

Memorial Shoreway One-Year  
Improvement Program and Costs  
LOAN REPAYMENT SCHEDULE

Payment Number	Amount Owed	Interest	Principal			Monthly Payment:	\$7,212.46
1	\$680,000.00	\$2,833.33	\$4,379.13	\$675,620.87		\$7,212.46	
2	\$675,620.87	\$2,815.09	\$4,397.37	\$671,223.50			
3	\$671,223.50	\$2,796.76	\$4,415.70	\$666,807.80		# of	
4	\$666,807.80	\$2,778.37	\$4,434.09	\$662,373.71		Households:	
5	\$662,373.71	\$2,759.89	\$4,452.57	\$657,921.14		300	
6	\$657,921.14	\$2,741.34	\$4,471.12	\$653,450.02			
7	\$653,450.02	\$2,722.71	\$4,489.75	\$648,960.27		Annual Dues (Debt	
8	\$648,960.27	\$2,704.00	\$4,508.46	\$644,451.81		Repayment Only):	
9	\$644,451.81	\$2,685.22	\$4,527.24	\$639,924.56		\$288.50	
10	\$639,924.56	\$2,666.35	\$4,546.11	\$635,378.46			
11	\$635,378.46	\$2,647.41	\$4,565.05	\$630,813.41			
12	\$630,813.41	\$2,628.39	\$4,584.07	\$626,229.34			
13	\$626,229.34	\$2,609.29	\$4,603.17	\$621,626.17			
14	\$621,626.17	\$2,590.11	\$4,622.35	\$617,003.81			
15	\$617,003.81	\$2,570.85	\$4,641.61	\$612,362.20			
16	\$612,362.20	\$2,551.51	\$4,660.95	\$607,701.25			
17	\$607,701.25	\$2,532.09	\$4,680.37	\$603,020.88			
18	\$603,020.88	\$2,512.59	\$4,699.87	\$598,321.01			
19	\$598,321.01	\$2,493.00	\$4,719.46	\$593,601.55			
20	\$593,601.55	\$2,473.34	\$4,739.12	\$588,862.43			
21	\$588,862.43	\$2,453.59	\$4,758.87	\$584,103.57			
22	\$584,103.57	\$2,433.76	\$4,778.70	\$579,324.87			
23	\$579,324.87	\$2,413.85	\$4,798.61	\$574,526.26			
24	\$574,526.26	\$2,393.86	\$4,818.60	\$569,707.66			
25	\$569,707.66	\$2,373.78	\$4,838.68	\$564,868.99			
26	\$564,868.99	\$2,353.62	\$4,858.84	\$560,010.15			
27	\$560,010.15	\$2,333.38	\$4,879.08	\$555,131.06			
28	\$555,131.06	\$2,313.05	\$4,899.41	\$550,231.65			
29	\$550,231.65	\$2,292.63	\$4,919.83	\$545,311.82			
30	\$545,311.82	\$2,272.13	\$4,940.33	\$540,371.49			
31	\$540,371.49	\$2,251.55	\$4,960.91	\$535,410.58			
32	\$535,410.58	\$2,230.88	\$4,981.58	\$530,429.00			
33	\$530,429.00	\$2,210.12	\$5,002.34	\$525,426.66			
34	\$525,426.66	\$2,189.28	\$5,023.18	\$520,403.48			
35	\$520,403.48	\$2,168.35	\$5,044.11	\$515,359.36			
36	\$515,359.36	\$2,147.33	\$5,065.13	\$510,294.24			
37	\$510,294.24	\$2,126.23	\$5,086.23	\$505,208.00			
38	\$505,208.00	\$2,105.03	\$5,107.43	\$500,100.57			
39	\$500,100.57	\$2,083.75	\$5,128.71	\$494,971.87			
40	\$494,971.87	\$2,062.38	\$5,150.08	\$489,821.79			
41	\$489,821.79	\$2,040.92	\$5,171.54	\$484,650.25			
42	\$484,650.25	\$2,019.38	\$5,193.08	\$479,457.17			
43	\$479,457.17	\$1,997.74	\$5,214.72	\$474,242.45			
44	\$474,242.45	\$1,976.01	\$5,236.45	\$469,006.00			
45	\$469,006.00	\$1,954.19	\$5,258.27	\$463,747.73			
46	\$463,747.73	\$1,932.28	\$5,280.18	\$458,467.55			
47	\$458,467.55	\$1,910.28	\$5,302.18	\$453,165.37			
48	\$453,165.37	\$1,888.19	\$5,324.27	\$447,841.10			

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Improvement Program and Costs  
LOAN REPAYMENT SCHEDULE

Payment Number	Amount Owed	Interest	Principal			Monthly Payment:	\$7,212.46
49	\$447,841.10	\$1,866.00	\$5,346.46	\$442,494.65			
50	\$442,494.65	\$1,843.73	\$5,368.73	\$437,125.91			
51	\$437,125.91	\$1,821.36	\$5,391.10	\$431,734.81			
52	\$431,734.81	\$1,798.90	\$5,413.56	\$426,321.25			
53	\$426,321.25	\$1,776.34	\$5,436.12	\$420,885.13			
54	\$420,885.13	\$1,753.69	\$5,458.77	\$415,426.35			
55	\$415,426.35	\$1,730.94	\$5,481.52	\$409,944.84			
56	\$409,944.84	\$1,708.10	\$5,504.36	\$404,440.48			
57	\$404,440.48	\$1,685.17	\$5,527.29	\$398,913.19			
58	\$398,913.19	\$1,662.14	\$5,550.32	\$393,362.87			
59	\$393,362.87	\$1,639.01	\$5,573.45	\$387,789.42			
60	\$387,789.42	\$1,615.79	\$5,596.67	\$382,192.75			
61	\$382,192.75	\$1,592.47	\$5,619.99	\$376,572.76			
62	\$376,572.76	\$1,569.05	\$5,643.41	\$370,929.35			
63	\$370,929.35	\$1,545.54	\$5,666.92	\$365,262.43			
64	\$365,262.43	\$1,521.93	\$5,690.53	\$359,571.90			
65	\$359,571.90	\$1,498.22	\$5,714.24	\$353,857.65			
66	\$353,857.65	\$1,474.41	\$5,738.05	\$348,119.60			
67	\$348,119.60	\$1,450.50	\$5,761.96	\$342,357.64			
68	\$342,357.64	\$1,426.49	\$5,785.97	\$336,571.67			
69	\$336,571.67	\$1,402.38	\$5,810.08	\$330,761.59			
70	\$330,761.59	\$1,378.17	\$5,834.29	\$324,927.30			
71	\$324,927.30	\$1,353.86	\$5,858.60	\$319,068.71			
72	\$319,068.71	\$1,329.45	\$5,883.01	\$313,185.70			
73	\$313,185.70	\$1,304.94	\$5,907.52	\$307,278.18			
74	\$307,278.18	\$1,280.33	\$5,932.13	\$301,346.05			
75	\$301,346.05	\$1,255.61	\$5,956.85	\$295,389.20			
76	\$295,389.20	\$1,230.79	\$5,981.67	\$289,407.52			
77	\$289,407.52	\$1,205.86	\$6,006.60	\$283,400.93			
78	\$283,400.93	\$1,180.84	\$6,031.62	\$277,369.31			
79	\$277,369.31	\$1,155.71	\$6,056.75	\$271,312.55			
80	\$271,312.55	\$1,130.47	\$6,081.99	\$265,230.56			
81	\$265,230.56	\$1,105.13	\$6,107.33	\$259,123.23			
82	\$259,123.23	\$1,079.68	\$6,132.78	\$252,990.45			
83	\$252,990.45	\$1,054.13	\$6,158.33	\$246,832.12			
84	\$246,832.12	\$1,028.47	\$6,183.99	\$240,648.12			
85	\$240,648.12	\$1,002.70	\$6,209.76	\$234,438.36			
86	\$234,438.36	\$976.83	\$6,235.63	\$228,202.73			
87	\$228,202.73	\$950.84	\$6,261.62	\$221,941.11			
88	\$221,941.11	\$924.75	\$6,287.71	\$215,653.41			
89	\$215,653.41	\$898.56	\$6,313.90	\$209,339.50			
90	\$209,339.50	\$872.25	\$6,340.21	\$202,999.29			
91	\$202,999.29	\$845.83	\$6,366.63	\$196,632.66			
92	\$196,632.66	\$819.30	\$6,393.16	\$190,239.51			
93	\$190,239.51	\$792.66	\$6,419.80	\$183,819.71			
94	\$183,819.71	\$765.92	\$6,446.54	\$177,373.17			
95	\$177,373.17	\$739.05	\$6,473.41	\$170,899.76			
96	\$170,899.76	\$712.08	\$6,500.38	\$164,399.38			

Memorial Shoreway One-Year  
Improvement Program and Costs  
LOAN REPAYMENT SCHEDULE

Payment Number	Amount Owed	Interest	Principal			Monthly Payment:	\$7,212.46
97	\$164,399.38	\$685.00	\$6,527.46	\$157,871.92			
98	\$157,871.92	\$657.80	\$6,554.66	\$151,317.26			
99	\$151,317.26	\$630.49	\$6,581.97	\$144,735.29			
100	\$144,735.29	\$603.06	\$6,609.40	\$138,125.89			
101	\$138,125.89	\$575.52	\$6,636.94	\$131,488.96			
102	\$131,488.96	\$547.87	\$6,664.59	\$124,824.37			
103	\$124,824.37	\$520.10	\$6,692.36	\$118,132.01			
104	\$118,132.01	\$492.22	\$6,720.24	\$111,411.77			
105	\$111,411.77	\$464.22	\$6,748.24	\$104,663.52			
106	\$104,663.52	\$436.10	\$6,776.36	\$97,887.16			
107	\$97,887.16	\$407.86	\$6,804.60	\$91,082.56			
108	\$91,082.56	\$379.51	\$6,832.95	\$84,249.61			
109	\$84,249.61	\$351.04	\$6,861.42	\$77,388.19			
110	\$77,388.19	\$322.45	\$6,890.01	\$70,498.18			
111	\$70,498.18	\$293.74	\$6,918.72	\$63,579.47			
112	\$63,579.47	\$264.91	\$6,947.55	\$56,631.92			
113	\$56,631.92	\$235.97	\$6,976.49	\$49,655.43			
114	\$49,655.43	\$206.90	\$7,005.56	\$42,649.86			
115	\$42,649.86	\$177.71	\$7,034.75	\$35,615.11			
116	\$35,615.11	\$148.40	\$7,064.06	\$28,551.05			
117	\$28,551.05	\$118.96	\$7,093.50	\$21,457.55			
118	\$21,457.55	\$89.41	\$7,123.05	\$14,334.50			
119	\$14,334.50	\$59.73	\$7,152.73	\$7,181.77			
120	\$7,181.77	\$29.92	\$7,182.54	-\$0.77			

Guidelines for Pavement Treatment Selection

Pavement Conditions	Parameters	Treatments														
		Fog Seal	Crack Seal	Sand Seal	Std. Chip Seal	Modified Chip Seal	High Performance Chip Seal	Slurry Seal	Micro-Surfacing	Ulthin Bonded Wearing Course	Recycled Asphalt Pavement	Cold In-Place Recycling	Hot In-Place Recycling	Thin Overlay	Full Depth Reclamation/Granular Base Stabilization	Reflective Crack Relief Interlayer
Traffic (ADT) (note: % trucks should also be considered)	<1000	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	1000-4000	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	>4000	?	•	X	•	•	•	•	•	•	•	•	•	•	•	•
Ruts	<3/8 in	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	3/8-1 in	X	?	?	?	?	?	?	X	•	?	?	?	•	?	
	>1 in	X	X	X	X	X	X	X	X	?	?	X	X	•	•	
Cracking Fatigue	Low	?	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Moderate	X	?	?	•	?	•	•	X	?	•	•	•	•	•	•
	High	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cracking Longitudinal	Low	?	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Moderate	X	•	?	•	•	•	•	?	?	•	•	•	•	•	•
	High	X	?	X	X	X	X	X	X	X	X	X	X	X	X	X
Cracking Transverse	Low	?	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Moderate	X	•	?	•	•	•	•	?	?	•	•	•	•	•	•
	High	X	?	X	X	X	X	X	X	X	X	X	X	X	X	X
Surface Condition	Dry	•	X	•	•	•	•	•	•	•	•	•	•	•	•	•
	Flushing	X	X	?	•	•	•	•	X	•	•	•	•	•	•	•
	Bleeding	X	X	X	?	•	•	•	•	•	•	•	•	•	•	•
	Variable	?	X	?	•	•	•	•	•	•	•	•	•	•	•	•
	PCC	X	?	•	•	•	•	•	•	•	•	•	•	•	•	•
Raveling	Low	•	X	•	•	•	•	•	•	•	•	•	•	•	•	•
	Moderate	?	X	•	•	•	•	•	•	•	•	•	•	•	•	•
	High	?	X	•	•	•	•	•	?	•	•	•	•	•	•	•
Potholes	Low	X	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Moderate	X	?	?	?	?	?	?	?	X	•	•	•	•	•	•
	High	X	?	X	X	X	X	X	X	X	X	X	X	X	X	X
Stripping	Moist. Damage	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Texture	Rough	X	X	?	?	?	?	?	•	•	•	•	•	•	•	•
Ride	Poor	X	X	X	X	X	X	X	•	•	•	•	•	•	•	•
Rural	Min turning	•	•	•	•	•	•	•	X	•	•	•	•	•	•	•
Urban	Max turning	•	•	?	•	•	•	•	•	•	•	•	•	•	•	•
Drainage	Poor	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Snow Plow Use	High	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Skid Resistance	Low	X	X	•	•	•	•	•	•	•	•	•	•	•	•	•
Noise	Low	?	?	X	X	X	•	?	?	•	?	?	?	?	?	?
Initial Cost Concern	Low	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	High	•	?	•	•	?	•	?	X	X	•	?	?	?	?	?
Life Cost Concern	Low	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	High	?	•	?	?	•	•	?	•	•	•	•	•	•	•	•
Local Const. Quality	Low	X	?	X	X	?	•	X	•	•	?	X	•	•	•	•
	High	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
User-Delay \$	High	?	?	?	?	?	•	?	?	•	?	?	?	?	?	?

These are very broad assumptions; assessment of a given road should take precedence, with special attention to distress cause(s), and needed repairs before treatment. Recommendations in top chart assume good quality design & construction. Multipliers from the bottom chart should be used. This information is meant to be fed into a decision matrix.

X = NOT Recommended ? = MAY BE Recommended • = Recommended

Traffic Level

The level of traffic (and especially the ESALs, or equivalent single axle loads) is one of the most important factors in the durability of a treatment. The traffic level is also an indication of user delay costs. A treatment with higher initial cost that has quicker traffic return and lasts longer may be a significantly less expensive alternative over the life of the pavement.

Rutting

Permanent deformations of the pavement (indentations) in the wheelpaths. Rutting may be caused by heavy trucks, slow stopping & standing traffic, poor aggregate, temperature susceptible asphalt, poor construction, moisture damage and/or post-construction compaction by traffic.

Cracking

**Fatigue**  
Also called "alligator" because the interconnected cracking pattern resembles alligator skin. It is caused by fatigue, insufficient pavement structure or excessive deflection.  
**Longitudinal**  
Cracks that run parallel to the direction of traffic, usually caused by insufficient pavement structure, stresses applied by the sidewalks of dual tires, and/or poor construction.  
**Transverse**  
Cracks that run perpendicular to the direction of traffic, often caused by stresses applied by thermal cycling.

Surface Condition

**Dry**  
An aging surface may not show any signs of distress, but the oxidation process and micro-damage has started. Timely surface protection will prevent future deterioration.  
**Flushing/Bleeding**  
Excess binder on the pavement surface with a shiny or glassy appearance, caused by too high an asphalt content or, sometimes, moisture damage.

Raveling

Loss of loose aggregate on the surface. It may be caused by an oxidized and aged surface, segregation during construction or debonding of the surface course.

Potholes

Holes in the pavement surface, usually caused by inadequate structure, accumulated damage, age hardening, poor drainage and moisture intrusion.

Stripping (Moisture Damage)

The asphaltic binder is delaminated from the aggregate, caused by moisture (either water or water vapor) debonding the asphalt from the mixture. The unbound aggregate is no longer able to support the traffic load.

Poor Drainage

The inability of surface water to drain away from the pavement. The resulting trapped moisture weakens the base structure and can cause stripping of the asphaltic binder from the aggregate.

Patching/Crack Filling

Filling potholes and filling cracks with patch mixes or bituminous fillers.

Asphalt Surface Treatment

Any application of asphalt materials to roadway with a thickness <1", including:

**Fog Seal**  
A light application of diluted asphalt emulsion to renew surfaces and seal small cracks and surface voids.

**Chip Seal**  
An application of asphalt emulsion followed by a thin layer of aggregate to renew and protect pavements and restore skid. Seal Coats may also be done in multiple applications.

**High Performance Chip Seal**  
A surface treatment for high volume roads using performance-related specifications for high quality aggregates compatible polymer asphalt emulsions and continuous, synchronized application equipment.

**Slurry Seal**  
A mixture of emulsified asphalt, fine aggregate and additives applied in a very thin layer to renew surfaces and protect against moisture and air intrusion.

**Micro-Surfacing**  
A mixture of emulsified, polymer modified asphalt, high quality fine aggregate, cement and other additives to fill ruts, renew and protect pavements, restore skid and reduce quickly to traffic.

**Ulthin Bonded Wearing Course**  
A polymer modified asphalt emulsion membrane followed within seconds by an ultra-thin lift of high performance open-graded asphalt concrete mix, and immediate release to traffic. Restores and protects pavement, restores skid, reduces tire noise and provides a strong bond to the existing surface.

Overlay

**Thin Overlay**  
A thin (up to 1 1/2") layer of hot mix is applied to the existing surface. If the existing surface is milled this is called "Mill and Fill".

**Open Graded Surface**  
An overlay of an asphalt mixture with a gap-graded aggregate and high air voids, allowing moisture to drain off of surface and reducing tire noise.

**Structural Overlay**  
A layer of hot or cold bituminous mix that is sufficiently thick to add structural strength to the pavement.

Full Depth Reclamation / Granular Base Stabilization

Structural improvement of an existing pavement and/or granular base by uniformly stabilizing 6"-10" deep, treating with a binder and compacting in preparation for new surfacing.

Recycled Bituminous Pavement

**Processed Reclaimed Asphalt Pavement (RAP)**  
Reclaimed Asphalt Pavement that is milled, crushed and processed into an emulsion or hot mix asphalt at a central location and then paved in-place on a roadway.

**Cold In-Place Recycling**  
A distressed pavement that is milled several inches, dried, mixed with emulsion, repaired and compacted using a train of equipment in-place on the road.

**Hot In-Place Recycling**  
A distressed pavement that is milled an inch or two, heated, scarified, mixed with emulsion, repaired and compacted using a train of equipment in-place on the road.

Reflective Crack Relief Interlayer

A polymer modified asphalt interlayer placed between a concrete or composite pavement and an overlay to delay reflective cracking and provide an impermeable layer to protect the underlying pavement structure from moisture intrusion.

Reconstruction HMA

Removal of the existing pavement followed by fixing subgrade and drainage problems, and construction of a new pavement.