

808 4 S

no seg. lanes

DANCING WILLOWS METRO DISTRICT
SPECIAL MEETING – 8:00 a.m. @ Dancing Willows Subdivision
Littleton, Colorado

MEETING MINUTES – Management of the “Agreement” between Remington Homes and Dancing Willows Metro District (street repairs) dated 12 December 2011

July 19, 2013

Attending:

William Anderson, President -DWMD
Bobby Thomas, Treasurer - DWMD
Regan Hauptman, Remington Homes Co.
Doug Edwards, Remington Homes Co.

cc:

Lee Jennings, DWMD
Bill Bristol, DWMD
Tom Nolan, DWMD
Maryann McGready – McGready Sisneros, P.C.
Lisa Johnson, SDMS
Jake Walrath, Remington Homes Co.

ITEMS OF DISCUSSION

1. Purpose of the meeting was to identify responsible parties from DWMD and Remington to manage the process, coordinate the implementation and approval of street repairs by Remington in accordance with the “Agreement” of 12 December 2011.
 - a. Doug Edwards will coordinate with Bobby Thomas regarding item 1.

2. Discussed preliminary schedule of repairs by Remington to fulfill the obligations under paragraph 1.b – Area 3 of the Agreement.
 - a. Regan Hauptman expressed asap upon completion of the townhomes between Ida and Bowles. Anticipating last unit to finish in February 2014. Further discussion of an earlier date might be possible with the installation and backfill of the last foundation prior to asphalt plant closing this year.
 - b. Planned work will also include the damage to Ida Drive east of Union and the small island located south of the traffic circle (round-about) that had been damaged by the heavy construction traffic. Items previously identified by Don Walker and Bill Anderson to Jake Walrath.
 - c. Planned work in the condos area, especially the old concrete washout damage will start as soon as last unit is constructed. Date to be determined. Bill Anderson made specific reference to the old concrete washout area.
 - (1) Bobby Thomas to provide a copy of the CTL Thompson Engineering paving report (attached) to Doug Edwards for their use in complying with 1.c.i of the Agreement (i.e. “to bring the streets to a standard comparable to the other streets in the community being maintained by the District).

- d. Planned work for the construction damage around the recently complete Patio Homes was identified by preliminary exhibit presented by Bobby Thomas. Doug Edwards will review and comment.
 - (1) Bobby Thomas to email the recent survey of construction damage to Doug for his review and comment.
- e. Doug Edwards will update the schedule and notify Bobby Thomas at least 2 weeks in advance of when each phase of construction will begin and when he wishes a final walk to verify such work as "complete" in order to obtain the necessary release from DWMD. Bobby Thomas will then notify Maryann McGready to process the proper release to Remington Homes.

(Note: Doug Edwards at the March 10 Dancing Willows Metro District Board Meeting, had previously projected that Remington Homes expected to complete the last 2 condo buildings containing 16 units this year. Currently there are 11 condo units left to sell. One patio lot is left and Remington plans to build a spec model 835, which is in the county awaiting approvals. [currently under construction] Of the 15 new townhome units, only 6 units are left to sell. Remington expects full build-out in 2014.)

3. Additional items discussed:

- a. Repair of the masonry column in the fence along Bowles (damaged by Remington during leveling activity of said columns). Doug Edwards to get with Jake Walrath and report back on when this work will be done.
- b. DWMD repair to Bowles Fence is complete (less some screws) and ready for Remington to wash and stain. Doug Edwards need selection of stain color. Bill Anderson will notify DWMD Fence Committee to provide selection of stain color to Doug Edwards. It is not necessary to wait on the repair of the masonry column to finish the work on the wood fence.
- c. Bill Anderson requested that Remington re-install the NO PARKING / FIRE LANE sign along the south side of Ida to limit the construction parking inhibiting the access to the occupied townhomes on the north side of Ida. Doug Edwards to take care of this.

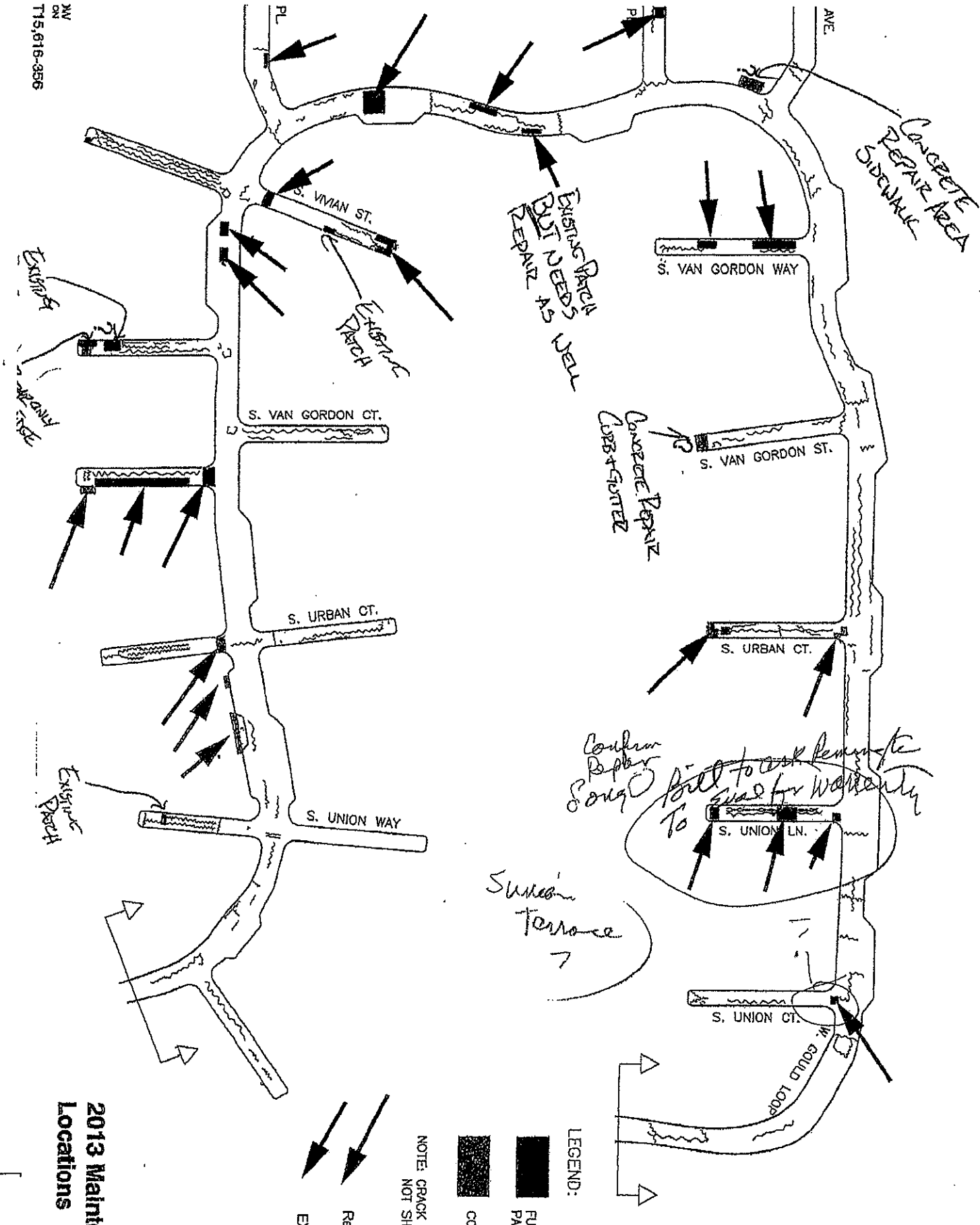
Attachments:

(1) Two drawings indicating DWMD's observation of construction damage to concrete and paving (green arrows).

(2) Pavement Evaluation, by CTL Thompson, dated July 2, 2013

We believe the following record to be an accurate summary of discussions and related decisions. We will appreciate notification of exceptions to this record within ten (10) days of its receipt. Failing such notification, we will consider this a statement of fact in which you concur.

NW
ON
715.616-3566



EXISTING PATCH
POTI NEEDS
REPAIR AS WELL

CONCRETE
REPAIR AREA
SIDEWALK

CONCRETE REPAIR
CURB + GUTTER

CONCRETE REPAIR
TO
SUNSHINE TERRACE
TO ASK PERMITS
FOR WARRANTY

SUNSHINE
TERRACE
7

Re
Ex

NOTE: CRACK;
NOT SHK

CON





FULL
PATCH

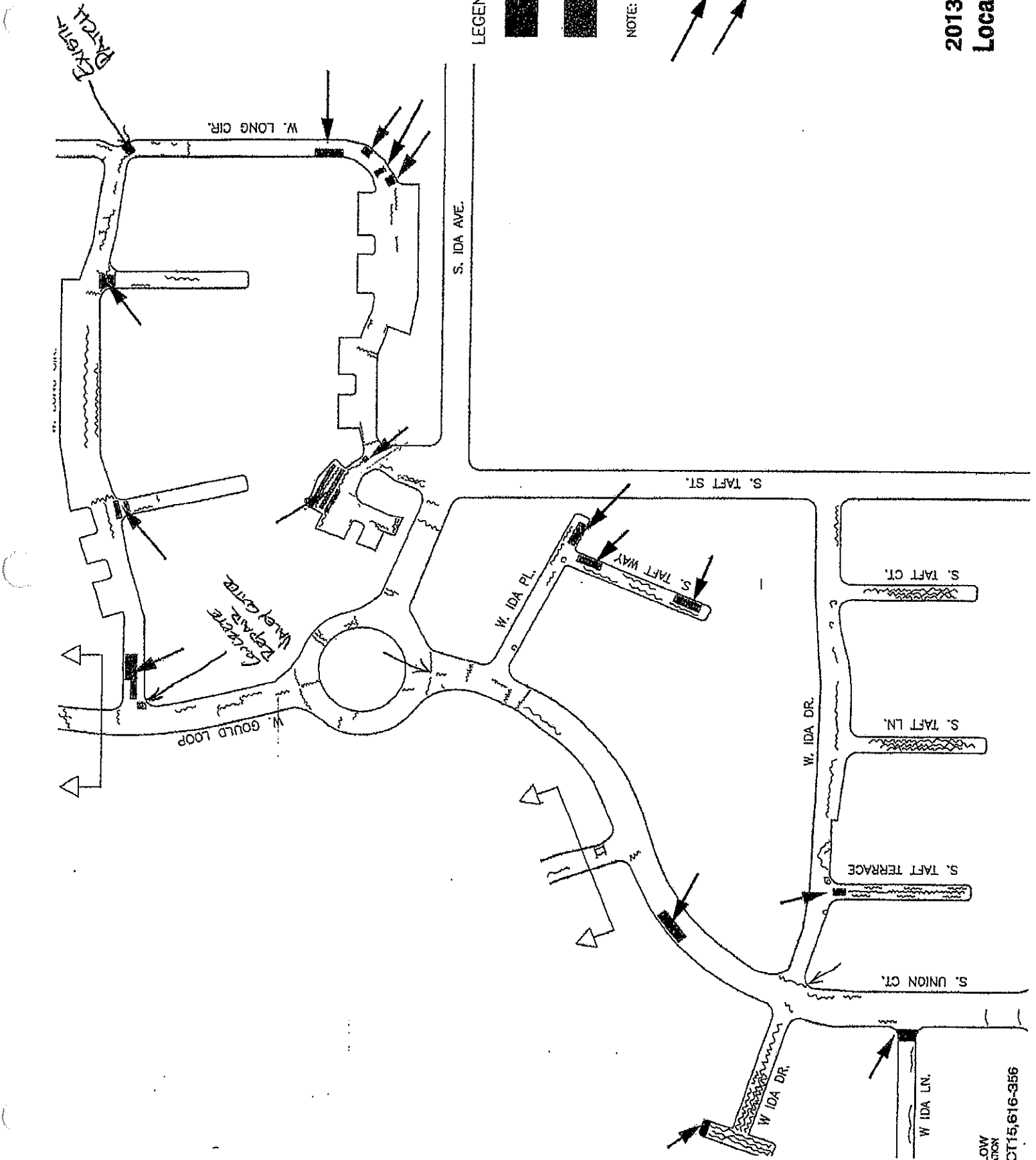
LEGEND:

2013 Maint
Locations

2013 Main Locations

LEGEND:

	FULL PATCH		CONC
NOTE: CRACK SE NOT SHOW			
			Exit
			Entr



OW
CRK
DT15,616-356



July 2, 2013

Dancing Willow Metropolitan District
141 Union Boulevard
Suite 150
Lakewood, Colorado 80228

Attention: Mr. William Bristol

Subject: Pavement Evaluation
Dancing Willows Subdivision
Littleton, Colorado
Project No. CT15,616-356

CTL | Thompson, Inc. is pleased to provide this letter concerning the pavement evaluation for the Dancing Willows Subdivision located at West Bowles Avenue and South Union Court in Littleton, Colorado (Fig. 1). This letter summarizes our evaluation and provides our opinions and recommendations for maintenance. Our scope of services was provided in our Proposal No. CT13-012 (dated March 15, 2013 and Revised March 29, 2013).

EXISTING PAVEMENT CONDITIONS

We understand the roadways were constructed in 2006 and thereafter as building units were constructed, although not all build out was completed. Asphalt concrete pavements are generally designed for a twenty year service life provided maintenance is performed. We visited the site on May 22, 2013 and May 29, 2013 to conduct a visual distress survey of the asphalt concrete pavement and adjacent concrete areas. The distress survey was performed to provide a subjective evaluation of the distresses observed. At the time of our survey, the roadways were approximately 7 years old. The majority of asphalt concrete pavement appeared to be in good to fair condition.

We observed distresses in the form of low to high severity longitudinal/transverse cracking, edge cracking, alligator cracking, potholes and patching. Descriptions of the types of distresses observed are presented below and a pavement distress map is shown on Fig. 2.

- Longitudinal/transverse cracking is a typical distress found in asphalt concrete pavements. These cracks are typically a result of daily and seasonal thermal contraction and expansion of the asphalt concrete. These types of cracks are not load related and are generally not considered as structural problems within the pavement system. However, they do need occasional maintenance treatments.
- Edge cracking is a type of distress that is usually parallel to and usually within 1 to 2 feet of the outer edge of the pavement. This type of distress is typically, caused by either differential movement between the asphalt concrete and the surrounding landscape or by

DANCING WILLOWS SUBDIVISION
PAVEMENT EVALUATION
CTL | T PROJECT NO. CT15616-356

22 Lipan Street | Denver, Colorado 80223 | Telephone: 303-825-0777 Fax: 303-893-1568



the softening of the subgrade near the edge of the pavement due to moisture infiltration.

- Alligator cracking is a series of interconnecting cracks caused by fatigue failure of the asphalt concrete or underlying subgrade under repeated traffic loading. These cracks indicate loss of pavement strength and can be substantiated using non-destructive structural testing, such as the Benkelman Beam deflection testing. Such cracking is considered a major structural distress and if left untreated, will propagate into potholes as a result of deterioration of the asphalt concrete and increased moisture intrusion further reducing soil support.
- Potholes are usually small bowl-shaped depressions in the pavement surface. They generally have sharp and vertical sides near the top of the hole. Potholes are produced when traffic abrades small pieces of the pavement surface and are usually related to structural distresses such as alligator cracking.
- Patches are considered a structural defect no matter the condition of the patch. A patched area or the area adjacent to a patch usually does not perform as well as the original pavement section.

NON-DESTRUCTIVE DEFLECTION TESTING

The non-destructive deflection tests were performed on June 4, 2013, using a Benkelman beam and an 18,000-pound single-axle loaded truck. The locations of the 57 tests are shown in Fig. 1 and the results are tabulated in Fig. A-1 and A-2. The tabulation indicates actual deflection measurements and pavement temperatures at the time of testing. These values are adjusted for pavement thickness, temperatures and seasonality. The results are corrected for our critical period of the year (spring) and tabulated in the column headed Representative Rebound Deflection (RRD). The column titled "Final RRD" contains the deflections within the limits created by the RRD. The RRD is calculated as the average deflection plus two standard deviations. This number is used to determine the overall structural capacity of the pavement. The RRD for the streets in Dancing Willows was 0.036. Based on this RRD and Asphalt Institute methods, the estimated service life is greater than 20 years for overall pavement structure (Fig. A-3).

DISCUSSION

The asphalt concrete pavement for the roadways consist of parking areas and drives with adjacent concrete curbs, asphalt parking aprons, concrete parking aprons, concrete valley gutters and concrete curb and gutter. Based on our observations of the distresses, some surface maintenance has been performed (i.e. crack sealing and patching).



2013 Maintenance

Based on the amount of distress and the deflection test results, we recommend that selected areas receive full depth asphalt patches, and selected concrete areas be removed and replaced (see Fig. 3 and 4 Asphalt pavement areas that exhibit alligator cracking should be removed and replaced with a minimum of 6 inches of asphalt. Subgrade soils should be processed, moisture conditioned, and re-compacted prior to placing the asphalt. An alternative to processing in-situ soils beneath the pavement would be to remove 12 inches of subgrade soils and replace with a Class 6 aggregate base course. Recycled concrete with a Class 5 or 6 designation would also be acceptable. Wet subgrade conditions should be expected.

Any existing cracks in the asphalt should be sealed, along with any gaps less than 1 inch between asphalt pavement and concrete gutters.

Cracked, broken, or misaligned concrete areas should be sawcut prior to removal, and replaced with a Colorado Department of Transportation (CDOT) Class B or P mixture. Concrete that is immediately adjacent to asphalt should have a one foot patch back of the asphalt when performing any concrete repairs.

We have provided bid plans and specifications for the 2013 maintenance. All areas to be replaced will be marked in the field by CTL prior to bidding.

Future Maintenance

The streets located to the east of the leasing are exhibiting distress under the current construction. Future maintenance should address the pavement issues where lots are currently being constructed and we recommend waiting until build-out is complete prior to this work. Full depth patching and/or reconstruction will be required in these areas based on their current condition.

In addition, future maintenance should consist of seal coats and rotomill and overlay. Based on the age and our condition survey, we believe a slurry seal should be placed over all the streets within 1 to 3 years. Slurry seals do not provide structural enhancements, but help fill cracks, provide better wearing course and improved appearance. In approximately 7 to 12 years a full rotomill and overlay should be planned to help the roads meet their design life.

PREVENTATIVE MAINTENANCE

Routine maintenance, such as sealing and repair of cracks is necessary to realize the long-term life of a pavement system. We recommend a preventive maintenance program continue to be followed for all pavement systems to assure the design life can be attained. Choosing to defer maintenance usually results in accelerated deterioration leading to higher future maintenance costs, and/or repair. A typical maintenance program is outlined in Attachment B.



GEOTECHNICAL RISK

The concept of risk is an important aspect with any geotechnical evaluation primarily because the methods used to develop geotechnical recommendations do not comprise an exact science. We never have complete knowledge of subsurface conditions. Our analysis must be tempered with engineering judgment and experience. Therefore, the recommendations presented in any geotechnical evaluation should not be considered risk-free. Our recommendations represent our judgment of those measures that are necessary to increase the chances that the pavements will perform satisfactorily. It is critical that all recommendations in this report are followed. The District must assume responsibility for maintaining the pavement and use appropriate practices regarding drainage and landscaping.

LIMITATIONS

This letter has provided our opinions on the distress observed at the site. A representative of our firm should observe subgrade preparation, chemical stabilization and pavement construction.

We believe this investigation was conducted with that level of skill and care ordinarily used by geotechnical engineers practicing in this area at this time. No warranty, express or implied, is made. If we can be of further service in discussing the contents of this report or in the analysis of the influence of the subsoil conditions on design of the structures, please call.

Respectfully submitted,

CTL | THOMPSON MATERIALS ENGINEERS, INC.

Zachariah J. Ballard, EIT
Staff Engineer

Reviewed by

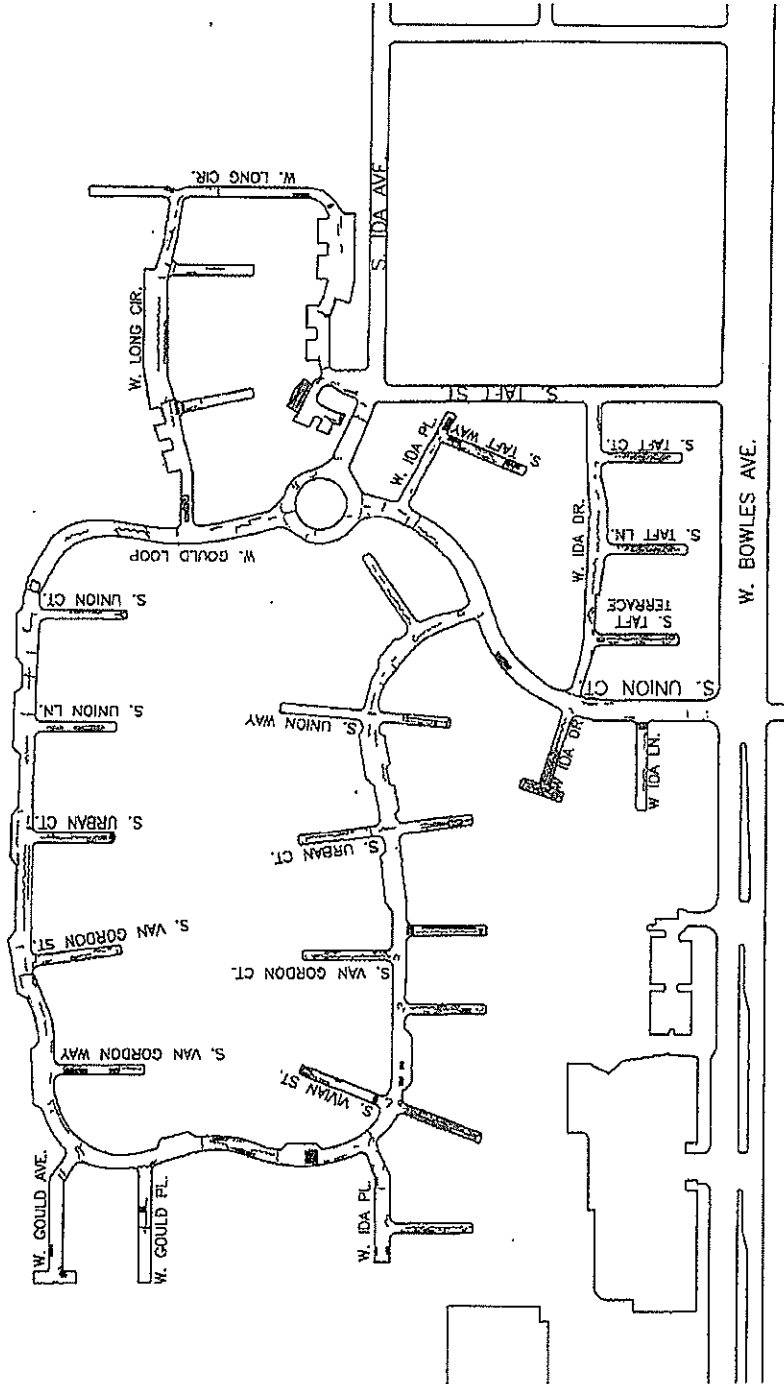
Damon B. Thomas, P.E.
Materials Division Manager

ZJB:DB
2 copies sent

email copy: wabristol@comcast.net



0 100 200
 SCALE 1" = 200'
 PROJECT NO. CT15,616-366



LEGEND:

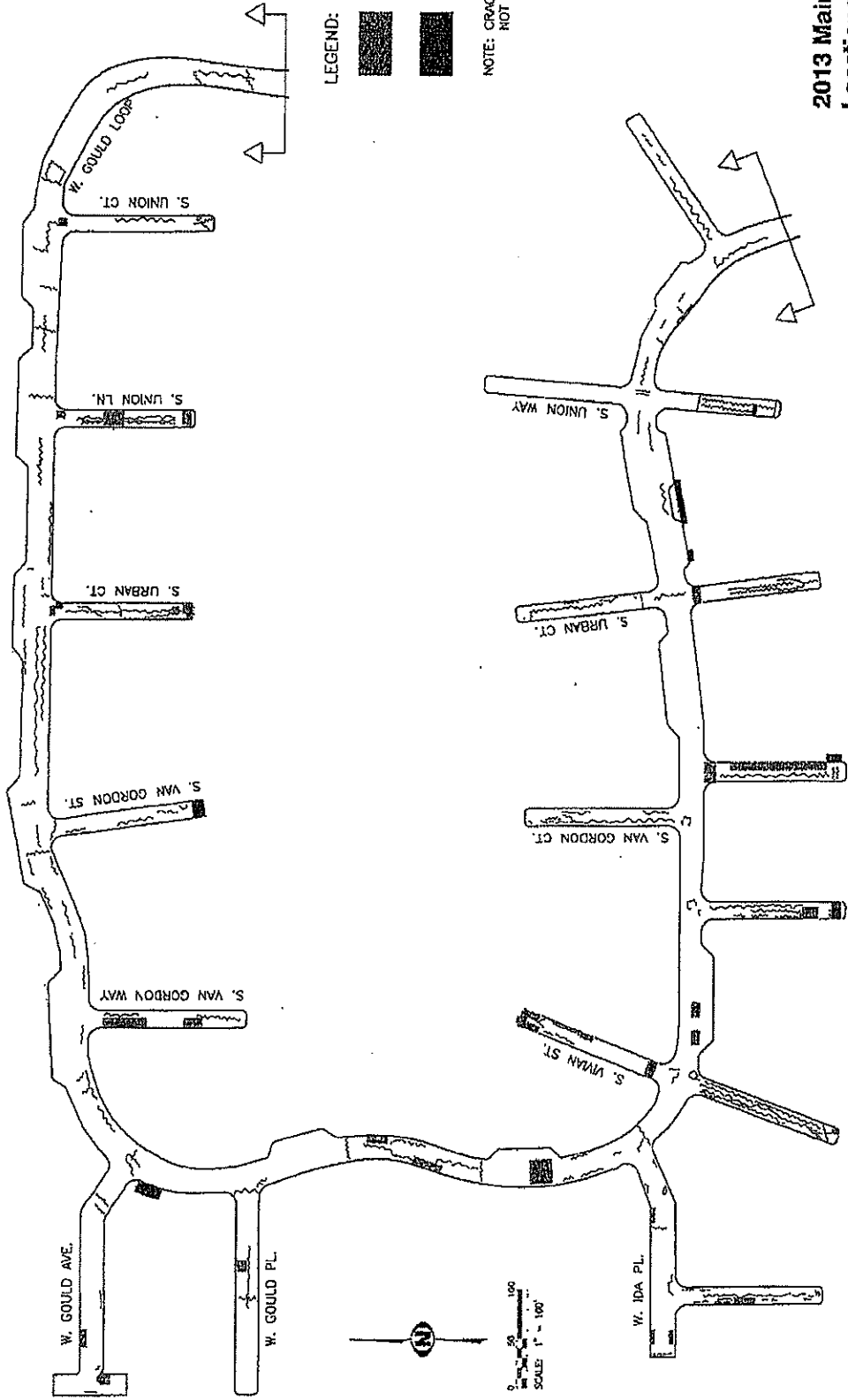
LONGITUDINAL AND TRANSVERSE CRACKING

ALLIGATOR CRACKING

EXISTING PATCHES

DANCING WILLOW
 PAVEMENT EVALUATION
 Project No. CT15,616-366

Distress Map Fig. 2



LEGEND:



FULL DEPTH ASPHALT PATCH

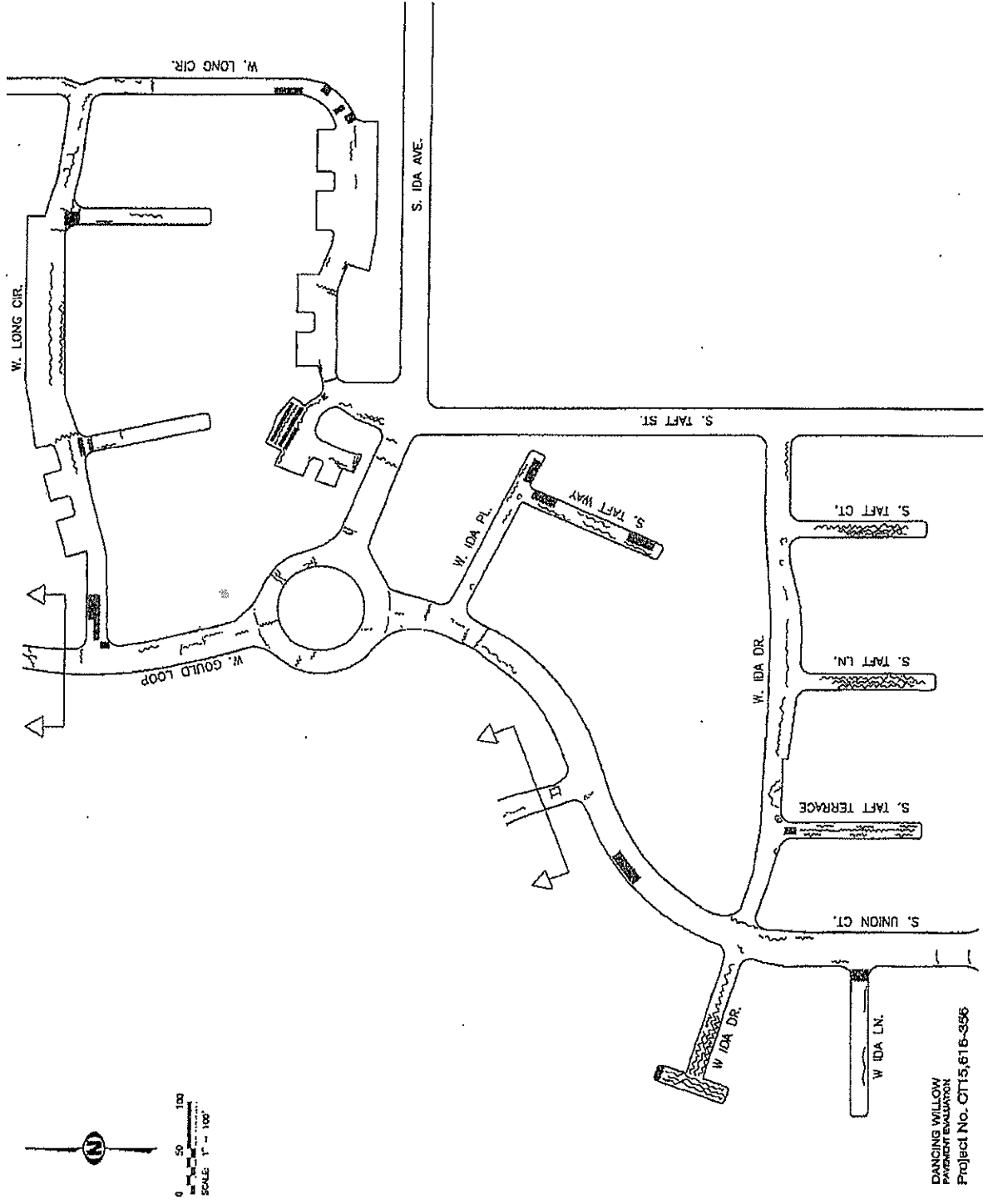


CONCRETE REPAIR AREA

NOTE: CRACK SEAL AREAS ARE NOT SHOWN.


2013 Maintenance Locations

Fig. 3



LEGEND:

 FULL DEPTH ASPHALT PATCH

 CONCRETE REPAIR AREA

NOTE: CRACK SEAL AREAS ARE NOT SHOWN.

2013 Maintenance Locations

Fig. 4

DANCING WILLOW
 PAVEMENT EVALUATOR
 Project No. CTT15-618-356



ATTACHMENT A
NON-DESTRUCTIVE DEFLECTION DATA

BENKELMAN BEAM TEST RESULTS



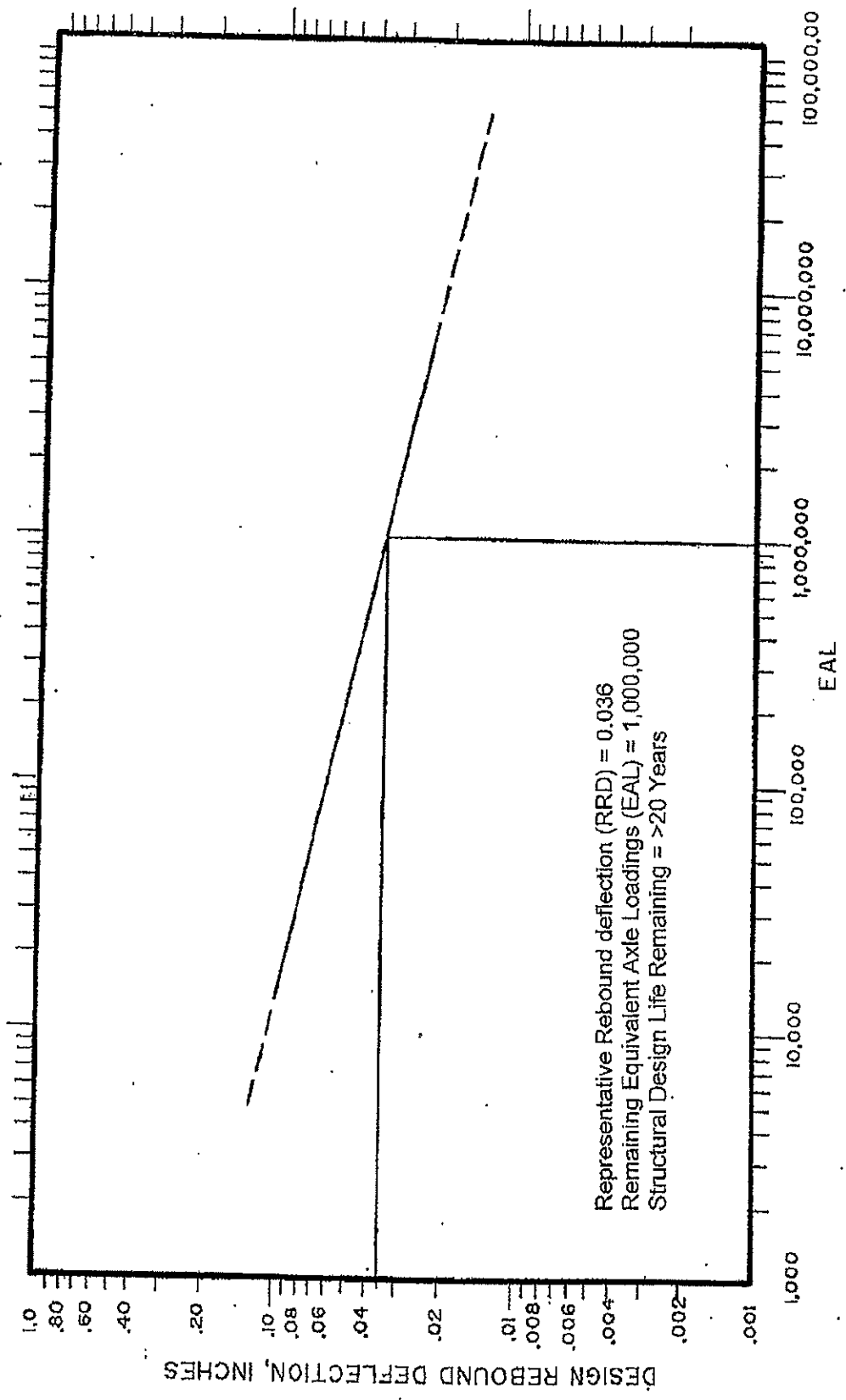
PROJECT: Dancing Willows
STREET: Dancing Willows Subdivision

TEST STATION	MAX READING	FINAL READING	PAVEMENT		INDIVIDUAL RRD	FINAL RRD	CORE THICKNESS	COMMENTS
			TEMP	ADJ				
1	0.008	0.004	72	1.03	0.005	0.005	4.00	
2	0.018	-0.010	72	1.03	0.032	0.032		
3	0.006	0.000	74	1.00	0.007	0.007		
4	0.020	-0.012	78	0.94	0.033	0.033		
5	0.010	-0.008	84	0.86	0.017	0.017		
6	0.014	-0.002	77	0.95	0.017	0.017		
7	0.014	-0.008	83	0.87	0.021	0.021		
8	0.026	-0.008	78	0.94	0.035	0.035		
9	0.024	-0.010	80	0.91	0.034	0.034		
10	0.004	-0.018	82	0.89	0.021	0.021		
11	0.026	-0.006	78	0.94	0.033	0.033		
12	0.014	0.004	72	1.03	0.011	0.011		
13	0.010	0.000	76	0.97	0.011	0.011		
14	0.010	0.000	78	0.94	0.010	0.010		
15	0.016	-0.004	81	0.90	0.020	0.020		
16	0.026	-0.002	80	0.91	0.028	0.028		
17	0.012	0.002	85	0.85	0.009	0.009		
18	0.020	-0.010	79	0.93	0.031	0.031		
19	0.012	0.000	82	0.89	0.012	0.012		
20	0.012	0.000	82	0.89	0.012	0.012		
21	0.016	0.002	83	0.87	0.013	0.013		
22	0.018	0.000	85	0.85	0.017	0.017		
23	0.008	0.000	84	0.86	0.008	0.008		
24	0.008	0.004	87	0.82	0.004	0.004		
25	0.010	0.000	87	0.82	0.009	0.009		
26	0.014	0.002	90	0.79	0.010	0.010		
27	0.014	-0.002	86	0.84	0.015	0.015		
28	0.028	0.004	85	0.85	0.022	0.022		
29	0.012	0.002	87	0.82	0.009	0.009		
30	0.004	0.000	91	0.78	0.003	0.003		
31	0.016	0.010	93	0.75	0.005	0.005		
32	0.020	0.002	90	0.79	0.016	0.016		
33	0.010	0.000	89	0.80	0.009	0.009		
34	0.020	0.010	87	0.82	0.009	0.009		
35	0.012	0.002	87	0.82	0.009	0.009		
36	0.002	-0.002	85	0.85	0.004	0.004		
37	0.022	-0.004	84	0.86	0.025	0.025		
38	0.018	0.010	84	0.86	0.008	0.008		
39	0.014	0.000	84	0.86	0.013	0.013		
40	0.040	0.000	84	0.86	0.038			
41	0.010	0.000	84	0.86	0.009	0.009		
42	0.024	0.004	85	0.85	0.019	0.019		

BENKELMAN BEAM TEST RESULTS

43	0.030	-0.004	82	0.89	0.033	0.033		
44	0.036	0.002	81	0.90	0.034	0.034		
45	0.004	0.000	84	0.86	0.004	0.004		
46	0.000	0.000	86	0.84	0.000	0.000		
47	0.006	0.002	87	0.82	0.004	0.004		
48	0.000	0.000	82	0.89	0.000	0.000		
49	0.040	0.006	84	0.86	0.032	0.032		
50	0.008	0.004	90	0.79	0.003	0.003		
51	0.020	0.002	84	0.86	0.017	0.017		
52	0.034	0.000	83	0.87	0.033	0.033		
53	0.040	0.026	83	0.87	0.013	0.013		
54	0.010	0.004	83	0.87	0.006	0.006		
55	0.040	0.010	83	0.87	0.029	0.029		
56	0.010	0.004	83	0.87	0.006	0.006		
57	0.010	0.002	84	0.86	0.008	0.008		
AVERAGE CORE THICKNESS					4.000			
CRITICAL PERIOD FACTOR					1.100			
REPRESENTATIVE REBOUND DEFLECTION					0.037			
AVERAGE ADJUSTED READING					0.015			
STANDARD DEVIATION					0.011			
REPRESENTATIVE REBOUND DEFLECTION (w/o special treatment areas)					0.036			

BLANK CELLS DENOTE STRUCTURALLY WEAK AREAS



DESIGN REBOUND DEFLECTION CHART FOR LIFE EXPECTANCY



ATTACHMENT B
MAINTENANCE FOR FLEXIBLE AND RIGID PAVEMENTS



MAINTENANCE FOR FLEXIBLE PAVEMENTS

The primary cause for deterioration of high traffic volume pavements is loss of integrity of the asphalt concrete and subgrade failure. High volumes also create pavement rutting and smooth, polished surfaces. Preventive maintenance treatments will typically preserve the original or existing pavement by providing a protective seal and improving skid resistance through a new wearing course.

1. Annual Preventive Maintenance
 - a. Visual pavement evaluations shall be performed each spring or fall.
 - b. Reports documenting the progress of distress shall be kept current to provide information on effective times to apply preventive maintenance treatments.
 - c. Crack sealing shall be performed annually as new cracks appear.
2. 3 to 5 Year Preventive Maintenance
 - a. The owner should budget for a preventive treatment at approximate intervals of 3 to 5 years to reduce oxidative embrittlement problems.
 - b. Typical preventive maintenance treatments include chip seals, fog seals, slurry seals and crack sealing.
3. 5 to 10 Year Corrective Maintenance
 - a. Corrective maintenance may be necessary, as dictated by the pavement condition, to correct rutting, cracking and structurally failed areas.
 - b. Corrective maintenance may include full depth patching, milling and overlays.
 - c. In order for the pavement to provide a 20 year service life, at least one major corrective overlay can be expected.



MAINTENANCE RECOMMENDATIONS FOR RIGID PAVEMENTS

High traffic volumes create pavement rutting and smooth, polished surfaces. Preventive maintenance treatments will typically preserve the original or existing pavement by providing a protective seal and improving skid resistance through a new wearing course.

1. Annual Preventive Maintenance
 - a. Visual pavement evaluations should be performed each spring or fall.
 - b. Reports documenting the progress of distress should be kept current to provide information of effective times to apply preventive maintenance.
 - c. Crack sealing should be performed annually as new cracks appear.
2. 4 to 8 Year Preventive Maintenance
 - a. The owner should budget for a preventive treatment at approximate intervals of 4 to 8 years to reduce joint deterioration.
 - b. Typical preventive maintenance for rigid pavements include patching, crack sealing and joint cleaning and sealing.
 - c. Where joint sealants are missing or distressed, resealing is mandatory.
3. 15 to 20 Year Corrective Maintenance
 - a. Corrective maintenance for rigid pavements includes patching and slab replacement to correct subgrade failures, edge damage and material failure.
 - b. Asphalt concrete overlays may be required at 15 to 20 year intervals to improve the structural capacity of the pavement.