Appendix R

Benefit/Cost Technical Memorandum

SEH MEMORANDUM

TO: Tim Bray, P.E.

FROM: Samuel Turrentine
Chris Hiniker, AICP

DATE: October 31, 2008

RE: TH 371 Updated Benefit-Cost Analysis
SEH No. 103547

PURPOSE

The purpose of this memorandum is to update the benefit-cost analysis previously completed in December 2003 as part of the Draft Environmental Impact Statement (DEIS) for the TH 371 reconstruction project in Cass and Crow Wing Counties. The proposed improvements include the reconstruction of a 16-mile segment of TH 371 as a four-lane divided highway. Five build alternatives were analyzed in the DEIS for the project. Alternative 2 would reconstruct the roadway on the existing alignment and was identified as the preferred alternative in the Final Environmental Impact Statement (FEIS) completed in January 2005. A Supplemental FEIS is currently being prepared to document changes related to the selection of a new preferred alternative. The new alternative (Alternative 3MOD) includes a bypass of the City of Pequot Lakes similar to Alternative 3 from the DEIS but with the bypass tying back to the existing alignment at different locations. Alternative 3MOD also eliminates the grade-separated interchanges from the original Alternative 3.

This benefit-cost analysis updates the cost and benefit information for the five build alternatives included in the DEIS and Alternative 3MOD (a detailed description of the alternatives is provided below).

In this analysis approach, quantified benefits greater than or equal to the quantified costs (benefit-cost ratio greater than one) represent an economically valuable project. The results of the analysis provide input for ranking the TH 371 alternatives and evaluating the overall benefit of the proposed improvements. Due to the level of detail in the calculations, the magnitudes of the values are not as important as the differences between alternatives and the values being greater or less than one.

Description Alternatives

Alternative 1 – No-Build Alternative

Under the No-Build Alternative, Highway 371 improvements would be limited to normal pavement maintenance and minor transportation system management improvements, including shoulder widening, turn lanes, periodic shoulder bypass lanes, access consolidation, and minor geometric changes.

Alternative 2 – Capacity Expansion on Existing Alignment

This build alternative would reconstruct Highway 371 as a four-lane roadway on its existing alignment from County Road 18 in Nisswa to County Roads 2/42 in Pine River.

Alternative 3 – Existing Alignment with a Pequot Lakes Bypass

This build alternative would reconstruct Highway 371 as a four-lane roadway on its existing alignment from County Road 18 in Nisswa to just north of County Road 107/168. At that location, Highway 371 would be reconstructed on a new alignment extending along the east edge of the downtown Pequot Lakes area crossing County Road 11 approximately 0.6 miles east of the existing Highway 371/County Road 11 intersection. The bypass would continue north and cross County Road 16 approximately 0.3 miles east of the existing Highway

371/County Road 16 intersection. The bypass alignment then returns to the existing Highway 371 corridor on the south edge of downtown Jenkins and continues along the existing alignment through the Jenkins and Pine River areas.

The Pequot Lakes bypass segment of Alternative 3 from north of County Road 107/168 to north of County Road 16 would be access controlled with interchanges planned at the south end of the bypass, County Road 11, and County Road 16. Furthermore, an interchange is planned at County Road 15 in Jenkins. Limited access would be provided to serve some of the land uses along the existing highway between the County Road 16 and County Road 15 interchanges.

Alternative 3MOD

The SFEIS is being prepared to document changes and undiscovered impacts related to selection of a new preferred alternative. Alternative 3 Modified (3MOD) includes a Pequot Lakes bypass alignment that is similar to one proposed in the Draft EIS. The most significant difference between Alternative 3 and Alternative 3MOD is elimination of the grade-separated interchanges. Alternative 3MOD includes right-of-way preservation for a potential future interchange at Crow Wing State Aid Highway 11 (CSAH 11).

Alternative 3MOD also proposes location modifications to the bypass connections back to the existing alignment. The southerly connection that now incorporates Crow Wing County Roads (CR) 107 and 168 is proposed to intersect the existing alignment approximately 7/8 of a mile south of that proposed by Draft EIS bypass. The northerly connection that now incorporates Crow Wing CR 112 is proposed to be made approximately 1.5 miles south of the Alternative 3 proposal. Additionally, the northerly connection of the bypass alignment would no longer incorporate the Crow Wing County State Aide Highway (CSAH) 16 intersection. Under Alternative 3MOD, the junction of CSAH 16 and Highway 371 would remain an at-grade, signalized intersection similar to that defined in Alternative 2.

Alternative 4 – Existing Alignment with a Pequot Lakes Bypass and Jenkins Bypass

This build alternative would reconstruct Highway 371 as a four-lane roadway on its existing alignment from County Road 18 in Nisswa to just north of County Road 107/168. At that location, Highway 371 would be reconstructed on a new alignment extending along the east edge of the downtown Pequot Lakes area crossing County Road 11 approximately 0.6 miles east of the existing Highway 371/County Road 11 intersection. The bypass would continue northwest and cross County Road 16 immediately west of the existing Highway 371/County Road 16 intersection and extend around the west side of downtown Jenkins on a new alignment crossing County Road 15/115 approximately 0.3 miles west of the existing Highway 371/County Road 15 intersection. The alignment then returns to the current Highway 371 corridor near the Crow Wing/Cass County line and continues along the existing alignment north through Pine River.

The bypass segments of Alternative 4 from north of County Road 107/168 in Pequot Lakes to north of County Road 15 in Jenkins would be access controlled with interchanges planned at the south end of the Pequot Lakes bypass, County Road 11, County Road 16, and County Road 15.

Alternative 5 – Existing Alignment with a Jenkins Bypass

This build alternative would reconstruct Highway 371 as a four-lane roadway on its existing alignment from County Road 18 in Nisswa to just south of County Road 16. At that location, Highway 371 would be reconstructed on a new alignment extending along the west edge downtown Jenkins crossing County Road 15/115 approximately 0.3 miles west of the existing Highway 371/County Road 15 intersection. The alignment then returns to the current Highway 371 corridor near the Crow Wing/Cass County line and continues along the existing alignment north through Pine River.

The bypass segment of Alternative 5 from County Road 16 to north of County Road 15 in Jenkins would be access controlled with interchanges planned at County Road 16 and County Road 15.

BENEFIT-COST METHODOLOGY

The monetary benefit for the project is quantified in terms of reduced vehicle miles traveled (VMT), vehicle hours traveled (VHT), and crashes over the analysis period between the Build and No-Build conditions. The costs include construction, bridges and structures, right-of-way, and engineering/project delivery costs. Remaining capital values of these roadway features at the end of the analysis period are subtracted from the total cost of the project.

General Assumptions

- The 20-year benefit period is based on a 2010 construction through the year 2030.
- All monetary values are discounted to the 2008 analysis year. Inflation is not included.
- Yearly Build and No-Build benefits are calculated based on linear interpolation over the 20-year analysis period.
- Longer travel times and rerouting of trips during construction years are not included.

Table 1. Assumptions Used in the TH 371 Benefit-Cost Analysis

Crash Costs	**Mn/DOT Standard Values**
Fatal Type K	$6,800,000
Injury Type A	$390,000
Injury Type B	$121,000
Injury Type C	$75,000
Property Damage Only	$12,000
Operating Costs (Vehicle Miles Traveled)	
Automobile (per mile)	$0.30
Heavy Vehicle (per mile)	$0.92
Automobile percent	95%
Heavy Vehicle percent	5%
Time Costs (Vehicle Hours Traveled)	
Automobile (per occupant use vehicle occupancy to adjust)	$13.42
Heavy Commercial (per hour, assume avg occupancy = 1.0)	$21.69
Capital Cost Estimate – see Preliminary Cost Estimate	
Component Service Life (years)	
Program Development and Delivery	0
Right-of-way, per acre	100
Major Structure	60
Grading and Drainage	50
Sub-base and Base	40
Surface	25
Analysis Period for Roadway projects (years)	20
Discount Rate (annual)	3.1%

Source: Mn/DOT Office of Investment Management, October 2008

Cost Assumptions

- Preliminary cost estimates were updated from 2003 to 2008 dollars. Updated unit cost values were provided by the Mn/DOT District 3 office in Baxter (see Table 5 attached).
- The roadbed cost was broken down using assumed percentages based on cost estimates prepared for other similar projects on comparable facilities. Pavement grading and drainage costs were assumed to account for 45 percent of the total project cost minus engineering and structures, pavement sub-base and base was assumed to account for 20 percent, and pavement surface was assumed to account for 35 percent.
- Operation and maintenance costs are calculated using updated values for routine and preventative maintenance provided by the Mn/DOT District 3 office.

Traffic Assumptions

- Daily VMT and VHT for the years between 2010 and 2030 were calculated based on the linear growth method.
- The crash data for the five alternatives analyzed in the DEIS was updated.
- The No-Build crash and severity rates are based on the annual average rate for the TH 371 corridor based on crash data from 2003 to 2007.
- The Build crash and severity rates are based on the Mn/DOT District 3 annual average rate from crash data for 2004 to 2006 for a rural four-lane expressway and rural four-lane freeway. The rural four-lane freeway average crash rates were used to calculate crash data for the "bypass" segments (Pequot Lakes and Jenkins) under Alternatives 3, 4, and 5. The rural four-lane expressway average crash rates were used to calculate crash data for all TH 371 segments for Alternatives 2 and 3MOD and for all non-bypass TH 371 segments for Alternatives 3, 4, and 5.

BENEFIT-COST ANALYSIS RESULTS

Table 2 below summarizes the results of the benefit-cost analysis for the TH 371 project. The preliminary analysis indicates that all alternatives project have a benefit-cost ratio greater than one, meaning it is a beneficial project. At this level of analysis, the magnitude of the benefit-cost ratio is not as important as the fact that the ratio is greater than one. However, it does indicate for purposes of ranking the alternatives that the new preferred alternative (Alternative 3MOD) provides a comparable benefit to Alternative 2.

Table 2. Summary of Benefit-Cost Analysis

	Alternative 2	Alternative 3	Alternative 3MOD	Alternative 4	Alternative 5
VMT & VHT Benefit	$ 232,520,000	$ 239,030,000	$ 222,050,000	$ 235,500,000	$ 230,110,000
Crashes Benefit	$ 15,820,000	$ 24,620,000	$ 7,180,000	$ 31,100,000	$ 21,840,000
O&M Benefit	$ (4,230,000)	$ (6,050,000)	$ (4,880,000)	$ (6,210,000)	$ (4,430,000)
Total Benefit	$ 244,100,000	$ 257,610,000	$ 224,350,000	$ 260,380,000	$ 247,520,000
Total Costs (Present Value)	$ 89,610,000	$ 118,810,000	$ 88,960,000	$ 126,770,000	$ 107,260,000
Remaining Capital Value	$ 24,570,000	$ 34,090,000	$ 24,860,000	$ 37,230,000	$ 30,900,000
Total Cost - RCV	$ 65,040,000	$ 84,730,000	$ 64,100,000	$ 89,550,000	$ 76,350,000
Benefit-Cost Ratio	3.8	3.0	3.5	2.9	3.2

See tables in Attachment A for more detail.

The benefit-cost ratios resulting from this updated analysis are the same or lower than the ratios presented in the DEIS analysis. The B/C ratios for Alternative 3 and 4 are essentially the same between the two analyses, while the B/C ratios for Alternatives 2 and 5 are lower for the updated analysis. Comparing the updated analysis to the DEIS analysis (Table 2 versus Table 3), the total benefit and the total cost for each alternative are substantially different and are higher for the updated analysis. The primary reasons for this difference are as follows:

- The updated analysis discounted monetary values to 2008 where the DEIS analysis discounted back to 2003.
- The updated analysis used 3.1 percent for the discount rate as prescribed by the Mn/DOT Office of Investment Management where the DEIS used a 4.5 percent discount rate.
- The Mn/DOT Office of Investment Management updated the assumptions to be used when calculating crash, operating, and time costs. Assumed operating costs per mile went down, while crash costs and time costs went up.
- The crash data used for determining crash benefits was updated, and this new data showed lower crash rates and severity rates than the DEIS data. This resulted in substantial reductions in the calculated crash benefits for each alternative. The reduction in crash benefits was greatest for Alternative 2 and Alternative 5, and this is the main reason for the lower B/C ratios under the updated analysis.

Table 3. Summary of Benefit-Cost Analysis (Trunk Highway 371 DEIS, 2003)

	Alternative 2	Alternative 3	Alternative 4	Alternative 5
VMT & VHT Benefit	$ 110,890,000	$ 111,940,000	$ 109,260,000	$ 108,740,000
Crashes Benefit	$ 52,300,000	$ 51,440,000	$ 50,800,000	$ 52,080,000
O&M Benefit	$ (2,030,000)	$ (2,980,000)	$ (3,070,000)	$ (2,130,000)
Total Benefit	$ 161,160,000	$ 160,400,000	$ 157,000,000	$ 158,680,000
Total Costs (Present Value)	$ 56,180,000	$ 81,980,000	$ 85,610,000	$ 67,930,000
Remaining Capital Value	$ 13,000,000	$ 18,930,000	$ 20,240,000	$ 15,910,000
Total Cost - RCV	$ 43,180,000	$ 63,050,000	$ 65,370,000	$ 52,030,000
Benefit-Cost Ratio	3.7	2.5	2.4	3.0

Table 4. Assumptions Used in the TH 371 Benefit-Cost Analysis (Trunk Highway 371 DEIS, 2003)

Crash Costs (Estimating change in crashes)	Mn/DOT Standard Values [1]
Fatal Type K	$ 3,400,000
Injury Type A	$ 270,000
Injury B	$ 58,000
Injury C	$ 29,000
Property Damage Only	$ 4,200
Operating Costs (Estimated change in travel costs (Vehicle Miles of Travel))	
Automobile (per mile) [1]	$ 0.28
Heavy Vehicle (per mile) [1]	$ 1.43
Automobile percent	95.0%
Heavy Vehicle percent	5.0%
Time Costs (Estimated change in time costs (Vehicle hours of Travel))	
Automobile (per occupant use vehicle occupancy to adjust) [1]	$ 9.92
Heavy Commercial (per hour, assume avg occupancy = 1.0) [1]	$ 18.40
Average Automobile Occupancy (persons)	1.2
Capital Cost Estimate	See Cost Assumptions
Building Relocations - assumed demolished and no salvage values	
Other:	year 2003 dollars
Component Service Life (years) [1]	
Program Development & Delivery, % of construction dollars	0
Right-of-Way, per acre	100
Major Structure	60
Mass Grading and Drainage	50
Base	40
Surface	25
Analysis Period for Roadway Projects (years)	20
Depreciation Method	Sinking Fund [2]
Discount Rate (annual)	
Minnesota	4.5%

Notes:

(1) OIM

COST EFFECTIVENESS POLICY

The Minnesota Statewide Transportation Plan established a cost-effectiveness policy for Mn/DOT as outlined in Technical Memorandum No. 04-05-IM-01 and dated December 7, 2004. The cost-effectiveness evaluation is a three-step process: (1) benefit-cost analysis; (2) best value assessment; and (3) social, environmental, and community goals and business impacts. The benefit-cost analysis described above meets the requirements

described in Step 1 of the policy. No further analysis is necessary under the stipulations of the cost-effectiveness policy since the project results in a benefit-cost ratio greater than one.

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Attachments
c: George Calebaugh
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Attachment A

Table 5. Quantities and Costs (2008 Dollars) for Hwy 371.

Item	Alt. 2	Alt. 3	Alt. 3MOD	Alt. 4	Alt. 5
New 4-Lane, no C&G, miles	12.3	15.0	14.6	16.2	13.2
New 4-Lane, full C&G, miles	4.9	2.8	2.8	1.5	3.6
Turnback, miles	0.0	4.5	3.3	6.0	1.5
Frontage Road, miles	6.3	9.1	6.1	8.4	6.5
Trail On-Alignment, miles	3.8	2.7	3.8	3.1	4.0
Trail Off-Alignment, miles	2.7	3.9	3.0	2.0	1.4
Wetland Length, miles	2.4	2.3	2.4	1.6	1.9
Simple Interchange, lump sum	0	4	0	3	1
Complex Interchange, lump sum	0	0	0	1	1
River Bridges and Overpasses, sf	54,480	54,480	54,480	91,080	54,480
CR 29/CR 107 Bridge, sf	-	-	-	-	-
Trail underpasses, ft.	-	380	-	590	905
Trail overpasses, lump sum	-	-	1	-	-
R/W, acres on lakeshore	15.3	16.7	15.3	15.3	15.3
R/W, acres off lakeshore adjacent ex. corridor	134.0	167.3	101.0	205.2	181.5
R/W, acres off lakeshore small tracts on new	7.0	17.5	7.0	42.4	39.2
R/W, acres off lakeshore large tracts on new	0.0	194.3	186.9	139.0	34.8
Residential Acquisitions - on lakeshore	0	1	0	1	1
Residential Acquisitions - off lakeshore	7	5	10	12	12
Commercial Acquisitions	9	9	7	5	4
Impacted Wetlands, acres	22.4	26.2	22.1	27.4	28.4
Pavement Costs	$ 55,440,114	$ 57,223,864	$ 53,050,000	$ 53,855,909	$ 52,278,011
Additional Const. Cost due to Wetlands	$ 2,430,000	$ 2,290,000	$ 2,400,000	$ 1,640,000	$ 1,870,000
Simple Interchange ($1.5 M for bridge)	$ -	$ 20,000,000	$ -	$ 15,000,000	$ 5,000,000
Complex Interchange ($1.5 M for bridge)	$ -	$ -	$ -	$ 10,000,000	$ 10,000,000
River Bridges and Overpasses	$ 7,082,400	$ 7,082,400	$ 7,082,400	$ 11,840,400	$ 7,082,400
CR 29/CR 107 Bridge	$ -	$ -	$ -	$ -	$ -
Trail underpasses	$ -	$ 1,140,000	$ -	$ 1,770,000	$ 2,715,000
Trail overpasses	$ -	$ -	$ 1,500,000	$ -	$ -
R/W on lakeshore	$ 4,590,000	$ 5,010,000	$ 4,590,000	$ 4,590,000	$ 4,590,000
R/W off lakeshore adjacent to ex. corridor	$ 4,690,000	$ 5,855,500	$ 3,535,000	$ 7,182,000	$ 6,352,500
R/W off lakeshore small tracts on new	$ 210,000	$ 525,000	$ 210,000	$ 1,272,000	$ 1,176,000
R/W off lakeshore large tracts on new	$ -	$ 1,943,000	$ 1,869,000	$ 1,390,000	$ 348,000
Wetland Mitigation costs, including off-site R/W	$ 269,280	$ 313,800	$ 265,200	$ 328,680	$ 340,320
Residential - on lakeshore	$ -	$ 400,000	$ -	$ 400,000	$ 400,000
Residential - off lakeshore	$ 2,100,000	$ 1,500,000	$ 3,000,000	$ 3,600,000	$ 3,600,000
Commercial	$ 5,400,000	$ 5,400,000	$ 4,200,000	$ 3,000,000	$ 2,400,000
Program Development & Delivery Contingency	$ 13,044,359	$ 17,610,013	$ 12,859,520	$ 18,886,998	$ 15,857,146
Total Costs	$ 95,256,152	$ 126,293,576	$ 94,561,120	$ 134,755,987	$ 114,009,378
PV Total Costs (2008)	$ 89,613,967	$ 118,812,992	$ 88,960,103	$ 126,774,159	$ 107,256,407

Cost Assumptions

Capital Cost Estimate	(2008 Dollars)
Trail On-Alignment, per mile	$ 300,000
Trail Off-Alignment, per mile	$ 500,000
Pavement Cost: 4-Lane, no C&G/mile	$ 2,200,000
Pavement Cost: 4-Lane, full C&G/mile	$ 4,000,000
Pavement Cost: Turnback/mile	$ 300,000
Pavement Cost: Frontage Roads/mile	$ 1,000,000
Additional Construction Cost due to Wetland, per mile	$ 1,000,000
Simple Interchange Bridge and Ramps Cost, Lump Sum	$ 5,000,000
Complex Interchange Bridge and Ramps Cost, Lump Sum	$ 10,000,000
Major Structure: River Bridges and Overpasses, per sf	$ 130
Major Structure: CR 29/CR 107 Bridge, per sf	$ 100
Trail Underpasses, per ft	$ 3,000
Trail Overpasses, lump sum	$ 1,500,000
Right-of-Way, on lakeshore, per acre	$ 300,000
Right-of-Way, off lakeshore - adjacent ex. corridor, per acre	$ 35,000
Right-of-Way, off lakeshore - small tracts on new, per acre	$ 30,000
Right-of-Way, off lakeshore - large tracts on new, per acre	$ 10,000
Wetland Mitigation costs/acre, including off-site R/W	$ 12,000
Residential Acquisition on lakeshore	$ 400,000
Residential Acquisition off lakeshore	$ 300,000
Commercial Acquisition	$ 600,000
Program Development & Delivery, % of construction dollars	20%
Discount Rate	3.1%

Table 6. Remaining Capital

Service Life	RCV Factor	Item (2008 Dollars)	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5
		Total Construction Cost	$ 57,870,114	$ 73,513,864	$ 55,450,000	$ 74,495,909	$ 66,148,011
50	77.00%	Grading & Drainage (45%)	$ 26,041,551	$ 33,081,239	$ 24,952,500	$ 33,523,159	$ 29,766,605
40	65.00%	Subbase & Base (20%)	$ 11,574,023	$ 14,702,773	$ 11,090,000	$ 14,899,182	$ 13,229,602
25	27.00%	Surface (35%)	$ 20,254,540	$ 25,729,852	$ 19,407,500	$ 26,073,568	$ 23,151,804
		Construction SV	**$ 33,043,835**	**$ 41,976,416**	**$ 31,661,950**	**$ 42,537,164**	**$ 37,770,514**
		River Bridge and Overpasses	$ 7,082,400	$ 7,082,400	$ 7,082,400	$ 11,840,400	$ 7,082,400
		CR 29/CR 107 Bridge	$ -	$ -	$ -	$ -	$ -
		Trail Underpasses	$ -	$ 1,140,000	$ -	$ 1,770,000	$ 2,715,000
		Trail Overpasses	$ -	$ -	$ 1,500,000	$ -	$ -
		Interchange Bridges	$ -	$ 6,000,000	$ -	$ 6,000,000	$ 3,000,000
		Total Structure Cost	$ 7,082,400	$ 14,222,400	$ 8,582,400	$ 19,610,400	$ 12,797,400
60	84.00%	**Structure SV**	**$ 5,949,216**	**$ 11,946,816**	**$ 7,209,216**	**$ 16,472,736**	**$ 10,749,816**
		R/W Costs on lake	$ 4,590,000	$ 5,010,000	$ 4,590,000	$ 4,590,000	$ 4,590,000
		R/W Costs off lake adjacent	$ 4,690,000	$ 5,855,500	$ 3,535,000	$ 7,182,000	$ 6,352,500
		R/W Costs off lake small tract	$ 210,000	$ 525,000	$ 210,000	$ 1,272,000	$ 1,176,000
		R/W Costs off lake large tract	$ -	$ 1,943,000	$ 1,869,000	$ 1,390,000	$ 348,000
100	96.00%	Total R/W Cost	$ 9,490,000	$ 13,333,500	$ 10,204,000	$ 14,434,000	$ 12,466,500
		R/W SV	**$ 9,110,400**	**$ 12,800,160**	**$ 9,795,840**	**$ 13,856,640**	**$ 11,967,840**
		Other Costs	$ 20,813,639	$ 25,223,813	$ 20,324,720	$ 26,215,678	$ 22,597,466
		TOTAL COST	$ 95,256,152	$ 126,293,576	$ 94,561,120	$ 134,755,987	$ 114,009,378
		TOTAL COST FROM COST PAGE	$ 95,256,152	$ 126,293,576	$ 94,561,120	$ 134,755,987	$ 114,009,378
		TOTAL SV yr 2030	$ 48,103,451	$ 66,723,392	$ 48,667,006	$ 72,866,540	$ 60,488,170
		PV SALVAGE VALUE yr 2008	**$ 24,574,551**	**$ 34,086,898**	**$ 24,862,454**	**$ 37,225,240**	**$ 30,901,518**
		Discount Rate =	3.1%				

Table 7a. Operating Benefits Analysis for Hwy 371.

	Vehicle Miles Traveled (VMT)						Annual Operating Cost						Operating Benefit					Present Value (2008) Operating Benefit				
Year	Alt 1	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5	Alt 1	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5
2010	234880	236850	239450	250800	242220	239700	$28,396,464	$28,634,632	$28,948,966	$30,321,156	$29,283,853	$28,979,191	($238,169)	($552,503)	($1,924,692)	($887,389)	($582,727)	($224,061)	($519,777)	($1,810,689)	($834,828)	($548,211)
2011	240144	242704	245760	256942	248569	245596	$29,032,809	$29,342,307	$29,711,771	$31,063,728	$30,051,433	$29,692,004	($309,498)	($678,962)	($2,030,919)	($1,018,624)	($659,195)	($282,411)	($619,540)	($1,853,176)	($929,475)	($601,503)
2012	245407	248557	252069	263084	254918	251492	$29,669,154	$30,049,982	$30,474,575	$31,806,300	$30,819,013	$30,404,817	($380,828)	($805,421)	($2,137,146)	($1,149,859)	($735,663)	($337,050)	($712,834)	($1,891,470)	($1,017,676)	($651,095)
2013	250671	254411	258379	269226	261267	257388	$30,305,499	$30,757,657	$31,237,379	$32,548,872	$31,586,592	$31,117,630	($452,158)	($931,880)	($2,243,373)	($1,281,093)	($812,131)	($388,147)	($799,957)	($1,925,786)	($1,099,733)	($697,160)
2014	255934	260264	264688	275369	267616	263284	$30,941,845	$31,465,332	$32,000,184	$33,291,444	$32,354,172	$31,830,443	($523,487)	($1,058,339)	($2,349,599)	($1,412,328)	($888,598)	($435,867)	($881,197)	($1,956,329)	($1,175,935)	($739,867)
2015	261198	266118	270998	281511	273965	269180	$31,578,190	$32,173,007	$32,762,988	$34,034,016	$33,121,752	$32,543,256	($594,817)	($1,184,798)	($2,455,826)	($1,543,562)	($965,066)	($480,366)	($956,827)	($1,983,293)	($1,246,561)	($779,375)
2016	266461	271971	277307	287653	280314	275076	$32,214,535	$32,880,682	$33,525,792	$34,776,588	$33,889,332	$33,256,069	($666,147)	($1,311,257)	($2,562,053)	($1,674,797)	($1,041,534)	($521,796)	($1,027,114)	($2,006,868)	($1,311,876)	($815,838)
2017	271725	277825	283617	293795	286663	280972	$32,850,881	$33,588,357	$34,288,597	$35,519,161	$34,656,912	$33,968,883	($737,476)	($1,437,716)	($2,668,280)	($1,806,031)	($1,118,002)	($560,299)	($1,092,308)	($2,027,232)	($1,372,136)	($849,405)
2018	276988	283678	289926	299937	293012	286868	$33,487,226	$34,296,032	$35,051,401	$36,261,733	$35,424,492	$34,681,696	($808,806)	($1,564,175)	($2,774,507)	($1,937,266)	($1,194,470)	($596,016)	($1,152,653)	($2,044,556)	($1,427,587)	($880,214)
2019	282252	289532	296236	306079	299361	292764	$34,123,571	$35,003,707	$35,814,205	$37,004,305	$36,192,071	$35,394,509	($880,136)	($1,690,634)	($2,880,733)	($2,068,500)	($1,270,938)	($629,078)	($1,208,382)	($2,059,007)	($1,478,462)	($908,404)
2020	287515	295385	302545	312222	305710	298660	$34,759,917	$35,711,382	$36,577,010	$37,746,877	$36,959,651	$36,107,322	($951,465)	($1,817,093)	($2,986,960)	($2,199,735)	($1,347,405)	($659,613)	($1,259,718)	($2,070,739)	($1,524,988)	($934,102)
2021	292779	301239	308855	318364	312059	304556	$35,396,262	$36,419,057	$37,339,814	$38,489,449	$37,727,231	$36,820,135	($1,022,795)	($1,943,552)	($3,093,187)	($2,330,969)	($1,423,873)	($687,743)	($1,306,874)	($2,079,905)	($1,567,378)	($957,434)
2022	298042	307092	315164	324506	318408	310452	$36,032,607	$37,126,732	$38,102,618	$39,232,021	$38,494,811	$37,532,948	($1,094,125)	($2,070,011)	($3,199,414)	($2,462,204)	($1,500,341)	($713,585)	($1,350,055)	($2,086,648)	($1,605,841)	($978,518)
2023	303306	312946	321474	330648	324757	316348	$36,668,953	$37,834,407	$38,865,423	$39,974,593	$39,262,391	$38,245,761	($1,165,454)	($2,196,470)	($3,305,641)	($2,593,438)	($1,576,809)	($737,251)	($1,389,458)	($2,091,104)	($1,640,574)	($997,468)
2024	308569	318799	327783	336790	331106	322244	$37,305,298	$38,542,082	$39,628,227	$40,717,165	$40,029,970	$38,958,575	($1,236,784)	($2,322,929)	($3,411,867)	($2,724,673)	($1,653,277)	($758,849)	($1,425,271)	($2,093,406)	($1,671,767)	($1,014,395)
2025	313833	324653	334093	342932	337455	328140	$37,941,643	$39,249,757	$40,391,032	$41,459,737	$40,797,550	$39,671,388	($1,308,114)	($2,449,388)	($3,518,094)	($2,855,907)	($1,729,745)	($778,481)	($1,457,674)	($2,093,679)	($1,699,600)	($1,029,401)
2026	319096	330506	340402	349074	343804	334036	$38,577,988	$39,957,432	$41,153,836	$42,202,310	$41,565,130	$40,384,201	($1,379,443)	($2,575,847)	($3,624,321)	($2,987,142)	($1,806,212)	($796,247)	($1,486,840)	($2,092,043)	($1,724,248)	($1,042,588)
2027	324360	336360	346712	355217	350153	339932	$39,214,334	$40,665,107	$41,916,640	$42,944,882	$42,332,710	$41,097,014	($1,450,773)	($2,702,307)	($3,730,548)	($3,118,376)	($1,882,680)	($812,241)	($1,512,934)	($2,088,613)	($1,745,878)	($1,054,052)
2028	329623	342213	353021	361359	356502	345828	$39,850,679	$41,372,782	$42,679,445	$43,687,454	$43,100,290	$41,809,827	($1,522,103)	($2,828,766)	($3,836,775)	($3,249,611)	($1,959,148)	($826,553)	($1,536,115)	($2,083,498)	($1,764,648)	($1,063,883)
2029	334887	348067	359331	367501	362851	351724	$40,487,024	$42,080,457	$43,442,249	$44,430,026	$43,867,869	$42,522,640	($1,593,432)	($2,955,225)	($3,943,002)	($3,380,845)	($2,035,616)	($839,270)	($1,556,534)	($2,076,801)	($1,780,710)	($1,072,171)
2030	340150	353920	365640	373643	369200	357620	$41,123,370	$42,788,132	$44,205,053	$45,172,598	$44,635,449	$43,235,453	($1,664,762)	($3,081,684)	($4,049,228)	($3,512,080)	($2,112,084)	($850,475)	($1,574,336)	($2,068,624)	($1,794,212)	($1,078,998)
																		($12,915,398)	($24,826,395)	($42,483,468)	($30,414,115)	($18,694,081)

Table 7b. Travel Time Benefit Analysis for Hwy 371.

	Vehicle Hours						Annual Time Cost						Time Benefit					PV (2008) Time Benefit				
Year	Alt 1	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5	Alt 1	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5	Alt 2	Alt 3	Alt 3MOD	Alt 4	Alt 5
2010	6576	5380	5292	5324	5292	5377	$39,350,786	$32,193,922	$31,667,330	$31,858,818	$31,667,330	$32,175,970	$7,156,864	$7,683,456	$7,491,968	$7,683,456	$7,174,816	$6,732,951	$7,228,352	$7,048,206	$7,228,352	$6,749,840
2011	6919	5546	5445	5472	5442	5539	$41,405,393	$33,189,061	$32,581,685	$32,746,544	$32,566,127	$33,147,472	$8,216,332	$8,823,708	$8,658,848	$8,839,266	$8,257,920	$7,497,250	$8,051,469	$7,901,038	$8,065,666	$7,535,199
2012	7263	5713	5598	5621	5592	5702	$43,459,999	$34,184,200	$33,496,040	$33,634,271	$33,464,923	$34,118,975	$9,275,799	$9,963,959	$9,825,729	$9,995,076	$9,341,025	$8,209,499	$8,818,552	$8,696,212	$8,846,092	$8,267,227
2013	7606	5879	5750	5769	5743	5864	$45,514,606	$35,179,340	$34,410,395	$34,521,997	$34,363,720	$35,090,477	$10,335,266	$11,104,210	$10,992,609	$11,150,885	$10,424,129	$8,872,139	$9,532,226	$9,436,424	$9,572,294	$8,948,422
2014	7949	6045	5903	5917	5893	6026	$47,569,212	$36,174,479	$35,324,751	$35,409,724	$35,262,517	$36,061,980	$11,394,733	$12,244,461	$12,159,489	$12,306,695	$11,507,233	$9,487,508	$10,195,011	$10,124,261	$10,246,828	$9,581,178
2015	8293	6212	6056	6066	6043	6189	$49,623,819	$37,169,618	$36,239,106	$36,297,450	$36,161,314	$37,033,482	$12,454,201	$13,384,713	$13,326,369	$13,462,505	$12,590,337	$10,057,851	$10,809,321	$10,762,203	$10,872,144	$10,167,793
2016	8636	6378	6209	6214	6193	6351	$51,678,425	$38,164,757	$37,153,461	$37,185,176	$37,060,111	$38,004,984	$13,513,668	$14,524,964	$14,493,249	$14,618,314	$13,673,441	$10,585,318	$11,377,471	$11,352,628	$11,450,593	$10,710,469
2017	8979	6544	6362	6362	6343	6513	$53,733,032	$39,159,897	$38,067,816	$38,072,903	$37,958,908	$38,976,487	$14,573,135	$15,665,215	$15,660,129	$15,774,124	$14,756,545	$11,071,973	$11,901,683	$11,897,819	$11,984,427	$11,211,319
2018	9323	6710	6514	6511	6494	6676	$55,787,638	$40,155,036	$38,982,172	$38,960,629	$38,857,705	$39,947,989	$15,632,602	$16,805,467	$16,827,009	$16,929,934	$15,839,649	$11,519,792	$12,384,085	$12,399,960	$12,475,806	$11,672,366
2019	9666	6877	6667	6659	6644	6838	$57,842,245	$41,150,175	$39,896,527	$39,848,356	$39,756,501	$40,919,492	$16,692,070	$17,945,718	$17,993,889	$18,085,743	$16,922,753	$11,930,671	$12,826,717	$12,861,147	$12,926,800	$12,095,552
2020	10010	7043	6820	6808	6794	7001	$59,896,851	$42,145,314	$40,810,882	$40,736,082	$40,655,298	$41,890,994	$17,751,537	$19,085,969	$19,160,769	$19,241,553	$18,005,857	$12,306,427	$13,231,535	$13,283,391	$13,339,395	$12,482,737
2021	10353	7209	6973	6956	6944	7163	$61,951,458	$43,140,454	$41,725,237	$41,623,809	$41,554,095	$42,862,497	$18,811,004	$20,226,220	$20,327,649	$20,397,363	$19,088,961	$12,648,800	$13,600,413	$13,668,615	$13,715,491	$12,835,703
2022	10696	7376	7126	7104	7094	7325	$64,006,064	$44,135,593	$42,639,593	$42,511,535	$42,452,892	$43,833,999	$19,870,471	$21,366,472	$21,494,529	$21,553,172	$20,172,065	$12,959,459	$13,935,145	$14,018,664	$14,056,911	$13,156,157
2023	11040	7542	7278	7253	7245	7488	$66,060,671	$45,130,732	$43,553,948	$43,399,262	$43,351,689	$44,805,502	$20,929,939	$22,506,723	$22,661,409	$22,708,982	$21,255,169	$13,240,000	$14,237,452	$14,335,305	$14,365,399	$13,445,736
2024	11383	7708	7431	7401	7395	7650	$68,115,277	$46,125,871	$44,468,303	$44,286,988	$44,250,486	$45,777,004	$21,989,406	$23,646,974	$23,828,289	$23,864,792	$22,338,273	$13,491,954	$14,508,982	$14,620,230	$14,642,627	$13,706,007
2025	11726	7875	7584	7549	7545	7812	$70,169,884	$47,121,011	$45,382,658	$45,174,714	$45,149,282	$46,748,507	$23,048,873	$24,787,225	$24,995,169	$25,020,601	$23,421,377	$13,716,787	$14,751,311	$14,875,062	$14,890,197	$13,938,470
2026	12070	8041	7737	7698	7695	7975	$72,224,490	$48,116,150	$46,297,014	$46,062,441	$46,048,079	$47,720,009	$24,108,341	$25,927,477	$26,162,049	$26,176,411	$24,504,481	$13,915,901	$14,965,950	$15,101,350	$15,109,640	$14,144,563
2027	12413	8207	7890	7846	7845	8137	$74,279,097	$49,111,289	$47,211,369	$46,950,167	$46,946,876	$48,691,511	$25,167,808	$27,067,728	$27,328,929	$27,332,221	$25,587,585	$14,090,641	$15,154,345	$15,300,583	$15,302,426	$14,325,661
2028	12756	8373	8042	7994	7996	8299	$76,333,703	$50,106,428	$48,125,724	$47,837,894	$47,845,673	$49,663,014	$26,227,275	$28,207,979	$28,495,810	$28,488,030	$26,670,689	$14,242,291	$15,317,880	$15,474,182	$15,469,957	$14,483,080
2029	13100	8540	8195	8143	8146	8462	$78,388,310	$51,101,568	$49,040,079	$48,725,620	$48,744,470	$50,634,516	$27,286,742	$29,348,230	$29,662,690	$29,643,840	$27,753,794	$14,372,083	$15,457,881	$15,623,508	$15,613,580	$14,618,082
2030	13443	8706	8348	8291	8296	8624	$80,442,916	$52,096,707	$49,954,435	$49,613,347	$49,643,267	$51,606,019	$28,346,210	$30,488,482	$30,829,570	$30,799,650	$28,836,898	$14,481,194	$15,575,613	$15,749,865	$15,734,579	$14,731,871
																		$245,430,489	$263,861,392	$264,530,652	$265,909,204	$248,807,429

Table 7c. Crash Reduction Benefit Analysis for Hwy 371.

	Annual Crash Cost						Crash Reduction Benefit					PV (2008) Crash Benefit				
Year	**Alt 1**	**Alt 2**	**Alt 3**	**Alt 3MOD**	**Alt 4**	**Alt 5**	**Alt 2**	**Alt 3**	**Alt 3MOD**	**Alt 4**	**Alt 5**	**Alt 2**	**Alt 3**	**Alt 3MOD**	**Alt 4**	**Alt 5**
2010	$8,583,930	$7,731,050	$7,222,890	$8,206,840	$6,864,040	$7,377,210	$852,880	$1,361,040	$377,090	$1,719,890	$1,206,720	$802,362	$1,280,423	$354,754	$1,618,018	$1,135,244
2011	$8,795,497	$7,918,364	$7,400,517	$8,406,272	$7,032,845	$7,558,620	$877,133	$1,394,981	$389,226	$1,762,652	$1,236,878	$800,368	$1,272,894	$355,161	$1,608,387	$1,128,628
2012	$9,007,064	$8,105,678	$7,578,143	$8,605,703	$7,201,650	$7,740,029	$901,386	$1,428,921	$401,361	$1,805,414	$1,267,035	$797,767	$1,264,659	$355,223	$1,597,873	$1,121,383
2013	$9,218,631	$8,292,992	$7,755,770	$8,805,135	$7,370,455	$7,921,439	$925,639	$1,462,862	$413,497	$1,848,176	$1,297,193	$794,600	$1,255,769	$354,959	$1,586,536	$1,113,554
2014	$9,430,198	$8,480,306	$7,933,396	$9,004,566	$7,539,260	$8,102,848	$949,892	$1,496,802	$425,632	$1,890,938	$1,327,350	$790,901	$1,246,271	$354,391	$1,574,437	$1,105,181
2015	$9,641,765	$8,667,620	$8,111,023	$9,203,998	$7,708,065	$8,284,258	$974,145	$1,530,743	$437,768	$1,933,700	$1,357,508	$786,707	$1,236,208	$353,535	$1,561,631	$1,096,305
2016	$9,853,332	$8,854,934	$8,288,649	$9,403,429	$7,876,870	$8,465,667	$998,398	$1,564,683	$449,903	$1,976,462	$1,387,665	$782,050	$1,225,623	$352,411	$1,548,172	$1,086,964
2017	$10,064,899	$9,042,248	$8,466,276	$9,602,861	$8,045,675	$8,647,077	$1,022,651	$1,598,624	$462,039	$2,019,224	$1,417,823	$776,961	$1,214,558	$351,035	$1,534,110	$1,077,194
2018	$10,276,466	$9,229,562	$8,643,902	$9,802,292	$8,214,480	$8,828,486	$1,046,904	$1,632,564	$474,174	$2,061,986	$1,447,980	$771,472	$1,203,050	$349,423	$1,519,494	$1,067,028
2019	$10,488,033	$9,416,876	$8,821,529	$10,001,724	$8,383,285	$9,009,896	$1,071,157	$1,666,505	$486,310	$2,104,748	$1,478,138	$765,610	$1,191,136	$347,590	$1,504,370	$1,056,500
2020	$10,699,600	$9,604,190	$8,999,155	$10,201,155	$8,552,090	$9,191,305	$1,095,410	$1,700,445	$498,445	$2,147,510	$1,508,295	$759,404	$1,178,850	$345,552	$1,488,782	$1,045,640
2021	$10,911,167	$9,791,504	$9,176,782	$10,400,587	$8,720,895	$9,372,715	$1,119,663	$1,734,386	$510,581	$2,190,272	$1,538,453	$752,878	$1,166,227	$343,322	$1,472,772	$1,034,478
2022	$11,122,734	$9,978,818	$9,354,408	$10,600,018	$8,889,700	$9,554,124	$1,143,916	$1,768,326	$522,716	$2,233,034	$1,568,610	$746,058	$1,153,297	$340,914	$1,456,378	$1,023,042
2023	$11,334,301	$10,166,132	$9,532,035	$10,799,450	$9,058,505	$9,735,534	$1,168,169	$1,802,267	$534,852	$2,275,796	$1,598,768	$738,968	$1,140,090	$338,340	$1,439,638	$1,011,359
2024	$11,545,868	$10,353,446	$9,709,661	$10,998,881	$9,227,310	$9,916,943	$1,192,422	$1,836,207	$546,987	$2,318,558	$1,628,925	$731,630	$1,126,634	$335,613	$1,422,589	$999,453
2025	$11,757,435	$10,540,760	$9,887,288	$11,198,313	$9,396,115	$10,098,353	$1,216,675	$1,870,148	$559,123	$2,361,320	$1,659,083	$724,065	$1,112,957	$332,744	$1,405,263	$987,349
2026	$11,969,002	$10,728,074	$10,064,914	$11,397,744	$9,564,920	$10,279,762	$1,240,928	$1,904,088	$571,258	$2,404,082	$1,689,240	$716,293	$1,099,084	$329,744	$1,387,693	$975,069
2027	$12,180,569	$10,915,388	$10,242,541	$11,597,176	$9,733,725	$10,461,172	$1,265,181	$1,938,029	$583,394	$2,446,844	$1,719,398	$708,334	$1,085,039	$326,623	$1,369,909	$962,635
2028	$12,392,136	$11,102,702	$10,420,167	$11,796,607	$9,902,530	$10,642,581	$1,289,434	$1,971,969	$595,529	$2,489,606	$1,749,555	$700,206	$1,070,845	$323,392	$1,351,940	$950,067
2029	$12,603,703	$11,290,016	$10,597,794	$11,996,039	$10,071,335	$10,823,991	$1,313,687	$2,005,910	$607,665	$2,532,368	$1,779,713	$691,926	$1,056,524	$320,060	$1,333,813	$937,385
2030	$12,815,270	$11,477,330	$10,775,420	$12,195,470	$10,240,140	$11,005,400	$1,337,940	$2,039,850	$619,800	$2,575,130	$1,809,870	$683,512	$1,042,096	$316,636	$1,315,554	$924,606
												$15,822,072	$24,622,234	$7,181,421	$31,097,357	$21,839,066

Table 7D. Annual Crashes by Type.

	Alternative 1					Alternative 2					Alternative 3					Alternative 3MOD					Alternative 4					Alternative 5				
Year	K	A	B	C	N	K	A	B	C	N	K	A	B	C	N	K	A	B	C	N	K	A	B	C	N	K	A	B	C	N
2010	0.8	2.3	7.3	16.3	42.3	0.8	0.9	5.1	14.6	37.8	0.7	0.9	4.9	13.6	35.9	0.8	1.0	5.5	15.4	40.6	0.7	0.9	4.8	12.9	34.6	0.7	0.9	4.9	13.9	36.5
2011	0.8	2.3	7.4	16.7	43.4	0.8	0.9	5.2	14.9	38.7	0.7	0.9	5.0	13.9	36.8	0.8	1.0	5.7	15.7	41.6	0.7	0.9	4.9	13.2	35.4	0.7	0.9	5.1	14.2	37.4
2012	0.8	2.4	7.6	17.1	44.4	0.8	0.9	5.3	15.3	39.7	0.7	0.9	5.2	14.2	37.7	0.8	1.1	5.8	16.1	42.6	0.7	0.9	5.0	13.5	36.3	0.8	0.9	5.2	14.5	38.3
2013	0.8	2.4	7.8	17.5	45.4	0.8	0.9	5.5	15.6	40.6	0.8	1.0	5.3	14.6	38.6	0.9	1.1	5.9	16.5	43.6	0.7	1.0	5.1	13.8	37.1	0.8	0.9	5.3	14.9	39.2
2014	0.8	2.5	8.0	17.9	46.5	0.8	0.9	5.6	16.0	41.5	0.8	1.0	5.4	14.9	39.5	0.9	1.1	6.1	16.9	44.6	0.7	1.0	5.2	14.1	38.0	0.8	1.0	5.4	15.2	40.1
2015	0.8	2.5	8.2	18.3	47.5	0.9	1.0	5.7	16.3	42.5	0.8	1.0	5.5	15.2	40.3	0.9	1.1	6.2	17.3	45.6	0.8	1.0	5.3	14.5	38.8	0.8	1.0	5.5	15.6	41.0
2016	0.9	2.6	8.3	18.7	48.6	0.9	1.0	5.8	16.7	43.4	0.8	1.0	5.6	15.6	41.2	0.9	1.2	6.4	17.6	46.6	0.8	1.0	5.5	14.8	39.7	0.8	1.0	5.7	15.9	41.8
2017	0.9	2.6	8.5	19.1	49.6	0.9	1.0	6.0	17.1	44.3	0.8	1.1	5.8	15.9	42.1	0.9	1.2	6.5	18.0	47.6	0.8	1.1	5.6	15.1	40.5	0.9	1.0	5.8	16.2	42.7
2018	0.9	2.7	8.7	19.5	50.6	0.9	1.0	6.1	17.4	45.2	0.9	1.1	5.9	16.2	43.0	1.0	1.2	6.6	18.4	48.6	0.8	1.1	5.7	15.4	41.4	0.9	1.0	5.9	16.6	43.6
2019	0.9	2.7	8.9	19.9	51.7	0.9	1.1	6.2	17.8	46.2	0.9	1.1	6.0	16.6	43.9	1.0	1.2	6.8	18.8	49.6	0.8	1.1	5.8	15.7	42.2	0.9	1.1	6.0	16.9	44.5
2020	0.9	2.8	9.0	20.3	52.7	1.0	1.1	6.3	18.1	47.1	0.9	1.1	6.1	16.9	44.7	1.0	1.3	6.9	19.2	50.6	0.8	1.1	5.9	16.0	43.0	0.9	1.1	6.1	17.3	45.4
2021	1.0	2.9	9.2	20.7	53.8	1.0	1.1	6.5	18.5	48.0	0.9	1.1	6.2	17.2	45.6	1.0	1.3	7.0	19.5	51.6	0.9	1.1	6.0	16.3	43.9	0.9	1.1	6.3	17.6	46.3
2022	1.0	2.9	9.4	21.1	54.8	1.0	1.1	6.6	18.8	49.0	0.9	1.2	6.4	17.6	46.5	1.0	1.3	7.2	19.9	52.6	0.9	1.2	6.2	16.7	44.7	0.9	1.1	6.4	17.9	47.2
2023	1.0	3.0	9.6	21.5	55.8	1.0	1.1	6.7	19.2	49.9	0.9	1.2	6.5	17.9	47.4	1.1	1.3	7.3	20.3	53.6	0.9	1.2	6.3	17.0	45.6	1.0	1.1	6.5	18.3	48.1
2024	1.0	3.0	9.8	21.9	56.9	1.0	1.2	6.8	19.6	50.8	1.0	1.2	6.6	18.2	48.3	1.1	1.4	7.4	20.7	54.6	0.9	1.2	6.4	17.3	46.4	1.0	1.2	6.6	18.6	49.0
2025	1.0	3.1	9.9	22.3	57.9	1.0	1.2	7.0	19.9	51.8	1.0	1.2	6.7	18.6	49.1	1.1	1.4	7.6	21.1	55.6	0.9	1.2	6.5	17.6	47.3	1.0	1.2	6.7	19.0	49.9
2026	1.0	3.1	10.1	22.7	59.0	1.1	1.2	7.1	20.3	52.7	1.0	1.3	6.8	18.9	50.0	1.1	1.4	7.7	21.4	56.6	0.9	1.3	6.6	17.9	48.1	1.0	1.2	6.9	19.3	50.8
2027	1.1	3.2	10.3	23.1	60.0	1.1	1.2	7.2	20.6	53.6	1.0	1.3	7.0	19.2	50.9	1.1	1.4	7.9	21.8	57.6	1.0	1.3	6.7	18.2	49.0	1.0	1.2	7.0	19.6	51.7
2028	1.1	3.2	10.5	23.5	61.0	1.1	1.2	7.3	21.0	54.5	1.0	1.3	7.1	19.6	51.8	1.2	1.5	8.0	22.2	58.6	1.0	1.3	6.9	18.5	49.8	1.1	1.2	7.1	20.0	52.6
2029	1.1	3.3	10.7	23.9	62.1	1.1	1.3	7.5	21.4	55.5	1.0	1.3	7.2	19.9	52.7	1.2	1.5	8.1	22.6	59.6	1.0	1.3	7.0	18.9	50.7	1.1	1.3	7.2	20.3	53.5
2030	1.1	3.4	10.8	24.3	63.1	1.1	1.3	7.6	21.7	56.4	1.1	1.3	7.3	20.2	53.6	1.2	1.5	8.3	23.0	60.7	1.0	1.4	7.1	19.2	51.5	1.1	1.3	7.4	20.7	54.4