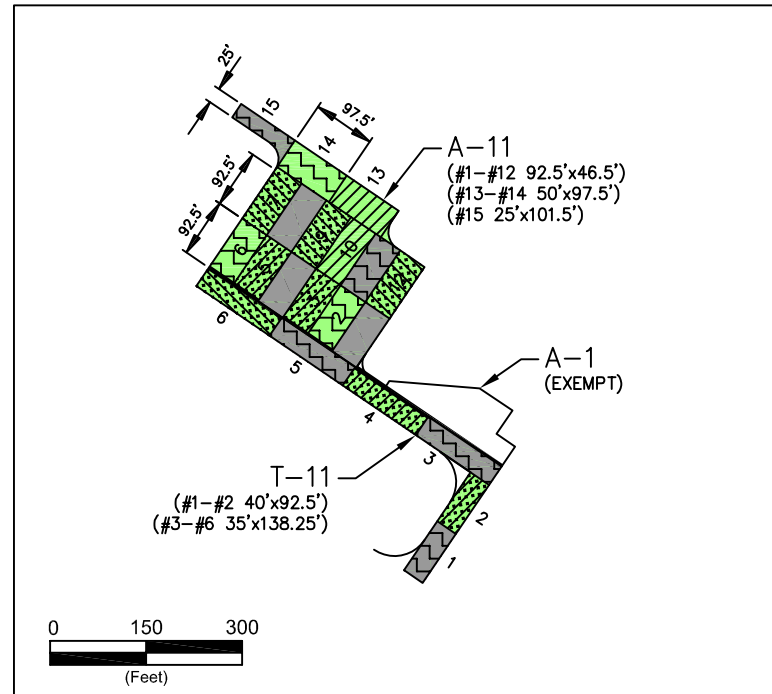


HARLEM



PAVEMENT STRENGTH SURVEY/PAVEMENT CONDITION SURVEY

PAVE. IDENT.	SOIL CLASS	SUB GRADE CLASS	SUBBASE COURSE	BASE COURSE	SURFACE COURSE	OVERLAY	PAVEMENT STRENGTH			REMARKS
							MAX. GROSS LOAD (LBS)			
							SINGLE	DUAL	DUAL TAN.	
RUNWAYS										
R-11	E-7	CBR=2	10.5"(MIN)P-154	6" P-208	3" P-401	P-608	12,500			3,4,5
R-12	E-7	CBR=2	10.5" P-154	6" P-208	3" P-401	P-608	12,500			3,4,5
TAXIWAYS										
T-3	E-7	CBR=2		8.5" P-208	1.5" P-609	1" P-402, P-608	8,000			1,2,3,4,5
T-11	E-7	CBR=2	10.5" P-154	6" P-208	3" P-401	P-608	12,500			3,4,5
APRONS										
A-1	E-7	CBR=2		8.5" P-208	1.5" P-609	1" P-402	8,000			1
A-11	E-7	CBR=2	10.5" P-154	6" P-208	3" P-401	P-608	12,500			3,4,5

REMARKS:

- AIP-001-1983, CONSTRUCT RUNWAY, CONNECTING TAXIWAY, AND APRON.
- AIP-002-1992, P-402 OVERLAY RUNWAY AND TAXIWAY.
- AIP-004-2003, RECONSTRUCT AND WIDEN RUNWAY; CONSTRUCT NEW TAXIWAY (T-11) AND APRON (A-11).
- AIP-008-2010, CRACK REPAIR, CRACK SEAL, FOG SEAL, AND REMARK RUNWAY (R-11,R-12), TAXIWAYS (T-3,T-11), AND APRON (A-11).
- AIP-010-2015, CRACK SEAL, SEAL COAT, AND REMARK ALL PAVEMENTS [INSPECTED AFTER MAINTENANCE PROJECT].

LEGEND

- 2006 SURVEY AREA
- 2009 SURVEY AREA
- 2012 SURVEY AREA
- 2015 SURVEY AREA
- 2018 SURVEY AREA
- MAINTAIN: PCI > 60
- TRANSITION: PCI 45 TO 60
- RECONSTRUCT: PCI < 45

DATE OF PAVEMENT STRENGTH SURVEY:	
EVALUATED BY:	
DATE OF MOST RECENT PAVEMENT CONDITION SURVEY:	OCT. 2, 2018
EVALUATED BY:	S. BROWN
LOCATION:	HARLEM MONTANA

**MONTANA AVIATION SYSTEM PLAN
2018 UPDATE - PAVEMENT CONDITION INDEXES**

**HARLEM AIRPORT
(485)**

Date: Prepared For: Prepared By:

DECEMBER 2018



HARLEM



A-11, Overview



A-11, Crack with Failed Sealant



R-11, Overview



R-11, Parallel Cracks



R-12, Overview



R-12, Crack



T-11, Overview



T-11, Depression

HARLEM AIRPORT

Branch: 17A **APRON**

A-11

Length: 235 LF **Width:** 280 LF **Area:** 65,320 SF **Last Const:** 2003 **Family:** ACAM
From: T-12 **To:** TIEDOWNS **Surface:** AC

Inspections

Samples Surveyed: 5 **Total Samples:** 15 **Last Inspection Date:** 10/2/2018 **PCI:** 84

Sample # 2 **Area:** 4,301 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	40 LF
PATCHING	L	0.09 SF
LONGITUDINAL/TRANSVERSE CRACKING	M	34 LF

Sample # 6 **Area:** 4,301 SF

Distress Description	Severity	Quantity
PATCHING	L	0.09 SF
RAVELING	L	1 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	90 LF

Sample # 11 **Area:** 4,301 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	65 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	40 LF

Sample # 14 **Area:** 4,875 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	M	34 LF
PATCHING	L	0.09 SF
RAVELING	L	6 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	40 LF

Sample # 15 **Area:** 2,537 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	93 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	8 LF
DEPRESSION	L	20 SF
RAVELING	H	1 SF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
DEPRESSION	LOW	64 SF	0.10%	0.30
LONGITUDINAL/TRANSVERSE CRACKING	LOW	1,055 LF	1.61%	6.40
LONGITUDINAL/TRANSVERSE CRACKING	MEDIUM	373 LF	0.57%	8.80
PATCHING	LOW	1 SF	0.00%	2.00
RAVELING	HIGH	3 SF	0.00%	6.00
RAVELING	LOW	24 SF	0.04%	1.00

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 99.0 % Climate/Durability 1.0 % Other

HARLEM AIRPORT

Branch: 17R RUNWAY

R-11

Length: 3,850 LF Width: 75 LF Area: 288,750 SF Last Const: 2003 Family: ACRML
 From: T-11 To: R-12 Surface: AC

Inspections

Samples Surveyed: 7 **Total Samples:** 55 **Last Inspection Date:** 10/2/2018 **PCI:** 76

Sample # 2 **Area:** 5,250 SF

Distress Description	Severity	Quantity
WEATHERING	L	5,250 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	362 LF

Sample # 10 **Area:** 5,250 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	358 LF
WEATHERING	L	5,250 SF

Sample # 18 **Area:** 5,250 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	338 LF
WEATHERING	L	5,250 SF

Sample # 26 **Area:** 5,250 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	L	240 LF
WEATHERING	L	5,250 SF

Sample # 34 **Area:** 5,250 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	M	4 LF
PATCHING	L	0.09 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	346 LF
WEATHERING	L	5,250 SF

Sample # 42 **Area:** 5,250 SF

Distress Description	Severity	Quantity
PATCHING	L	0.09 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	299 LF
WEATHERING	L	5,250 SF

Sample # 50 **Area:** 5,250 SF

Distress Description	Severity	Quantity
PATCHING	L	0.09 SF
LONGITUDINAL/TRANSVERSE CRACKING	M	23 LF
WEATHERING	L	5,250 SF
DEPRESSION	L	8 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	367 LF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
DEPRESSION	LOW	61 SF	0.02%	0.30
LONGITUDINAL/TRANSVERSE CRACKING	LOW	18,150 LF	6.29%	17.35
LONGITUDINAL/TRANSVERSE CRACKING	MEDIUM	212 LF	0.07%	4.00
PATCHING	LOW	2 SF	0.00%	2.00
WEATHERING	LOW	288,750 SF	100.00%	5.96

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 99.0 % Climate/Durability 1.0 % Other

HARLEM AIRPORT

Branch: 17R RUNWAY

R-12

Length: 250 LF Width: 75 LF Area: 18,750 SF Last Const: 2003 Family: ACRML
 From: R-11 To: T-3 Surface: AC

Inspections

Samples Surveyed: 4 **Total Samples:** 4 **Last Inspection Date:** 10/2/2018 **PCI:** 76

Sample # 1 **Area:** 4,687 SF

Distress Description	Severity	Quantity
WEATHERING	L	4,688 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	266 LF
RAVELING	L	0.17 SF

Sample # 2 **Area:** 4,687 SF

Distress Description	Severity	Quantity
WEATHERING	L	4,688 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	285 LF

Sample # 3 **Area:** 4,687 SF

Distress Description	Severity	Quantity
DEPRESSION	L	14 SF
WEATHERING	L	4,688 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	432 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	27 LF

Sample # 4 **Area:** 4,687 SF

Distress Description	Severity	Quantity
WEATHERING	L	4,688 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	214 LF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
DEPRESSION	LOW	14 SF	0.07%	0.30
LONGITUDINAL/TRANSVERSE CRACKING	LOW	1,197 LF	6.38%	17.54
LONGITUDINAL/TRANSVERSE CRACKING	MEDIUM	27 LF	0.14%	4.30
RAVELING	LOW	0 SF	0.00%	1.00
WEATHERING	LOW	18,750 SF	100.00%	5.96

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 99.0 % Climate/Durability 1.0 % Other

HARLEM AIRPORT

Branch: 17T TAXIWAY

T-11

Length: 738 LF **Width:** 35 LF **Area:** 28,174 SF **Last Const:** 2003 **Family:** ACRML
From: R-11 **To:** A-11 **Surface:** AC

Inspections

Samples Surveyed: 3 **Total Samples:** 6 **Last Inspection Date:** 10/2/2018 **PCI:** 70

Sample # 1 **Area:** 4,278 SF

Distress Description	Severity	Quantity
LONGITUDINAL/TRANSVERSE CRACKING	M	45 LF
PATCHING	L	0.09 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	253 LF
DEPRESSION	L	12 SF
WEATHERING	L	4,278 SF

Sample # 3 **Area:** 4,838 SF

Distress Description	Severity	Quantity
RAVELING	H	15 SF
LONGITUDINAL/TRANSVERSE CRACKING	M	9 LF
LONGITUDINAL/TRANSVERSE CRACKING	L	136 LF
WEATHERING	L	4,839 SF
DEPRESSION	L	27 SF

Sample # 5 **Area:** 4,838 SF

Distress Description	Severity	Quantity
WEATHERING	L	4,839 SF
PATCHING	L	0.27 SF
LONGITUDINAL/TRANSVERSE CRACKING	L	371 LF
LONGITUDINAL/TRANSVERSE CRACKING	M	86 LF

Extrapolated Distress Quantities*

Distress Description	Severity	Quantity	Density	Deduct
DEPRESSION	LOW	79 SF	0.28%	1.45
LONGITUDINAL/TRANSVERSE CRACKING	LOW	1,534 LF	5.45%	15.70
LONGITUDINAL/TRANSVERSE CRACKING	MEDIUM	283 LF	1.00%	11.25
PATCHING	LOW	1 SF	0.00%	2.00
RAVELING	HIGH	30 SF	0.11%	6.26
WEATHERING	LOW	28,174 SF	100.00%	5.96

* Multiple deduct values are scaled down from their algebraic sum to keep the model consistent with experimental data.

Percent of Deduct Values Based on Distress Mechanism

0.0 % Load 97.0 % Climate/Durability 3.0 % Other

HARLEM AIRPORT (17)

FIFTEEN YEAR PROJECTIONS							ESTIMATED AVERAGE ANNUAL COST:		\$42,166			
Plan Year: 2019							Estimated Cost:		\$146,754		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive + Global MR	\$411	\$22,209	\$0	\$0	\$22,619	84	87				
R-11	Preventive + Global MR	\$8,002	\$98,174	\$0	\$0	\$106,176	76	80				
R-12	Preventive + Global MR	\$520	\$6,375	\$0	\$0	\$6,895	76	80				
T-11	Preventive + Global MR	\$1,485	\$9,579	\$0	\$0	\$11,064	69	76				
Plan Year: 2020							Estimated Cost:		\$5,804		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive	\$269	\$0	\$0	\$0	\$269	86	86				
R-11	Preventive	\$4,249	\$0	\$0	\$0	\$4,249	79	79				
R-12	Preventive	\$276	\$0	\$0	\$0	\$276	79	79				
T-11	Preventive	\$1,010	\$0	\$0	\$0	\$1,010	74	74				
Plan Year: 2021							Estimated Cost:		\$7,926		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive	\$336	\$0	\$0	\$0	\$336	85	85				
R-11	Preventive	\$5,982	\$0	\$0	\$0	\$5,982	77	77				
R-12	Preventive	\$388	\$0	\$0	\$0	\$388	77	77				
T-11	Preventive	\$1,219	\$0	\$0	\$0	\$1,219	72	72				
Plan Year: 2022							Estimated Cost:		\$10,052		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive	\$403	\$0	\$0	\$0	\$403	84	84				
R-11	Preventive	\$7,715	\$0	\$0	\$0	\$7,715	76	76				
R-12	Preventive	\$501	\$0	\$0	\$0	\$501	76	76				
T-11	Preventive	\$1,433	\$0	\$0	\$0	\$1,433	70	70				
Plan Year: 2023							Estimated Cost:		\$12,226		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive	\$470	\$0	\$0	\$0	\$470	83	83				
R-11	Preventive	\$9,448	\$0	\$0	\$0	\$9,448	74	74				
R-12	Preventive	\$614	\$0	\$0	\$0	\$614	74	74				
T-11	Preventive	\$1,695	\$0	\$0	\$0	\$1,695	68	68				
Plan Year: 2024							Estimated Cost:		\$150,736		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive + Global MR	\$535	\$22,209	\$0	\$0	\$22,744	82	85				
R-11	Preventive + Global MR	\$11,181	\$98,174	\$0	\$0	\$109,355	73	78				
R-12	Preventive + Global MR	\$726	\$6,375	\$0	\$0	\$7,101	73	78				
T-11	Preventive + Global MR	\$1,957	\$9,579	\$0	\$0	\$11,536	66	72				
Plan Year: 2025							Estimated Cost:		\$9,703		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive	\$396	\$0	\$0	\$0	\$396	84	84				
R-11	Preventive	\$7,436	\$0	\$0	\$0	\$7,436	76	76				
R-12	Preventive	\$483	\$0	\$0	\$0	\$483	76	76				
T-11	Preventive	\$1,388	\$0	\$0	\$0	\$1,388	70	70				
Plan Year: 2026							Estimated Cost:		\$11,861		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive	\$462	\$0	\$0	\$0	\$462	83	83				
R-11	Preventive	\$9,158	\$0	\$0	\$0	\$9,158	75	75				
R-12	Preventive	\$595	\$0	\$0	\$0	\$595	75	75				
T-11	Preventive	\$1,645	\$0	\$0	\$0	\$1,645	68	68				
Plan Year: 2027							Estimated Cost:		\$14,035		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive	\$529	\$0	\$0	\$0	\$529	82	82				
R-11	Preventive	\$10,891	\$0	\$0	\$0	\$10,891	73	73				
R-12	Preventive	\$707	\$0	\$0	\$0	\$707	73	73				
T-11	Preventive	\$1,908	\$0	\$0	\$0	\$1,908	66	67				
Plan Year: 2028							Estimated Cost:		\$16,207		PCI	
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After				
A-11	Preventive	\$595	\$0	\$0	\$0	\$595	81	81				
R-11	Preventive	\$12,624	\$0	\$0	\$0	\$12,624	72	72				
R-12	Preventive	\$820	\$0	\$0	\$0	\$820	72	72				
T-11	Preventive	\$2,168	\$0	\$0	\$0	\$2,168	65	65				

HARLEM AIRPORT (17)

FIFTEEN YEAR PROJECTIONS							ESTIMATED AVERAGE ANNUAL COST:		\$42,166
Plan Year: 2029							Estimated Cost:	\$154,756	PCI
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-11	Preventive + Global MR	\$687	\$22,209	\$0	\$0	\$22,896	80	83	
R-11	Preventive + Global MR	\$14,368	\$98,174	\$0	\$0	\$112,542	70	75	
R-12	Preventive + Global MR	\$933	\$6,375	\$0	\$0	\$7,308	70	75	
T-11	Preventive + Global MR	\$2,431	\$9,579	\$0	\$0	\$12,010	63	69	
Plan Year: 2030							Estimated Cost:	\$13,666	PCI
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-11	Preventive	\$521	\$0	\$0	\$0	\$521	82	82	
R-11	Preventive	\$10,602	\$0	\$0	\$0	\$10,602	73	73	
R-12	Preventive	\$688	\$0	\$0	\$0	\$688	73	73	
T-11	Preventive	\$1,855	\$0	\$0	\$0	\$1,855	67	67	
Plan Year: 2031							Estimated Cost:	\$15,840	PCI
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-11	Preventive	\$587	\$0	\$0	\$0	\$587	81	81	
R-11	Preventive	\$12,334	\$0	\$0	\$0	\$12,334	72	72	
R-12	Preventive	\$801	\$0	\$0	\$0	\$801	72	72	
T-11	Preventive	\$2,117	\$0	\$0	\$0	\$2,117	65	65	
Plan Year: 2032							Estimated Cost:	\$18,016	PCI
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-11	Preventive	\$655	\$0	\$0	\$0	\$655	80	80	
R-11	Preventive	\$14,067	\$0	\$0	\$0	\$14,067	70	70	
R-12	Preventive	\$913	\$0	\$0	\$0	\$913	70	70	
T-11	Preventive	\$2,379	\$0	\$0	\$0	\$2,379	63	63	
Plan Year: 2033							Estimated Cost:	\$20,753	PCI
Section	Maintenance	Local	Global	Major<Crit	Major>Crit	Total	Before	After	
A-11	Preventive	\$922	\$0	\$0	\$0	\$922	79	79	
R-11	Preventive	\$16,141	\$0	\$0	\$0	\$16,141	69	69	
R-12	Preventive	\$1,048	\$0	\$0	\$0	\$1,048	69	69	
T-11	Preventive	\$2,642	\$0	\$0	\$0	\$2,642	61	61	