State of Florida
Department of Transportation

2010 RESILIENT MODULUS OF ROADBED SOILS FACTS & FIGURES

FDOT Office
State Materials Office

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PAVEMENT MATERIAL SYSTEMS

The Pavement Material Systems provides the Department with the technical expertise to ensure safe and durable pavement systems. This section interacts and partners with other central and district offices, the Federal Highway Administration, pavement industry, and other stakeholders. To support these goals, presented are the Pavement Material System's Mission, Vision, and Value Statements.

Mission
Make Florida's pavements safer, last longer, and perform better.

Vision
The best pavements in the country.

Values
Do it R.I.T.E (Respect, Integrity, Teamwork, and Excellence), Now!

To learn more about our people, functions, and services, we invite you to visit us at:

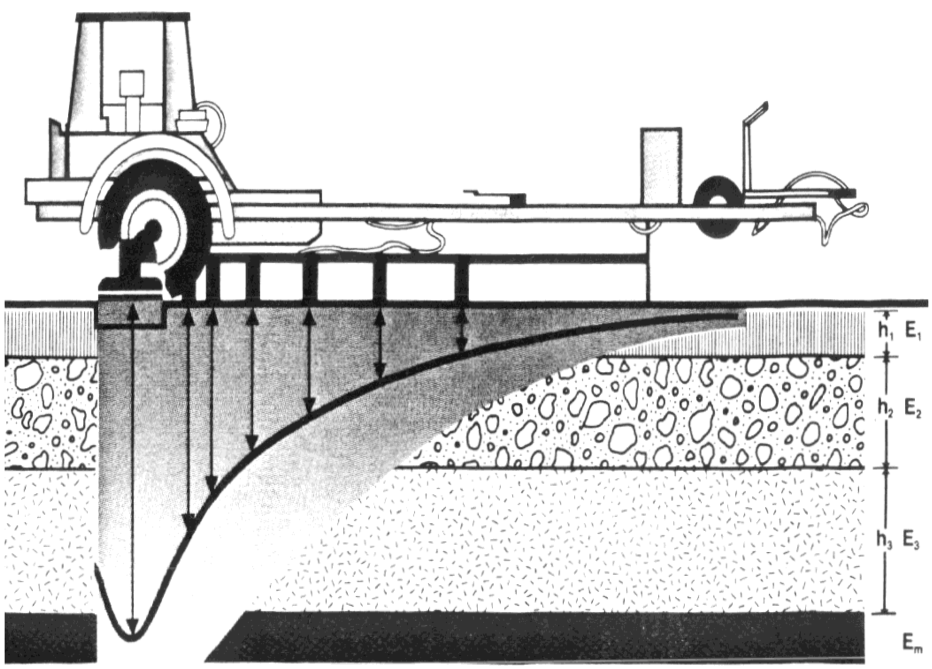
http://www.dot.state.fl.us/statematerialsoffice/

EXECUTIVE SUMMARY

One of the primary functions of the Non-Destructive Testing Group, a unit of the State Materials Office in Gainesville, Florida, is to characterize the in-situ properties of Florida's roadbed materials for pavement design purposes. The basis for such a characterization is the resilient modulus (M_R). The resilient modulus is a measure of the material elastic property recognizing it's certain nonlinear characteristics. It is estimated, in our case, in-place from deflection measurements. This information has been critical to the Department's effort to support informed highway planning, as well as policy and decision making. This requires the apportionment and allocation of funds as well as the determination of appropriate cost-effective strategies to rehabilitate and preserve existing highway transportation infrastructure.

This report is intended to provide information regarding our program testing procedures, to report current and past M_R values on a statewide basis, and to identify historical regional M_R trends in the various Districts.

PART I: OVERVIEW



INTRODUCTION

One of the primary functions of the Non-Destructive Testing (NDT) program is to characterize the in-situ properties of the Florida's roadbed (embankment) materials for pavement design purposes. The basis for such a characterization is the resilient modulus (M_R). The resilient modulus is a measure of a material's elastic property recognizing its nonlinear characteristics. It is directly estimated, in our case, in-place using deflection-based techniques.

Deflection-Based Techniques

Due to their speed and ease of operation deflection-based techniques are being widely used in the evaluation of the structural integrity and for estimating the elastic moduli of in-place pavement systems. The deflections can be non-destructively induced and measured using various commercially available devices. These devices are designed based on a variety of loading modes and measuring sensors. The loading modes include static, steady-state vibratory, and impulse loading; while the resulting responses are measured with sensors that include geophones, accelerometers, and linear voltage differential transducers (LVDT).

USE OF DEFLECTION-BASED DEVICES: FLORIDA HISTORICAL PERSPECTIVE

The Department implemented the use of the Falling Weight Deflectometer (FWD) in the early 1980s. It has, however for pavement design purposes, initially specified the use of a Benkelman Beam, and then the use of a vibratory-type device (Dynaflect).

Benkelman Beam

The Benkelman Beam was the first deflection-based device used in Florida for pavement design purposes. It was developed by A.C. Benkelman during the Western Association of State Highway Officials (WASHO) Road Test. It consists of a measurement probe hinged to a three-legged reference beam, as schematically illustrated in Figure 1. The probe is positioned between the rear dual tires of a track, and the rebound deflection is measured by a dial placed on the reference beam when the truck is slowly driven away. Although this method is simple and relatively inexpensive, it is also slow and labor intensive. In addition, the measurements are usually limited to maximum deflections only and are produced under unrealistic load durations. Furthermore, the leveled position of the reference beam may, in some cases, be unduly influenced by the deflection basin.

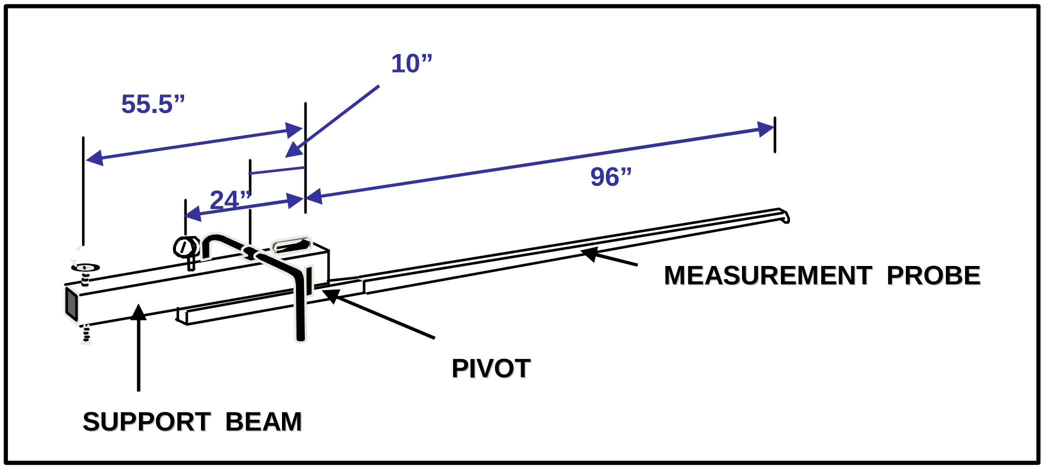


Figure 1. Schematic Illustration of a Benkelman Beam

Dynaflect

In mid-1980s, the Department switched to a steady-state vibratory device, known as a Dynaflect. The Dynaflect consists of a relatively lightweight (2,000 lbs.) two-wheel trailer equipped with an automated data acquisition and control system. The deflections are generated by a combination of a sinusoidal dynamic load and the static weight of the trailer. The dynamic loading of a pavement surface is performed using two counter-rotating eccentric steel weights. These steel weights, rotating at a constant frequency of eight cycles per second (8 Hz), generate a peak-to-peak dynamic load of approximately 1000 pounds in magnitude. The resulting deflections of a pavement system are measured with geophones. The geophones are electromechanical devices that use a magnetic field to produce an electrical impulse. These geophones are suspended, at set intervals, from the tongue of the trailer.

A primary advantage of the Dynaflect over a static-loading device, such as Benkelman beam, is that a reference frame is not required. In addition, the Dynaflect generates a complete deflection basin at each test location. However, the fixed magnitude and the loading frequency are its major limitations. A photographic illustration of a Dynaflect is given in Figure 2.

Figure 2. Dynaflect Device

Falling Weight Deflectometer

The Falling Weight Deflectometer (FWD) consists of a trailer mounted, falling weight system capable of loading a pavement in a manner that simulates actual wheel loads in both magnitude and duration. An impulse load is generated by dropping a mass from a specified height. The mass is raised hydraulically, then released by an electrical signal and dropped with a buffer system on a 12-inch diameter rigid steel plate. A set of springs between the falling mass and hit bracket mounted above the load cell buffers the impact by decelerating the mass. A thin, neoprene pad rests between the plate and the pavement surface to allow for an even load distribution. When a weight is dropped, an impulse load enters the pavement system creating body and surface waves. The resulting vertical velocity of the pavement surface is picked up through a series of sensors located along the centerline of the trailer. These signals are then used to obtain the maximum deflection from each geophone through analog integrations. A single analog integration of a signal generates the deflection-time trace. The deflection measurements are recorded by the data acquisition system typically located in the tow vehicle. Figure 3 provides a schematic illustration of the FWD loading principle.

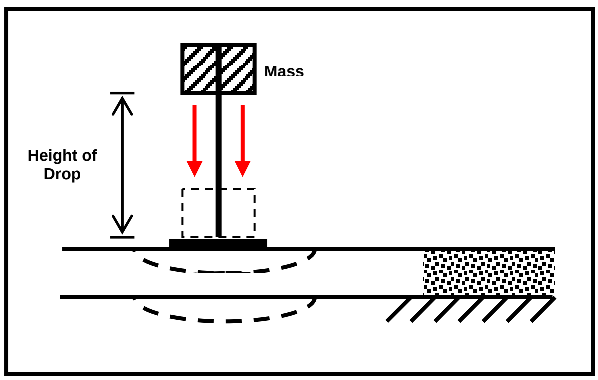


Figure 3. FWD Loading Principle

The use of the Falling Weight Deflectometer (FWD) testing for pavement design and rehabilitation purposes was first introduced by AASHTO in the 1993 Pavement Design Guide. In recent years, the FWD has gained further acceptance among highway agencies because of its versatility, reliability, and ease of use. The FWD loading is believed to better simulate the effects of traffic on pavement structures. Therefore as of March 2001, the Department has implemented the use of FWD for all pavement-related evaluations, including design activities. A photographic illustration of the FWD is shown in Figure 4.

Figure 4. Falling Weight Deflectometer

FLORIDA TESTING PROCEDURE

Deflection Testing

When testing with the FWD for pavement design purposes, two 9-kip load drops are used. However, only the deflection data resulting from the last loadings are considered for roadbed soil characterization. It is generally believed that the deflection data produced under the first impact load may not always be representative of the true pavement response *(2)*. Therefore, the first load is mainly used for the loading plate "seating" purposes. All the deflection data are obtained using the sensor configuration shown in Figure 5.

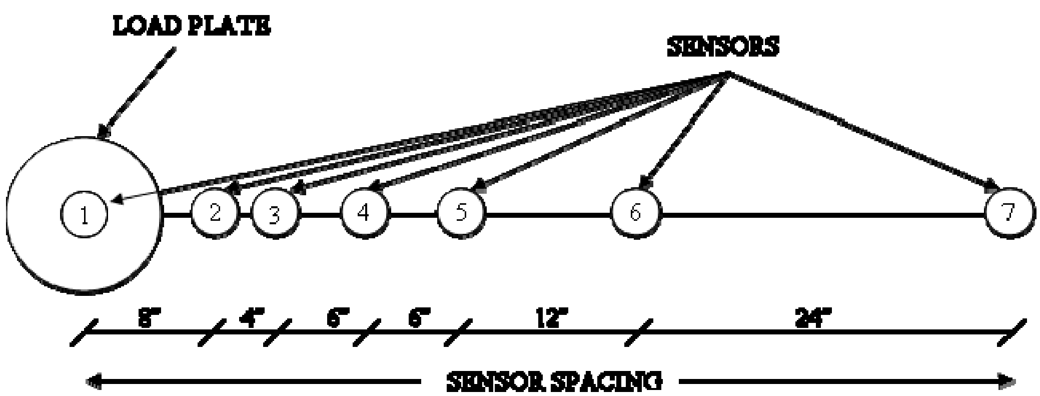


Figure 5. Schematic Illustration of Sensor Configuration

Prediction of In-Place Moduli of Embankment Material

The current procedure for predicting the insitu strength of the embankment material of a pavement system is based on the procedure described in the *AASHTO Guide* *for Design of Pavements Structures* calibrated to Florida conditions *(3)*. This method was originally proposed by Ullidtz *(4)*, and is based on Boussinesq's theory on a concentrated load applied on an elastic half-space *(5)*. In this procedure, the modulus of an embankment material is estimated as follows:

$$E_r = 0.24P / d_r \cdot r \quad (2)$$

Where:

E_r = Subgrade modulus, in psi;
P = Applied load, in pounds;
d_r = Deflection measured at a radial distance r, in inches; and
r = Radial distance at which the deflection is measured, in inches.

The *AASHTO Design Guide* suggests the deflection used in the above equation be measured as close as possible to the loading plate and yet be sufficiently far from the load. This is suggested to satisfy the assumption that, at points sufficiently distant from the load, the deflections measured at the pavement surface are mainly due to the embankment deformation, and are also independent of the load plate size. Florida's previous experience with non-destructive deflection testing has shown that the pavement deflections measured at 36 inches away from the load are appropriate for the determination of the embankment moduli. Therefore, only the pavement deflections measured at 36 inches (r = 36 inches in equation 2) away from the load are considered for design purposes in the Florida procedure. Furthermore, within a project limits, the resilient modulus (Mr) value is reported based on the mean deflection plus two standard deviations (d_r = mean deflection + 2 σ).

Field Testing Requirements

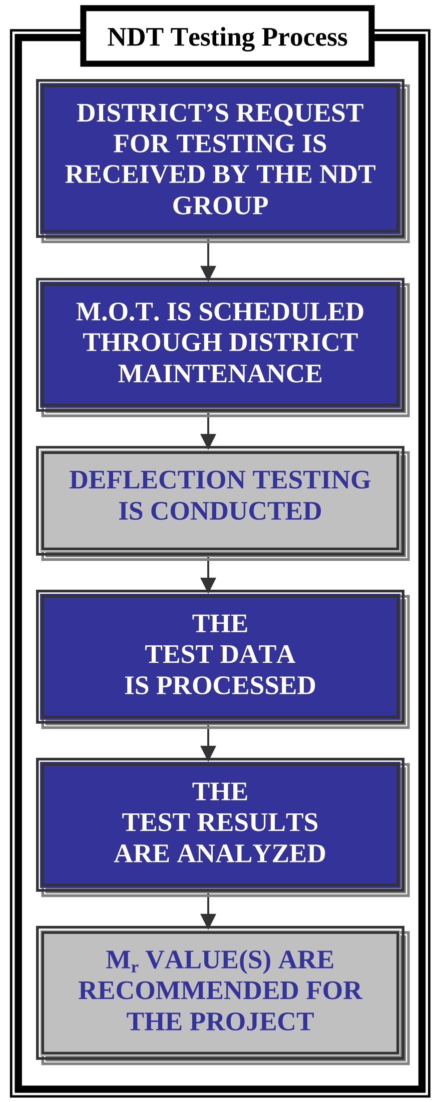
Generally, testing is only conducted on 2-lane projects greater than 1 mile long, or on multi-lane projects greater than 0.5 mile long.

Testing frequency for 2-lane projects is conducted at 28 tests / mile in one direction. For multi-lane projects testing is conducted at 14 tests / mile / each direction.

PROJECT TESTING REQUESTS

To request a project to be tested, simply contact the following District FWD coordinators:

District	Name	E-mail
1	Debra Childs	Debra.childs@dot.state.fl.us
2	Chad Townsend	Chad.townsend@dot.state.fl.us
3	Samuel Weede	Samuel.weede@dot.state.fl.us
4	Brent Lee-Shue-Ling	Brent.Lee-Shue-Ling@dot.state.fl.us
5	Timothy Keefe	Timothy.keefe@dot.state.fl.us
6	Cathy Margoshes	Cathy.margoshes@dot.state.fl.us
7	Mary Sheets	Mary.sheets@dot.state.fl.us
Turnpike	Michael Shannon	Michael.Shannon@dot.state.fl.us



Include the following information within the body of the request:

1.) Roadway Id (e.g. SR 91, 91470000, FL Turnpike)
2.) County Name (e.g. Okeechobee)
3.) Project Limits (e.g. MP 181.7 to MP 188.9)
4.) Exceptional Needs (e.g. Extend testing 1000 ft past Begin/End segment limits, vibration analysis desired.)
5.) Project Location Map
6.) Recommended Due Date
7.) MOT, Traffic Restrictions

After the District FWD coordinators have gathered the information needed for the requested projects, they will submit the request to the SMO's NDT group. The NDT group will then review the submitted requests and schedule Maintenance of Traffic (MOT) with District Maintenance Offices for deflection testing. The flow chart to the right details the project testing process.

For coordination purposes, it is best to provide the State Materials Office with as much time as possible by submitting any testing requests immediately after the work program has been updated and the project schedules are set. In order to ensure that all requests may be dealt with in a timely and efficient manner, a minimum of 6 months is required by the State Materials Office for testing. For further information on SMO's FWD deflection testing process, contact:

Charles Holzschuher, Nondestructive Testing
charles.holzschuher@dot.state.fl.us
Phone: (352) 955-6341
Fax: (352) 955-6345

HISTORICAL FWD DATABASE

For the benefit of district engineers, the FWD historical data from January 1, 2004 to current is provided on the State Materials Office's website at:

http://databases.sm.dot.state.fl.us/fwddata.htm

The FWD historical data can be searched by; beginning mile post, county, financial project number, project number and year. Search result include; state road number, project number, beginning and end mile posts, financial project number, date requested, test date, lanes tested, number of lanes and modulus values.

RESEARCH RESULTS

STATISTICAL ANALYSIS OF HISTORICAL FWD DATA

In 2010, a statistical analysis of the historical FWD data was conducted and the results are presented in this section of the report.

First of all, it was assumed that the typical values may depend on the District. This assumption was made because some "exceptionally" high Mr values have been observed in south Florida which is not typical in the other regions. Note that the "exceptionally" high Mr, values may be as high as several million psi. But even in these situations, the highest Mr value that can be recommended is bound by 32,000 psi per FDOT's design manual. Therefore, it was expected that the distribution of the Mr values in south Florida may be extremely skewed and have different statistical characteristics when compared to north or central Florida.

The statistical analysis was performed using all the Mr values recommended based on FWD testing, which include more than 8 years worth of FWD data collected from 9,500 lane-miles of roadway. Table 1 shows a summary of the Mr statistics.

Table 1. Summary Statistics of Historical Mr (2002 to 2010)

		District							Statewide
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Lane Miles Tested		1,657	1,579	1,147	1,705	1,909	554	982	9,534
Mr Values (ksi)	**Weighted Average**	23	20	16	25	21	27	23	22
	Upper Quartile	28	24	20	30	24	32	28	28
	Median	23	19	14	24	21	32	21	21
	Lower Quartile	18	14	10	18	16	20	18	16

Based on the data shown in the above table, District 6 has the highest embankment Mr whereas District 3 shows the lowest. For all districts with the exception of District 6, the difference between the weighted average and the median was within 2 ksi (note that the median Mr value for District 6 is equal to 32 ksi which is the highest value that can be recommended). The above table also shows the upper and lower quartiles of the Mr values, in order to allow the readers for a better idea of the Mr distribution for their respective Districts Figures 6 through 13 show the plots of the Mr distribution for each District and statewide data. Note again the high percentage of 32 ksi in south Florida (D1, D4, D6, and Statewide).

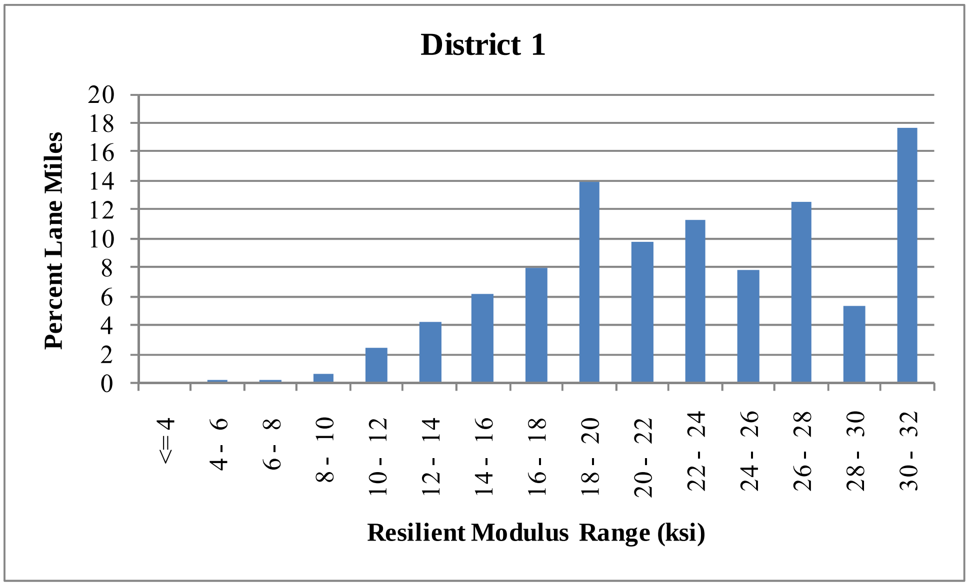


Figure 6. District 1 Embankment Resilient Modulus Distribution

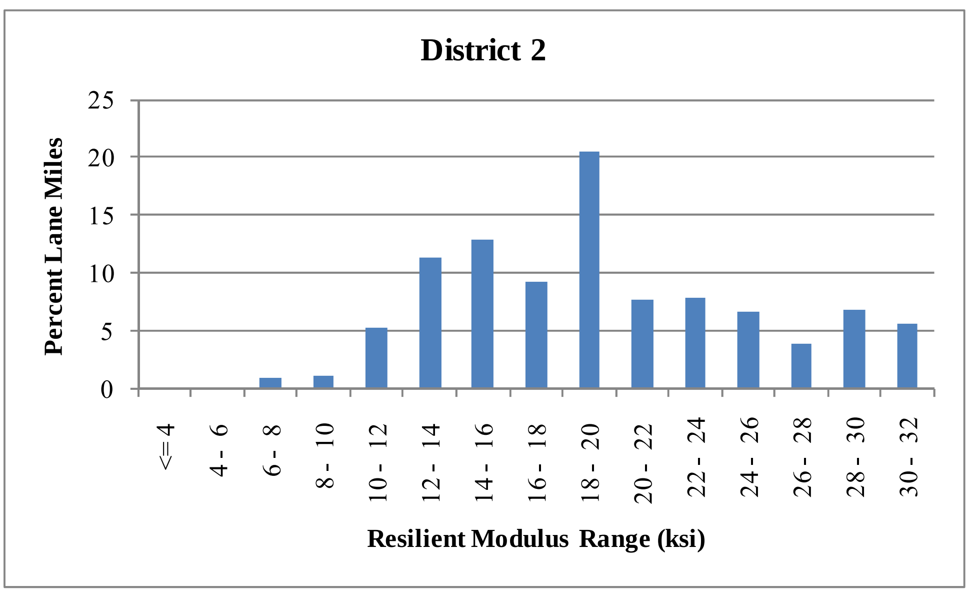


Figure 7. District 2 Embankment Resilient Modulus Distribution

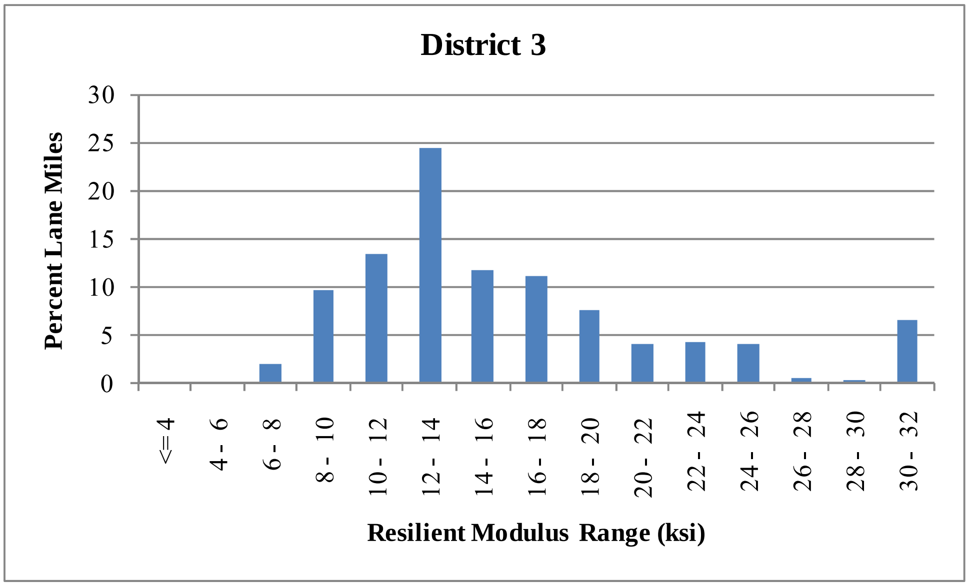


Figure 8. District 3 Embankment Resilient Modulus Distribution

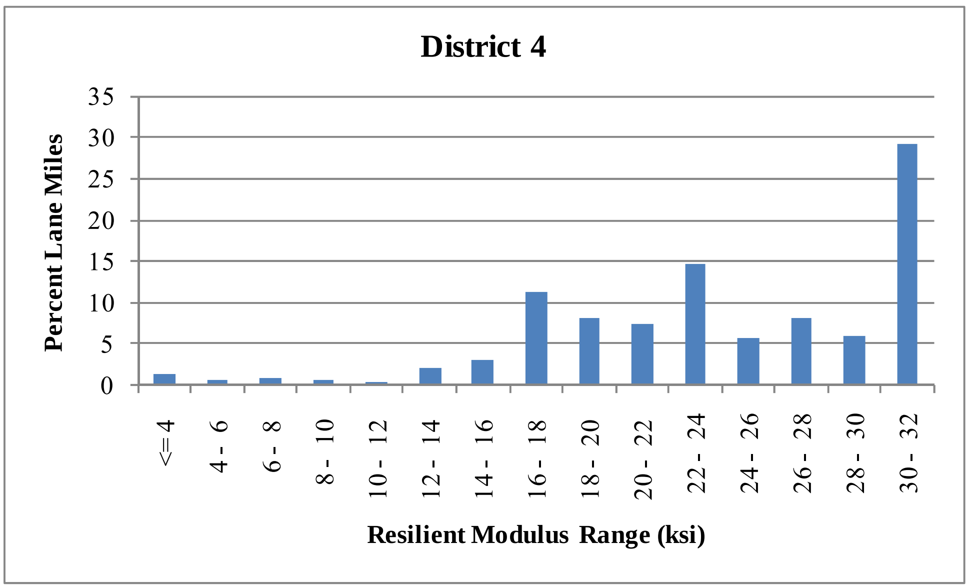


Figure 9. District 4 Embankment Resilient Modulus Distribution

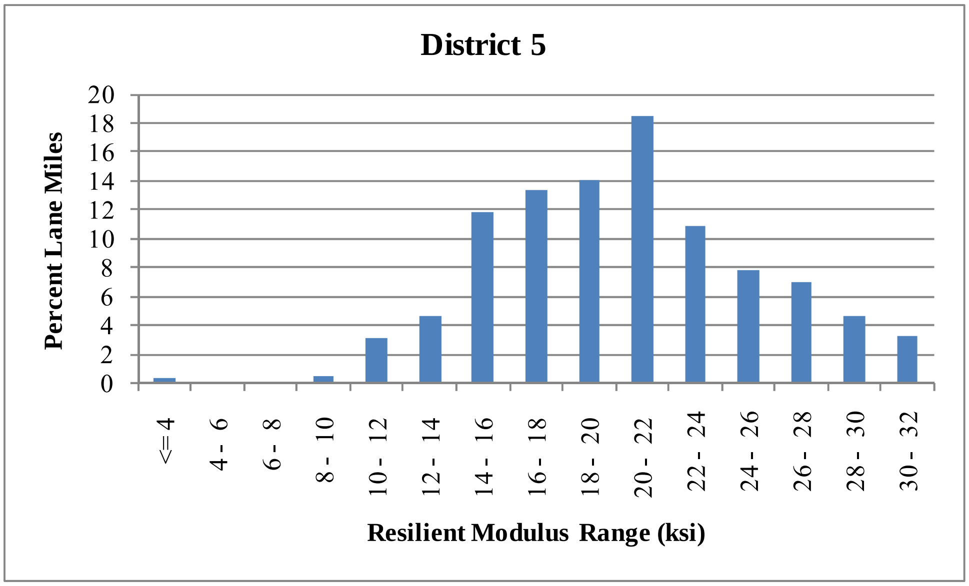


Figure 10. District 5 Embankment Resilient Modulus Distribution

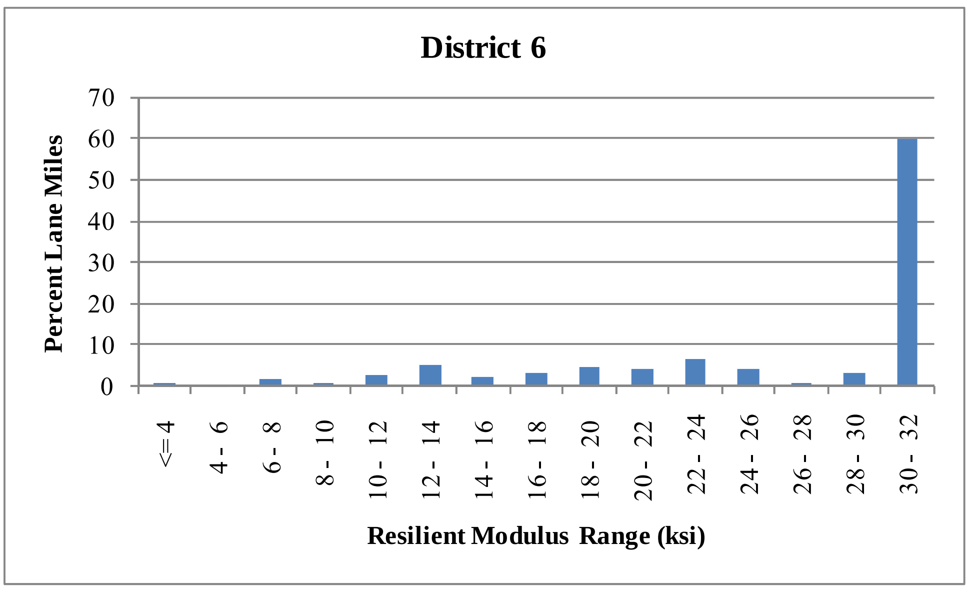


Figure 11. District 6 Embankment Resilient Modulus Distribution

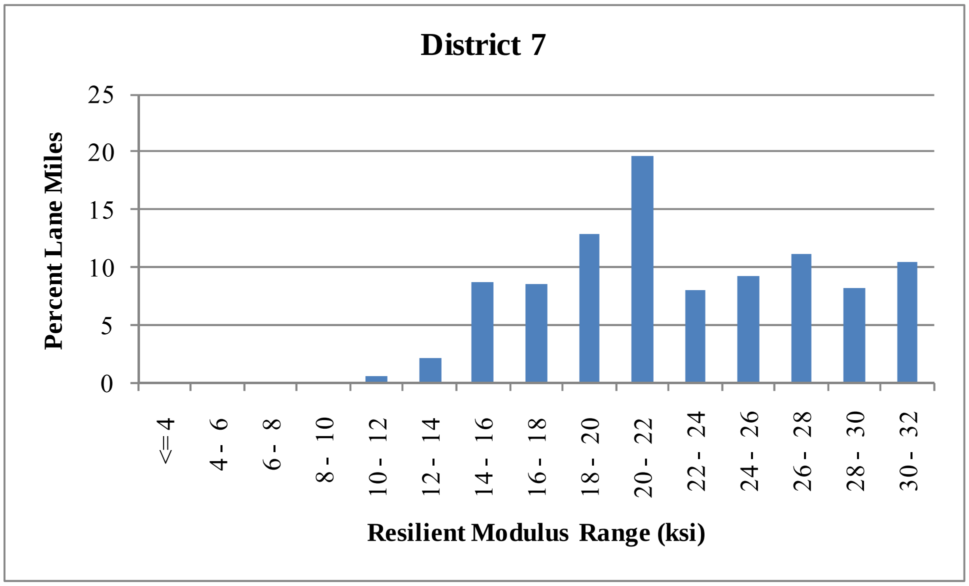


Figure 12. District 7 Embankment Resilient Modulus Distribution

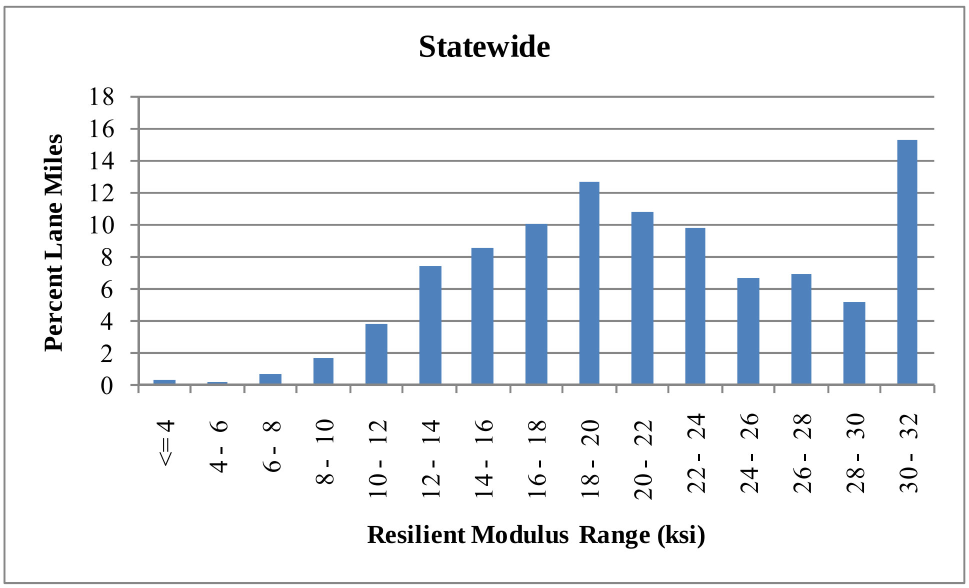


Figure 13. Statewide Embankment Resilient Modulus Distribution

IDENTIFICATION OF VIBRATION SENSITIVE WORK ZONES

Based on the findings of a recent research project (http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_SMO/FDOT_BDB11rpt.pdf), FDOT developed a methodology for identifying vibration-sensitive portions of resurfacing projects during routine pre-construction testing that does not require a detailed knowledge of the layering of the pavement structure or the geology of the surrounding site (6, 7). When the State Materials Office personnel is informed that a project is potentially vibration-sensitive, the FWD operator will be alerted to record the full FWD displacement time histories on each FWD test performed during pre-design testing. The time history data will then be processed to develop upper bound predictor of the ground motion at the site. By knowing or assuming a frequency for the vibratory roller to be used during construction, the peak particle velocity can be used to identify locations along a given project where vibratory compaction is not recommended. The analysis procedure is outlined in Figure 14.

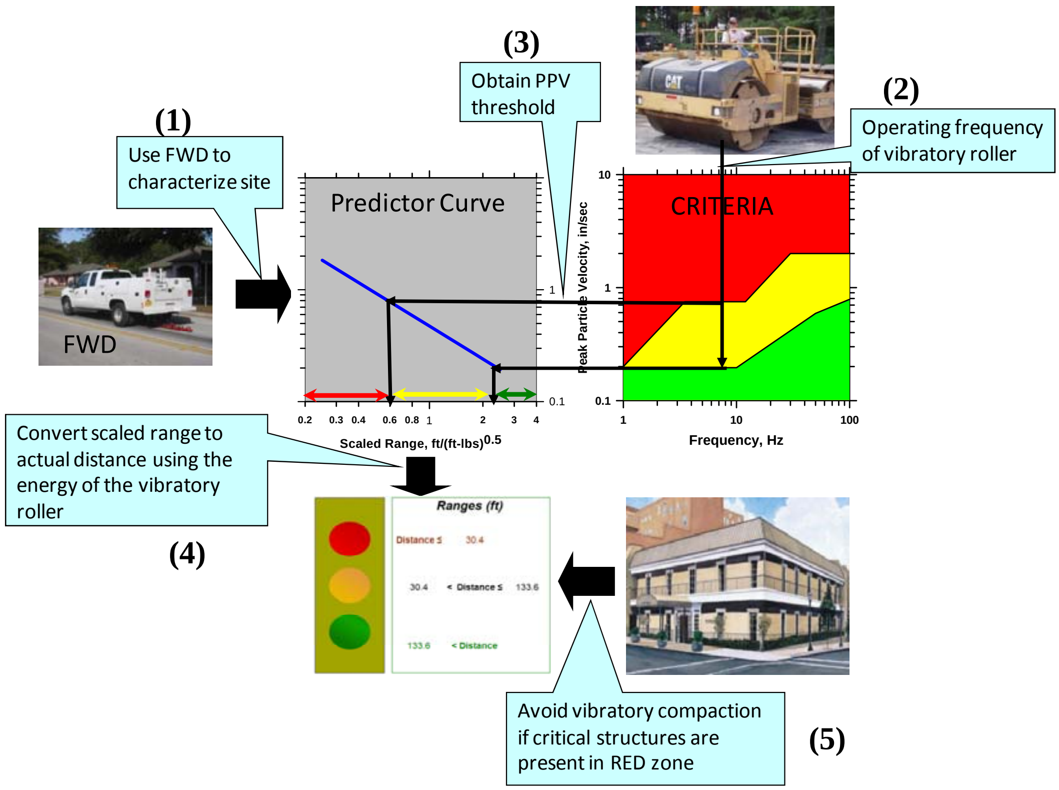


Figure 14. Vibration Analysis Procedures (6, 7)

The outcome of the analysis is a brief report that provides the limits for the “Red”, “Yellow” and “Green” zones defined as:

- RED zone: designates a region where the vibratory compaction may cause damage to nearby structures.
- YELLOW zone: designates a region where the vibratory compaction may cause human annoyance, but damage to buildings is unlikely.
- GREEN zone: designates the region where the vibratory compaction may or may not be noticeable, and human annoyance is unlikely.

An example of the project-specific vibration report is shown in Figure 15. If a sensitive structure is found within the limits of the “Red” zone, it is recommended that use of vibratory rollers for compaction of pavement layers be avoided and other means of compacting be considered to prevent major or minor damages in the structure, especially in urban areas.

FWD time histories can be easily collected while the typical deflection testing is performed for determining the resilient modulus values and no other information is necessary to perform the vibration analysis. To submit a request for the vibration report, simply inform the District FWD coordinators that the vibration report is needed when submitting the request for FWD testing. Then, the Nondestructive Testing Unit will provide the vibration report with the resilient modulus recommendations.

Non-Destructive Testing
Vibratory Compaction Criteria Report

PROJECT INFORMATION **DATE** **02/16/07**

FIN:	239266-3
COUNTY:	Orange
SECTION ID:	75080
STATE ROAD NUMBER:	15
DIRECTION:	Northbound
COMMENTS:	This is an example problem.

ROLLER INFORMATION

☑ ***Default roller was used.***

Default roller was not used.

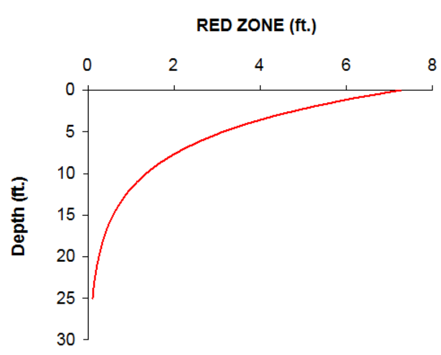
LOAD (lbf):	44,120
AMPLITUDE (in):	0.035
FREQUENCY (Hz):	42
DRUM DIAMETER (in):	59

VIBRATION CRITERIA: SURFACE STRUCTURES

RED ZONE (ft):	Distance (ft) ≤	7.3		
YELLOW ZONE (ft):	7.3	< Distance (ft) ≤	40.8	
GREEN ZONE (ft):	Distance (ft) >	40.8		

Conditions in the RED ZONE should be avoided to prevent possible architectural or structural damage to buildings. Conditions in the YELLOW ZONE are acceptable; however, the department should be prepared to receive complaints from persons who may be annoyed by the vibration. Operations in the GREEN ZONE should incur few, if any, complaints from the public.

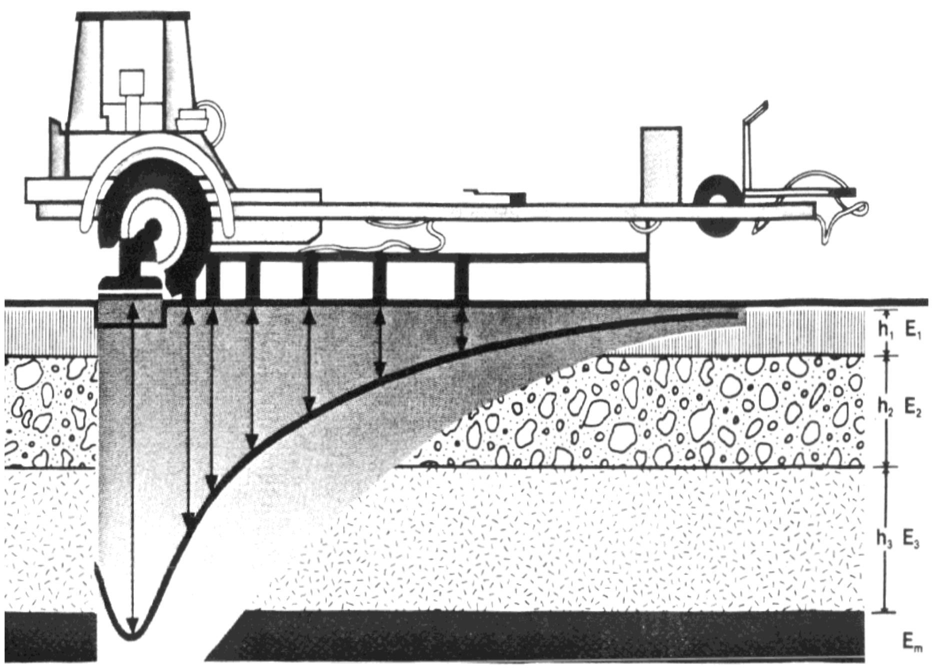
VIBRATION CRITERIA: BURIED STRUCTURES



For fragile buried structures, the plot to the left shows the RED ZONE as a function of depth. Enter the plot at the depth of the buried structure and estimate the RED ZONE from the curve. Vibratory compaction is not recommended within a distance equal to the RED ZONE from the buried structure.

Figure 15. Sample Vibration Report

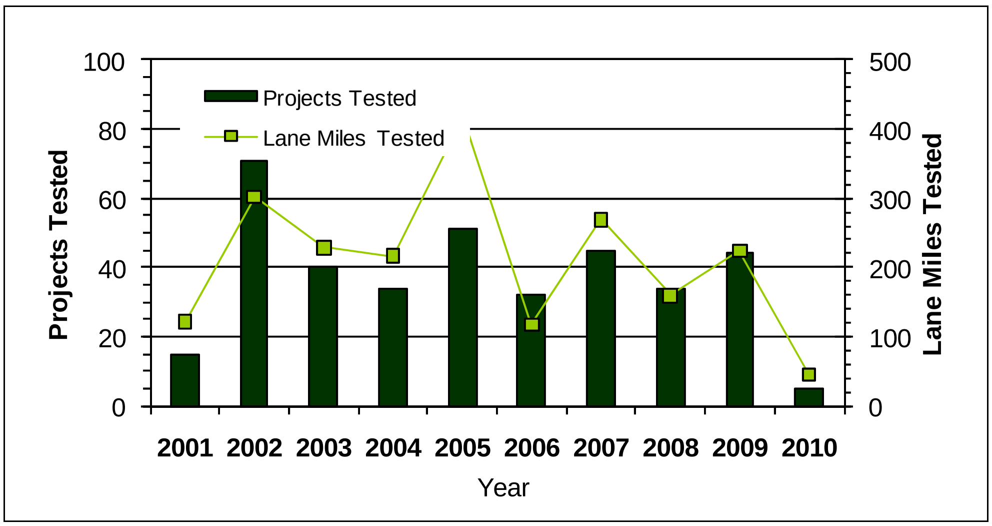
PART II: FACTS & FIGURES[1]

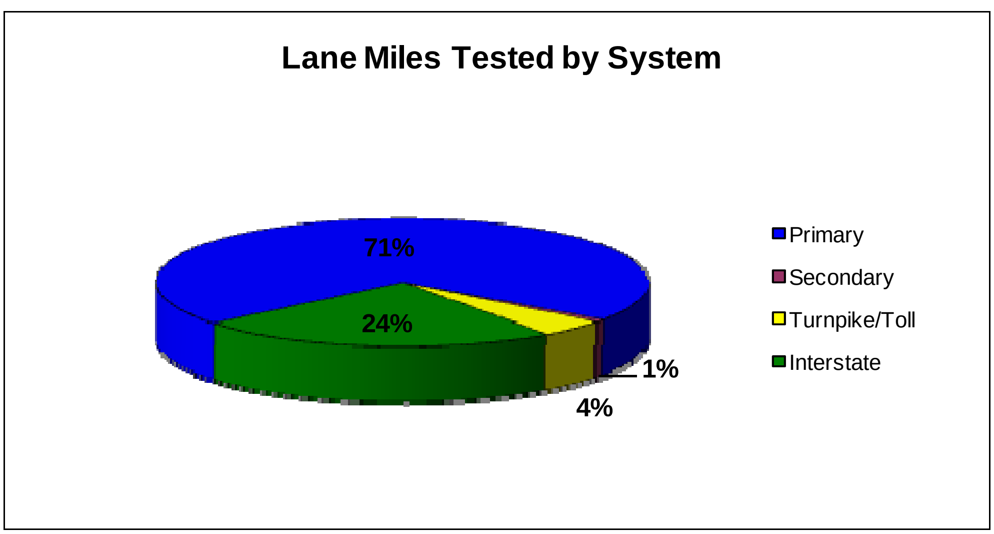


[1] Project resilient modulus values presented are the lowest values recommended for each project. Some projects may have multiple resilient modulus values.

DISTRICT 1 TEN YEAR PRODUCTION SUMMARY

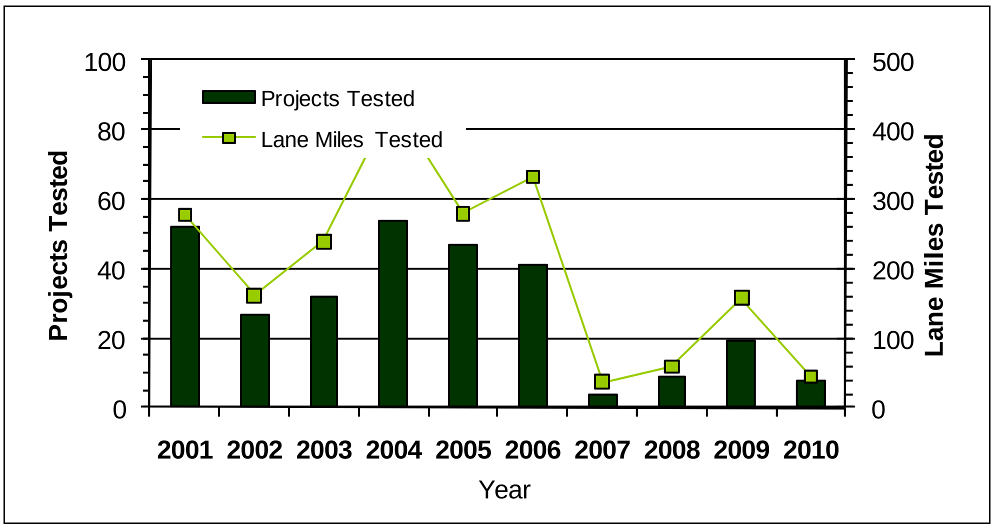
Year	Primary		Secondary		Turnpike/Toll		Interstate		All Systems	
	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles
2001	11	57.697	0	0.000	1	14.000	3	48.970	15	120.667
2002	68	243.512	0	0.000	0	0.000	3	58.212	71	301.724
2003	32	154.144	0	0.000	0	0.000	8	74.998	40	229.142
2004	31	174.207	1	3.711	0	0.000	2	38.752	34	216.670
2005	41	258.518	0	0.000	1	42.842	9	115.278	51	416.638
2006	28	42.635	0	0.000	0	0.000	4	74.100	32	116.735
2007	37	205.964	0	0.000	0	0.000	8	63.750	45	269.714
2008	31	132.085	1	9.944	0	0.000	2	17.402	34	159.431
2009	43	216.59	0	0.000	0	0.000	1	7.500	44	224.090
2010	3	7.613	0	0.000	1	36.284	1	1.280	5	45.177
Total	325	1492.965	2	13.655	3	93.126	41	500.242	371	2099.988

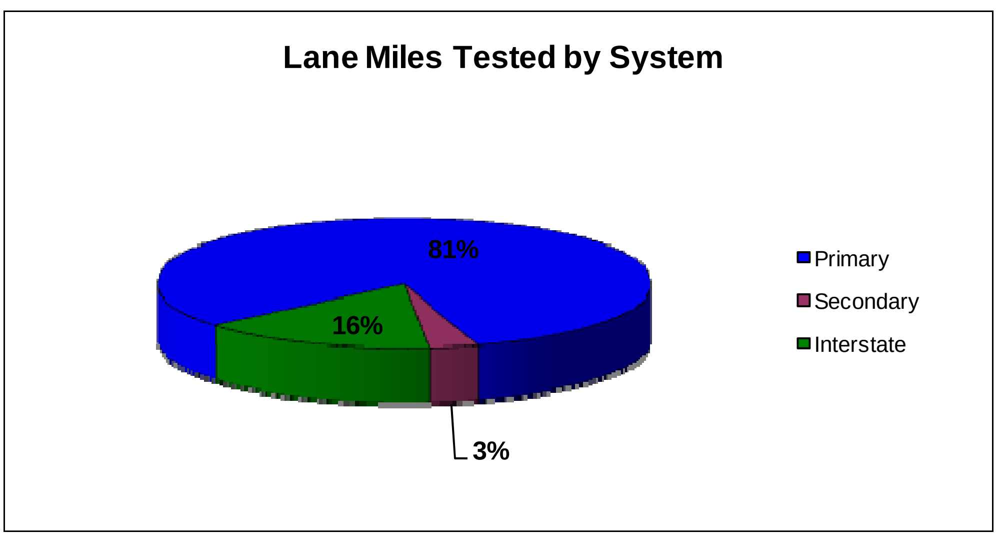




DISTRICT 2 TEN YEAR PRODUCTION SUMMARY

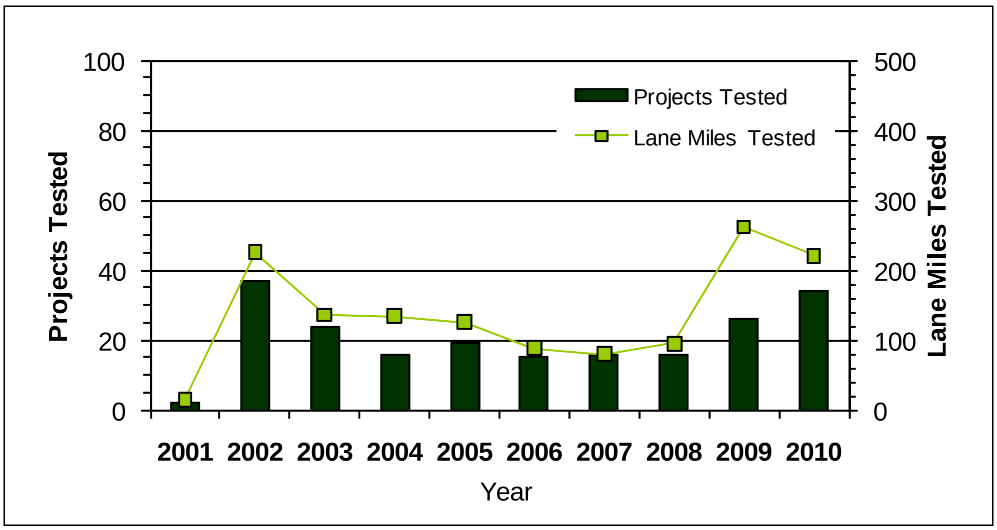
Year	Primary		Secondary		Turnpike/Toll		Interstate		All Systems	
	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles
2001	49	243.803	1	6.034	0	0.000	2	27.224	52	277.061
2002	26	153.046	0	0.000	0	0.000	1	8.734	27	161.780
2003	27	166.176	2	8.105	0	0.000	3	65.040	32	239.321
2004	47	332.541	0	0.000	0	0.000	7	105.366	54	437.907
2005	40	250.477	6	27.071	0	0.000	1	1.420	47	278.968
2006	34	292.598	3	19.062	0	0.000	4	20.554	41	332.214
2007	4	37.273	0	0.000	0	0.000	0	0.000	4	37.273
2008	7	30.746	0	0.000	0	0.000	2	28.060	9	58.806
2009	15	96.43	1	4.737	0	0.000	3	56.680	19	157.847
2010	8	44.696	0	0.000	0	0.000	0	0.000	8	44.696
Total	257	1647.786	13	65.009	0	0.000	23	313.078	293	2025.873

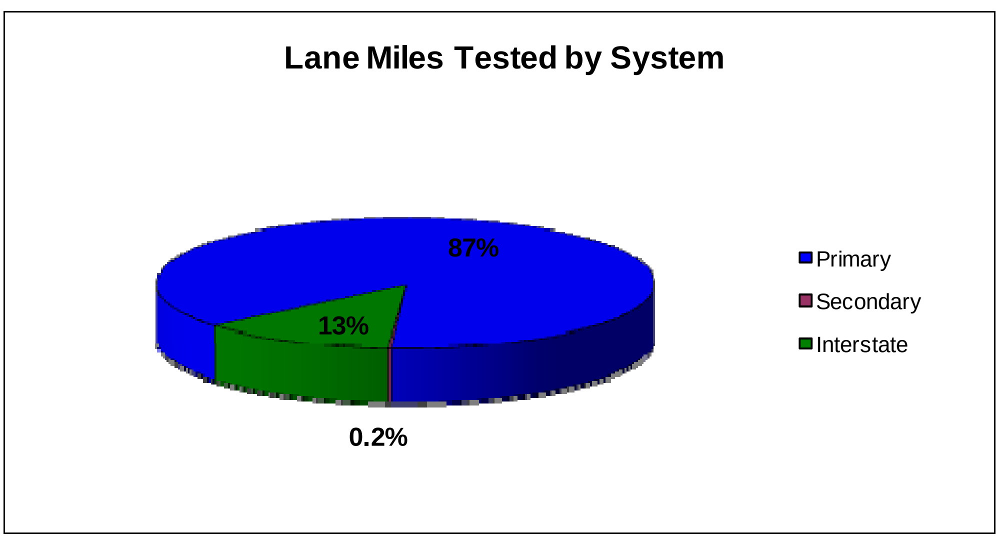




DISTRICT 3 TEN YEAR PRODUCTION SUMMARY

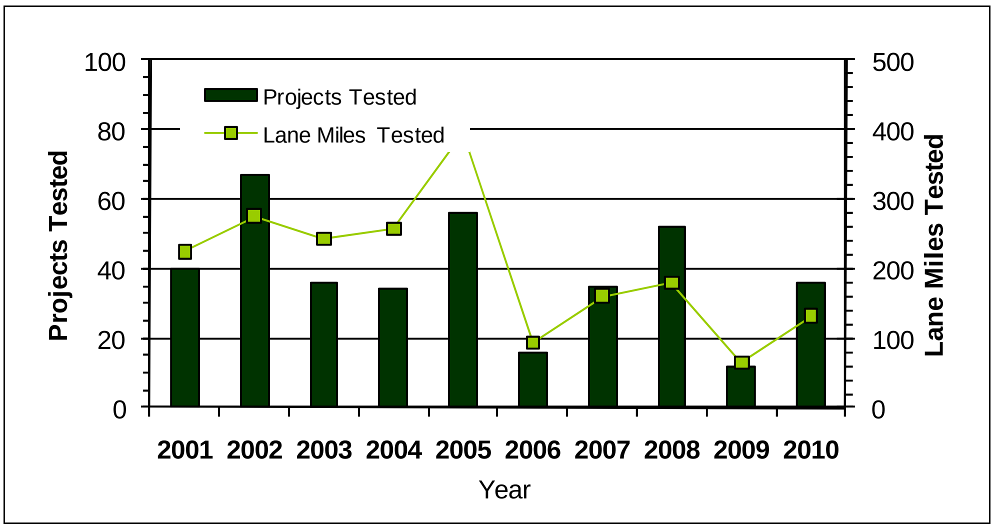
Year	Primary		Secondary		Turnpike/Toll		Interstate		All Systems	
	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles
2001	2	15.036	0	0.000	0	0.000	0	0.000	2	15.036
2002	37	225.450	0	0.000	0	0.000	0	0.000	37	225.450
2003	23	116.972	0	0.000	0	0.000	1	18.332	24	135.304
2004	13	87.816	1	2.857	0	0.000	2	42.910	16	133.583
2005	17	101.852	0	0.000	0	0.000	2	23.222	19	125.074
2006	14	73.388	0	0.000	0	0.000	1	15.158	15	88.546
2007	16	79.768	0	0.000	0	0.000	0	0.000	16	79.768
2008	16	94.629	0	0.000	0	0.000	0	0.000	16	94.629
2009	23	216.022	0	0.000	0	0.000	3	44.974	26	260.996
2010	33	188.993	0	0.000	0	0.000	1	31.084	34	220.077
Total	194	1199.926	1	2.857	0	0.000	10	175.680	205	1378.463

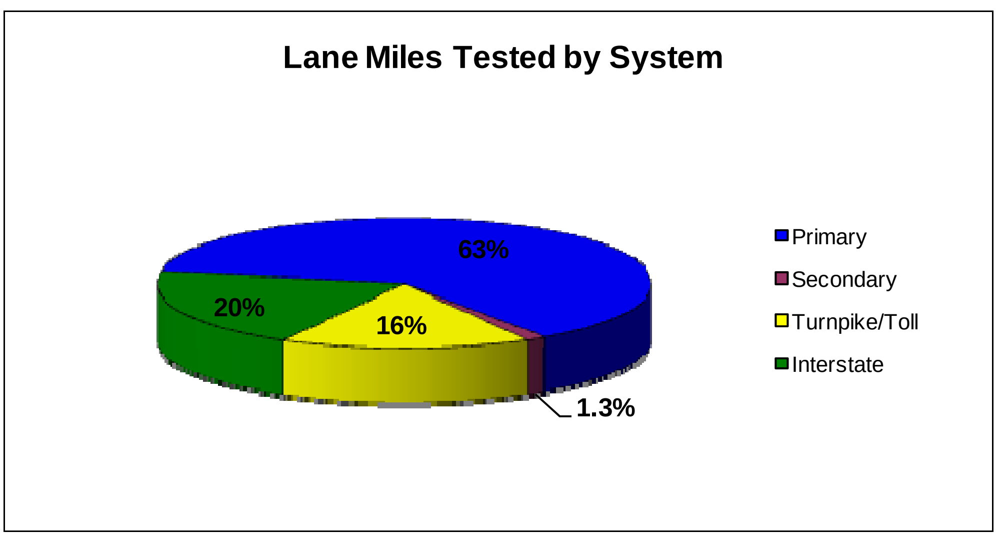




DISTRICT 4 TEN YEAR PRODUCTION SUMMARY

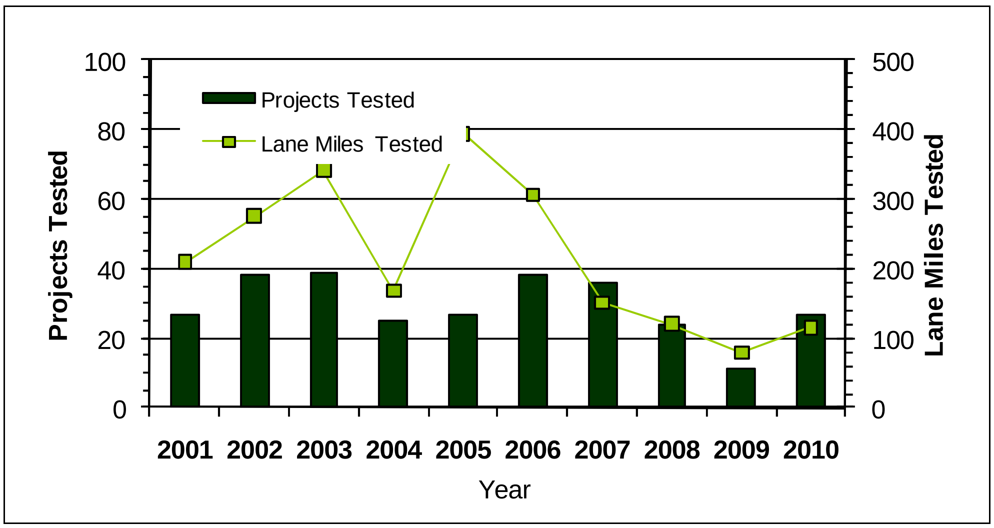
Year	Primary		Secondary		Turnpike/Toll		Interstate		All Systems	
	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles
2001	28	123.333	0	0.000	5	32.678	7	69.074	40	225.085
2002	58	207.308	1	0.997	2	26.000	6	40.722	67	275.027
2003	28	119.843	0	0.000	3	62.200	5	60.570	36	242.613
2004	29	157.283	0	0.000	5	99.708	0	0.000	34	256.991
2005	50	249.376	1	0.864	2	92.252	3	52.102	56	394.594
2006	9	27.138	2	2.992	0	0.000	5	62.794	16	92.924
2007	28	106.443	3	8.520	1	10.800	3	34.620	35	160.383
2008	48	138.321	2	12.469	1	7.800	1	21.198	52	179.788
2009	7	18.972	1	0.395	0	0.000	4	45.696	12	65.063
2010	32	119.63	1	0.794	0	0.000	3	11.626	36	132.050
Total	317	1267.647	11	27.031	19	331.438	37	398.402	384	2024.518

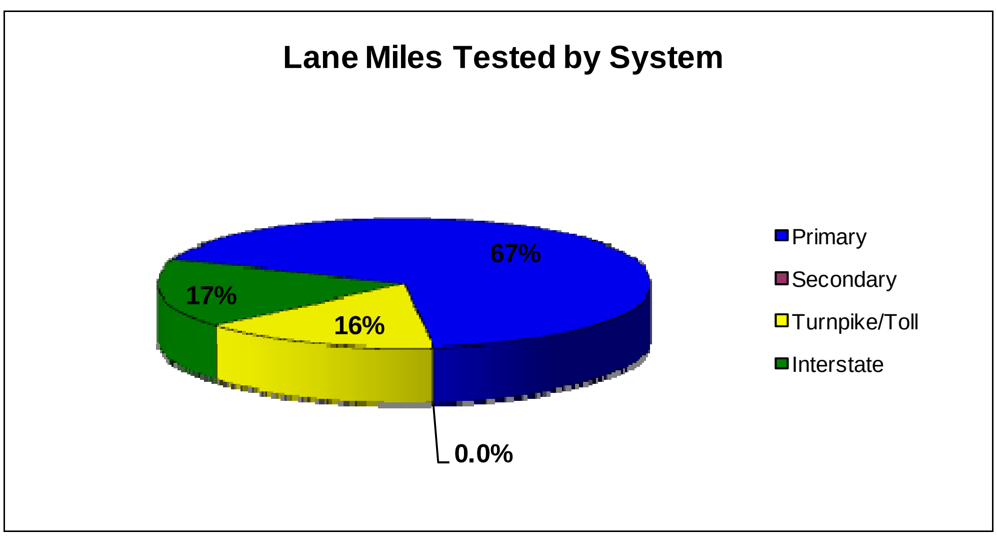




DISTRICT 5 TEN YEAR PRODUCTION SUMMARY

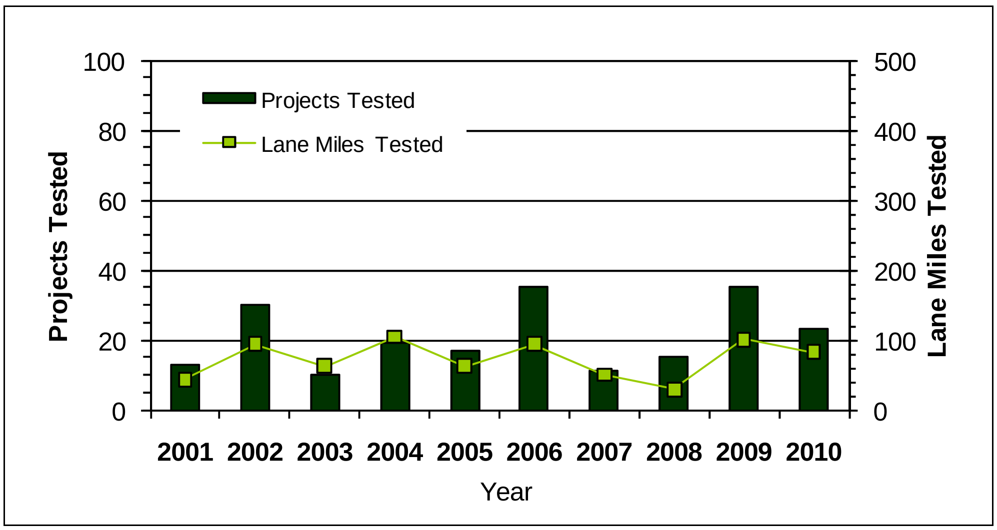
Year	Primary		Secondary		Turnpike/Toll		Interstate		All Systems	
	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles
2001	20	146.606	0	0.000	3	10.960	4	52.092	27	209.658
2002	35	251.763	0	0.000	3	23.568	0	0.000	38	275.331
2003	28	155.280	1	0.554	4	73.914	6	111.872	39	341.620
2004	24	140.590	0	0.000	0	0.000	1	27.890	25	168.480
2005	23	193.776	0	0.000	2	167.434	2	32.714	27	393.924
2006	30	169.53	0	0.000	1	21.340	7	115.096	38	305.966
2007	35	138.15	0	0.000	0	0.000	1	12.316	36	150.466
2008	18	77.386	0	0.000	6	43.012	0	0.000	24	120.398
2009	10	69.954	0	0.000	0	0.000	1	8.926	11	78.880
2010	27	115.847	0	0.000	0	0.000	0	0.000	27	115.847
Total	250	1458.882	1	0.554	19	340.228	22	360.906	292	2160.570

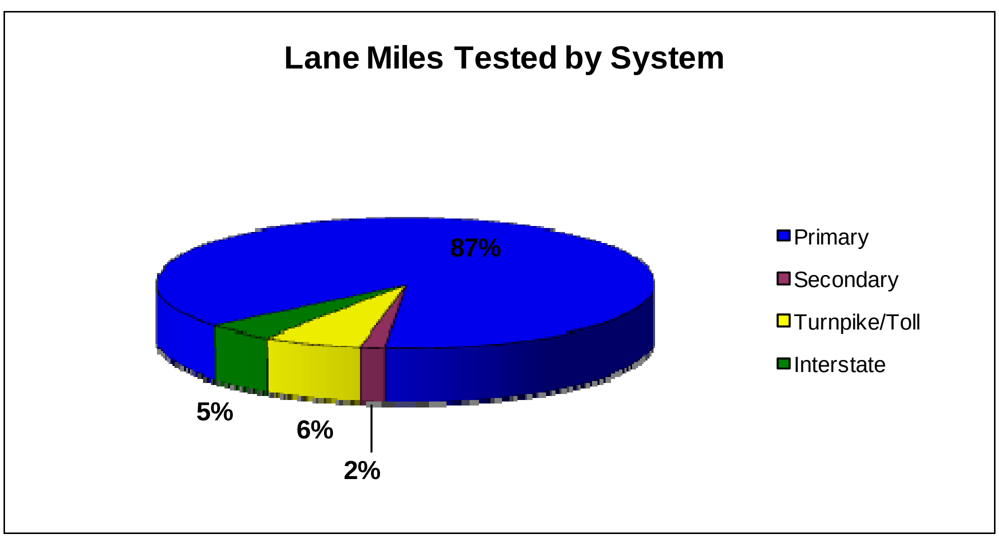




DISTRICT 6 TEN YEAR PRODUCTION SUMMARY

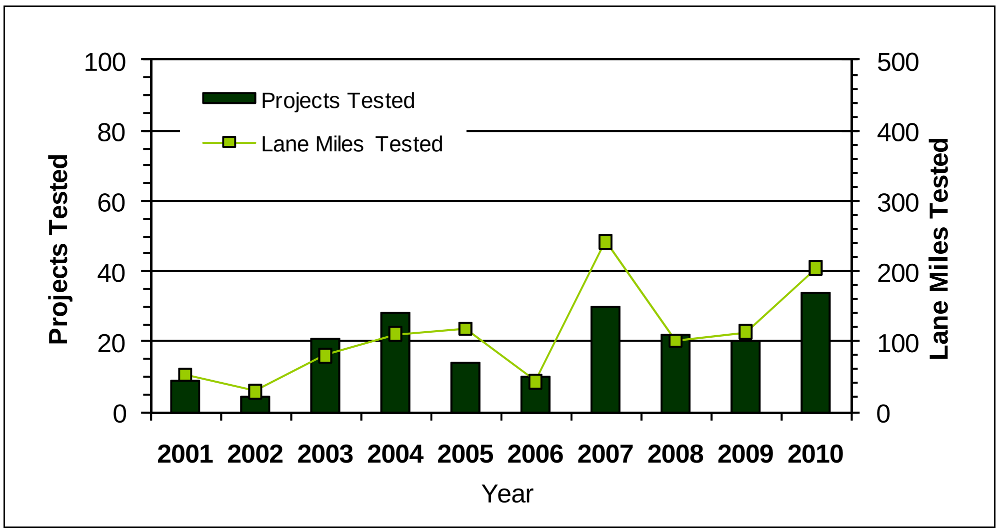
Year	Primary		Secondary		Turnpike/Toll		Interstate		All Systems	
	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles
2001	12	38.662	0	0.000	0	0.000	1	4.414	13	43.076
2002	29	82.816	1	11.065	0	0.000	0	0.000	30	93.881
2003	8	53.317	0	0.000	0	0.000	2	8.806	10	62.123
2004	18	64.316	0	0.000	1	40.150	0	0.000	19	104.466
2005	16	51.723	0	0.000	0	0.000	1	10.844	17	62.567
2006	34	91.219	0	0.000	0	0.000	1	2.484	35	93.703
2007	8	37.262	0	0.000	1	6.684	2	6.190	11	50.136
2008	15	29.5	0	0.000	0	0.000	0	0.000	15	29.500
2009	35	100.567	0	0.000	0	0.000	0	0.000	35	100.567
2010	23	82.369	0	0.000	0	0.000	0	0.000	23	82.369
Total	198	631.751	1	11.065	2	46.834	7	32.738	208	722.388

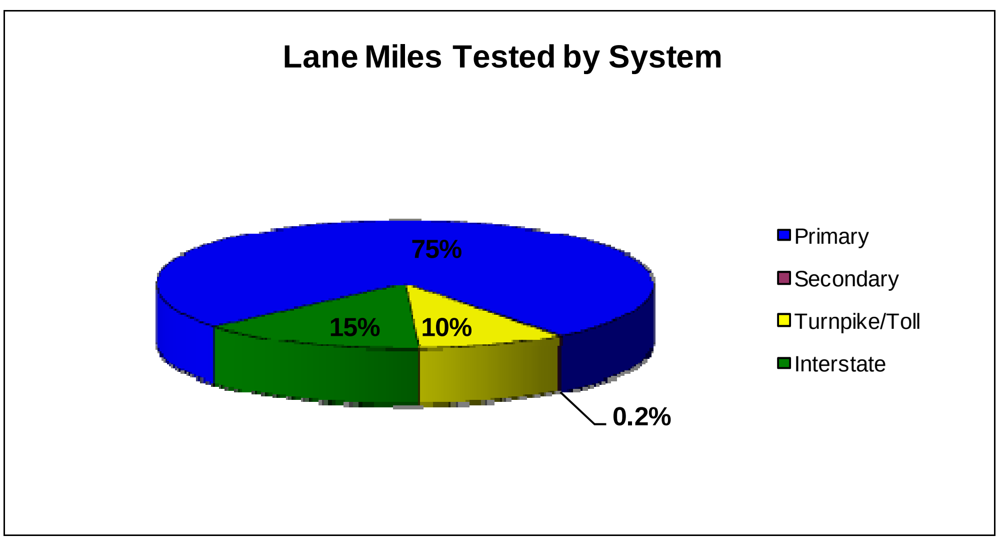




DISTRICT 7 TEN YEAR PRODUCTION SUMMARY

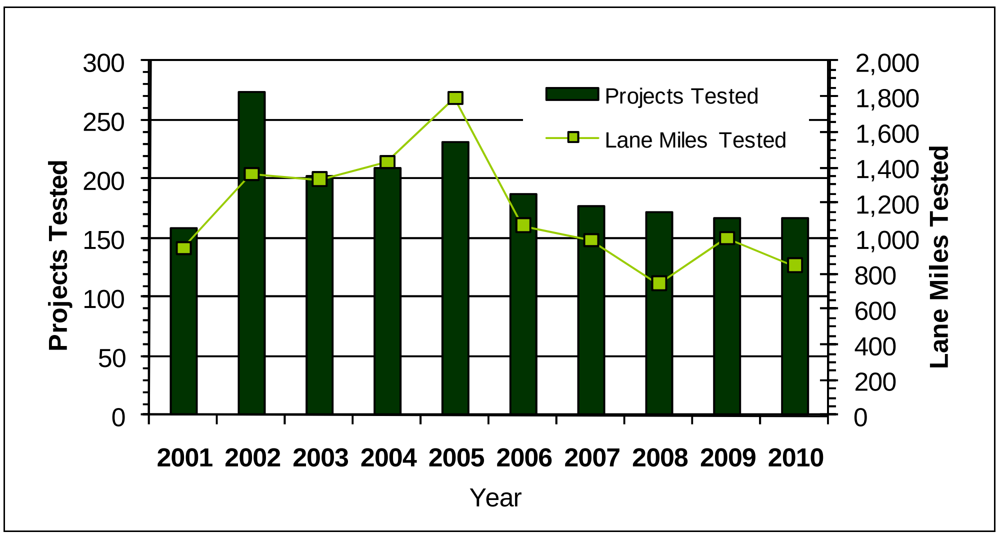
Year	Primary		Secondary		Turnpike/Toll		Interstate		All Systems	
	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles
2001	7	33.069	0	0.000	0	0.000	2	19.464	9	52.533
2002	3	9.433	0	0.000	0	0.000	1	19.232	4	28.665
2003	19	60.655	0	0.000	0	0.000	2	18.898	21	79.553
2004	27	109.088	1	0.800	0	0.000	0	0.000	28	109.888
2005	12	77.517	0	0.000	1	30.660	1	9.400	14	117.577
2006	10	42.635	0	0.000	0	0.000	0	0.000	10	42.635
2007	26	177.778	0	0.000	0	0.000	4	64.606	30	242.384
2008	22	101.178	0	0.000	0	0.000	0	0.000	22	101.178
2009	17	89.293	0	0.000	0	0.000	3	24.150	20	113.443
2010	30	121.229	1	1.120	2	75.182	1	6.150	34	203.681
Total	173	821.875	2	1.920	3	105.842	14	161.900	192	1091.537

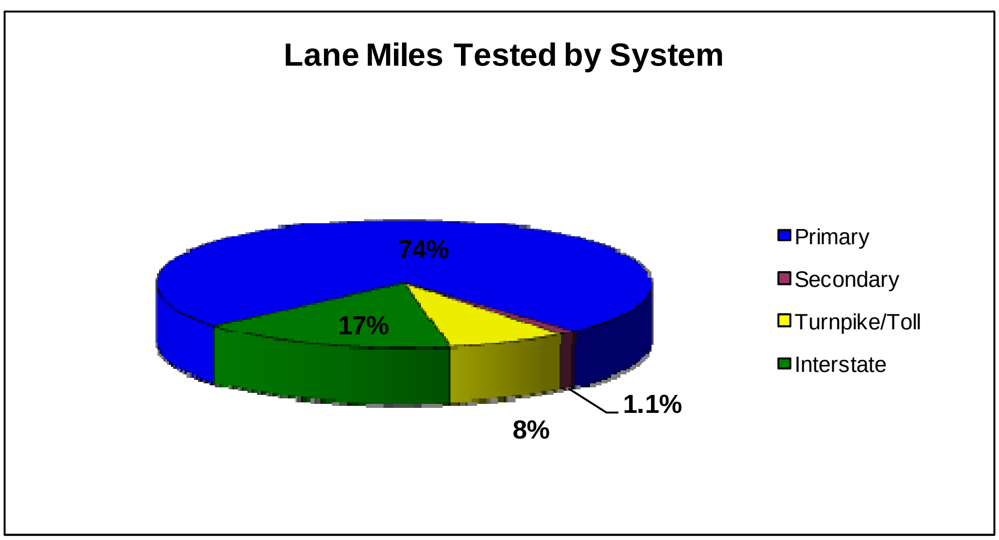




STATEWIDE TEN YEAR PRODUCTION SUMMARY

Year	Primary		Secondary		Turnpike/Toll		Interstate		All Systems	
	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles	Projects	Lane Miles
2001	129	658.206	1	6.034	9	57.638	19	221.238	158	943.116
2002	256	1173.328	2	12.062	5	49.568	11	126.900	274	1,361.858
2003	165	826.387	3	8.659	7	136.114	27	358.516	202	1,329.676
2004	189	1065.841	3	7.368	6	139.858	12	214.918	210	1,427.985
2005	199	1183.239	7	27.935	6	333.188	19	244.980	231	1,789.342
2006	159	739.143	5	22.054	1	21.340	22	290.186	187	1,072.723
2007	154	782.638	3	8.520	2	17.484	18	181.482	177	990.124
2008	157	603.845	3	22.413	7	50.812	5	66.660	172	743.730
2009	150	807.828	2	5.132	0	0.000	15	187.926	167	1,000.886
2010	156	680.377	2	1.914	3	111.466	6	50.140	167	843.897
Grand Total	1714	8520.832	31	122.091	46	917.468	154	1942.946	1945	11,503.337





2010 PROJECT LISTING BY DISTRICT

District 1

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
1	03175	425843-1	Collier	93	NTST	50.107	50.747	2/22/10	27,000		1.280
1	06010	414547-1	Hardee	35	NT	0.000	4.955	3/18/10	15,000		4.955
1	13130	427363-1	Manatee	55	NTST	0.155	1.125	2/24/10	21,000		1.940
1	16250	197562-1	Polk	37	NT	8.471	9.189	3/18/10	20,000		0.718
1	16470	423199-1	Polk	570	ETWT	0.000	18.142	4/26/10	26,000		36.284

2010 PROJECT LISTING BY DISTRICT

District 2

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
2	71020	208207-7	Clay	15	NTST	13.845	14.360	9/23/10	14,000		1.030
2	72018	426963-1	Duval	104	ETWT	6.800	7.567	11/22/10	17,000		1.534
2	72018	426966-1	Duval	104	WT	0.000	1.992	11/22/10	15,000		1.992
2	72090	423412-1	Duval	115	NT	0.000	3.400	1/11/10	20,000		3.400
2	72090	423412-1	Duval	115	ST	0.000	3.400	1/11/10	16,000		3.400
2	74040	210711-3	Nassau	A1A	ETWT	27.340	30.548	1/27/10	14,000		6.416
2	74060	210711-3	Nassau	A1A	ET	0.000	7.020	1/27/10	22,000		7.020
2	74060	210711-3	Nassau	A1A	WT	0.000	7.020	1/27/10	14,000		7.020
2	76010	426959-1	Putnam	15	ETWT	26.450	27.911	11/1/10	21,000		2.922
2	78060	424481-1	St. Johns	16	ETWT	15.900	17.900	11/29/10	25,000		4.000
2	78060	424481-1	St. Johns	16	ETWT	17.900	20.881	11/29/10	20,000		5.962

2010 PROJECT LISTING BY DISTRICT

District 3

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
3	46010	426949-1	Bay	30	ET	1.729	7.252	8/4/10	13,000		5.523
3	46060	421639-1	Bay	77	NTST	1.976	6.490	8/3/10	12,000		9.028

2010 PROJECT LISTING BY DISTRICT

District 3

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
3	47010	426933-1	Calhoun	20	ET	12.560	23.046	8/18/10	17,000		10.486
3	48003	423061-1	Escambia	289	NTST	0.000	0.485	1/26/10	9,000		0.970
3	48003	426934-1	Escambia	289	NTST	0.508	6.005	6/2/10	10,000		10.994
3	48004	413435-1	Escambia	727	ST	0.000	3.800	1/27/10	10,000		3.800
3	48004	413435-1	Escambia	727	ST	3.800	5.923	1/27/10	15,000		2.123
3	48005	426928-1	Escambia	752	WTET	0.007	1.154	6/2/10	11,000		2.294
3	48010	416940-1	Escambia	10	ET	7.389	10.237	1/27/10	13,000		2.848
3	48010	416940-1	Escambia	10	ETWT	10.237	15.455	1/27/10	13,000		10.436
3	48020	426935-1	Escambia	10A	ET	17.290	18.239	6/3/10	12,000		0.949
3	48020	426935-1	Escambia	10A	ETWT	16.065	17.290	6/3/10	12,000		2.450
3	48060	426929-1	Escambia	95	NTST	4.533	20.075	6/9/10	16,000		31.084
3	48070	415378-1	Escambia	291	NT	0.123	2.491	1/26/10	10,000		2.368
3	48100	423057-1	Escambia	30	NTST	2.967	3.275	1/26/10	17,000		0.616
3	48110	424614-1	Escambia	298	ET	8.135	10.808	1/26/10	10,000		2.673
3	48013001	423054-1	Escambia	742	WT	19.439	20.015	1/26/10	17,000		0.576
3	50020	426930-1	Gadsden	12	ET	0.008	10.906	7/21/10	12,000		10.898
3	50040027	426930-1	Gadsden	12	WT	0.165	0.777	7/21/10	12,000		0.612
3	51010	426957-1	Gulf	30	ET	8.744	11.633	7/13/10	23,000		2.889
3	51020	419305-1	Gulf	71	NT	0.419	6.799	8/4/10	9,000		6.380
3	51020	419305-1	Gulf	71	ST	0.419	1.070	8/4/10	14,000		0.651
3	51030	424620-1	Gulf	22	ET	0.000	5.416	7/14/10	11,000		5.416
3	51502	423064-1	Gulf	30A	ET	5.803	12.464	7/13/10	10,000		6.661
3	52030	426936-1	Holmes	79	NT	0.000	0.899	8/17/10	20,000		0.899
3	52030	426936-1	Holmes	79	NTST	0.899	1.388	8/17/10	32,000		0.978
3	53120	424621-2	Jackson	73/166	ST	15.719	17.476	8/17/10	14,000		1.757
3	55050	426931-1	Leon	61	NT	4.090	5.663	8/24/10	28,000		1.573
3	55050	426931-1	Leon	61	ST	4.090	5.663	8/24/10	24,000		1.573
3	55060	426937-1	Leon	10	ETWT	6.151	8.448	8/16/10	20,000		4.594
3	56010	424622-1	Liberty	20	ET	1.757	9.360	8/19/10	13,000		7.603
3	57040	424623-1	Okaloosa	20	ETWT	15.960	19.013	6/23/10	15,000		6.106

2010 PROJECT LISTING BY DISTRICT
District 3

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
3	57050	426932-1	Okaloosa	85	NTST	1.248	4.088	6/24/10	13,000		5.680
3	57050	426932-2	Okaloosa	85	NTST	4.088	4.612	6/24/10	13,000		1.048
3	58030	421644-1	Santa Rosa	30	ET	0.000	12.774	7/20/10	14,000		12.774
3	58030	421644-1	Santa Rosa	30	WT	0.000	12.774	7/20/10	9,000		12.774
3	58040	426938-1	Santa Rosa	87	NT	6.911	16.083	6/22/10	10,000		9.172
3	60030	424623-2	Walton	20	ET	0.000	16.581	7/27/10	14,000		16.581
3	60080	427089-1	Walton	85	NT	0.000	4.240	7/28/10	12,000		4.240

2010 PROJECT LISTING BY DISTRICT
District 4

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
4	86006	428724-1	Broward	842	ET	4.940	6.340	11/3/10	27,000		1.400
4	86006	428724-1	Broward	842	WT	4.940	6.340	11/3/10	22,000		1.400
4	86014	427004-1	Broward	870	ET	1.180	2.330	1/20/10	21,000		1.150
4	86014	427004-1	Broward	870	WT	1.180	2.330	1/20/10	26,000		1.150
4	86016	426855-1	Broward	848	ETWT	0.755	1.759	4/20/10	18,000		2.008
4	86016	428725-1	Broward	848	ETWT	0.000	2.730	11/16/10	20,000		5.460
4	86020	428726-1	Broward	5	NTST	0.000	1.830	11/16/10	17,000		3.660
4	86030	428727-1	Broward	A1A	NTST	0.000	0.900	11/16/10	10,000		1.800
4	86040	427006-1	Broward	820	ETWT	1.600	5.390	4/20/10	32,000		7.580
4	86060	423031-1	Broward	25	NTST	3.355	7.297	1/19/10	32,000		7.884
4	86065	428731-1	Broward	845	NTST	1.250	1.800	11/3/10	20,000		1.100
4	86075	415154-1	Broward	93	NT	6.450	8.946	4/20/10	32,000		2.496
4	86075	415154-1	Broward	93	ST	6.087	7.865	4/20/10	32,000		1.778
4	86090	428732-1	Broward	816	ETWT	4.400	6.230	11/16/10	18,000		3.660
4	86100	427010-1	Broward	7	NT	23.400	24.591	1/20/10	22,000		1.191
4	86100	427010-1	Broward	7	ST	23.400	24.591	1/20/10	32,000		1.191
4	86170	427011-1	Broward	811	NT	5.445	6.776	1/20/10	23,000		1.331

2010 PROJECT LISTING BY DISTRICT

District 4

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
4	86190	427012-1	Broward	823	NTST	7.650	10.897	1/20/10	32,000		6.494
4	86170001	427011-1	Broward	811	NT	0.000	1.336	1/20/10	26,000		1.336
4	86170001	427011-1	Broward	811	ST	0.000	1.336	4/12/10	23,000		1.336
4	88050	427022-1	Indian River	510	ET	5.880	6.380	2/9/10	18,000		0.500
4	89010	427024-1	Martin	5	NTST	2.000	5.030	2/10/10	20,000		6.060
4	89010	427023-1	Martin	5	NT	0.000	1.400	2/10/10	21,000		1.400
4	89010	427023-1	Martin	5	ST	0.000	1.400	2/10/10	26,000		1.400
4	89060	427026-1	Martin	76	ETWT	26.000	29.830	2/10/10	19,000		7.660
4	93004	427014-1	Palm Beach	808	ETWT	0.000	1.180	2/17/10	31,000		2.360
4	93040	428718-1	Palm Beach	5	NTST	11.110	12.410	12/14/10	17,000		2.600
4	93070	428719-1	Palm Beach	809	NTST	20.360	24.200	10/27/10	22,000		7.680
4	93120	419013-1	Palm Beach	80	WT	21.100	21.928	2/17/10	24,000		0.828
4	93121	426053-1	Palm Beach	812	ETWT	0.000	0.570	10/27/10	3,000	Extremely Weak Embankment	1.140
4	93220	429198-1	Palm Beach	N/A	ET	0.000	0.397	10/27/10	18,000		0.397
4	93220	427516-1	Palm Beach	9	NTST	11.498	12.700	12/14/10	32,000		2.404
4	93220	427516-1	Palm Beach	9	NTST	12.700	15.174	12/14/10	21,000		4.948
4	93220	426843-1	Palm Beach	9	NT	7.600	14.400	6/24/10	32,000		6.800
4	93220	426843-1	Palm Beach	9	ST	7.600	14.400	6/24/10	27,000		6.800
4	93220	429198-1	Palm Beach	N/A	WT	0.000	0.397	10/27/10	23,000		0.397
4	93280	427020-1	Palm Beach	704	ETWT	5.550	6.550	2/17/10	20000		2.000
4	93280	427020-1	Palm Beach	704	ETWT	6.550	7.550	2/17/10	14,000		2.000
4	93290	428722-1	Palm Beach	715	NT	2.090	12.070	10/26/10	6,000	Weak Embankment	9.980
4	93310	229896-1	Palm Beach	710	WT	22.838	23.665	2/17/10	15,000		0.827
4	93310	229897-2	Palm Beach	710	WT	21.994	22.838	2/17/10	21,000		0.844
4	94005	424762-1	St. Lucie	615	NTST	0.970	2.470	2/9/10	18,000		3.000
4	94010	428728-1	St. Lucie	5	NT	8.470	10.780	10/28/10	23,000		2.310
4	94010	428728-1	St. Lucie	5	ST	8.470	10.780	10/28/10	12,000		2.310

2010 PROJECT LISTING BY DISTRICT

District 5

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
5	70010	427225-1	Brevard	5	NTST	16.237	17.260	4/6/10	13,000		2.046
5	70030	424889-1	Brevard	5	NTST	4.644	6.930	8/9/10	20,000		4.572
5	70050001	427225-1	Brevard	5	ET	0.000	0.228	4/6/10	13,000		0.228
5	73030	427253-1	Flagler	A1A	ST	10.257	18.595	8/11/10	15,000		8.338
5	73030001	427253-1	Flagler	A1A	ST	0.000	0.940	8/11/10	15,000		0.940
5	11010	427230-1	Lake	44	ETWT/EPWP	0.000	2.365	9/22/10	18,000		9.460
5	11090	427246-1	Lake	19	NTST	30.136	32.049	4/5/10	20,000		3.826
5	11100	424881-1	Lake	19	NTST	0.000	3.816	3/3/10	14,000		3.816
5	36002	427249-1	Marion	200	NTST	0.000	4.774	4/8/10	27,000		9.548
5	36009	424885-1	Marion	35	NT	0.000	1.600	3/4/10	21,000		1.600
5	36009	427273-1	Marion	35	NT	1.600	3.910	8/10/10	22,000		2.310
5	36100	238651-1	Marion	200	WT	0.475	5.818	3/4/10	16,000		5.343
5	75010	427047-1	Orange	500	NTST	6.056	8.638	4/7/10	21,000		5.164
5	75010	427228-1	Orange	500	NTST	11.083	14.201	4/7/10	21,000	Concrete : From MP 11.00 to MP 13.243 (not tested therefore Mr represents MP 13.243 to 14.201	6.236
5	75050	424896-1	Orange	50	ETWT	6.075	9.208	2/22/10	16,000		6.266
5	75260	424899-1	Orange	424	NTST	2.272	4.854	1/13/10	14,000		5.164
5	92090	424906-1	Osceola	530	ETWT	3.330	4.843	4/5/10	16,000		3.026
5	77010	424900-1	Seminole	15	NT	5.867	9.400	1/12/10	16,000		3.533
5	77010	424900-1	Seminole	15	ST	5.867	9.400	1/12/10	11,000		3.533
5	77060	427259-1	Seminole	426	ET	6.262	6.992	3/2/10	14,000		0.730
5	77070	422015-1	Seminole	419	ET	6.765	9.465	4/6/10	10,000		2.700
5	77170	422015-1	Seminole	434	ST	3.129	4.029	4/6/10	18,000		0.900
5	77070001	422015-1	Seminole	419	ET	0.000	0.355	4/6/10	10,000		0.355
5	18030	424884-1	Sumter	50	ET	0.000	4.262	1/13/10	25,000		4.262
5	18060	427241-1	Sumter	48	ET	8.339	9.900	12/13/10	13,000		1.561
5	79070	427267-1	Volusia	44	ETWT	20.000	26.978	3/8/10	16,000		13.956
5	79150	422030-2	Volusia	40	ETWT	0.108	0.430	3/15/10	16,000		0.644
5	79270	408178-1	Volusia	483	NTST	-0.252	2.643	3/15/10	18,000		5.790

2010 PROJECT LISTING BY DISTRICT

District 6

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
6	87001	N/A	Dade	94	ET	7.740	8.500	4/13/10	24,000		0.760
6	87001	N/A	Dade	94	WT	7.740	8.500	4/13/10	20,000		0.760
6	87003	N/A	Dade	112	ET	0.000	2.667	7/7/10	25,000		2.667
6	87003	N/A	Dade	112	WT	0.000	2.667	7/7/10	30,000		2.667
6	87020	410625-1	Dade	5	NT	3.620	5.278	11/2/10	32,000		1.658
6	87020	410625-1	Dade	5	ST	3.620	5.278	11/2/10	26,000		1.658
6	87026	427518-1	Dade	860	ET	0.000	2.846	5/19/10	20,000		2.846
6	87026	427518-1	Dade	860	WT	0.000	2.846	5/19/10	24,000		2.846
6	87044	424544-1	Dade	976	ETWT	4.599	4.774	10/20/10	17,000		0.350
6	87044	424544-2	Dade	976	ETWT	4.863	4.963	10/20/10	17,000		0.200
6	87054	427513-1	Dade	972	ETWT	0.508	2.899	4/13/10	32,000		4.782
6	87055	427651-1	Dade	986	ETWT	1.697	4.018	4/13/10	24,000		4.642
6	87060	414636-1	Dade	A1A	ET	3.149	3.670	1/19/10	10,000		0.521
6	87060	250236-1	Dade	A1A	NT	3.694	4.506	10/20/10	31,000		0.812
6	87060	414636-1	Dade	A1A	WT	3.149	3.670	1/19/10	4,000	Extremely Weak Embankment	0.521
6	87062	428484-1	Dade	959	ST	0.217	2.038	11/2/10	32,000		1.821
6	87070	249615-9	Dade	997	NT	0.974	14.164	2/3/10	32,000		13.190
6	87080	427452-1	Dade	934	WT	0.000	0.662	5/18/10	25,000		0.662
6	87120	428485-1	Dade	90	ET	17.501	18.147	10/20/10	27,000		0.646
6	87150	405575-5	Dade	997	NT	0.000	1.640	11/2/10	7,000		1.640
6	87150	405575-5	Dade	997	NT	1.640	3.827	11/2/10	32,000		2.187
6	87260	425478-1	Dade	826	NTST	13.275	15.372	5/18/10	32,000		4.194
6	90020	423137-1	Dade	5	NT	22.647	25.560	11/7/10	16,000		2.913
6	87080001	427517-1	Dade	934	ETWT	0.761	3.079	5/19/10	14,000		4.636
6	87080900	427452-1	Dade	934	WT	37.734	40.027	5/18/10	25,000		2.293
6	87091	425644-1	Miami Dade	994	NTST	4.325	8.058	8/18/10	32,000		7.466
6	87281	428482-1	Miami Dade	953	NTST	0.000	1.000	8/18/10	32,000		2.000
6	90010	250548-3	Monroe	5	NTST	0.000	4.561	9/16/10	16,000		9.122
6	90030	250548-3	Monroe	5	NT	1.975	3.884	11/7/10	13,000		1.909

2010 PROJECT LISTING BY DISTRICT

District 7

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
7	02010	427148-1	Citrus	45	NT	0.000	6.100	3/25/10	16,000		6.100
7	08010	427153-1	Hernando	45	ET	9.194	9.650	4/1/10	11,000		0.456
7	08020	427152-1	Hernando	55	NTST	7.221	19.514	5/25/10	29,000		24.586
7	08040	427150-1	Hernando	50	WT	9.878	11.305	4/1/10	17,000		1.427
7	08040	427151-1	Hernando	50	ET	3.855	5.700	4/1/10	28,000		1.845
7	08040	427151-1	Hernando	50	WT	3.855	5.700	4/1/10	23,000		1.845
7	08470	427324-1	Hernando	589	NTST	0.000	17.731	4/28/10	27,000		35.462
7	10010	427454-1	Hillsborough	43	ST	20.141	20.771	3/29/10	32,000		0.630
7	10010	428496-1	Hillsborough	41	NTST	24.344	26.253	4/22/10	21,000		3.818
7	10010	427454-1	Hillsborough	43	NT	20.141	20.771	3/29/10	24,000		0.630
7	10020	427145-1	Hillsborough	685	NTST	5.362	6.365	3/23/10	19,000		2.006
7	10020	427170-1	Hillsborough	685	NTST	2.961	4.335	3/29/10	13,000		2.748
7	10030	427149-1	Hillsborough	600	ETWT	3.511	4.772	3/22/10	19,000		2.522
7	10075	427137-1	Hillsborough	93A	NTST	36.779	39.854	3/23/10	21,000		6.150
7	10080	427171-1	Hillsborough	60	ETWT	4.562	5.238	3/29/10	15,000		1.352
7	10090	424560-1	Hillsborough	574	ET	3.990	4.306	2/8/10	22,000		0.316
7	10090	424560-1	Hillsborough	574	WT	3.990	4.306	2/8/10	18,000		0.316
7	10120	423048-1	Hillsborough	674	WT	6.286	8.500	3/9/10	21,000		2.214
7	10120	423049-1	Hillsborough	674	WT	15.773	23.381	3/9/10	19,000		7.608
7	10250	418685-1	Hillsborough	585	NT	6.845	7.447	3/23/10	22,000		0.602
7	10250	427159-1	Hillsborough	580	ETWT	7.253	8.550	3/30/10	15,000		2.594
7	10260	425336-1	Hillsborough	41	ST	3.131	4.433	2/8/10	19,000		1.302
7	10340	427158-1	Hillsborough	574	ETWT	7.595	12.267	3/22/10	18,000		9.344
7	10030103	427169-1	Hillsborough	600	ET	1.121	1.745	3/29/10	24,000		0.624
7	10250101	418685-1	Hillsborough	585	ST	0.485	1.092	3/23/10	22,000		0.607
7	10250101	427168-1	Hillsborough	585	ST	0.000	1.241	3/29/10	19,000		1.241
7	14030	427157-1	Pasco	55	NTST	13.838	19.688	3/24/10	21,000		11.700
7	14050	427160-1	Pasco	39, 41	NT	3.746	5.700	3/31/10	20,000		1.954
7	14050	427165-1	Pasco	35	NTST	15.667	20.910	3/31/10	22,000		10.486
7	14470	424792-1	Pasco	589	NTST	0.000	19.860	4/12/10	23,000		39.720

2010 PROJECT LISTING BY DISTRICT
District 7

District	County Section	Financial Project Number	County	State Road	Travel Direction	Beginning Milepost	Ending Milepost	Test Date	Mr (psi)	Comments	Lane Miles Tested
7	15050	427166-1	Pinellas	590	ETWT	0.247	1.435	3/10/10	15,000		2.376
7	15050	424563-1	Pinellas	580	ET	13.068	13.144	3/10/10	17,000		0.076
7	15050	424563-1	Pinellas	580	WT	13.068	13.144	3/10/10	24,000		0.076
7	15070	427163-1	Pinellas	580	ETWT	3.179	4.115	3/10/10	16,000		1.872
7	15080	424563-1	Pinellas	580	ET	2.040	2.454	3/10/10	17,000		0.414
7	15080	424563-1	Pinellas	580	WT	2.040	2.454	3/10/10	24,000		0.414
7	15090	427162-1	Pinellas	687	NTST	0.895	6.670	3/30/10	15,000		11.550
7	15140	427161-1	Pinellas	699	NTST	1.510	3.299	3/10/10	14,000		3.578
7	15150	413622-2	Pinellas	CR 296	ET	12.440	13.000	3/30/10	23,000		0.560
7	15150	413622-2	Pinellas	CR 296	WT	12.440	13.000	3/30/10	19,000		0.560

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