



RECEIVED
2020 MAR 32 AM 10:41
OFFICE OF THE MAYOR

MICHAEL P. VICTORINO
Mayor
ROWENA M. DAGDAG-ANDAYA
Director
JORDAN MOLINA
Deputy Director
GLEN A. UENO, P.E., L.S.
Development Services Administration
RODRIGO "CHICO" R. RABARA, P.E.
Engineering Division
JOHN R. SMITH, P.E.
Highways Division
Telephone: (808) 270-7745
Fax: (808) 270-6267

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
200 SOUTH HIGH STREET, ROOM NO. 410
WAILUKU, MAUI, HAWAII 96793

March 20, 2020

RECEIVED
2020 APR -1 AM 10:53
OFFICE OF THE MAYOR

Honorable Michael P. Victorino
Mayor, County of Maui
200 South High Street
Wailuku, Hawaii 96793

APPROVED FOR TRANSMITTAL

Michael P. Victorino 4/1/20
Mayor Date

For Transmittal to:

Honorable Alice Lee, Council Chair
and Members of Maui County Council
200 South High Street
Wailuku, Hawaii 96793

RECEIVED
2020 APR -2 AM 10:00
OFFICE OF THE
COUNTY CLERK

Dear Council Chair Lee and Members:

SUBJECT: ASSESSMENT OF MAUI COUNTY COASTAL ROADS FOR EFFECTS OF CLIMATE CHANGE, SEA LEVEL RISE, AND SHORELINE EROSION

In accordance with Ordinance No. 4988, Bill No. 36, Appendix A, Fiscal Year 2020 Budget, we are transmitting to you a copy of the Request for Project Authorization, Agreement, and/or Modification approving the Federal funds to commence research activities.

Thank you for your attention to this matter. If you have any questions, please call Kristi Ono of our Engineering Division at Extension 7745.

Sincerely,

ROWENA M. DAGDAG-ANDAYA
Director of Public Works

RMDA/KO (ED20-0292)
Attachment
xc: Michele Yoshimura, Budget Director

COUNTY COMMUNICATION NO. 20-231

From: HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION To: FEDERAL HIGHWAY ADMINISTRATION HAWAII DIVISION OFFICE "In accordance with HDOT/FHWA Stewardship Oversight Agreement"		REQUEST FOR PROJECT AUTHORIZATION, AGREEMENT, AND/OR MODIFICATION <input checked="" type="checkbox"/> Authorization <input type="checkbox"/> Modified Project Agreement <input checked="" type="checkbox"/> Project Agreement Modification No. <small>The state agrees that as a condition to payment of the Federal funds obligated, it accepts and will comply with the agreement provisions set forth in 23 CFR 630, and its signature constitutes the making of the certificates.</small>				
FEDERAL PROJECT NO. 0900101	RECIPIENT PROJECT NO. STP-0900(101)	HDOT ITEM NO. 20012	DUNS 168818466	COUNTY Maui County		
Period of Performance End Date: OTHER 1/31/2024	INDIRECT COST RATE (%) not applicable	STIP REFERENCE 2020 S4	PODI <input type="checkbox"/> Yes <input type="checkbox"/> No	CFDA Number 20.205		
Project Title: Maui Cnty - Assessment of Maui County Coastal Roads for Effects of Climate Change, Sea Level Rise and Shoreline Erosion (Research)						
Project Description (2000 characters max): Develop systematic ranking approach of coastal roadways associated with climate change, sea level rise and erosion						
AUTHORIZED TO PROCEED WITH THE WORK CHECKED BELOW: PRELIMINARY ENGINEERING (PE1) - Preliminary Design and NEPA CONSTRUCTION - Advertise for Receipt of Bids PRELIMINARY ENGINEERING (PE2) - Final Design CONSTRUCTION - Proceed on an agreed price and/or force account basis PRELIMINARY RIGHT-OF-WAY <input checked="" type="checkbox"/> OTHER (R&D, specify) RESEARCH ACQUISITION OF RIGHT-OF-WAY						
FUNDING	DATE (MM/DD/YY)	TOTAL ESTIMATE PROJECT COST (\$)	FEDERAL PARTICIPATION AMOUNT (\$)	FEDERAL FUNDS(\$)	PGM CODE	RATIO(%)
PREVIOUS AUTHORIZATIONS						
THIS AUTHORIZATION	3/12/2020	\$246,656.03 \$193,075.75 \$219,353.22	\$246,656.03 \$193,075.75 \$219,353.22	\$197,324.82 \$154,460.60 \$175,482.58	L56E M56E Z560	80.00% 80.00% 80.00%
PROGRAM CODE TOTALS		\$246,656.03 \$193,075.75 \$219,353.22	\$246,656.03 \$193,075.75 \$219,353.22	\$197,324.82 \$154,460.60 \$175,482.58	L56E M56E Z560	80.00% 80.00% 80.00%
GRAND TOTAL		\$659,085.00	\$659,085.00	\$527,268.00		
Remarks/Reason for Project Agreement Modification STATE COMMENTS: Project S4 on the 2020 STIP. Requesting authorization for research and PoP End Date of 1/31/2024 per attached schedule. This agreement is subject to the following award terms: http://edocket.access.gpo.gov/2010/pdf/2010-22705.pdf and http://edocket.access.gpo.gov/2010/pdf/2010-22706.pdf .						
By signature of its authorized signatory herein, the County of Maui hereby affirms its agreement to the terms herein as a subagreement between the State of Hawaii and the County of Maui in accordance with and set forth in Agreement Modification No. 001 of the STATE-COUNTY AGREEMENT OF FEDERAL HIGHWAY PROJECTS AND PROGRAM.			FHWA COMMENTS: See FHWA Division remarks in FMIS			
C o u n t y  3/12/2020 by: COUNTY OF MAUI Date DUNS No. 077680155			F H W A See FMIS for signatures Authorized by Date			
H D O T Electronically signed in FMIS Authorized by Date						

HAWAII DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAIL ESTIMATE FOR
A FEDERAL-AID PROJECT AGREEMENT

FOR

Assessment of County of Maui Coastal Roads for Effects of
Climate Change, Seal Level Rise and Shoreline Erosion

Federal-Aid Project No. STP-0900(101)

1/29/2020; R2/25/20

	<u>TOTAL</u> <u>COST</u>	<u>PAR</u> <u>COST</u>	FEDERAL <u>SHARE</u> <u>(80%)</u>	COUNTY <u>SHARE</u>
PRGM Code L56E @ 80% (Statewide Plan Study S-LU Ext)				
19 - Research (UH Manoa)	\$246,656.03	\$246,656.03	\$197,324.82	\$49,331.21
PRGM Code M56E @ 80% (Res Dev and Tec Tran MAP-21 Ext)				
19 - Research (UH Manoa)	\$193,075.75	\$193,075.75	\$154,460.60	\$38,615.15
PRGM Code Z560 @ 80% (Research Devt and Tech Fast)				
19 - Research (UH Manoa)	\$194,353.22	\$194,353.22	\$155,482.58	\$38,870.64
<u>19 - Research (DOT/County Oversight)</u>	<u>\$25,000.00</u>	<u>\$25,000.00</u>	<u>\$20,000.00</u>	<u>\$5,000.00</u>
Subtotal Z231	\$219,353.22	\$219,353.22	\$175,482.58	\$43,870.64
TOTAL PROJECT	\$659,085.00	\$659,085.00	\$527,268.00	\$131,817.00

Remarks: Project S4 on the 2020 STIP. Requesting authorization for research activities.

FEDERAL AID IDENTIFICATION NUMBER (FAIN)			Date Prepared: 1/29/2020 ; R 2/25/2020			
			Modification No. Modification No.			
FEDERAL PROJECT NO. 0900101	RECIPIENT PROJECT NO. STP-0900(101)				SUB RECIPIENT Maui County	
Project Title: Maui Cnty - Assessment of Maui County Coastal Roads for Effects of Climate Change, Sea Level Rise and Shoreline Erosion (Research)						
FUNDING	DATE (MM/DD/YY)	TOTAL ESTIMATE PROJECT COST (\$)	FEDERAL PARTICIPATION AMOUNT (\$)	FEDERAL FUNDS(\$)	PGM CODE	FAIN No.
PREVIOUS AUTHORIZATIONS						
THIS AUTHORIZATION (SUBAWARD)	See FHWA authorization date on PR-1240	\$246,656.03	\$246,656.03	\$197,324.82	L56E	150900101L56E1
		\$193,075.75	\$193,075.75	\$154,460.60	M56E	150900101M56E1
		\$219,353.22	\$219,353.22	\$175,482.58	Z560	150900101Z5601
CURRENT TOTAL		\$246,656.03 \$193,075.75 \$219,353.22	\$246,656.03 \$193,075.75 \$219,353.22	\$197,324.82 \$154,460.60 \$175,482.58	L56E M56E Z560	

FOR ALL COUNTY PROJECTS, ATTACH THIS FORM WITH THE PR-1240

FAIN Number formatting (format continues with project to closeout regardless if a new FAIN format was in effect at that time)

Projects initially authorized 11/1/2010 to present: (example: 051234567L03E1)

FAIN No: = 15 + 7 digit Federal Project Number + 4 alpha numeric Prog. Code + FMIS Detail Line Number (for lines 1 - 9: use 1 digit

Pre 12/1/2009 projects: (example: H083389876543)

FAIN = H+ss (State FIPS) + rrr (3 character program code) + ppppppp (7 digit federal project number)

12/1/2009 to 10/31/2010 projects: (example: 16L05E1234444027)

FAIN = ss (State FIPS) + rrr (4 character prog. Code) + ppppppp (7 digit federal project number) + ccc (county)

Blue = Populated from previous tab

FEDERAL-AID PROGRAM DATA										STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION		
PROJECT LOCATION (45) Kea Street, South Papa Avenue to South Wakea Avenue					COUNTY		STANDARD PLACE CODE	STATE		ITEM NO.		
					NAME	CODE		NAME	CODE			
					Maui	009		Hawaii	15	20012		
CHARACTER OF PROPOSED WORK (85) Develop systematic ranking approach of coastal roadways associated with climate change, sea level rise and erosion				EMERG YR	DEMO ID	PROJECT NUMBER			PROJECT OVERSIGHT			
						PREFIX LETTER(S)	NUMBER	AGR. NO.	X	Delegated/Locally administered On NHS / Full FHWA oversight Not on NHS/full FHWA oversight		
						STP	0900	(101)				
CLASS OF FEDERAL FUNDS Research				APPROPRIATION CODE L56E, M56E, Z560		PARENT CODE	RURAL/URBAN	NAME OF URBAN AREA				
ROUTE NO. AND NAME Various		INVENTORY NO.	MILEPOINT TO MILEPOINT	FUNCTIONAL SYSTEM various		FEDERAL-AID SYSTEM various		CONGRESSIONAL DISTRICT 2				
PHASE	TERMINI (FULL DESCRIPTION) (INCLUDE NBI STRUCTURE NO.)	MILES	ESTIMATED PROJECT COST BY PHASES					SCOPE OF PROPOSED WORK				
			TOTAL ESTIMATED COST	PARTICIPATING AMOUNT	FEDERAL FUNDS (80 %)	COUNTY FUNDS	OTHER FUNDS					
PE	various county roadways							Research activities to develop systematic ranking approach of coastal roadways associated with climate change, sea level rise and erosion.				
ROW												
OTHER			\$659,085.00	\$659,085.00	\$527,268.00	\$131,817.00						
PREPARED BY W.Kobashigawa		PROJECT TOTALS	\$659,085.00	\$659,085.00	\$527,268.00	\$131,817.00						
PROJECT TITLE: Maui Cnty - Assessment of Maui County Coastal Roads for Effects of Climate Change, Sea Level Rise and Shoreline Erosion (Research)							ENVIRONMENTAL CLEARANCE					
RELATED PROJECTS:							<input checked="" type="checkbox"/> CATEGORICAL EXCLUSION					
IMPROVEMENT TYPE: 19 - Research							EIS <input type="checkbox"/> PROGRAMMATIC					
REMARKS:							EA <input checked="" type="checkbox"/> PROGRAMMATIC - 23 CFR-771.117(e)(1)					
							FONSI <input type="checkbox"/> STATE DOCUMENTED - 23 CFR 771.117(d)					
							REQUIRED FOR CONSTRUCTION PHASE					
Subrecipient County of Maui		Subaward Period of Performance Start Date:		See PR1240.3 "THIS AUTHORIZATION date stamp by FHWA		Subaward Period of Performance End Date:		OTH 12/2/2023		Date prepared by DOT: 1/29/20; R 2/25/2020		
							Estimated Construction NTP date: N/A					

STP-0900(161) 2/25/20



Assessment of County of Maui Coastal Roads for Effects of Climate Change, Sea Level Rise and Shoreline Erosion

Research Proposal

To

County of Maui, Department of Public Works

Investigators

PI: Oceana Francis; Co-PIs: Horst Brandes, David Ma, Guohui Zhang
Department of Civil and Environmental Engineering
College of Engineering, University of Hawaii

Project Funding: \$507,268 Federal + \$126,817 Maui County = \$634,085 Total

Project Duration: May 1, 2020 – January 31, 2024 (3 years 9 months)

Background and Objectives

The team of researchers from the University of Hawaii has been conducting a project for the Hawaii Department of Transportation entitled “Statewide Highway Shoreline Protection Program Study Update.” The objective of that study is to develop a systematic ranking approach to assess the potential for degradation of coastal roads assets as a result of climate change, sea level rise and associated shoreline erosion. A new methodology has been developed for this purpose that is based on the susceptibility index CRESI (coastal road erosion susceptibility index). This index allows for a prioritization of repair and planning activities of vulnerable coastal road sections based on current or future ocean hazards. Further improvements are being developed to account for traffic and land use aspects with the objective of expanding CRESI into a more comprehensive risk measure. In addition, an aerial drone imagery and measurement capability is under development to expedite spatial data collection and to allow for effective future shoreline and road monitoring activities. As part of this project, an extensive database of coastal road parameters is being assembled that will serve for future reference and could be integrated into a formal FHWA Asset Management Plan, 23 CFR Part 515.

The CRESI index has been applied to State roads on Oahu with good success. Data collection is now underway to characterize remaining coastal roads under the jurisdiction of the Hawaii Department of Public Works (DPW). The objective of this new proposal is to extend application of the CRESI index and the underlying methodology to vulnerable Maui County coastal roads. With a current assessment and a ranking of susceptible roads, the Maui Department of Transportation could prioritize its limited funds for road maintenance and improvements based on a scientific method that takes into consideration climate change, sea level rise and shoreline erosion. Given that the new CRESI approach allows for consideration of variable ocean hazard conditions, similar assessments can be conducted for future points in time to gain a better perspective on long-term coastal road performance.

Statement of Work

1. Research and review past and ongoing relevant studies pertaining to shoreline degradation and protection for Maui County. Identify, through coordination with Maui County Department of Transportation and related agencies and experts, critical coastal county roads that are susceptible to ocean hazards including climate change, sea level rise and coastal erosion.
2. Collect road and coastal data on geomorphology, coastal dimensions, road construction, armoring and ocean hazards at specific coastal road locations throughout the islands of Maui, Molokai and Lanai for incorporation into the statewide database maintained at the University of Hawaii. Include information on cross section profiles, traffic parameters and aerial imagery, as applicable.
3. Determine CRESI index at a sufficient number of locations along vulnerable road segments for meaningful interpretation and ranking. Provide a prioritized list of shoreline areas requiring mitigation work.
4. Consider and analyze different climate and sea level change scenarios that may arise in the future and their effects on road conditions.
5. Provide recommendations and mitigation alternatives for short-term or long-term implementation for the top priority sites. Explain why the priority of the roads are most susceptible to climate change, sea level rise and shoreline erosion in CRESI.
6. Provide quarterly written reports to funding agency and meet periodically with Maui County engineers and officials, as necessary.
7. Prepare final written report and present findings orally to County personnel and interested parties.

Schedule

Six (6) months Deliverable

- Progress Report on road susceptibility found through field work investigations (Brandes, Francis)

Fifteen (15) months Deliverable

- Development and analysis of road susceptibility completed (Brandes)
- Development and analysis of ocean hazards completed (Francis)
- Development and analysis of traffic completed (Zhang)

Twenty-one (21) months Deliverable

- CRESI completed (Brandes)
- Adaptation recommendations completed (Francis, Brandes)

BUDGET JUSTIFICATION
Department of Civil and Environmental Engineering, University of Hawaii
“Assessment of County of Maui Coastal Roads for Effects of
Climate Change, Sea Level Rise and Shoreline Erosion”
May 1, 2020 – January 31, 2024 (3 years 9 months)
Total Budget: \$634,085

Salaries:

Summer salary (6 months) is requested for PI Francis and Co-PI Brandes each, and summer salary (2 months) is requested for Co-PI Zhang for Years 1 and 2 to lead the project, advise students, create and conduct assessments for ocean hazards, road susceptibility and use, and a cost-benefit analysis. Graduate students will be trained based on the University of Hawaii’s pay scale to assist, which includes 2 GAs for PI Francis, 2 GAs for co-PI Brandes, and 1 GA for co-PI Zhang. Salaries are listed at the FY 20, 21 rates.

Benefits:

Staff and faculty benefits are applied according to UH’s negotiated FY19 benefit rates. Rates are 2.12% for union faculty and 14.09% for GAs. A copy of the rate agreement is available at <http://www.ors.hawaii.edu/index.php/rates/102-quick-links/rates/98-fringe-benefit-rates>.

Travel:

Domestic:

\$21,700 is requested per year during Years 1 and 2 for the team for to travel to/from Maui to conduct field assessments and present at meetings.

Material and Supplies:

\$19,448 is requested for Years 1 and 2 for hardware updates, software renewals, publications, and additional materials and supplies related to the project.

Equipment:

\$15,000 is requested per year during Years 1 and 2 for equipment totaling \$5,000 or more, which is exempt from Indirect Cost.

Indirect Costs:

The negotiated rate for University of Hawaii Manoa Research, on-Campus of 10.00% for 20% State and 10% for 80% Federal for Years 1, 2 (i.e. FY 20, 21) respectively of the Modified Total Direct Costs (MTDC), which is determined by space on campus. MTDC includes Total Direct Costs minus tuition, scholarships, subaward amounts over \$25,000, participant support

costs, and equipment. A copy of the agreement is available at: <http://www.ors.hawaii.edu/index.php/apply/budget-development/indirect-costs>. A copy of Sponsor Specific Rates is available at <http://www.ors.hawaii.edu/index.php/rates/83-quick-links/100-sponsor-specific-rates>.

COE Budget Worksheet

YEAR 1

PRINCIPAL INVESTIGATOR:				May 1, 2020 - April 30, 2021							
Oceana Francis											
A. PERSONNEL				Federal at 80%			State at 20%				
NAME	ROLE ON PROJECT	EFFORT ON PROJECT		SALARY	FRINGE	TOTALS	SALARY	FRINGE	TOTALS		
		CAL	SUMR								
Oceana Francis	Overload		3.0	30,435.00	645.00	31,080.00	7,609.00	161.00	7,770.00		
Horst Brandes	Overload		3.0	37,422.00	793.00	38,215.00	9,356.00	198.00	9,554.00		
David Ma	Overload		0.0	0.00	0.00	0.00	0.00	0.00	0.00		
Guohui Zhang	Overload		1.0	10,135.00	215.00	10,350.00	2,533.00	54.00	2,587.00		
5 GA (OF-2, HB-2, GZ-1)	GA			99,648.00	14,040.00	113,688.00	24,912.00	3,510.00	28,422.00		
SUBTOTALS						177,640.00	15,693.00	193,333.00	44,410.00	3,923.00	48,333.00
B. SUBCONTRACT (Only the First \$25,000 Subject to Indirect Cost)						0.00			0.00		
C. CONSULTANT / SERVICES						0.00			0.00		
D. MATERIALS & SUPPLIES						8,955.00			1,725.00		
E. TRAVEL						17,360.00			4,340.00		
DOMESTIC (Intra State and Out of State)											
INTERNATIONAL						0.00			0.00		
F. PRINTING & PUBLICATIONS						0.00			0.00		
G. UTILITIES & COMMUNICATIONS						0.00			0.00		
H. RENTALS						0.00			0.00		
I. REPAIRS						0.00			0.00		
J. PARTICIPANT SUPPORT COSTS (Exempt from Indirect Cost)											
1. STIPENDS						0.00					
2. TRAVEL						0.00					
3. SUBSISTENCE						0.00					
4. OTHER						0.00					
TOTAL PARTICIPANT COSTS						0.00			0.00		
K. POST DOCTORAL FELLOWSHIP (Exempt from Indirect Cost)						0.00			0.00		
L. EQUIPMENT (Single Items of \$5,000 or More, Exempt from Indirect Cost)						12,000.00			3,000.00		
M. OTHER EXPENSES						0.00			0.00		
O. TOTAL DIRECT COST						231,648.00			57,398.00		
P. INDIRECT COST (Specify Rate and Base)											
Rate = 10.00% Base = 54,398.00 Fed Rate 10.00% Fed Base 219,648.00											
TOTAL INDIRECT COSTS						21,965.00			5,440.00		
Q. TOTAL DIRECT AND INDIRECT COSTS (O+P)						253,613.00			62,838.00		

(7 3 06) COEBUD

TOTAL \$ 316,451.00

COE Budget Worksheet

YEAR 2

PRINCIPAL INVESTIGATOR:
Oceana Francis

May 1, 2021 - April 30, 2022

A. PERSONNEL		EFFORT ON PROJECT			Federal at 80%			State at 20%		
		NAME	ROLE ON PROJECT	CAL	SUMR	SALARY	FRINGE	TOTALS	SALARY	FRINGE
Oceana Francis	Overload		3.0	31,348.00	665.00	32,013.00	7,837.00	166.00	8,003.00	
Horst Brandes	Overload		3.0	38,546.00	817.00	39,363.00	9,636.00	204.00	9,840.00	
David Ma	Overload		0.0	0.00	0.00	0.00	0.00	0.00	0.00	
Guohui Zhang	Overload		1.0	10,438.00	221.00	10,659.00	2,610.00	55.00	2,665.00	
5 GA (OF-2, HB-2, GZ-1)	GA			99,648.00	14,040.00	113,688.00	24,912.00	3,510.00	28,422.00	
SUBTOTALS					179,980.00	15,743.00	195,723.00	44,995.00	3,935.00	48,930.00
B. SUBCONTRACT (Only the First \$25,000 Subject to Indirect Cost)							0.00		0.00	
C. CONSULTANT / SERVICES							0.00		0.00	
D. MATERIALS & SUPPLIES							6,603.00		2,165.00	
E. TRAVEL		DOMESTIC (Intra State and Out of State)				17,360.00		4,340.00		
		INTERNATIONAL				0.00		0.00		
F. PRINTING & PUBLICATIONS							0.00		0.00	
G. UTILITIES & COMMUNICATIONS							0.00		0.00	
H. RENTALS							0.00		0.00	
I. REPAIRS							0.00		0.00	
J. PARTICIPANT SUPPORT COSTS (Exempt from Indirect Cost)										
1. STIPENDS		0.00								
2. TRAVEL		0.00								
3. SUBSISTENCE		0.00								
4. OTHER		0.00								
TOTAL PARTICIPANT COSTS							0.00		0.00	
K. POST DOCTORAL FELLOWSHIP (Exempt from Indirect Cost)							0.00		0.00	
L. EQUIPMENT (Single Items of \$5,000 or More, Exempt from Indirect Cost)							12,000.00		3,000.00	
M. OTHER EXPENSES							0.00		0.00	
O. TOTAL DIRECT COST							231,686.00		58,435.00	
P. INDIRECT COST (Specify Rate and Base)										
Rate = 10.00%		Base = 55,435.00		Fed Rate 10.00%		Fed Base 219,686.00				
TOTAL INDIRECT COSTS							21,969.00		5,544.00	
Q. TOTAL DIRECT AND INDIRECT COSTS (O+P)							253,655.00		63,979.00	

(7 3 06) COE/BJD

TOTAL \$ 317,634.00

COE Budget Worksheet

YEAR 3

PRINCIPAL INVESTIGATOR:
Oceana Francis

May 1, 2022 - April 30, 2023

NAME		ROLE ON PROJECT	EFFORT ON PROJECT		Federal at 80%			State at 20%		
			CAL	SUMR	SALARY	FRINGE	TOTALS	SALARY	FRINGE	TOTALS
		Overload			0.00	0.00	0.00	0.00	0.00	0.00
		APT			0.00	0.00	0.00	0.00	0.00	0.00
		GA			0.00	0.00	0.00	0.00	0.00	0.00
		Student Assistant			0.00	0.00	0.00	0.00	0.00	0.00
SUBTOTALS					0.00	0.00	0.00	0.00	0.00	0.00
B. SUBCONTRACT (Only the First \$25,000 Subject to Indirect Cost)							0.00			0.00
C. CONSULTANT / SERVICES							0.00			0.00
D. MATERIALS & SUPPLIES							0.00			0.00
E. TRAVEL		DOMESTIC (Intra State and Out of State)					0.00			0.00
		INTERNATIONAL					0.00			0.00
F. PRINTING & PUBLICATIONS							0.00			0.00
G. UTILITIES & COMMUNICATIONS							0.00			0.00
H. RENTALS							0.00			0.00
I. REPAIRS							0.00			0.00
J. PARTICIPANT SUPPORT COSTS (Exempt from Indirect Cost)										
1. STIPENDS		0.00								
2. TRAVEL		0.00								
3. SUBSISTENCE		0.00								
4. OTHER		0.00								
TOTAL PARTICIPANT COSTS							0.00			0.00
K. POST DOCTORAL FELLOWSHIP (Exempt from Indirect Cost)							0.00			0.00
L. EQUIPMENT (Single Items of \$5,000 or More, Exempt from Indirect Cost)							0.00			0.00
M. OTHER EXPENSES							0.00			0.00
O. TOTAL DIRECT COST							0.00			0.00
P. INDIRECT COST (Specify Rate and Base)										
Rate = 10.00%		Base = 0.00					Fed Rate 10.00%	Fed Base	0.00	
TOTAL INDIRECT COSTS							0.00			0.00
Q. TOTAL DIRECT AND INDIRECT COSTS (O+P)							0.00			0.00

(7.3.06) COEBUD

TOTAL \$ -

COE Budget Worksheet

YEAR 4

PRINCIPAL INVESTIGATOR:				May 1, 2023 - January 31, 2024					
Oceana Francis									
A. PERSONNEL				Federal at 80%			State at 20%		
NAME	ROLE ON PROJECT	EFFORT ON PROJECT		SALARY	FRINGE	TOTALS	SALARY	FRINGE	TOTALS
		CAL	SUMR						
	Overload			0.00	0.00	0.00	0.00	0.00	0.00
	APT			0.00	0.00	0.00	0.00	0.00	0.00
	GA			0.00	0.00	0.00	0.00	0.00	0.00
	Student Assistant			0.00	0.00	0.00	0.00	0.00	0.00
SUBTOTALS				0.00	0.00	0.00	0.00	0.00	0.00
B. SUBCONTRACT (Only the First \$25,000 Subject to Indirect Cost)						0.00			0.00
C. CONSULTANT / SERVICES						0.00			0.00
D. MATERIALS & SUPPLIES						0.00			0.00
E. TRAVEL	DOMESTIC (Intra State and Out of State)					0.00			0.00
	INTERNATIONAL					0.00			0.00
F. PRINTING & PUBLICATIONS						0.00			0.00
G. UTILITIES & COMMUNICATIONS						0.00			0.00
H. RENTALS						0.00			0.00
I. REPAIRS						0.00			0.00
J. PARTICIPANT SUPPORT COSTS (Exempt from Indirect Cost)									
	1. STIPENDS	0.00							
	2. TRAVEL	0.00							
	3. SUBSISTENCE	0.00							
	4. OTHER	0.00							
TOTAL PARTICIPANT COSTS						0.00			0.00
K. POST DOCTORAL FELLOWSHIP (Exempt from Indirect Cost)						0.00			0.00
L. EQUIPMENT (Single Items of \$5,000 or More, Exempt from Indirect Cost)						0.00			0.00
M. OTHER EXPENSES						0.00			0.00
O. TOTAL DIRECT COST						0.00			0.00
P. INDIRECT COST (Specify Rate and Base)									
Rate = 10.00% Base = 0.00 Fed Rate 10.00% Fed Base 0.00									
TOTAL INDIRECT COSTS						0.00			0.00
Q. TOTAL DIRECT AND INDIRECT COSTS (O+P)						0.00			0.00

(7 3 06) COEBUD

TOTAL \$ -

COE Budget Worksheet

TOTAL

PRINCIPAL INVESTIGATOR:
Oceana Francis

May 1, 2020 - January 31, 2024

NAME		ROLE ON PROJECT		Federal at 80%			State at 20%		
				SALARY	FRINGE	TOTALS	SALARY	FRINGE	TOTALS
		EFFORT ON PROJECT							
		CAL	SUMR						
Oceana Francis	Overload	0.0	6.0	61,783.00	1,310.00	63,093.00	15,446.00	327.00	15,773.00
Horst Brandes	Overload	0.0	6.0	75,968.00	1,610.00	77,578.00	18,992.00	402.00	19,394.00
David Ma	Overload	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Guohui Zhang	Overload	0.0	2.0	20,573.00	436.00	21,009.00	5,143.00	109.00	5,252.00
5 GA (OF-2, HB-2, GZ-1)	GA	0.0	0.0	199,296.00	28,080.00	227,376.00	49,824.00	7,020.00	56,844.00
		0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
		0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
		0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
		0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
SUBTOTALS		0	0	357,620.00	31,436.00	389,056.00	89,405.00	7,858.00	97,263.00
B. SUBCONTRACT (Only the First \$25,000 Subject to Indirect Cost)						0.00			0.00
C. CONSULTANT / SERVICES						0.00			0.00
D. MATERIALS & SUPPLIES									
						15,558.00			3,890.00
E. TRAVEL						34,720.00			8,680.00
DOMESTIC (Intra State and Out of State)									
INTERNATIONAL						0.00			0.00
F. PRINTING & PUBLICATIONS						0.00			0.00
G. UTILITIES & COMMUNICATIONS						0.00			0.00
H. RENTALS						0.00			0.00
I. REPAIRS						0.00			0.00
J. PARTICIPANT SUPPORT COSTS (Exempt from Indirect Cost)									
1. STIPENDS 0.00									
2. TRAVEL 0.00									
3. SUBSISTENCE 0.00									
4. OTHER 0.00									
TOTAL PARTICIPANT COSTS						0.00			0.00
K. POST DOCTORAL FELLOWSHIP (Exempt from Indirect Cost)						0.00			0.00
L. EQUIPMENT (Single Items of \$5,000 or More, Exempt from Indirect Cost)						24,000.00			6,000.00
M. OTHER EXPENSES						0.00			0.00
O. TOTAL DIRECT COST						463,334.00			115,833.00
P. INDIRECT COST (Specify Rate and Base)									
State Rate = 10.00% State Base = 109,833.00 Fed Rate 10.0% Fed Base 439,334.00									
TOTAL INDIRECT COSTS						43,934.00			10,984.00
Q. TOTAL DIRECT AND INDIRECT COSTS (O+P)						507,268.00			126,817.00

(7.3.06) COEBUD

TOTAL \$ 634,085.00

Urada, Scot T

From: Abe, Casey
Sent: Tuesday, February 25, 2020 11:45 AM
To: Oceana Francis
Cc: Horst Brandes; Guohui Zhang; David Ma; Ando, Marshall; Shishido, Robin K; Ng, Kwok Ming; Kagawa, Allison L; Sanehira, Kurt
Subject: RE: [EXTERNAL] Re: REQUEST CHANGES to Research Cost Proposal for TA 2020-1R "Maui County Coastal Road Research Project"
Attachments: Maui County Proposal with schedule full_submitted 02252020.pdf

Thanks Prof. Francis,

From: Oceana Francis <oceanaf@hawaii.edu>
Sent: Tuesday, February 25, 2020 11:05 AM
To: Abe, Casey <casey.abe@hawaii.gov>
Cc: Horst Brandes <horst@hawaii.edu>; Guohui Zhang <guohui@hawaii.edu>; David Ma <tianwei@hawaii.edu>; Ando, Marshall <marshall.ando@hawaii.gov>; Shishido, Robin K <robin.k.shishido@hawaii.gov>; Ng, Kwok Ming <kwokming.ng@hawaii.gov>; Kagawa, Allison L <allison.l.kagawa@hawaii.gov>; Sanehira, Kurt <kurt.sanehira@hawaii.gov>
Subject: Re: [EXTERNAL] Re: REQUEST CHANGES to Research Cost Proposal for TA 2020-1R "Maui County Coastal Road Research Project"

Dear Casey,

Thank you for your patience, I was traveling last week to the Ocean Sciences Meeting.

Please find the revised full proposal with schedule, budget and budget justification. Let us know if you need anything else.

Oceana

On Tue, Feb 18, 2020 at 12:23 PM Abe, Casey <casey.abe@hawaii.gov> wrote:

Thanks Prof. Francis. 😊

From: Oceana Francis <oceanaf@hawaii.edu>
Sent: Tuesday, February 18, 2020 11:19 AM
To: Abe, Casey <casey.abe@hawaii.gov>
Cc: Horst Brandes <horst@hawaii.edu>; Guohui Zhang <guohui@hawaii.edu>; David Ma <tianwei@hawaii.edu>; Ando, Marshall <marshall.ando@hawaii.gov>; Shishido, Robin K <robin.k.shishido@hawaii.gov>; Ng, Kwok Ming <kwokming.ng@hawaii.gov>; Kagawa, Allison L <allison.l.kagawa@hawaii.gov>; Sanehira, Kurt <kurt.sanehira@hawaii.gov>
Subject: [EXTERNAL] Re: REQUEST CHANGES to Research Cost Proposal for TA 2020-1R "Maui County Coastal Road Research Project"

Hi. I will update according to the proposed schedule attached and send.

I agree with Richelle's comment for SOW #5. We can accommodate this. This would, in essence, change the way Chapter 4 of the Statewide Shoreline Report is written. Instead of Chapter 4 giving an alternative at every milepost, Chapter 4 could explain why the priority of the roads are most susceptible to climate change, sea level rise and shoreline erosion based on the CRESI in Chapter 1. We will still do Chapter 3 which is a full detail of the ocean hazards at each milepost, which is required as input for CRESI and Chapter 1. But Chapter 4 will focus on discussion of ocean hazards for the top priority sites only from CRESI.

Thanks.

Oceana

On Tue, Feb 18, 2020 at 10:11 AM Abe, Casey <casey.abe@hawaii.gov> wrote:

Hi Prof. Francis,

FHWA (Richelle) has approved your attached revised project schedule.

Now, we need to revise your attached Research Cost Proposal that reflects the approved schedule.

Please revise and resubmit.

My major concern is our initial completion date for the project was Sept. 2021.

I'm hoping you folks can complete the project by May 2022, 8-mos later than the original completion date of Sept. 2021 since

We plan to issue the official NTP with State P.O. by May 2020.

Thanks!

We need to address Richelle's comments below.

“Once this project is underway, there should probably be a discussion on expectations for SOW #5, “Provide recommendations and mitigation alternatives for short-term or long-term implementation.” It seems like the Oahu study has recommendations and mitigations as hardening, relocate the road or elevate the road, which is not innovative and has been determined to be not reasonable, prudent, or feasible. Perhaps the study should not include this item. Have the study focus on and end at recommending the priority of the roads that are most susceptible to climate change, sea level rise and shoreline erosion based on the CRESI. The next steps after the CRESI is done would be for the top ranked roads to get really analyzed (by a team) to determine the mitigation for the road. The team could be made up of HDOT/County DPW, other various federal/state agencies, to decide on the best course of action and then take the action.”

From: Takara, Richelle (FHWA) <Richelle.TAKARA@dot.gov>
Sent: Tuesday, February 18, 2020 9:12 AM
To: Abe, Casey <casey.abe@hawaii.gov>
Cc: Urada, Scot T <scot.t.urada@hawaii.gov>; Ando, Marshall <marshall.ando@hawaii.gov>; Shishido, Robin K <robin.k.shishido@hawaii.gov>; Ng, Kwok Ming <kwokming.ng@hawaii.gov>; Kagawa, Allison L <allison.l.kagawa@hawaii.gov>; Sanehira, Kurt <kurt.sanehira@hawaii.gov>
Subject: [EXTERNAL] RE: REVISED Project Schedule for STP-0900(101) or TA 2020-1R "Maui County Coastal Road Research Project"

The schedule is acceptable.

Thank You!!!!

Richelle

From: Abe, Casey [<mailto:casey.abe@hawaii.gov>]
Sent: Wednesday, February 12, 2020 12:15 PM
To: Takara, Richelle (FHWA) <Richelle.TAKARA@dot.gov>
Cc: Urada, Scot T <scot.t.urada@hawaii.gov>; Ando, Marshall <marshall.ando@hawaii.gov>; Shishido, Robin K <robin.k.shishido@hawaii.gov>; Ng, Kwok Ming <kwokming.ng@hawaii.gov>; Kagawa, Allison L <allison.l.kagawa@hawaii.gov>; Sanehira, Kurt <kurt.sanehira@hawaii.gov>
Subject: REVISED Project Schedule for STP-0900(101) or TA 2020-1R "Maui County Coastal Road Research Project"

Richelle,

Attached is Prof. Francis' revised schedule.

Let us know if its acceptable to you.

Once you accept the schedule, I'll have Prof. Francis revise her research cost proposal to reflect the approved schedule and also change the

Maui Department of Transportation to Maui Department of Public Works (DPW).

Thanks!

--

Oceana Puananilei Francis, PhD, PE

Associate Professor

[Department of Civil and Environmental Engineering, College of Engineering](#)

& [Sea Grant College Program, School of Ocean and Earth Science and Technology](#)

University of Hawai'i at Mānoa

Office: 808-956-6555

Mobile: 808-554-4400

Email: oceanaf@hawaii.edu

Recipient: 15-Hawaii
DUNS: 168818466
Project Status: Active

Project Number: 0900101
Transaction #: 5

Version: Current
Business Month: 03/2020

Project Information

General Information

Recipient Project #: STP-0900(101)
Project Action: New Project
Project Title: MAUI CNTY - ASSESSMENT OF MAUI COUNTY COASTAL ROADS FOR EFFECTS OF CLIMATE CHANGE, SEA LEVEL RISE AND SHORELINE EROSION (RESEARCH)
Project Description: Develop systematic ranking approach of coastal roadways associated with climate change, sea level rise and erosion

Status Dates

Project Completed:
Project End Date: 1/31/2024
Final Voucher Paid:
Last Payment:
Last Action: 3/12/2020

Authorized Dates

PE:
ROW:
Const.:
SPR: 3/12/2020
Other:

Other Project Information

Project Oversight: Assumed/Locally Administered
STIP Reference: FY2020 S4
ICR: 0.00

Emergency Relief

Disaster Fiscal Year:
Emergency Relief Eligible:
Disaster Sequence Number:
Emergency Relief Code:

Special Project Groupings

Major: IFP:
Pooled Fund:
Other:

Project Funding

Advance Construction:	\$0.00	Expenditures:	\$0.00
Federal Funds:	\$527,268.00	ROW Funds:	\$0.00
State Funds:	\$0.00	Adv. Const. Converted:	\$0.00
Local Funds:	\$131,817.00		
Private Funds:	\$0.00		
Non-Monetary Funds:	\$0.00		
Other Funds:	\$0.00		
Total Cost:	\$659,085.00		

Legacy Bridge Data

NBI#	Program Code	Improvement Type
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Recipient Defined Fields

Estimated Construction
Date

Division Defined Fields

Agreement Document Remarks

Fiscal Management Information System

Recipient: 15-Hawaii Project Number: 0900101 Version: Current
DUNS: 168818466 Transaction #: 5 Business Month: 03/2020
Project Status: Active

Agreement Document Remarks

Recipient Remarks: 3/2/20: Project S4 on the 2020 STIP. Requesting authorization for research and PoP End Date of 1/31/2024 per attached schedule. This agreement is subject to the following award terms:
<http://edocket.access.gpo.gov/2010/pdf/2010-22705.pdf> and
<http://edocket.access.gpo.gov/2010/pdf/2010-22706.pdf>.

Division Remarks: 03/12/2020: NEW RESEARCH PROJECT APPROVED/AUTHORIZED.

Related Projects

Recipient	Federal Project #	Project Title	Relationship	Reverse Relationship
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Signatures

First Updated by: Lannie Marzan Updated On: 01/30/2020 13:08:31 Mod# 0

Recipient Signatures

Available Funds Certified By:	Lannie Marzan	Date:	03/02/2020 18:31:08
Approval Recommended By:	Christine Yamasaki	Date:	03/02/2020 19:21:22
Authorization/Modification Requested By:	Christine Yamasaki	Date:	03/02/2020 19:21:22

Division Signatures

Project Info Reviewed By:	Donna Yuen	Date:	03/12/2020 16:03:47
Approval Recommended By:	Richelle Takara	Date:	03/12/2020 16:53:36
Approved and Authorized By:	Michael Nadeau	Date:	03/12/2020 17:27:15

Fiscal Management Information System

Recipient: 15-Hawaii
DUNS: 168818466
Project Status: Active

Project Number: 0900101
Transaction #: 5

Version: Current
Business Month: 03/2020

Project Detail Information

Detail Information

Program Code:	L56E	Recode:	222
Detail Number:	1	Improvement Type:	19-Research
Demo ID:		Withdrawal Area:	0
CFDA:		Toll:	N
FAIN:	693JJ22030000L56EHI0900101	Temp. Match:	N
Prefix:		Appalachia:	N
Safety:	N	Design Build:	N
Indian Reservation:	N	Other SEP14:	N
Construction:	N	Statewide:	N
CMGC:	N	Highways for Life:	N

Detail Funding

Advance Construction:	\$0.00	Adv. Const. Converted:	\$0.00
Federal Funds:	\$197,324.82	Soft Match:	\$0.00
State Funds:	\$0.00	% Federal Share:	80%
Local Funds:	\$49,331.21		
Private Funds:	\$0.00		
Non-Monetary Funds:	\$0.00		
Other Funds:	\$0.00		
Total Cost:	\$246,656.03		

Recipient Defined Fields

Division Defined Fields

Location-Information

County: Maui Urban Area: 0-Not Defined Cong. District: Congressional District 2 Ownership: Undefined
Urban/Rural: Rural Fun. System: No Functional System System Code: Not on any Federal-Aid System
Structure:

Funding

Adv. Const.:	Federal:	State:	Local:	Private:	Non Money:	Other:	Total Cost:
\$0.00	\$197,324.82	\$0.00	\$49,331.21	\$0.00	\$0.00	\$0.00	\$246,656.03

Fiscal Management Information System

Recipient: 15-Hawaii
DUNS: 168818466
Project Status: Active

Project Number: 0900101
Transaction #: 5

Version: Current
Business Month: 03/2020

Detail Information

Program Code:	M56E	Recode:	222
Detail Number:	1	Improvement Type:	19-Research
Demo ID:		Withdrawal Area:	0
CFDA:		Toll:	N
FAIN:	693JJ22030000M56EH0900101	Temp. Match:	N
Prefix:		Appalachia:	N
Safety:	N	Design Build:	N
Indian Reservation:	N	Other SEP14:	N
Construction:	N	Statewide:	N
CMGC:	N	Highways for Life:	N

Detail Funding

Advance Construction:	\$0.00	Adv. Const. Converted:	\$0.00
Federal Funds:	\$154,460.60	Soft Match:	\$0.00
State Funds:	\$0.00	% Federal Share:	80%
Local Funds:	\$38,615.15		
Private Funds:	\$0.00		
Non-Monetary Funds:	\$0.00		
Other Funds:	\$0.00		
Total Cost:	\$193,075.75		

Recipient Defined Fields

Location-Information

County: Maui
Urban/Rural: Rural
Structure:
Urban Area: 0-Not Defined
Fun. System: No Functional System

Division Defined Fields

Cong. District: Congressional District 2
System Code: Not on any Federal-Aid System
Ownership: Undefined

Funding

Adv. Const.:	Federal:	State:	Local:	Private:	Non Money:	Other:	Total Cost:
\$0.00	\$154,460.60	\$0.00	\$38,615.15	\$0.00	\$0.00	\$0.00	\$193,075.75

Fiscal Management Information System

Recipient: 15-Hawaii
 DUNS: 168818466
 Project Status: Active

Project Number: 0900101
 Transaction #: 5

Version: Current
 Business Month: 03/2020

Detail Information

Program Code:	Z560	Recode:	222
Detail Number:	1	Improvement Type:	19-Research
Demo ID:		Withdrawal Area:	0
CFDA:		Toll:	N
FAIN:	693JJ22030000Z560HI0900101	Temp. Match:	N
Prefix:		Appalachia:	N
Safety:	N	Design Build:	N
Indian Reservation:	N	Other SEP14:	N
Construction:	N	Statewide:	N
CMGC:	N	Highways for Life:	N

Detail Funding

Advance Construction:	\$0.00	Adv. Const. Converted:	\$0.00
Federal Funds:	\$175,482.58	Soft Match:	\$0.00
State Funds:	\$0.00	% Federal Share:	80%
Local Funds:	\$43,870.64		
Private Funds:	\$0.00		
Non-Monetary Funds:	\$0.00		
Other Funds:	\$0.00		
Total Cost:	\$219,353.22		

Recipient Defined Fields

Division Defined Fields

Location-Information

County: Maui Urban Area: 0-Not Defined Cong. District: Congressional District 2 Ownership: Undefined
 Urban/Rural: Rural Fun. System: No Functional System System Code: Not on any Federal-Aid System
 Structure:

Funding

Adv. Const.:	Federal:	State:	Local:	Private:	Non Money:	Other:	Total Cost:
\$0.00	\$175,482.58	\$0.00	\$43,870.64	\$0.00	\$0.00	\$0.00	\$219,353.22

Fiscal Management Information System

FMISW96A

Page 6 of 6

Recipient: 15-Hawaii
DUNS: 168818466
Project Status: Active

Project Number: 0900101
Transaction #: 5

Version: Current
Business Month: 03/2020