APPENDIX P
CRCP UTILITY CURVE QUESTIONNAIRES

Abbas Mehdibeigi- Transportation Engineer

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress	Utility at Maximum Distress
Spalled Cracks	80	0.85
Punchouts	4	0.82
ACP Patches	2	0.80
PCC Patches	15	0.79

*For this exercise, the distresses are independent of one another or any other factors considered during the treatment selection process.

At the given percentages of the maximum acceptable distress that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
Percentage of Maximum Distress	**Utility**
10%	0.97
25%	0.95
40%	0.92
60%	0.90
80%	0.88

Punchouts	
Percentage of Maximum Distress	**Utility**
10%	0.95
25%	0.93
40%	0.90
60%	0.88
80%	0.85

ACP Patches	
Percentage of Maximum Distress	**Utility**
10%	0.94
25%	0.92
40%	0.90
60%	0.88
80%	0.85

PCC Patches	
Percentage of Maximum Distress	**Utility**
10%	0.93
25%	0.90
40%	0.88
60%	0.85
80%	0.82

**If this distress is classified as failed PCC patches, then the current utility curve is okay.

2. In PMIS, L_i for ride score is the percent of ride quality that can be lost. It is determined for three traffic levels: low, medium, and high. The utility value is determined according to the percent of ride quality lost (L_i). What is the maximum acceptable loss of ride quality (percentage) for each traffic level and what would be their corresponding utility values? As for the distresses, utility is the degree of pavement usefulness. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Traffic Level	Maximum Percentage of Ride Quality Lost (L_i)	Utility at Maximum Loss of Ride Quality
Low	70	0.30
Medium	50	30.0
High	30	0.28

*For this exercise, the maximum acceptable loss of ride quality is independent of distresses present or any other factors considered during the treatment selection process.

At the given percentages of the corresponding maximum acceptable loss of ride quality that was entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Low Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.93
25%	0.75
40%	0.70
60%	0.65
80%	0.40

Medium Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.91
25%	0.78
40%	0.72
60%	0.65
80%	0.40

High Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.90
25%	0.76
40%	0.70
60%	0.62
80%	0.38

Darlene Goehl- Pavement Engineer

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress	Utility at Maximum Distress
Spalled Cracks	600	0.40
Punchouts	700	0.30
ACP Patches	250	0.60
PCC Patches	250	0.60

*For this exercise, the distresses are independent of one another or any other factors considered during the treatment selection process.

At the given percentages of the maximum acceptable distress that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
Percentage of Maximum Distress	**Utility**
10%	0.80
25%	0.70
40%	0.60
60%	0.50
80%	0.45

Punchouts	
Percentage of Maximum Distress	**Utility**
10%	0.90
25%	0.80
40%	0.70
60%	0.55
80%	0.45

ACP Patches	
Percentage of Maximum Distress	**Utility**
10%	0.85
25%	0.80
40%	0.75
60%	0.70
80%	0.65

PCC Patches	
Percentage of Maximum Distress	**Utility**
10%	0.85
25%	0.80
40%	0.75
60%	0.70
80%	0.65

2. In PMIS, L_i for ride score is the percent of ride quality that can be lost. It is determined for three traffic levels: low, medium, and high. The utility value is determined according to the percent of ride quality lost (L_i). What is the maximum acceptable loss of ride quality (percentage) for each traffic level and what would be their corresponding utility

values? As for the distresses, utility is the degree of pavement usefulness. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Traffic Level	Maximum Percentage of Ride Quality Lost (L_i)	Utility at Maximum Loss of Ride Quality
Low	100	0
Medium	100	0
High	100	0.01

*For this exercise, the maximum acceptable loss of ride quality is independent of distresses present or any other factors considered during the treatment selection process.

At the given percentages of the corresponding maximum acceptable loss of ride quality that was entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Low Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.98
25%	0.85
40%	0.70
60%	0.45
80%	0.25

Medium Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.98
25%	0.85
40%	0.70
60%	0.45
80%	0.25

High Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.98
25%	0.85
40%	0.70
60%	0.45
80%	0.25

David Wagner- District Pavement Management Engineer

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress	Utility at Maximum Distress
Spalled Cracks	1000	0.12
Punchouts	250	0.04
ACP Patches	250	0.04
PCC Patches	250	0.16

*For this exercise, the distresses are independent of one another or any other factors considered during the treatment selection process.

At the given percentages of the maximum acceptable distress that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
Percentage of Maximum Distress	**Utility**
10%	0.60
25%	0.30
40%	0.20
60%	0.16
80%	0.13

Punchouts	
Percentage of Maximum Distress	**Utility**
10%	0.20
25%	0.09
40%	0.06
60%	0.05
80%	0.04

ACP Patches	
Percentage of Maximum Distress	**Utility**
10%	0.30
25%	0.12
40%	0.06
60%	0.05
80%	0.04

PCC Patches	
Percentage of Maximum Distress	**Utility**
10%	0.45
25%	0.30
40%	0.20
60%	0.18
80%	0.17

2. In PMIS, L_i for ride score is the percent of ride quality that can be lost. It is determined for three traffic levels: low, medium, and high. The utility value is determined according to the percent of ride quality lost (L_i). What is the maximum acceptable loss of ride quality (percentage) for each traffic level and what would be their corresponding utility values? As for the distresses, utility is the degree of pavement usefulness. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Traffic Level	Maximum Percentage of Ride Quality Lost (L_i)	Utility at Maximum Loss of Ride Quality
Low	100	0
Medium	85	0
High	74	0.01

*For this exercise, the maximum acceptable loss of ride quality is independent of distresses present or any other factors considered during the treatment selection process.

At the given percentages of the corresponding maximum acceptable loss of ride quality that was entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Low Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	1.00
25%	0.89
40%	0.60
60%	0.31
80%	0.13

Medium Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.99
25%	0.82
40%	0.57
60%	0.31
80%	0.13

High Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.99
25%	0.81
40%	0.57
60%	0.31
80%	0.13

Elizabeth Lukefahr- Rigid Pavements Branch Manager

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress	Utility at Maximum Distress
Spalled Cracks	1000	0
Punchouts	-	-
ACP Patches	250	0.04
PCC Patches	250	0.16

*For this exercise, the distresses are independent of one another or any other factors considered during the treatment selection process.

At the given percentages of the maximum acceptable distress that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
Percentage of Maximum Distress	**Utility**
10%	0.85
25%	0.65
40%	0.35
60%	0.20
80%	0.15

Punchouts	
Percentage of Maximum Distress	**Utility**
10%	-
25%	-
40%	-
60%	-
80%	-

ACP Patches	
Percentage of Maximum Distress	**Utility**
10%	0.97
25%	0.90
40%	0.70
60%	0.10
80%	0.05

PCC Patches	
Percentage of Maximum Distress	**Utility**
10%	0.38
25%	0.24
40%	0.20
60%	0.18
80%	0.17

**If this distress is classified as failed PCC patches, then the current utility curve is okay.

2. In PMIS, L_i for ride score is the percent of ride quality that can be lost. It is determined for three traffic levels: low, medium, and high. The utility value is determined according

to the percent of ride quality lost (L_i). What is the maximum acceptable loss of ride quality (percentage) for each traffic level and what would be their corresponding utility values? As for the distresses, utility is the degree of pavement usefulness. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Traffic Level	**Maximum Percentage of Ride Quality Lost (L_i)**	**Utility at Maximum Loss of Ride Quality**
Low	100	0.00
Medium	100	0.17
High	100	0.50

*For this exercise, the maximum acceptable loss of ride quality is independent of distresses present or any other factors considered during the treatment selection process.

At the given percentages of the corresponding maximum acceptable loss of ride quality that was entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Low Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	1.00
25%	1.00
40%	0.83
60%	0.50
80%	0.25

Medium Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	1.00
25%	1.00
40%	0.83
60%	0.50
80%	0.42

High Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.75
25%	0.75
40%	0.67
60%	0.50
80%	0.50

Mike Alford- TxDOT Director of Maintenance

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress	Utility at Maximum Distress
Spalled Cracks	2500	0.05
Punchouts	ok	ok
ACP Patches	ok	ok
PCC Patches	ok	ok

*For this exercise, the distresses are independent of one another or any other factors considered during the treatment selection process.

At the given percentages of the maximum acceptable distress that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
Percentage of Maximum Distress	**Utility**
10%	0.27
25%	0.16
40%	0.12
60%	0.09
80%	0.07

Punchouts	
Percentage of Maximum Distress	**Utility**
10%	ok
25%	ok
40%	ok
60%	ok
80%	ok

ACP Patches	
Percentage of Maximum Distress	**Utility**
10%	ok
25%	ok
40%	ok
60%	ok
80%	ok

PCC Patches	
Percentage of Maximum Distress	**Utility**
10%	ok*
25%	ok*
40%	ok*
60%	ok*
80%	ok*

*If only failing PCC Patches are counted in the rating, then utility curve is okay. If not, the PCC Patches utility curve should be changed.

2. In PMIS, L_i for ride score is the percent of ride quality that can be lost. It is determined for three traffic levels: low, medium, and high. The utility value is determined according to the percent of ride quality lost (L_i). What is the maximum acceptable loss of ride quality (percentage) for each traffic level and what would be their corresponding utility values? As for the distresses, utility is the degree of pavement usefulness. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Traffic Level	Maximum Percentage of Ride Quality Lost (L_i)	Utility at Maximum Loss of Ride Quality
Low	ok	ok
Medium	ok	ok
High	ok	ok

*For this exercise, the maximum acceptable loss of ride quality is independent of distresses present or any other factors considered during the treatment selection process.

At the given percentages of the corresponding maximum acceptable loss of ride quality that was entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Low Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	ok
25%	ok
40%	ok
60%	ok
80%	ok

Medium Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	ok
25%	ok
40%	ok
60%	ok
80%	ok

High Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	ok
25%	ok
40%	ok
60%	ok
80%	ok

Stacey Young- Transportation Engineer

Ron Baker- Director of Construction

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress	Utility at Maximum Distress
Spalled Cracks	1000	0
Punchouts		
ACP Patches		
PCC Patches	250	0.15

*For this exercise, the distresses are independent of one another or any other factors considered during the treatment selection process.

At the given percentages of the maximum acceptable distress that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
Percentage of Maximum Distress	**Utility**
10%	0.75
25%	0.60
40%	0.50
60%	0.30
80%	0.15

Punchouts	
Percentage of Maximum Distress	**Utility**
10%	-
25%	-
40%	-
60%	-
80%	-

ACP Patches	
Percentage of Maximum Distress	**Utility**
10%	-
25%	-
40%	-
60%	-
80%	-

PCC Patches	
Percentage of Maximum Distress	**Utility**
10%	0.70
25%	0.50
40%	0.25
60%	0.15
80%	0.15

2. In PMIS, L_i for ride score is the percent of ride quality that can be lost. It is determined for three traffic levels: low, medium, and high. The utility value is determined according to the percent of ride quality lost (L_i). What is the maximum acceptable loss of ride quality (percentage) for each traffic level and what would be their corresponding utility values? As for the distresses, utility is the degree of pavement usefulness. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Traffic Level	Maximum Percentage of Ride Quality Lost (L_i)	Utility at Maximum Loss of Ride Quality
Low	100	0.10
Medium	85	0
High	74	0

*For this exercise, the maximum acceptable loss of ride quality is independent of distresses present or any other factors considered during the treatment selection process.

At the given percentages of the corresponding maximum acceptable loss of ride quality that was entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Low Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.90
25%	0.80
40%	0.65
60%	0.35
80%	0.20

Medium Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.99
25%	0.82
40%	0.57
60%	0.31
80%	0.13

High Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.99
25%	0.81
40%	0.57
60%	0.31
80%	0.13

Tomas Saenz- Transportation Engineering Supervisor

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress/Score	Utility at Maximum Distress
Spalled Cracks	35	0.5
Punchouts	15	0.2
ACP Patches	25	0.4
PCC Patches	35	0.3
Ride Score	2.0	0.4

2. At the given percentages of the maximum acceptable distress or ride score that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
Percentage of Maximum Distress	**Utility at Maximum Distress**
10%	0.99
25%	0.80
40%	0.70
60%	0.60
80%	0.55

Punchouts	
Percentage of Maximum Distress	**Utility at Maximum Distress**
10%	0.85
25%	0.70
40%	0.50
60%	0.35
80%	0.30

ACP Patches	
Percentage of Maximum Distress	**Utility at Maximum Distress**
10%	0.90
25%	0.80
40%	0.65
60%	0.55
80%	0.50

PCC Patches	
Percentage of Maximum Distress	**Utility at Maximum Distress**
10%	0.87
25%	0.75
40%	0.65
60%	0.50
80%	0.4

Andrew Wimsatt- TTI Division Head Materials and Pavements

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress	Utility at Maximum Distress
Spalled Cracks	1000	0.12
Punchouts	250	0.04
ACP Patches	250	0.04
PCC Patches	250	0.16

*For this exercise, the distresses are independent of one another or any other factors considered during the treatment selection process.

At the given percentages of the maximum acceptable distress that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
L_i	**Utility**
2	0.97
20	0.8
100	0.5
250	0.27
600	0.16

Punchouts	
L_i	**Utility**
0.3	0.9
3	0.5
10	0.2
62.5	0.09
100	0.06

ACP Patches	
L_i	**Utility**
0.5	0.9
5	0.7
25	0.2
62.5	0.09
100	0.06

PCC Patches	
L_i	**Utility**
1.5	0.95
6	0.8
15	0.6
47	0.27
100	0.2

2. In PMIS, L_i for ride score is the percent of ride quality that can be lost. It is determined for three traffic levels: low, medium, and high. The utility value is determined according to the percent of ride quality lost (L_i). What is the maximum acceptable loss of ride quality (percentage) for each traffic level and what would be their corresponding utility values? As for the distresses, utility is the degree of pavement usefulness. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Traffic Level	**Maximum Percentage of Ride Quality Lost (L_i)**	**Utility at Maximum Loss of Ride Quality**
Low	351	0
Medium	85	0
High	65	0

*For this exercise, the maximum acceptable loss of ride quality is independent of distresses present or any other factors considered during the treatment selection process.

At the given percentages of the corresponding maximum acceptable loss of ride quality that was entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Low Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.78
25%	0.39
40%	0.22
60%	0.11
80%	0.04

Medium Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.99
25%	0.82
40%	0.57
60%	0.31
80%	0.13

High Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	0.99
25%	0.81
40%	0.57
60%	0.31
80%	0.13

Moon Won- Texas Tech University Professor

1. What is the maximum amount of a given distress that is acceptable for spalled cracks, punchouts, ACP patches, and PCC patches? At this maximum acceptable amount of distress, what would be the utility (degree of pavement usefulness) at this condition? A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful. Please enter these values in the following table.

Distress	Maximum Acceptable Distress	Utility at Maximum Distress
Spalled Cracks	250	0.2
Punchouts	20	0.1
ACP Patches	40	0.1
PCC Patches	40	0.2

*For this exercise, the distresses are independent of one another or any other factors considered during the treatment selection process.

At the given percentages of the maximum acceptable distress that were entered in the table above, what utility would you consider for each percentage. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Spalled Cracks	
Percentage of Maximum Distress	**Utility**
10%	0.9
25%	0.8
40%	0.7
60%	0.5
80%	0.3

Punchouts	
Percentage of Maximum Distress	**Utility**
10%	0.9
25%	0.8
40%	0.7
60%	0.5
80%	0.2

ACP Patches	
Percentage of Maximum Distress	**Utility**
10%	0.8
25%	0.7
40%	0.6
60%	0.4
80%	0.2

PCC Patches	
Percentage of Maximum Distress	**Utility**
10%	0.9
25%	0.8
40%	0.7
60%	0.55
80%	0.4

2. In PMIS, L_i for ride score is the percent of ride quality that can be lost. It is determined for three traffic levels: low, medium, and high. The utility value is determined according to the percent of ride quality lost (L_i). What is the maximum acceptable loss of ride quality (percentage) for each traffic level and what would be their corresponding utility values? As for the distresses, utility is the degree of pavement usefulness. A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Traffic Level	Maximum Percentage of Ride Quality Lost (L_i)	Utility at Maximum Loss of Ride Quality
Low	-	-
Medium	-	-
High	-	-

*For this exercise, the maximum acceptable loss of ride quality is independent of distresses present or any other factors considered during the treatment selection process.

At the given percentages of the corresponding maximum acceptable loss of ride quality that was entered in the table above, what utility would you consider for each percentage.

A utility value of 0 means it is the least useful, while a value of 1 means it is the most useful.

Low Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	-
25%	-
40%	-
60%	-
80%	-

Medium Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	-
25%	-
40%	-
60%	-
80%	-

High Traffic Level	
Percentage of Maximum Ride Score	**Utility**
10%	-
25%	-
40%	-
60%	-
80%	-