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CHAPTER 3 - PRESERVATION TREATMENT SELECTION

3.1 GENERAL CONSIDERATIONS

There are many factors that are considered in selecting an appropriate treatment for a flexible pavement. These include pavement age, location, and condition, traffic levels, expected future plans, available funding, and Caltrans or local agency policy.

At the network level, a general relationship exists between pavement conditions and pavement age. For a properly constructed new pavement, no treatment is required. As the pavement ages, it will move through repair maintenance (crack sealing and patching) followed later by preventive/preservation treatments (surface treatments and thin overlays). As the pavement condition deteriorates further, the resulting loss in pavement strength cannot be remedied by a preservation treatment, and recycling, rehabilitation and eventually reconstruction will be necessary. The primary cause of early pavement deterioration is oxidation. As the asphalt binder near the surface of the pavement ages and begins to harden and crack, cracks develop and water intrusion causes further pavement deterioration. Early treatment with preservation strategies can mitigate oxidation and water intrusion and can extend pavement life.

Figure 3-1 shows the general relationship between pavement conditions and the types of strategy categories. The next step is to select the appropriate treatment within the strategy category. These are the most important factors when choosing a treatment:

- Distress-types and extent
- Size of project
- Availability of contractors
- Prep work
- Cost effectiveness
- Life cycle cost
- Timing

3.2 PAVEMENT PRESERVATION TREATMENT SELECTION PROCESS

Strategy selection is a two-step process. The first step is to determine what distress category the of the pavement. Second, a specific treatment is selected to address the particular distresses in the pavement.

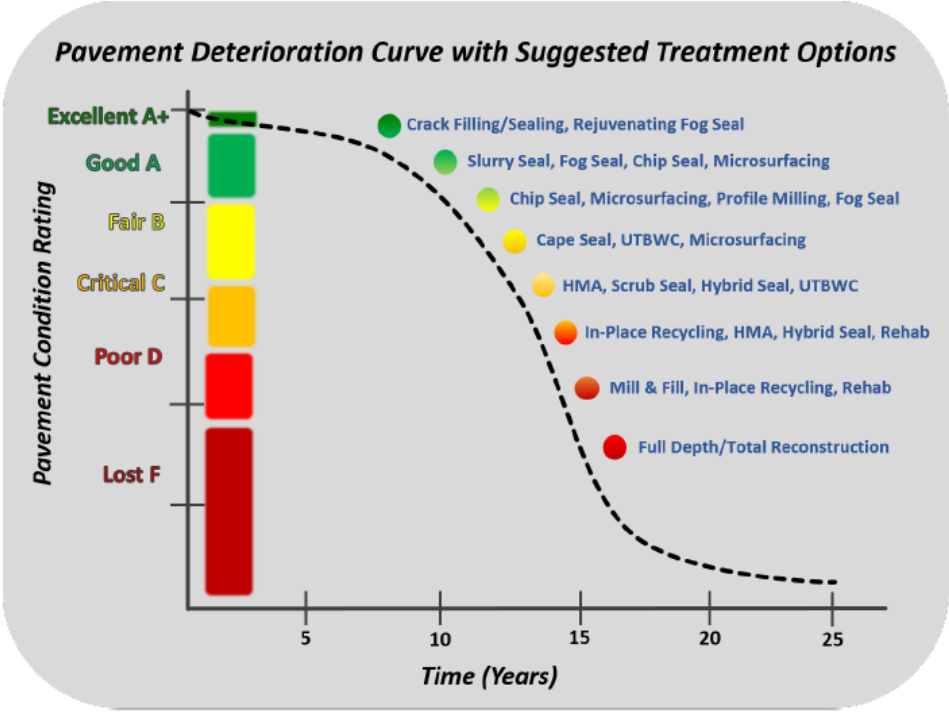


Figure 3-1 Treatment Based on Pavement Condition (University of Arkansas)

There are three basic steps in the preservation treatment selection process. These steps are:

- Assess the existing conditions.
- Determine the feasible treatment options.
- Analyze and compare the feasible options.

3.2.1 Assess the Existing Conditions

The first step is to evaluate the existing conditions. This evaluation can be broken down into three processes, which include:

- Collect and review existing project information.
- Inspect the site, analyze the distress types, and compare the existing project information. Artificial Intelligence (AI) is also becoming available to evaluate pavement sections. This technology captures crack patterns and some distresses and can be a quick and easy way to assess a section.
- Based on the above, determine the destructive and non-destructive testing necessary to confirm the appropriate strategy. Testing may include pavement thickness by cores or ground penetrating radar, pavement structural section and strength by falling weight deflectometer or dynamic cone penetrometer, and others.

The FHWA Distress Identification Manual (FHWA, 2014) or the Caltrans Automated Pavement Condition Survey Manual (2015) may be used to identify pavement distress mechanisms. Also, www.roadresource.com is an excellent resource for distresses and treatments. Treatment methods for the distress mechanisms are discussed in the following chapters of this document.

Repair (e.g., patching) of localized areas of pavement deterioration or structural failure can greatly improve the performance of pavement preservation treatments and should be considered as part of the decision for treatment selection.

Assessing pavements using a standardized pavement assessment form is important. A well-developed form promotes uniformity in the assessment process. The District Maintenance Engineer or other reviewers should fill out the pavement assessment form, on site, for each pavement being considered for treatment. Figure 3-2 is an example of a pavement rating form that has been used by Caltrans.

Distress Survey Date: _____ Air Temperature : Before: _____ After: _____

Surveyor: _____ Pavement Surface Temp: Before: _____ After: _____

Station PM/KP	Cracking																		Deformation				
	Longitudinal, a			Fatigue, b			Transverse, c			Reflective, c			Block, b			Edge, a			Rutting, d	Corrugation, b	Shoving, e	Depression, b	Overlay Bumps, c
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H					

a = Length, meter; b = Area, square meter; c = Number and length, meter; d = Maximum depth, mm. Record plastic flow (Yes/No); e = Number and square meter
L = Low severity; M = Moderate severity; H = High severity

Figure 3-2 Typical Pavement Rating Form – Visual (Caltrans, 2002)

3.2.2 Determine the Feasible Treatment Options

Once the types of distress have been identified and noted, test results collected and analyzed, and other available data are reviewed, feasible treatments can be identified. "Feasibility" is determined by a treatment's ability to address the functional and structural condition of the pavement while also meeting any future needs. The type of distress to determine the appropriate treatment is particularly important for preservation. Distresses are much better at telling what treatment should be used, including cracking, rutting, rideability and others. Common pavement distresses are covered in detail in Chapter 1 of the MTAG and can also be found at https://roadresource.org/treatmentresources for use in treatment selection.

Feasibility is not a function of affordability, because at this stage of the selection process, the primary purpose is to determine what treatments are possible candidates. Figure 3-3 illustrates the Caltrans matrix for treatment options for raveling, oxidation, bleeding, and rutting; and Figures 3-4 and 3-5 show Caltrans general guidelines for effective maintenance treatments based on the type of cracking distress. Caltrans definitions for types of cracking distress are as follows (Caltrans, 2015):

- Alligator A cracking - This is a single or double unconnected crack in the wheel path parallel to the centerline. Sometimes this appears as two parallel lines in the wheel path. Alligator A cracking is rated even if it is sealed. Sometimes a thin maintenance seal may be covering alligator A cracking. If cracks are showing through the seal either by depressions in the seal or by bleeding crack-sealant, the cracks will be rated.
- Alligator B cracking - This is interconnected or interlaced cracks in the wheel path, forming a series of small polygons (generally less than 1 foot on each side). The cracking resembles the appearance of alligator skin or chicken wire.
- Block cracking - This is a pattern of cracks that divides the pavement into rectangular pieces with areas about 1 to 105 square feet.
- Edge cracking - This is a pattern of crescent-shaped cracks or fairly continuous cracks which intersect the pavement edge and are located within 1.5 ft of the pavement edge adjacent to the shoulder. Applies only to pavements with unpaved shoulders.
- Longitudinal and transverse linear cracking - Longitudinal cracking is approximately parallel to the centerline and does not fall in the wheel path. It is less than 45 degrees measured from the centerline. Transverse cracking occurs approximately perpendicular to the centerline of the pavement and extend at least halfway across the lane.

In general, the treatments included in the MTAG are:

- Crack filling, Crack and Joint Sealing, and patching
- Fog and rejuvenator seals
- Slurry seals, types I, II, and III
- Micro-surfacing, types II and III

- Chip seals (Polymer Modifier Emulsion (PME) and Asphalt Rubber (AR)) and scrub seals
- Multi-Layer Systems (combinations of treatments)
- Thin HMA overlays

Table 3-1 provides a summary of the treatments; they are discussed in more detail in the remaining chapters.

Table 3-1 Provides a Simple Overview for These Treatments

Strategy	Description	Material	Comments
Crack Sealing	Flowable sealant for cracks	Hot: asphalt rubber or polymer-modified; no asphalt composites, mastics Cold: emulsion with polymers	Must clean & dry cracks and avoid overfill and smearing
Patching	Repair/patching of localized distressed areas	Hot Mix Asphalt (HMA) or quick patch products	Clean and dry existing surface. Use HMA and roller for larger digout patches
Fog Seal	Light spray of emulsion sealer	Diluted emulsions	For textured surfaces only. Too much can create slippery surfaces
Rejuvenating Fog Seal	Light spray application	Rejuvenating emulsion	Also use as flush coat over new chip seal. For highly oxidized areas
Chip Seal (Emulsion)	Heavy emulsion spray + aggregate	RS or CRS emulsion with polymer + aggregate)	For open roads, not residential streets or parking lots or bleeding areas
Chip Seal (hot)	Hot binder spray + aggregate	Asphalt-rubber or polymer-modified+ aggregate	Okay for cooler weather and night work
Scrub Seal (w/chips)	Sprayed binder broomed into cracks +aggregate	Special emulsion with rejuvenator & polymer + aggregate	Used for mass crack treatment and rejuvenating

Table 3-1 Provides a Simple Overview for These Treatments (Continued)

Strategy	Description	Material	Comments
Slurry Seal	Thin sealing layer	Emulsion/graded aggregate mixture (Type 1, 2, 3)	For residential/low traffic areas
Micro-Surfacing	Special slurry seal with polymers and additives	Special high-polymer emulsion + graded aggregate + cement	Tougher slurry coat. Good for rut filling & leveling. OK with cooler temps
Cape Seal/ Multilayer	Chip seal + slurry seal or micro-surfacing combo	(see above)	For moderate to high traffic areas
Thin HMA Overlay	HMA paved layer	HMA with smaller aggregate	For smoothing and sealing

The benefits and the uses of these treatments are discussed in more detail in the remaining chapters of the MTAG. A summary of the cost data can be found in the Appendix to this chapter.

Preventive Treatments		Raveling	Oxidation	Bleeding	Rutting (If stabilized and in pavement surface not subgrade)		Climate				Traffic Volumes			Night Time Application	Snow Plow Usage
					<1/2"	>1/2" but <1"	Desert	Valley	Coastal	Mountain	ADT Less than 5000	ADT > 5000 < 30,000	ADT > 30,000		
Crack Seals															
Hot Applied		N	N	N	N	N	G	G	G	G	G	G	G	G	G
Mastic		N	N	N	N	G	G	G	G	G	G	G	G	G	G
Dig Outs															
HMA		N	N	G	N	G	G	G	G	G	G	G	G	G	G
Fog Seals															
Fog Seal		G	G	N	N	N	G	G	G	G	G	F	N	N	F
Rejuvenating Fog Seal		G	G	N	N	N	G	G	G	G	G	F	N	N	F
Slurry Seals	For Cracks over 1/4' in width, Crack Seal should be done prior to application of any additional treatments with the exception of Scrub Seal														
Type II		G	G	N	N	N	G	G	G	F	G	G	F	N	P
Type III		G	G	N	N	N	G	G	G	F	G	G	F	N	P
Micro Surfacing															
Type II		G	G	N	G	G	G	G	G	G	G	G	G	G	F
Type III		G	G	N	G	G	G	G	G	G	G	G	G	G	F
Chip Seals															
Scrub Seal		G	G	N	N	N	G	G	G	F	G	F	N	N	P
PME		G	G	N	N	N	G	F	G	F	G	F	N	N	P
AR		G	G	N	N	N	G	G	G	F	G	G	N	G	F
Multi Layer															
AR Cape		G	G	N	G	F	G	G	G	G	G	G	N	G	F
Scrub Cape		G	G	N	N	N	G	G	G	G	G	F	N	N	N
3 Layer System		N	N	N	G	G	F	G	G	G	G	G	N	G	F
Thin Lift Overlays															
HMA		N	N	P	G	G	G	G	G	G	G	G	G	G	G
RHMA-O		N	N	G	F	N	G	G	G	P	G	G	G	G	N
RHMA-G		N	N	P	G	G	G	G	G	G	G	G	G	G	G
HMA-MB		N	N	P	G	G	G	G	G	G	G	G	G	G	G
BWC-G		N	N	P	G	G	G	G	G	G	G	G	G	G	G
BWC-O		N	N	G	G	N	G	G	G	P	G	G	G	G	N
RBWC-G		N	N	P	G	G	G	G	G	G	G	G	G	G	G
RBWC-O		N	N	G	G	N	G	G	G	P	G	G	G	G	N

G- Good Performance
P - Poor Performance
F - Fair Performance
N - Not Recommended

Figure 3-3 Caltrans Maintenance Treatments for Raveling, Oxidation, Bleeding, and Rutting

Preventive Treatments		Alligator A Cracking			Alligator B Cracking			Block Cracking			Edge			Longitudinal or Transverse Cracking		
											Low	Medium	High			
		< 10%	10% - 20%	>20%	< 10%	10% - 20%	>20%	< 10%	10% - 20%	>20%	No Material Loss	Up to 10% Material Loss	> 10% Material Loss	< 10%	10% - 20%	>20%
Crack Seals		Y	N	N	N	N	N	Y	Y	N	N	N	N	Y	Y	N
Hot Applied																
Mastic																
Dig Outs																
HMA		N	N	N	G	F	N	N	N	G	N	F	G	N	F	F
Fog Seals																
Fog Seal		N	N	N	N	N	N	G*	F*	N	N	N	N	G*	F*	N
Rejuvenating Fog Seal		N	N	N	N	N	N	G*	F*	N	N	N	N	G*	F*	N
Slurry Seals	For Cracks over 1/4" in width, Crack Seal should be done prior to application of any additional treatments with the exception of Scrub Seal															
Type II		G	F	N	N	N	N	F	N	N	F	P	P	F	N	N
Type III		G	F	N	N	N	N	F	P	N	F	P	P	F	P	N
Micro Surfacing																
Type II		G	F	N	N	N	N	F	F	N	P	P	P	F	N	N
Type III		G	F	N	N	N	N	F	F	N	P	P	P	F	N	N
Chip Seals																
Scrub Seal		G	F	N	F	P	N	G	G	F				G	G	F
PME		F	N	N	N	N	N	G	F	P				G	F	P
AR		G	G	F	F	P	N	G	G	F				G	G	F
Multi Layer																
AR Cape		G	G	F	F	P	N	G	G	F				G	G	F
Scrub Cape		G	F	N	F	P	N	G	G	F				G	G	F
3 Layer System		G	G	F	F	F	N									
Thin Lift Overlays																
HMA		G	F	P	F	P	N	G	F	P	N	N	N	G	G	F
RHMA-O		G	F	P	F	P	N	G	F	P	N	N	N	G	G	F
RHMA-G		G	F	P	F	P	N	G	F	P	N	N	N	G	G	F
HMA-MB		G	F	P	F	P	N	G	F	P	N	N	N	G	G	F
BWC-G		G	F	P	F	P	N	G	F	P	N	N	N	G	G	F
BWC-O		G	F	P	F	P	N	G	F	P	N	N	N	G	G	F
RBWC-G		G	F	P	F	P	N	G	F	P	N	N	N	G	G	F
RBWC-O		G	F	P	F	P	N	G	F	P	N	N	N	G	G	F

G- Good Performance
P - Poor Performance
F - Fair Performance
N - Not Recommended
Y - Yes
* Must be crack sealed prior to application

Figure 3-4 Caltrans Maintenance Treatments for Cracking

Preventive Treatments	Crack Width			
	< 1/4"	>1/4" to<3/4"	>3/4" but <1.5"	>1.5"
Crack Seals				
Hot Applied	N	G	F	N
Mastic	N	N	G	G

Figure 3-5 Caltrans General Guidelines for Effective Crack Sealing

3.2.3 Analyze and Compare the Feasible Treatment Options

There are several treatments that may be feasible. Consider the treatment placement cost, the life of the treatment and if the treatment extends the overall life of the pavement. Additional factors are cost effectiveness, traffic level, contractor availability, construction limitations, weather, curing times or local issues (e.g. disruption of businesses, aesthetics). The most desirable treatment provides the greatest improvement in condition, extension of pavement life, or the life of the treatment for the lowest life cycle costs. Then, a life cycle or other cost effectiveness measure should be made. These decisions are generally made at the District level first and then reviewed by Headquarters. The District, however, has the final decision.

Cost Effectiveness

For an initial assessment, a simplified approach may be employed (Pavement Preservation and Recycling Alliance (Road Resource, 2024). This simplified approach is useful as costs and actual bid prices fluctuate. One simplified approach is the equivalent annual cost (EAC). This is calculated using the following equation:

EAC = Unit Cost of Treatment / Expected Life of Treatment……(3.1)

The procedure can be found in the following link and an example is given in Figure 3-6 https://roadresource.org/network/lc_calc

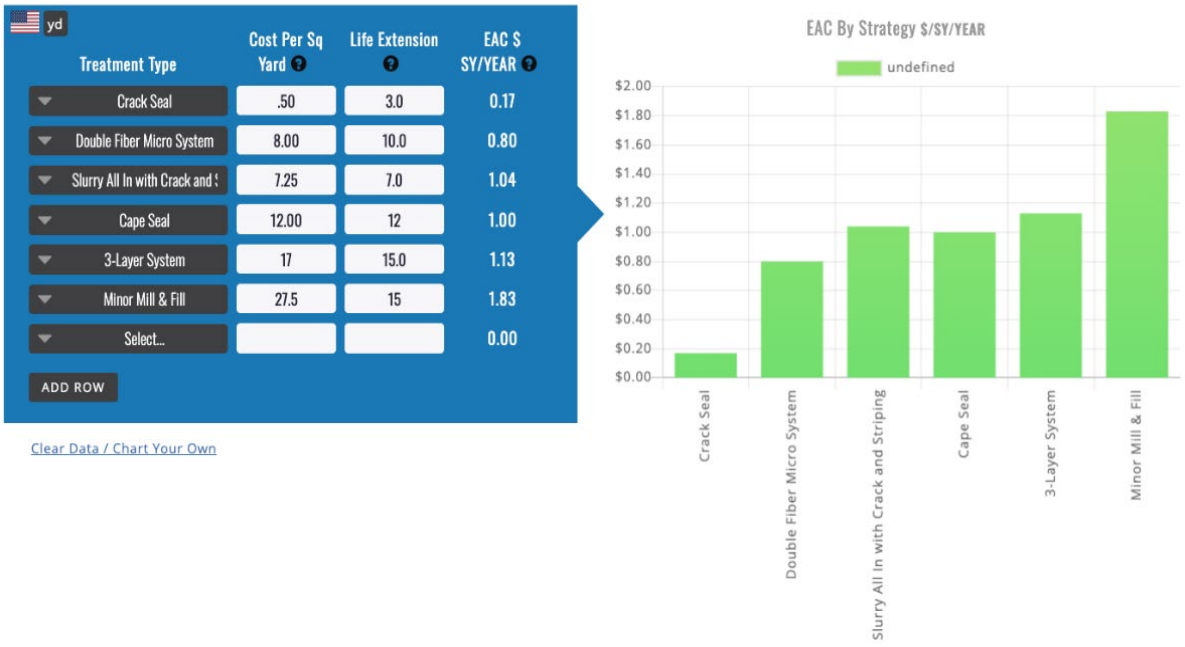


Figure 3-6 EAC by Strategy, Cost /yd^2/year

Another approach using the life cycle cost procedure can be found on the CCPIC website https://www.ucprc.ucdavis.edu/ccpic/. To use this method, you need to know the interest rate, the cost of treatment, and the timing of the treatments over a similar time period.

Consider the following questions to maximize pavement life and optimize resources:

- What is the best treatment for this road now?
- What combination of treatments, over time, will maximize the life of my road?

By addressing these questions, some agencies are getting a life cycle of 40 years or more. No matter where your pavement is in its life cycle, the optimized approach can be applied for longevity and savings. An example of this type of analysis is shown in Figure 3-7, where Present Value (aka, Present Worth) is the basis for long-term economic evaluations. (Lower Present Value means more economical.)

Figure 3-7 Example of LCCA

Sustainability

Sustainability or environmental impact is also affected by the treatment selected (Caltrans, 2022, FHWA 2023). Roadresource.org also has a calculator for these impacts. By knowing the treatment, the unit cost, the life extensions, and the square yards treated, one can calculate not only the cost savings, but also the environmental impact of the treatment selection in greenhouse gas (GHG) emissions (Figure 3-8).

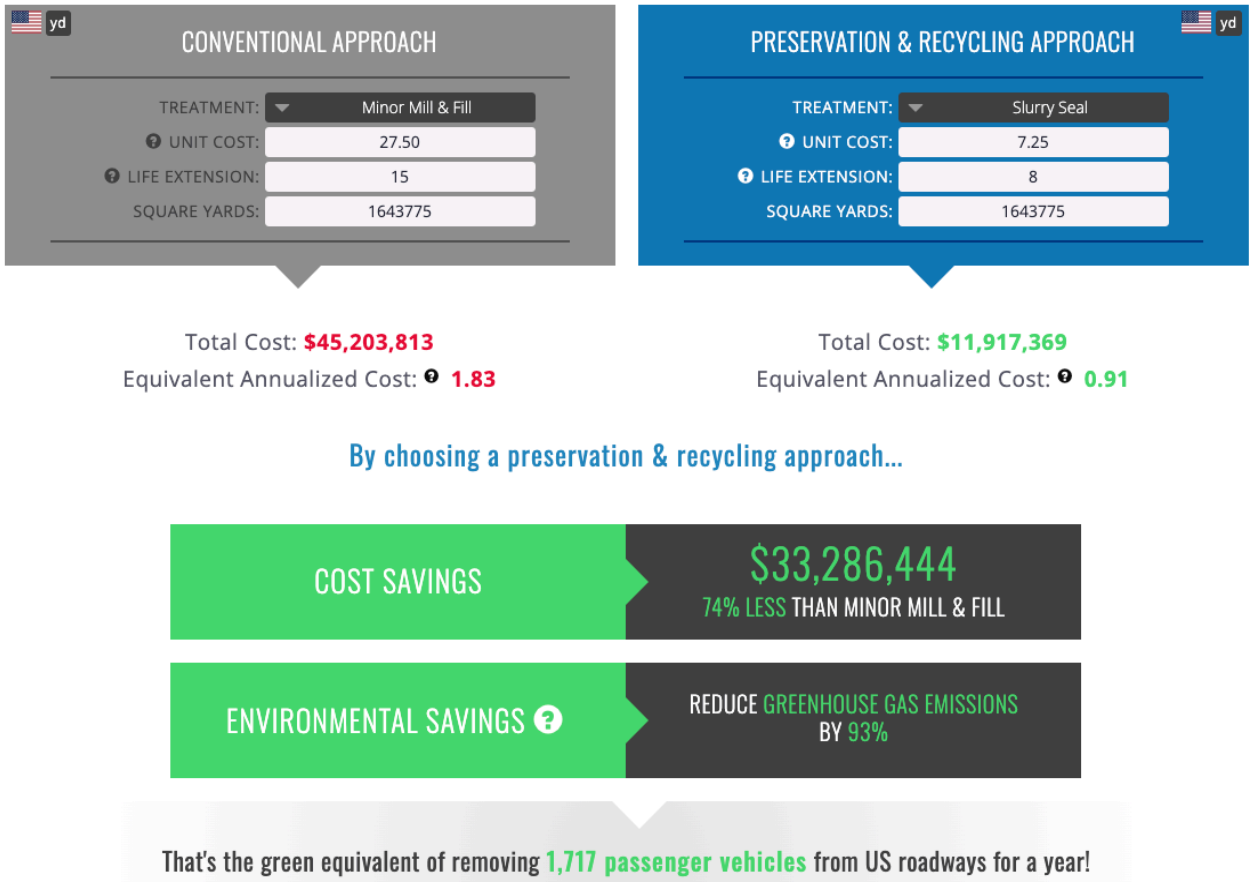


Figure 3-8 Example of the Road Resource Sustainability Calculator

Remaining Service Life

Understanding Remaining Service Life (RSL) is critical to designing a treatment plan that stretches your budget further and reverses the trend of a deteriorating network (the FHWA RSL pub IF-07-006). A calculator for this tool can be found at: https://roadresource.org/network/rsl. RSL determines how the treatments will affect the overall network life in terms of lane-mile years of service life provided by a maintenance treatment.

For example, is your network gaining or losing life each year? Every year, every lane mile of your network loses one (1) lane mile-year of life. A 250-mile network that is two lanes wide loses 500 lane-mile years of life annually. Each time a treatment is applied it adds life to the network. A chip seal can add 7 years of life extension to a section. If the section is 10 miles long by two lanes, then 10 × 7 × 2 = 140 lane-mile-years are added to the network. In the tables below, we consider two different approaches to the network. One example results in years added to the network and extends the life of the network and the other option shows not enough lane miles treated and a declining network.

To avoid losing years, the owner must design a treatment plan that adds 500 lane-mile-years of life or more every year! The following illustrates how an agency reallocated funds to inject more life into their network, using the same budget.

Many agencies are learning that the use of limited funds toward a “worst first” approach accelerates the decline of their overall network, as miles of good roads go untreated each year. In this first example, Figure 3-9, the owner has added 245 lane-mile years of life using various treatments and the network will decline by 255 lane-mile years. Overall network conditions will decline.

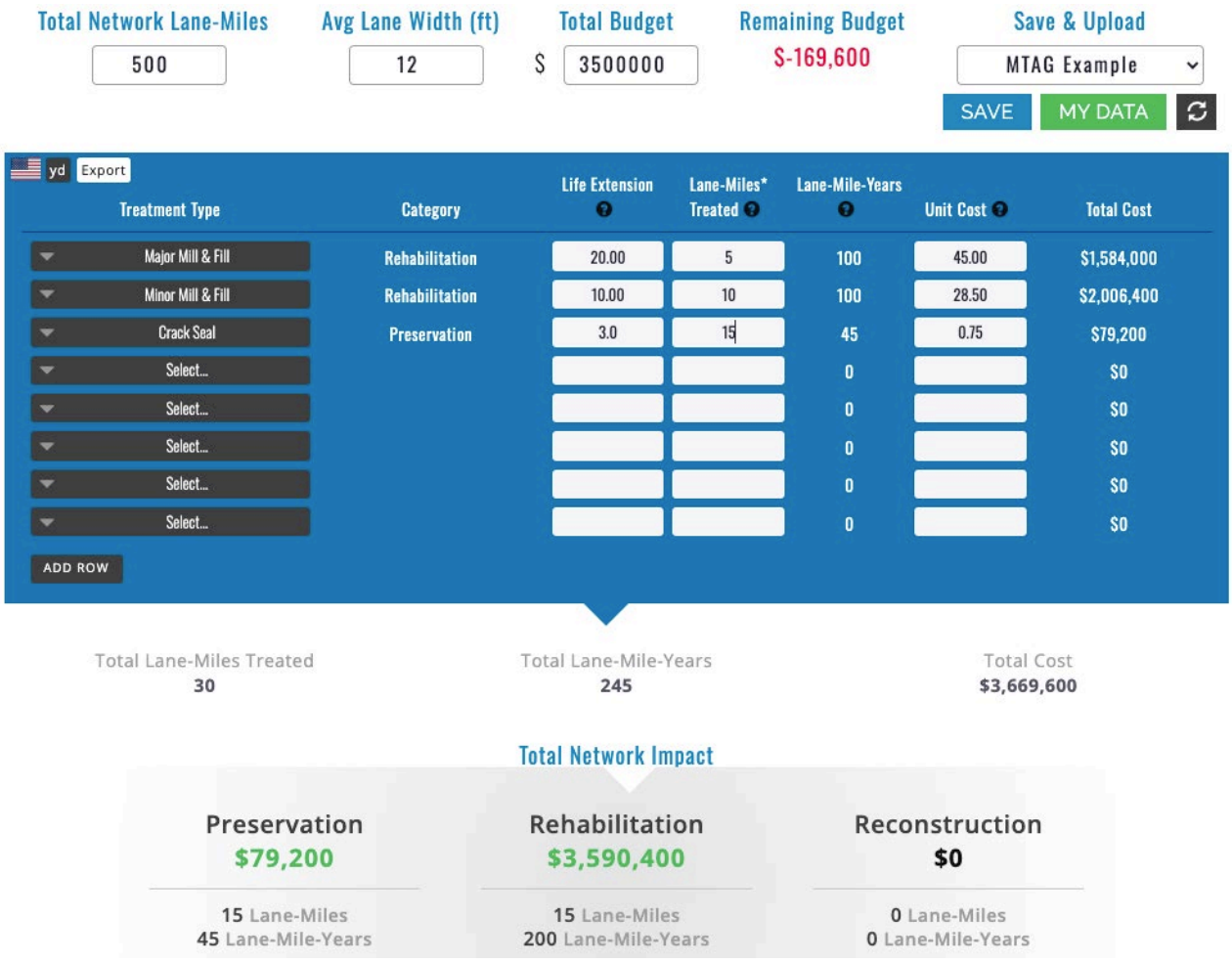


Figure 3-9 Remaining Life Example-Worst First Approach

The next example is an optimized approach, which reallocates funds across more efficient strategies to keep good roads good and help you get ahead. The results are shown in Figure 3-10. Employing different treatment types, but still the same budget, the owner has added 525 lane-mile-years of life. The result for the network is an increase in RSL and overall pavement condition improvement.

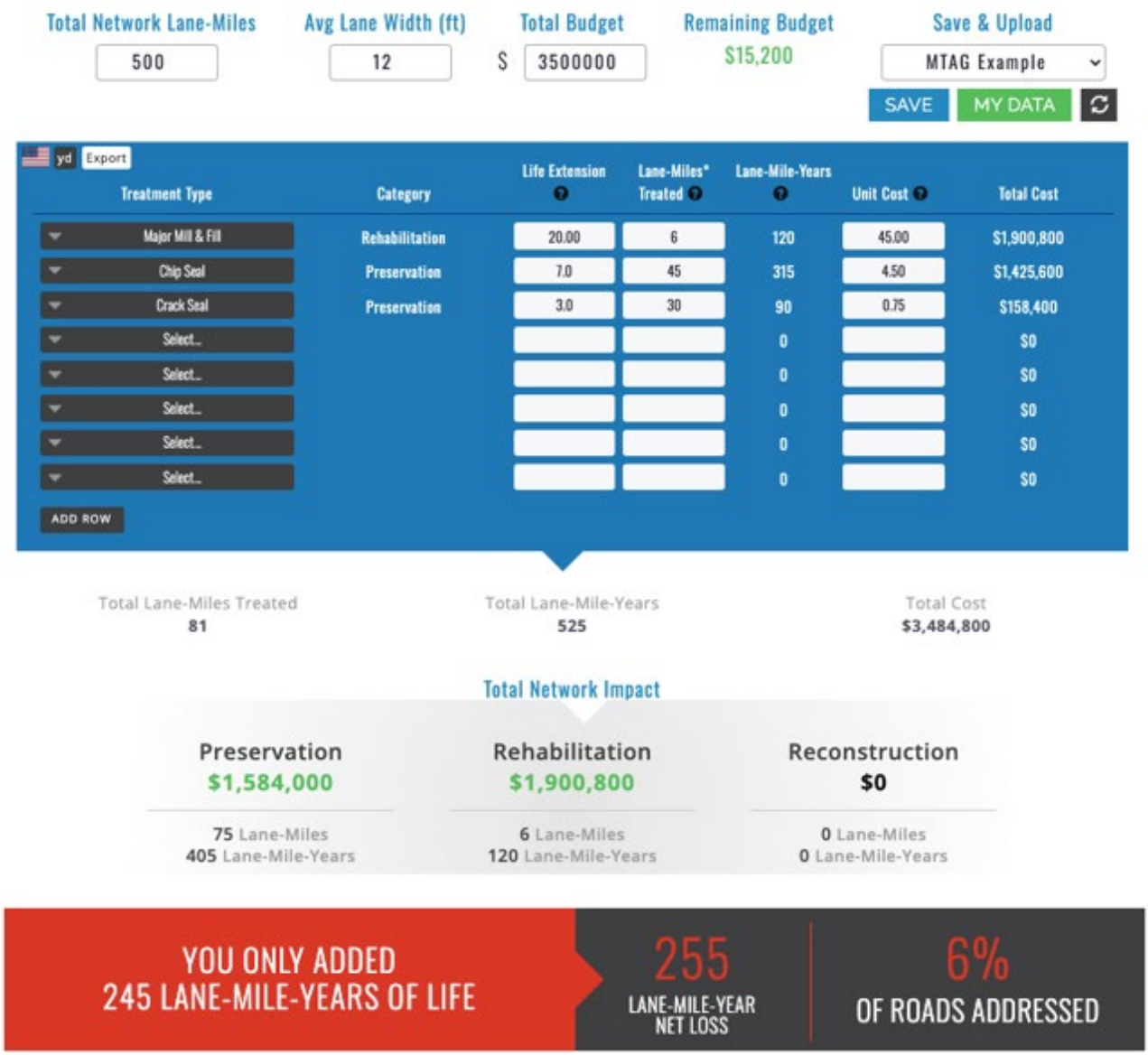


Figure 3-10 Remaining Life Example- Optimized Approach

3.3 COST ESTIMATING RESOURCES

3.3.1 Guidance

The *"Preparation Guidelines for Project Capital Cost Estimates"* dated May 6, 2024, discusses two methods in Article 4. The simplest method is the "Previous Bid Prices Method". Using this method, previous unit prices for the same items of work received in a bid are used to prepare the estimate. The "Previous Bid Prices Method" is most often used and the method similar to what contractors follow, the "Complete Analysis Method", is "rarely practical."

3.3.2 Contract Item Codes

The Contract Item Codes are available at:

https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications

The Contract Item Codes are available in two list formats, alphabetically and by item code number. Item code numbers are based on the corresponding section of the Standard Specifications, e.g. seal coat items begin with "37." Both lists are extensive. A list of typical pavement preservation-related item codes is shown in Table 3-2.

Table 3-2 Contract Item Codes

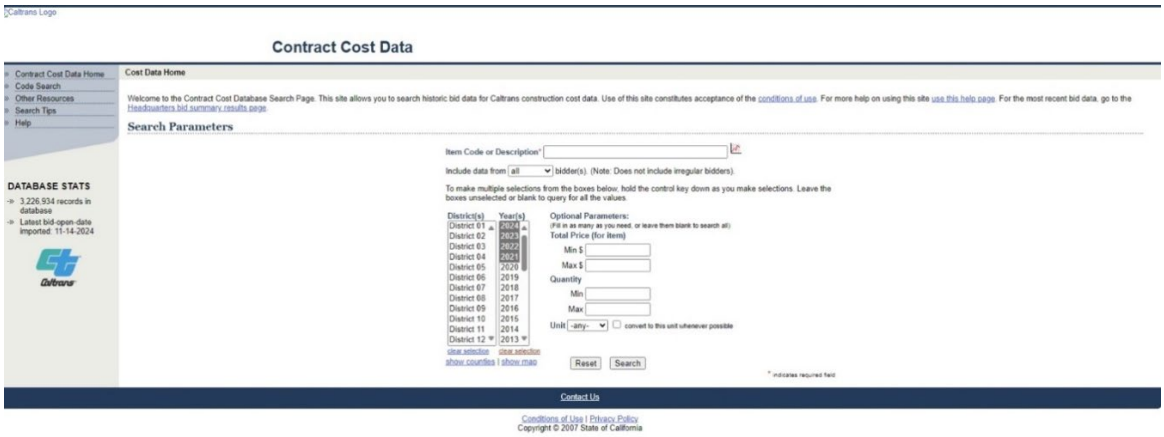
Item No	Item Description	Unit Pay	2025 Section
260202	CLASS 2 AGGREGATE BASE (TON)	TON	26
260203	CLASS 2 AGGREGATE BASE (CY)	CY	26
370001	SAND COVER (SEAL)	TON	37
370120	ASPHALT-RUBBER BINDER	TON	37
370121	MODIFIED ASPHALT BINDER (SEAL COAT)	TON	37
374002	ASPHALTIC EMULSION (FOG SEAL COAT)	TON	37
374004	ASPHALTIC EMULSION (FLUSH COAT)	TON	37
374207	CRACK TREATMENT	LNMI	37
374491	NONPOLYMER ASPHALTIC EMULSION (SEAL COAT)	TON	37
374493	POLYMER ASPHALTIC EMULSION (SEAL COAT)	TON	37
375002	AGGREGATE (SEAL COAT)	TON	37
375009	TACK COAT (SEAL)	TON	37
375020	PARKING AREA SEAL	TON	37
375036	PRECOATED AGGREGATE (SEAL COAT)	TON	37
377501	SLURRY SEAL	TON	37
378000	MICRO-SURFACING	TON	37
390132	HOT MIX ASPHALT (TYPE A)	TON	39
390135	HOT MIX ASPHALT (LEVELING)	TON	39
390136	MINOR HOT MIX ASPHALT	TON	39
390137	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	TON	39
390151	ASPHALTIC EMULSION (BONDED WEARING COURSE)	TON	39
390401	HOT MIX ASPHALT-OPEN GRADED (OPEN GRADED FRICTION COURSE)	TON	39
390402	RUBBERIZED HOT MIX ASPHALT-OPEN GRADED (OPEN GRADED FRICTION COURSE)	TON	39
390403	RUBBERIZED HOT MIX ASPHALT-OPEN GRADED HIGH BINDER (OPEN GRADED FRICTION COURSE)	TON	39
391006	ASPHALT BINDER (GEOSYNTHETIC PAVEMENT INTERLAYER)	TON	39
393004	GEOSYNTHETIC PAVEMENT INTERLAYER (PAVING FABRIC)	SQYD	39

Table 3-2 Contract Item Codes (Continued)

Item No	Item Description	Unit Pay	2025 Section
393005	GEOSYNTHETIC PAVEMENT INTERLAYER (PAVING MAT)	SQYD	39
393006	GEOSYNTHETIC PAVEMENT INTERLAYER (PAVING GRID)	SQYD	39
393007	GEOSYNTHETIC PAVEMENT INTERLAYER (PAVING GEOCOMPOSITE GRID)	SQYD	39
393008	GEOSYNTHETIC PAVEMENT INTERLAYER (GEOCOMPOSITE STRIP MEMBRANE)	SQYD	39
395010	BONDED WEARING COURSE-GAP GRADED	TON	39
395020	RUBBERIZED HOT MIX ASPHALT-GAP GRADED (BONDED WEARING COURSE)	TON	39
395030	HOT MIX ASPHALT-OPEN GRADED (BONDED WEARING COURSE)	TON	39
395040	RUBBERIZED HOT MIX ASPHALT-OPEN GRADED (BONDED WEARING COURSE)	TON	39
397005	TACK COAT	TON	39
398200	COLD PLANE ASPHALT CONCRETE PAVEMENT	SQYD	39

3.3.3 Contract Cost Data

The Caltrans Contract Cost Data website home page is given below, and this section explains how it can be used. https://sv08data.dot.ca.gov/contractcost/



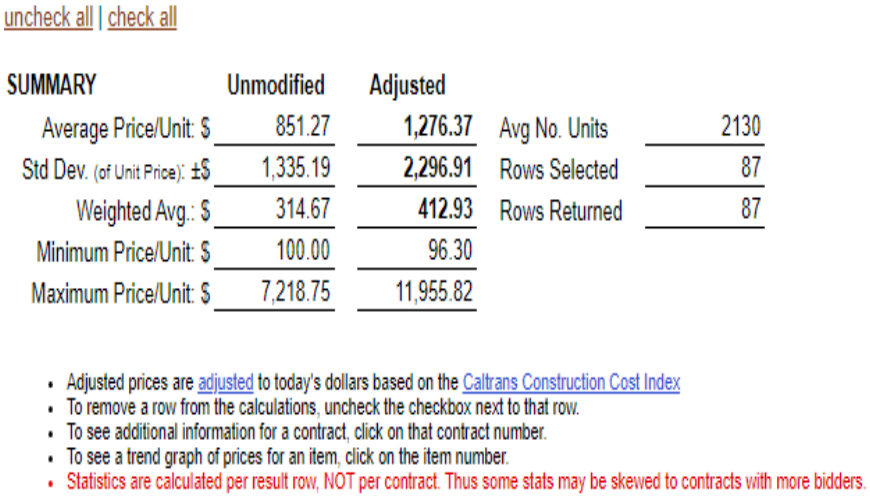
Using this page, the following needs to be done:

- Enter the item code
- If the item code is not known, click on the “Code Search” tab and use this feature to find the item code.
- Choose the number of bidders for which data is to be included. Select the “top 3” or “top 5.”

- Choose the District(s) to be searched. If more than one District is selected, the District(s) should be those in the same geographic proximity.
- Choose the Years to search. The current or most recent year is most relevant. The list generated will automatically adjust unit prices to the current year based on the Caltrans Construction Cost Index, but that adjustment may distort the unit price in comparison to the most recent unit prices.
- Under "Optional Parameters", enter the minimum and maximum quantity. The most economical quantity for an item code is that which can be constructed in one day. The quantities below will reflect a high unit price due to the cost of mobilization.

A list will be generated based on the data parameters selected. Click on "QTY" to arrange in ascending quantity. Note the following:

- For the unit prices to be comparable, the relevant projects must be similar in quantity and in the same general geographic area.
- Unit prices may be distorted due to "unbalancing," Examine the unit prices for all bidders. The "fair market value" is not necessarily the unit price of the low bidder. The unit prices of bidders in the middle of the results may be more reflective.
- The unit prices may not reflect the costs of mobilization, stormwater pollution prevention, and traffic control.
- In the lower left-hand corner, a "Summary" of the data search is included. The following is for Slurry Seal, in District 12, 2022-2024. The standard deviation is influenced by several projects with extremely small, uneconomical quantities. Carefully examine the list of projects and only produce a summary of those that are comparable in quantity and geographic location.



uncheck all | check all

SUMMARY	Unmodified	Adjusted		
Average Price/Unit: $	851.27	1,276.37	Avg No. Units	2130
Std Dev. (of Unit Price): ±$	1,335.19	2,296.91	Rows Selected	87
Weighted Avg.: $	314.67	412.93	Rows Returned	87
Minimum Price/Unit: $	100.00	96.30		
Maximum Price/Unit: $	7,218.75	11,955.82		

- Adjusted prices are adjusted to today's dollars based on the Caltrans Construction Cost Index
- To remove a row from the calculations, uncheck the checkbox next to that row.
- To see additional information for a contract, click on that contract number.
- To see a trend graph of prices for an item, click on the item number.
- Statistics are calculated per result row, NOT per contract. Thus some stats may be skewed to contracts with more bidders.

- To select the comparable projects, click on "uncheck all", then check the box to the left of each comparable project. This will ensure that the Summary reflects comparable projects.
- Using the information above, estimate a unit price for the item code and estimated quantity to be constructed.

3.4 SUMMARY

This chapter presented information on strategy selection for various pavement preservation treatments and included information on analyzing and comparing the feasible treatment options. It also provided an approach for calculating the costs of the various treatments.

3.5 REFERENCES

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Note: Caltrans manuals referenced above may have later editions than those cited. Refer to the latest editions of these references for the most current information.