

DEFINITIONS TO HIGHWAY NEEDS & PROJECT ANALYSIS REPORT

(More Complete Definitions are in APPENDIX A)

IDENTIFICATION:

FEDERAL-AID SYSTEM - The Federal-aid designation of the segment.

FUNDING CATEGORY - The Department of Transportation's funding category for the segment.

FUNCTIONAL CLASSIFICATION - The functional classification of the segment.

DIRECTION - The direction of travel for divided routes.

BEGINNING MRM - The beginning mileage reference point of the highway segment.

MRM DISPLACEMENT - The distance, in thousandths of a mile, from the MRM alongside the roadway to the beginning of the segment.

SEGMENT LENGTH - The length of the highway segment shown to the nearest one-thousandth of a mile.

YEAR BUILT - The year the existing grade was constructed.

YEAR LAST IMPROVED - The year the existing asphalt surface was placed or the year the existing PCCP surface was last rehabilitated.

YEAR LAST SEALED - The year the last surface treatment was applied to an asphalt surface. This includes chip seals and sand seals. Crack sealing is not included. This only applies to asphalt surfaces.

ROADWAY CONDITIONS:

SURFACE CONDITION INDEX - A combined index based upon the individual indices (excluding roughness for urban segments) that give an overall pavement condition. The Surface Condition Index (SCI) provides an indication of the overall health of the highway pavement. The index uses a scale of 0 (worst) to 5 (best). The data that is used to compute this index is gathered on a yearly basis.

NOTE: For segments with Surface Type equal to "BRDG", this value refers to the FHWA Bridge rating divided by 20. To get the actual FHWA Bridge Rating value, multiply this number by 20, i.e. $3.55 \times 20 =$ FHWA Bridge Rating of 71.

ROUGHNESS INDEX - An index of the rideability of the road section. The data used to compute this index is collected from 75 percent of the highway system on a yearly basis. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no data is available. Roughness data for urban segments should be viewed critically as the data collection process does not lend itself well in these areas.

ASPHALT INDEX VALUES:

TRANSVERSE CRACKING - An index of the cracks that are perpendicular to the pavement centerline. A numeric rating of 0 to 5.00 with 5.00 being a perfect rating is calculated using visual distress survey data. This rating is determined by subtracting the deduct value from 5.00. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no date data is available.

FATIGUE CRACKING - An index of the interconnecting cracks that resemble alligator skin or chicken wire. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no date data is available.

PATCHING/PATCH DETERIORATION - An index of the area where a portion of the pavement surface has been overlaid or replaced. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no date data is available.

BLOCK CRACKING - An index of cracks that divide the surface into approximately rectangular pieces. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no date data is available.

RUT INDEX - An index of surface depressions that occur in the wheel path. The data used to compute this index is collected from 75 percent of the highway system on a yearly basis. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no date data is available. This data in the parenthesis also applies to the RUT DEPTH (INCHES) AVG/MAX data which follows next.

RUT DEPTH (INCHES) AVG/MAX - The average rut depth in inches for the segment. This value is back calculated from the Rut Index. Since the Rut Depth Index only considers rut depths up to 0.6", the actual average rut depth may be greater but will be reported as 0.6". Rut Depth Max is the maximum rut depth measured within this section.

CONCRETE INDEX VALUES:

D-CRACKING/ASR - An index of cracking that appears as a series of closely spaced hairline cracks that often cause dark coloring of the surface in the surrounding area. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no date data is available.

JOINT SPALLING - An index of cracking, breaking, chipping, or fraying of the slab edges beginning at a joint or crack. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no date data is available.

CORNER CRACKING - An index of cracking that extends vertically through the entire slab which intersects the joints at a distance less than six feet from the corner of the slab. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no date data is available.

FAULTING - An index of the difference in elevation across a joint or a crack. The data used to compute this index is collected from 75 percent of the highway system on a yearly basis. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was

collected. A value of ** indicates that the value was manually adjusted while "--" indicates no data is available.

JOINT SEAL DAMAGE - An index of joint seal damage. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no data is available.

PUNCHOUTS - An index of an area enclosed by two closely spaced (usually less than two feet) transverse cracks, a short longitudinal crack, and the edge of the pavement or a longitudinal joint. Will normally occur on continuously reinforced concrete only. The first number is the index value. The index uses a scale of 0 (worst) to 5 (best). The second number in parenthesis is the year the data was collected. A value of ** indicates that the value was manually adjusted while "--" indicates no data is available.

STRUCTURAL DESCRIPTION:

SURFACE TYPE - The surface type of the driving lanes. New sections were created for each change in type except for thin on strong / thin on weak (TONS/TONW) changes that occurred in lengths less than 1/2 mile.

SHOULDR TYPE – PRIM/SECNDRY - The prevailing surface type of the shoulder. The first abbreviation refers to predominant shoulder type closest to the driving lane. The second abbreviation refers to predominant shoulder type on the outer edge of the road. The shoulder starts at the white line on the right side of the road and extends toward the ditch. A secondary shoulder does not exist if none is shown on the form.

SURF WIDTH – PREDOMIN (MIN) - The prevailing width of the surfaced driving lanes. The first number is the predominant surface width within the segment. The second number in parenthesis is the minimum width within the segment.

LF SHLDR WIDTH-PRIM/SECNDRY - Facing the highway in ascending MRM direction, the prevailing width of the primary and secondary left shoulder to the nearest foot. The numbers in parenthesis are the minimum widths.

RT SHLDR WIDTH-PRIM/SECNDRY - Facing the highway in ascending MRM direction, the prevailing width of the primary and secondary right shoulder to the nearest foot. The numbers in parenthesis are the minimum widths.

WIDTHS-RDWY/ROW-PREDOM/MIN – The widths of various portions of the highway. The first number indicates the prevailing roadway width to the nearest foot. The second number indicates the prevailing right-of-way width to the nearest foot. The third number (which is in parenthesis) is the minimum right of way width within the segment.

ROADBED LAYERS - The first grouping shows the year the layer was built or improved. The second grouping shows the layer type. The last grouping shows the thickness of the layer. See this section in the appendix for a detailed description of the roadbed layer codes.

NUMBER OF STRUCTURES - The number of bridges greater than 20 feet in length within the highway segment. This excludes box culverts.

NUMBER OF BOX CULVERTS - The number of box culverts within the highway segment.

3 YR AVG. MAINTENANCE COSTS:

The following costs reflect the yearly average per mile cost associated with each segment. They are computed from actual segment maintenance costs from the previous three years that are then averaged to compute a yearly cost. This cost is then divided by the segment length to compute the average maintenance cost per mile.

MAINLINE - The average per mile costs associated with driving surface maintenance over the last three years.

SHOULDERS - The average per mile costs associated with shoulder maintenance over the last three years.

STRUCTURE - The average per mile cost associated with structure maintenance over the last three years.

OTHER - The average per mile cost of all other maintenance costs not included above for the segment over the last three years. This includes costs associated with drainage and erosion control, ditch cleaning, mowing, snow control, fence repair, and other miscellaneous costs that are not directly related to shoulder or structure maintenance.

TOTAL - The total average maintenance cost per mile for the segment for the past three years. This is the sum of the *Mainline*, *Shoulders*, *Structure*, and *Other* costs.

TOT 3YR MAINT. CONTRACT AMT - The three-year AVERAGE amount expended only on maintenance contracts. These costs can fall into any of the categories listed above and are included in those averages.

TRAFFIC:

CURRENT ADT - Current Average Daily Traffic.

PROJECTED 20 YR ADT - Average Daily Traffic Forecasted 20 years into the future on this segment of highway using the current ADT.

NUMBER OF TRUCKS - Current Average Daily Truck Traffic.

CRASHES:

WEIGHTED CRASH RATE - The crash rate for the last three years.

NUMBER OF FATAL - The number of fatal crashes for the last three years. Injury and/or property damage crashes including fatalities are categorized here.

NUMBER OF INJURY - The number of injury crashes for the last three years. Property damage crashes including injuries are categorized here.

NUMBER OF PROPERTY DAMAGE - The number of property damage only crashes for the last three years.

MAINLINE IMPROVEMENTS: (Data represents budget estimates and STIP projects as of the date listed in the Introduction).

PROJECT PROGRAMMED - If the segment is programmed for improvements, a “YES” will appear in this column. The programmed project can be identified by the presence of a PCN listed in the project data.

- PCN - Project Control number, used for identification and cross-reference purposes. This number only appears if the improvement is a programmed project.
- IMPROVEMENT TYPE - The type of improvement for which the cost is computed. Improvements listed are for mainline projects only. Things such as fencing projects, roadway lighting, rest area improvements, shoulder only improvements, erosion control, and similar projects are not included. Please refer to the current “STIP” for detailed programming information.

NO DATA	No data	FULL DEP REC	Full depth reclamation
AC OVERLAY	Asphalt concrete overlay	PAV REPAIR	Pavement repair
AC OVER PCCP	Asphalt overlay over concrete (No crack and seat)	PAV RESTORE1	Pavement restoration 1 (<40% full depth joint repair)
BLOTTER	Blotter surfacing or reapplication	PAV RESTORE2	Pavement restoration 2 (>40% full depth joint repair)
BONDED OVLY	Bonded overlay	ROUTE/SEAL	Rout and seal cracks
COLD IP RCYL	Cold in place recycle	RECON AC	Reconstruct to flexible (TONS) pavement - (THK for interstate surfacing)
CHIP SEAL	Chip seal	RECON BLOT	Reconstruct to blotter (BLOT) pavement
CRACK_LEVEL	Crack leveling	RECON PCCP	Reconstruct to rigid (TKSJD) pavement
CRK SEAT ACO	Crack and seat/rubblize with AC overlay	RECON CRC	Reconstruct to CRC Pavement
DO NOTHING	Do nothing (bridge, etc)	RECON GRVL	Reconstruct to gravel
GRINDING	Grinding only	PCCP RESURF	Remove and replace PCC or CRC
GRAVEL SURF	Gravel surfacing or resurfacing	SEAL JNTS	Saw and seal joints
MICROSURFACE	Microsurfacing	SHLD WIDNING	Shoulder Widening
MILL AC OVLY	Mill and AC overlay	UB CRC OVLY	Unbonded CRC overlay
MILL PC OVLY	Mill and PCC overlay	UNDRSL/DBR	Undersealing/dowel bar retrofit
MILL S OVLY	Mill and Class S Asphalt Overlay		
MISC IMPROV	Miscellaneous major improvements		
NOT OPTIMZED	Not Optimized within analysis period		

- ESTIMATED IMPROVEMENT COST - The estimated cost of the proposed improvement. Costs are expressed in thousands of dollars and present day values. Costs are for mainline improvements only and will exclude costs for rest area improvements and major bridge and interchange improvements.
- IMPROVEMENT YEAR - The optimized year that the improvement should take place within the 20-year analysis period based upon a forecasted budget, or the year the improvement is programmed if a PCN is present.