Right-Sizing the State Highway System

A Voluntary Road Transfer Program

April 2013

Costs and Compensation Values Updated April 2019

Louisiana Department of Transportation and Development

Table of Contents

Executive Summary

The State presently owns over 27 percent of the public road mileage in Louisiana. The national average is approximately 19 percent. Only nine states own a higher percentage of public road miles than Louisiana and only 10 states have larger state highway systems.

An opportunity exists to significantly reduce the size of the Department of Transportation and Development (DOTD), rectify inequities in the distribution of state highway miles among parishes, and empower local governments through the right-sizing of the State Highway System. Under this model, one that is aligned with the philosophy that government closest to the people is the most responsive and best serves the citizenry, state government would be weakened and reduced whereas local government would be strengthened and have far greater autonomy. Some of the benefits to local governments are:

- Immediate capital assistance with only minor near-term operations and maintenance cost increases;
- Greater authority in transportation decision-making including project prioritization and funding allocation;
- Authority to regulate traffic over a larger portion of the road network in any given jurisdiction; and
- The ability to implement parish and municipal comprehensive plans with less interference and less dependency on the State.

Further, this would allow DOTD to focus its resources on the components of the transportation system that are most important to Louisiana's economy, namely, those that serve a significant role in freight movement, tourism, and business travel.

In considering such a policy, it is necessary to begin with a review of the State's role in transportation, particularly the highway system, which is to:

- Ensure that Louisiana is well connected with the rest of the country and the world.
- Provide for the movement of people, goods, and services between and through urban areas.
- Maintain a basic farm-to-market network in rural areas.

In the 2010 Regular Session, the Legislature passed House Concurrent Resolution 38 (see Appendix A) requesting DOTD to prepare a plan to transfer approximately 5000 miles of state-owned roads to parish and city governments. Such a transfer will bring Louisiana's percentage of state-owned public road mileage in line with the national average of approximately 19 percent. In preparing the transfer plan, the following principles were employed:

- The State should not be maintaining neighborhood streets in urban or rural areas (i.e., roads classified as Rural Local or Urban Local).

- State mileage should be inversely proportional to parish population. The reason for this is that as population increases, farming activity decreases, and therefore the need for a farm-to-market network decreases. Former rural roads become urban and suburban streets and should be incorporated into parish and city street grids. As an area urbanizes, the tax base grows thereby enabling local governments to assume greater responsibility in addressing transportation needs.

- In urban areas, the state system should consist only of roads that serve a significant interurban function. Intraurban travel needs are best served by local governments even if the streets have high traffic volumes.

The preparation of a transfer plan afforded the opportunity to rectify some of the current inequity in the distribution of state mileage among parishes. One parish has over 550 miles of state highway whereas another has less than 65 miles. While the geographic size of the parish, the intercity travel network, as well as the extent of the farm-to-market network needed must be accounted for, the imbalance in the present distribution of state highway mileage among the parishes is readily apparent.

It would be unfair to transfer approximately 5000 miles to the parishes and cities without compensation. Therefore, DOTD has established the Road Transfer Program as a means to implement the transfer plan. For those parishes and municipalities choosing to participate, eligible roads in less than "Fair" condition, based on DOTD criteria, will be repaired prior to transfer and the respective local governments will receive credit for 40 years of maintenance applied toward the highway capital project(s) of their choosing. For example, credits can be applied toward state or parish/municipal bridge replacements, overlays, safety improvements, road reconstructions, adding additional travel lanes, constructing new roadways, etc.

As noted, participation in the Road Transfer Program is voluntary and can include only one eligible road or all of them. The Program may be appealing to those parishes and municipalities that have the capacity for additional day-to-day road maintenance but lack the resources for capital improvements.

The vast majority of the roads eligible for transfer are two-lane roads with asphalt pavements. The compensation for the various road types is presented herein and ranges from just over $360,000 per mile to well over $1,000,000 per mile.

A reduction in state mileage will allow DOTD resources to be focused on the remaining highway system as well as the components of other modal systems most important to freight movement, tourism, and business travel.

Introduction

The State presently owns over 27 percent of the public road mileage in Louisiana. The national average is approximately 19 percent. Relevant statistics for each state are shown in Table 1 below. Only nine states own a higher percentage of public road miles than Louisiana and only 10 states have larger state highway systems.

An opportunity exists to significantly reduce the size of the Department of Transportation and Development (DOTD), rectify inequities in the distribution of state highway miles among parishes, and empower local governments through the right-sizing of the State Highway System. Under this model, one that is aligned with the philosophy that government closest to the people is the most responsive and best serves the citizenry, state government would be weakened and reduced whereas local government would be strengthened and have far greater autonomy.

The right-sizing of the State Highway System would allow DOTD to focus its resources on the components of the transportation system that are most important to Louisiana's economy, namely, those that serve a significant role in freight movement, tourism, and business travel. In considering such a policy, it is necessary to begin with a review of the State's role in transportation, particularly the highway system, which is to:

- Ensure that Louisiana is well connected with the rest of the country and the world.
- Provide for the movement of people, goods, and services between and through urban areas.
- Maintain a basic farm-to-market network in rural areas.

TABLE 1: STATE-OWNED MILEAGE

State	State Owned Mileage	Total Mileage	Percent State Owned	Rank
West Virginia	34,369	38,452	89.38	1
Delaware	5,329	6,281	84.84	2
Virginia	57,918	73,903	78.37	3
North Carolina	79,466	105,103	75.61	4
South Carolina	41,429	66,254	62.53	5
Maine	8,510	22,829	37.28	6
Alaska	5,650	15,328	36.86	7
Kentucky	27,574	78,749	35.02	8
Pennsylvania	39,862	121,772	32.73	9
Louisiana	16,685	61,093	27.31	10
Texas	80,067	306,404	26.13	11
Missouri	33,677	129,717	25.96	12
New Hampshire	3,972	16,006	24.82	13
Wyoming	6,742	28,105	23.99	14

TABLE 1: STATE-OWNED MILEAGE (continued)

State	State Owned Mileage	Total Mileage	Percent State Owned	Rank
Hawaii	945	4,362	21.66	15
Vermont	2,630	14,423	18.23	16
New Mexico	11,951	68,384	17.48	17
Connecticut	3,717	21,365	17.40	18
Rhode Island	1,108	6,404	17.30	19
Arkansas	16,430	99,812	16.46	20
Maryland	5,148	31,385	16.40	21
Nevada	5,379	33,907	15.86	22
Ohio	19,258	122,973	15.66	23
Tennessee	13,881	92,173	15.06	24
Georgia	17,997	121,875	14.77	25
Mississippi	10,973	74,886	14.65	26
Montana	10,796	74,171	14.56	27
New York	14,969	114,473	13.08	28
Utah	5,841	44,705	13.07	29
Oregon	7,538	59,250	12.72	30
Indiana	11,215	95,613	11.73	31
Illinois	16,040	139,492	11.50	32
Alabama	10,938	97,325	11.24	33
Arizona	6,755	60,439	11.18	34
Oklahoma	12,280	113,325	10.84	35
Nebraska	9,959	93,615	10.64	36
Idaho	4,958	47,788	10.37	37
Colorado	9,101	88,266	10.31	38
Wisconsin	11,770	114,843	10.25	39
Florida	12,084	121,386	9.96	40
South Dakota	7,836	82,149	9.54	41
California	15,205	172,512	8.81	42
Minnesota	11,893	138,239	8.60	43
North Dakota	7,384	86,842	8.50	44
Washington	7,042	83,527	8.43	45
Michigan	9,652	121,666	7.93	46
Massachusetts	2,834	36,104	7.85	47
Iowa	8,895	114,226	7.79	48
Kansas	10,369	140,609	7.37	49
New Jersey	2,324	38,753	6.00	50
U.S. Total	778,345	4,041,263	19.26	

Source: Highway Statistics 2008, Table HM-10

Highway Functional Classification

Roads serve a variety of needs and function differently in the highway network. Some facilities are intended for access to individual parcels of property; they typically have low traffic volumes and operate at relatively low speeds. These facilities are referred to as "local" roads and streets. Other facilities are intended for mobility; they typically have high traffic volumes and operate at relatively high speeds. These facilities are referred to as "arterial" streets. Still other facilities serve to gather traffic from local roads and streets and deliver it to arterials, and conversely to distribute traffic from arterials to locals. These facilities are referred to as "collectors". Arterial roads and streets typically constitute only seven to ten percent of the mileage in the highway network. Collectors typically constitute 20 to 25 percent and local roads and streets, 65 to 75 percent of the network.

The Federal Highway Administration has established twelve functional classifications for public roads and streets, seven in both rural and urban areas with several arterial classifications and two collector classifications as follows:

Rural Interstate	Urban Interstate
Rural Other Principal	Urban Other Freeways and Expressways
Rural Minor Arterial	Urban Other Principal Arterial
Rural Major Collector	Urban Minor Arterial
Rural Minor Collector	Urban Collector
Rural Local	Urban Local

Functional classification is used for a variety of purposes the most significant of which is the establishment of design criteria which vary considerably among arterial, collector, and local roads and streets. Functional classification also affects federal funding eligibility. Projects on roads classified as Rural Minor Collector, Rural Local, and Urban Local are typically not eligible for federal highway funds.

Current Composition of State Highway System

Louisiana's State Highway System totals 16,670 miles in the classifications listed below. Interstate highways are the highest order facilities whereas roadways classified as Rural Local and Urban Local are the lowest order facilities.

Rural System	Miles	Urban System	Miles
Interstate	534	Interstate	361
Other Principal Arterial	992	Other Freeway/Expressway	61
Minor Arterial	1,586	Other Principal Arterial	890
Major Collector	4,670	Minor Arterial	1,212
Minor Collector	2,959	Collector	806
Local	2,463	Local	136
Subtotal	13,204	Subtotal	3,466

The distribution of this mileage by parish is summarized in Table 2.

TABLE 2: STATE HIGHWAY MILEAGE BY PARISH

Parish	Land Area (square miles)	Population (2010)	State Highway Mileage	State Miles per 10 Square Miles
Acadia	655	61,773	427.86	6.53
Allen	765	25,764	173.88	2.27
Ascension	292	107,215	258.61	8.86
Assumption	339	23,421	187.78	5.54
Avoyelles	832	42,073	332.06	3.99
Beauregard	1160	35,654	277.20	2.39
Bienville	811	14,353	340.72	4.20
Bossier	838	116,979	288.70	3.45
Caddo	882	254,969	410.35	4.65
Calcasieu	1071	192,768	350.40	3.27
Caldwell	530	10,132	205.60	3.88
Cameron	1313	6,839	180.99	1.38
Catahoula	704	10,407	213.85	3.04
Claiborne	755	17,195	285.15	3.78
Concordia	696	20,822	234.66	3.37
Desoto	877	26,656	325.31	3.71
East Baton Rouge	456	440,171	303.24	6.65
East Carroll	422	7,759	141.12	3.34
East Feliciana	453	20,267	206.35	4.56
Evangeline	664	33,984	318.87	4.80
Franklin	623	20,767	280.42	4.50
Grant	645	22,309	255.93	3.97
Iberia	575	73,240	186.26	3.24
Iberville	619	33,387	222.00	3.59
Jackson	570	16,274	211.97	3.72
Jefferson	306	432,552	166.66	5.45
Jefferson Davis	652	31,594	277.03	4.25
Lafayette	270	221,578	225.24	8.34
Lafourche	1085	96,318	301.03	2.77
LaSalle	624	14,890	223.92	3.59
Lincoln	471	46,735	298.77	6.34
Livingston	648	128,026	363.07	5.60
Madison	624	12,093	174.17	2.79
Morehouse	794	27,979	246.17	3.10
Natchitoches	1256	39,566	479.82	3.82
Orleans	181	343,829	123.04	6.80
Ouachita	611	153,720	290.25	4.75
Plaquemines	845	23,042	115.63	1.37
Pointe Coupee	557	22,802	285.17	5.12
Rapides	1323	131,613	563.56	4.26
Red River	389	9,091	178.26	4.58
Richland	558	20,725	267.25	4.79

TABLE 2: STATE HIGHWAY MILEAGE BY PARISH (continued)

Parish	Land Area (square miles)	Population (2010)	State Highway Mileage	State Miles per 10 Square Miles
Sabine	865	24,233	277.11	3.20
St. Bernard	465	35,897	63.75	1.37
St. Charles	284	52,780	134.99	4.75
St. Helena	408	11,203	201.61	4.94
St. James	246	22,102	133.00	5.41
St. John the Baptist	219	45,924	105.74	4.83
St. Landry	929	83,384	469.46	5.05
St. Martin	740	52,160	261.31	3.53
St. Mary	613	54,650	178.85	2.92
St. Tammany	854	233,740	406.94	4.77
Tangipahoa	790	121,097	433.15	5.48
Tensas	602	5,252	267.37	4.44
Terrebonne	1255	111,860	231.00	1.84
Union	878	22,721	256.61	2.92
Vermillion	1174	57,999	355.50	3.03
Vernon	1328	52,334	355.46	2.68
Washington	670	47,168	341.94	5.10
Webster	596	41,207	237.61	3.99
West Baton Rouge	191	23,788	138.75	7.26
West Carroll	359	11,604	184.85	5.15
West Feliciana	406	15,625	105.89	2.61
Winn	951	15,313	330.78	3.48
Totals	43,564	4,533,372	16,669.99	3.83

References: Population obtained from the U.S. Census Bureau…
http://2010.census.gov/2010census/data/

The area of each parish obtained from the U.S. Census Bureau…
http://quickfacts.census.gov/qfd/states/22000.html

State Highway System inventory as of October 1, 2011

Criteria for Transfer

The preparation of a transfer plan afforded the opportunity to rectify some of the current inequity in the distribution of state mileage among parishes. One parish has over 550 miles of state highway whereas another has less than 65 miles. While the geographic size of the parish, the intercity travel network, as well as the extent of the farm-to-market network needed must be accounted for, the imbalance in the present distribution of state highway mileage among the parishes is readily apparent from a review of Table 2. Therefore, the following mileage and density criteria were established to guide the development of the transfer plan:

Mileage Criteria

- Maximum state mileage in any parish = 300 miles
- Maximum state mileage in parishes with population > 100,000 = 275 miles
- Maximum state mileage in parishes with population > 150,000 = 250 miles
- Maximum state mileage in parishes with population > 200,000 = 225 miles
- Maximum state mileage in parishes with population > 250,000 = 200 miles
- Maximum state mileage in parishes with population > 300,000 = 175 miles
- Minimum state mileage in any parish = 50 miles

Density Criteria

- No more than 5 miles of state highway per 10 square miles of parish geographic area
- No less than 1 mile of state highway per 10 square miles of parish geographic area

Proposed Composition of State Highway System

It is proposed that the State transfer approximately 5000 miles of state-owned roads to parish and city governments. Such a transfer will bring Louisiana's percentage of state-owned public road mileage in line with the national average of approximately 19 percent. In preparing the transfer plan, the following principles were employed:

- The State should not be maintaining neighborhood streets in urban or rural areas (i.e., roads classified as Rural Local or Urban Local).

- State mileage should be inversely proportional to parish population. The reason for this is that as population increases, farming activity decreases, and therefore the need for a farm-to-market network decreases. Former rural roads become urban and suburban streets and should be incorporated into parish and city street grids. As an area urbanizes, the tax base grows thereby enabling local governments to assume greater responsibility in addressing transportation needs.

- In urban areas, the state system should consist only of roads that serve a significant interurban function. Intraurban travel needs are best served by local governments even if the streets have high traffic volumes.

Within the context of the State's role in transportation, these principles were applied along with the mileage and density criteria in an iterative process of consultation with DOTD District officials in 2011 to identify 5,034 net miles for transfer to local governments. Some local roads are proposed for addition to the state system. The details of the transfer plan are provided in Table 3; a summary is provided below:

State Miles Transferred to Local Governments =	4,837.56
Frontage Road Miles Transferred to Local Governments =	283.27
Local Miles Transferred to State =	(86.44)
Net Mileage Transferred to Local Governments =	5,034.39

Accounting for 77.09 miles in new construction, the revised State Highway System would consist of 11,995.96 miles. **The proposed new limit for State Highway System mileage is 12,000.00.**

TABLE 3: PROPOSED STATE HIGHWAY MILEAGE BY PARISH

Parish	Land Area (square miles)	Population (2010)	Current State Highway Mileage*	Current Density (miles / 10 sq. miles)	State Miles Transferred to Locals*	Frontage Road Miles Transferred to Locals	Local Miles Transferred to State	Net Miles Transferred to Locals	New State Construct. (additional miles)	Revised State Highway Mileage	Revised Density (miles / 10 sq. miles)
Acadia	655	61,773	427.86	6.53	138.34			138.34		289.52	4.42
Allen	765	25,764	173.88	2.27	36.42			36.42		137.46	1.80
Ascension	292	107,215	258.61	8.86	119.19	4.78		123.97		139.42	4.77
Assumption	339	23,421	187.78	5.54	66.62			66.62		121.16	3.57
Avoyelles	832	42,073	332.06	3.99	88.41		6.29	82.12		249.94	3.00
Beauregard	1160	35,654	277.20	2.39	47.97			47.97		229.23	1.98
Bienville	811	14,353	340.72	4.20	65.17	1.15		66.32		275.55	3.40
Bossier	838	116,979	288.70	3.45	90.41	4.76		95.17		198.28	2.37
Caddo	882	254,969	410.35	4.65	193.61	13.13		206.74	I-49 North 36.07	252.81	2.87
Calcasieu	1071	192,768	350.40	3.27	108.17	25.37		133.54	Port Road 0.69	242.92	2.27
Caldwell	530	10,132	205.60	3.88	54.10		0.66	53.44		152.16	2.87
Cameron	1313	6,839	180.99	1.38	43.49		7.49	36.00		144.99	1.10
Catahoula	704	10,407	213.85	3.04	54.19		9.94	44.25		169.60	2.41
Claiborne	755	17,195	285.15	3.78	63.98			63.98		221.17	2.88
Concordia	696	20,822	234.66	3.37	46.59		4.10	42.49		192.17	2.55
Desoto	877	26,656	325.31	3.71	70.07	3.52		73.59		255.24	2.92
E. Baton Rouge	456	440,171	303.24	6.65	152.46	24.92	2.65	174.73		153.43	3.36
East Carroll	422	7,759	141.12	3.34	36.61		0.86	35.75		105.37	2.50
East Feliciana	453	20,267	206.35	4.56	50.37			50.37		155.98	3.44
Evangeline	664	33,984	318.87	4.80	87.43			87.43		231.44	3.49
Franklin	623	20,767	280.42	4.50	70.61		8.09	62.52		217.90	3.50
Grant	645	22,309	255.93	3.97	46.18			46.18		209.75	3.25

TABLE 3: PROPOSED STATE HIGHWAY MILEAGE BY PARISH (continued)

Parish	Land Area (square miles)	Population (2010)	Current State Highway Mileage*	Current Density (miles / 10 sq. miles)	State Miles Transferred to Locals*	Frontage Road Miles Transferred to Locals	Local Miles Transferred to State	Net Miles Transferred to Locals	New State Construct. (additional miles)	Revised State Highway Mileage	Revised Density (miles / 10 sq. miles)
Iberia	575	73,240	186.26	3.24	52.25			52.25		134.01	2.33
Iberville	619	33,387	222.00	3.59	56.01	4.64		60.65		165.99	2.68
Jackson	570	16,274	211.97	3.72	50.57		6.16	44.41	US 167 5.19	172.75	2.92
Jefferson	306	432,552	166.66	5.45	77.10	20.88		97.98	.53	90.09	2.96
Jefferson Davis	652	31,594	277.03	4.25	43.68	35.91		79.59		233.35	3.58
Lafayette	270	221,578	225.24	8.34	127.03			127.03		98.21	3.64
Lafourche	1085	96,318	301.03	2.77	111.83	5.13		116.96	New LA 1 5.54	194.74	1.79
LaSalle	624	14,890	223.92	3.59	46.95			46.95		176.97	2.84
Lincoln	471	46,735	298.77	6.34	77.61	6.25		83.86		221.16	4.70
Livingston	648	128,026	363.07	5.60	144.58	4.60	4.41	144.77		222.90	3.44
Madison	624	12,093	174.17	2.79	32.05	6.35	2.85	35.55		144.97	2.32
Morehouse	794	27,979	246.17	3.10	58.32		5.75	52.57		193.60	2.44
Natchitoches	1256	39,566	479.82	3.82	180.14			180.14		299.68	2.39
Orleans	181	343,829	123.04	6.80	31.33	26.10	8.99	48.44	Fl. Ave. Br. est. 3.74	104.44	5.27
Ouachita	611	153,720	290.25	4.75	83.25	9.69	6.57	86.37		213.57	3.50
Plaquemines	845	23,042	115.63	1.37	27.08			27.08	1.05	89.60	1.06
Pointe Coupee	557	22,802	285.17	5.12	67.57	0.15	3.31	64.41		220.91	3.97
Rapides	1323	131,613	563.56	4.26	213.72	1.00		214.72		349.84	2.64
Red River	389	9,091	178.26	4.58	48.27			48.27	US 371 Ext 3.27	133.26	3.43
Richland	558	20,725	267.25	4.79	46.60	2.18		48.78		220.65	3.95
Sabine	865	24,233	277.11	3.20	38.95			38.95		238.16	2.75
St. Bernard	465	35,897	63.75	1.37	17.39			17.39	Fl. Ave. Br. est. 4.25	50.61	1.09

TABLE 3: PROPOSED STATE HIGHWAY MILEAGE BY PARISH (continued)

Parish	Land Area (square miles)	Population (2010)	Current State Highway Mileage*	Current Density (miles / 10 sq. miles)	State Miles Transferred to Locals*	Frontage Road Miles Transferred to Locals	Local Miles Transferred to State	Net Miles Transferred to Locals	New State Construct. (additional miles)	Revised State Highway Mileage	Revised Density (miles / 10 sq. miles)
St. Charles	284	52,780	134.99	4.75	57.53			57.53		77.46	2.73
St. Helena	408	11,203	201.61	4.94	41.13			41.13		160.48	3.93
St. James	246	22,102	133.00	5.41	38.79			38.79		94.21	3.83
St. John the Baptist	219	45,924	105.74	4.83	30.10	14.47		44.57		75.64	3.45
St. Landry	929	83,384	469.46	5.05	172.94			172.94		296.52	3.19
St. Martin	740	52,160	261.31	3.53	78.74			78.74		182.57	2.47
St. Mary	613	54,650	178.85	2.92	53.23			53.23		125.62	2.05
St. Tammany	854	233,740	406.94	4.77	176.90	12.56		189.46	LA 3241 est. 16.76	246.80	2.89
Tangipahoa	790	121,097	433.15	5.48	161.84	29.15	3.18	187.81		274.49	3.47
Tensas	602	5,252	267.37	4.44	35.38		0.29	34.59		232.28	3.86
Terrebonne	1255	111,860	231.00	1.84	98.50	1.24		99.74		132.50	1.06
Union	878	22,721	256.61	2.92	55.33			55.33		201.28	2.29
Vermillion	1174	57,999	355.50	3.03	89.81		0.34	89.47		266.03	2.27
Vernon	1328	52,334	355.46	2.68	61.54			61.54		293.92	2.21
Washington	670	47,168	341.94	5.10	103.31			103.31		238.63	3.56
Webster	596	41,207	237.61	3.99	50.54	3.25	4.51	49.28		191.58	3.21
W. Baton Rouge	191	23,788	138.75	7.26	44.29	22.11		66.40		94.46	4.95
West Carroll	359	11,604	184.85	5.15	42.71			42.71		142.14	3.96
West Feliciana	406	15,625	105.89	2.61	25.19			25.19		80.05	1.97
Winn	951	15,313	330.78	3.48	57.09			57.09		273.69	2.88
Totals	43,564	4,533,372	16669.99	3.83	4,837.56	283.27	86.44	5,034.39	77.09	11,995.96	2.75

- Mileage values from 2011
- The cells highlighted in yellow exceed the maximum mileage or the maximum density criteria.

Currently, 20 parishes exceed the maximum mileage criteria and 16 exceed the density criteria; these are highlighted in yellow in columns four and five (from the left) in Table 3. With implementation of the transfer plan, three parishes will still exceed the mileage criteria and one will exceed the density criteria. These are highlighted in yellow in the last two columns in Table 3. Each of these cases is discussed below:

- The three parishes that will exceed the mileage criteria following implementation of the transfer plan are Caddo, Rapides, and St. Tammany. The State Highway System in each of these parishes is extensive. However, even with the largest reductions in state mileage (206.58, 216.09, and 189.90 miles, respectively), these parishes will still exceed the established criteria due to the role the highway network serves in supporting statewide travel. Rapides Parish, in particular, is the location where many of the major statewide travel routes converge.

- Orleans Parish will still exceed the density criteria following implementation of the transfer plan. Following the transfer, the state network will be relatively small; however, the Orleans Parish land area is also small and therefore the density criteria will still be exceeded. Further, similar to Rapides Parish, a number of major travel routes link in Orleans Parish.

DOTD District and individual parish maps illustrating exactly which routes are proposed for transfer are available for review. These maps also show parish and municipal routes that are proposed for transfer to the State as well as new construction that will be added to the State Highway System.

The classifications of the routes proposed for transfer in 2011 are shown below:

Rural System	miles	Urban System	miles
Interstate	0	Interstate	0
Other Principal Arterial	6	Other Freeway/Expressway	0
Minor Arterial	12	Other Principal Arterial	255
Major Collector	340	Minor Arterial	460
Minor Collector	1,059	Collector	503
Local	2,075	Local	128
Subtotal	3,492	Subtotal	1,346

In addition, 284 miles of frontage roads are also proposed for transfer. Just over 86 miles of locally-owned roads are proposed for addition to the State Highway System. Therefore, the proposed net transfer is 5,034 miles.

Again, accounting for 78 miles in new construction, the revised State Highway System would consist of just under 11,996 miles. **The proposed new limit for State Highway System mileage is 12,000.**

As previously noted, 5,034 net miles was identified in 2011 for transfer to local governments. The plan also includes the net transfer of 21 moveable bridges as shown in Table 4. Of the moveable bridges, one has been placed permanently in the open position and 15 are operated "on-call." Only five of the bridges have manned operations.

TABLE 4: MOVEABLE BRIDGES PROPOSED FOR TRANSFER TO LOCAL GOVERNMENTS

Parish	State Route	Water Body Crossed	Bridge Type	Operation	Average Monthly Openings
Iberia	LA 344	Bayou Teche	Swing Span	On-Call	24
Iberville	LA 997	Lower Grand River	Pontoon	On-Call	40
Jefferson	LA 18	Harvey Canal	Double Bascule	24 - Hour	468
Lafayette	LA 182	Vermillion River	Vertical Lift	On-Call	0
	LA 92	Vermillion River	Vertical Lift	On-Call	35
	LA 733	Vermillion River	Vertical Lift	On-Call	6
Lafourche	LA 316	Intracoastal Canal	Pontoon	24 - Hour	1033
	LA 308	Bayou Lafourche	Vertical Lift	24 - Hour	206
	LA 307	Bayou Boeuf	Vertical Lift	On-Call	92
	LA 655	Bayou Lafourche	Swing Span	On-Call	20
Livingston	LA 22	Amite River	Swing Span	On-Call	2
Ouachita	LA 3280	Ouachita River	Swing Span	On-Call	14
Rapides	US 165 Bus	Red River	Vertical Lift	On-Call	35
St. Charles	LA 631	Bayou Des Allmands	Swing Span	On-Call	2
St. Mary	LA 322	Bayou Teche	Swing Span	On-Call	17
St. Tammany	LA 433	Bayou Liberty	Swing Span	On-Call	0-2
	LA 433	Bayou Bonfouca	Swing Span	On-Call	56
Terrebonne	LA 3197	Houma Canal	Swing Span	Permanently Open	0
	LA 315	Falgout Canal	Swing span	24 – Hour	286
	LA 55	Humble Canal	Swing Span	24 – Hour	137
Vermillion	LA 1246	Vermillion River	Swing Span	On-Call	33

Examples of Roads Proposed for Transfer

As Table 3 and the maps indicate, each parish will be affected by implementation of the transfer plan. Two illustrative examples, within each DOTD District, of the roads proposed for transfer to local governments are provided on the ensuing pages. These are intended to show typical transfer routes; no special significance should be implied.

DOTD District 02 **Jefferson Parish (Grand Isle)** **LA 574-3** **Control 826-12**

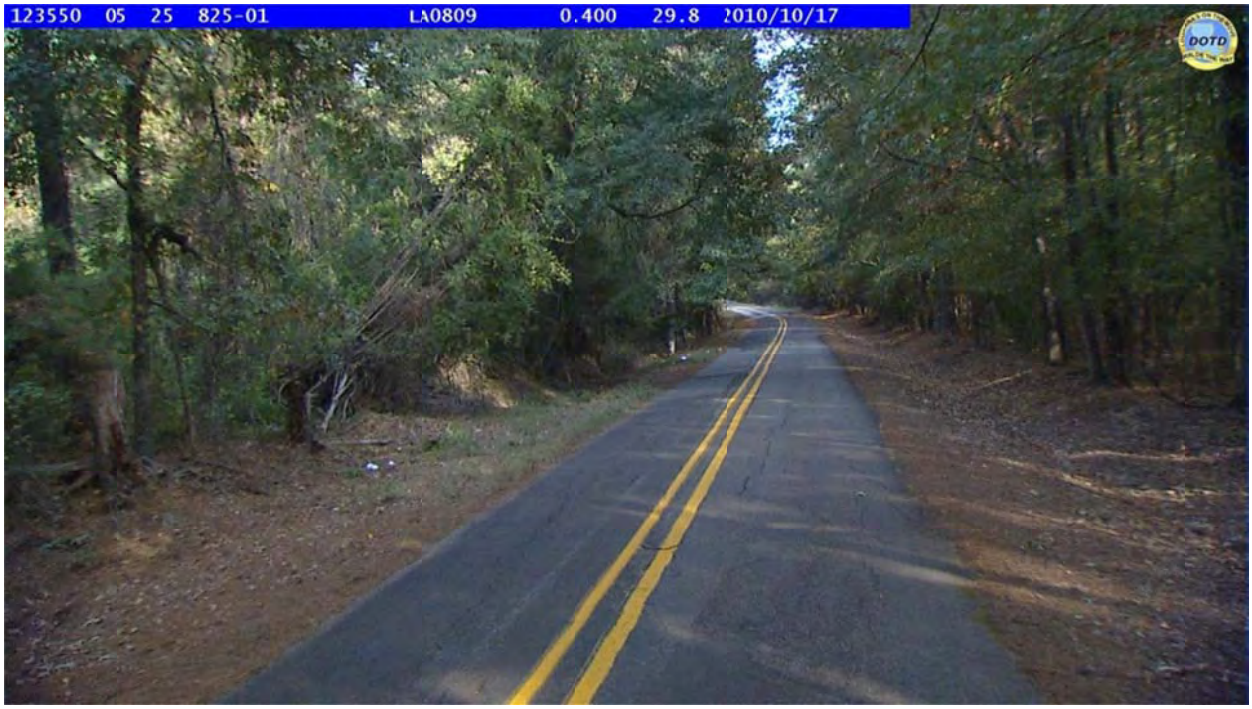
DOTD District 02 **Orleans Parish (New Orleans)** **US 90** **Control 006-03**

DOTD District 03 **Iberia Parish** **LA 88** **Control 397-05**

DOTD District 03 **St. Mary Parish (Patterson)** **LA 82** **Control 004-08**

DOTD District 04 Caddo Parish (Shreveport) LA 526 Control 809-08

DOTD District 04 Bienville Parish LA 793 Control 287-05



DOTD District 05 Jackson Parish LA 809 Control 825-01

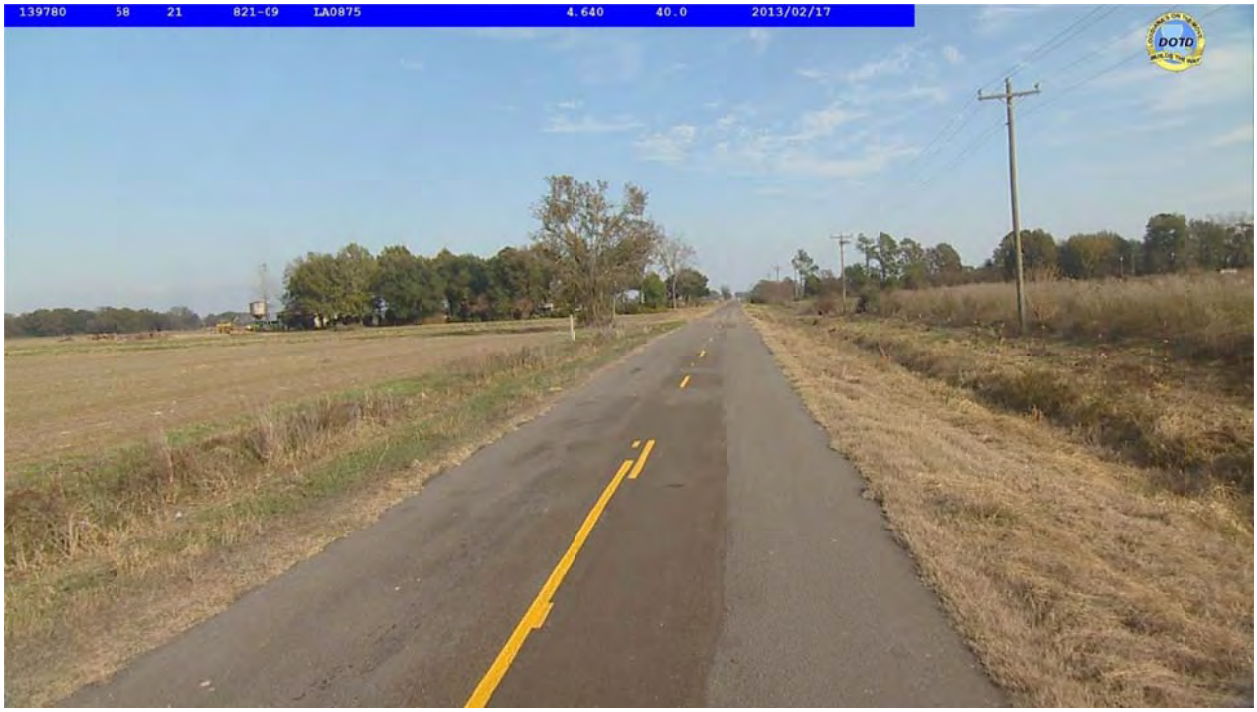
DOTD District 05 Morehouse Parish (Bastrop) LA 830-1 Control 834-06

DOTD District 07 **Allen Parish** **LA 1151** **Control 802-04**

DOTD District 07 **Cameron Parish** **LA 1144** **Control 382-02**

DOTD District 08 **Natchitoches Parish (Natchitoches)** **LA 6 Business** **Control 034-06**

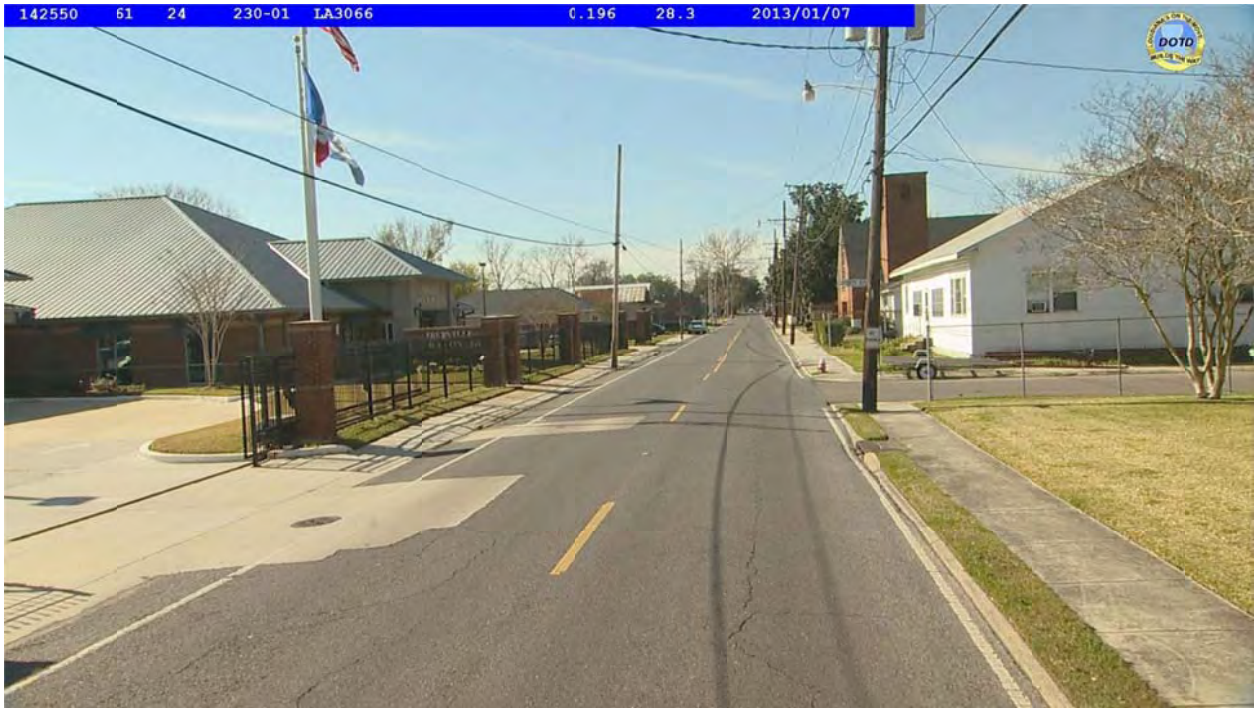
DOTD District 08 **Rapides Parish (Alexandria)** **LA 1208-1** **Control 840-20**



DOTD District 58 **Franklin Parish** **LA 875** **Control 821-09**

DOTD District 58 **LaSalle Parish (Jena)** **LA 778** **Control 830-05**

DOTD District 61 Ascension Parish LA 621 Control 803-08



DOTD District 61 Iberville Parish (Plaquemine) LA 3066 Control 230-01

DOTD District 62 Livingston Parish (Walker) LA 1029 Control 832-25

DOTD District 62 St Tammany Parish LA 1083 Control 852-30

Road Transfer Program

DOTD established the Road Transfer Program to compensate parishes and municipalities that accept ownership of certain roads currently owned by the State. Participation is voluntary. The Program consists of initial repairs to the road being transferred, if needed, and credit for 40 years of maintenance which can be applied to the highway capital project(s) of choice as selected by the receiving local government. Additional compensation is provided for any bridges and traffic signals that are on the transferred road and will therefore become the responsibility of the receiving local government.

Initial Repairs

Under the Road Transfer Program, eligible roads in less than "Fair" condition, based on DOTD criteria, will be repaired prior to transfer unless the receiving local government specifically requests otherwise. Repairs may include the pavement, roadside drainage systems, and bridges. In most cases, the roads will be in "Good" or "Very Good" condition at the time of transfer. In addition, where justified through crash data analyses, safety improvements will be implemented prior to transfer.

Routine Maintenance Costs

DOTD records for a 5-year period were analyzed to determine the average annual routine maintenance costs for the roughly 5,000 miles of roadway proposed for transfer to local governments. Routine maintenance costs include mowing, litter pickup, striping, patching, etc. The analysis indicated an average annual maintenance cost of $6,046 per mile excluding traffic signal costs. The annual operating cost, including routine maintenance, for the 21 moveable bridges proposed for transfer is listed below:

TABLE 5: ANNUAL OPERATING COSTS OF MOVEABLE BRIDGES PROPOSED FOR TRANSFER (2019 $)

Parish	State Route	Water Body Crossed	Bridge Type	Operation	Operating Cost
Iberia	LA 344	Bayou Teche	Swing Span	On-Call	$65,000
Iberville	LA 997	Lower Grand River	Pontoon	On-Call	$45,500
Jefferson	LA 18	Harvey Canal	Double Bascule	24 – Hour	$391,000
Lafayette	LA 182	Vermillion River	Vertical Lift	On-Call	$6,500
	LA 92	Vermillion River	Vertical Lift	On-Call	$40,000
	LA 733	Vermillion River	Vertical Lift	On-Call	$32,500
Lafourche	LA 316	Intracoastal Canal	Pontoon	24 – Hour	$358,000
	LA 308	Bayou Lafourche	Vertical Lift	24 – Hour	$391,000
	LA 307	Bayou Boeuf	Vertical Lift	On-Call	$326,000
	LA 655	Bayou Lafourche	Swing Span	On-Call	$52,000
Livingston	LA 22	Amite River	Swing Span	On-Call	$13,000
Ouachita	LA 3280	Ouachita River	Swing Span	On-Call	$59,000
Rapides	US 165 Bus	Red River	Vertical Lift	On-Call	$195,000
St. Charles	LA 631	Bayou Des Allmands	Swing Span	On-Call	$20,000
St. Mary	LA 322	Bayou Teche	Swing Span	On-Call	$40,000
St. Tammany	LA 433	Bayou Liberty	Swing Span	On-Call	$32,500
	LA 433	Bayou Bonfouca	Swing Span	On-Call	$130,000
Terrebonne	LA 3197	Houma Canal	Swing Span	Permanently Open	$3,250
	LA 315	Falgout Canal	Swing span	24 – Hour	$325,000
	LA 55	Humble Canal	Swing Span	24 – Hour	$358,000
Vermillion	LA 1246	Vermillion River	Vertical Lift	On-Call	$32,500

Compensation for Road Maintenance

For those parishes and municipalities choosing to participate in the Program, the respective local governments will receive credit for 40 years of maintenance on the roads transferred. The credit accounts for both routine maintenance costs and periodic pavement treatments. The amount varies depending on the number of lanes, type of pavement, and the condition of the road at the time of transfer. Roads in "Fair" condition receive greater credit than those in "Very Good" condition at the time of transfer. As noted above, roads in less than "Fair" condition will be repaired prior to transfer. The 40-year maintenance value, based on present worth analysis, of various types of roads and transfer conditions is presented in Appendix B and summarized below:

TABLE 6: 40-YEAR MAINTENANCE VALUE FOR VARIOUS ROAD TYPES (2019 $)

Road Type	40-Year Maintenance Value Per Mile		
	Transfer Condition = Very Good	Transfer Condition = Good	Transfer Condition = Fair
2-Lane Asphalt Arterial/Collector/Local	$436,749.09	$457,934.29	$565,063.97
3-Lane Asphalt Arterial/Collector	$560,666.12	$591,665.94	$748,426.31
4-Lane Asphalt Arterial	$684,583.15	$725,397.58	$931,788.66
5-Lane Asphalt Arterial	$808,500.19	$859,129.23	$1,115,151.01
2-Lane Composite Art./Collector/Local	$426,138.03	$445,049.12	$540,679.00
3-Lane Composite Arterial/Collector	$560,666.12	$591,665.94	$748,426.31
4-Lane Composite Arterial	$684,583.15	$725,397.58	$931,788.66
5-Lane Composite Arterial	$808,500.19	$859,129.23	$1,115,151.01
6-Lane Composite Arterial	$901,701.01	$955,561.69	$1,227,925.28
7-Lane Composite Arterial	$1,020,591.75	$1,083,189.83	$1,399,736.86
8-Lane Composite Arterial	$1,139,482.50	$1,210,817.98	$1,571,548.43
2-Lane JCP Arterial/Collector/Local	$362,450.15	$390,935.76	$465,538.49
3-Lane JCP Arterial/Collector	$455,698.64	$497,687.80	$607,084.55
4-Lane Jointed Concrete (JCP) Arterial	$548,947.13	$604,439.85	$748,630.60
5-Lane Jointed Concrete (JCP) Arterial	$642,195.62	$711,191.90	$890,176.65
6-Lane Jointed Concrete (JCP) Arterial	$735,444.11	$817,943.95	$1,031,722.71
7-Lane Jointed Concrete (JCP) Arterial	$828,692.60	$924,696.00	$1,173,268.76
2-Lane Brick w/Parking	$ 455,698.64	$ 497,687.80	$ 607,084.55
Gravel	$ 220,356.53*		

*DOTD will pave gravel roads prior to transfer; however, no 40-year maintenance credit will be provided.

Compensation for Bridge Maintenance

In addition to compensation for road maintenance, credits for 40 years of maintenance for any bridges on transferred roads will also be provided. Since bridges vary in type, age, and condition, individual analyses must be performed to determine fair compensation. For bridges that will not require major rehabilitation or replacement over the 40-year period, the value is typically low since reinforced concrete bridges require relatively little maintenance. Existing bridges with wooden components will likely need major rehabilitation or replacement within the 40-year analysis period.

Compensation for Traffic Signal/Flashing Beacon Maintenance

As with bridges, additional compensation for maintenance of any traffic signals or flashing beacons that are transferred to local governments is also provided. The 40-year maintenance values, in 2019 dollars, are $178,866.96 for each traffic signal and $51,690.26 for each flashing beacon (see Appendix C).

Updating Compensation Values

The 40-year road maintenance values presented in Appendix B and summarized in Table 6 will be updated every three years and published as an addendum to this document. The 40-year maintenance values for traffic signals and flashing beacons presented in Appendix C will also be updated every three years as will the annual operating costs for the movable bridges listed in Table 5. Further, the unit costs used in the analyses of 40-year bridge maintenance values will be updated periodically.

Transfer Process

The procedures governing the Road Transfer Program have been documented in DOTD Engineering Directives and Standards (EDSM) Number I.1.1.27 (see Appendix D). The first step in the process is for an interested local government to work with the appropriate DOTD District Administrator in identifying eligible State roads that the local government is willing to accept ownership of and determining the 40-year maintenance value associated with those roads. DOTD District and individual parish maps illustrating exactly which routes are eligible for transfer are available to aid in this process. The local government will also need to identify the capital project(s) to which the 40-year maintenance credits will be applied.

Local Government Resolution

DOTD will draft a resolution for consideration of adoption by the local governing authority. The resolution will specify which State roads the local government will accept ownership of subject to needed improvements, if any, and their associated 40-year maintenance value. The resolution will also specify the capital project(s) to which the 40-year maintenance credits are to be applied.

Cooperative Endeavor Agreement

A cooperative endeavor agreement (CEA) will also be required. A CEA is a form of contract between the State and local governments. DOTD will draft the needed CEA and it will accompany the aforementioned draft resolution for consideration by the local governing authority. The CEA will also specify which State roads the local government will accept ownership of subject to needed improvements, if any, the 40-year maintenance value associated with the transfer roads, and the capital project(s) to which the 40-year maintenance credits are to be applied. The local government resolution will include a provision authorizing a specified individual (Parish President, Mayor, etc.) to sign the CEA on behalf of the local government.

Transfer Road Repairs and Use of Credits

Following the adoption of a resolution and execution of a CEA, needed repairs to the transfer routes will be implemented. As the repairs on each route are completed, the ownership of that road will transfer from the State to the receiving local government. Concurrently, DOTD will initiate work on the capital project(s) specified in the agreement. The 40-year maintenance credits may be applied to capital projects on any public road or bridge as determined by the local government. DOTD will implement the project(s) in accordance with applicable design standards and public bid laws.

Recording the Transfer

DOTD will prepare and execute an Act of Transfer and Acceptance between the State and local government for the transfer of ownership of the State roads specified in the adopted resolution and cooperative endeavor agreement. DOTD will then record the Act of Transfer and acceptance in the Office of the Clerk of Court in the appropriate parish.

Examples of Road Transfers

The following examples are intended to demonstrate how the Road Transfer Program works and can be used to address capital needs. The opportunities for accomplishing capital improvements through this program are numerous and are not limited to the types of projects outlined in these examples.

Example A: Use of Credits for Parish Bridge Replacements

Parish X has a number of structurally deficient bridges. Three have been closed; seven others are load posted and will likely be closed within the next few years. The estimated cost for replacing all ten bridges, including preconstruction costs, is $3.7 million. Funding through the Off-System Bridge Program averages only $200,000 per year. Parish X has a very small capital budget but can accept some additional routine road maintenance responsibilities.

Working with the DOTD District Administrator, Parish X has agreed to accept ownership of 7.1 miles of two-lane asphalt State roads that are eligible for transfer under the Road Transfer Program. All 7.1 miles are in "Poor" or "Very Poor" condition and will therefore be repaired such that their condition will be "Very Good" at the time of transfer. The 40-year maintenance credit for these roads is 7.1 miles at $436,749.09 per mile = $3,100,918.54 to be applied to the replacement of ten parish bridges over the next three years in combination with approximately $200,000 per year in funding through the Off-System Bridge Program. A summary of the funding for the bridge replacements is provided below:

$3.1 million	(40-year maintenance credit for 7.1 miles of road)
$0.6 million	(funding for 3 years through the Off-System Bridge Program)
$3.7 million	(estimated cost of replacing 10 parish bridges)

It is important to note that in addition to the replacement of ten deficient bridges, the citizens of Parish X also benefit from the repair of 7.1 miles of road previously in "Poor" or "Very Poor" condition.

Example B: Use of Credits for Parish Road Reconstruction

The base of a road owned by Parish Y is failing and requires substantial on-going maintenance. Further the road is only 16 feet wide. The cost to reconstruct and widen (to 18 feet) this section of road is $2.80 million.

Working with the District Administrator, Parish Y has agreed to accept ownership of 6.2 miles of two-lane asphalt State roads that are eligible for transfer under the Road Transfer Program. Of this length, 4.3 miles are in "Poor" condition and will be repaired such that the transfer condition will be "Very Good." The other 1.9 miles are in "Good" condition and require no repairs prior to transfer.

The 40-year maintenance credit for these roads is $436,749.09 per mile for roads in "Very Good" condition and $457,934.29 per mile for roads in "Good" condition. Additional credit will be provided for one 3-year old reinforced concrete bridge on a transfer road; it will require only minimal maintenance over the next 40 years. All credits will be applied to reconstructing the parish road. A summary of the funding is provided below:

$1.88 million	(40-year maintenance credit for 4.3 miles of road in "Very Good" condition)
$0.87 million	(40-year maintenance credit for 1.9 miles of road in "Good" condition)
$0.05 million	(40-year maintenance credit for one bridge)
$2.80 million	(estimated cost to reconstruct and widen road owned by Parish Y)

Example C: Use of Credits for City Street Capacity Expansion

In accordance with the plan for City Z, local officials are seeking funds to expand the capacity of a major city thoroughfare. The cost of the 1.2 mile project is estimated at $14.40 million. The City has $6.11 million in local funding allocated to the project. In addition, the MPO Policy Committee has allocated another $3.50 million in Federal funds to the project leaving a shortfall of $4.79 million.

Working with the District Administrator, City Z has agreed to accept ownership of 5.6 miles of four-lane jointed concrete pavement (JCP) State roads and 2.4 miles of two-lane asphalt State roads that are eligible for transfer under the Road Transfer Program. The 5.6 miles of four-lane JCP roads will be repaired such that they are in "Good" condition at the time of transfer. The 2.4 miles of two-lane asphalt roads will be repaired such that they are in "Very Good" condition at the time of transfer. While no bridges will be included, the ownership of two traffic signals will be transferred to City Z.

The 40-year maintenance credit for the four-lane JCP roads is $604,439.85 per mile for roads in "Good" condition. The 40-year maintenance credit for two-lane asphalt roads is $436,749.09 per mile for roads in "Very Good" condition. The 40-year maintenance value of traffic signals is $178,866.96 each. All credits will be applied to the city street capacity expansion project. A summary of the funding is provided below:

$ 6.11 million (City funds)
$ 3.50 million (MPO Federal funds)
$ 3.38 million (40-year maintenance credit for 5.6 miles of four-lane JCP in "Good" condition)
$ 1.05 million (40-year maint. credit for 2.4 miles of two-lane asphalt in "Very Good" condition)
$ 0.36 million (40-year maintenance credit for two traffic signals)
$14.40 million (estimated cost for capacity expansion of street owned by City Z)

Appendix A

ENROLLED

Regular Session, 2010

HOUSE CONCURRENT RESOLUTION NO. 38

BY REPRESENTATIVE SAM JONES

A CONCURRENT RESOLUTION

To urge and request the Department of Transportation and Development to study reducing the size of the Department of Transportation and Development, rectifying inequities in the distribution of state highway miles among parishes, and empowering local governments through the "right-sizing" of the state highway system.

WHEREAS, for at least seven decades, Louisiana has operated under a model of strong state government and relatively weaker local government; and

WHEREAS, this governmental model has produced an inefficient highway system that continues to lag behind the rest of the nation's systems; and

WHEREAS, many would argue that a new governmental model is needed to produce a more efficient highway system, one that is aligned with the philosophy that the government closest to the people is the most responsive and best serves the citizenry; and

WHEREAS, under a new model, the opportunity exists to reduce the size of the Department of Transportation and Development, rectify inequities in the distribution of state highway miles among parishes, and empower local governments through the "right-sizing" of the state highway system; and

WHEREAS, under a new model, the state highway system would be reduced, and local government would be strengthened and granted far greater autonomy in meeting their areas' highway needs; and

WHEREAS, the benefits to local governments would include but not be limited to the following: (1) increased financial resources from the Parish Transportation Fund; (2) greater authority in transportation decisionmaking, including project prioritization and funding allocation; (3) authority to regulate traffic over a larger portion of the transportation network in any given jurisdiction; and (4) the ability to implement parish and municipal comprehensive plans with less interference and less dependency on the state; and

WHEREAS, "right sizing" the state highway system would allow the Department of Transportation and Development to focus its efforts on the components of the transportation system that are most important to all of Louisiana's economy, namely, those that serve a significant role in freight movement, tourism, and business travel.

THEREFORE, BE IT RESOLVED that the Legislature of Louisiana does hereby urge and request the Department of Transportation and Development to develop a proposal for "right-sizing" the state highway system in accordance with principals and criteria that it shall identify for such purpose. The requested "right-sizing" proposal shall include but not be limited to the following:

(1) A report outlining the proposal.

(2) Maps for each parish showing exactly which routes would be transferred from the state highway system.

(3) Exact figures for increasing the Parish Transportation Fund and decreasing the Department of Transportation and Development's operating budget and staffing levels.

(4) Proposed revisions to the Parish Transportation Fund formulas.

(5) A schedule for transferring state roads to local governments, increasing funding to the Parish Transportation Fund, increasing local capital assistance programs, including off-system bridges, local road safety, and a proposed congestion relief fund, and reducing the Department of Transportation and Development's operating budget and staffing levels.

(6) Legislation necessary to implement the proposal and to ensure that increased funding for the Parish Transportation Fund will continue with future administrations.

BE IT FURTHER RESOLVED that Department of Transportation and Development shall submit the "right-sizing" proposal to the House and Senate committees on transportation, highways and public works no later than January 31, 2011.

BE IT FURTHER RESOLVED that a copy of this Resolution be transmitted to the secretary of the Department of Transportation and Development.

_____

SPEAKER OF THE HOUSE OF REPRESENTATIVES

_____

PRESIDENT OF THE SENATE

Appendix B: Present Worth Analysis for 40-Year Road Maintenance

2-Lane Asphalt Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)	
	Chip Seal Cost =	$	68,000	per mile	
	Thin Overlay Cost =	$	245,000	per mile	

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$82,891.62	Chip Seal	$90,261.66	0.6756	$60,977.54
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$101,044.42	Chip Seal	$110,028.46	0.4564	$50,215.55
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$443,783.59	Thin Overlay	$454,735.08	0.3083	$140,203.31
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$150,146.70	Chip Seal	$163,496.50	0.2083	$34,054.53
				Total Present Worth/Mile =		**$436,749.09**

Approved: Eric Kalivoda, Deputy Secretary

Date: 4/2/19

2-Lane Asphalt Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)	
	Chip Seal Cost =	$	68,000	per mile	
	Thin Overlay Cost =	$	245,000	per mile	

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$82,891.62	Chip Seal	$90,261.66	0.6756	$60,977.54
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$364,057.11	Thin Overlay	$373,041.15	0.4564	$170,251.11
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$123,172.59	Chip Seal	$134,124.08	0.3083	$41,352.96
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$150,146.70	Chip Seal	$163,496.50	0.2083	$34,054.53
				Total Present Worth/Mile =		$457,934.29

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

2-Lane Asphalt Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Chip Seal	Cost =	$	68,000	per mile
	Thin Overlay	Cost =	$	245,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$298,653.63	Thin Overlay	$306,023.67	0.6756	$206,738.63
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$101,044.42	Chip Seal	$110,028.46	0.4564	$50,215.55
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$123,172.59	Chip Seal	$134,124.08	0.3083	$41,352.96
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$540,969.72	Thin Overlay	$554,319.53	0.2083	$115,458.68
				Total Present Worth/Mile =		$565,063.97

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

3-Lane Asphalt/Composite Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface	Cost =	$	99,000	per mile
	Thin Overlay	Cost =	$	358,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$120,680.45	Microsurface	$128,050.49	0.6756	$86,506.32
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$147,108.79	Microsurface	$156,092.83	0.4564	$71,238.73
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$648,467.45	Thin Overlay	$659,418.94	0.3083	$203,311.17
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$218,595.93	Microsurface	$231,945.73	0.2083	$48,311.76
				Total Present Worth/Mile =		$560,666.12

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

3-Lane Asphalt/Composite Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)	
	Microsurface Cost =	$	99,000	per mile	
	Thin Overlay Cost =	$	358,000	per mile	

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$120,680.45	Microsurface	$128,050.49	0.6756	$86,506.32
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$531,969.17	Thin Overlay	$540,953.21	0.4564	$246,883.98
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$179,324.80	Microsurface	$190,276.29	0.3083	$58,665.73
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$218,595.93	Microsurface	$231,945.73	0.2083	$48,311.76
				Total Present Worth/Mile =		**$591,665.94**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

3-Lane Asphalt/Composite Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface	Cost =	$	99,000	per mile
	Thin Overlay	Cost =	$	358,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$436,400.00	Thin Overlay	$443,770.04	0.6756	$299,795.14
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$147,108.79	Microsurface	$156,092.83	0.4564	$71,238.73
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$179,324.80	Microsurface	$190,276.29	0.3083	$58,665.73
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$790,478.20	Thin Overlay	$803,828.01	0.2083	$167,428.57
				Total Present Worth/Mile =		**$748,426.31**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

4-Lane Asphalt/Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)	
	Microsurface Cost =	$	130,000	per mile	
	Thin Overlay Cost =	$	471,000	per mile	

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$158,469.27	Microsurface	$165,839.31	0.6756	$112,035.10
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$193,173.16	Microsurface	$202,157.20	0.4564	$92,261.91
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$853,151.31	Thin Overlay	$864,102.80	0.3083	$266,419.02
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$287,045.16	Microsurface	$300,394.96	0.2083	$62,568.98
				Total Present Worth/Mile =		**$684,583.15**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

4-Lane Asphalt/Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface	Cost =	$	130,000	per mile
	Thin Overlay	Cost =	$	471,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$158,469.27	Microsurface	$165,839.31	0.6756	$112,035.10
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$699,881.22	Thin Overlay	$708,865.26	0.4564	$323,516.85
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$235,477.01	Microsurface	$246,428.50	0.3083	$75,978.51
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$287,045.16	Microsurface	$300,394.96	0.2083	$62,568.98
				Total Present Worth/Mile =		$725,397.58

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

4-Lane Asphalt/Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	130,000	per mile
	Thin Overlay Cost =	$	471,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$574,146.37	Thin Overlay	$581,516.41	0.6756	$392,851.65
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$193,173.16	Microsurface	$202,157.20	0.4564	$92,261.91
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$235,477 01	Microsurface	$246,428.50	0.3083	$75,978.51
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$1,039,986.68	Thin Overlay	$1,053,336.49	0.2083	$219,398.45
				Total Present Worth/Mile =		$931,788.66

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

5-Lane Asphalt/Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	161,000	per mile
	Thin Overlay Cost =	$	584,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$196,258.10	Microsurface	$203,628.14	0.6756	$137,563.88
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$239,237.53	Microsurface	$248,221.57	0.4564	$113,285.08
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$1,057,835.17	Thin Overlay	$1,068,786.66	0.3083	$329,526.88
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$355,494.39	Microsurface	$368,844.19	0.2083	$76,826.20
				Total Present Worth/Mile =		**$808,500.19**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

5-Lane Asphalt/Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface	Cost =	$	161,000	per mile
	Thin Overlay	Cost =	$	584,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$196,258.10	Microsurface	$203,628.14	0.6756	$137,563.88
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$867,793.28	Thin Overlay	$876,777.32	0.4564	$400,149.72
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$291,629.22	Microsurface	$302,580.71	0.3083	$93,291.28
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$355,494.39	Microsurface	$368,844.19	0.2083	$76,826.20
				Total Present Worth/Mile =		$859,129.23

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

5-Lane Asphalt/Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	161,000	per mile
	Thin Overlay Cost =	$	584,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$711,892.74	Thin Overlay	$719,262.78	0.6756	$485,908.16
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$239,237.53	Microsurface	$248,221.57	0.4564	$113,285.08
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$291,629.22	Microsurface	$302,580.71	0.3083	$93,291.28
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$1,289,495.16	Thin Overlay	$1,302,844.97	0.2083	$271,368.33
				Total Present Worth/Mile =		$1,115,151.01

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

2-Lane Composite Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	68,000	per mile
	Thin Overlay Cost =	$	226,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$82,891.62	Microsurface	$90,261.66	0.6756	$60,977.54
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$101,044.42	Microsurface	$110,028.46	0.4564	$50,215.55
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$409,367.72	Thin Overlay	$420,319.21	0.3083	$129,592.26
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$150,146.70	Microsurface	$163,496.50	0.2083	$34,054.53
				Total Present Worth/Mile =		**$426,138.03**

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

2-Lane Composite Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	68,000	per mile
	Thin Overlay Cost =	$	226,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$82,891.62	Microsurface	$90,261.66	0.6756	$60,977.54
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$335,824.11	Thin Overlay	$344,808.15	0.4564	$157,365.94
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$123,172.59	Microsurface	$134,124.08	0.3083	$41,352.96
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$150,146.70	Microsurface	$163,496.50	0.2083	$34,054.53
				Total Present Worth/Mile =		**$445,049.12**

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

2-Lane Composite Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	68,000	per mile
	Thin Overlay Cost =	$	226,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$275,492.74	Thin Overlay	$282,862.78	0.6756	$191,091.96
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$101,044.42	Microsurface	$110,028.46	0.4564	$50,215.55
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$123,172.59	Microsurface	$134,124.08	0.3083	$41,352.96
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$499,016.96	Thin Overlay	$512,366.77	0.2083	$106,720.39
				Total Present Worth/Mile =		$540,679.00

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

6-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface	Cost =	$	192,000	per mile
	Thin Overlay	Cost =	$	642,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$234,046.93	Microsurface	$241,416.97	0.6756	$163,092.65
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$285,301.90	Microsurface	$294,285.94	0.4564	$134,308.26
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$1,162,894.14	Thin Overlay	$1,173,845.63	0.3083	$361,918.52
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$423,943.62	Microsurface	$437,293.42	0.2083	$91,083.43
				Total Present Worth/Mile =		$901,701.01

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

6-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	192,000	per mile
	Thin Overlay Cost =	$	642,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$234,046.93	Microsurface	$241,416.97	0.6756	$163,092.65
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$953,978.23	Thin Overlay	$962,962.27	0.4564	$439,483.41
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$347,781.42	Microsurface	$358,732.92	0.3083	$110,604.05
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$423,943.62	Microsurface	$437,293.42	0.2083	$91,083.43
				Total Present Worth/Mile =		$955,561.69

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

6-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface	Cost =	$	192,000	per mile
	Thin Overlay	Cost =	$	642,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$782,594.42	Thin Overlay	$789,964.46	0.6756	$533,671.68
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$285,301.90	Microsurface	$294,285.94	0.4564	$134,308.26
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$347,781.42	Microsurface	$358,732.92	0.3083	$110,604.05
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$1,417,561.46	Thin Overlay	$1,430,911.27	0.2083	$298,043.14
				Total Present Worth/Mile =		**$1,227,925.28**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

7-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	223,000	per mile
	Thin Overlay Cost =	$	746,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$271,835.76	Microsurface	$279,205.80	0.6756	$188,621.43
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$331,366.27	Microsurface	$340,350.31	0.4564	$155,331.44
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$1,351,275.74	Thin Overlay	$1,362,227.23	0.3083	$420,000.09
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$492,392.84	Microsurface	$505,742.65	0.2083	$105,340.65
				Total Present Worth/Mile =		**$1,020,591.75**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

7-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	223,000	per mile
	Thin Overlay Cost =	$	746,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$271,835.76	Microsurface	$279,205.80	0.6756	$188,621.43
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$1,108,516.76	Thin Overlay	$1,117,500.80	0.4564	$510,012.78
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$403,933.63	Microsurface	$414,885.13	0.3083	$127,916.83
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$492,392.84	Microsurface	$505,742.65	0.2083	$105,340.65
				Total Present Worth/Mile =		$1,083,189.83

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

7-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	223,000	per mile
	Thin Overlay Cost =	$	746,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$909,369.84	Thin Overlay	$916,739.88	0.6756	$619,316.61
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$331,366.27	Microsurface	$340,350.31	0.4564	$155,331.44
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$403,933.63	Microsurface	$414,885.13	0.3083	$127,916.83
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$1,647,197.59	Thin Overlay	$1,660,547.40	0.2083	$345,873.83
				Total Present Worth/Mile =		**$1,399,736.86**

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

8-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface	Cost =	$	254,000	per mile
	Thin Overlay	Cost =	$	850,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$309,624.58	Microsurface	$316,994.62	0.6756	$214,150.21
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$377,430.64	Microsurface	$386,414.68	0.4564	$176,354.61
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$1,539,657.35	Thin Overlay	$1,550,608.84	0.3083	$478,081.65
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$560,842.07	Microsurface	$574,191.88	0.2083	$119,597.88
				Total Present Worth/Mile =		$1,139,482.50

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

8-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	254,000	per mile
	Thin Overlay Cost =	$	850,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$309,624.58	Microsurface	$316,994.62	0.6756	$214,150.21
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$1,263,055.29	Thin Overlay	$1,272,039.32	0.4564	$580,542.14
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$460,085.84	Microsurface	$471,037.33	0.3083	$145,229.60
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$560,842.07	Microsurface	$574,191.88	0.2083	$119,597.88
				Total Present Worth/Mile =		$1,210,817.98

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

8-Lane Composite Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Microsurface Cost =	$	254,000	per mile
	Thin Overlay Cost =	$	850,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$1,036,145.26	Thin Overlay	$1,043,515.30	0.6756	$704,961.54
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$377,430.64	Microsurface	$386,414.68	0.4564	$176,354.61
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$460,085.84	Microsurface	$471,037.33	0.3083	$145,229.60
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$1,876,833.71	Thin Overlay	$1,890,183.52	0.2083	$393,704.52
				Total Present Worth/Mile =		**$1,571,548.43**

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

2-Lane JCP Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$	25,000	per mile
	Minor Rehab	Cost =	$	112,000	per mile
	Major Rehab	Cost =	$	314,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$30,474.86	Seal Joints/Cracks	$37,844.90	0.6756	$25,566.66
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$37,148.68	Seal Joints/Cracks	$46,132.72	0.4564	$21,054.37
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$45,284.04	Seal Joints/Cracks	$56,235.53	0.3083	$17,338.46
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$693,324.45	Major Rehab	$706,674.26	0.2083	$147,192.51
				Total Present Worth/Mile =		**$362,450.15**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

2-Lane JCP Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 25,000	per mile
	Minor Rehab	Cost =	$ 112,000	per mile
	Major Rehab	Cost =	$ 314,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$30,474.86	Seal Joints/Cracks	$37,844.90	0.6756	$25,566.66
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$37,148.68	Seal Joints/Cracks	$46,132.72	0.4564	$21,054.37
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$568,767.54	Major Rehab	$579,719.03	0.3083	$178,738.20
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$55,200.99	Seal Joints/Cracks	$68,550.80	0.2083	$14,278.38
				Total Present Worth/Mile =		$390,935.76

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

2-Lane JCP Arterial/Collector/Local Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 25,000	per mile
	Minor Rehab	Cost =	$ 112,000	per mile
	Major Rehab	Cost =	$ 314,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$30,474.86	Seal Joints/Cracks	$37,844.90	0.6756	$25,566.66
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$466,587.48	Major Rehab	$475,571.52	0.4564	$217,044.63
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$45,284.04	Seal Joints/Cracks	$56,235.53	0.3083	$17,338.46
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$247,300.44	Minor Rehab	$260,650.25	0.2083	$54,290.59
				Total Present Worth/Mile =		**$465,538.49**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

3-Lane JCP Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks Cost =	$	37,000	per mile
	Minor Rehab Cost =	$	164,000	per mile
	Major Rehab Cost =	$	463,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$45,102.79	Seal Joints/Cracks	$52,472.83	0.6756	$35,448.77
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$54,980.05	Seal Joints/Cracks	$63,964.09	0.4564	$29,192.38
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$67,020.38	Seal Joints/Cracks	$77,971.87	0.3083	$24,040.18
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$1,022,322.36	Major Rehab	$1,035,672.17	0.2083	$215,719.17
				Total Present Worth/Mile =		$455,698.64

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

3-Lane JCP Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$	37,000	per mile
	Minor Rehab	Cost =	$	164,000	per mile
	Major Rehab	Cost =	$	463,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$45,102.79	Seal Joints/Cracks	$52,472.83	0.6756	$35,448.77
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$54,980.05	Seal Joints/Cracks	$63,964.09	0.4564	$29,192.38
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$838,660.41	Major Rehab	$849,611.91	0.3083	$261,951.21
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$81,697.47	Seal Joints/Cracks	$95,047.28	0.2083	$19,797.31
				Total Present Worth/Mile =		**$497,687.80**

Approved: Eric Kalivoda, Deputy Secretary

Date: 4/2/19

3-Lane JCP Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$	37,000	per mile
	Minor Rehab	Cost =	$	164,000	per mile
	Major Rehab	Cost =	$	463,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$45,102.79	Seal Joints/Cracks	$52,472.83	0.6756	$35,448.77
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$687,993.64	Major Rehab	$696,977.68	0.4564	$318,091.52
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$67,020.38	Seal Joints/Cracks	$77,971.87	0.3083	$24,040.18
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$362,118.50	Minor Rehab	$375,468.31	0.2083	$78,205.94
				Total Present Worth/Mile =		**$607,084.55**

Approved: Eric Kalivoda, Deputy Secretary

Date: 4/2/19

4-Lane JCP Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 49,000	per mile
	Minor Rehab	Cost =	$ 216,000	per mile
	Major Rehab	Cost =	$ 612,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$59,730.73	Seal Joints/Cracks	$67,100.77	0.6756	$45,330.87
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$72,811.42	Seal Joints/Cracks	$81,795.46	0.4564	$37,330.38
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$88,756.72	Seal Joints/Cracks	$99,708.21	0.3083	$30,741.90
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$1,351,320.27	Major Rehab	$1,364,670.08	0.2083	$284,245.83
				Total Present Worth/Mile =		**$548,947.13**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

4-Lane JCP Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

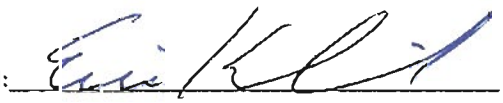
Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$	49,000	per mile
	Minor Rehab	Cost =	$	216,000	per mile
	Major Rehab	Cost =	$	612,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$59,730.73	Seal Joints/Cracks	$67,100.77	0.6756	$45,330.87
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$72,811.42	Seal Joints/Cracks	$81,795.46	0.4564	$37,330.38
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$1,108,553.29	Major Rehab	$1,119,504.78	0.3083	$345,164.22
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$108,193.94	Seal Joints/Cracks	$121,543.75	0.2083	$25,316.23
				Total Present Worth/Mile =		$604,439.85

Approved: 

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

4-Lane JCP Arterial/Collector Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 49,000	per mile
	Minor Rehab	Cost =	$ 216,000	per mile
	Major Rehab	Cost =	$ 612,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$59,730.73	Seal Joints/Cracks	$67,100.77	0.6756	$45,330.87
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$909,399.81	Major Rehab	$918,383.84	0.4564	$419,138.40
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$88,756.72	Seal Joints/Cracks	$99,708.21	0.3083	$30,741.90
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$476,936.57	Minor Rehab	$490,286.38	0.2083	$102,121.28
				Total Present Worth/Mile =		$748,630.60

Approved: Eric Kalivoda, Deputy Secretary

Date: 4/2/19

5-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 61,000	per mile
	Minor Rehab	Cost =	$ 268,000	per mile
	Major Rehab	Cost =	$ 761,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$74,358.66	Seal Joints/Cracks	$81,728.70	0.6756	$55,212.98
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$90,642.79	Seal Joints/Cracks	$99,626.83	0.4564	$45,468.38
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$110,493.06	Seal Joints/Cracks	$121,444.55	0.3083	$37,443.62
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$1,680,318.18	Major Rehab	$1,693,667.99	0.2083	$352,772.49
				Total Present Worth/Mile =		**$642,195.62**

Approved: _____ Date: 4/2/19

Eric Kalivoda, Deputy Secretary

5-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 61,000	per mile
	Minor Rehab	Cost =	$ 268,000	per mile
	Major Rehab	Cost =	$ 761,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$74,358.66	Seal Joints/Cracks	$81,728.70	0.6756	$55,212.98
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$90,642.79	Seal Joints/Cracks	$99,626.83	0.4564	$45,468.38
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$1,378,446.17	Major Rehab	$1,389,397.66	0.3083	$428,377.24
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$134,690.42	Seal Joints/Cracks	$148,040.23	0.2083	$30,835.16
				Total Present Worth/Mile =		$711,191.90

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

5-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks Cost =	$	61,000	per mile
	Minor Rehab Cost =	$	268,000	per mile
	Major Rehab Cost =	$	761,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$74,358.66	Seal Joints/Cracks	$81,728.70	0.6756	$55,212.98
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$1,130,805.97	Major Rehab	$1,139,790.01	0.4564	$520,185.28
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$110,493.06	Seal Joints/Cracks	$121,444.55	0.3083	$37,443.62
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$591,754.63	Minor Rehab	$605,104.44	0.2083	$126,036.63
				Total Present Worth/Mile =		$890,176.65

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

6-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance	Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$	73,000	per mile
	Minor Rehab	Cost =	$	320,000	per mile
	Major Rehab	Cost =	$	910,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$88,986.59	Seal Joints/Cracks	$96,356.63	0.6756	$65,095.09
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$108,474.16	Seal Joints/Cracks	$117,458.20	0.4564	$53,606.39
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$132,229.40	Seal Joints/Cracks	$143,180.89	0.3083	$44,145.34
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$2,009,316.09	Major Rehab	$2,022,665.90	0.2083	$421,299.15
				Total Present Worth/Mile =		$735,444.11

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

6-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks Cost =	$	73,000	per mile
	Minor Rehab Cost =	$	320,000	per mile
	Major Rehab Cost =	$	910,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$88,986.59	Seal Joints/Cracks	$96,356.63	0.6756	$65,095.09
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$108,474.16	Seal Joints/Cracks	$117,458.20	0.4564	$53,606.39
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$1,648,339.04	Major Rehab	$1,659,290.53	0.3083	$511,590.25
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$161,186.90	Seal Joints/Cracks	$174,536.70	0.2083	$36,354.08
				Total Present Worth/Mile =		**$817,943.95**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

6-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance Cost =	$	6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks Cost =	$	73,000	per mile
	Minor Rehab Cost =	$	320,000	per mile
	Major Rehab Cost =	$	910,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$88,986.59	Seal Joints/Cracks	$96,356.63	0.6756	$65,095.09
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$1,352,212.13	Major Rehab	$1,361,196.17	0.4564	$621,232.16
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$132,229.40	Seal Joints/Cracks	$143,180.89	0.3083	$44,145.34
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$706,572.69	Minor Rehab	$719,922.50	0.2083	$149,951.97
				Total Present Worth/Mile =		$1,031,722.71

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

7-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Very Good

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 85,000	per mile
	Minor Rehab	Cost =	$ 372,000	per mile
	Major Rehab	Cost =	$ 1,059,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$103,614.53	Seal Joints/Cracks	$110,984.57	0.6756	$74,977.20
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$126,305.53	Seal Joints/Cracks	$135,289.57	0.4564	$61,744.39
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$153,965.73	Seal Joints/Cracks	$164,917.23	0.3083	$50,847.06
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$2,338,314.00	Major Rehab	$2,351,663.81	0.2083	$489,825.81
				Total Present Worth/Mile =		$828,692.60

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

7-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Good

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 85,000	per mile
	Minor Rehab	Cost =	$ 372,000	per mile
	Major Rehab	Cost =	$ 1,059,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$103,614.53	Seal Joints/Cracks	$110,984.57	0.6756	$74,977.20
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$126,305.53	Seal Joints/Cracks	$135,289.57	0.4564	$61,744.39
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$1,918,231.92	Major Rehab	$1,929,183.41	0.3083	$594,803.26
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$187,683.37	Seal Joints/Cracks	$201,033.18	0.2083	$41,873.01
				Total Present Worth/Mile =		$924,696.00

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

7-Lane JCP Arterial Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Pavement Condition = Fair

Year 0:	Routine Maintenance	Cost =	$ 6,046	per mile (excluding traffic signals maintenance costs)
	Seal Joints/Cracks	Cost =	$ 85,000	per mile
	Minor Rehab	Cost =	$ 372,000	per mile
	Major Rehab	Cost =	$ 1,059,000	per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$6,166.92			$6,166.92	0.9615	$5,929.73
2	$6,290.26			$6,290.26	0.9246	$5,815.70
3	$6,416.06			$6,416.06	0.8890	$5,703.86
4	$6,544.38			$6,544.38	0.8548	$5,594.17
5	$6,675.27			$6,675.27	0.8219	$5,486.59
6	$6,808.78			$6,808.78	0.7903	$5,381.08
7	$6,944.95			$6,944.95	0.7599	$5,277.59
8	$7,083.85			$7,083.85	0.7307	$5,176.10
9	$7,225.53			$7,225.53	0.7026	$5,076.56
10	$7,370.04	$103,614.53	Seal Joints/Cracks	$110,984.57	0.6756	$74,977.20
11	$7,517.44			$7,517.44	0.6496	$4,883.19
12	$7,667.79			$7,667.79	0.6246	$4,789.28
13	$7,821.15			$7,821.15	0.6006	$4,697.18
14	$7,977.57			$7,977.57	0.5775	$4,606.85
15	$8,137.12			$8,137.12	0.5553	$4,518.25
16	$8,299.86			$8,299.86	0.5339	$4,431.36
17	$8,465.86			$8,465.86	0.5134	$4,346.15
18	$8,635.18			$8,635.18	0.4936	$4,262.57
19	$8,807.88			$8,807.88	0.4746	$4,180.59
20	$8,984.04	$1,573,618.29	Major Rehab	$1,582,602.33	0.4564	$722,279.04
21	$9,163.72			$9,163.72	0.4388	$4,021.35
22	$9,346.99			$9,346.99	0.4220	$3,944.01
23	$9,533.93			$9,533.93	0.4057	$3,868.17
24	$9,724.61			$9,724.61	0.3901	$3,793.78
25	$9,919.10			$9,919.10	0.3751	$3,720.82
26	$10,117.49			$10,117.49	0.3607	$3,649.27
27	$10,319.84			$10,319.84	0.3468	$3,579.09
28	$10,526.23			$10,526.23	0.3335	$3,510.26
29	$10,736.76			$10,736.76	0.3207	$3,442.76
30	$10,951.49	$153,965.73	Seal Joints/Cracks	$164,917.23	0.3083	$50,847.06
31	$11,170.52			$11,170.52	0.2965	$3,311.62
32	$11,393.93			$11,393.93	0.2851	$3,247.93
33	$11,621.81			$11,621.81	0.2741	$3,185.47
34	$11,854.25			$11,854.25	0.2636	$3,124.21
35	$12,091.33			$12,091.33	0.2534	$3,064.13
36	$12,333.16			$12,333.16	0.2437	$3,005.21
37	$12,579.82			$12,579.82	0.2343	$2,947.41
38	$12,831.42			$12,831.42	0.2253	$2,890.73
39	$13,088.05			$13,088.05	0.2166	$2,835.14
40	$13,349.81	$821,390.75	Minor Rehab	$834,740.56	0.2083	$173,867.31
				Total Present Worth/Mile =		$1,173,268.76

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

Gravel Road Present Worth Analysis

Route/Control Section/Limits =

Notes:

Inflation = 2%, Discount Rate = 4%

Year 0: Surface Graded

Year 0: Routine Maintenance Cost = $ 8,000 per mile

Year	Routine Maintenance Costs/Mile	Treatment Cost/Mile	Treatment Explanation	Total Cost per Mile	Present Worth Factor	Present Worth of Total Cost per Mile
1	$8,160.00	Included In Routine Cost	Gravel/Grading	$8,160.00	0.9615	$7,846.15
2	$8,323.20	Included In Routine Cost	Gravel/Grading	$8,323.20	0.9246	$7,695.27
3	$8,489.66	Included In Routine Cost	Gravel/Grading	$8,489.66	0.8890	$7,547.28
4	$8,659.46	Included In Routine Cost	Gravel/Grading	$8,659.46	0.8548	$7,402.14
5	$8,832.65	Included In Routine Cost	Gravel/Grading	$8,832.65	0.8219	$7,259.79
6	$9,009.30	Included In Routine Cost	Gravel/Grading	$9,009.30	0.7903	$7,120.18
7	$9,189.49	Included In Routine Cost	Gravel/Grading	$9,189.49	0.7599	$6,983.25
8	$9,373.28	Included In Routine Cost	Gravel/Grading	$9,373.28	0.7307	$6,848.96
9	$9,560.74	Included In Routine Cost	Gravel/Grading	$9,560.74	0.7026	$6,717.25
10	$9,751.96	Included In Routine Cost	Gravel/Grading	$9,751.96	0.6756	$6,588.07
11	$9,946.99	Included In Routine Cost	Gravel/Grading	$9,946.99	0.6496	$6,461.38
12	$10,145.93	Included In Routine Cost	Gravel/Grading	$10,145.93	0.6246	$6,337.12
13	$10,348.85	Included In Routine Cost	Gravel/Grading	$10,348.85	0.6006	$6,215.25
14	$10,555.83	Included In Routine Cost	Gravel/Grading	$10,555.83	0.5775	$6,095.73
15	$10,766.95	Included In Routine Cost	Gravel/Grading	$10,766.95	0.5553	$5,978.50
16	$10,982.29	Included In Routine Cost	Gravel/Grading	$10,982.29	0.5339	$5,863.53
17	$11,201.93	Included In Routine Cost	Gravel/Grading	$11,201.93	0.5134	$5,750.77
18	$11,425.97	Included In Routine Cost	Gravel/Grading	$11,425.97	0.4936	$5,640.18
19	$11,654.49	Included In Routine Cost	Gravel/Grading	$11,654.49	0.4746	$5,531.72
20	$11,887.58	Included In Routine Cost	Gravel/Grading	$11,887.58	0.4564	$5,425.34
21	$12,125.33	Included In Routine Cost	Gravel/Grading	$12,125.33	0.4388	$5,321.00
22	$12,367.84	Included In Routine Cost	Gravel/Grading	$12,367.84	0.4220	$5,218.68
23	$12,615.19	Included In Routine Cost	Gravel/Grading	$12,615.19	0.4057	$5,118.32
24	$12,867.50	Included In Routine Cost	Gravel/Grading	$12,867.50	0.3901	$5,019.89
25	$13,124.85	Included In Routine Cost	Gravel/Grading	$13,124.85	0.3751	$4,923.35
26	$13,387.34	Included In Routine Cost	Gravel/Grading	$13,387.34	0.3607	$4,828.67
27	$13,655.09	Included In Routine Cost	Gravel/Grading	$13,655.09	0.3468	$4,735.81
28	$13,928.19	Included In Routine Cost	Gravel/Grading	$13,928.19	0.3335	$4,644.74
29	$14,206.76	Included In Routine Cost	Gravel/Grading	$14,206.76	0.3207	$4,555.42
30	$14,490.89	Included In Routine Cost	Gravel/Grading	$14,490.89	0.3083	$4,467.81
31	$14,780.71	Included In Routine Cost	Gravel/Grading	$14,780.71	0.2965	$4,381.89
32	$15,076.32	Included In Routine Cost	Gravel/Grading	$15,076.32	0.2851	$4,297.63
33	$15,377.85	Included In Routine Cost	Gravel/Grading	$15,377.85	0.2741	$4,214.98
34	$15,685.41	Included In Routine Cost	Gravel/Grading	$15,685.41	0.2636	$4,133.92
35	$15,999.12	Included In Routine Cost	Gravel/Grading	$15,999.12	0.2534	$4,054.42
36	$16,319.10	Included In Routine Cost	Gravel/Grading	$16,319.10	0.2437	$3,976.45
37	$16,645.48	Included In Routine Cost	Gravel/Grading	$16,645.48	0.2343	$3,899.98
38	$16,978.39	Included In Routine Cost	Gravel/Grading	$16,978.39	0.2253	$3,824.98
39	$17,317.96	Included In Routine Cost	Gravel/Grading	$17,317.96	0.2166	$3,751.43
40	$17,664.32	Included In Routine Cost	Gravel/Grading	$17,664.32	0.2083	$3,679.28
				Total Present Worth/Mile =		$220,356.53

Approved: Eric Kalivoda, Deputy Secretary

Date: 4/2/19

Appendix C: Present Worth Analysis for 40-Year Traffic Signal/ Flashing Beacon Maintenance

Traffic Signal Present Worth Analysis

Route/Control Section/Limits =

Notes: Equipment, including the controller, replaced every 10 years; mast arms replaced in Year 30

Inflation = 2%, Discount Rate = 4%

Year 0:	Annual Maintenance	Cost =	$	2,440
	Signal only	Cost =	$	35,000
	Signal w/ Arm	Cost =	$	77,000

Year	Traffic Signal Maintenance Cost	Equipment Replacement Cost	Total Traffic Signal Cost	Present Worth Factor	Present Worth of Traffic Signal Cost
1	$2,488.80		$2,488.80	0.9615	$2,393.08
2	$2,538.58		$2,538.58	0.9246	$2,347.06
3	$2,589.35		$2,589.35	0.8890	$2,301.92
4	$2,641.13		$2,641.13	0.8548	$2,257.65
5	$2,693.96		$2,693.96	0.8219	$2,214.24
6	$2,747.84		$2,747.84	0.7903	$2,171.65
7	$2,802.79		$2,802.79	0.7599	$2,129.89
8	$2,858.85		$2,858.85	0.7307	$2,088.93
9	$2,916.03		$2,916.03	0.7026	$2,048.76
10	$2,974.35	$42,664.80	$45,639.15	0.6756	$30,832.18
11	$3,033.83		$3,033.83	0.6496	$1,970.72
12	$3,094.51		$3,094.51	0.6246	$1,932.82
13	$3,156.40		$3,156.40	0.6006	$1,895.65
14	$3,219.53		$3,219.53	0.5775	$1,859.20
15	$3,283.92		$3,283.92	0.5553	$1,823.44
16	$3,349.60		$3,349.60	0.5339	$1,788.38
17	$3,416.59		$3,416.59	0.5134	$1,753.99
18	$3,484.92		$3,484.92	0.4936	$1,720.25
19	$3,554.62		$3,554.62	0.4746	$1,687.17
20	$3,625.71	$52,008.16	$55,633.87	0.4564	$25,390.57
21	$3,698.23		$3,698.23	0.4388	$1,622.91
22	$3,772.19		$3,772.19	0.4220	$1,591.70
23	$3,847.63		$3,847.63	0.4057	$1,561.09
24	$3,924.59		$3,924.59	0.3901	$1,531.07
25	$4,003.08		$4,003.08	0.3751	$1,501.62
26	$4,083.14		$4,083.14	0.3607	$1,472.74
27	$4,164.80		$4,164.80	0.3468	$1,444.42
28	$4,248.10		$4,248.10	0.3335	$1,416.65
29	$4,333.06		$4,333.06	0.3207	$1,389.40
30	$4,419.72	$139,474.84	$143,894.56	0.3083	$44,365.38
31	$4,508.12		$4,508.12	0.2965	$1,336.48
32	$4,598.28		$4,598.28	0.2851	$1,310.78
33	$4,690.24		$4,690.24	0.2741	$1,285.57
34	$4,784.05		$4,784.05	0.2636	$1,260.85
35	$4,879.73		$4,879.73	0.2534	$1,236.60
36	$4,977.33		$4,977.33	0.2437	$1,212.82
37	$5,076.87		$5,076.87	0.2343	$1,189.50
38	$5,178.41		$5,178.41	0.2253	$1,166.62
39	$5,281.98		$5,281.98	0.2166	$1,144.19
40	$5,387.62	$77,281.39	$82,669.01	0.2083	$17,219.05
			Total Present Worth/Traffic Signal =		**$178,866.96**

Approved: Eric Kalivoda

Eric Kalivoda, Deputy Secretary

Date: 4/2/19

Flashing Beacon Present Worth Analysis

Route/Control Section/Limits =

Notes: Equipment replaced every 10 years; mast arms replaced in Year 30

Inflation = 2%, Discount Rate = 4%

Year 0:	Annual Maintenance	Cost =	$	800
	Beacon only	Cost =	$	8,000
	Beacon w/ Arm	Cost =	$	25,000

Year	Flashing Beacon Maintenance Cost	Equipment Replacement Cost	Total Flashing Beacon Cost	Present Worth Factor	Present Worth of Flashing Beacon Cost
1	$816.00		$816.00	0.9615	$784.62
2	$832.32		$832.32	0.9246	$769.53
3	$848.97		$848.97	0.8890	$754.73
4	$865.95		$865.95	0.8548	$740.21
5	$883.26		$883.26	0.8219	$725.98
6	$900.93		$900.93	0.7903	$712.02
7	$918.95		$918.95	0.7599	$698.33
8	$937.33		$937.33	0.7307	$684.90
9	$956.07		$956.07	0.7026	$671.72
10	$975.20	$9,751.96	$10,727.15	0.6756	$7,246.88
11	$994.70		$994.70	0.6496	$646.14
12	$1,014.59		$1,014.59	0.6246	$633.71
13	$1,034.89		$1,034.89	0.6006	$621.53
14	$1,055.58		$1,055.58	0.5775	$609.57
15	$1,076.69		$1,076.69	0.5553	$597.85
16	$1,098.23		$1,098.23	0.5339	$586.35
17	$1,120.19		$1,120.19	0.5134	$575.08
18	$1,142.60		$1,142.60	0.4936	$564.02
19	$1,165.45		$1,165.45	0.4746	$553.17
20	$1,188.76	$11,887.58	$13,076.34	0.4564	$5,967.87
21	$1,212.53		$1,212.53	0.4388	$532.10
22	$1,236.78		$1,236.78	0.4220	$521.87
23	$1,261.52		$1,261.52	0.4057	$511.83
24	$1,286.75		$1,286.75	0.3901	$501.99
25	$1,312.48		$1,312.48	0.3751	$492.34
26	$1,338.73		$1,338.73	0.3607	$482.87
27	$1,365.51		$1,365.51	0.3468	$473.58
28	$1,392.82		$1,392.82	0.3335	$464.47
29	$1,420.68		$1,420.68	0.3207	$455.54
30	$1,449.09	$45,284.04	$46,733.13	0.3083	$14,408.70
31	$1,478.07		$1,478.07	0.2965	$438.19
32	$1,507.63		$1,507.63	0.2851	$429.76
33	$1,537.79		$1,537.79	0.2741	$421.50
34	$1,568.54		$1,568.54	0.2636	$413.39
35	$1,599.91		$1,599.91	0.2534	$405.44
36	$1,631.91		$1,631.91	0.2437	$397.65
37	$1,664.55		$1,664.55	0.2343	$390.00
38	$1,697.84		$1,697.84	0.2253	$382.50
39	$1,731.80		$1,731.80	0.2166	$375.14
40	$1,766.43	$17,664.32	$19,430.75	0.2083	$4,047.21
			Total Present Worth/Flashing Beacon =		$51,690.26

Approved: Eric Kalivoda, Deputy Secretary

Date: 4/23/19

Appendix D

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT OFFICE OF HIGHWAYS		**EDSM No: I.1.1.27**
ENGINEERING DIRECTIVES AND STANDARDS		
VOLUME	**I**	**Issue Date: April 17, 2013**
CHAPTER	**1**	**Subject:**
SECTION	**1**	**ROAD TRANSFER PROGRAM**
DIRECTIVE	**27**	

1. Purpose:

This directive establishes a uniform policy to transfer the ownership of state route segments to local governments in response to their request to the Department and in compensation for the Department agreeing to provide specified valuable and equitable considerations such as improvements to state route segments as a condition of the transfer of ownership.

2. Scope:

The transfer of ownership of state route segments in compensation for the Department providing specified valuable and equitable considerations in exchange is governed by this policy, EDSM I.1.1.10 and EDSM I.1.1.19 where applicable. However, when a portion of the specified value provided by the Department or the local government includes the transfer of funds, a cooperative endeavor agreement not governed by this policy is required.

3. Policy:

The transfer of ownership of state route segments to local governments that are deemed not to be consistent with the mission of the state highway system shall be conducted according to the procedures established herein. However, it shall not violate the requirements of LRS 48:191, LRS 48:192, LRS 48:221, LRS 48:224 and LRS 48:224.1; or any other state law, or the Executive Order for cooperative endeavor agreements according to Article VII, Section 14, Subsection C of the Louisiana Constitution.

4. Objective:

This policy provides the Department with the basis and a method to consistently negotiate, process, and execute binding agreements on behalf of the State of Louisiana with local governments to transfer to the local governments the ownership of state route segments deemed not consistent with the mission of the state highway system. The state's role in transportation, particularly the highway system, is to ensure that Louisiana is connected with the rest of the country and the world;

provide for the movement of people, goods, and services between and through urban areas; and maintain a basic farm-to-market network in the rural area.

The Department's goal is to reduce the size of the State Highway System to a core network of 12,000 miles or less, in part by facilitating local governments to agree to accept the transfer of ownership of the remaining state route segments in compensation for the Department providing mutually agreed to valuable and equitable considerations as a condition of the transfer.

5. Procedure:

Proposed transfers of state route segments to local governments in compensation for the Department providing specified valuable and equitable considerations in exchange and initiated by the local governments will be processed by the Department as follows:

5.1 The District will facilitate and receive proposals from the governing bodies of local governments to accept the transfer of ownership of certain state route segments in exchange for valuable and equitable considerations to be provided by the Department as a condition of the transfer of ownership. The District will provide the proposal to the Office of Multimodal Planning for consideration. The District will prepare and submit an estimate of quantities and cost for the proposed improvements to the state highway system as a condition of the transfer of ownership, an evaluation of the feasibility and equity of the proposal, and a recommendation regarding its acceptability.

5.2 The Office of Multimodal Planning will determine if the proposed state route segment functions appropriately as roads typically owned by local governments or if it better serves the mission of the State Highway System and thereby if it is appropriate or not for it to remain on the State Highway System. If the Office of Multimodal Planning concludes that it is appropriate to transfer the ownership of the proposed state route segment to the local government and that the specified compensation requested is equitable, it will develop a form of resolution and draft cooperative endeavor agreement acceptable to the Department that describes the proposed transfer and its conditions, and submit it to the District with the following notifications as may be required to:

5.2.1 Prepare and submit an estimate of the quantities and cost for the proposed improvements to the state route segments as a condition of the transfer of ownership.

5.2.1.1 The estimate should typically be for the treatment recommended by the Department's pavement management system subject to field verification by the District.

5.2.1.2 In the event significant truck traffic is expected, the design of the improvements should appropriately reflect the truck traffic to be sustained.

5.2.1.3 If there is a feasible bypass for the expected truck traffic onto adjacent state routes, the placement of regulatory signs restricting truck traffic on the route segment may be considered if the local government agrees and requests such signs.

5.2.2 Develop an equity analysis as may be necessary based on a present value analysis using a 40 year period, a 2% inflation rate, and a 4% discount rate applied to routine maintenance treatments and operations expected over the 40 year period to estimate costs, including traffic signal costs, pavement management system treatment costs and bridge management system bridge specific treatment costs.

5.2.3 Provide a recommendation concerning the evaluation of the feasibility and equity of the transfer of ownership of the state route segment and any other specified considerations.

5.2.4 Negotiate and expedite the adoption of a resolution and the execution of a cooperative endeavor agreement by the governing body of the local government that is a mutually satisfactory and equitable exchange of value and similar to the form of resolution and draft cooperative endeavor agreement appended hereto.

5.3 The Office of Multimodal Planning will review the contents of the resolution and cooperative endeavor agreement adopted by the governing body of the local government agreeing to accept the transfer of ownership for acceptability to the Department and provide a recommendation to the Secretary with concurring correspondence for the Secretary's signature. The Secretary may either accept or decline the resolution. If the Secretary accepts the resolution, the cooperative endeavor agreement shall be executed by the Department as a binding agreement between the State and the local government, and an original of the cooperative endeavor agreement shall be delivered by hand, receipted for, or by certified mail to the local government, and the Office of Multimodal Planning will provide the District with a copy of the conformed agreement. The District may then seek and secure a funding source through the Office of Multimodal Planning and develop plans and specifications that reflect the conditions of the agreement.

5.4 When the conditions of the agreement are believed to have been met, the District will obtain the concurrence of the local government and request the Real Estate Section to process an act of transfer and acceptance to transfer the ownership of the state route segment according to the agreement.

5.5 The Real Estate Section will process the act of transfer and acceptance and perform the portion of the following process deemed necessary to extinguish the Department's ownership of – and the associated liabilities for – the state route segment:

5.5.1 Secure concurrence for the reduction of right of way from the FHWA when appropriate.

5.5.2 Provide notification to public utilities and other holders of recorded right of way agreements or permits affected by the transfer and to each member of the State Legislature in whose district the transfer is located.

5.5.3 Prepare and execute an act of transfer and acceptance between the State and the local government for the transfer of ownership of the state route segment to the local government that is consistent with the agreement that includes the resolution adopted by the governing body of the local government and its acceptance by the Secretary, and the executed cooperative endeavor agreement.

5.5.4 Record or cause to be recorded the act of transfer and acceptance in the office of the appropriate parish clerk of court.

6. Responsibility:

6.1 The District will serve as the principal point of contact between the local governments and the Department. The District will inform the local governments in their region about the road transfer program. The District will facilitate and receive proposals from the local governments to accept the transfer of ownership of state route segments. The District will evaluate a proposal made by a local government and develop a recommendation regarding its feasibility and equity. If a proposal is considered feasible, the District will submit its recommendation to the Office of Multimodal Planning, and if approved, the District will prepare a form of resolution and draft cooperative endeavor agreement acceptable to the Department. The form of resolution and draft cooperative endeavor agreement will consist of forms similar in content to the appended forms. The District will present the form of resolution and cooperative endeavor agreement to the governing body of the local government for its consideration. The District will seek and secure a funding source through the Office of Multimodal Planning and develop plans and specifications that reflect the conditions of the agreement between the State and the local government. The District will administer the construction contract as may be necessary, and when the conditions of the agreement are believed to have been met, seek the concurrence of the local government and request the Real Estate Section to proceed with the act of transfer and acceptance.

6.2 The Office of Multimodal Planning will attempt to expedite the review of proposed agreements to transfer the ownership of state route segments to local governments. The Office of Multimodal Planning will serve as a repository for executed agreements and will revise and maintain the current description of the state highway system reflecting the resulting change caused by the transfer ownership of a state route segment to a local government.

6.3 The Secretary may decline or accept, on behalf of the State, the resolution and cooperative endeavor agreement adopted by the governing body of the local government proposing to accept the transfer of ownership of a state route segment once the specified conditions are met. The cooperative endeavor agreement, executed by the Secretary and by the authorized executive officer of the local government as specified in the adopted resolution, forms a binding agreement between the local government and the State.

6.4 The Real Estate Section will prepare the act of transfer and acceptance to transfer ownership of the state route segment to the local government according to the agreement, record or cause to be recorded, the act of transfer and acceptance in the conveyance records in the office of the appropriate parish clerk of court, and transmit copies of the recorded act to the following units of the Department; the District where the transferred segment is located, Road Design Section, Data Collection and Analysis Section, Contract Services Section, and Traffic Engineering Development Section.

RICHARD L. SAVOIE
CHIEF ENGINEER

Resolution

WHEREAS, The [insert the full name of governing authority for Entity, i.e., ********* Parish Police Jury/City Council/Town/etc.] agrees to accept ownership of whatever rights the State of Louisiana, through the Department of Transportation and Development (Department), may own in and to the following described property and agrees to accept all future rights, obligations and liabilities, including, but not limited to, all future operation, maintenance, and repairs associated therewith, for its operation and maintenance as a parish/city/town road, subject to the conditions stated herein below:

[Insert description of all state route segments to be transferred to the Parish/City/Town. THIS WILL BE THE SAME AS THE PROPERTY DESCRIPTIONS IN THE CEA]
For example:

> The portion of state route LA 1064 known as River Road from its northeast intersection with state route LA 443 known as Morris Road proceeding southeast approximately 4.83 miles to its intersection with state route US 190.

[INSERT THE DESCRIPTION OF LOCAL ROUTES THAT WILL BE TRANSFERRED BACK TO THE ENTITY AFTER IMPROVEMENT, IF APPLICABLE.]
For Example:

> Upon satisfaction of Condition # herein below, Lee's Landing Road (former LA 445) from its intersection with state route LA 22 proceeding south approximately 2.74 miles to its terminus at Lee's Landing boat launching facility.

The [insert the full name of governing authority] agrees to accept ownership of whatever rights the Department may own in and to the aforesaid described property if and only when the Department completes the following:

> [Use the following only as a guide/example; each agreement will be different, but all "conditions" concerning the work DOTD will perform, as well as the provision of road transfer credits, must be included. This is the substance and main object of the agreement, so care should be taken to be very clear and specific. THIS WILL BE THE SAME AS THE CONDITIONS IN THE CEA.]
>
> CONDITION I: Provide repairs to include [insert a detailed description here of the work that will be done on the state segment to be transferred] for the portion of state route LA **** to be transferred to the Parish/City/Town and according to the plans and specifications for state project H.0******.
>
> CONDITION II: Provide $******.00 in road transfer credit for the portion of state route

LA **** to be transferred to Parish/City/Town to be applied to the aforesaid improvements in Conditions # and # with any remaining balance of the road transfer credit to be applied to additional improvements along state route LA **** in ********** Parish/City/Town as mutually agreed to by the Department and the [insert the full name of governing authority].

[THE FOLLOWING PARAGRAPH IS ONLY TO BE INCLUDED FOR TRANSFERS WHERE DOTD IS TEMPORARILY TAKING A LOCAL ROAD INTO ITS SYSTEM TO MAKE IMPROVEMENTS, AND THEN RETURNING SAME TO THE ENTITY]

CONDITION III: DOTD shall take into the state highway system and provide repairs to include *****(cold planning, cement treated base, etc.) to [specify roadway portion/segment to be improved]

[Use the following for any additional work on state routes applying any remaining balance of the above road transfer credit after all other conditions are met.]

CONDITION IV: [Insert description of the work to be performed and where, similar to Condition I, above], not to exceed the balance remaining of the $******.00 unused by the performance of Condition(s) III, etc. [and as appropriate] herein above.

BE IT RESOLVED, That the [insert the full name of governing authority] shall accept ownership of whatever rights the Department may own in and to the aforesaid described property as a binding agreement between the Department and the [insert the full name of governing authority], provided the Department complies with the conditions stated herein.

BE IT FURTHER RESOLVED That the [insert the full name of governing authority] authorizes the [title of executive officer of Entity] of the [insert the full name of governing authority] to execute a Cooperative Endeavor Agreement between the Department and the [insert the full name of governing authority] memorializing the agreement between the parties relative to the above stated property transfers.

BE IT FURTHER RESOLVED, That the [insert the full name of governing authority] authorizes the [title of executive officer of Entity] of the [insert the full name of governing authority] to execute any and all documents necessary to effect the transfer of the aforesaid described property upon the satisfaction of the above stated conditions, each such transfer to occur and the appropriate documents to be executed upon the completion of the improvements thereto as set forth herein above.

BE IT FURTHER RESOLVED That the [insert the full name of governing authority] hereby represents that it has received approval from a majority of the state legislative delegation from ********** Parish of the actions contemplated herein.

On motion by _____ and seconded by _____, the above and foregoing resolution was declared duly adopted on this, the _____ day of _____ , 201__.

_____ _____

[Name and title of executive officer of Entity] , Secretary-Treasurer

[insert the full name of governing authority] [insert the full name of governing authority]

I hereby certify that the above and aforementioned resolution was adopted by the [insert the full name of governing authority] in regular session convened on _____, 201__ at which a quorum was present, given under my signature and seal of office this _____ day of _____, 201__.

_____

Secretary-Treasurer

INTERGOVERNMENTAL COOPERATIVE ENDEAVOR AGREEMENT
between the
STATE OF LOUISIANA
through the
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
and
********** PARISH/CITY/TOWN**
Routes LA ** and LA ****

This **COOPERATIVE ENDEAVOR AGREEMENT** ("Agreement"), is made and entered into this _____day of _____, 201__, in duplicate originals, by and between the State of Louisiana, through the Department of Transportation and Development (DOTD), represented herein by its Secretary, and the Parish/City/Town of ********** (sometimes referred to hereinafter as "Entity"), a political subdivision of the State of Louisiana, represented herein by its Parish President/Mayor/etc., for the public purposes hereinafter declared.

WITNESSETH:

WHEREAS, Article VII, Section 14(C) of the Constitution of the State of Louisiana provides that, "[f]or a public purpose, the state and its political subdivisions or political corporations may engage in cooperative endeavors with each other, with the United States or its agencies, or with any public or private association, corporation, or individual;" and

WHEREAS, the actions and agreements provided for herein promote greater efficiency in the performance of DOTD's mandated functions, as set forth in La. R.S. 48:21, *et seq.*, and La. R.S. 48:191 – 193, in particular; and

WHEREAS, in an effort to reduce the size of the state highway system, rectify inequities in the distribution of state highway miles among parishes, and empower local governments through the "right-sizing" of the state highway system and in further compliance with La. R.S. 48:191; and

WHEREAS, the Parish/City/Town of ********** wishes to cooperate with DOTD in its aforesaid effort and to participate in DOTD's voluntary road transfer program, under the terms and conditions as set forth herein below; and

WHEREAS, the Entity and its Parish President/Mayor/Etc., by resolving to and entering into this Agreement, hereby request the proposed transfer of the ownership, operation, and maintenance of certain property, as set forth herein below, and pursuant to Resolution Number _____ authorizing the Entity to enter into this Agreement with DOTD for the transfer of said property, a copy of which is attached hereto and made a part hereof by reference as Exhibit "A", which Resolution evidences the Entity's willingness to accept same as a binding agreement pursuant to La. R.S. 48:224.1; and

WHEREAS, by entering into this Agreement, the Secretary accepts the provisions of Resolution No. _____ [insert same resolution number as above] in accordance with La. R.S. 48:224.1; and

WHEREAS, as part of said transfer, DOTD desires to relinquish ownership of whatever rights it has, with the exception of any and all mineral rights, in and to certain property, as set forth herein below, in favor of Entity; and

[THE FOLLOWING PARAGRAPH IS ONLY TO BE INCLUDED FOR TRANSFERS WHERE DOTD IS TEMPORARILY TAKING A LOCAL ROAD INTO ITS SYSTEM TO MAKE IMPROVEMENTS, AND THEN RETURNING SAME TO THE ENTITY]

WHEREAS, upon satisfaction of Condition # [INSERT the condition number from below relative to work on the local road to be taken temporarily into the state system] herein below, DOTD further desires to relinquish ownership of whatever rights it has in and to the property consisting of [specify the name, number, limits, approximate length, etc. of **the local road to be taken temporarily into the state system**], in favor of Entity; and

WHEREAS, DOTD has determined that the conditions and requirements for the proposed road transfer are acceptable, that there is equity in the obligations exchanged, that DOTD is receiving an equivalent value in exchange for the proposed road transfer, and that the mission of DOTD and the interests of the citizens of the State of Louisiana are best served by the exchange of rights and obligations contained herein.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties hereto agree as follows:

ARTICLE I
PURPOSE

1.1 The Recitals set forth above are hereby incorporated herein and expressly made a part of this Agreement.

1.2 DOTD agrees that it shall relinquish ownership of whatever rights it has, with the exception of any and all mineral rights, in and to the following described property (hereinafter, "the Property") and all future liabilities, including, but not limited to, all future operation, maintenance, and repairs, associated therewith to the Entity, and the Entity agrees that it shall accept same:

[INSERT DESCRIPTION OF ALL STATE ROUTE SEGMENTS TO BE TRANSFERRED TO PARISH. THIS WILL BE THE SAME AS THE PROPERTY DESCRIPTIONS IN THE RESOLUTION.]

For example:

Segment 1 – The portion of state route LA [Identify each segment of road by route

number (and name, if available) and specify the limits of the segment of roadway to be transferred to Entity, Including any to be taken temporarily into the state system for repairs/improvements.]

Segment 2 – [Same as above if more than one segment/road being transferred]

[THE FOLLOWING PARAGRAPH IS ONLY TO BE INCLUDED FOR TRANSFERS WHERE DOTD IS TEMPORARILY TAKING A **LOCAL ROAD** INTO ITS SYSTEM TO MAKE IMPROVEMENTS, AND THEN RETURNING SAME TO THE ENTITY]

1.3 DOTD agrees that it shall relinquish ownership of whatever rights it has acquired, or may acquire as a consequence of the performance of its obligations pursuant to this Agreement, in and to the following described property (hereinafter, "the Property") and all future liabilities, including, but not limited to, all future operation, maintenance, and repairs, associated therewith to the Entity, and the Entity agrees that it shall accept same:

[INSERT DESCRIPTION OF ANY/ALL **LOCAL ROUTE SEGMENTS** TO BE TAKEN INTO THE STATE SYSTEM, IMPROVED, THEN RETURNED TO THE ENTITY. THIS WILL BE THE SAME AS THE PROPERTY DESCRIPTIONS IN THE RESOLUTION.]

Segment 3 -- (Continue numeration of segments from above.)

ARTICLE II
RESPONSIBILITIES OF THE PARTIES

2.1 Responsibilities of DOTD

2.1.1 DOTD hereby agrees, at the proper time and under the conditions specified herein, to transfer ownership of each of the above described segments of the Property by executing for each an Act of Transfer and Acceptance transferring the Property; and DOTD shall record each of the said Acts of Transfer and Acceptance in the conveyance records for the Parish of **********, State of Louisiana, and shall provide Entity with a certified copy of same.

2.1.2 DOTD hereby agrees to the following conditions:

[Use the following only as a guide/examples; each agreement will be different, but all "conditions" concerning the work DOTD will perform, as well as the provision of road transfer credits, must be included. This is the substance and a main object of the agreement for the local entities, so care should be taken to be very clear and specific. THIS WILL BE THE SAME AS THE CONDITIONS IN THE RESOLUTION.]

CONDITION I: Provide repairs to include [insert a detailed description here of the work that will be done on the state segment to be transferred] for the portion of state route LA **** to be transferred to the Parish/City/Town and according to the plans and specifications for state project H.0******.

CONDITION II: Provide $******.00 in road transfer credit for the portion of the state route LA **** to be transferred to ********** Parish/City/Town to be applied to the aforesaid improvements in Conditions # and # with any remaining balance of the road transfer credit to be applied to additional improvements along state route LA **** in ********** Parish/City/Town as mutually agreed to by the parties hereto.

[THE FOLLOWING PARAGRAPH IS ONLY TO BE INCLUDED FOR TRANSFERS WHERE DOTD IS TEMPORARILY TAKING A LOCAL ROAD INTO ITS SYSTEM TO MAKE IMPROVEMENTS, AND THEN RETURNING SAME TO THE ENTITY]

CONDITION III: DOTD shall take into the state highway system and provide repairs to include ***** (cold planning, cement treated base, etc.) to [specify roadway portion/segment to be improved]

[Use the following for any additional work on state routes for which we are applying any remaining balance of the above road transfer credit after all other conditions are met.]

CONDITION IV: [Insert description of the work to be performed and where, similar to Condition I, above], not to exceed the balance remaining of the $******.00 unused by the performance of Condition(s) III, etc. [and as appropriate] herein above.

2.2 Responsibilities of Entity

2.2.1 Entity hereby agrees to provide notification to public utilities and other holders of recorded right-of-way agreements or permits affected by the transfers contemplated herein.

2.2.2 Entity represents that it has notified each member of the state legislature in whose district the Property is located; and by execution of this Agreement, Entity further represents it has received approval from a majority of the state legislative delegation from ********** Parish to participate in the road transfers contemplated herein.

2.2.3 Upon issuance of each Final Acceptance by DOTD of the construction projects relative to the satisfaction of the conditions set forth herein above, Entity will execute documents necessary to effectuate the transfer of the ownership of each portion of roadway to be transferred pursuant to this Agreement, and shall accept all future liabilities, including, but not limited to, all future operation, maintenance, and repairs, associated with the ownership, operation and maintenance of the Property described herein above as a Parish/City/Town Route.

2.2.4 Entity hereby agrees that, in the event Entity fails to execute any transfer and acceptance provided for or contemplated by this agreement regarding any portion of roadway owned by Entity prior to the term of this Agreement that is taken into the state highway system pursuant to this Agreement, said portion of roadway shall revert back to Entity in full ownership and as part of Entity's system of roads upon completion and Final Acceptance of any work of repair or improvement contained in any Condition herein above relative to said portion of roadway.

ARTICLE III
TERM

This Agreement shall commence on the date first written above and shall remain in effect until all obligations contained herein have been performed.

ARTICLE IV
TERMINATION

The DOTD or the Entity may terminate this Agreement for cause based upon the failure of the other party to comply with the terms and conditions of the Agreement, provided that the party wishing to terminate shall give the other party written notice specifying the other party's failure. If within thirty (30) days after receipt of such notice, the other party shall not have either corrected such failure or thereafter proceeded diligently to complete such correction, then the party wishing to terminate the Agreement may, at its option, place the other party in default, and the Agreement shall terminate on the date specified in such notice.

ARTICLE V
OWNERSHIP OF DOCUMENTS

All records, reports, documents and other material delivered or transmitted to the Entity by the DOTD shall remain the property of the DOTD and shall be returned by the Entity to the DOTD, at the Entity's expense, at termination or expiration of this Agreement.

ARTICLE VI
ASSIGNMENTS

Neither party may assign any interest in this Agreement by assignment, transfer, or novation, without prior written consent of the other party.

ARTICLE VII
AUDITORS

It is hereby understood and agreed that the Legislative Auditor of the State of Louisiana and/or the Office of the Governor, Division of Administration, auditors shall have the option of auditing all accounts of the Entity and the DOTD that relate to this Agreement. The Entity shall be audited in accordance with La. R.S. 24:513.

ARTICLE VIII
FISCAL FUNDING AND APPROVAL CONTINGENCIES

The continuation of this Agreement is contingent upon the appropriation of funds to fulfill the requirements of the Agreement by the Legislature. If the Legislature fails to appropriate sufficient monies to provide for the continuation of the Agreement, or if such appropriation is reduced by veto of the Governor or by any means provided in the appropriations act to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the Agreement, the Agreement shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated.

ARTICLE IX
INDEMNIFICATION/INSURANCE

The Entity shall indemnify and save harmless DOTD against any and all claims, losses, liabilities, demands, suits, causes of action, damages, and judgments of sums of money growing out of, resulting from, or by reason of any act or omission of the Entity, its agents, servants, independent contractors, or employees while engaged in, about, or in connection with the discharge or performance of the terms of this Agreement. Such indemnification shall include the DOTD fees and costs of litigation, including, but not limited to, reasonable attorney's fees.

ARTICLE X
DISCRIMINATION CLAUSE

10.1 The parties agree to abide by the requirements of the following as applicable: Titles VI and Title VII of the Civil Rights Act of 1964, as amended; the Equal Opportunity Act of 1972, as amended; Federal Executive Order 11246, as amended; the Rehabilitation Act of 1973, as amended; the Vietnam Era Veteran's Readjustment Assistance Act of 1974; Title IX of the Education Amendments of 1972; the Age Discrimination Act of 1975; the Americans with Disabilities Act of 1990, as amended, and Title II of the Genetic Information Nondiscrimination Act of 2008.

10.2 The parties agree not to discriminate in employment practices, and shall render services under this contract without regard to race, color, age, religion, gender, national origin, veteran status, genetic information, political affiliation, or disabilities.

10.3 Any act of discrimination committed by either party, or failure to comply with these statutory obligations, when applicable, shall be grounds for termination of this Agreement.

ARTICLE XI
SEVERABILITY

If any term, covenant, condition, or provision of this Agreement or the application thereof to any person or circumstances shall, at any time or to any extent, be invalid or unenforceable, the remainder of this Agreement, or the application of such term, covenant, condition or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term, covenant, condition, and provision of this Agreement shall be valid and be enforced to the fullest extent of the law.

ARTICLE XII
ENTIRE AGREEMENT/MODIFICATIONS

This Agreement, including any attachments that are expressly referred to in this Agreement, contains the entire agreement between the parties and supersedes any and all agreements or contracts previously entered into between the parties on the same subject matter. No representations were made or relied upon by either party, other than those that are expressly set forth herein. Any modification or amendment of this Agreement shall be valid only when it has been reduced to writing, executed by both parties and approved by the Director of the Office of Contractual Review, Division of Administration.

ARTICLE XIII
CONTROLLING LAW, LEGAL COMPLIANCE AND VENUE

13.1 The validity, interpretation, and performance of this Agreement shall be controlled by and construed in accordance with the laws of the State of Louisiana. In the event of default by either party, the aggrieved party shall have all rights granted by the general laws of the State of Louisiana.

13.2 DOTD and the Entity shall comply with all applicable federal, state, and local laws and regulations, including, specifically, the Louisiana Code of Government Ethics (LSA-R.S. 42:1101, *et seq*.) in carrying out the provisions of this Agreement.

13.3 The exclusive venue for any suit arising out of this Agreement shall be in the Nineteenth Judicial District Court for the Parish of East Baton Rouge, State of Louisiana.

IN WITNESS WHEREOF, the parties have executed this Agreement on the day, month and year first written above.

WITNESSES:

_____
(Witness for First Party)

_____
(Witness for First Party)

NAME OF PARISH/CITY/TOWN

By: _____
***** President/Mayor/etc., as appropriate

WITNESSES:

_____
(Witness for Second Party)

_____
(Witness for Second Party)

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

By: _____
Secretary

RECOMMENDED FOR APPROVAL

By: _____
Division Head