Appendix B: BCA Technical Memorandum

PROJECT SUMMARY

The Benefit Cost Analysis (BCA) for the I-35 at SH 9 Interchange Improvements in northern McClain County, Oklahoma evaluates the impact of additional capacity for southbound I-35 mainlines as well as an additional southbound exit ramp to add capacity to the I-35 at SH 9 interchange and promote private development in the area. Over a 20-year period, the $18,370,700 investment will result in a benefit cost (B/C) ratio of 3.86. The B/C ratio is based on net present value of benefits at $49,277,489 and a net present value cost of $12,776,113.

Current Infrastructure Baseline: The current infrastructure baseline for the project area includes a congested single lane exit ramp from southbound I-35 to westbound SH-9 and two southbound I-35 main lanes under the existing SH 9.

Project Description: The proposed project provides for an additional southbound I-35 main lane for approximately 7,500 feet adjacent to the subject interchange (three southbound main lanes), an additional southbound I-35 exit ramp for added capacity, and roadway modifications to SH 9 to improve traffic operations/flow.

Project Justification and Long-Term Outcomes: This project will improve safety and traffic flow through the interchange and on the I-35 main lanes. The existing southbound I-35 exit ramp at SH 9 routinely forms a queue up to one mile on I-35 main lanes causing significant safety concerns, which is reflected in the existing crash history.

Projected Users and Economic Impacts: The interchange improvements will provide the following:

- Improved safety on southbound I-35 main lanes by removing exit ramp backups from SH 9 onto the southbound I-35 mainline. This will be accomplished by improving SH 9 (traffic signal spacing) and adding a second southbound I-35 exit ramp further downstream to provide additional capacity.
- Improved travel times and decreased congestion for local and regional traffic on I-35 and SH 9.
- Increased access to private developments and developable land near the interchange.

IDENTIFICATION OF PROJECT COSTS

The total capital BUILD project cost for the I-35 at SH 9 Interchange Improvements project is forecasted to be $18,370,700. It should be noted that this estimate includes total project delivery costs (construction, design, survey, environmental analysis, material testing, ROW acquisition, and other project management costs). The project extents are along southbound I-35 from the Canadian River bridge north of the subject interchange past the subject interchange to the south (approximately 7,500' total). The project also includes modifications to SH 9, S Harvey Street, NW 12th Avenue, and a new county road west of the subject interchange for improved local access and traffic operations.

TABLE A-1: IDENTIFICATION OF PROJECT COSTS

Facility	Project Limits	Length (LF)	Projected Capital Cost
Southbound I-35, SH 9, S Harvey Street, NW 12th Avenue, and Proposed County Road	Adjacent to the I-35 at SH-9 Interchange	7,500'	$18,370,700
		Project Cost Total	**$18,370,700**

Table A-2 provides a summary of the project cost including the Net Present Value (NPV) based on a discount rate of 7%.

TABLE A-2: PROJECT COST WITH NET PRESENT VALUE

Year	Percent Project Cost Paid	Project Cost (NPV)
2019	5%	$ 749,798
2020	10%	$ 1,401,492
2021	35%	$ 4,584,319
2022	40%	$ 4,896,469
2023	10%	$ 1,144,035
Total	100%	$ 12,776,113

IDENTIFICATION OF PROJECT BENEFITS

The following project benefits are quantified in the following sections:

- Safety (reduction in the likelihood of severe and fatal crashes)
- State of Good Repair (new and improved roadways will provide vehicle repair savings to motorists)
- Economic Competitiveness (fuel and travel time savings)
- Environmental Protection (emission reduction from delay savings)

BENEFITS: SAFETY

The existing interchange (I-35 at SH 9) experiences significant traffic congestion due to both local and regional traffic. The predominately heavy movement is the southbound I-35 to westbound SH 9 movement. This movement creates significant delay and queuing up to one mile on southbound I-35 main lanes for three main reasons:

- Single lane exit ramp at the southbound I-35 connection to SH 9.
- Close (400 feet) traffic signal spacing on SH 9 creating congestion and progression challenges.
- Southbound I-35 reducing to two main lanes at the Canadian River bridge north of the study interchange.

The queuing on southbound I-35 main lanes and congestion in the area create significant safety concerns. Crash reports were collected for the past 5 years to be evaluated for possible correctable crashes with the addition of a second southbound exit ramp and decreased queuing on southbound I-35 mainline. For the purposes of the analysis, crashes related to speed differentials were summarized; this included rear end crashes, sideswipes, and other crashes that were related to the queuing backups from SH 9.

Using the information contained within the document “Guidance of Treatment of the Economic Value of a Statistical Life in U.S. Department of Transportation Analysis,” the value of statistic life (VSL) is $9.6 million. U.S. Department of Transportation data was also used for the other crash types found in the crash reports (incapacitating, non-incapacitating, possible injury, and no injury).

Based on the interchange improvements, the 5 years of crashes were evaluated to determine the number of crashes that could be corrected due to existing queuing and congestion. The number of future crashes (correctable and non-correctable) as well as the crash types were estimated based on existing crash rates normalized by (average daily traffic) ADT and future forecasted ADTs. Below, **Table A-3** outlines the results of the analysis.

TABLE A-3: SAFETY BENEFITS

Year	ADT on I-35	No Build Scenario									
							Injury Type Per Individual				
		Est. # of Collisions	Est. # of Vehicles	Est. # of People	PDO (Vehicle)	PDO (People)	Pos. Injury	Non-Incap. Injury	Incap. Injury	Fatality	Total Cost
2024	53,456	57	111	154	72	100	37	14	2	1	$ 15,264,044
2025	54,595	58	113	157	73	102	38	15	2	1	$ 15,463,671
2026	55,757	59	115	160	74	104	39	15	2	1	$ 15,538,298
2027	56,945	61	119	165	77	107	40	15	2	1	$ 15,624,779
2028	58,158	62	121	168	78	109	41	16	2	1	$ 15,824,406
2029	59,396	63	123	171	79	111	41	16	2	1	$ 15,835,133
2030	60,661	64	124	172	81	112	42	16	2	1	$ 15,910,887
2031	61,953	66	128	178	83	115	43	17	2	1	$ 16,118,041
2032	63,273	67	130	181	84	117	44	17	2	1	$ 16,192,668
2033	64,620	69	134	186	87	121	45	17	2	1	$ 16,282,349
2034	65,997	70	136	189	88	123	46	18	2	1	$ 16,481,976
2035	67,402	72	140	195	91	126	47	18	2	1	$ 16,568,457
2036	68,838	73	142	197	92	128	48	18	2	1	$ 16,643,084
2037	70,304	75	146	203	95	132	49	19	2	1	$ 16,857,765
2038	71,801	76	148	206	96	134	50	19	2	1	$ 16,932,392
2039	73,331	78	152	211	98	137	51	20	2	1	$ 17,139,546
2040	74,893	80	156	217	101	141	53	20	3	1	$ 17,752,227
2041	76,488	81	158	220	102	143	53	21	3	1	$ 17,887,954
2042	78,117	83	161	224	105	145	54	21	3	1	$ 17,971,235
2043	79,780	85	165	229	107	148	55	21	3	1	$ 18,053,389
2044	81,480	87	169	235	110	152	57	22	3	1	$ 18,331,970
										Total	**$ 348,674,271**

Year	ADT on I-35	Build Scenario									Potential Cost Savings	Potential Cost Savings (NPV)
							Injury Type Per Individual					
		Est. # of Collisions	Est. # of Vehicles	Est. # of People	PDO (Vehicle)	PDO (People)	Pos. Injury	Non-Incap. Injury	Incap. Injury	Fatality	Total Cost	
2024	53,456	43	84	117	54	76	28	11	1	0	$ 4,100,158	$ 11,163,886	$ 6,952,307
2025	54,595	44	86	120	55	78	29	11	1	0	$ 4,174,785	$ 11,288,886	$ 6,570,234
2026	55,757	45	88	122	57	79	30	11	1	0	$ 4,250,539	$ 11,287,759	$ 6,139,793
2027	56,945	46	89	124	58	80	30	12	1	0	$ 4,383,066	$ 11,241,713	$ 5,714,717
2028	58,158	47	91	126	59	82	31	12	1	0	$ 4,457,693	$ 11,366,713	$ 5,400,243
2029	59,396	48	93	129	61	84	31	12	2	1	$ 14,531,847	$ 1,303,286	$ 578,675
2030	60,661	49	95	132	62	86	32	12	2	1	$ 14,606,474	$ 1,304,413	$ 541,285
2031	61,953	50	97	135	63	88	33	13	2	1	$ 14,806,101	$ 1,311,940	$ 508,793
2032	63,273	51	99	138	64	89	33	13	2	1	$ 14,813,628	$ 1,379,040	$ 499,828
2033	64,620	52	101	140	66	91	34	13	2	1	$ 14,892,582	$ 1,389,767	$ 470,762
2034	65,997	53	103	143	67	93	35	13	2	1	$ 14,967,209	$ 1,514,767	$ 479,536
2035	67,402	54	105	146	68	95	35	14	2	1	$ 15,102,936	$ 1,465,521	$ 433,595
2036	68,838	56	109	152	71	99	37	14	2	1	$ 15,256,517	$ 1,386,567	$ 383,397
2037	70,304	57	111	154	72	100	37	14	2	1	$ 15,264,044	$ 1,593,721	$ 411,848
2038	71,801	58	113	157	73	102	38	15	2	1	$ 15,463,671	$ 1,468,721	$ 354,715
2039	73,331	59	115	160	74	104	39	15	2	1	$ 15,538,298	$ 1,601,248	$ 361,423
2040	74,893	60	117	163	76	106	39	15	2	1	$ 15,553,352	$ 2,198,875	$ 463,846
2041	76,488	62	121	168	78	109	41	16	2	1	$ 15,824,406	$ 2,063,548	$ 406,822
2042	78,117	63	123	171	79	111	41	16	2	1	$ 15,835,133	$ 2,136,102	$ 393,575
2043	79,780	64	124	172	81	112	42	16	2	1	$ 15,910,887	$ 2,142,502	$ 368,929
2044	81,480	66	128	178	83	115	43	17	2	1	$ 16,118,041	$ 2,213,929	$ 381,229
										Total	**$ 82,822,904**	**$ 37,815,552**

BENEFITS: STATE OF GOOD REPAIR

Additional costs are borne by road users due to damage that occurs to their vehicles. Based on the information contained in the report titled “Road Work Ahead” (a 2010 publication of the U.S. Public Interest Research Group Education Fund), “Average Additional Operating Costs Due to Rough Roads” are $457 per motorist per year. For purposes of this analysis, it is assumed that 2% of this annual cost for local motorists is attributable to the poor conditions along each segment of I-35 and SH 9 (which equates to $9.14 per vehicle per year). Using future ODOT traffic projections for the interchange; the number of vehicles impacted by the interchange, highway, and local roads are quantified. The impacted vehicles will benefit from reduced vehicle repairs and maintenance from the improvements, as shown below in **Table A-4**.

TABLE A-4: STATE OF GOOD REPAIR, REDUCED VEHICLE MAINTENANCE COSTS

Year	Average Daily Traffic	Additional Operating Costs Avoided	Additional Operating Costs Avoided (NPV)
2024	53,456	$ 488,588	$ 304,268
2025	54,595	$ 498,998	$ 290,421
2026	55,757	$ 509,619	$ 277,199
2027	56,945	$ 520,477	$ 264,584
2028	58,158	$ 531,564	$ 252,542
2029	59,396	$ 542,879	$ 241,045
2030	60,661	$ 554,442	$ 230,074
2031	61,953	$ 566,250	$ 219,602
2032	63,273	$ 578,315	$ 209,608
2033	64,620	$ 590,627	$ 200,066
2034	65,997	$ 603,213	$ 190,962
2035	67,402	$ 616,054	$ 182,268
2036	68,838	$ 629,179	$ 173,973
2037	70,304	$ 642,579	$ 166,055
2038	71,801	$ 656,261	$ 158,496
2039	73,331	$ 670,245	$ 151,283
2040	74,893	$ 684,522	$ 144,398
2041	76,488	$ 699,100	$ 137,825
2042	78,117	$ 713,989	$ 131,552
2043	79,780	$ 729,189	$ 125,563
2044	81,480	$ 744,727	$ 128,239
	Total	$ 12,770,817	$ 4,180,022

BENEFITS: ECONOMIC COMPETITIVENESS – TRAVEL TIME SAVINGS

The following analysis quantifies multiple benefits under the economic competitiveness category. First, there is a benefit associated with the travel time savings for traffic utilizing the interstate and interchange improvements as well as the SH 9 modifications. This benefit was evaluated using intersection analysis software to calculate the traffic signal delay along SH 9 for multiple scenarios to capture the regional delay improvements associated with the interchange modifications.

For the purposes of this analysis, the benefits calculated will be based on the delay savings value of $14.80 per person per hour documented in the "2018 BCA Guidance for Discretionary Grant Programs". **Table A-5** below shows the improvement in travel time savings from the roadway connection during the morning and evening peak hour as well as a summary of the calculations and the cumulative benefit.

TABLE A-5: ECONOMIC COMPETITIVENESS, TRAVEL TIME SAVINGS

Year	AM Peak Hour				PM Peak Hour				Total AM and PM Peak Hour Delay Reduction (sec)	Estimated Annual Delay Reduction (hours)	Delay Reduction Benefit	Delay Reduction Benefit (NPV)
	Traffic Volumes		Average Delay Reduction (secs/veh)	Total Delay (secs)	Traffic Volumes		Average Delay Reduction (secs/veh)	Total Delay (secs)				
	Passenger Vehicles	Trucks			Passenger Vehicles	Trucks						
2024	3,160	435	14	49,451	3,751	556	34	145,786	195,236	14,155	$ 229,028.00	$ 142,627.13
2025	3,240	444	15	56,849	3,845	568	38	167,358	224,207	16,255	$ 263,006.00	$ 153,071.89
2026	3,322	454	17	65,369	3,941	580	42	192,111	257,481	18,667	$ 302,032.00	$ 164,285.40
2027	3,406	463	19	75,143	4,039	593	48	220,562	295,705	21,439	$ 346,883.00	$ 176,337.73
2028	3,492	473	22	86,395	4,140	605	53	253,157	339,552	24,618	$ 398,319.00	$ 189,238.49
2029	3,580	483	24	99,327	4,243	618	60	290,615	389,943	28,271	$ 457,425.00	$ 203,102.17
2030	3,671	494	27	114,217	4,349	631	67	333,598	447,815	32,467	$ 525,316.00	$ 217,987.46
2031	3,764	504	31	131,301	4,458	645	75	382,992	514,293	37,286	$ 603,287.00	$ 233,965.10
2032	3,859	515	35	150,968	4,569	659	84	439,675	590,643	42,822	$ 692,860.00	$ 251,124.35
2033	3,957	526	39	173,571	4,683	673	94	504,718	678,290	49,176	$ 795,668.00	$ 269,520.28
2034	4,057	537	43	199,549	4,799	687	106	579,353	778,903	56,470	$ 913,685.00	$ 289,249.27
2035	4,159	548	49	229,404	4,919	702	118	665,110	894,515	64,852	$ 1,049,305.00	$ 310,451.49
2036	4,265	560	55	263,769	5,042	717	133	763,518	1,027,287	74,478	$ 1,205,054.00	$ 333,207.47
2037	4,373	572	61	303,266	5,168	732	149	876,440	1,179,706	85,529	$ 1,383,859.00	$ 357,615.46
2038	4,483	584	69	348,660	5,297	747	166	1,006,012	1,354,672	98,214	$ 1,589,103.00	$ 383,789.17
2039	4,597	597	77	400,908	5,429	763	187	1,154,871	1,555,779	112,794	$ 1,825,007.00	$ 411,928.11
2040	4,349	609	87	429,363	5,564	780	209	1,325,896	1,755,259	127,256	$ 2,059,002.00	$ 434,340.05
2041	4,832	622	97	529,883	5,703	796	234	1,521,926	2,051,809	148,756	$ 2,406,872.00	$ 474,506.68
2042	4,954	636	109	609,306	5,845	813	262	1,747,119	2,356,425	170,841	$ 2,764,207.00	$ 509,302.87
2043	5,080	649	122	700,473	5,991	830	294	2,005,528	2,706,001	196,185	$ 3,174,273.00	$ 546,595.50
2044	5,208	663	137	805,383	6,140	848	329	2,302,374	3,107,757	225,312	$ 3,645,548.00	$ 255,188.36
							Total	16,878,720		Total	$ 26,629,739.00	$ 6,307,434.42

BENEFITS: ECONOMIC COMPETITIVENESS – FUEL SAVINGS

In addition to the value of time presented in the previous table (A-5), the delay can also be converted into savings in fuel consumption using an average price of fuel in Oklahoma of $2.50 per gallon and an average fuel consumption at idle of 0.7329 gallons per hour (NCHRP Synthesis 409). The summary of annual cost savings benefits related to reduced fuel consumption is shown in **Table A-6** below.

TABLE A-6: ECONOMIC COMPETITIVENESS, FUEL SAVINGS

Year	Estimated Annual Delay Reduction (hours)	Reduction in Fuel Consumption (gallons)	Cost Savings in Reduced Fuel Consumption	Cost Savings in Reduced Fuel Consumption (NPV)
2024	14,155	10,374	$ 25,935	$ 16,151
2025	16,255	11,913	$ 29,783.00	$ 17,334.00
2026	18,667	13,681	$ 34,203.00	$ 18,604.00
2027	21,439	15,713	$ 39,282.00	$ 19,969.00
2028	24,618	18,043	$ 45,106.00	$ 21,430.00
2029	28,271	20,720	$ 51,800.00	$ 23,000.00
2030	32,467	23,795	$ 59,488.00	$ 24,685.00
2031	37,286	27,327	$ 68,317.00	$ 26,495.00
2032	42,822	31,384	$ 78,461.00	$ 28,438.00
2033	49,176	36,041	$ 90,103.00	$ 30,521.00
2034	56,470	41,387	$ 103,467.00	$ 32,755.00
2035	64,852	47,530	$ 118,825.00	$ 35,156.00
2036	74,478	54,585	$ 136,462.00	$ 37,733.00
2037	85,529	62,684	$ 156,711.00	$ 40,497.00
2038	98,214	71,981	$ 179,953.00	$ 43,461.00
2039	112,794	82,667	$ 206,667.00	$ 46,647.00
2040	127,256	93,266	$ 233,165.00	$ 49,185.00
2041	148,756	109,023	$ 272,558.00	$ 53,734.00
2042	170,841	125,209	$ 313,023.00	$ 57,674.00
2043	196,185	143,784	$ 359,460.00	$ 61,897.00
2044	225,312	165,131	$ 412,828.00	$ 71,087.00
		Total	$ 3,015,597.00	$ 756,453.00

BENEFITS: ENVIRONMENTAL PROTECTION – EMISSIONS

Based on the travel time savings found in the prior section, the reduction in damage costs for pollutant emissions due to reduction in fuel consumption can be estimated. The NCHRP Synthesis 409 methodology was used to calculate the reduction in fuel consumption based from the total vehicle miles traveled, total delay, total stops, and cruise speed. The reduction in fuel consumption was then converted to amount of emission (grams) of each type of emission pollutant by its emission production factor (grams/gallon), and then converted to a cost of environmental damage. The total cost savings for reduced damage of pollutant emissions can be seen in **Table A-7**.

TABLE A-7: ENVIRONMENTAL PROTECTION – EMISSION BENEFITS

Year	Estimated Annual Delay Reduction (hours)	Reduction in Fuel Consumption (gallons)	Carbon Dioxide Pollutant Emissions (grams)	Volatile Organic Compounds Pollutant Emissions (grams)	Nitrogen Oxides Pollutant Emissions (grams)	Particulate Matter Pollutant Emissions (grams)	Cost Savings for Reduced Damage of Pollutant Emissions	Cost Savings for Reduced Damage of Pollutant Emissions (NPV)
2024	14,155	10,374	92,195,511	168,062	141,089	2,830	$ 7,475.23	$ 4,655.20
2025	16,255	11,913	105,873,404	192,995	162,021	3,250	$ 8,584.24	$ 4,996.11
2026	18,667	13,681	121,583,441	221,633	186,062	3,732	$ 9,858.01	$ 5,362.11
2027	21,439	15,713	139,638,259	254,545	213,692	4,286	$ 11,321.90	$ 5,755.48
2028	24,618	18,043	160,343,984	292,289	245,378	4,922	$ 13,000.73	$ 6,176.55
2029	28,271	20,720	184,137,004	335,661	281,789	5,652	$ 14,929.87	$ 6,629.04
2030	32,467	23,795	211,466,736	385,480	323,613	6,491	$ 17,145.77	$ 7,114.88
2031	37,286	27,327	242,854,244	442,696	371,646	7,455	$ 19,690.67	$ 7,636.38
2032	42,822	31,384	278,911,775	508,425	426,826	8,562	$ 22,614.23	$ 8,196.44
2033	49,176	36,041	320,297,170	583,866	490,159	9,832	$ 25,969.76	$ 8,796.86
2034	56,470	41,387	367,805,051	670,467	562,861	11,290	$ 29,821.71	$ 9,440.79
2035	64,852	47,530	422,399,384	769,986	646,408	12,966	$ 34,248.23	$ 10,132.82
2036	74,478	54,585	485,096,239	884,276	742,355	14,891	$ 39,331.71	$ 10,875.55
2037	85,529	62,684	557,074,522	1,015,484	852,505	17,100	$ 45,167.72	$ 11,672.20
2038	98,214	71,981	639,695,508	1,166,093	978,942	19,636	$ 51,866.65	$ 12,526.47
2039	112,794	82,667	734,659,164	1,339,201	1,124,267	22,551	$ 59,566.32	$ 13,444.90
2040	127,256	93,266	828,854,252	1,510,908	1,268,417	25,443	$ 67,203.68	$ 14,176.41
2041	148,756	109,023	968,889,822	1,766,177	1,482,717	29,742	$ 78,557.80	$ 15,487.40
2042	170,841	125,209	1,112,735,661	2,028,392	1,702,847	34,157	$ 90,220.85	$ 16,623.12
2043	196,185	143,784	1,277,808,288	2,329,301	1,955,462	39,224	$ 103,604.97	$ 17,840.31
2044	225,312	165,131	1,467,520,662	2,675,125	2,245,784	45,048	$ 118,986.89	$ 20,489.01
						Total	$ 869,166.97	$ 218,028.02

SUMMARY OF BENEFITS

Summarized in the tables below are the project benefits for the entire I-35 at SH 9 Interchange Improvement project. Over a 20-year period, the net present value of $12,776,113 investment will result in approximately $49,277,489 in net present value benefits. **Table A-8** shows the resulting benefit cost ratio ($49,227,489/ $12,776,133) of 3.86. **Table A-9** details annual project costs and benefits at net present value.

TABLE A-8: BENEFIT-COST ANALYSIS SUMMARY AT NET PRESENT VALUE

Project	Length (ft)	Capital Costs	Capital Costs (NPV)	Total Net Benefit	Total Net Benefit (NPV)	Benefit-Cost Ratio
I-35 at SH 9 Interchange Improvements	7,500 LF	$ 18,370,700	$ 12,776,113	$ 126,108,224	$ 49,277,489	3.86

TABLE A-8 PROVIDES A BENEFIT-COST ANALYSIS SUMMARY

Benefit Cost Analysis Summary (NPV)						
	Project Costs	Safety	State of Good Repair	Economic Competitiveness		Environmental Protection
Year	Capital Costs	Reduction in Crashes	Avoided Vehicle Repair Cost	Value of Travel Time Savings	Fuel Savings	Emissions Reduction Benefits
2020	$ (749,798)	$ -	$ -	$ -	$ -	$ -
2021	$ (1,401,492)	$ -	$ -	$ -	$ -	$ -
2022	$ (4,584,319)	$ -	$ -	$ -	$ -	$ -
2023	$ (4,896,469)	$ -	$ -	$ -	$ -	$ -
2024	$ (1,144,035)	$ 6,952,307	$ 304,268	$ 142,627	$ 16,151	$ 4,655
2025	$ -	$ 6,570,234	$ 290,421	$ 153,072	$ 17,334	$ 4,996
2026	$ -	$ 6,139,793	$ 277,199	$ 164,285	$ 18,604	$ 5,362
2027	$ -	$ 5,714,717	$ 264,584	$ 176,338	$ 19,969	$ 5,755
2028	$ -	$ 5,400,243	$ 252,542	$ 189,238	$ 21,430	$ 6,177
2029	$ -	$ 578,675	$ 241,045	$ 203,102	$ 23,000	$ 6,629
2030	$ -	$ 541,285	$ 230,074	$ 217,987	$ 24,685	$ 7,115
2031	$ -	$ 508,793	$ 219,602	$ 233,965	$ 26,495	$ 7,636
2032	$ -	$ 499,828	$ 209,608	$ 251,124	$ 28,438	$ 8,196
2033	$ -	$ 470,762	$ 200,066	$ 269,520	$ 30,521	$ 8,797
2034	$ -	$ 479,536	$ 190,962	$ 289,249	$ 32,755	$ 9,441
2035	$ -	$ 433,595	$ 182,268	$ 310,451	$ 35,156	$ 10,133
2036	$ -	$ 383,397	$ 173,973	$ 333,207	$ 37,733	$ 10,876
2037	$ -	$ 411,848	$ 166,055	$ 357,615	$ 40,497	$ 11,672
2038	$ -	$ 354,715	$ 158,496	$ 383,789	$ 43,461	$ 12,526
2039	$ -	$ 361,423	$ 151,283	$ 411,928	$ 46,647	$ 13,445
2040	$ -	$ 463,846	$ 144,398	$ 434,340	$ 49,185	$ 14,176
2041	$ -	$ 406,822	$ 137,825	$ 474,507	$ 53,734	$ 15,487
2042	$ -	$ 393,575	$ 131,552	$ 509,303	$ 57,674	$ 16,623
2043	$ -	$ 368,929	$ 125,563	$ 546,596	$ 61,897	$ 17,840
2044	$ -	$ 381,229	$ 128,239	$ 255,188	$ 71,087	$ 20,489
Total	$ (12,776,113)	$ 37,815,552	$ 4,180,022	$ 6,307,434	$ 756,453	$ 218,028