TABLE OF CONTENTS: BCA WORKBOOK

The items below are hyperlinked to the appropriate worksheet for simple navigation of this workbook.

Benefit-Cost Analysis Results

Benefit-Cost Analysis Assumptions

Data Inputs

Technical Memorandum Tables

5.1 Safety

5.2a Value of Travel Time Savings (Peak)

5.2b Value of Travel Time Savings (Non-Peak)

5.3 Vehicle Miles Traveled Operating Cost Savings

5.4 Emissions

5.5 Pedestrian and Cyclist

5.6 Health

5.8 Resilience

6.1 Capital Costs

6.2 Operating and Maintenance Costs

6.3 Residual Value

Note: Sheet numbers (4.1, 4.1 etc.) correspond to the US DOT 2023 BCA Guidance for Discretionary Grant Programs

INVESTMENT ANALYSIS

2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements

BCA SUMMARY	Value (2021$)
6.1 and 6.2 Life-Cycle Costs	$ 2,175,033,052
Life-Cycle Benefits	$ 3,518,228,903
Net Present Value	$ 1,343,195,851
BENEFIT / COST RATIO:	**1.62**

ITEMIZED BENEFITS	Passenger Benefits	Freight Benefits	Total Over 20 Years (2021$)	Average Annual (2021$)
5.1 Crash Costs/Savings			$ 664,771,131	$ 33,238,557
5.2A Travel Time Savings (Peak)	$ 747,867,125	$ 31,022,745	$ 778,889,870	$ 38,944,494
5.2B Travel Time Savings (Non-Peak)	$ 1,411,708,314	$ 88,060,029	$ 1,499,768,344	$ 74,988,417
5.3 Veh. Op. Cost Savings	$ 87,815,363	$ 199,243,123	$ 287,058,485	$ 14,352,924
5.4 Emissions Benefits			$ 30,222,098	$ 1,511,105
5.5 Facility/Veh. Health			$ 47,261,444	$ 2,363,072
5.6 Health			$ 1,936,173	$ 96,809
5.7 Other Benefits (Qualitative Inclusion)			$ -	$ -
5.8 Other Benefits (Resilience Qualitative Inclusion)			$ -	$ -
6.3 Residual Value			$ 208,321,359	$ 10,416,068
TOTAL BENEFITS	**$ 2,247,390,802**	**$ 318,325,896**	**$ 3,518,228,903**	**$ 175,911,445**

Notes:

[1] Includes Capital and O&M Costs

4.4 EMISSIONS REDUCTION	Tons Total Over 20 Years	Average Annual	Value Total Over 20 Years (2021$)	Value Average Annual (2021$)
CO_2 Emissions Avoided (Short Ton)	900,805.50	45,040.28	$ 15,161,602	$ 758,080
NO_X Emissions Avoided (Short Ton)	1,561.42	78.07	$ 7,038,125	$ 351,906
$PM_{2.5}$ Emissions Avoided (Short Ton)	36.65	1.83	$ 8,022,371	$ 401,119

Sheet numbers (5.1, 5.1 etc.) correspond to the US DOT 2023 BCA Guidance for Discretionary Grant Programs

GENERAL PROJECT INFORMATION

Title: 2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements

	Corridor #1	Corridor # 2
Name:	I-495/I-270	N/A
BCA Corridor Length (mi):	6.5	
Number of Lanes (Build):	13	
Number of Bridges (Build):	1	
Est. Roadway Length (mi):	6.23	
Est. Bridge Length (mi):	0.27	
Average Speed Condition (mph):	36	
Additional Ped Width (ft):	10.00	
Additional Bike Width (ft):	10.00	
BCA Ped Corridor Length (mi):	0.38	
BCA Bike Corridor Length (mi):	0.38	
Number of New Crossings (est.)	0.00	

	No-Build (Existing)	Build		
Trucks/Buses allowed on roadway?	Yes	Yes		
Consider induced vehicle traffic?	Yes	<< If Yes, % :	0%	
Additional Capacity in Evacuation (lanes)	N/A			

	Text	Year
$ Value Year:	2021$	2021

Data Base Year:	2021
Analysis Base Year:	2032
Analysis Period (years):	20
Analysis Forecast Year:	2051
Years to Construction:	2

DISCOUNT RATE

Source: BCA Guidance (2023)

Rate:	7%
CO_2 Rate:	3%

CRASH COSTING

Source 1: BCA Guidance (2023), Table A-1
Source 2:
Source Link > N/A

	Cost Per Accident (2021$)	Source Utilized
Cost of a Fatal Crash (K)	$ 13,046,800	BCA Guidance (2023), Table A-1
Cost of an Injury Crash (A, B, C, U)	$ 307,800	BCA Guidance (2023), Table A-1
Property Damage Only (O)	$ 4,800	BCA Guidance (2023), Table A-1
KABCO		
O - No Injury	$ 4,000	BCA Guidance (2023), Table A-1
C - Possible Injury	$ 78,500	BCA Guidance (2023), Table A-1
B - Non-incapacitating Injury	$ 153,700	BCA Guidance (2023), Table A-1
A - Incapacitating Injury	$ 564,300	BCA Guidance (2023), Table A-1
K - Killed	$ 11,800,000	BCA Guidance (2023), Table A-1
U - Injured Severity Unknown	$ 213,900	BCA Guidance (2023), Table A-1
Unknown	$ 162,600	BCA Guidance (2023), Table A-1

PEAK HOURS

Weekdays / year:	260	
Peak hours / day:	8	
Peak Hours / year:	2,080	
Total Hours / year:	8,760	Peak vs. Non-Peak %
Peak Hours / year:	2,080	24%
Non-peak Hours / year:	6,680	76%

ANNUAL TRAFFIC GROWTH

Source 1: FEIS and Analysis

		Source Utilized
No Build Annual Traffic Growth Rate:	0.42%	FEIS and Analysis
Build Annual Traffic Growth Rate:	0.92%	FEIS and Analysis

TRUCK PERCENTAGE

Source: MDOT Station B2970

		Source Utilized
Estimated Truck Percentage	5.7%	MDOT Station 52002150054

OCCUPANCY

Source: BCA Guidance (2023), Table A-4

Passenger Vehicle - Weekday Peak	1.48
Passenger Vehicle - Weekday Off-Peak	1.58
Passenger Vehicle - Weekend	2.02
Passenger Vehicle - All Travel	1.67

VEHICLE TIME SAVINGS

Source 1: BCA Guidance (2023), Table A-3
Source 2:

	Hourly Value of Travel Time Savings	Source Utilized
Personal General Travel Time	$ 17.00	BCA Guidance (2023), Table A-3
Business General Travel Time	$ 31.90	BCA Guidance (2023), Table A-3
All Purposes General Travel Time	$ 18.80	BCA Guidance (2023), Table A-3
Commercial Vehicle Truck Drivers	$ 32.40	BCA Guidance (2023), Table A-3
Commercial Vehicle Bus Drivers	$ 35.00	BCA Guidance (2023), Table A-3
Locomotive Engineers	$ 57.40	BCA Guidance (2023), Table A-3

OPERATING COSTS

Source 1: BCA Guidance (2023), Table A-5 — Source Link > https://www.bca.gov.sg/CostBenefitAnalysis/Appendix.pdf
Source 2: AAA Driving Costs (2022) — Source Link > https://newsroom.aaa.com/wp-content/uploads/2022/08/2022-YDC-Costs-Break-Out-by-Category.pdf
Source 3: ATRI An Analysis of Op Costs of Trucking: 2023 Update — Source Link > https://truckingresearch.org/atri-research/operational-costs-of-trucking/

	Value per Mile	Source Utilized
Light Duty Vehicle / Automobile	$ 0.46	BCA Guidance (2023), Table A-5
Commercial Truck	$ 1.01	BCA Guidance (2023), Table A-5

	Value Per Hour	Source Utilized
Light Duty Vehicle / Automobile	$ 0.89	AAA Driving Costs (2022)
Commercial Truck	$ 54.21	ATRI An Analysis of Op Costs of Trucking: 2023 Update

Used in BCA

Note: Considers Depreciation (15k mi/yr) and operating Costs for a year
$3,656 and $4,151 respectively (updated for 2022) https://newsroom.aaa.com/wp-content/uploads/2022/08/2022-YDC-Costs-Break-Out-by-Category.pdf
Average Marginal Costs per Hour 2022 (Vehicle Based Only) https://truckingresearch.org/atri-research/operational-costs-of-trucking/

PEDESTRIANS & CYCLISTS

Source: BCA Guidance (2023), Table A-8, A-9

	Value per Person-Mile Walked
Sidewalk Value per Foot of Added Width	$ 0.11
Reducing Upslope by 1%	$ 1.05
Reducing Traffic Speed by 1mph (speeds <= 45mph)	$ 0.09
Reducing Traffic Volume by 1 vph (ADT >= 55,000)	$ 0.0009
Install Marked Crosswalk (>= 10,000 vpd)	$ 0.18
Install Signal for Ped Crossing (>= 13,000 vpd)	$ 0.48
Cycling Path with At-Grade Crossings	$ 1.49
Cycling Path with No At-Grade Crossings	$ 1.87
Dedicated Cycling Lane	$ 1.77
Cycling Boulevard/Sharrow	$ 0.28
Separated Cycle Track	$ 1.77
Assumed Increase in Demand	200%
Benefit to Additional Users	0.50

Note: Rule of Half Applied to New Users

AVERAGE IDLE EMISSION RATES

Source: USDOT Federal Railroad Administration (2019) — Source Link > https://www.fra.dot.gov/Elib/Search/Detail/53000

Year	NO_x (g/min)	$PM_{2.5}$ (g/min)	CO_2 (g/min)	SOx (g/min)
Cars	0.0586	0.0000	31.0652	0.0000
Buses	0.0888	0.0000	87.5789	0.0000
Trucks	0.5627	0.0383	107.4107	6.9937

Conversion Rate: g/min -> short tons g/hr: 0.0000661380

Document Display | NEPIS | US EPA
Possible source/slight update
Check Vehicle Type Classifications
Does not include SOx
Source is 2008

YEARLY EMISSION VALUES

Source: BCA Guidance (2022), Table A-6

Year	NOx	$PM_{2.5}$	CO_2	SOx
2022	$ 16,600	$ 796,700	$ 56	$ 44,300
2023	$ 16,800	$ 810,500	$ 57	$ 45,100
2024	$ 17,000	$ 824,500	$ 58	$ 46,000
2025	$ 17,200	$ 838,800	$ 59	$ 46,900
2026	$ 17,500	$ 852,100	$ 60	$ 47,800
2027	$ 17,900	$ 865,600	$ 61	$ 48,700
2028	$ 18,200	$ 879,400	$ 62	$ 49,500
2029	$ 18,600	$ 893,400	$ 63	$ 50,400
2030	$ 18,900	$ 907,600	$ 65	$ 51,300
2031	$ 18,900	$ 907,600	$ 66	$ 51,300
2032	$ 18,900	$ 907,600	$ 67	$ 51,300
2033	$ 18,900	$ 907,600	$ 68	$ 51,300
2034	$ 18,900	$ 907,600	$ 69	$ 51,300
2035	$ 18,900	$ 907,600	$ 70	$ 51,300
2036	$ 18,900	$ 907,600	$ 72	$ 51,300
2037	$ 18,900	$ 907,600	$ 73	$ 51,300
2038	$ 18,900	$ 907,600	$ 74	$ 51,300
2039	$ 18,900	$ 907,600	$ 75	$ 51,300

2040	$ 18,900	$ 907,600	$ 76	$ 51,300	
2041	$ 18,900	$ 907,600	$ 78	$ 51,300	
2042	$ 18,900	$ 907,600	$ 79	$ 51,300	
2043	$ 18,900	$ 907,600	$ 80	$ 51,300	
2044	$ 18,900	$ 907,600	$ 81	$ 51,300	
2045	$ 18,900	$ 907,600	$ 82	$ 51,300	
2046	$ 18,900	$ 907,600	$ 84	$ 51,300	
2047	$ 18,900	$ 907,600	$ 85	$ 51,300	
2048	$ 18,900	$ 907,600	$ 86	$ 51,300	
2049	$ 18,900	$ 907,600	$ 87	$ 51,300	
2050	$ 18,900	$ 907,600	$ 88	$ 51,300	
2051	$ 18,900	$ 907,600	$ 88	$ 51,300	Note: estimate (based on 2050) since 2050+ not included in BCA Guidance
2052	$ 18,900	$ 907,600	$ 88	$ 51,300	
2053	$ 18,900	$ 907,600	$ 88	$ 51,300	
2054	$ 18,900	$ 907,600	$ 88	$ 51,300	

Conversion Rate (Metric Tons to Short Tons): 1.1015

FUEL ECONOMY (MPG)

Source 1: FHWA (2021) — Source Link > https://www.vocs.gov.uk/engineering-guidance/standards-and-advice/vehicle-emissions-and-efficiency

Source 2: Geotab — Source Link > https://www.geotab.com/truck-mpg-benchmark/

	MPG	Source Utilized:
Weighted Average Combined Fuel Economy (Cars and Light Trucks)	22.90	FHWA (2021)
Class 7 and Class 8 Trucks	6.29	Geotab

Note: Specific to VA

ACTIVE TRANSPORTATION BENEFITS

Source: BCA Guidance (2023), Table A-13

	Value per Induced Trip
Walking	$ 7.20
Cycling	$ 6.42

MULTIPLIERS TO ADJUST TO REAL DOLLARS

Source: BCA Guidance (2023), Table A-7

Base Year	Multiplier to 2021$
2003	1.44
2004	1.40
2005	1.36
2006	1.32
2007	1.28
2008	1.26
2009	1.25
2010	1.24
2011	1.21
2012	1.19
2013	1.17
2014	1.15
2015	1.14
2016	1.12
2017	1.10
2018	1.08
2019	1.06
2020	1.04
2021	1.00

CRASH DATA

Source 1: 2015-2020
Source 2:
Source Link 1: Table 8.1 270 Corridor Lines Study Final Environmental Impact Statement Supplemental.docx

Assumed Distance of Crash Data (mi): I-495/I-270: 6.56 | N/A:

	I-495/I-270	N/A
NARCO Crash Severity		
O - No Injury	1042	
C - Possible Injury	461	
B - Non-Incapacitating Injury	58	
A - Incapacitating Injury	15	
K - Fatal Injury	5	
U - Injured Severity Unknown	0	
X Unknown	0	
Total	**1581**	**0**
Bicycle Related	0	
Pedestrian Related	0	

Crash Data from ESS:

	I-270 East Spur	I-270 West Spur	I-495 Maryland	I-495 Virginia
O - No Injury	1792	158	655	162
C - Possible Injury	542	39	267	26
B - Non-Incapacitating Injury	242	8	107	10
A - Incapacitating Injury	47	3	12	13
K - Fatal Injury	5	0	4	0
U - Injured Severity Unknown				

X Unknown
Note: Sum of MDOT and VDOT crash data for 2016 to 2018

Crashes Each Year					Sum	
2016	829	67	368		198	1463
2017	865	85	399		209	1558
2018	972	73	433		224	1702
					Crash Growth Rate	8.97%

DAILY CORRIDOR VOLUME DATA

Source: 2015-2020
Source Link >
Station Key: Intersection
Note: Value from PRTS and Drawn with Rate

	I-495/I-270 Count Station(s)		N/A Count Station(s)	
Year	Volume	Growth Rate	Volume	Growth Rate
2014	247,000			
2015	257,451			
2016	247,700			
2017	261,000			
2018	261,000			
2019	261,147			
2020	261,293			
2021	261,439			
2022	261,585			
Anticipated Growth Rate	**0.4%**			

Source: I-495 & I-270 Managed Lanes Study Final Environmental Impact Statement Supplemental.docx

2017 and Build Volumes Per Cols	No Build	Build
2017	253,000	253,000
2045	281,000	318,000
Ave Diff. No Build	0.42%	
Ave Diff. Build	0.90%	

Table 4-1: Existing Average Daily Traffic (ADT)

Corridor	Segment	Existing Volumes (2017)
I-270 (both directions)	I-270 to MD 28	225,000
	MD 28 to I-270 Spur	250,000
	at American Legion Bridge	245,000
	MD 355 to I-270 Spur	256,000
	Between I-270 Spurs	320,000
	MD 355 to I-95	250,000
	I-95 to MD 187	240,000
	MD 187 to MD 410	241,000
	MD 410 to MD 4	215,000
	MD 4 to MD 5	186,000
I-495 (both directions)	I-270 to MD 355	170,000
	MD 355 to I-95	190,000
	I-95 to US 50	240,000
	US 50 to MD 214	236,000
	MD 214 to MD 4	245,000
	MD 4 to MD 5	215,000

Table 4-2: 2045 Average Daily Traffic (ADT)

Corridor	Segment	No Build (2045)	Preferred Alternative (2045)
I-270	I-270 to MD 28	270,000	299,000
	MD 28 to I-270 Spur	290,000	310,000
	at American Legion Bridge	280,000	300,000
	MD 355 to I-270 Spur	285,000	310,000
	Between I-270 Spurs	336,000	336,000
	MD 355 to I-95	270,000	270,000
	I-95 to MD 187	240,000	250,000
	MD 187 to MD 410	236,000	246,000
	MD 410 to MD 4	245,000	255,000
	MD 4 to MD 5	215,000	224,000

CBPI

Source: Tier Two's Draft Application for Interstate Access Point Approval
Source: I-495 & I-270 Managed Lanes Study Final Environmental Impact Statement Supplemental.docx
page 269

Crash Reduction From Studs	K	A	B	C	O	Bike	Ped	CRF	Additional Notes	Additional %:
	Specific Crash Type ("x" = Applies)									
Reduction Crash Number	x	x	x	x	x			36.50%		
Reduction Crash Rate								36.50%		

AVERAGE WEEKDAY SPEED

Source: Supplemental Draft EIS Appendix A (2022)

	Average Peak Speed (mph)	Average Non-Peak Speed (mph)
I-495/I-270	45.0	56.5
N/A		

TRANSIT, BIKE, AND PEDESTRIANS

Source: Replica

Year	Transit	Bikes	Pedestrians
Fall 2022 (Average Thur & Sat)	0	0	45
	0	0	65

Season	Transit	Bike	Ped
	0	0	0
	0	0	0
Fall 2022, Thu	0	0	45
Fall 2022, Sat	0	10	65

POPULATION

Source: VA Census ACS 2015-19

	Nearby Tracts Total	Nearby Tracts List
Total Population	21,551	7002
Population between 20-70*	20,.891	7003.01
Population between 20-60*	17,.444	7003.02
		7004.01
*Note: Age ranges defined in BCA Guidance (2020) Table B-13		7004.02
20-70 Walking value per induced trip (50% of trips induced)	27.25	7005
20-60 Biking value per induced trip (50% of trips induced)	36.32	7006
		7007
		7008.01
		7008.02
Consideration for Heart Risk Delay (Identified Census Tracts Population over 65 Years Old		Tracts, if different than above
Consideration for Renovations / Disruptions.		
Total Population Impacted		

Speed Estimates:
Source: https://fpublicrsmd.com/wp-content/uploads/2019/08/01_MLS_FY19_App A_Traffic-Tech-Report_June-2020p.pdf

		2017 GP Lanes	2045 No Build GP	2045 Build GP	2045 Build HOT
Outer I-495	AM	62	38	55	60
Outer I-495	AM	66	35	50	62
Inner I-495	PM	19	15	55	60
Outer I-495	PM	53	12	52	62
Average		50	27.25	53	62.5
Future Building				52.75	
Estimated Base Year Increase				1.75%	

Weighted Average from whole corridor used for base year: 56

RAILROAD CROSSING

Source: FRA (2020)

Average Passenger Train Count Per Day	N/A	N/A
Total Day Time Train (6AM to 6PM)		
Total Night Time Train (6PM to 6AM)		
Total Switching Trains		
Total Transit Trains		
Maximum Timetable Speed (mph)		
Positive Train Control (Yes or No)		
Track Circuits		
Motion/Arm Arrival		
Predictive Arrival		
Traffic Lanes Crossing		

WEATHER AND CLIMATE VULNERABILITY

Source 1:
Source 2:
Source 3:

	Baseline Scenario	Sea Level Rise Scenario
Year (average of range)		
Annual Frequency of Flood Events (days)		
Annual Duration of Flooding (hours)		

	Storm	Year
Evacuation Event #1		
Evacuation Event #2		
Evacuation Event #3		
Evacuation Event #4		
Evacuation Event #5		
Evacuation Event #6		

Evacuation Speed Using RITIS	Date	Speed	Assumed Improvement

DOLLARS SPENT AND AUTHORIZED

Source: MDOT Cost Estimate May 2022

	Previously Spent	Authorized
ROW		
Planning/Design	$ 201,000,000	$ 42,000,000
CEI		$ 3,900,000,000
UTL		
Other		

Note: Design-Build - Estimate Lumped and Contingency

INVESTMENT

Source: MDOT CTP 23-24
Source Link >

Estimated Annual Total: 2023	
Maintenance & Preservation	$ 2,568,627,000.00
Bridge Repair	$ 2,568,627,000.00

Estimated Future Funding	Estimated Annual Total: 2023
Pavement	$ 2,568,627,000
Bridges	$ 2,568,627,000
Operations	
Safety	
Capacity	

Total 2023	$	10,324,900,000
In 5 2023	$	9 017 293 086 82

Note: Estimates 1/2 of Road/Bridge Costs are split between pavement and bridges

STATE INFRASTRUCTURE ASSETS

Source 1: MDOT Unit Asset Management Brochure (2021)
Source 2: Maryland State Rail Plan (2019)
Source Link >
Source Link >

	State Total
Roadway Miles	17,000
Bridges	2,900
Railways (mi)	300

Benefit Cost Results Summary

Life-Cycle Costs	**$2,175,033,052**
Life Cycle Benefits	**$3,518,228,903**
Net Present Value	**$1,343,195,851**
Benefit Cost Ratio	**1.62**

BCA General Assumptions

BCA General Assumptions	
Trucks/Buses allowed on roadway?	**Yes**
$ Value Year:	**2021$**
Data Base Year:	**2021**
Analysis Base Year:	**2032**
Analysis Forecast Year:	**2051**
Years to Construction:	**2**
Peak Hours / year:	**24%**
Non-peak Hours / year:	**76%**
No Build Annual Traffic Growth Rate:	**0.4%**
Truck Percentage:	**6%**
Discount Rate:	**7%**
Discount Rate CO2:	**3%**

Five-Year Crash Data (2017-2021) (Excel tab 5.1)

Roadway Crash Data		
Actual 5-Year Crash Data	**Count (No.)**	**Percent of Crashes**
K - Killed	9	0.2%
A - Incapacitating Injury	80	1.7%
B - Non-Incapacitating Injury	548	11.7%
C - Possible Injury	854	18.2%
O - No Injury	3210	68.3%
Total	4701	-

Project Study Area Crashes and Severity (2017-2021) (Excel tab 5.1)

Crash Severity	**Project Corridor**
(A) Suspected Serious Injury	80
(B) Suspected Minor/Visible Injury	548
(C) Possible Injury / Complaint	854
(K) Fatal Injury	9
(O) No Injury	3,210
Total Crashes	4,701

Proposed CMFs to be Applied to the Project (Excel tab 5.1)

CMF(s)	**Crash Reduction Factor**
	35.0%
	29.5%

Peak and Non-Peak Travel Time Savings Assumptions

Vehicle Travel Time Savings Peak and Non-Peak Hour Assumptions (Base Year No-Build)		
	I-495/I-270	**N/A**
Data Base Year	2021	
Analysis Base Year	2032	
Years to Construction	2	
Analysis Forecast Year	2051	
Peak Hour Vehicle Average Volume (Year)	23,361,581	0
Non-Peak Hour Vehicle Average Volume (Year)	75,026,617	0
Peak Hour Vehicle Occupancy	1.48	
Non-Peak Hour Vehicle Occupancy	1.67	
Hourly Value of Travel - Personal Vehicles	$18.80	
Hourly Value of Travel - Commercial Trucks	$32.40	

Estimated Annual Volume (Excel tab 5.2a and 5.2b)

Segment Description	**Year**	**Average Volume (total vehicles/year)**	**AUTOS: Average Volume (Autos / year)**	**TRUCKS: Average Volume (Trucks / year)**
I-495/I-270	1	98,388,199	92,780,072	5,608,127
	20	106,613,909	100,536,917	6,076,993
N/A	1	0	0	0
	20	0	0	0

Hourly Value of Travel Time Savings (Excel tab 5.2a)

2023 BCA Guidance	**Hourly Value of Travel Time Savings**
In-Vehicle Personal	$18.80
Commercial Vehicle Truck Drivers	$32.40

VTTS by Segment (Excel tab 5.2a)

	VTTS by Type (2021$)		
	Autos	**Trucks**	**Total**
I-495/I-270	$2,159,275,440	$119,082,774	$2,278,358,214
N/A	$0	$0	$0

	Crash Cost Savings (2021$)
I-495/I-270	$664,771,131
N/A	$0

Anticipated Operating Costs and Savings (Excel tab 5.3 VHT Operating Cost Savings)

Operating Cost Assumptions	
	Value Per Hour
Light Duty Vehicle	$0.89
Commercial Truck	$54.21

Operational Cost Savings by Corridor (Excel tab 5.3)

	Operational Cost Savings by Type (2021$)		
	Autos	**Trucks**	**Total**
I-495/I-270	$87,815,363	$199,243,123	$287,058,485
N/A	$0	$0	$0

Value and Amount of Assumed Emissions Reduction (Excel tab 5.4)

Carbon Dioxide (CO_2) Avoided[a]	**Value of CO2 Avoided (2021$)**	**NOx Avoided[b]**	**Value of NOx Avoided (2021$)**	**PM2.5 Avoided[b]**	**Value of PM2.5 Avoided (2021$)**	**Total Value (2021$)**
900,805.50	$15,161,602	1,561.42	$7,038,125	36.65	$8,022,371	**$30,222,098**

Bicycle and Pedestrian Benefit (2021$)
$47,261,444

Health Benefit (2021$)
$1,936,173

Land Value Increase (2021$)
#REF!

Capital Cost (2021$)
$2,162,448,153

Total Maintenance Costs (2021$)
$12,584,899

Anticipated Operating Costs between 2025 and 2051 (Excel tab 6.2)

Year	**AVERAGE O&M COST (Years 2032-2051)**	
	Constant $	**2021$**
1	$2,075,141	$985,885
20	$2,075,141	$272,605
2	$2,075,141	$948,344
3	$2,075,141	$910,803
4	$2,075,141	$873,262
5	$2,075,141	$835,721
6	$2,075,141	$798,179
7	$2,075,141	$760,638
8	$2,075,141	$723,097
9	$2,075,141	$685,556
10	$2,075,141	$648,015
11	$2,075,141	$610,474
12	$2,075,141	$572,933
13	$2,075,141	$535,392
14	$2,075,141	$497,851
15	$2,075,141	$460,310
16	$2,075,141	$422,769
17	$2,075,141	$385,228
18	$2,075,141	$347,687
19	$2,075,141	$310,146
Total		**$12,584,899**

Residual Year Value (Excel tab 6.3)

Residual Year Value Calculation (50-Year Service Life)	
Constant Dollar Value	$1,585,795,312
Discounted Dollar Value (2021$)	$208,321,359

Project Benefit Cost Analysis (2025-2051 in (2021$)) (Excel tab Benefits + Costs Summary)

	2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements
	20 Year Benefits Period (2032-2051)
	Values in 2021$
	Discounted at 7% (3% for CO2)
Costs (2021$)	
Total Costs	$2,175,033,052

Benefits (2021$)	
Fatalities and Crashes	$664,771,131
Residual Value	$208,321,359
Travel Time Savings (Peak)	$778,889,870
Travel Time Savings (Non-Peak)	$1,499,768,344
Vehicle Operation Savings	$287,058,485
Emissions Savings	$30,222,098
Facility and Vehicle Amenity Benefits	$47,261,444
Health Benefits	$1,936,173
Single Year Land Value Increase	#REF!

Life-Cycle Costs	**$2,175,033,052**
Life Cycle Benefits	**$3,518,228,903**

BC Ratio	**1.62**
Net Present Value	**$1,343,195,851**

Resilience VTTS by Type (Excel tab 5.8)

	VTTS by Type (2021$)		
	Autos	**Trucks**	**Total**
Evacuation	#DIV/0!	$0	#DIV/0!
Flooding	#DIV/0!	#DIV/0!	#DIV/0!

SAFETY

2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements

CRASH COSTING ASSUMPTIONS

Inputs from BCA Assumptions Sheet

	Cost Per Accident	% Crashes * Cost	3-Year Total Cost
Cost of a Fatality (K)	$ 13,046,800	$ 24,977.92	$ 117,421,200
Cost of an Injury (A, B, C, U)	$ 307,800	$ 97,035	$ 456,159,600
Property Damage Only (O)	$ 4,800	$ 3,278	$ 15,408,000
KABCO			
O - No Injury	$ 4,000	$ 2,731	$ 12,840,000
C - Possible Injury	$ 78,500	$ 14,261	$ 67,039,000
B - Non-incapacitating Inju	$ 153,700	$ 17,917	$ 84,227,600
A - Incapacitating Injury	$ 564,300	$ 9,603	$ 45,144,000
K - Killed	$ 11,800,000	$ 22,590.94	$ 106,200,000
U - Injured Severity Unknol	$ 213,900	$ -	$ -
# Unknown	$ 162,600	$ -	$ -
KABCO Total			$ 315,450,600

CRASH DATA - SEVERITY

Inputs from Data Inputs Sheet

KABCO Crash Severity	I-495/I-270	N/A	Total	3-Year Average	Assumed % Crashes
O - No Injury	3210	0	3210	1070.00	68.3%
C - Possible Injury	854	0	854	284.67	18.2%
B - Non-incapacitating Injury	548	0	548	182.67	11.7%
A - Incapacitating Injury	80	0	80	26.67	1.7%
K - Killed	9	0	9	3.00	0.2%
U - Injured Severity Unknown	0	0	0	0.00	0.0%
# Unknown	0	0	0	0.00	0.0%
Total / Weighted Average	**4701**	**0**	**4701**	**1567.00**	**100.0%**
% of Total by Corridor	**100.0%**	**0.0%**			

CRASH DATA - SEVERITY

Inputs from Data Inputs Sheet

Crash Type	I-495/I-270	N/A	Total	5-Year Average	Assumed % Crashes
Bicycle Related	0	0	0	0.00	0.0%
Pedestrian Related	0	0	0	0.00	0.0%

CORRIDOR VOLUME DATA

Inputs from Data Inputs Sheet

Year	I-495/I-270	N/A	Total
2014	227,350	0	227,350
2015	232,811	0	232,811
2016	237,702	0	237,702
2017	253,000	0	253,000
2018	254,071	0	254,071
2019	255,147	0	255,147
2020	256,228	0	256,228
2021	257,313	0	257,313
Total of Crash Years (2017-2021)	744,773	0	744,773
Average AADT (2016-2018)	248,258	0	255,152
Annualized (2016-2018)	90,614,100	0	93,130,462
Crashes as % of Annual AADT	0.0017329%	0.000000%	0.0016816%

For Formula

ASSUMED CRASH RATE

Inputs from Data Inputs Sheet

	I-495/I-270	N/A
Crash Rate per HMVMT	1,037.59	0.00
Assumed Distance of Crash Data (mi)	6.50	0.0

$$R = \frac{C \times 100{,}000{,}000}{V \times 365 \times N \times L}$$

The variables in this equation are:

R = Roadway Departure crash rate for the road segment expressed as crashes per 100 million vehicle-miles of travel,
C = Roadway Departure crashes for the road segment for 5 years,
V = Traffic volumes using Average Annual Daily Traffic (AADT) volumes
N = Number of years of data
L = Length of the roadway segment in miles

I-495/I-270	AVERAGE VOLUME (vehicles/year)		ASSUMED CRASHES BY VOLUME (yearly)		ACCIDENT COSTS		CONSTANT VALUE	PRESENT VALUE
Year	No Build	Build	No Build	Build (CMF Applied)	No Build	Build	SAVED	SAVED (2021$)
1	98,388,159	103,845,770	5667.0	4112.5	$ 380,275,067.80	$ 275,903,488.03	$ 104,311,580	$ 49,957,689
20	106,613,904	123,525,595	9437.3	7518.0	$ 633,272,057.82	$ 504,477,018.96	$ 128,795,039	$ 16,919,433
2	98,821,131	104,881,550	5865.5	4291.8	$ 393,590,698.85	$ 287,990,515.97	$ 105,600,183	$ 47,839,878
3	99,254,063	105,917,330	6063.9	4471.0	$ 406,906,329.90	$ 300,017,543.92	$ 106,888,786	$ 46,122,075
4	99,686,995	106,953,110	6262.4	4650.2	$ 420,221,960.96	$ 312,044,571.86	$ 108,177,389	$ 44,404,273
5	100,119,927	107,988,891	6460.8	4829.4	$ 433,537,592.01	$ 324,071,599.80	$ 109,465,992	$ 42,686,470
6	100,552,860	109,024,671	6659.2	5008.7	$ 446,853,223.07	$ 336,098,627.75	$ 110,754,595	$ 40,968,668
7	100,985,792	110,060,451	6857.7	5187.8	$ 460,168,854.12	$ 348,125,655.69	$ 112,043,198	$ 39,250,865
8	101,418,724	111,096,232	7056.1	5367.2	$ 473,484,485.17	$ 360,152,683.61	$ 113,331,802	$ 37,533,063
9	101,851,656	112,132,012	7254.5	5546.4	$ 486,800,116.23	$ 372,179,711.58	$ 114,620,405	$ 35,815,260
10	102,284,588	113,167,792	7453.0	5725.6	$ 500,115,747.28	$ 384,206,739.52	$ 115,909,008	$ 34,097,458
11	102,717,520	114,203,573	7651.4	5904.9	$ 513,431,378.33	$ 396,233,767.46	$ 117,197,611	$ 32,379,655
12	103,150,452	115,239,353	7849.8	6084.1	$ 526,747,009.39	$ 408,260,795.41	$ 118,486,214	$ 30,661,853
13	103,583,385	116,275,133	8048.3	6263.3	$ 540,062,640.44	$ 420,287,823.35	$ 119,774,817	$ 28,944,050
14	104,016,317	117,310,913	8246.7	6442.4	$ 553,378,271.50	$ 432,314,851.29	$ 121,063,420	$ 27,226,248
15	104,449,249	118,346,694	8445.2	6621.8	$ 566,693,902.55	$ 444,341,879.24	$ 122,352,023	$ 25,508,445
16	104,882,181	119,382,474	8643.6	6801.0	$ 580,009,533.60	$ 456,368,907.18	$ 123,640,626	$ 23,790,643
17	105,315,113	120,418,254	8842.0	6980.3	$ 593,325,164.66	$ 468,395,935.12	$ 124,929,230	$ 22,072,840
18	105,748,045	121,454,035	9040.5	7159.5	$ 606,640,795.71	$ 480,422,963.07	$ 126,217,833	$ 20,355,038
19	106,180,977	122,489,815	9238.9	7338.7	$ 619,956,426.76	$ 492,449,991.01	$ 127,506,436	$ 18,637,235
						TOTAL:	**$ 2,331,066,186**	**$ 664,771,131**

Used in BCA

N/A	AVERAGE VOLUME (vehicles/year)		ASSUMED CRASHES BY VOLUME (yearly)		ACCIDENT COSTS		CONSTANT VALUE	PRESENT VALUE
Year	No Build	Build	No Build	Build (CMF Applied)	No Build	Build	SAVED	SAVED (2021$)
1	0	0	0.0	0.0	$ -	$ -	$ -	$ -
20	0	0	0.0	0.0	$ -	$ -	$ -	$ -
2	0	0	0.0	0.0	$ -	$ -	$ -	$ -
3	0	0	0.0	0.0	$ -	$ -	$ -	$ -
4	0	0	0.0	0.0	$ -	$ -	$ -	$ -
5	0	0	0.0	0.0	$ -	$ -	$ -	$ -
6	0	0	0.0	0.0	$ -	$ -	$ -	$ -
7	0	0	0.0	0.0	$ -	$ -	$ -	$ -
8	0	0	0.0	0.0	$ -	$ -	$ -	$ -
9	0	0	0.0	0.0	$ -	$ -	$ -	$ -
10	0	0	0.0	0.0	$ -	$ -	$ -	$ -
11	0	0	0.0	0.0	$ -	$ -	$ -	$ -
12	0	0	0.0	0.0	$ -	$ -	$ -	$ -
13	0	0	0.0	0.0	$ -	$ -	$ -	$ -
14	0	0	0.0	0.0	$ -	$ -	$ -	$ -
15	0	0	0.0	0.0	$ -	$ -	$ -	$ -
16	0	0	0.0	0.0	$ -	$ -	$ -	$ -
17	0	0	0.0	0.0	$ -	$ -	$ -	$ -
18	0	0	0.0	0.0	$ -	$ -	$ -	$ -
19	0	0	0.0	0.0	$ -	$ -	$ -	$ -
						TOTAL:	**$ -**	**$ -**

APPLICATION OF CMFs

Inputs from Data Inputs Sheet

		Specific Crash Type ("x" = Applies)											
CMF Description	**CMF Number**	**K**	**A**	**B**	**C**	**O**	**Bike**	**Ped**	**CRF**	**Additional Notes**	**Additional %**	**Applied to % of All**	**For Calculation**
Predictive Crash Analysis	---	X	X	X	X				35.00%			31.72%	11.10%
Predictive Crash Analysis	---					X			39.50%			68.28%	20.14%
	---											0.00%	0.00%
	---											0.00%	0.00%
	---											0.00%	0.00%
	---											0.00%	0.00%
	---											0.00%	0.00%
	---											0.00%	0.00%

VTTS (PEAK)

2035 MRSA Grant - Jamerson Lane Widen | I-235 Bluffwood Improvements

Data in STANDARD VEHICLEHOURS

Inputs From Daily Inputs Sheet

	Year	Year 1 - Opening		Year 2 - Closing	
		No Build	Build	No Build	Build
I-40/I-235	2035	1,000,000	1,000,000	1,000,000	1,000,000
Delta		0	0	0	0

ANNUAL CORRIDOR VOLUMES

Inputs From Daily Inputs Sheet

	Year	Year 1 - Opening		Year 2 - Closing		Average	
		No Build	Build	No Build	Build	No Build	Build
I-40/I-235	A	25,000,000	25,007,000	25,000,000	25,000,000	1,012,500	1,002,500
	B	25,000,000	25,000,000	25,000,000	25,000,000	1,012,500	1,012,500
Delta	A	0	7,000	0	0	0	10,000
	B	0	0	0	0	0	0

Discounted Annual Value Calculation			
	Year	Value	Discounted Value
I-40/I-235	1	1,000,000	$ 1,000,000.00
	2	1,000,000	$ 1,000,000.00
Total			$ 2,000,000.00

Discount Factor

Discounted Annual Value Calculation - Delta			
	Year	Value	Discounted Value
I-40/I-235	1	0	$ -
	2	0	$ -
Total			$ -

Discount Factor

I-40/I-235 - Delta

Year	AVERAGE VOLUME Eastbound		AVERAGE SPEED (mph)		ANNUAL PERSON TRIPS		AVERAGE Travel Time (hour)		TIME BENEFIT (Hours/Year/Person)		CONSTANT VOLUME (2035 2035)	PRESENT VALUE (2035)
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New Delayed		
A	25,000,000	25,007,000	28.0	27.9	31,000,000	31,008,680	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
A	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
B	25,000,000	25,000,000	28.0	28.0	31,000,000	31,000,000	0.00006	0.00015	$ 0.00	$ 0.00	$ 1,012,500	$ 0
								Total	$ 0.00	$ -	$ 20,250,000	$ 0

I-40/I-235 - Delta

Year	AVERAGE VOLUME Eastbound		AVERAGE SPEED (mph)		ANNUAL PERSON TRIPS		AVERAGE Travel Time (hour)		TIME BENEFIT (Hours/Year/Person)		CONSTANT VOLUME (2035 2035)	PRESENT VALUE (2035)
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New Delayed		
A	1,012,500	1,002,500	28.0	28.0	1,255,500	1,243,100	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
B	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
A	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
B	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
A	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
B	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
A	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
B	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
A	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
B	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
A	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
B	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
A	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
B	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
A	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
B	1,012,500	1,012,500	28.0	28.0	1,255,500	1,255,500	0.00006	0.00015	$ 0.00	$ 0.00	$ 20,250	$ 0
								Total	$ 0.00	$ -	$ 20,250,000	$ 0

Delta Trucks

Year	AVERAGE VOLUME Eastbound		AVERAGE SPEED (mph)		ANNUAL PERSON TRIPS		AVERAGE Travel Time (hour)		TIME BENEFIT (Hours/Year/Person)		CONSTANT VOLUME (2035 2035)	PRESENT VALUE (2035)
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New Delayed		
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
								Total	$ -	$ -	$ -	$ -

Delta Trucks

Year	AVERAGE VOLUME Eastbound		AVERAGE SPEED (mph)		ANNUAL PERSON TRIPS		AVERAGE Travel Time (hour)		TIME BENEFIT (Hours/Year/Person)		CONSTANT VOLUME (2035 2035)	PRESENT VALUE (2035)
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New Delayed		
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
A	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
B	0	0	0	0	0	0	0.00000	0.00000	$ -	$ -	$ -	$ -
								Total	$ -	$ -	$ -	$ -

VTTS INON-PEAK

2011 MVGA Grant: American Lanes Bridge / I 270 MacDonald Improvements

Source: Estimated Per Lane Capacity

Impacts Present During Impacts Discount

	Value	Year 1 Capacity		Year 2 - Ultimate	
		No Build	Build	No Build	Build
1-WAY/LTD	1,800	1,800	1,800	1,800	1,800
BOTH	2	3,600	3,600	3,600	3,600

Source: Estimated Per Lane Capacity

Impacts Present During Impacts Discount

	Year	Year - Base Peak Hour Vol. (Veh./Hour)		2011 MVGA		2011 MVGA	
		No Build	Build	No Build	Build	No Build	Build
1-WAY/LTD	1	1,800	1,800	1,800	1,800	1,800	1,800
	2	1,800	1,800	1,800	1,800	1,800	1,800
BOTH	(2)	2	2	2	2	2	2

Scenario: Base Model Peak Hourly Volumes			
	Volume	Volume	Volume
1-WAY/LTD	1,800	1,800	1,800
BOTH	3,600	3,600	3,600
	3,600	3,600	3,600
	Peak Hour		

Scenario: Base Model Peak Hourly Volumes - Adjusted for Capacity Values			
	Volume	Volume	Volume
1-WAY/LTD	1,800	1,800	1,800
BOTH	3,600	3,600	3,600
	3,600	3,600	3,600
	Peak Hour		

1-WAY/LTD BOTH

Year	Peak Hourly Volume		Average Daily Traffic		Average Daily Traffic Volume		Peak Hourly Volume Reduction		Average Daily Traffic Volume Reduction		CONSTANT DOLLARS (2010 Dollars)		PRESENT VALUE (2010 Dollars)
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Daytime Hours	Time Delayed			
0	3,600	3,600	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ 0.00
1	3,600	3,600	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
2	3,600	3,600	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
3	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
4	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
5	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
6	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
7	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
8	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
9	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
10	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
11	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
12	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
13	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
14	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
15	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
16	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
17	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
18	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
19	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
20	72,000,000	72,000,000	36,000	36,000	108,000,000	108,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
										TOTAL:	$ 0.00	$ 0.00	$ 0.00

1-WAY/LTD BOTH

Year	Average Delay Per Vehicle (Hours)		Average Vehicle Speed		Average Vehicle Speed		Average Vehicle Time		Total Delay Time (Hours)		CONSTANT DOLLARS (2010 Dollars)		PRESENT VALUE (2010 Dollars)
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Daytime Hours	Time Delayed			
0	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ 0.00
1	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
2	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
3	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
4	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
5	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
6	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
7	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
8	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
9	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
10	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
11	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
12	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
13	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
14	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
15	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
16	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
17	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
18	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
19	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
20	0.0000	0.0000	55.0	55.0	2,000,000,000	2,000,000,000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
										TOTAL:	0.00	$ -	$ 0.00

1-WAY/LTD BOTH

Year	Average Vehicle Operating Costs		Average Crash Costs		Average Vehicle Miles		Average Vehicle Hours		Total Average Vehicle Time Costs		CONSTANT DOLLARS (2010 Dollars)		PRESENT VALUE (2010 Dollars)
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Daytime Hours	Time Delayed			
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ 0.00
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	$ -	$ -	$ -
										TOTAL:	$ -	$ -	$ -

VMT OPERATING COST SAVINGS

2023 MEGA Grant: American Legion Bridge I-270 Multimodal Improvements

CORRIDOR VOLUMES

Inputs From Data Inputs Sheet

	2021	Year 1 (2032)		Year 20 (2051)	
		No Build	Build	No Build	Build
I-495/I-270	257,913	269,557	284,509	292,085	338,426
N/A	0	0	0	0	0

	Year	AUTOS: Average Volume (Veh./Year)		TRUCKS: Average Volume (Trucks/Year)			
				AUTOS: Average Volume (Autos/Year)		TRUCKS: Average Volume (Trucks/Year)	
		No Build	Build	No Build	Build	No Build	Build
I-495/I-270	1	98,188,399	103,845,793	91,790,072	97,026,561	5,608,327	5,919,205
	20	106,413,069	123,525,985	100,536,917	116,484,034	6,076,903	7,040,052
N/A	1	0	0	0	0	0	0
	20	0	0	0	0	0	0

SUMMARY: OPERATIONAL COST SAVINGS (2021$)	Autos	Trucks	Total
I-495/I-270	$ 87,815,363	$ 199,243,129	$ 287,058,491
N/A	$ -	$ -	$ -
	$ 87,815,363	$ 199,243,129	$ 287,058,491

Input in MCA

I-495/I-270: AUTOS

Year	AVERAGE VOLUME (vehicles/year): No Build	AVERAGE VOLUME (vehicles/year): Build Difference	TIME BENEFIT (Person-hrs/year): Existing Users	TIME BENEFIT (Person-hrs/year): New (Induced)	OPERATING COST SAVINGS: Constant Dollars (2032-2051)	OPERATING COST SAVINGS: Present Value 2021$
1	92,780,073	5,166,483	12,926,560	895,847	$ 12,318,676	$ 5,852,514
20	100,536,917	31,947,720	21,825,091	3,193,092	$ 22,296,462	$ 2,929,022
2	93,188,327	5,714,955	13,394,913	1,014,755	$ 12,843,823	$ 5,698,646
3	93,596,581	6,283,463	13,863,266	1,137,663	$ 13,368,960	$ 5,544,778
4	94,004,837	6,851,947	14,331,599	1,258,171	$ 13,894,116	$ 5,390,910
5	94,413,092	7,420,432	14,799,941	1,379,474	$ 14,419,263	$ 5,237,042
6	94,821,347	7,988,918	15,268,286	1,500,987	$ 14,944,409	$ 5,083,174
7	95,229,602	8,557,404	15,736,603	1,621,265	$ 15,469,556	$ 4,929,306
8	95,637,857	9,125,890	16,204,972	1,742,203	$ 15,994,703	$ 4,775,438
9	96,046,112	9,694,376	16,673,316	1,863,111	$ 16,519,849	$ 4,621,570
10	96,454,367	10,262,861	17,141,659	1,984,023	$ 17,044,996	$ 4,467,702
11	96,862,622	10,831,347	17,610,002	2,104,927	$ 17,570,143	$ 4,313,834
12	97,270,877	11,399,833	18,078,345	2,225,835	$ 18,095,289	$ 4,159,966
13	97,679,132	11,968,319	18,546,689	2,346,743	$ 18,620,436	$ 4,006,098
14	98,087,387	12,536,805	19,015,032	2,467,651	$ 19,145,583	$ 3,852,230
15	98,495,642	13,105,291	19,483,375	2,588,559	$ 19,670,729	$ 3,698,362
16	98,903,897	13,673,776	19,951,718	2,709,467	$ 20,195,876	$ 3,544,494
17	99,312,152	14,242,262	20,420,062	2,830,375	$ 20,721,023	$ 3,390,626
18	99,720,407	14,810,748	20,888,405	2,951,283	$ 21,246,169	$ 3,236,758
19	100,128,662	15,379,234	21,356,748	3,072,191	$ 21,771,316	$ 3,082,890
				TOTAL:	$ 346,151,284	$ 87,815,363

I-495/I-270: TRUCKS

Year	AVERAGE VOLUME NO LONGER DETOURING (vehicles/year): No Build	AVERAGE VOLUME NO LONGER DETOURING (vehicles/year): Build Difference	TIME BENEFIT (Person-hrs/year): Existing Users	TIME BENEFIT (Person-hrs/year): New (Induced)	OPERATING COST SAVINGS: Constant Dollars (2032-2051)	OPERATING COST SAVINGS: Present Value 2021$
1	5,608,127	311,078	482,811	33,461	$ 27,887,419	$ 13,296,611
20	6,076,903	963,960	811,888	118,783	$ 50,451,676	$ 6,627,891
2	5,627,804	345,444	500,137	37,951	$ 29,569,768	$ 12,945,426
3	5,657,481	379,808	517,462	42,442	$ 30,352,077	$ 12,594,438
4	5,687,159	414,169	534,776	46,932	$ 31,134,407	$ 12,243,452
5	5,716,836	448,531	552,091	51,422	$ 31,916,736	$ 11,892,436
6	5,746,513	482,893	569,415	55,914	$ 32,699,065	$ 11,541,438
7	5,776,190	517,256	586,734	60,404	$ 33,481,395	$ 11,190,465
8	5,780,867	551,618	604,054	64,895	$ 36,263,724	$ 10,839,447
9	5,805,544	585,980	621,374	69,386	$ 37,446,053	$ 10,488,451
10	5,830,222	620,343	638,693	73,876	$ 38,628,383	$ 10,137,454
11	5,854,899	654,705	656,013	78,367	$ 39,810,712	$ 9,786,458
12	5,879,576	689,067	673,332	82,858	$ 40,993,042	$ 9,435,462
13	5,904,253	723,430	690,652	87,348	$ 42,175,371	$ 9,084,465
14	5,928,930	757,792	707,971	91,839	$ 43,357,700	$ 8,733,486
15	5,953,607	792,154	725,291	96,329	$ 44,540,030	$ 8,382,473
16	5,978,284	826,517	742,610	100,820	$ 45,722,359	$ 8,031,476
17	6,002,961	860,879	759,930	105,311	$ 46,904,688	$ 7,680,480
18	6,027,638	895,241	777,249	109,801	$ 48,087,018	$ 7,329,484
19	6,052,316	929,604	794,569	114,292	$ 49,269,347	$ 6,978,488
				TOTAL:	$ 794,390,950	$ 199,243,129

N/A: AUTOS

Year	AVERAGE VOLUME (vehicles/year): No Build	AVERAGE VOLUME (vehicles/year): Build Difference	TIME BENEFIT (Person-hrs/year): Existing Users	TIME BENEFIT (Person-hrs/year): New (Induced)	OPERATING COST SAVINGS: Constant Dollars (2032-2051)	OPERATING COST SAVINGS: Present Value 2021$
1	0	0	0	0	$ -	$ -
20	0	0	0	0	$ -	$ -
2	0	0	0	0	$ -	$ -
3	0	0	0	0	$ -	$ -
4	0	0	0	0	$ -	$ -
5	0	0	0	0	$ -	$ -
6	0	0	0	0	$ -	$ -
7	0	0	0	0	$ -	$ -
8	0	0	0	0	$ -	$ -
9	0	0	0	0	$ -	$ -
10	0	0	0	0	$ -	$ -
11	0	0	0	0	$ -	$ -
12	0	0	0	0	$ -	$ -
13	0	0	0	0	$ -	$ -
14	0	0	0	0	$ -	$ -
15	0	0	0	0	$ -	$ -
16	0	0	0	0	$ -	$ -
17	0	0	0	0	$ -	$ -
18	0	0	0	0	$ -	$ -
19	0	0	0	0	$ -	$ -
				TOTAL:	$ -	$ -

N/A: TRUCKS

Year	AVERAGE VOLUME NO LONGER DETOURING (vehicles/year): No Build	AVERAGE VOLUME NO LONGER DETOURING (vehicles/year): Build Difference	TIME BENEFIT (Person-hrs/year): Existing Users	TIME BENEFIT (Person-hrs/year): New (Induced)	OPERATING COST SAVINGS: Constant Dollars (2032-2051)	OPERATING COST SAVINGS: Present Value 2021$
1	0	0	0	0	$ -	$ -
20	0	0	0	0	$ -	$ -
2	0	0	0	0	$ -	$ -
3	0	0	0	0	$ -	$ -
4	0	0	0	0	$ -	$ -
5	0	0	0	0	$ -	$ -
6	0	0	0	0	$ -	$ -
7	0	0	0	0	$ -	$ -
8	0	0	0	0	$ -	$ -
9	0	0	0	0	$ -	$ -
10	0	0	0	0	$ -	$ -
11	0	0	0	0	$ -	$ -
12	0	0	0	0	$ -	$ -
13	0	0	0	0	$ -	$ -
14	0	0	0	0	$ -	$ -
15	0	0	0	0	$ -	$ -
16	0	0	0	0	$ -	$ -
17	0	0	0	0	$ -	$ -
18	0	0	0	0	$ -	$ -
19	0	0	0	0	$ -	$ -
				TOTAL:	$ -	$ -

EMISSIONS

2023 MOVES, Quam American Lumber Bridge – I-279 (Bellfonte)/Interstate

EMISSIONS INVENTORY SUMMARY

Engine Start, All Accessory Loads, Ethanol and Diesel Impacts, Diesel

Pollutant	Annual Grams
Carbon Dioxide (CO2)	0.00
Methane (CH4)	0.00

AVERAGE DAY EMISSIONS RATE

Grams/Vehicle-Mile (Grams/Vehicle-Hour)

Pollutant Name	MOV Out Peak	MOV_Inc Peak	MOV_Inc Off Peak	MOV
CO2	0.00000	0.00000	0.00000	0.00000
CH4	0.00000	0.00000	0.00000	0.00000

AVERAGE FUEL ECONOMY

Miles/Gallon (Miles/Kilowatt-Hour)

Pollutant Name	Fuel Economy (MMP)
Gasoline	0.00
Diesel	0.00

AVERAGE DAILY EMISSIONS (Pounds/Day)

Pollutant	MB	PM	CO	Total
Carbon Dioxide	0.00 lb/day	0.00 lb/day	0.00 lb/day	0.00 lb/day
Methane	0.00 lb/day	0.00 lb/day	0.00 lb/day	0.00 lb/day
Total	**0.00 lb/day**	**0.00 lb/day**	**0.00 lb/day**	**0.00 lb/day**

AVERAGE DAILY EMISSIONS (Tons/Year)

Pollutant	MB	PM	CO	Total
Carbon Dioxide	0.00 tons/year	0.00 tons/year	0.00 tons/year	0.00 tons/year
Methane	0.00 tons/year	0.00 tons/year	0.00 tons/year	0.00 tons/year
Total	**0.00 tons/year**	**0.00 tons/year**	**0.00 tons/year**	**0.00 tons/year**

Light Duty Vehicle Emissions

Month	Month Total (Grams/Month Grams/Year)	Fuel Consumption (MMP)	MOV_Out Peak			MOV_Inc Peak			MOV_Inc Off Peak			MOV		
			Mileage	Emissions Cost	Cost/Vehicle	Mileage	Emissions Cost	Cost/Vehicle	Mileage	Emissions Cost	Cost/Vehicle	Mileage	Emissions Cost	Cost/Vehicle
00	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
1	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
2	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
3	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
4	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
5	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
6	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
7	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
8	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
9	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
10	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
11	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
12	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
13	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
14	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
15	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
16	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
17	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
18	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
19	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
20	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
21	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
22	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
23	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
Totals			0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -

Heavy Duty Vehicle Emissions

Month	Month Total (Grams/Month Grams/Year)	Fuel Consumption (MMP)	MOV_Out Peak			MOV_Inc Peak			MOV_Inc Off Peak			MOV		
			Mileage	Emissions Cost	Cost/Vehicle	Mileage	Emissions Cost	Cost/Vehicle	Mileage	Emissions Cost	Cost/Vehicle	Mileage	Emissions Cost	Cost/Vehicle
00	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
1	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
2	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
3	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
4	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
5	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
6	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
7	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
8	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
9	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
10	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
11	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
12	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
13	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
14	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
15	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
16	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
17	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
18	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
19	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
20	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
21	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
22	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
23	0.00 grams/year	0	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -
Totals			0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -	0.00	$ -	$ -

PEDESTRIANS AND CYCLISTS

2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements

PEDESTRIAN & CYCLIST USAGE

Inputs from Data Inputs Sheet and BCA Assumptions Sheet

	Pedestrians	Cyclists	Total
Number of Daily Users*	55	7	62
Grown to Base Year	149	19	168
Assumed Induced Additional Trips			
per Day	297	38	335
Grown to Final Year	84633	10870	
per Year	30,891,205	3,967,678	34,858,882

***Notes:**

Average of 2 Replica model estimates (2021)

Rule of 1/2 applied to additional users in second table

Assumed Growth in Line with Autos

Ped Av. Ann. Growth 20.00%

Bike Av. Ann Growth 20.00%

PEDESTRIAN & CYCLIST BENEFITS

Inputs from Data Inputs Sheet and BCA Assumptions Sheet

	Pedestrian Benefit	Cyclist Benefit	Total Benefit	
Improvement Type				
Added Sidewalk Width	$ 0.42	---	$ 0.42	
Separated Cycle Track/Lane	---	$ 0.67	$ 0.67	
Install Signal for Ped Crossing (>= 13,0	$ -	---	$ -	
Existing Users				
per Day	$ 61.90	$ 12.79	$ 74.69	
per Year	$ 22,593.06	$ 4,669.36	$ 27,262.41	
Additional Users**				
per Day	$ 17,631.97	$ 3,644.04	$ 21,276.00	**Rule of 1/2
per Year	$ 6,435,667.61	$ 1,330,073.76	$ 7,765,741.37	

ANTICIPATED BIKE/PED BENEFIT

Year	EXISTING USER BENEFIT (2021$)	ADDITIONAL USER BENEFIT (2021$)	TOTAL USER BENEFIT (2021$)
1	$ 12,952	$ 3,689,448	$ 3,702,400
20	$ 3,581	$ 1,020,163	$ 1,023,744
2	$ 12,459	$ 3,548,959	$ 3,561,418
3	$ 11,966	$ 3,408,470	$ 3,420,436
4	$ 11,473	$ 3,267,982	$ 3,279,454
5	$ 10,979	$ 3,127,493	$ 3,138,472
6	$ 10,486	$ 2,987,004	$ 2,997,491
7	$ 9,993	$ 2,846,516	$ 2,856,509
8	$ 9,500	$ 2,706,027	$ 2,715,527
9	$ 9,007	$ 2,565,538	$ 2,574,545
10	$ 8,513	$ 2,425,050	$ 2,433,563
11	$ 8,020	$ 2,284,561	$ 2,292,581
12	$ 7,527	$ 2,144,072	$ 2,151,599
13	$ 7,034	$ 2,003,584	$ 2,010,618
14	$ 6,541	$ 1,863,095	$ 1,869,636
15	$ 6,047	$ 1,722,606	$ 1,728,654
16	$ 5,554	$ 1,582,118	$ 1,587,672
17	$ 5,061	$ 1,441,629	$ 1,446,690
18	$ 4,568	$ 1,301,140	$ 1,305,708
19	$ 4,075	$ 1,160,652	$ 1,164,726
TOTAL:	**$ 165,336**	**$ 47,096,108**	**$ 47,261,444**

Used in BCA

HEALTH

2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements

ACTIVE TRANSPORTATION HEALTH BENEFITS

Inputs from BCA Assumptions Sheet and Data Inputs Sheet

	Pedestrians (Age 20-74)	Cyclists (Age 20-64)
Population in Nearby Tracts	26,455	21,688
% of Total Population	64%	52%
Number of Users		
Per Day*	55	7
Per Year	19,893	2,555
Assumed Induced Trips		
Per Day	109.0	14.0
Per Year	39,785	5,110
Value per Induced Trip	$ 7.20	$ 6.42
Benefits to Users		
Per Day	$ 784.80	$ 89.88
Per Year	$ 286,452.00	$ 32,806.20

***Notes:**

Average of 2 Replica model counts (2021)

ANTICIPATED HEALTH BENEFIT	
Year	**PRESENT VALUE (2021$)**
1	$ 151,677
20	$ 41,940
2	$ 145,902
3	$ 140,126
4	$ 134,350
5	$ 128,575
6	$ 122,799
7	$ 117,023
8	$ 111,248
9	$ 105,472
10	$ 99,696
11	$ 93,921
12	$ 88,145
13	$ 82,370
14	$ 76,594
15	$ 70,818
16	$ 65,043
17	$ 59,267
18	$ 53,491
19	$ 47,716
TOTAL:	**$ 1,936,173**

Used in BCA

BCCA UPDATE

2023 MEGS Grant: American Lentic Bridge - C-270 Multiweek/Assessments

DISRUPTIONS - EVACUATIONS DUE TO NATURAL DISASTER

Inputs from BCA Accomplishments Sheet and Data Inputs Sheet

Analysis Period (years)	
Construction Duration	1
Annual Probability of Evacuation	0.00%
Annual Probability Event Occurs	0.00%
Evacuation Impacted	0
Evacuation Duration	0

Note: BCCA Instructions ver.2.0a.xls BCA calculations does not account for evacuation delays.

Note: Formula does not assume evacuation-caused or -induced in the Base

DISRUPTIONS - CORROSION CAUSED DUE TO FLOODING INUNDATION

Inputs from BCA Accomplishments Sheet and Data Inputs Sheet

Closing Frequency	Historical Average	Gas Level Rise Reached (ft)	Actual % Closed	Year 1 (2023)	Year 50 (2072)
Annual Probability of Gate Failure	0.00%	0.0	#DIV/0!	#DIV/0!	#DIV/0!
Disruption Duration (days/event)		0.0	#DIV/0!	#DIV/0!	#DIV/0!
Annual Probability Gate Closure	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Annual Corrosion Impacted					

HIGHWAY CORRIDOR VOLUMES

Inputs from Data Inputs Sheet

	Total	Base Volume		Project Volume	
		Weekday	Weekend	Weekday	Weekend
Lake Ave	30,154	24,154	24,154	30,154	24,154
N/A					

	Base	Project	Total
Construction	0	0	0
Operation	0	0	0
Total	#DIV/0!	#DIV/0!	#DIV/0!

Check

Year	AVERAGE Accumulation	ANNUAL PROFIT Value	ANNUAL TIME COST SAVINGS Do Build	ANNUAL TIME COST SAVINGS Build	ANNUAL MAINTENANCE SAVINGS Do Build	ANNUAL MAINTENANCE SAVINGS Build	TIME BENEFIT Value	CONSTANT VALUE Value	PRESENT VALUE Value
0	0.0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
1	0.0	0							
2	0.0	0							
3	0.0	0							
4	0.0	0							
5	0.0	0							
6	0.0	0							
7	0.0	0							
8	0.0	0							
9	0.0	0							
10	0.0	0							
11	0.0	0							
12	0.0	0							
13	0.0	0							
14	0.0	0							
15	0.0	0							
16	0.0	0							
17	0.0	0							
18	0.0	0							
19	0.0	0							
20	0.0	0							
21	0.0	0							
22	0.0	0							
23	0.0	0							
24	0.0	0							
25	0.0	0							
26	0.0	0							
27	0.0	0							
28	0.0	0							
29	0.0	0							
30	0.0	0							
31	0.0	0							
32	0.0	0							
33	0.0	0							
34	0.0	0							
35	0.0	0							
36	0.0	0							
37	0.0	0							
38	0.0	0							
39	0.0	0							
40	0.0	0							
41	0.0	0							
42	0.0	0							
43	0.0	0							
44	0.0	0							
45	0.0	0							
46	0.0	0							
47	0.0	0							
48	0.0	0							
49	0.0	0							
50	0.0	0							
		TOTAL					#DIV/0!	#DIV/0!	#DIV/0!

Year	ANNUAL MAINTENANCE SAVINGS Do Build	ANNUAL MAINTENANCE SAVINGS Build	ANNUAL MAINTENANCE SAVINGS Value	TIME BENEFIT Value	CONSTANT VALUE Value	PRESENT VALUE Value
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
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Year	ANNUAL MAINTENANCE SAVINGS Do Build	ANNUAL MAINTENANCE SAVINGS Build	ANNUAL MAINTENANCE SAVINGS Value	Total ANNUAL BENEFITS	CONSTANT VALUE Value	PRESENT VALUE Value
0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
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CAPITAL COSTS

2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements

*Inputs from BCA Assumptions

SUMMARY: TOTAL PROJECT COST SPENT AND AUTHORIZED (2021$)						
	ROW	PE / Design	UTL	CST	Other	Total
Previously Spent	$ -	$ -	$ -	$ -	$ -	$ -
Authorized	$ 66,936,426	$ 206,857,338	$ -	$ 1,888,654,389	$ -	$ 2,162,448,153
	$ 66,936,426	$ 206,857,338	$ -	$ 1,888,654,389	$ -	$ 2,162,448,153

Used in BCA

DOLLARS PREVIOUSLY SPENT (Nominal / YOE Dollars)					
PHASE	DETAIL	YEAR SPENT	COST IN YEAR OF EXPENDITURE	MULTIPLIER TO ADJUST TO REAL $	REAL DOLLARS (2021$)
ROW	---	2010	$ -	1.24	$ -
	---	2011	$ -	1.21	$ -
	---	2012	$ -	1.19	$ -
	---	2013	$ -	1.17	$ -
	---	2014	$ -	1.15	$ -
	---	2015	$ -	1.14	$ -
	---	2016	$ -	1.12	$ -
	---	2017	$ -	1.10	$ -
	---	2018	$ -	1.08	$ -
	---	2019	$ -	1.06	$ -
	---	2020	$ -	1.04	$ -
		SUBTOTAL:	$ -		$ -
Planning/Design	---	2010	$ -	1.24	$ -
	---	2011	$ -	1.21	$ -
	---	2012	$ -	1.19	$ -
	---	2013	$ -	1.17	$ -
	---	2014	$ -	1.15	$ -
	---	2015	$ -	1.14	$ -
	---	2016	$ -	1.12	$ -
	---	2017	$ -	1.10	$ -
	---	2018	$ -	1.08	$ -
	---	2019	$ -	1.06	$ -
	---	2020	$ -	1.04	$ -
		SUBTOTAL:	$ -		$ -
CST	---	2010	$ -	1.24	$ -
	---	2011	$ -	1.21	$ -
	---	2012	$ -	1.19	$ -
	---	2013	$ -	1.17	$ -
	---	2014	$ -	1.15	$ -
	---	2015	$ -	1.14	$ -
	---	2016	$ -	1.12	$ -
	---	2017	$ -	1.10	$ -
	---	2018	$ -	1.08	$ -
	---	2019	$ -	1.06	$ -
	---	2020	$ -	1.04	$ -
		SUBTOTAL:	$ -		$ -
UTL	---	2010	$ -	1.24	$ -
	---	2011	$ -	1.21	$ -
	---	2012	$ -	1.19	$ -
	---	2013	$ -	1.17	$ -
	---	2014	$ -	1.15	$ -
	---	2015	$ -	1.14	$ -
	---	2016	$ -	1.12	$ -
	---	2017	$ -	1.10	$ -
	---	2018	$ -	1.08	$ -
	---	2019	$ -	1.06	$ -
	---	2020	$ -	1.04	$ -
		SUBTOTAL:	$ -		$ -
Other	---	2010	$ -	1.24	$ -
	---	2011	$ -	1.21	$ -
	---	2012	$ -	1.19	$ -
	---	2013	$ -	1.17	$ -
	---	2014	$ -	1.15	$ -
	---	2015	$ -	1.14	$ -
	---	2016	$ -	1.12	$ -
	---	2017	$ -	1.10	$ -
	---	2018	$ -	1.08	$ -
	---	2019	$ -	1.06	$ -
	---	2020	$ -	1.04	$ -
		SUBTOTAL:	$ -		$ -
		TOTAL:	$ -		$ -

DOLLARS TO BE AUTHORIZED (Nominal / YOE Dollars)				
PHASE	DETAIL	FUTURE FISCAL YEAR OF EXPENDITURE	COST IN YEAR OF EXPENDITURE	REAL DOLLARS (2021$)
ROW	---	2020	$ -	$ -
	---	2021	$ -	$ -
	---	2022	$ -	$ -
	---	2023	$ -	$ -
	---	2024	$ 82,000,000	$ 66,936,426
	---	2025	$ -	$ -
	---	2026	$ -	$ -
	---	2027	$ -	$ -
	---	2028	$ -	$ -
	---	2029	$ -	$ -
	---	2030	$ -	$ -
	---	2031	$ -	$ -
	---	2032	$ -	$ -
	---	2033	$ -	$ -
		SUBTOTAL:	$ 82,000,000	$ 66,936,426
Planning/Design	---	2020	$ -	$ -
	---	2021	$ 73,666,667	$ 73,666,667
	---	2022	$ 73,666,667	$ 68,847,352
	---	2023	$ 73,666,667	$ 64,343,320
	---	2024	$ -	$ -
	---	2025	$ -	$ -
	---	2026	$ -	$ -
	---	2027	$ -	$ -
	---	2028	$ -	$ -
	---	2029	$ -	$ -
	---	2030	$ -	$ -
	---	2031	$ -	$ -
	---	2032	$ -	$ -
	---	2033	$ -	$ -
		SUBTOTAL:	$ 221,000,000	$ 206,857,338
CST	---	2020	$ -	$ -
	---	2021	$ -	$ -
	---	2022	$ -	$ -
	---	2023	$ -	$ -
	---	2024	$ -	$ -
	---	2025	$ 564,285,714	$ 430,490,870
	---	2026	$ 564,285,714	$ 402,327,916
	---	2027	$ 564,285,714	$ 376,007,398
	---	2028	$ 564,285,714	$ 351,408,783
	---	2029	$ 564,285,714	$ 328,419,423
	---	2030	$ 564,285,714	$ 306,934,040
	---	2031	$ 564,285,714	$ 286,854,243
	---	2032	$ -	$ -
	---	2033	$ -	$ -
		SUBTOTAL:	$ 3,950,000,000	$ 1,888,654,389
UTL	---	2020	$ -	$ -
	---	2021	$ -	$ -
	---	2022	$ -	$ -
	---	2023	$ -	$ -
	---	2024	$ -	$ -
	---	2025	$ -	$ -
	---	2026	$ -	$ -
	---	2027	$ -	$ -
	---	2028	$ -	$ -
	---	2029	$ -	$ -
	---	2030	$ -	$ -
	---	2031	$ -	$ -
	---	2032	$ -	$ -
	---	2033	$ -	$ -
		SUBTOTAL:	$ -	$ -
Other	---	2020	$ -	$ -
	---	2021	$ -	$ -
	---	2022	$ -	$ -
	---	2023	$ -	$ -
	---	2024	$ -	$ -
	---	2025	$ -	$ -
	---	2026	$ -	$ -
	---	2027	$ -	$ -
	---	2028	$ -	$ -
	---	2029	$ -	$ -
	---	2030	$ -	$ -
	---	2031	$ -	$ -
	---	2032	$ -	$ -
		SUBTOTAL:	$ -	$ -
		TOTAL:	$ 4,253,000,000	$ 2,162,448,153

OPERATING AND MAINTENANCE COSTS

2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements

ESTIMATED INVESTMENTS (ANNUAL)

Inputs from Data Inputs Sheet

	Roadway	Bridge	Total
State FY 2020 Investment			
Total	$ 4,508,647,043.4	$ 4,508,647,043.4	$ 9,017,294,086.8
Per Center Line Mile / Per Bridge	$ 257,636.97	$ 1,768,096.88	
State Future Investment Discounted from Future Year			
Total	$ 4,508,647,043.41	$ 4,508,647,043.41	$ 9,017,294,086.82
Per Center Line Mile / Per Bridge	$ 257,636.97	$ 1,768,096.88	

EXPECTED ROADWAY COSTS (ANNUAL)

Inputs from Data Inputs Sheet

		Base Year Cost 2021$	Future Year Cost 2021$
	Lane Miles (mi)	**2032**	**2051**
I-495/I-270	6.23	$ 1,606,327.50	$ 1,606,327.50
---	0.00	$ -	$ -

EXPECTED BRIDGE COSTS (ANNUAL)

Inputs from Data Inputs Sheet

		Base Year Cost 2021$	Future Year Cost 2021$
	# Bridges	**2032**	**2051**
I-495/I-270	0.27	$ 468,813.57	$ 468,813.57
---	0.00	$ -	$ -

O&M COSTS

Year	Roadway	Bridge	CONSTANT DOLLARS (2032-2051)	PRESENT VALUE (2021$)
1	$ 1,606,327	$ 468,814	$ 2,075,141	$ 985,885
20	$ 1,606,327	$ 468,814	$ 2,075,141	$ 272,605
2	$ 1,606,327	$ 468,814	$ 2,075,141	$ 948,344
3	$ 1,606,327	$ 468,814	$ 2,075,141	$ 910,803
4	$ 1,606,327	$ 468,814	$ 2,075,141	$ 873,262
5	$ 1,606,327	$ 468,814	$ 2,075,141	$ 835,721
6	$ 1,606,327	$ 468,814	$ 2,075,141	$ 798,179
7	$ 1,606,327	$ 468,814	$ 2,075,141	$ 760,638
8	$ 1,606,327	$ 468,814	$ 2,075,141	$ 723,097
9	$ 1,606,327	$ 468,814	$ 2,075,141	$ 685,556
10	$ 1,606,327	$ 468,814	$ 2,075,141	$ 648,015
11	$ 1,606,327	$ 468,814	$ 2,075,141	$ 610,474
12	$ 1,606,327	$ 468,814	$ 2,075,141	$ 572,933
13	$ 1,606,327	$ 468,814	$ 2,075,141	$ 535,392
14	$ 1,606,327	$ 468,814	$ 2,075,141	$ 497,851
15	$ 1,606,327	$ 468,814	$ 2,075,141	$ 460,310
16	$ 1,606,327	$ 468,814	$ 2,075,141	$ 422,769
17	$ 1,606,327	$ 468,814	$ 2,075,141	$ 385,228
18	$ 1,606,327	$ 468,814	$ 2,075,141	$ 347,687
19	$ 1,606,327	$ 468,814	$ 2,075,141	$ 310,146
TOTAL:	**$ 32,126,550**	**$ 9,376,271**	**$ 41,502,821**	**$ 12,584,899**

Used in BCA

RESIDUAL VALUE

2023 MEGA Grant: American Legion Bridge + I-270 Multimodal Improvements

Inputs from 5.1 Capital Costs Sheet

Assumed Project Cost: (2021$)	$ 2,162,448,153.40
*Discount Rate:	7.61%
Years in Analysis	20

Notes:

RV = ((U-Y/U) * Project Cost

Whe RV = Residual Value

U = Useful Life of Project

Y = Years of Analysis Period Project Operation

*Representative of the assumed depreciation

RESIDUAL VALUE					
	EXAMPLES (YEAR)				
	30	40	50	75	100
CONSTANT DOLLAR	$ 720,816,051	$ 1,081,224,077	$ 1,297,468,892	$ 1,585,795,312	$ 1,729,958,523
DISCOUNT RATE	7.61%	7.61%	7.61%	7.61%	7.61%
DISCOUNTED VALUES	$ 94,691,527	$ 142,037,290	$ 170,444,748	$ 208,321,359	$ 227,259,664

Used in BCA