

**Gooseberry TIGER Benefit-Cost Analysis**

Year	Construction Costs	Maintenance Costs	Total Costs	Operating Expense Benefits							Net Economic Benefits	2015 PV @ 7%		Cumulative 2015 PV @ 7%		2015 PV @ 3%		Cumulative 2015 PV @ 3%	
				Safety	Road Maintenance	User Delay Benefits	Emissions Benefits*	Operating Expense Benefits	Total Economic Benefits	2015 PV @ 7%		2015 PV @ 3%	Cumulative 2015 PV @ 7%	Cumulative 2015 PV @ 3%	2015 PV @ 3%	Cumulative 2015 PV @ 3%			
2016	\$-	\$4,209,220	\$4,209,220	\$-	\$-	\$-	\$-	\$-	\$-	\$4,209,220	\$3,933,850	\$3,933,850	\$4,086,621	\$4,086,621					
2017	\$(11,908,102)	\$1,809,220	\$(10,098,882)	\$6,944	\$6,920	\$55,765	\$1,413	\$51,878	\$122,919	\$(9,975,963)	\$(8,725,404)	\$(4,791,553)	\$(9,416,370)	\$(5,329,749)					
2018	\$(14,885,127)	\$1,701,420	\$(13,183,707)	\$13,888	\$13,840	\$112,087	\$1,449	\$103,755	\$245,019	\$(12,938,688)	\$(10,584,315)	\$(15,375,869)	\$(11,866,108)	\$(17,195,857)					
2019	\$-	\$1,701,420	\$1,701,420	\$13,888	\$13,979	\$112,647	\$1,513	\$104,793	\$246,820	\$1,948,240	\$1,465,234	\$(13,910,635)	\$1,706,227	\$(15,489,630)					
2020	\$-	\$1,701,420	\$1,701,420	\$13,888	\$14,119	\$113,210	\$1,579	\$105,841	\$248,636	\$1,950,056	\$1,370,631	\$(12,540,004)	\$1,657,977	\$(13,831,653)					
2021	\$-	\$1,701,420	\$1,701,420	\$13,888	\$14,260	\$113,776	\$1,645	\$106,899	\$250,468	\$1,951,888	\$1,282,151	\$(11,257,853)	\$1,611,102	\$(12,220,551)					
2022	\$-	\$101,420	\$101,420	\$13,888	\$14,402	\$114,345	\$1,711	\$107,968	\$252,315	\$353,735	\$202,996	\$(11,054,857)	\$264,616	\$(11,955,935)					
2023	\$-	\$101,420	\$101,420	\$13,888	\$14,546	\$114,917	\$1,779	\$109,048	\$254,178	\$355,598	\$190,781	\$(10,864,076)	\$258,266	\$(11,697,669)					
2024	\$-	\$101,420	\$101,420	\$13,888	\$14,692	\$115,492	\$1,847	\$110,138	\$256,056	\$357,476	\$179,309	\$(10,684,768)	\$252,072	\$(11,445,597)					
2025	\$-	\$101,420	\$101,420	\$13,888	\$14,839	\$116,069	\$1,915	\$111,239	\$257,950	\$359,370	\$168,534	\$(10,516,234)	\$246,030	\$(11,199,567)					
2026	\$-	\$101,420	\$101,420	\$13,888	\$14,987	\$116,649	\$1,984	\$112,352	\$259,861	\$361,281	\$158,414	\$(10,357,819)	\$240,137	\$(10,959,431)					
2027	\$-	\$101,420	\$101,420	\$13,888	\$15,137	\$117,233	\$2,054	\$113,475	\$261,787	\$363,207	\$148,910	\$(10,208,910)	\$234,389	\$(10,725,042)					
2028	\$-	\$101,420	\$101,420	\$13,888	\$15,288	\$117,819	\$2,124	\$114,610	\$263,730	\$365,150	\$139,982	\$(10,068,928)	\$228,782	\$(10,496,260)					
2029	\$-	\$101,420	\$101,420	\$13,888	\$15,441	\$118,408	\$2,196	\$115,756	\$265,689	\$367,109	\$131,597	\$(9,937,331)	\$223,312	\$(10,272,948)					
2030	\$-	\$101,420	\$101,420	\$13,888	\$15,596	\$119,000	\$2,267	\$116,914	\$267,665	\$369,085	\$123,721	\$(9,813,610)	\$217,977	\$(10,054,971)					
2031	\$-	\$101,420	\$101,420	\$13,888	\$15,752	\$119,595	\$2,340	\$118,083	\$269,657	\$371,077	\$116,322	\$(9,697,288)	\$212,773	\$(9,842,198)					
2032	\$-	\$101,420	\$101,420	\$13,888	\$15,909	\$120,193	\$2,413	\$119,264	\$271,667	\$373,087	\$109,373	\$(9,587,915)	\$207,696	\$(9,634,503)					
2033	\$-	\$101,420	\$101,420	\$13,888	\$16,068	\$120,794	\$2,487	\$120,456	\$273,693	\$375,113	\$102,844	\$(9,485,071)	\$202,743	\$(9,431,759)					
2034	\$-	\$101,420	\$101,420	\$13,888	\$16,229	\$121,398	\$2,561	\$121,661	\$275,737	\$377,157	\$96,712	\$(9,388,359)	\$197,912	\$(9,233,847)					
2035	\$-	\$101,420	\$101,420	\$13,888	\$16,391	\$122,005	\$2,636	\$122,878	\$277,798	\$379,218	\$90,951	\$(9,297,408)	\$193,199	\$(9,040,648)					
2036	\$-	\$101,420	\$101,420	\$13,888	\$16,555	\$122,615	\$2,712	\$124,106	\$279,876	\$381,296	\$85,539	\$(9,211,870)	\$188,601	\$(8,852,047)					
2037	\$-	\$101,420	\$101,420	\$13,888	\$16,721	\$123,228	\$2,789	\$125,347	\$281,973	\$383,393	\$80,454	\$(9,131,416)	\$184,115	\$(8,667,932)					
2038	\$-	\$101,420	\$101,420	\$13,888	\$16,888	\$123,844	\$2,866	\$126,601	\$284,087	\$385,507	\$75,677	\$(9,055,739)	\$179,739	\$(8,488,193)					
2039	\$-	\$101,420	\$101,420	\$13,888	\$17,057	\$124,463	\$2,944	\$127,867	\$286,219	\$387,639	\$71,189	\$(8,984,550)	\$175,470	\$(8,312,723)					
2040	\$-	\$101,420	\$101,420	\$13,888	\$17,227	\$125,086	\$3,022	\$129,146	\$288,369	\$389,789	\$66,972	\$(8,917,578)	\$171,304	\$(8,141,419)					
2041	\$-	\$101,420	\$101,420	\$13,888	\$17,400	\$125,711	\$3,102	\$130,437	\$290,537	\$391,957	\$63,010	\$(8,854,568)	\$167,241	\$(7,974,178)					
2042	\$-	\$101,420	\$101,420	\$13,888	\$17,574	\$126,340	\$3,182	\$131,741	\$292,724	\$394,144	\$59,287	\$(8,795,281)	\$163,276	\$(7,810,902)					
2043	\$-	\$101,420	\$101,420	\$13,888	\$17,749	\$126,971	\$3,262	\$133,059	\$294,930	\$396,350	\$55,789	\$(8,739,493)	\$159,407	\$(7,651,495)					
2044	\$-	\$101,420	\$101,420	\$13,888	\$17,927	\$127,606	\$3,344	\$134,389	\$297,154	\$398,574	\$52,502	\$(8,686,991)	\$155,633	\$(7,495,862)					
2045	\$-	\$101,420	\$101,420	\$13,888	\$18,106	\$128,244	\$3,426	\$135,733	\$299,398	\$400,818	\$49,413	\$(8,637,578)	\$151,950	\$(7,343,911)					
2046	\$-	\$101,420	\$101,420	\$13,888	\$18,287	\$128,885	\$3,509	\$137,091	\$301,660	\$403,080	\$46,510	\$(8,591,068)	\$148,357	\$(7,195,554)					
2047	\$-	\$101,420	\$101,420	\$13,888	\$18,470	\$129,530	\$3,593	\$138,462	\$303,942	\$405,362	\$43,782	\$(8,547,286)	\$144,851	\$(7,050,702)					
2048	\$-	\$101,420	\$101,420	\$13,888	\$18,655	\$130,178	\$3,677	\$139,846	\$306,244	\$407,664	\$41,218	\$(8,506,068)	\$141,430	\$(6,909,272)					
2049	\$-	\$101,420	\$101,420	\$13,888	\$18,841	\$130,828	\$3,762	\$141,245	\$308,565	\$409,985	\$38,808	\$(8,467,260)	\$138,092	\$(6,771,180)					
2050	\$-	\$101,420	\$101,420	\$13,888	\$19,030	\$131,483	\$3,848	\$142,657	\$310,906	\$412,326	\$36,544	\$(8,430,716)	\$134,835	\$(6,636,344)					
2051	\$-	\$101,420	\$101,420	\$13,888	\$19,220	\$132,140	\$3,935	\$144,084	\$313,267	\$414,687	\$34,415	\$(8,396,301)	\$131,657	\$(6,504,687)					
2052	\$-	\$101,420	\$101,420	\$13,888	\$19,412	\$132,801	\$4,023	\$145,524	\$315,648	\$417,068	\$32,414	\$(8,363,887)	\$128,556	\$(6,376,131)					
2053	\$-	\$101,420	\$101,420	\$13,888	\$19,606	\$133,465	\$4,111	\$146,980	\$318,050	\$419,470	\$30,533	\$(8,333,354)	\$125,529	\$(6,250,602)					
2054	\$-	\$101,420	\$101,420	\$13,888	\$19,802	\$134,132	\$4,200	\$148,450	\$320,472	\$421,892	\$28,765	\$(8,304,589)	\$122,576	\$(6,128,026)					
2055	\$-	\$101,420	\$101,420	\$13,888	\$20,000	\$134,803	\$4,290	\$149,934	\$322,915	\$424,335	\$27,103	\$(8,277,486)	\$119,694	\$(6,008,332)					
2055	\$-	\$101,420	\$101,420	\$13,888	\$20,200	\$135,477	\$4,381	\$151,433	\$325,379	\$426,799	\$27,276	\$(8,250,210)	\$120,388	\$(5,887,944)					
2055	\$-	\$101,420	\$101,420	\$13,888	\$20,402	\$136,154	\$-	\$152,948	\$323,392	\$424,812	\$26,079	\$(8,521,207)	\$119,717	\$(6,930,985)					
2015 PV @ 7%	<b>\$(22,551,695)</b>	<b>\$11,428,706</b>	<b>\$(11,122,989)</b>	<b>\$167,782</b>	<b>\$187,491</b>	<b>\$1,432,084</b>	<b>\$57,891</b>	<b>\$1,405,533</b>	<b>\$3,250,782</b>	<b>\$(7,902,830)</b>	<b>\$(8,224,131)</b>								
2015 PV @ 3%	<b>\$(24,846,528)</b>	<b>\$13,607,667</b>	<b>\$(11,238,861)</b>	<b>\$309,134</b>	<b>\$361,098</b>	<b>\$2,697,075</b>	<b>\$57,891</b>	<b>\$2,706,975</b>	<b>\$6,132,173</b>	<b>\$(5,108,373)</b>			<b>\$(5,768,227)</b>						
B/C Ratio @ 7%			<b>0.29</b>																
B/C Ratio @ 3%			<b>0.55</b>																

\*Per federal guidance, benefits from reduced CO2 emissions are valued using 3%SOC values and always discounted at 3%.

Discount Rate 0.07  
Discount Rate 0.03

Discount Rate 1.03 1.07

Year	No Build	Build	Annual (Savings)/Cost	2015 PV @3%	2015 PV @7%	Timeline No Build	Timeline Build
2016	\$4,209,220		\$(4,209,220)	\$(4,086,621)	\$(3,933,850)		
2017	\$1,809,220		\$(1,809,220)	\$(1,705,363)	\$(1,580,243)		
2018	\$1,809,220	\$107,800	\$(1,701,420)	\$(1,557,040)	\$(1,388,866)		
2019	\$1,809,220	\$107,800	\$(1,701,420)	\$(1,511,690)	\$(1,298,005)		
2020	\$1,809,220	\$107,800	\$(1,701,420)	\$(1,467,660)	\$(1,213,089)		
2021	\$1,809,220	\$107,800	\$(1,701,420)	\$(1,424,912)	\$(1,133,728)		
2022	\$209,220	\$107,800	\$(101,420)	\$(82,464)	\$(63,159)		
2023	\$209,220	\$107,800	\$(101,420)	\$(80,062)	\$(59,027)		
2024	\$209,220	\$107,800	\$(101,420)	\$(77,730)	\$(55,166)		
2025	\$209,220	\$107,800	\$(101,420)	\$(75,466)	\$(51,557)		
2026	\$209,220	\$107,800	\$(101,420)	\$(73,288)	\$(48,184)		
2027	\$209,220	\$107,800	\$(101,420)	\$(71,134)	\$(45,032)		
2028	\$209,220	\$107,800	\$(101,420)	\$(69,062)	\$(42,086)		
2029	\$209,220	\$107,800	\$(101,420)	\$(67,051)	\$(39,332)		
2030	\$209,220	\$107,800	\$(101,420)	\$(65,098)	\$(36,759)		
2031	\$209,220	\$107,800	\$(101,420)	\$(63,202)	\$(34,354)		
2032	\$209,220	\$107,800	\$(101,420)	\$(61,361)	\$(32,107)		
2033	\$209,220	\$107,800	\$(101,420)	\$(59,574)	\$(30,007)		
2034	\$209,220	\$107,800	\$(101,420)	\$(57,838)	\$(28,043)		
2035	\$209,220	\$107,800	\$(101,420)	\$(56,154)	\$(26,209)		
2036	\$209,220	\$107,800	\$(101,420)	\$(54,518)	\$(24,494)		
2037	\$209,220	\$107,800	\$(101,420)	\$(52,930)	\$(22,892)		
2038	\$209,220	\$107,800	\$(101,420)	\$(51,389)	\$(21,394)		
2039	\$209,220	\$107,800	\$(101,420)	\$(49,892)	\$(19,995)		
2040	\$209,220	\$107,800	\$(101,420)	\$(48,439)	\$(18,687)		
2041	\$209,220	\$107,800	\$(101,420)	\$(47,028)	\$(17,464)		
2042	\$209,220	\$107,800	\$(101,420)	\$(45,658)	\$(16,322)		
2043	\$209,220	\$107,800	\$(101,420)	\$(44,328)	\$(15,254)		
2044	\$209,220	\$107,800	\$(101,420)	\$(43,037)	\$(14,256)		
2045	\$209,220	\$107,800	\$(101,420)	\$(41,784)	\$(13,323)		
2046	\$209,220	\$107,800	\$(101,420)	\$(40,567)	\$(12,452)		
2047	\$209,220	\$107,800	\$(101,420)	\$(39,385)	\$(11,637)		
2048	\$209,220	\$107,800	\$(101,420)	\$(38,238)	\$(10,876)		
2049	\$209,220	\$107,800	\$(101,420)	\$(37,124)	\$(10,164)		
2050	\$209,220	\$107,800	\$(101,420)	\$(36,043)	\$(9,499)		
2051	\$209,220	\$107,800	\$(101,420)	\$(34,993)	\$(8,878)		
2052	\$209,220	\$107,800	\$(101,420)	\$(33,974)	\$(8,297)		
2053	\$209,220	\$107,800	\$(101,420)	\$(32,984)	\$(7,754)		
2054	\$209,220	\$107,800	\$(101,420)	\$(32,024)	\$(7,247)		
2055	\$209,220	\$107,800	\$(101,420)	\$(31,091)	\$(6,773)		
2056	\$209,220	\$107,800	\$(101,420)	\$(30,185)	\$(6,330)		
2057	\$209,220	\$107,800	\$(101,420)	\$(29,306)	\$(5,916)		
<b>TOTAL</b>				<b>\$(13,607,667)</b>	<b>\$(11,428,706)</b>		

No Build
\$190,200 Annual O&M cost in 2009\$
\$209,220 Annual O&M cost in 2015\$
\$4,000,000 Dock adjustment for new harbor
\$8,000,000 Dock Rebuild over 5 years
\$1.10 CPI Inflater

Source:  
Gooseberry Point Relocation Study  
[http://www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm)

Full Rebuild of Ferry Dock
\$98,000 Dock O&M Costs in 2009\$
\$107,800 Annual O&M Costs in 2015\$

Gooseberry Point Relocation Study & Client  
Provided by client

		Discount Rate		1.03	1.07
Year	Volume Improved	Change in Accident Rate	Annual Value	2015 PV @3%	2015 PV @7%
2016	\$-	0.00%	\$-	\$-	\$-
2017	\$6,944	0.00%	\$6,944	\$6,545	\$6,065
2018	\$13,888	0.00%	\$13,888	\$12,709	\$11,337
2019	\$13,888	0.00%	\$13,888	\$12,339	\$10,595
2020	\$13,888	0.00%	\$13,888	\$11,980	\$9,902
2021	\$13,888	0.00%	\$13,888	\$11,631	\$9,254
2022	\$13,888	0.00%	\$13,888	\$11,292	\$8,649
2023	\$13,888	0.00%	\$13,888	\$10,963	\$8,083
2024	\$13,888	0.00%	\$13,888	\$10,644	\$7,554
2025	\$13,888	0.00%	\$13,888	\$10,334	\$7,060
2026	\$13,888	0.00%	\$13,888	\$10,033	\$6,598
2027	\$13,888	0.00%	\$13,888	\$9,741	\$6,166
2028	\$13,888	0.00%	\$13,888	\$9,457	\$5,763
2029	\$13,888	0.00%	\$13,888	\$9,182	\$5,386
2030	\$13,888	0.00%	\$13,888	\$8,914	\$5,034
2031	\$13,888	0.00%	\$13,888	\$8,655	\$4,704
2032	\$13,888	0.00%	\$13,888	\$8,402	\$4,397
2033	\$13,888	0.00%	\$13,888	\$8,158	\$4,109
2034	\$13,888	0.00%	\$13,888	\$7,920	\$3,840
2035	\$13,888	0.00%	\$13,888	\$7,689	\$3,589
2036	\$13,888	0.00%	\$13,888	\$7,465	\$3,354
2037	\$13,888	0.00%	\$13,888	\$7,248	\$3,135
2038	\$13,888	0.00%	\$13,888	\$7,037	\$2,930
2039	\$13,888	0.00%	\$13,888	\$6,832	\$2,738
2040	\$13,888	0.00%	\$13,888	\$6,633	\$2,559
2041	\$13,888	0.00%	\$13,888	\$6,440	\$2,391
2042	\$13,888	0.00%	\$13,888	\$6,252	\$2,235
2043	\$13,888	0.00%	\$13,888	\$6,070	\$2,089
2044	\$13,888	0.00%	\$13,888	\$5,893	\$1,952
2045	\$13,888	0.00%	\$13,888	\$5,722	\$1,824
2046	\$13,888	0.00%	\$13,888	\$5,555	\$1,705
2047	\$13,888	0.00%	\$13,888	\$5,393	\$1,594
2048	\$13,888	0.00%	\$13,888	\$5,236	\$1,489
2049	\$13,888	0.00%	\$13,888	\$5,084	\$1,392
2050	\$13,888	0.00%	\$13,888	\$4,936	\$1,301
2051	\$13,888	0.00%	\$13,888	\$4,792	\$1,216
2052	\$13,888	0.00%	\$13,888	\$4,652	\$1,136
2053	\$13,888	0.00%	\$13,888	\$4,517	\$1,062
2054	\$13,888	0.00%	\$13,888	\$4,385	\$992
2055	\$13,888	0.00%	\$13,888	\$4,257	\$927
2056	\$13,888	0.00%	\$13,888	\$4,133	\$867
2057	\$13,888	0.00%	\$13,888	\$4,013	\$810
<b>TOTAL</b>				<b>\$309,134</b>	<b>\$167,782</b>

Average Annual Crashes			
Severity	Existing	Mitigated	Improvement
K	0	0	0
A	0	0	0
B	0	0	0
C	0.3	0.078	0.222
D	0	0	0

Source: Provided by client

one known accident in previous three years;  
0.13 probability per vmt, improved by overall vmt reduction

AIS and VSL		
AIS Level	Severity	Fraction of VSL
1	Minor	0.003
2	Moderate	0.047
3	Serious	0.105
4	Severe	0.266
5	Critical	0.593
6	Unsurvivable	1

VSL and PDO Conversion Table			
VSL 2013	\$9,100,000	2013\$ Base	Conversion
<b>VSL 2015</b>	<b>\$9,282,000</b>	<b>2015\$</b>	<b>1.02</b>
PDO 2010	\$3,206.00	2010\$ Base	Conversion
<b>PDO 2015</b>	<b>\$3,494.54</b>	<b>2015\$</b>	<b>1.09</b>

U.S. Department of Transportation  
U.S. Bureau of Labor Statistics. <http://data.bls.gov/cgi-bin/cpicalc.pl>  
National Highway Safety Administration  
U.S. Bureau of Labor Statistics. <http://data.bls.gov/cgi-bin/cpicalc.pl>

KABCO to AIS Conversion Matrix					
AIS Level	K	A	B	C	O
0	0	0.03437	0.08347	0.23437	0.92534
1	0	0.55449	0.76843	0.68946	0.07257
2	0	0.20908	0.10898	0.06391	0.00198
3	0	0.14437	0.03191	0.01071	0.00008
4	0	0.03986	0.0062	0.00142	0
5	0	0.01783	0.00101	0.00013	0.00003
6	1	0	0	0	0

National Highway Safety Administration

Improved Safety Conversion		
AIS Level	Annual Change	Value
0	0.0520	\$182
1	0.1531	\$4,262
2	0.0142	\$6,190
3	0.0024	\$2,317
4	0.0003	\$778
5	0.0000	\$159
6	0	\$-
<b>TOTAL</b>		<b>\$13,888</b>

1.01379 volume inflation factor  
0.98621 volume deflation factor

Year	Discount Rate	2015 PV @ 3%	2015 PV @ 7%
2016		\$-	\$-
2017		\$6,920	\$6,044
2018		\$13,840	\$11,298
2019		\$13,979	\$10,664
2020		\$14,119	\$10,066
2021		\$14,260	\$9,502
2022		\$14,402	\$8,969
2023		\$14,546	\$8,466
2024		\$14,692	\$7,991
2025		\$14,839	\$7,543
2026		\$14,987	\$7,120
2027		\$15,137	\$6,721
2028		\$15,288	\$6,344
2029		\$15,441	\$5,988
2030		\$15,596	\$5,653
2031		\$15,752	\$5,336
2032		\$15,909	\$5,036
2033		\$16,068	\$4,754
2034		\$16,229	\$4,487
2035		\$16,391	\$4,236
2036		\$16,555	\$3,998
2037		\$16,721	\$3,774
2038		\$16,888	\$3,562
2039		\$17,057	\$3,363
2040		\$17,227	\$3,174
2041		\$17,400	\$2,996
2042		\$17,574	\$2,828
2043		\$17,749	\$2,670
2044		\$17,927	\$2,520
2045		\$18,106	\$2,379
2046		\$18,287	\$2,245
2047		\$18,470	\$2,119
2048		\$18,655	\$2,000
2049		\$18,841	\$1,888
2050		\$19,030	\$1,782
2051		\$19,220	\$1,682
2052		\$19,412	\$1,588
2053		\$19,606	\$1,499
2054		\$19,802	\$1,415
2055		\$20,000	\$1,336
2056		\$20,200	\$1,261
2057		\$20,402	\$1,190
<b>TOTAL</b>		<b>\$361,098</b>	<b>\$187,491</b>

Growth Rate
1.00% Traffic growth rate/year
Highway Maintenance Costs
\$0.11 Passenger Cars, 2015\$
\$0.10 Passenger Cars, 2011\$
Vehicle Split
100% Passenger Cars
0% Freight

Source:

U.S. CBO: Spending and Funding for Highways

All trips are assumed to be work related trips to commercial fishing site

Scenario
<b>\$13,840 Cost per year</b>
VMT Reduction 2018
131,814 <b>Total</b>
131,814 Passenger Car VMT
0 Freight VMT

1.05 source: <http://data.bls.gov/cgi-bin/cpicalc.pl?cost1=1&year1=2011&year2=2015>

Year	Annual Hours Reduction	Discount Rate		
		Value of Reduction	2015 PV @3%	2015 PV @7%
2016		\$-	\$-	\$-
2017	2,917.63	\$55,765	\$52,563	\$48,707
2018	5,864.44	\$112,087	\$102,575	\$91,496
2019	5,893.76	\$112,647	\$100,086	\$85,938
2020	5,923.23	\$113,210	\$97,656	\$80,717
2021	5,952.84	\$113,776	\$95,286	\$75,814
2022	5,982.61	\$114,345	\$92,973	\$71,209
2023	6,012.52	\$114,917	\$90,717	\$66,883
2024	6,042.58	\$115,492	\$88,515	\$62,820
2025	6,072.80	\$116,069	\$86,366	\$59,004
2026	6,103.16	\$116,649	\$84,270	\$55,419
2027	6,133.68	\$117,233	\$82,225	\$52,053
2028	6,164.35	\$117,819	\$80,229	\$48,891
2029	6,195.17	\$118,408	\$78,282	\$45,921
2030	6,226.14	\$119,000	\$76,382	\$43,131
2031	6,257.27	\$119,595	\$74,528	\$40,511
2032	6,288.56	\$120,193	\$72,719	\$38,050
2033	6,320.00	\$120,794	\$70,954	\$35,739
2034	6,351.60	\$121,398	\$69,232	\$33,568
2035	6,383.36	\$122,005	\$67,551	\$31,528
2036	6,415.28	\$122,615	\$65,912	\$29,613
2037	6,447.35	\$123,228	\$64,312	\$27,814
2038	6,479.59	\$123,844	\$62,751	\$26,125
2039	6,511.99	\$124,463	\$61,228	\$24,538
2040	6,544.55	\$125,086	\$59,742	\$23,047
2041	6,577.27	\$125,711	\$58,292	\$21,647
2042	6,610.16	\$126,340	\$56,877	\$20,332
2043	6,643.21	\$126,971	\$55,496	\$19,097
2044	6,676.42	\$127,606	\$54,149	\$17,937
2045	6,709.81	\$128,244	\$52,835	\$16,847
2046	6,743.36	\$128,885	\$51,553	\$15,824
2047	6,777.07	\$129,530	\$50,301	\$14,862
2048	6,810.96	\$130,178	\$49,080	\$13,960
2049	6,845.01	\$130,828	\$47,889	\$13,112
2050	6,879.24	\$131,483	\$46,727	\$12,315
2051	6,913.63	\$132,140	\$45,593	\$11,567
2052	6,948.20	\$132,801	\$44,486	\$10,864
2053	6,982.94	\$133,465	\$43,406	\$10,204
2054	7,017.86	\$134,132	\$42,353	\$9,584
2055	7,052.95	\$134,803	\$41,325	\$9,002
2056	7,088.21	\$135,477	\$40,322	\$8,455
2057	7,123.65	\$136,154	\$39,343	\$7,942
<b>TOTAL</b>			<b>\$2,697,075</b>	<b>\$1,432,084</b>

Value of Travel Time Savings (Ferry)			
Value 2009\$			
	Amount	% of Travel	
Personal	\$12.00		50.00%
Business	\$22.90		50.00%
<b>Weighted VoT</b>			
	\$17.45	2009\$ Base Year	
	\$19.11	2015\$	
		1.10 2009 to 2015\$ Conversion	

Source: Assumption based on distribution of daily trips

Source: <http://data.bls.gov/cgi-bin/cpicalc.pl>

Traffic Growth Rate	
0.50% Traffic growth rate per year*	
Ferry Delay Reduction	
2.00 Total Hours/Day Reduction After Ferry Improvement	
572.00 Total Hours/Year	
Based on ADT for 2018 using growth rate	
4 Years	
<b>\$83.53 Total Hours/Year</b>	

Estimate of 8 delays per day, which include a 15 minute wait for next ferry

Value of Travel Time Savings (Fishing Fleet)			
Value 2009\$			
	Amount	% of Travel	
Personal	\$12.00		0.00%
Business	\$22.90		100.00%
<b>Weighted VoT</b>			
	\$22.90	2009\$ Base Year	
	\$25.08	2015\$	
		1.10 2009 to 2015\$ Conversion	

Vessel Traffic Growth Rate	
0.50% Traffic growth rate per year*	
Travel Time Savings	
33 Average Trips per day	
3 Average vessel crew	
1.00 Time savings (in hours)	
99 Total Hours/Day with new boat launch***	
5,148 Total Hours/Year**	
Based on ADT for 2018 using growth rate	
4 Years	
<b>5,252 Total Hours/Year</b>	

Discount Rate

1.03

1.07

SOC Value per metric ton 3% (\$2015)	Scenario				
	Annual Gal. Fuel Red.	Emission Red. (metric tons of CO2)	Value of Emissions Red. (\$2015)	2015 Value of PV @ 3%*	2015 Value of PV @ 7%*
\$27.1	-	-	\$-	\$-	\$-
\$27.7	-	-	\$-	\$-	\$-
\$28.3	<b>5,731</b>	50.0	<b>\$1,412.88</b>	\$1,292.99	\$1,153.33
\$28.8	5,760	50.2	<b>\$1,448.57</b>	\$1,287.04	\$1,105.11
\$30.0	5,788	50.5	<b>\$1,513.36</b>	\$1,305.44	\$1,079.00
\$31.1	5,817	50.7	<b>\$1,578.75</b>	\$1,322.18	\$1,051.99
\$32.3	5,847	51.0	<b>\$1,644.77</b>	\$1,337.35	\$1,024.28
\$33.4	5,876	51.2	<b>\$1,711.40</b>	\$1,351.00	\$996.05
\$34.5	5,905	51.5	<b>\$1,778.66</b>	\$1,363.19	\$967.47
\$35.7	5,935	51.8	<b>\$1,846.55</b>	\$1,374.01	\$938.69
\$36.8	5,964	52.0	<b>\$1,915.07</b>	\$1,383.49	\$909.84
\$38.0	5,994	52.3	<b>\$1,984.23</b>	\$1,391.70	\$881.02
\$39.1	6,024	52.5	<b>\$2,054.04</b>	\$1,398.70	\$852.35
\$40.2	6,054	52.8	<b>\$2,124.49</b>	\$1,404.54	\$823.91
\$41.4	6,085	53.1	<b>\$2,195.60</b>	\$1,409.27	\$795.79
\$42.5	6,115	53.3	<b>\$2,267.37</b>	\$1,412.95	\$768.04
\$43.7	6,146	53.6	<b>\$2,339.79</b>	\$1,415.61	\$740.72
\$44.8	6,176	53.9	<b>\$2,412.89</b>	\$1,417.32	\$713.89
\$45.9	6,207	54.1	<b>\$2,486.66</b>	\$1,418.11	\$687.58
\$47.1	6,238	54.4	<b>\$2,561.10</b>	\$1,418.02	\$661.84
\$48.2	6,269	54.7	<b>\$2,636.23</b>	\$1,417.10	\$636.68
\$49.4	6,301	54.9	<b>\$2,712.05</b>	\$1,415.40	\$612.14
\$50.5	6,332	55.2	<b>\$2,788.55</b>	\$1,412.94	\$588.24
\$51.6	6,364	55.5	<b>\$2,865.76</b>	\$1,409.76	\$564.97
\$52.8	6,396	55.8	<b>\$2,943.66</b>	\$1,405.91	\$542.37
\$53.9	6,428	56.0	<b>\$3,022.28</b>	\$1,401.41	\$520.42
\$55.1	6,460	56.3	<b>\$3,101.60</b>	\$1,396.31	\$499.14
\$56.2	6,492	56.6	<b>\$3,181.65</b>	\$1,390.63	\$478.53
\$57.3	6,525	56.9	<b>\$3,262.42</b>	\$1,384.39	\$458.57
\$58.5	6,557	57.2	<b>\$3,343.91</b>	\$1,377.65	\$439.28
\$59.6	6,590	57.5	<b>\$3,426.14</b>	\$1,370.41	\$420.64
\$60.8	6,623	57.8	<b>\$3,509.11</b>	\$1,362.72	\$402.64
\$61.9	6,656	58.0	<b>\$3,592.82</b>	\$1,354.59	\$385.28
\$63.0	6,689	58.3	<b>\$3,677.28</b>	\$1,346.05	\$368.53
\$64.2	6,723	58.6	<b>\$3,762.50</b>	\$1,337.13	\$352.41
\$65.3	6,756	58.9	<b>\$3,848.47</b>	\$1,327.85	\$336.88
\$66.5	6,790	59.2	<b>\$3,935.22</b>	\$1,318.23	\$321.94
\$67.6	6,824	59.5	<b>\$4,022.73</b>	\$1,308.30	\$307.57
\$68.7	6,858	59.8	<b>\$4,111.02</b>	\$1,298.07	\$293.75
\$69.9	6,893	60.1	<b>\$4,200.09</b>	\$1,287.57	\$280.48
\$71.0	6,927	60.4	<b>\$4,289.95</b>	\$1,276.81	\$267.74
\$72.2	6,962	60.7	<b>\$4,380.60</b>	\$1,265.82	\$255.51
				<b>\$54,568</b>	<b>\$25,485</b>

from reduced CO2 emissions are valued using 3%, SOC values and always discounted at 3%.

Average MPG
23 Average MPG Passenger Cars
10 Average MPG Freight
Annual Mileage and Traffic Growth
0.50% Traffic growth rate/year
590 ADT (2014)
602 ADT (2018)
219,689 Average Annual Traffic (2018)
4 Years (2018-2014)
Vehicle Split
100% Passenger Cars
0% Freight
Other
0.00872 Metric Ton of CO2 per Gallon of Fuel
1.14 2007 to 2015\$ Conversion

Source:

U.S. DOT: Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles (2013)  
[http://cta.ornl.gov/vtmarketreport/pdf/chapter3\\_heavy\\_trucks.pdf](http://cta.ornl.gov/vtmarketreport/pdf/chapter3_heavy_trucks.pdf)

Assumption

VMT Reduction (2018)
0.6 Reduction in VMT per Vehicle
<b>131,814 Total</b>
131,814 Passenger Cars
0 Freight
Gallons Reduction
<b>5,731 Gallons per year</b>

Provided by client

Note: All trips are assumed to be work related trips to commercial fishing site

Year	Discount Rate			1.03	1.07
	Vehicle Benefit	Vessel Benefit	Total Benefit	2015 PV @3%	2015 PV @7%
2016	\$-	\$-	\$-	\$-	\$-
2017	\$51,878	\$7,074	\$58,952	\$55,568	\$51,491
2018	\$103,755	\$14,148	\$117,903	\$107,898	\$96,244
2019	\$104,793	\$14,219	\$119,012	\$105,740	\$90,793
2020	\$105,841	\$14,290	\$120,131	\$103,626	\$85,651
2021	\$106,899	\$14,361	\$121,260	\$101,554	\$80,801
2022	\$107,968	\$14,433	\$122,401	\$99,523	\$76,225
2023	\$109,048	\$14,505	\$123,553	\$97,534	\$71,909
2024	\$110,138	\$14,578	\$124,716	\$95,584	\$67,837
2025	\$111,239	\$14,651	\$125,890	\$93,674	\$63,996
2026	\$112,352	\$14,724	\$127,076	\$91,802	\$60,373
2027	\$113,475	\$14,798	\$128,273	\$89,968	\$56,955
2028	\$114,610	\$14,872	\$129,482	\$88,171	\$53,730
2029	\$115,756	\$14,946	\$130,702	\$86,410	\$50,689
2030	\$116,914	\$15,021	\$131,935	\$84,684	\$47,819
2031	\$118,083	\$15,096	\$133,179	\$82,993	\$45,112
2032	\$119,264	\$15,171	\$134,435	\$81,335	\$42,559
2033	\$120,456	\$15,247	\$135,704	\$79,712	\$40,150
2034	\$121,661	\$15,323	\$136,984	\$78,120	\$37,877
2035	\$122,878	\$15,400	\$138,278	\$76,561	\$35,734
2036	\$124,106	\$15,477	\$139,583	\$75,033	\$33,711
2037	\$125,347	\$15,554	\$140,902	\$73,536	\$31,803
2038	\$126,601	\$15,632	\$142,233	\$72,068	\$30,004
2039	\$127,867	\$15,710	\$143,577	\$70,631	\$28,306
2040	\$129,146	\$15,789	\$144,935	\$69,222	\$26,704
2041	\$130,437	\$15,868	\$146,305	\$67,841	\$25,193
2042	\$131,741	\$15,947	\$147,689	\$66,488	\$23,768
2043	\$133,059	\$16,027	\$149,086	\$65,162	\$22,423
2044	\$134,389	\$16,107	\$150,497	\$63,863	\$21,154
2045	\$135,733	\$16,188	\$151,921	\$62,589	\$19,957
2046	\$137,091	\$16,269	\$153,359	\$61,342	\$18,828
2047	\$138,462	\$16,350	\$154,811	\$60,119	\$17,763
2048	\$139,846	\$16,432	\$156,278	\$58,921	\$16,758
2049	\$141,245	\$16,514	\$157,758	\$57,747	\$15,810
2050	\$142,657	\$16,596	\$159,253	\$56,596	\$14,916
2051	\$144,084	\$16,679	\$160,763	\$55,468	\$14,072
2052	\$145,524	\$16,763	\$162,287	\$54,363	\$13,277
2053	\$146,980	\$16,847	\$163,826	\$53,281	\$12,526
2054	\$148,450	\$16,931	\$165,380	\$52,219	\$11,817
2055	\$149,934	\$17,015	\$166,950	\$51,180	\$11,149

<b>Vehicle Growth Rate</b>
1.00% Traffic growth rate/year
<b>Vehicle Operating Costs</b>
\$0.68 Passenger Cars, 2015\$ (15K miles/yr)
\$0.62 Passenger Cars, 2013\$ (15K miles/yr)
<b>Vehicle Split</b>
100% Passenger Cars
0% Freight

U.S. DOT: Table 3-17: Average Cost of Owning and Operating an Automobile

All trips are assumed to be work related trips to commercial fishing site

<b>Traffic Assumptions</b>
<b>\$89,607 Cost per year</b>
<b>VMT Reduction 2018</b>
<b>Total</b>
131,814
131,814 Passenger Car VMT
0 Freight VMT

<b>Vessel Assumptions</b>
0.50% Traffic growth rate/year
<b>Vessel Operating Costs</b>
\$3.58 Fuel Cost, per gallon, 2015\$
\$14.32 Cost per trip
<b>Fuel Cost</b>
3,952 Total Trips per year
\$56,593 Annual Fuel Cost

based on an average of 4 gallons used per trip

provided from client

<b>Vessel Scenario</b>
<b>\$14,148 Annual Savings</b>
<b>Fuel Reduction 2018</b>
1.00 Fuel saved per trip (gal)
\$3.58 Fuel Cost, per gallon, 2015\$
\$10.74 Cost per trip
<b>Fuel Cost</b>
3,952 Total Trips per year
\$42,444 Annual Fuel Cost

move to boat launch would reduce fuel consumption by 25 percent per trip constant

contant