APPENDIX E
ANSWERS FROM THE DISTRICTS TO QUESTIONNAIRES ABOUT TREATMENT SELECTION PHILOSOPHY 2001–2009

BEAUMONT DISTRICT

BEAUMONT DISTRICT QUESTIONNAIRE – July 9, 2010

1. **Please describe how the District currently selects roadways for a construction project using Category 1 money (pavement preservation and rehabilitation).**
   Response: There has been personnel turnover in the Beaumont District that was evident during questions. It was obvious that the District was still in somewhat of a transition from the way the old regime made decisions and the way the new District management wants to do things. This question received two responses, one regarding how they typically make decisions with Category 1 funding and one regarding how they made decisions with ARRA funds. From an ARRA standpoint, PMIS weighed heavily on which roads would receive work. The quick turn-around required with ARRA funds led to the District evaluating PMIS and placing roads with a condition score below 70 at the top of the list. The goal here was essentially to improve as many lane miles as possible ("lipstick on a pig"). Decision making with regards to more traditional funding, specifically category 1, relies much less on PMIS. In the past, for project selection, the District office puts out a call for projects to its area offices. At this level, the AEs and the maintenance supervisors have the ability to identify the poor roads needing work in their area. This is the initial selection process and is coupled with the District management's knowledge of poor roads in the District. Recently, under the new District leadership, a flip chart 2-D matrix was created to help prioritize project selection. This matrix included variables such as ADT, cost of project, public perception, previous commitments. This was done with staff level input. PMIS maps were used to compare if project selection was matching poor scores, put PMIS did not play an initial role or a role in finalizing what projects would be let. The staff level input narrows the list and then the roads are generally ridden (ideally) to make the final project decision. The District is aware of the possible move to the tiered approach and also that PMIS currently serves as the pavement "report card."

2. **Please describe how the District currently selects the type of treatment (or work action) that is applied to the projects identified from question 1.**
   Response: The short list generated above is used to begin this evaluation. Additional field testing is often performed on candidate projects. This field testing is typically coring and FWD. Because funding is such a major consideration, the type of M&R action is often based on the $/mile for a project. The District tries to stretch its dollars as far as possible while treating the road properly. ADT also plays a large role in treatment selection. First because of its design impact, but also on traffic control. This is similar to the Bryan District where the Districts are trying to determine how high of an ADT can run on raw base. Essentially, when a restore or rehab project is required, one of the main questions is whether or not the job can be done without detour pavement. From a cost perspective, the District is trying to push the envelope on ADT that runs on raw base. The Needs Estimate tool in PMIS is NOT used.

3. **Does the District have a formal definition of the following work actions? If yes, what is that definition?**
   Response: The District does not have a formal definition of PM, LRhb, MRhb, and HRhb as it appears in the PMIS Needs Estimate tool. In fact, the District does not use the PMIS Needs Estimate. From an M&R classification standpoint, design requirements of 2R, 3R, and 4R are the distinctions between levels of rehabilitation.

4. **If the answer to the question above is yes, does the District have a $/mi defined for each type of work action?**
   Response: Project $/mi is a big deal to Beaumont. Because of the 4-year plan required by administration, Beaumont likes to have a $/mi so that projects can be set in advance. This allows the District to establish multiple projects for several years in the future based on $/mi. The comment was made several times that these $/mi numbers were used to "stretch" their dollars.

5. **How is routine maintenance money competed for between the different maintenance sections within the District?**
   Response: Under the old District administration, maintenance sections did not manage their own budget; it was managed from the District office. Last year, the DOM gave all sections a budget. The DOM (Jack Moser) was unavailable for the meeting, but the DE (Randy Redmond) indicated that he believes the budgets were determined based on lane miles, VMT, and budget history.

6. **Does your District use in-house (routine maintenance) forces to prepare roadways for construction projects? If yes, how?**
   Response: The current District administration is enlarging the annual seal coat contract. The current District administration is a proponent of seal coat as a PM measure and has increased the $ amount for its annual letting. With this new philosophy, in-house forces are being used to prepare roads for the District wide seal coat. This includes base repair. In the past, routine maintenance contracts have been let to help get roads ready for District wide seal, but with the current District leadership, it is more of an in-house issue.

7. **How, if at all, does the District use PMIS when determining which roadways need pavement work?**
   Response: It is used mainly as a check and has little to no weight on initial decision making. The Needs Estimate tool is not used at all.

8. **How, if at all, does the District use PMIS when selecting a type of work to be performed on a section of roadway?**
   Response: Essentially the same answer as above. Visual (site visit) data is used both in project selection and M&R action, but this information is not pulled from PMIS.

9. **How confident are you in PMIS's optimization tool?**
   Response: Is not used within the District.

Table 1: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT							x
Current Truck ADT					x		
Future ADT				x			
Future Truck ADT				x			
PMIS Condition Score							x
PMIS Distress Score						x	
Ride Quality (From PMIS or other)						x	
Rutting						x	
Visual Distress (Site Visit)						x	
Public input/involvement						x	
TxDOT Admin. input/involvement						x	
Political input/involvement						x	
Sections that receive the most RM[1]							x
Effectiveness of RM[1] actions					x		
Structural Strength Index (SSI)				x			
Additional Field Testing				x			
Pavement Prediction Models							
Economic Development					x		
Condition of Adjacent Sections			x				
Evacuation Route					x		
Population Density					x		
Projected 18-kip Equivalent							
Date Since Last M&R Action						x	
Functional Classification							x
PMIS Individual Distresses					x		
Other:							
Other:							
Other:							
Other:							
Other:							

Table 2: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT					x		
Current Truck ADT					x		
Future ADT					x		
Future Truck ADT					x		
PMIS Condition Score				x			
PMIS Distress Score				x			
Ride Quality (From PMIS or other)				x			
Rutting					x		
Visual Distress (Site Visit)					x		
Public input/involvement				x			
TxDOT Admin. input/involvement						x	
Political input/involvement			x				
Sections that receive the most RM[1]						x	
Effectiveness of RM[1] actions						x	
Structural Strength Index (SSI)				x			
Additional Field Testing					x		
Pavement Prediction Models			x				
Economic Development					x		
Condition of Adjacent Sections				x			
Evacuation Route					x		
Population Density					x		
Projected 18-kip Equivalent					x		
Date Since Last M&R Action						x	
Functional Classification					x		
PMIS Individual Distresses					x		
Other:							
Other:							
Other:							
Other:							
Other:							

Table 3: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT						x	
Current Truck ADT						x	
Future ADT				x			
Future Truck ADT				x			
PMIS Condition Score					x		
PMIS Distress Score						x	
Ride Quality (From PMIS or other)					x		
Rutting						x	
Visual Distress (Site Visit)							x
Public input/involvement					x		
TxDOT Admin. input/involvement						x	
Political input/involvement					x		
Sections that receive the most RM[1]							x
Effectiveness of RM[1] actions							x
Structural Strength Index (SSI)			x				
Additional Field Testing						x	
Pavement Prediction Models						x	
Economic Development						x	
Condition of Adjacent Sections					x		
Evacuation Route					x		
Population Density					x		
Projected 18-kip Equivalent				x			
Date Since Last M&R Action					x		
Functional Classification				x			
PMIS Individual Distresses						x	
Other:							
Other:							
Other:							
Other:							
Other:							

Table 4: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT						x	
Current Truck ADT						x	
Future ADT					x		
Future Truck ADT						x	
PMIS Condition Score						x	
PMIS Distress Score						x	
Ride Quality (From PMIS or other)					x		
Rutting					x		
Visual Distress (Site Visit)					x		
Public input/involvement						x	
TxDOT Admin. input/involvement						x	
Political input/involvement						x	
Sections that receive the most RM[1]						x	
Effectiveness of RM[1] actions				x			
Structural Strength Index (SSI)				x			
Additional Field Testing				x			
Pavement Prediction Models					x		
Economic Development				x			
Condition of Adjacent Sections					x		
Evacuation Route					x		
Population Density					x		
Projected 18-kip Equivalent				x			
Date Since Last M&R Action					x		
Functional Classification						x	
PMIS Individual Distresses					x		
Other: Funding							x
Other:							
Other:							
Other:							
Other:							

Table 5: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT							x
Current Truck ADT						x	
Future ADT					x		
Future Truck ADT					x		
PMIS Condition Score						x	
PMIS Distress Score						x	
Ride Quality (From PMIS or other)					x		
Rutting						x	
Visual Distress (Site Visit)							x
Public input/involvement				x			
TxDOT Admin. input/involvement							x
Political input/involvement						x	
Sections that receive the most RM[1]							x
Effectiveness of RM[1] actions					x		
Structural Strength Index (SSI)				x			
Additional Field Testing						x	
Pavement Prediction Models					x		
Economic Development					x		
Condition of Adjacent Sections				x			
Evacuation Route					x		
Population Density					x		
Projected 18-kip Equivalent						x	
Date Since Last M&R Action					x		
Functional Classification						x	
PMIS Individual Distresses					x		
Other: Funding Cap							x
Other:							
Other:							
Other:							
Other:							

Table 6: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT					x		
Current Truck ADT						x	
Future ADT					x		
Future Truck ADT						x	
PMIS Condition Score				x			
PMIS Distress Score				x			
Ride Quality (From PMIS or other)				x			
Rutting				x			
Visual Distress (Site Visit)						x	
Public input/involvement				x			
TxDOT Admin. input/involvement						x	
Political input/involvement				x			
Sections that receive the most RM[1]						x	
Effectiveness of RM[1] actions						x	
Structural Strength Index (SSI)				x			
Additional Field Testing				x			
Pavement Prediction Models				x			
Economic Development					x		
Condition of Adjacent Sections						x	
Evacuation Route				x			
Population Density					x		
Projected 18-kip Equivalent						x	
Date Since Last M&R Action						x	
Functional Classification				x			
PMIS Individual Distresses				x			
Other:							
Other:							
Other:							
Other:							
Other:							

Table 7: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT							x
Current Truck ADT							x
Future ADT					x		
Future Truck ADT					x		
PMIS Condition Score					x		
PMIS Distress Score						x	
Ride Quality (From PMIS or other)					x		
Rutting							x
Visual Distress (Site Visit)							x
Public input/involvement						x	
TxDOT Admin. input/involvement						x	
Political input/involvement						x	
Sections that receive the most RM[1]						x	
Effectiveness of RM[1] actions						x	
Structural Strength Index (SSI)			x				
Additional Field Testing						x	
Pavement Prediction Models						x	
Economic Development						x	
Condition of Adjacent Sections					x		
Evacuation Route				x			
Population Density					x		
Projected 18-kip Equivalent				x			
Date Since Last M&R Action					x		
Functional Classification				x			
PMIS Individual Distresses						x	
Other: Funding							x
Other:							
Other:							
Other:							
Other:							

Table 8: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT						x	
Current Truck ADT						x	
Future ADT					x		
Future Truck ADT						x	
PMIS Condition Score						x	
PMIS Distress Score						x	
Ride Quality (From PMIS or other)				x			
Rutting					x		
Visual Distress (Site Visit)				x			
Public input/involvement				x			
TxDOT Admin. input/involvement						x	
Political input/involvement				x			
Sections that receive the most RM[1]				x			
Effectiveness of RM[1] actions				x			
Structural Strength Index (SSI)				x			
Additional Field Testing							x
Pavement Prediction Models						x	
Economic Development					x		
Condition of Adjacent Sections				x			
Evacuation Route					x		
Population Density					x		
Projected 18-kip Equivalent						x	
Date Since Last M&R Action				x			
Functional Classification						x	
PMIS Individual Distresses					x		
Other: Funding							x
Other:							
Other:							
Other:							
Other:							

APPENDIX E
ANSWERS FROM THE DISTRICTS TO QUESTIONNAIRES ABOUT TREATMENT SELECTION PHILOSOPHY 2001–2009

BROWNWOOD DISTRICT

QUESTIONNAIRE *Answers: 10/08/2010 by Elias Rmeili from Brownwood District*

1. **Please describe how the District currently selects roadways for a construction project using Category 1 money (pavement preservation and rehabilitation).**

   Response: In the Brownwood District, we ask the maintenance supervisors and the area engineers every year to submit the rehabilitation projects. Then the pavement engineer submits around 10 projects according to PMIS. We look at PMIS scores as a reference. We then drive these proposed projects and meet to discuss and prioritize the sections with the District Engineer. The factors that are used in prioritizing are Traffic, Cost, PMIS scores and type of roadway. For the Brownwood District, and our number one priority is interstate highway. Our last priority is low volume FM roads.

2. **Please describe how the District currently selects the type of treatment (or work action) that is applied to the projects identified from question 1.**

   Response: The Brownwood District in addition to the factors above considers the location of the project when selecting the type of treatment. As an example: A project located in town with high traffic will require a fast track fix. Therefore we might remove and replace with hot mix). Compared to a low volume road not in town we would usually rework existing material, add new base and do a surface treatment.

3. **Does the District have a formal definition of the following work actions? If yes, what is that definition?**

   Preventative Maintenance (PM)? Yes: Preventive maintenance is anywhere from patching, sealing cracks, seal coat and mill and overlay of less than 2 inches. Our main PM treatment is seal coat.

   Light Rehabilitation (LRhb)? No:

   Medium Rehabilitation (MRhb)? No:

   Heavy Rehabilitation (HRhb)? No:

   Response: In my opinion, there is either preventive maintenance or rehabilitation. There is currently no distinction between light, medium or high. In our District, rehabilitation is anything larger than 2in of hot mix.

4. **If the answer to the question above is yes, does the District have a $/mi defined for each type of work action?**

   Response: The district average cost for seal coat is about $1.50 per square yard. For rehab it depends on the design. For flexible base it is about $0.75 per square yard per inch. Our hot mix, it is about $75 per ton, or $4.0 per square yard per inch.

5. **How is routine maintenance money competed for between the different maintenance sections within the District?**

   Response: This is mainly based on lane miles and PMIS scores.

6. **Does your District use in-house (routine maintenance) forces to prepare roadways for construction projects? If yes, how?**

   Response: Our in-house forces prepare the roads for seal coat. This includes pavement repair and blade level up.

7. **How, if at all, does the District use PMIS when determining which roadways need pavement work?**

   Response: Refer to Question 1.

8. **How, if at all, does the District use PMIS when selecting a type of work to be performed on a section of roadway?**

   Response: As discussed in Question 1, it is one of the many factors that is taken into consideration. The condition score is used for rehabilitation and distress score is used for preventative maintenance.

9. **How confident are you in PMIS's optimization tool?**

   Response: In my opinion the optimization tool should not be used at the District level. We use the PMIS data and the staff decides what roads to work on and the type of treatment based on the available money. In my opinion, the optimization tool is more for administration and should be improved for their use.

Table 1: Input variables and corresponding variable weight associated with deciding which roadways receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT							X
Current Truck ADT							X
Future ADT					X		
Future Truck ADT					X		
PMIS Condition Score							X
PMIS Distress Score						X	
Ride Quality (From PMIS or other)					X		
Rutting					X		
Visual Distress (Site Visit)						X	
Public input/involvement					X		
TxDOT Admin. input/involvement							X
Political input/involvement						X	
Sections that receive the most RM					X		
Effectiveness of RM actions					X		
Structural Strength Index (SSI)			X				
Additional Field Testing						X	
Pavement Prediction Models		X					
Economic Development						X	
Congestion						X	
Evacuation Route	X						
Population Density	X						
Projected 18-kip Equivalent						X	
Date Since Last Surface						X	
Functional Classification						X	
PMIS Individual Distresses					X		
Other:							
Other:							
Other:							
Other:							
Other:							

Table 2: Input variables and corresponding variable weight associated with deciding what M&R action to perform:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT						X	
Current Truck ADT						X	
Future ADT				X			
Future Truck ADT				X			
PMIS Condition Score							X
PMIS Distress Score							X
Ride Quality (From PMIS or other)						X	
Rutting							X
Visual Distress (Site Visit)							X
Public input/involvement				X			
TxDOT Admin. input/involvement							X
Political input/involvement					X		
Sections that receive the most RM							X
Effectiveness of RM actions				X			
Structural Strength Index (SSI)				X			
Additional Field Testing							X
Pavement Prediction Models		X					
Economic Development					X		
Congestion					X		
Evacuation Route	X						
Population Density				X			
Projected 18-kip Equivalent							X
Date Since Last Surface							X
Functional Classification						X	
PMIS Individual Distresses						X	
Other:							
Other:							
Other:							
Other:							
Other:							

APPENDIX E
ANSWERS FROM THE DISTRICTS TO QUESTIONNAIRES ABOUT TREATMENT SELECTION PHILOSOPHY 2001–2009

BRYAN DISTRICT

BRYAN DISTRICT QUESTIONNAIRE – JUNE 18, 2010

1. **Please describe how the District currently selects roadways for a construction project using Category 1 money (pavement preservation and rehabilitation).**

   Response: The Bryan District is currently modifying the way in which it selects projects for Category 1 funds. In the past, the District Materials and Pavement Engineer has used seal coat plans from the last 10 years as a starting point. This information would be placed in MapZapper with the year the seal was placed and different colors were mapped to display when the seal coat was placed. The limits from these seal coat projects essentially created management sections for the District to look at and the District had Craig Cox write a special query in MapZapper that would average the scores in PMIS for these old seal coat projects. The District likes to look at the weighted average of the scores across the length of a construction project. Turnkey costs could then be used to determine construction cost needs. Projects could be prioritized based on the worst average PMIS condition score for the old seal coat projects. When it comes to pavement preservation in the Bryan District, ride does not factor into the thinking very much. It is agreed among the District decision makers that due to the expansive nature of the soils in the Bryan District that ride could be poor, but the actual condition of the pavement could be good. The new method used is based partly on the knowledge that the Department could be moving to the tiered system of pavement scoring. Roadways within the District are broken out based on ADT. If the ADT < 2500, it is thought that the project can be done under traffic, even if that means running the traffic on raw base during construction. The next benchmark is < 7000 because at that point, you might be able to perform the construction under traffic. Anything with ADT > 7000 requires detours and/or detour pavement to perform the construction. In summary, one of the major factors when prioritizing roadways is how traffic can and will be handled during construction. A map is then generated showing the amount of patching, failures, and ADT. The reason patching and failures are mapped is because the District believes the number of failures and patching on a roadway indicate if the roadway requires more significant work such as a rehab. Also, patching is important because if there are significant RM patches that have held the road together, maybe a seal coat is needed to preserve the integrity of the patches. The District used to be on a 7 year seal coat cycle, but with the new scheme, look at years since last treatment may fall further down the ladder. The District Materials and Pavement Engineer is essentially the keeper of the information and developer of the prioritization scheme. This engineer is solely responsible for the District Wide seal coat program and is the beginning point for the rehab program. Roadways requiring rehabilitation are typically driven by District staff, AEs have little involvement in the selection of projects. AEs are provided the preliminary project list by the District Material and Pavement Engineer and are given the opportunity to provide input on any other needs, but their primary purpose is providing input on project limits.

2. **Please describe how the District currently selects the type of treatment (or work action) that is applied to the projects identified from question 1.**

   Response: The PMIS condition score is broken out into the various distresses, 1 failure in a ½ mile section will not push the score below 70, but 2 will, therefore the number of failures are plotted on maps. If more than 25% of the area requires spot repair, the District usually looks at going to rehab. To determine this, the cost effectiveness scarify and reshape (and maybe add base) is compared to extensive base repair prior to a seal. Those that are in the worst condition are ridden by District staff and then prioritized by them. Anything above a seal coat is ridden by District staff and has further field testing performed.

3. **Does the District have a formal definition of the following work actions? If yes, what is that definition?**

   Response: The District does not have a formal definition of PM, LRhb, MRhb, and HRhb as it appears in the PMIS Needs Estimate tool. In fact, the District does not use the PMIS Needs Estimate. When defining PM and Rehab., the District bases the work on an email sent by Bob Richardson, the Bryan District Design Engineer, with input from the Design Division.

4. **If the answer to the question above is yes, does the District have a $/mi defined for each type of work action?**

   Response: Bryan likes to use turnkey prices by dividing historical construction project prices by length or area to get a $/unit.

5. **How is routine maintenance money competed for between the different maintenance sections within the District?**

   Response: Need to ask Bryan DOO, Terry Paholek.

6. **Does your District use in-house (routine maintenance) forces to prepare roadways for construction projects? If yes, how?**

   Response: District forces do a significant amount of in-house work to prepare for construction projects, mainly repairs in preparation for seal coat. The District has a rule of thumb, that if in-house forces can complete the work in 2-weeks, then it should be done to prepare for construction, however if the amount of work required on the roadway would take longer than 2-weeks, maybe the job is too big for in-house maintenance.

7. **How, if at all, does the District use PMIS when determining which roadways need pavement work?**

   Response: The condition score generated by PMIS is broken out into the individual distresses that make up the score. Failures and patches are specifically targeted because they are indications of possible structural issues within the pavement.

8. **How, if at all, does the District use PMIS when selecting a type of work to be performed on a section of roadway?**

   Response: Essentially, this is the same answer as above, but it can be pointed out that as the number of failures and patches goes up, the District begins to look more closely at rehabilitation rather than preventative maintenance.

9. How confident are you in PMIS's optimization tool?

Response: Is not used within the District.

Table 1: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT							x
Current Truck ADT				x			
Future ADT				x			
Future Truck ADT				x			
PMIS Condition Score						x	
PMIS Distress Score							x
Ride Quality (From PMIS or other)				x			
Rutting				x			
Visual Distress (Site Visit)							x
Public input/involvement			x				
TxDOT Admin. input/involvement	x						
Political input/involvement	x						
Sections that receive the most RM[1]					x		
Effectiveness of RM[1] actions					x		
Structural Strength Index (SSI)			x				
Additional Field Testing							x
Pavement Prediction Models	x						
Economic Development		x					
Condition of Adjacent Sections							
Evacuation Route			x				
Population Density			x				
Projected 18-kip Equivalent					x		
Date Since Last M&R Action					x		
Functional Classification					x		
PMIS Individual Distresses							x
Other:							
Other:							
Other:							
Other:							
Other:							

Table 2: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT						x	
Current Truck ADT						x	
Future ADT						x	
Future Truck ADT						x	
PMIS Condition Score					x		
PMIS Distress Score					x		
Ride Quality (From PMIS or other)				x			
Rutting				x			
Visual Distress (Site Visit)							x
Public input/involvement			x				
TxDOT Admin. input/involvement	x						
Political input/involvement	x						
Sections that receive the most RM[1]				x			
Effectiveness of RM[1] actions				x			
Structural Strength Index (SSI)		x					
Additional Field Testing							x
Pavement Prediction Models		x					
Economic Development		x					
Condition of Adjacent Sections							
Evacuation Route			x				
Population Density			x				
Projected 18-kip Equivalent							x
Date Since Last M&R Action			x				
Functional Classification							
PMIS Individual Distresses							x
Other:							
Other:							
Other:							
Other:							
Other:							

APPENDIX E
ANSWERS FROM THE DISTRICTS TO QUESTIONNAIRES ABOUT TREATMENT SELECTION PHILOSOPHY 2001–2009

DALLAS DISTRICT

DALLAS DISTRICT QUESTIONNAIRE – July 27, 2010

(Gary Charlton, Abbas Mehdibeigi, Ron Johnston)

1. **Please describe how the District currently selects roadways for a construction project using Category 1 money (pavement preservation and rehabilitation).**

   Response: The District prefers to use a formula driven approach when distributing money for projects. The formula is based on the original rehab formula from the UTP and PMIS information. This approach has been used for spending both category 1 funds and district maintenance funds. The District expressed issues with this method as funds become more limited, only one or two projects can be chosen and then all of the money is gone. During the last FY, the district spent its entire Cat 1 PM allocation on the seal coat program. This program was not as large as it had been in the past. Historically, the seal coat program was approximately $15 million, but that was cut this year to approximately $12 million. Historically, the seal coat program has operated on a 6-year cycle, but many times the high volume roadways are not lasting 6 years. Also, with current budget constraints and the inability to spend federal dollars on functional classification 6 or 7 means some roads that were scheduled for seal coats will not receive them at the anticipated cycle time. The district is currently trying to have some of their functional class 6 and 7 roads reclassified to class 5 so that federal dollars can be used on these roadways. With the large amount of concrete paving in the district, the district tries to let an area wide concrete repair project yearly. The District also looks at projects the AEs want done in their area.

2. **Please describe how the District currently selects the type of treatment (or work action) that is applied to the projects identified from question 1.**

   Response: When selecting treatment types, the seal coat program has operated on a cycle, while other, more extensive M&R projects are based initially on knowledge of distress on the roadway. This knowledge is typically acquired through site visits and riding the roads. The District express that this was the best way to know what was occurring. FWD data is used to determine the extent of what needs to be done and if it will be a good investment. The District is not opposed to collecting network level FWD, but indicated that another piece of equipment would be required to collect that much data.

3. **Does the District have a formal definition of the following work actions? If yes, what is that definition?**

   Response: The District does not have a formal definition of PM, LRhb, MRhb, or HRhb. These definitions are typically driven by how and where the money needs to be spent. Essentially, it will be called whatever it needs to be called to get the work done.

4. **If the answer to the question above is yes, does the District have a $/mi defined for each type of work action?**

   Response: There is no formal definition, but the District is concerned with budget. Based on history, the budget for seal coat projects is often known but with limited funding the seal coat program cannot be as large as it has been in the past. To maintain the historical seal coat cycle, the district needs approximately $14 million/year, but in FY 2010, Dallas got just over $11 million. Essentially, the district tries to push projects through that are need and they can be classified as whatever works the best. Definitions in no way line-up with PMIS.

5. **How is routine maintenance money competed for between the different maintenance sections within the District?**

   Response: Strategy 105 and 144 monies are allocated based on formulas. The formula used is based on the old UTP rehab formula and PMIS. There was a time when category 1 money could be transferred to strategy 144 (maintenance budget) so in-house forces could concentrate on failures or other issues that could be solved with TxDOT personnel. Unfortunately, this can no longer be done without going to the legislative budget board and having the governor sign-off. Dallas does like to use in-house forces when possible because it allows certain project to be achieved without going through all of the design development. For example, adding 6' to the end of culverts without running hydraulics.

6. **Does your District use in-house (routine maintenance) forces to prepare roadways for construction projects? If yes, how?**

   Response: Maintenance sections are used to prepare roads for seal coat. This is mainly base repair work. Staff indicated that some sections are better than others at roadway preparation.

7. **How, if at all, does the District use PMIS when determining which roadways need pavement work?**

   Response: The district views PMIS more as an inventory system rather than a maintenance tool. Work being performed is checked against the condition score in PMIS because it is the statewide scorecard. Try to make sure the projects are taking care of what is red, but the District appears confident that they know what and where the problems are and that projects are created to deal with these problems. The DE did not meet with us, but they are aware that the DE will look at MapZapper to ensure the areas in red are being addressed.

8. **How, if at all, does the District use PMIS when selecting a type of work to be performed on a section of roadway?**

   Response: No, the District does not use PMIS when determining what M&R action to perform. It does not consider the Needs Estimate recommendations. The district views PMIS as a snapshot in time and feels that it needs to take the next step to be used as a prediction and decision support tool. If the needs estimate is used at all, it is viewed as an order of magnitude gauge, but it does not change the decision. The CS is looked at the most because it is the report card.

9. **How confident are you in PMIS's optimization tool?**

   Response: Is not used within the District.

Table 1: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT	x						
Current Truck ADT			x	x	x	x	
Future ADT		x					
Future Truck ADT		x					
PMIS Condition Score					x		
PMIS Distress Score						x	
Ride Quality (From PMIS or other)		x	x	x	x	x	
Rutting							
Visual Distress (Site Visit)							x
Public input/involvement		x	x	x	x	x	x
TxDOT Admin. input/involvement							x
Political input/involvement		x	x	x	x	x	x
Sections that receive the most RM[1]							x
Effectiveness of RM[1] actions						x	
Structural Strength Index (SSI)			x				
Additional Field Testing			x				
Pavement Prediction Models					x		
Economic Development					x		
Condition of Adjacent Sections				x			
Evacuation Route					x		
Population Density	x						
Projected 18-kip Equivalent	x						
Date Since Last M&R Action					x		
Functional Classification							x
PMIS Individual Distresses					x		
Other:							
Other:							
Other:							
Other:							
Other:							

Table 2: Input variables and corresponding variable weight associated with deciding which roadway receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT						x	
Current Truck ADT						x	
Future ADT					x		
Future Truck ADT					x		
PMIS Condition Score					x		
PMIS Distress Score					x		
Ride Quality (From PMIS or other)					x		
Rutting						x	
Visual Distress (Site Visit)							x
Public input/involvement						x	
TxDOT Admin. input/involvement						x	
Political input/involvement						x	
Sections that receive the most RM[1]					x		
Effectiveness of RM[1] actions					x		
Structural Strength Index (SSI)						x	
Additional Field Testing						x	
Pavement Prediction Models						x	
Economic Development						x	
Condition of Adjacent Sections						x	
Evacuation Route				x			
Population Density	x						
Projected 18-kip Equivalent						x	
Date Since Last M&R Action					x		
Functional Classification							x
PMIS Individual Distresses					x		
Other:							
Other:							
Other:							
Other:							
Other:							

APPENDIX E
ANSWERS FROM THE DISTRICTS TO QUESTIONNAIRES ABOUT TREATMENT SELECTION PHILOSOPHY 2001–2009

EL PASO DISTRICT

QUESTIONNAIRE *Answers: 08/10/2010 by Tomas Saenz from El Paso District*

1. **Please describe how the District currently selects roadways for a construction project using Category 1 money (pavement preservation and rehabilitation).**

   Response: El Paso district uses the following criteria in order of priority to select roadways for a construction project: condition score (below 70), distress, and ride score (distress score is given priority over ride score), time to last treatment applied, ADT and speed limit and budget. Decisions also depend on the location of the road segment (urban or rural). Ride scores are more relevant in urban areas than rural because of traffic volumes and speed.

2. **Please describe how the District currently selects the type of treatment (or work action) that is applied to the projects identified from question 1.**

   Response: El Paso district selects the type of treatment based on the type of distress, quantity of distress, and level of severity. ADT, speed limit and location of road section are also taken into consideration.

3. **Does the District have a formal definition of the following work actions? If yes, what is that definition?**

   Preventative Maintenance (PM)? Yes/No: Preventive maintenance is applied to sections with minor distresses like transverse and longitudinal cracking. These sections may also show small amounts shallow rutting and patches;. Seal coats and 2" overlays with small amounts of base repair (typically less that 20 percent of project area) of base repair are usually applied as PM.

   Light Rehabilitation (LRhb)? Yes/No:

   In light rehabilitation, seal coat and overlay treatments with light base repair are applied. Final decision on the type of treatment is made based on location and traffic (ADT).

   Medium Rehabilitation (MRhb)? Yes/No:

   Medium rehabilitation is applied to sections demonstrating distresses like patching, deep rutting and a significant amount of shallow rutting. Base repair is applied to pavement sections according to the FWD's recommendations.

   Heavy Rehabilitation (HRhb)? Yes/No:

   Heavy rehabilitation is applied to sections with distresses like deep rutting, patches, alligator cracking and punchouts. The base and HMA layers are repaired.

4. **If the answer to the question above is yes, does the District have a $/mi defined for each type of work action?**

   PM= The district average cost is:

Type 1: $6,000/mi; Type 4: $10,000/mi; Type 5: $10,000/mi; Type 6: $8,000/mi; Type 9: $11,000/mi; Type 10: $6,000/mi (These numbers are from PMIS and are only used as a reference)

5. **How is routine maintenance money competed for between the different maintenance sections within the District?**

   Response: El Paso district allocates more money to assets like road aesthetics and safety issues. Less than 10% is used for routine maintenance on pavements, but this is subject to change in the future.

6. **Does your District use in-house (routine maintenance) forces to prepare roadways for construction projects? If yes, how?**

   Response: El Paso district does use in routine maintenance to prepare roadways, but not very frequently.

7. **How, if at all, does the District use PMIS when determining which roadways need pavement work?**

   Response: Refer to Question 1.

8. **How, if at all, does the District use PMIS when selecting a type of work to be performed on a section of roadway?**

   Response: Refer to Question 1. For example, this case applied to LP0375 from US0054 to Tom Mays Park.

9. **How confident are you in PMIS's optimization tool?**

   Response: The district is 80-85% confident in PMIS's optimization tool. It is recommended for PMIS to factor in the type of traffic using roadways and the terrain and surroundings of a pavement section (businesses, manufacturing plants, or any relevant issue which may be unique to the location).

Table 1: Input variables and corresponding variable weight associated with deciding which roadways receive M&R work:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT					X		
Current Truck ADT						X	
Future ADT					X		
Future Truck ADT						X	
PMIS Condition Score							X
PMIS Distress Score						X	
Ride Quality (From PMIS or other)					X		
Rutting						X	
Visual Distress (Site Visit)						X	
Public input/involvement				X			
TxDOT Admin. input/involvement	X						
Political input/involvement			X				
Sections that receive the most RM				X			
Effectiveness of RM actions						X	
Structural Strength Index (SSI)					X		
Additional Field Testing					X		
Pavement Prediction Models		X					
Economic Development			X				
Congestion				X			
Evacuation Route	X						
Population Density					X		
Projected 18-kip Equivalent						X	
Date Since Last Surface					X		
Functional Classification			X				
PMIS Individual Distresses						X	
Other:							
Other:							
Other:							
Other:							
Other:							

Table 2: Input variables and corresponding variable weight associated with deciding what M&R action to perform:

	Weight Given to Parameter						
Input Parameters	**NA**	**None**	**Very Low**	**Low**	**Medium**	**High**	**Very High**
Current ADT					X		
Current Truck ADT						X	
Future ADT					X		
Future Truck ADT						X	
PMIS Condition Score						X	
PMIS Distress Score							X
Ride Quality (From PMIS or other)				X			
Rutting							X
Visual Distress (Site Visit)						X	
Public input/involvement			X				
TxDOT Admin. input/involvement		X					
Political input/involvement			X				
Sections that receive the most RM						X	
Effectiveness of RM actions						X	
Structural Strength Index (SSI)			X				
Additional Field Testing							X
Pavement Prediction Models	X						
Economic Development		X					
Congestion					X		
Evacuation Route	X						
Population Density					X		
Projected 18-kip Equivalent						X	
Date Since Last Surface					X		
Functional Classification				X			
PMIS Individual Distresses							X
Other:							
Other:							
Other:							
Other:							
Other:							