

WATERWAY VILLAGE MULTIMODAL ACCESS PROJECT

*Creating economic opportunities, improving traffic and pedestrian safety
and promoting a more sustainable community*



ATTACHMENT 2: BENEFIT/COST ANALYSIS



Project Type:
Multi-Modal Transportation

Location:
Gulf Shores, Alabama
Baldwin County
Congressional District 1

Area:
Rural

Requested Amount:
\$15,000,000

Contact:
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Benefit/Cost Estimation Methodology

Demand Forecasting

The estimation of demand is based upon current and historical traffic conditions and known economic development projects that will occur within the 20 year forecast horizon. Currently State Highway 59 has an AADT of 46,388 and operates at a level of service D during peak AM and PM hours. Historically traffic has grown at 3% annually and is anticipated to grow at a more rapid pace due to known economic development projects within the project area. However, to take the conservative approach, we have forecasted the traffic demand based upon historical trends. This conservative projection shows an AADT of 91,550 by year 2041.

YEAR	AADT	TRAFFIC GROWTH (%)
2018	46388	1.03
2019	47779.64	1.03
2020	49213.03	1.03
2021	50689.42	1.03
2022	52210.1	1.03
2023	53776.41	1.03
2024	55389.7	1.03
2025	57051.39	1.03
2026	58762.93	1.03
2027	60525.82	1.03
2028	62341.59	1.03
2029	64211.84	1.03
2030	66138.2	1.03
2031	68122.34	1.03
2032	70166.01	1.03
2033	72270.99	1.03
2034	74439.12	1.03
2035	76672.3	1.03
2036	78972.46	1.03
2037	81341.64	1.03
2038	83781.89	1.03
2039	86295.34	1.03
2040	88884.2	1.03
2041	91550.73	

Value of Travel Time Savings

The value of travel time savings was estimated based upon future traffic growth and the average per driver travel time savings realized through improving the level of service of State Highway 59 from a LOS of F (as projected in the no-build alternative) to a LOS of C (as projected in the build alternative). The net travel time savings is projected to be a total of **\$10,466,182** over the 20-year horizon period. Below are the results of the Value of Travel Time Savings:

TRAVEL TIME SAVINGS BENEFIT							
CALENDER YEAR	PROJECT YEAR	AFFECTED DRIVERS	TRAVEL TIME SAVED (MINUTES)	VALUE OF TRAVEL TIME SAVED	O&M COSTS	UNDISCOUNTED NET BENEFIT	DISCOUNTED AT 7%
2023	2	52,210	1,905,665	\$619,341	\$250,000	\$369,341	\$343,487.25
2024	3	55,390	2,021,735	\$657,064	\$250,000	\$407,064	\$378,569.40
2025	4	57,051	2,082,362	\$676,767	\$250,000	\$426,767	\$396,893.76
2026	5	58,763	2,144,850	\$697,076	\$250,000	\$447,076	\$415,780.76
2027	6	60,525	2,209,163	\$717,978	\$250,000	\$467,978	\$435,219.37
2028	7	62,341	2,275,447	\$739,520	\$250,000	\$489,520	\$455,253.70
2029	8	64,211	2,343,702	\$761,703	\$250,000	\$511,703	\$475,883.78
2030	9	66,138	2,414,037	\$784,562	\$250,000	\$534,562	\$497,142.68
2031	10	68,122	2,486,453	\$808,097	\$250,000	\$558,097	\$519,030.42
2032	11	70,166	2,561,059	\$832,344	\$250,000	\$582,344	\$541,580.08
2033	12	72,271	2,637,892	\$857,315	\$250,000	\$607,315	\$564,802.71
2034	13	74,439	2,717,024	\$883,033	\$250,000	\$633,033	\$588,720.35
2035	14	76,672	2,798,528	\$909,522	\$250,000	\$659,522	\$613,355.09
2036	15	78,972	2,882,478	\$936,805	\$250,000	\$686,805	\$638,728.98
2037	16	81,341	2,968,947	\$964,908	\$250,000	\$714,908	\$664,864.08
2038	17	83,781	3,058,007	\$993,852	\$250,000	\$743,852	\$691,782.46
2039	18	86,295	3,149,768	\$1,023,674	\$250,000	\$773,674	\$719,517.23
2040	19	88,884	3,244,266	\$1,054,386	\$250,000	\$804,386	\$748,079.40
2041	20	91,550	3,341,575	\$1,086,012	\$250,000	\$836,012	\$777,491.04
						NET TRAVEL TIME SAVINGS BENEFIT	\$10,466,182.54

Safety

The estimation of safety benefits which would accrue to the Waterway Village Multimodal Access Project follow the methodology recommended by the Federal Highway Administration Office of Safety <http://safety.fhwa.dot.gov/>. The calculations were made using the data shown below:

2018 PROJECT AREA VEHICULAR CRASH STATISTICS - PROJECTED SAFETY IMPROVEMENT COST SAVINGS				
2018 VEHICULAR CRASHES	TOTAL	REDUCTION (%)	REDUCTION (#)	SAVINGS
Injury (Serious)	39	18.8%	7.33	\$7,234,710
Property Damage Only	116	18.8%	21.81	\$171,296
AVERAGE ANNUAL FATALITIES 2010-2018	TOTAL	REDUCTION (%)	REDUCTION (#)	SAVINGS
Fatality	4.25	18.8%	0.80	\$7,520,000
TOTAL ANNUAL SAVINGS \$14,926,006				

Data from Center for Advanced Public Safety - University of Alabama

<http://care.cs.ua.edu/>

<http://www.fhwa.dot.gov/publications/research/safety/10053/index.cfm>

ANNUAL VEHICULAR SAFETY STATISTICS - LOSS OF LIFE AND INJURY COSTS			
CATEGORY	COST PER EVENT	ANNUAL EVENTS	ANNUAL TOTAL COSTS
Fatalities	\$9,400,000	4.25	\$39,950,000
Injuries (Serious)	\$987,000	39	\$38,493,000
Property Damage Only	\$7,854	116	\$911,064
	Total		\$79,354,064

<http://www.dot.gov/policy-initiatives/tiger/tiger-benefit-cost-analysis-bca-resource-guide>

TOTAL ANNUAL SAFETY SAVINGS = \$14,926,006

GRAND TOTAL SAFETY SAVINGS OVER 20 YEAR HORIZON = \$298,520,120

Calculation for Economic Impacts of Planned Development Projects within the Study Area

The Waterway Village Multimodal Access project will provide the required transportation infrastructure to provide access to the planned medical facility and free standing emergency department in north Gulf Shores. The existing medical building was purchased by the City of Gulf Shores in 2018. In 2019, South Baldwin Regional Medical Center announced the construction of a new free standing emergency medical center adjacent to the existing medical building now owned by the City of Gulf Shores. The medical facility and free standing emergency medical center will include a 12 bed free standing emergency department, healthcare specialists, diagnostics department, operating rooms, and primary care physician offices. In addition to providing the much needed healthcare facilities for residents and visitors of the region, the planned medical facility is projected to have an annual economic impact of \$2,000,000 and create over 100 direct healthcare staff and physician jobs. This would result in over **\$40,000,000 direct economic impact** over the 20 year horizon created by the proposed medical facility once the transportation improvements are constructed to provide access.

Total Benefit-Cost Comparison

The total benefits for the Gulf Shores Regional Connectivity and Infrastructure Improvements Project listed above is **\$348,986,302** vs a total project cost of **\$23,000,000** for a benefit-cost ratio of **15.17 to 1**.