Fiscal Year 2024

County of Hawaii
Professional Services for Fiscal Year 2023-2024

Mass Transit Agency
TA.10) Community Planning
(Bikeshare & Micromobility Planning)

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Statement of Qualifications

June 30, 2023

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LETTER OF INTEREST

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www.jacobs.com

June 30, 2023

ATTN: Mass Transit Agency, County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720
Email: heleonbus@hawaiicounty.gov

Subject: Statement of Qualifications - Professional Services for Fiscal Year 2023-2024

Dear Members of the Selection Committee,

Jacobs Engineering Group Inc. (Jacobs) brings 45 years of experience providing innovative solutions to Hawaii. We value our partnerships with clients across the state and look forward to applying our depth of knowledge and dedicated staff to advance your mission and goals. Jacobs is committed to providing professional, financially responsible, and dependable service for the County of Hawaii and submit our Statement of Qualifications for **TA.10) Community Planning (Bikeshare & Micromobility Planning)**.

For additional information, we are also submitting statements of qualifications with the Mass Transit Agency for the following categories:

TA.2) Community Planning (Public Transit Long Range and Strategic Planning)
TA.4) Community Planning (Public Transit Planning and Scheduling)
TA.6) Grant Writer (Public Transit Grants and Federal Compliance Support)
TA.8) Community Planning (Public Transit Zero Emissions Bus Implementation Support)
TA.9) Community Planning (Public Transit Mapping and Graphic Design)

Jacobs leads the global professional services sector delivering solutions for a more connected, sustainable world. We offer a full spectrum of services including scientific, technical, professional, and construction and project management for business, industrial, commercial, government and infrastructure sectors. Jacobs provides:

- **Fully integrated local team with extensive reach-back capability into our global team.** We are a global organization of over 60,000 employees, including over 100 engineers, planners, and scientists based in Hawaii. One of our defining capabilities is to build a blended team of local and global experts to work closely and collaboratively with the County of Hawaii. We carefully select individuals with the optimum balance of local knowledge and experience in delivering similar services. The result is a vastly experienced team of planners and engineering practitioners who will apply their knowledge to deliver your critical projects efficiently.

- **Unparalleled industry leadership.** As a leading provider of planning, design, and engineering services, we provide end-to-end solutions for our clients' most complex challenges related to climate change, energy transition, connected mobility, integrated water management, and smart cities. We aim higher and are dedicated to implementing necessary process changes, finding new methods and approaches to solving problems, or redeploying proven products or services to improve the lives of people everywhere. Our network of technical and program professionals provides you with direct access to innovative strategies and project approaches for successful delivery of your projects, reducing the overall risk to the County of Hawaii and to your stakeholders. Our engineering services range from permitting, feasibility, and planning studies to design, inspection, startup, construction management, and operation and maintenance. Jacobs has full in-house capabilities in port & harbor engineering, coastal engineering, civil engineering, general engineering, environmental engineering, and community planning, including expertise to complement our public works engineering services. We offer state-of-the-art dynamic decision support tools and integrated modeling methods that facilitate balanced decisions that consider cost and benefits and truly integrate infrastructure management recommendations.

- **We understand the County of Hawaii.** Jacobs has a long history of working with the County of Hawaii which dates to when we were CH2M Hill. Our comprehensive understanding of your objectives and challenges, combined with our technical resources, enables us to respond quickly, apply existing knowledge, and develop and implement expedited solutions.

- **Immediate availability of our key staff and depth of resources** translates into responsiveness and a commitment to delivering your wide array of projects efficiently. Our team is immediately available to the County of Hawaii to deliver specialized planning and design services to meet your specific needs and goals.

I am your point of contact responsible for responding to all your requests and concerns and will make sure resources are available when needed. We have proposed staff who bring the specific expertise necessary for your requested services and we will find additional resources to meet other needs that may arise. Please feel free to contact me at 808.554.3791 or by email at ross.kaneko@jacobs.com to further discuss our qualifications or opportunities to work together.

Yours sincerely,

Jacobs Engineering Group Inc.

Ross A. Kaneko, PE
Client Account Manager

PART I -
CONTRACT - SPECIFIC QUALIFICATIONS

SECTION A-D:
CONTRACT INFORMATION
ARCHITECT-ENGINEER POINT OF CONTACT
PROPOSED TEAM
ORGANIZATIONAL CHART - PROPOSED TEAM

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ARCHITECT–ENGINEER QUALIFICATIONS

PART I – CONTRACT-SPECIFIC QUALIFICATIONS

A. CONTRACT INFORMATION

1. TITLE AND LOCATION (City and State)

Professional Services for Fiscal Year 2023-2024, County of Hawaii, Hawaii

2. PUBLIC NOTICE DATE	3. SOLICITATION OR PROJECT NUMBER
June 1, 2023	

B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE

Ross A. Kaneko, PE, Client Account Manager

5. NAME OF FIRM

Jacobs Engineering Group Inc.

6. TELEPHONE NUMBER	7. FAX NUMBER	8. E-MAIL ADDRESS
808.554.3791		ross.kaneko@jacobs.com

C. PROPOSED TEAM

(Complete this section for the prime contractor and all key subcontractors)

	(Check) PRIME	(Check) J-V PARTNER	(Check) SUB-CONTRACTOR	9. FIRM NAME	10. ADDRESS	11. ROLE IN THIS CONTRACT
a.	✓			**Jacobs Engineering Group Inc.*** ☒ CHECK IF BRANCH OFFICE	1003 Bishop Street, Pauahi Tower, Suite 1340, Honolulu, HI 96813	Prime Consultant

D. ORGANIZATIONAL CHART OF PROPOSED TEAM ☐ *(Attached)*

Upon selection, Jacobs will provide a project-specific organization chart.

* *In 2017, Jacobs Engineering Group Inc. (JEG) acquired CH2M, which became a wholly-owned subsidiary. Jacobs Government Services Company (JGSC) is a wholly owned subsidiary of Jacobs Engineering Group Inc. (JEG), and it is the legal contracting entity for US federal government projects located outside the continental United States (OCONUS). JEG is the corporate parent of JGSC. This SF330 proposal includes personnel resources from both JGSC and JEG, including acquired CH2M personnel resources.*

SECTION E:
RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

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E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Ross Kaneko, PE	**Principal-in-Charge/Project Manager**	32	32

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Honolulu, Hawaii

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Civil Engineering	Professional Engineer (Civil): Hawaii #8197-C, Exp. 4/30/2024

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Ross brings 32 years of experience in leading and supporting the delivery of projects in Hawaii and in other Pacific Islands. Of the 200+ projects he has supported, 150+ have been in Hawaii and five more in other Pacific locations. He has served as project manager and project engineer on a wide range of civil and environmental projects, including transportation, aviation, water resource studies, assessments, and site development and design projects. He is also the Client Account Manager for a wide range of aviation and transportation projects including lighting design, runway and taxiway reconstruction, and airfield improvements adjacent to existing airfield operations. His experience includes complex site civil engineering services, water/wastewater infrastructure assessment and design, water resources, and corrosion engineering.

Professional Organizations:

- Member, American Society of Civil Engineers (ASCE)
- Member, American Water Works Association (AWWA)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Honolulu Rail Transit Project, General Engineering Consultant Support (GECIII), Honolulu Authority for Rapid Transportation (HART), Honolulu, HI	Ongoing	Ongoing
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Principal-in-Charge. Jacobs was selected by HART to provide GEC support for the Honolulu Rail Transit Project, a 20-mile elevated rail line with 21 stations. The system features modern steel-wheel-on-steel-rail technology, fully automated (driverless) rail vehicles with capacity to carry hundreds of passengers with an estimated ridership of more than 115,000 weekday rider trips by year 2030. This effort includes project scheduling, coordination and reporting, cost estimating and project control, interface management, environmental and planning, travel demand forecasting, bus/rail integration, station access, and modal interface, land use planning, transit oriented design (TOD), traffic analysis, parking study, archaeological and cultural resources, and design management services including management of final design contracts, review of final design submittals, system wide signage, landscape, signal, and ITS operational support.

b.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Honolulu Rail Transit Project, On-Call Hazardous Materials Consulting, Honolulu Authority for Rapid Transportation (HART), Honolulu, HI	Ongoing	Ongoing
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Principal-in-Charge. The program is a dynamic and challenging on-call hazardous materials consulting services contract in support of construction of a 20-mile rail line. The scope of services includes broad support in the areas of hazardous materials planning (development of various plans), permitting reporting, identification (sampling, analysis, characterization, and profiling), handling (temporary stockpiling, waste inspections), transport, and disposal.

c.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Feasibility Study for Sustainability/Water Scalping, Hawaii Department of Transportation (HDOT), Statewide Airports, HI	Ongoing	Ongoing
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. Project manager for this study, to evaluate the feasibility of water scalping technology and other non-potable water sources at Honolulu International, Kahului, Kona International at Keahole, and Hilo International airports. This ongoing study evaluated water usage and wastewater generation at each airport, and advanced 12 alternative projects to the Feasibility assessment phase.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Kamehameha Highway Wastewater Pump Station Force Main System Replacement, City and County of Honolulu, Honolulu, HI	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2021	2021
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Principal in charge. Principal in charge which developed a Preliminary Engineering Report, including review of CCTV inspection footage of sewer force main and evaluation of rehabilitation technologies. Inspected bridge superstructure and pipe exterior and developed recommendations and cost estimates for full-length rehabilitation and comparison to trenchless installation of a new sewer force main.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Kaneohe-Kailua Sewer Tunnel, City and County of Honolulu, Kaneohe, HI	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2018	2018
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Deputy Project Director. Kaneohe-Kailua Sewer Tunnel that conveys wastewater 3 miles from Kaneohe's Wastewater Pre-Treatment Facility (WWPTF) to Kailua's Regional Wastewater Treatment Plant (RWWTP). The gravity sewer tunnel was constructed with a tunnel boring machine 15 feet in diameter to install the 10- foot-diameter pipe. The tunnel ranges from a depth of 35 to 62 feet below ground level and includes a new influent pump station at the Kailua RWWTP.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Abbey Mayer, AICP	**Project Manager/Transportation Planner**	20	4

15. FIRM NAME AND LOCATION (City and State)
Jacobs, Honolulu, Hawaii

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
M.A., English B.A., Art Graduate Diplomate, Accounting	American Institute of Certified Planners (AICP), #31479

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Abbey has 20 years of experience leading planning organizations in Hawaii. He is a senior project manager and specializes in environmental compliance; resiliency, climate change, and coastal planning; transportation planning; transit-oriented development; community-based master planning; real estate acquisitions and relocation; multi-jurisdictional permitting strategies; project financing and fiscal oversight; and government and non-government organization (NGO) management and liaisons.

Professional Organizations:

- Member, American Planning Association, Hawaii Chapter

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)
Honolulu Rail Transit Project, Honolulu Authority for Rapid Transportation (HART), Honolulu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2018	2018

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☐ Check if project performed with current firm

Director of Planning, Permitting, and Right-of-Way (ROW). Administered, managed, and coordinated the Planning, Permitting, and Right-of-Way Division for Honolulu's $8.2 billion, 20-mile, 21-station, elevated guideway, light rail transit system (Honolulu Rail), which consists of planning, environmental, transit property acquisition and relocation, agency and permits, and grant management. Oversaw the preparation of documents to comply with the National Environmental Policy Act (NEPA), other federal environmental regulatory acts including the Endangered Species Act, the Clean Water Act, the Clean Air Acts, the National Historic Preservation Act (NHPA), and Section 4(f) of the Department of Transportation Act. Abbey led an organization of approximately 30 HART staff, along with over 50 project consultants. Administered an overall project budget of approximately $390 million.

b.

(1) TITLE AND LOCATION (City and State)
Waiawa Pearl Highlands Rail Station Multimodal Access Improvement Study, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2018	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☐ Check if project performed with current firm

Planning, Permitting, and ROW Lead. This project assesses transportation operations in and around the rail station. When interim rail service begins, rail passengers will be able to access the station via bus transit, using pedestrian and bicycle connections, and at designated park-and-ride and Handi-Van locations.

c.

(1) TITLE AND LOCATION (City and State)
Moderating Oahu's Traffic Conditions, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2020	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

ROW and NEPA Specialist. The goal of the project is to implement proven techniques, modes, and strategies to stabilize travel time reliability and increase mobility in Honolulu. Overseeing the gathering, analyzing, and documenting transportation system performance data, re-evaluating methods to monitor the performance of the multimodal transportation system, and developing various possible growth scenarios. Abbey served as a NEPA and ROW specialist, facilitating strategic and critical land acquisitions and dispositions for current and future transit operations for the DTS, maintaining compliance with the Uniform Relocation Assistance and Real Property Acquisition Act (URA) and all associated FTA, State of Hawaii, and City and County of Honolulu real estate acquisition, disposition, and relocation regulations, laws, ordinances, and rules.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Kihei Sub-Area Transportation Study, County of Maui Department of Public Works, Kihei, HI	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2019	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Senior Planner and Report Author. Kihei is one of the fastest growing urban areas in Maui. Growth in population, commercial activities, tourism, and local businesses is placing increased demands on Kihei's transportation infrastructure. Jacobs conducted a multimodal transportation study of the Kihei area to assess existing and forecasted conditions, identify potential solutions to address needs and deficiencies, and recommend a prioritized set of improvements to enhance and optimize the transportation system for users across all travel modes. This project involved collaboration between agencies, community stakeholders, and local groups to provide balanced representation of public interests (recreational clubs, youth/school organizations, nonmotorized advocates, and visitor and lodging associations). Abbey served as a senior planner, analyzing over 80 potential solutions to Kihei transportation system demands, and authoring much of the final report.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Hawaii Statewide Transportation Plan, Hawaii Department of Transportation (HDOT), Statewide, HI	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Senior Planner. Jacobs is working with the HDOT in this $2 million project to develop an update to the Hawaii Statewide Transportation Plan (HSTP), which helps to lead the direction for planning what our transportation system will look like for the next 25 years. The HSTP establishes the framework to be used in the planning of Hawaii's transportation system and provides guidance to system level and master plans of the three primary modes of transportation (air, water, land). Abbey's role focuses on leading financial forecasting analyses and climate change, sustainability, and resiliency focus areas.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Tung Le	**Project Manager/Traffic Engineer**	42	39

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Bellevue, Washington

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Transportation Engineering BA, Architecture	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Tung has extensive experience in traffic engineering, transportation planning and project management, that includes multi- modal corridor congestion study, master planning, alternative assessment, feasibility studies, HOV/transit studies, Bus Rapid Transit planning/alternative screening/conceptual design, station planning, travel demand forecasting, port planning, traffic simulation, non-motorized facilities planning and design, freeway functional planning and conceptual design, traffic operation analysis, traffic signal and roadway illumination designs, Autonomous Vehicles/Connected Vehicles technology, intersection geometry layout, channelization and signing

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Honolulu Rail Transit Project, General Engineering Consultant Support (GEC III), Honolulu Authority for Rapid Transit (HART), Honolulu, HI	Ongoing	Ongoing
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Traffic Lead for Traffic Engineering. Performing travel demand forecasting, "Before and After" parking studies for the stations, TOD, traffic signal/ITS system reviews, managing of traffic during construction, and providing engineering services for the proposed 20-mile elevated rail line from East Kapolei to Honolulu International Airport to Ala Moana Center. This rail alignment will be accommodated by 21 stations with high-level platforms to serve more than 115,000 weekday riders estimated by year 2030.

b.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Waiawa Pearl Highlands Rail Station Multimodal Access Improvement Study, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. This project assesses transportation operations in and around the rail station. When interim rail service begins, passengers will be able to access the station via bus transit, using pedestrian and bicycle connections, and at designated park-and-ride and Handi-Van locations. For this multimodal study, our team analyzed transit access and circulation between the rail station and regional highways, recommended bus stop locations, and assessed non-motorized access across Kamehameha Highway near Kuala Street.

c.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Rail Activation, Operations, and Maintenance Support for Honolulu's Integrated Public Transportation System, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. Jacobs is supporting the Department of Transportation Services (DTS) to help prepare the agency to safely operate and maintain Oahu's future rail system—a 20-mile, 21-station elevated mass transit system, along with the islands' existing public transportation services. This effort includes the oversight of and coordination between subcontractors, subject matter experts, and task leaders, and project-wide administrative support; providing organizational design and input on staffing plans and potential staff gaps to sustain the agency into the future.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Moderating Oahu's Traffic Conditions, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Traffic Manager. Focused on developing smart work zones, adaptive traffic signals, traveler information, and a travel time reliability system along with identifying infrastructure for the Autonomous and Connected vehicles technologies. Addressed traffic congestion throughout City's major corridors providing travel time reliability and enhancing traveler information and improving mobility for all modes during incident responses and constructions.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
METRORapid Inner Katy Bus Rapid Transit, Houston METRO, TX	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager of the 12-mile Inner Katy Bus Rapid Transit (BRT) and busway project proposes a High-Capacity Transit improvement to provide a regional transit connectivity from I-610 to Downtown Houston. This dedicated bi-directional busway, which is envisioned to be grade-separated along major I-10 corridor on new structures with elevated stations to provide a new BRT route with a fast service and reliable one-seat ride connecting Uptown/Galleria and Downtown. The BRT route connects to downtown streets at-grade via the existing CBD/HOV I-10 ramp. The downtown BRT service operations will be along future implementing of east-west exclusive transit lanes and will be interlined with existing LRT Green/Purple lines with main LRT Red line crossing.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Nick Ching, PE	Project Manager/Traffic Engineer	24	2

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Honolulu, HI

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Civil Engineering	Professional Engineer (Civil): Hawaii #14138-C; Exp. 4/30/2024

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Nick has 24 years of transportation engineering and project management experience including maintenance of traffic (MOT), intelligent transportation systems, signal and lighting design, signing, and striping design, transit signal priority, traffic modeling and planning, traffic studies, impact analysis, and feasibility studies. He is adept in evaluating transportation project impacts for public and private agencies and is very familiar in representing the Owner as well as the Contractor on design-build projects having experience working on both sides.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
I-405 Corridor Program GEC, WSDOT, King and Snohomish Counties, WA	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Deputy Project Manager. Nick was responsible for overseeing design and contractor traffic engineering elements for this $5 billion, 30-mile freeway corridor program. He reviewed design elements including traffic signals, signing, illumination, and maintenance of traffic and intelligent transportation systems with elements including fiber-optic communication systems, closed-circuit television cameras, ramp meters, variable message signs and highway advisory radio and weather information systems. He provided construction assistance by reviewing the final design of intelligent transportation systems infrastructure and temporary intelligent transportation systems developed to remain during all construction phases.

b.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
HART Program Management Support Consultant, City and County of Honolulu, Oahu, HI	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Traffic Engineering Manager. Nick was responsible for ensuring that appropriate street usage permits were approved for all Honolulu Rail Transit Project (HRTP) contractors, as well as reviewed associated traffic control plans, and coordinated traffic control between HART contractors, third party agencies and stakeholders. He performed review of traffic related disciplines within design packages such as traffic technical memorandums, traffic signals, ITS, signing and striping. His tasks also included participation in various regularly scheduled coordination meetings with HRTP contractors, consultants and third parties. Field visits to the work sites were conducted to confirm compliance with approved traffic control plans.

c.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
City and County of Honolulu, Kamehameha Highway Aerial Guideway Design Build, City and County of Oahu, HI	2016	2017
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Task Lead. Nick was the task lead responsible for managing a team of engineers for ITS, traffic signals, and electrical and communication relocation design for this 4-mile phase of the Honolulu High-Capacity Transit Corridor. He also managed the budget for tasks and change orders and provided construction support to Field Design Changes and Requests for Information.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
West Oahu/Farrington Highway Aerial Guideway Design-Build, City and County of Honolulu, Oahu, HI	2015	2017
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Traffic Signals Lead. Nick was the traffic signals task lead responsible for the design of the temporary and permanent traffic signals for this 7-mile phase of the Honolulu High-Capacity Transit Corridor. Traffic signal design included 11 intersections, for which Nick put together plans and specifications.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Kristen Nishimura, AICP	**Project Manager/Environmental Planner**	21	2

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Honolulu, Hawaii

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BA, Asian Studies	American Institute of Certified Planners (AICP): #025368

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Kristen is a senior environmental planner with experience in NEPA and HEPA analyses, including Sections 106/7, HRS 6E/195, and community engagement. She exercises leadership on environmental planning tasks through the development of a project approach and execution strategy. As a project manager, Kristen is responsible for project resource planning, providing oversight to the project team, as well as leading the compliance effort with client and internal controls to deliver contracted materials on time and on budget.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)

Engineering with Nature, Department of Defense Installations, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

Environmental Planner. Kristen identifies opportunities for using natural infrastructure and nature-based solutions to address the challenges and support the sustainability and resilience of Pearl Harbor Navy Base. She identifies due diligence requirements and partnership opportunities. Kristen conducts stakeholder consultation and charette facilitation to report findings and present recommendations.

b.

(1) TITLE AND LOCATION (City and State)

Joint Area Development Plan: Basa Air Base, Philippines, and Yap International Airport, Federated State of Micronesia

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

Senior Planner. Kristen develops requirements for climate change considerations in the master planning effort at the two air bases to satisfy Executive Order 14008, Tackling the Climate Crisis at Home and Abroad. She develops execution strategies for a multi-agency NEPA effort in an overseas location.

c.

(1) TITLE AND LOCATION (City and State)

Blaisdell Center Redevelopment Project EA, City and County of Honolulu, Design & Construction, Oahu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2018	

☐ Check if project performed with current firm

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

Project Manager and Lead Environmental Planner. Kristen directed the preparation of the EA associated with the planned Blaisdell Center redevelopment project (2015-2018). The project considered included the redevelopment of the arena and the concert hall; demolition and reconstruction of the exhibition center and the parking structure; and construction of a parking structure, back of the house functions, a new performance hall, ensemble space, and administrative facility. She was responsible for developing the project approach and assembling the project team. She conducted regular communication between the client, project team, and stakeholders to achieve target milestones and products.

d.

(1) TITLE AND LOCATION (City and State)

Hilo Bayfront Roundabout EA, DOT Highways, Hilo, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	

☒ Check if project performed with current firm

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

Lead Environmental Planner. Kristen directed the environmental planning task on joint NEPA-HEPA EA activity for a roundabout conversion of the existing intersection at Hilo Bayfront Drive at Waianuenue Avenue. She identified permitting requirements.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Continuously Operating Reference Stations (CORS)/Virtual Reference Station (VRS), DOT Highways, Eight Locations on Oahu, HI	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Environmental Planner. Kristen developed siting requirements for the placement of CORS/VRS structures throughout Oahu at eight locations to streamline local and national permitting activities. She directed the preparation of the NEPA CATEX and HEPA Exemption Declaration and coordinated Sections 7 and 6E consultations. Kristen developed a project approach for applicability to similar CORS/VRS projects for Maui, Kauai, and Hawaii counties.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
John McKenzie, PE	Project Manager/Civil Engineer	28	26

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Bellevue, Washington

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Civil Engineering	Professional Engineer: Washington #33773

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

John is a project manager and civil engineer with experience providing clients with multimodal transportation and transit focused solutions. He is highly experienced in managing urban transit improvements. His transportation design expertise includes arterials with transit elements, bus rapid transit and high-capacity transit corridors, sustainable roadways, complete streets, and pedestrian facilities. John is a leader in pedestrian accessibility issues in urban contexts. He specializes in coordinating complex multi-disciplined projects using an integrated design approach and has demonstrated skills in facilitating a variety of stakeholders with potentially conflicting priorities as well as developing alternatives and facilitating timely decision-making to keep the design phase on schedule.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
RapidRide I Line, King County Metro, Cities of Renton, Kent, and Auburn, WA	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. Jacobs is developing a RapidRide corridor from planning through final design, including evaluation of support facilities and coordination with an area service plan update. Jacobs is responsible for the design of the preferred solution, and work on this project includes concept development, final design, right-of-way acquisition support, and construction management. This effort includes alignment evaluations, regional service concepts, and corridor termini options, including modal integration with underlying local service, nonmotorized, ITS, and freight.

b.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
SR 522/NE 145th Street Corridor Bus Rapid Transit (BRT), Sound Transit, Seattle, WA	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. The SR 522/NE 145th BRT Project is part of a new Bus Rapid Transit (BRT) system that would provide fast, frequent, and reliable bus service along the State Route (SR) 522/NE 145th project corridor, with interconnections to light rail and other bus service in the region. The project would improve transit speed and reliability with a series of capital improvements including business access and transit (BAT) lanes and transit queue bypass lanes, intersection and signal operation improvements, sidewalk improvements combined with roadway improvements, and park-and-ride garages.

c.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
C and D Upgrade Study, Seattle Department of Transportation, Seattle, WA	2018	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. Managed the joint SDOT/King County Metro study that developed recommendations for improving speed, reliability, and overall satisfaction of the RapidRide C Line and D Line BRT service in the City of Seattle. Through operational analysis, analysis of existing passenger facilities, and speed and delay data, John's team identified locations along the corridors where enhancements can be achieved. Improvement concepts include TSP and signal timing, queue jumps, additional BAT lanes, channelization revisions, and routing modifications. Many of the improvement concepts have been carried forward to construction, and John led the final design and implementation of these improvements.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
RapidRide D-Line Passenger Facilities and North Terminal Improvements, King County Metro, Seattle, WA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2013	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. John managed the design and permitting for bus zone improvements along King County's RapidRide BRT corridor connecting north Seattle neighborhoods with downtown. Improvements include bus bulbs, bus stop amenities, and sidewalk improvements to address pedestrian accessibility at 47 bus zones. He proactively coordinated multi- disciplinary issues across various departments within the City of Seattle. For the North Terminal, John led the design for the layover site. He used a stakeholder-based design process to achieve consensus on solutions that addressed pedestrian safety while accommodating buses. Working with King County Metro, he facilitated a turn-simulation workshop with bus operators to determine optimal solutions with minimum impacts to pedestrians and properties. Additionally, he focused on stormwater improvements, including an urban infiltration pond and bioretention devices.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Aurora Avenue North Multimodal Corridor Project, City of Shoreline, WA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2019	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Design Manager and Project Manager. Using complete street principles, the $30 million project improved multimodal mobility, access, and safety by widening the corridor for exclusive BRT lanes. The design enhanced landscaping provided new public art, and utility undergrounding. The award-winning, context-sensitive approach engaged the community, stakeholders, and multiple agencies. John served as the design manager and day-to-day project manager through preliminary design, environmental documentation, and final design. John and team developed the region's first "business access and transit" (BAT) lane, a term created to communicate benefits to project stakeholders concerned that bus exclusivity will decrease access to local businesses along the corridor.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Richard Laver	**Transit Asset Management Program Manager**	28	24

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Dallas, Texas

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Transportation MA, Economics BA, Economics and Mathematics	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Richard is an asset management specialist with 28 years of experience in state of good repair needs analysis, transit asset condition assessment, and decision support tool development. A recognized national expert in transit asset management, he has been the lead developer of Transit Economic Requirements Model (TERM) and TERM Lite for Federal Transit Administration (FTA) for more than 20 years and has supported two national level condition assessments for FTA. He has also worked with local, regional, and state transit agencies across the country on condition assessment and reinvestment needs prioritization.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State): **Hampton Roads Transit Asset Management (TAM) Plan, Hampton Roads Transit (HRT), Norfolk, VA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 | CONSTRUCTION (if applicable):

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Lead Analyst. Richard was lead analyst for this assignment to develop Facility and Transit Asset Management Plans (FAMP and TAMP), onsite condition assessments and implementation of TERM Lite for HRT, a multi-model transit operator serving the seven city Hampton Roads metropolitan area (light rail, bus, paratransit and ferry). This project provided HRT with a transit asset inventory, an annual process and to assess and document the physical condition and service performance of HRT assets (fleet, facilities, stations, and technology assets), as well as the assessment and prioritization of 20-year regional reinvestment needs.

b.

(1) TITLE AND LOCATION (City and State): **Capital Needs Assessment and COST Model Support, Metra, Chicago, IL**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing | CONSTRUCTION (if applicable):

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Subject Matter Expert. Richard is supporting improvements to Metra's capital asset inventory, maintenance of Cost Optimization Support Tool (capital needs assessment) on behalf of Metra, and the assessment of Metra's current state of good repair backlog and long-term capital reinvestment needs. He recently completed a detailed analysis of multiple potential capital funding scenarios and their relative impacts on current and future deferred capital investment needs and potential investment prioritization.

c.

(1) TITLE AND LOCATION (City and State): **Capital Needs Inventory (CNI) and Strategic Reinvestment Analysis Tool (STRAT), Washington Metro (WMATA), WA**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2019 | CONSTRUCTION (if applicable):

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Subject Matter Expert. Richard was responsible for supporting WMATA in the development of both a prioritized Capital Needs Inventory (CNI) and STRAT, a long-term needs analysis tool based on FTA's TERM Lite model. A key outcome of this work is an approved, agency-wide, prioritized list of capital projects designed to address WMATA's state of good repair needs subject to the Authority's stated policy objectives and approved by senior management.

d.

(1) TITLE AND LOCATION (City and State): **Capital Needs Assessment, Maryland Mass Transit Administration (MTA), MD**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018 | CONSTRUCTION (if applicable):

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Assessment Analyst. Richard supported a capital needs assessment analysis and development of a repeatable capital needs assessment process for Maryland MTA as well as for MDOT LOTS (Locally Operated Transit Systems) program. This project has identified the current asset inventory holdings both for Baltimore MTA as well as the smaller 5307, 5310 and 5311 operators around the state, documented the timing and cost of agency rehab and replacement activities, and utilize these data to assess capital SGR needs.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Regional Transit Capital Inventory, Needs Assessment and SGR Needs, San Francisco Metropolitan Transportation Commission (MTC), San Francisco, CA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2018	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Subject Matter Expert. Richard supported San Francisco MTC on the ongoing development and maintenance of a Bay Area Regional Transit Capital Inventory (RTCI). The objective of this work was to maintain a reliable regional inventory of transit assets capable of supporting reliable capital needs analysis covering all transit operators in the Bay Area. The most recent phase of this work consisted of a detailed asset data source review for all Bay Area operators. Richard was responsible for providing technical guidance to staff developing the inventory and conducts TERM Lite runs to assess reinvestment needs, the size of the investment backlog and assessments of current and expected future asset conditions.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Angela Villar, PE	**Task Manager/Civil Engineer**	16	5

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Bellevue, Washington

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Civil Engineering (emphasis in Transportation) BSE, Civil Engineering BS, Mathematics	Professional Engineer: Washington #54834; California #72613

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Angela has 16 years of professional civil engineering experience as a project manager and transportation engineer. She has worked on a variety of transportation projects, including roadway planning, pavement rehabilitation, complete streets projects, bicycle and pedestrian facilities, roadway widening and realignment, and transit facility design. She specializes in project development, alternative evaluation, and project delivery. She is experienced in developing design layouts for municipal roadway projects. She has worked on numerous multijurisdictional projects and has the ability to coordinate with other agencies on complex projects. Angela has conducted public workshops and served as the primary interface to the public on planning, design, and construction phases for projects.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)

RapidRide I Line, King County Metro, Cities of Renton, Kent, and Auburn, WA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	2024

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Civil Design Lead. RapidRide is King County metro's premier transit product that provides frequent, fast, reliable, and efficient, and environmentally friendly bus service throughout the greater Seattle area. The I Line project corridor is over 17 miles long and passes through Renton, Kent, Auburn, and unincorporated King County. With a total investment of $120 million along the corridor, Angela was part of the greater planning team to identify and evaluate alternatives, including concept level cost estimates for FTA funding. She is currently serving as the civil design lead for the City of Renton, responsible for civil infrastructure elements including passenger facilities, communication/ technology upgrades, speed and reliability, and access to transit improvements. Angela is leading an interdisciplinary design team to deliver approximately $40 million in transit improvements within the City of Renton, including 29 planned stations, roadway widening for business access and transit lanes, signal improvements such as queue jumps, and access improvements to improve bicycle and pedestrian access to stations.

b.

(1) TITLE AND LOCATION (City and State)

Interstate Route H-1 (EB) Widening, Ola Lane Overpass to Likelike Highway Off-Ramp, Hawaii Department of Transportation (HDOT) Honolulu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2021	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Roadway Designer. This project will widen Interstate Route H1 between the Ola Lane Overpass and LikeLike Highway to provide an additional eastbound travel lane. Improvements include highway widening, bridge widening, and replacement of the Gulick Avenue Bridge overpass. As a member of the roadway design team, Angela provided quality control review of the final roadway design and was involved with the preparation of construction staging, traffic control, and temporary detour plans for construction.

c.

(1) TITLE AND LOCATION (City and State)

185th Multimodal Corridor Strategy, City of Shoreline, WA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2019	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Civil Design Lead. The 185th Street corridor is approximately 2.5-miles long and a major east-west travel corridor in the City of Shoreline, connecting neighborhoods across I-5. This planning study created a master plan to evaluate the needs for capacity, safety, access management, and accommodations for multiple modes (vehicles, buses, walking, cycling, and freight) in anticipation of the future Sound Transit light rail station at NE 185th Street. Angela evaluated the existing conditions for multimodal needs and developed alternative improvement strategies for the corridor. Angela was involved with preparing public outreach material and participating in storefront studio workshops within the Shoreline community. Angela worked directly with City staff to help shape the vision for roadway improvements along the 2.5-mile corridor and establish a strategy for future implementation.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Eastlake Layover Facility, King County Metro, Seattle, WA	2020	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Design Manager. This project addresses the demand for bus layover in the north end of downtown Seattle and identifies the optimum bus layover facility configuration along the east side of Eastlake Avenue E. As part of the site evaluation and concept development, Angela helped to develop alternative layouts for the site and conduct alternative evaluation.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
I-5/SR 510 Diverging Diamond Interchange (Marvin Road), Washington State Department of Transportation, Lacey, WA	2018	Ongoing
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Roadway Designer. This project would replace a high-volume freeway interchange with a Diverging Diamond Interchange. This regionally significant project is the first of its kind in Washington State. As a member of the roadway design team, Angela was involved with preparation of the Design Approval Package, including the Plans for Approval, design calculations, guardrail design, and providing quality control functions.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jamey Dempster, AICP	**Transit Planner/Project Manager**	16	2

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Portland, Oregon

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, City and Regional Planning BS, German	American Institute of Certified Planners (AICP): #206707

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Jamey partners with communities to envision future transportation and land use systems. His broad expertise includes performance measurement and analysis, funding, public transportation, and facilitation. He has worked for over 15 years in the public and private sectors, and supported public transportation agencies, regional planning organizations, cities and counties, states, the Federal Transit Administration, and the National Park Service.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)

Rail Activation, Operations, and Maintenance Support for Honolulu's Integrated Public Transportation System, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Transit Planner. Jacobs is helping DTS prepare to safely operate and maintain Oahu's future rail system—a 20-mile, 21-station elevated mass transit system—along with the island's existing public transportation services. This effort includes overseeing and coordinating among subcontractors, subject matter experts, and task leaders, and project-wide administrative support. Providing organizational design and input on staffing plans and identifying potential staffing gaps to sustain the agency into the future. Jamey is currently working on a Paratransit fleet mix study for DTS.

b.

(1) TITLE AND LOCATION (City and State)

Northeast Coquitlam Transit Feasibility Study, Coquitlam, British Columbia, CA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2020	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Project Manager. The City of Coquitlam is a growing part of the Vancouver, B.C. region. The Northeast part of the city near Burke Mountain is undergoing rapid development, including medium density residential and retail uses. This study explored neighborhood fixed route and other shared mobility options for the city to support in partnership with TransLink, developers, and neighboring cities. Jamey led route planning, case studies, and facilitated a workshop with Coquitlam and TransLink.

c.

(1) TITLE AND LOCATION (City and State)

Means-Based Fare Pilot Program Evaluation, San Francisco Bay Area Counties, CA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2020	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☐ Check if project performed with current firm

Deputy Project Manager. The MTC's Means Based Fare is a first-of-its kind program developed in partnership with four regional transit agencies. Jamey managed day-to-day project delivery including scope and schedule management, coordinating with the subconsultant team and staff. Jamey created the evaluation framework to guide the program and address the partners' equity, financial, and administrative goals.

d.

(1) TITLE AND LOCATION (City and State)

MAX Tunnel Project, Portland, OR

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2020	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☐ Check if project performed with current firm

Deputy Project Manager. Metro and TriMet explored the estimated scope and costs required to build a rail tunnel beneath the Willamette River and Downtown Portland. The project evaluated engineering and construction requirements, project development tasks and timing, equity measures and outcomes, ridership forecasts, project risk, and environmental assessment. Jamey managed day-to-day tasks and schedule for the four-firm team and authored key materials for advisory team meetings and a public-facing project report. Jamey provided technical guidance on regional transit market analysis and interpreting ridership forecasts.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
TriMet New Mobility Strategy, Portland, OR	2018	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Deputy Project Manager. The TriMet New Mobility Strategy Assessment was an opportunity for the agency to identify strategies to meet rider market needs and prioritize people throughout the greater Portland region. Central to the discussion was assuming the role of a mobility manager by expanding service, leveraging assets and influencing local and statewide policy. The recommendations to the TriMet Business Plan reflect increasing competition from private mobility service providers. Jamey led technical analysis to identify rider markets and solutions through geographic analysis of ridership and household data, and through qualitative persona-based scenarios. Jamey developed strategies and pilot programs and assessed an evolving business model.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Victor Rivas	**Asset Management Specialist**	22	4

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Boston, Massachusetts

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Urban and Regional Planning MUPP, Urban Planning and Policy Affairs BA, Art	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Victor is an experienced program manager and researcher with 22 years of experience researching transportation-related problems and implementing transportation solutions with emphasis on transportation systems operations and capital programming. His collaborative and multidisciplinary approach to problem-solving has been applied to both the private and public sectors. Prior to joining Jacobs, Victor led a team in charge of planning, programming, and managing the capital investment program for the fifth largest transit agency in the U.S.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Hampton Roads Transit Asset Management (TAM) Plan, Hampton Roads Transit (HRT), Norfolk, VA	2018	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Consultant. Consulting support to develop HRT's first agency-wide TAM Plan to meet the recently instituted Federal Transit Administration's (FTA's) TAM Rule reporting requirements. Led the team guiding the client in the establishment, leadership, and engagement of the agency's TAM Steering Committee. Supported an agency TAM maturity assessment, gap analysis, and prioritization efforts. Collaborated in the development of a Steering Committee workshop on HRT's first organization-wide TAM Policy. Coordinated the assembling of all components of the plan in timely fashion and prepared it for review by senior leadership and approval by the top executive officer.

b.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Transit Asset Management (TAM) Systems Research Project, Federal Transit Administration (FTA), WA	2020	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Principal Investigator. Led the Research Team in the review and evaluation of best practices and lessons learned from transit agencies and from other industries such as aerospace, aviation, water and mining. Conducted interviews with transit industry leaders on the subject. Performed site visits to selected U.S. transit operators to interview systems users, operators and maintainers. Coordinated the work of the research team and subconsultants to produce the following deliverables: a) Report and Recommendations to Transit Agencies, b) Report and Recommendations to the FTA, and c) TAM System Classification Guidebook.

c.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Asset Management Plan, Washington Metropolitan Area Transit Authority (WMATA), WA	2018	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Consultant. Consulting support to develop WMATA's agency-wide Transit Asset Management (TAM) Plan to meet the recently instituted Federal Transit Administration's TAM Rule reporting requirements. Coordinated the work of the team guiding the client in aligning the agency's strategic vision and policies with its asset management framework. This process further established agency-wide asset management roles and responsibilities to key WMATA staff. Supported an agency TAM maturity assessment, gap analysis, and facilitated a workshop aimed at helping WMATA staff shape their asset management action plan and its corresponding resource plan to support it. In conjunction with prime contractor, coordinated the assembling of all components of the plan to ensure total alignment with existing strategic vision and policy in timely fashion and prepared the document for review by senior leadership and approval by the top executive officer.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Asset Management Plan, SunRail, Orlando, FL	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2018	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Consultant. Coordinated the work of the team guiding the client in aligning the agency's strategic vision and policies with its asset management framework. This process further established agency-wide asset management roles and responsibilities to key SunRail staff. Led the consulting team effort to structure the agency's asset management action plan and its corresponding resource plan to support it. Coordinated the assembling of all components of the plan in timely fashion and prepared the document for review by senior leadership and approval by the top executive officer.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Massachusetts Bay Transportation Authority (MBTA), MA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2018	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Deputy Director of Capital Programs Reporting, Metrics and Strategic Initiatives/Deputy of Capital Budget/Senior Manager of Capital Programs/Budget Analyst. In conjunction with the Director or Asset Management, led Authority-wide efforts to meet federally mandated TAM requirements, which included the setting of performance targets, updating the MBTA Asset Management Plan, and the completion of an agency-wide asset inventory and condition assessment for the National Transit Database (NTD). Managed and coordinated outreach initiatives to continually report asset management activities progress to the FTA, the State Department of Transportation (MassDOT), and other stakeholders such as the Boston Metropolitan Planning Organization (MPO).

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Brin Owen	**Payment Systems Specialist**	36	25

15. FIRM NAME AND LOCATION (City and State)

Jacobs, San Francisco, California

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Physical Science	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Brin has more than 35 years of transportation and consulting experience in program management, electronic payment system design, and implementation oversight. He works with transit agencies and regional planning authorities to plan and design electronic fare payment systems and support their implementation. For these types of projects, he provides technical and management services in support of planning and design of new systems, including concept of operations, procurement alternatives, cost estimating, request for proposal/technical specification development, and vendor selection/negotiations. During the post-award phase of projects, he provides support during design review, testing, and implementation oversight

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Moderating Oahu's Traffic Conditions, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Fare Technology Lead. Brin provides technical consulting services in support of city's procurement and selection of the service manager for HOLO transit fare payment system. The HOLO service manager is responsible for the operation and maintenance of the HOLO system. Brin developed the technical specifications and other documents that were assembled into the service manager RFP. Following release of the RFP, Brin provided technical support to the selection committee throughout the procurement. Recently Brin provided support during the service manager onboarding process.

b.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Next Generation One Regional Card for All (ORCA) Program, Sound Transit, Seattle, WA	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Deputy Project Manager. This $5.4M project includes the planning, procurement, design, and implementation of the next generation ORCA regional fare payment system. Brin led and was a key contributor in the development of the strategic plan, concept of operations/system description, transition strategy, cost estimating, procurement strategy, detailed requirements workshops, and technical specifications. Distinguishing aspects of the system design include a plan for a seamless transition of the existing card-based system to the next generation account-base system, extensive use of open APIs for all key system interfaces, use of commercial off-the-shelf software for key back-office applications, and a cost-efficient vending machine replacement strategy that includes both full-feature and light-feature devices.

c.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
eFare Program, TriMet, Portland, OR	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager/Task Manager. The eFare system consists of an account-based, open architecture design that will allow transit customers to pay for their trips using various forms of contactless media including smart cards and mobile devices. Brin leads a team of electronic payment professionals and subcontractors in the planning, design, procurement, and implementation of a new regional electronic transit fare payment system for the Portland, Oregon, Vancouver, and Washington region. As a key member of the delivery team Brin has led or supported all phases of the $4.6 million contract including requirements capture, specification development, procurement support and implementation oversight. A distinguishing feature of the system is the use of an extensive network of retail merchants for fare media and stored value sales. Brin led the design and procurement of the retail network service contract. In Phase 2, he and the Jacobs team have provided procurement and vendor selection support and technical support during system design, and is currently providing testing and installation oversight, and system launch and acceptance.

d.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
Multimodal Transit Fare Collection Study, Department of Transportation Services (DTS), City and County of Honolulu, Honolulu, HI	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Senior Advisor. Jacobs assisted the City and County of Honolulu DTS, Oahu Transit Services, and the Honolulu Authority for Rapid Transportation (HART) in designing a new electronic fare payment system that will work seamlessly on bus, paratransit, and rail, as well as on planned services, such as bike share. The scope includes detailed requirements capture and development of the system concept of operations, procurement strategy, system cost estimate, and technical specifications included in the RFP for procurement of the new system. As the senior advisor for the Jacobs consultant team, Brin provides project leadership and technical review and guidance. Brin continues as senior advisor on the Fare Collection System Technical Support Contract with HART.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
General Engineering Consultant (GEC), Bay Area Rapid Transit (BART) District, Oakland, CA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. As a member of three BART GEC teams, Brin manages all task orders under these on-call services contracts. Brin leads an analysis to determine the viability of replacing BART's magnetic ticketing system with contactless limited use (LU) smart card media. As part of this analysis, Brin developed a cost/benefit analysis that identified the projected capital and operating costs and savings for migrating to an entirely contactless fare payment system. The analysis is being used by BART in planning the next phases of the fare media migration project. Brin along with his project team also supported BART during the development and implementation of the District's Near Field Communication (NFC) cell phone-based fare payment pilot. In addition to the support of BART's AFC capital program, Brin is also responsible for managing client site staff assigned to BART fulltime in support of the Accessible Fare Gate (AFG), Paid Parking and Seismic Retrofit programs.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Brian Shinn, PE	**Civil/Transportation Engineer**	38	38

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Bellevue, Washington

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Civil Engineering	Professional Engineer: Washington #0026183

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Brian is a senior civil engineer with experience in transportation, rail transit design, site development, and utility design. His responsibilities include project management, design management, roadway geometric design, site layout design, grading, and drainage design, pavement design, yard piping, specifications, and quality control.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)

Honolulu Rail Transit Project, General Engineering Consultant Support (GEC III), Honolulu Authority for Rapid Transportation (HART), Honolulu, HI

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Contract Engineering Manager. Final Design Phase of the Airport and City Center Guideway and Utility segment of the Honolulu Rail Transit Project (HRTP). This segment consists of approximately 9.3 miles of elevated guideway, associated utility relocations and roadway improvements, coordination with Station contracts for 12 stations, site layout and/or coordination with Core Systems contract for 7 System (Traction Power/Gap Breaker/Train Control) Sites, and 5 stream crossings. Construction cost for this segment of the HRTP is $850M. Responsibilities include, coordinating and approval for reviews of various documents from the Final Design Consultant (FDC), with GEC and Honolulu Authority for Rapid Transportation (HART) technical experts. Documents for review include milestone design submittals (Plans, Specifications, Cost Estimate, and Basis of Design), deviation requests, requests for information and data, and other technical discipline reports. Additional responsibilities include review and approval of FDC progress payments and change requests.

b.

(1) TITLE AND LOCATION (City and State)

Tacoma Link Expansion Preliminary Engineering, Sound Transit, Tacoma, WA

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2016	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Project Manager. Brian led a large, multidisciplinary, and multi-firm team to complete the preliminary engineering for the expansion of the Tacoma Link system. The expansion includes a 2.4-mile, double-track alignment extension to the existing 1.6-mile system, expansion of an operations and maintenance facility, new TPSS sites, six new stations and the relocation of an existing station. Additional tasks included an FTA-compliant Alternatives Analysis, environmental analysis, which led to a determination of a Documented Categorical Exclusion (DCE), completion of conceptual design and completion of an application to the FTA for the Small Starts Grant Program.

c.

(1) TITLE AND LOCATION (City and State)

Laaloa Avenue Extension Project, Kailua-Kona, HI

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2015	2015

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

QC/QA Manager. Responsible for reviewing construction documents for an 1,800-foot-long roadway extension of Laaloa Avenue to Kuakini Highway and 2,800-foot-long roadway widening/improvements that included a new traffic signal, new curb, gutter and sidewalk, utility relocations, and conforming to multiple existing driveways.

d.

(1) TITLE AND LOCATION (City and State)

H-1 Widening, Ola Lane Overpass to Vineyard Boulevard, Hawaii Department of Transportation (HDOT), HI

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2012	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Design Manager. Design manager for the preparation of environmental documents, preliminary engineering, and design-build procurement documents for 2-miles of Interstate H-1 widening, right-of-way acquisition, and structural modification to six bridges. Project includes extensive agency and public coordination to seek input and provide information to stakeholders and serving as the Owner's Representative in the design-build procurement process and providing services during construction.

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
West Seattle and Ballard Link Extension, Alternatives Development and Conceptual Engineering, Sound Transit (HNTB Team), Seattle, WA	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Engineering Segment Lead. Engineering Segment Lead for project limits Chinatown-ID to West Seattle, responsible for leading engineering team in preparation of Conceptual level design in support of project DEIS. Tasks include coordination with Sound Transit engineering management and various technical departments to provide design updates and obtain reviews/feedback; coordination with agencies/3rd parties, including preparation of design packages/presentations to clearly describe project effects, obtain feedback, and in certain cases seek some level of concurrence, and provide guidance to team to establish defensible DEIS level footprints for construction and system operation: assisted team in testing alternatives, coordinated reviews, and comments on space-proofing concepts at critical locations, and coordinated design team efforts in specific locations of project for Advance Conceptual Engineering, which progresses design to a 30% level at key locations. Key technical challenges involve feasibility of tunnel station in Chinatown-ID with existing subsurface structure constraints and poor soils, track connection sequencing in SODO to maintain operations, SODO overhead transmission line relocation, long-span guideway crossing of Duwamish navigation channel and working through various alignment and station options in West Seattle.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Heather Fujioka	**Travel Demand Modeler**	24	8

15. FIRM NAME AND LOCATION (City and State)
Jacobs, Honolulu, Hawaii

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
MS, Statistics BS, Mathematics	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Heather is a travel demand modeler and has a strong technical background in transportation planning and statistics, specializing in travel demand forecasting, computer applications, and data manipulation. She has experience in the use of ALOGIT, STATA, R, SPSS, EMME, ArcGIS, Java, TP-Plus/Viper/Cube, MinuTP, and TransCAD software.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)
Honolulu Rail Transit Project, General Engineering Consultant Support (GEC III), Honolulu Authority for Rapid Transit (HART), Honolulu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	Ongoing

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Travel Demand Modeler. Heather is providing travel demand forecasting services to support the evaluation of several high-capacity transit alternatives, including opening year, interim openings, and horizon year forecasts for the Honolulu Rail Transit Project—a 20-mile elevated rail line with 21 stations, which features modern steel-wheel-on-steel-rail technology, fully automated (driverless) rail vehicles with capacity to serve an estimated ridership of more than 100,000 weekday rider trips by year 2030.

b.

(1) TITLE AND LOCATION (City and State)
Waiawa Pearl Highlands Rail Station Multimodal Access Improvements Study, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Travel Demand Modeler. This project assesses transportation operations within and around the Waiawa Pearl Highlands Rail Station. The station is anticipated to be in operation when interim rail service begins, and rail passengers will be able to access the station via bus transit, pedestrian, and bicycle connections, and at designated park-and-ride and Handi-Van locations. For this multimodal study, Jacobs analyzed transit access and circulation between the rail station and regional highways, recommended bus stop locations, and assessed nonmotorized access across Kamehameha Highway in the vicinity of Kuala Street.

c.

(1) TITLE AND LOCATION (City and State)
Rail Activation, Operations and Maintenance Support for Honolulu's Integrated Public Transportation System, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Ongoing	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Travel Demand Modeler. Jacobs is supporting the Department of Transportation Services (DTS) to help prepare the agency to safely operate and maintain Oahu's future rail system—a 20-mile, 21-station elevated mass transit system, along with the islands' existing public transportation services. This effort includes the oversight of and coordination between subcontractors, subject matter experts, and task leaders, and project-wide administrative support; providing organizational design and input on staffing plans and potential staff gaps to sustain the agency into the future.

d.

(1) TITLE AND LOCATION (City and State)
Kihei Sub-Area Transportation Study, County of Maui, Kihei, HI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2020	

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE

☒ Check if project performed with current firm

Travel Demand Modeler. Heather provided travel demand forecasting services for this project, which involved conducting a multimodal transportation study of the Kihei area to assess existing and forecasted conditions, identify potential solutions to address needs and deficiencies, and recommend a prioritized set of improvements to enhance and optimize the transportation system for users across all travel modes. The project involves collaboration between agencies, community stakeholders, and local groups providing balanced representation of public interests (recreational clubs, youth/school organizations, nonmotorized advocates, and visitor and lodging associations).

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
OahuMPO Regional Transportation Plan 2035 Update, Oahu Metropolitan Planning Organization, Honolulu, HI	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
	2011	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Lead Travel Demand Modeler. Heather led the travel demand forecasts for all alternatives for this project to provide lead technical services, client support at technical and policy committee level meetings, technical report writing and comprehensive public involvement activities. Technical work included development of goals and objectives and associated performance measures. Multimodal analyses of existing and future baseline (no build) conditions were conducted to assess transportation needs and deficiencies across all modes. Candidate improvement projects were then identified and assessed for inclusion in the plan. The analysis included development of conceptual cost estimates for all candidate projects and use of OahuMPO's regional travel demand forecasting model to assess the effect of roadway and transit projects on the transportation system.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS SERVICE CATEGORY

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN SERVICE CATEGORY	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Miya Akiba	**Transportation Planner**	14	5

15. FIRM NAME AND LOCATION (City and State)

Jacobs, Honolulu, Hawaii

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
BS, Global Environmental Science	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Miya is an environmental planner/project manager with 14 years of experience in environmental planning/permitting, site characterization, remedial investigations, feasibility studies, and long-term monitoring for a variety of projects throughout Hawaii and the Pacific region. She has prepared environmental assessments (EAs) and land use permits for multiple state and federal infrastructure projects, conducted field investigations and data analyses, prepared technical reports, and prepared proposals for environmental investigation and planning projects for state and federal clients.

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State): **Honolulu Rail Transit Project, General Engineering Consultant Support (GEC III), Honolulu Authority for Rapid Transportation (HART), Honolulu, HI**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (if applicable): Ongoing

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Environmental Planner. Jacobs is performing GEC support for the Honolulu Rail Transit Project, a 20-mile elevated rail line with 21 stations, which features modern steel-wheel-on-steel-rail technology, fully automated (driverless) rail vehicles with capacity to serve an estimated ridership of more than 115,000 weekday rider trips by year 2030. This effort includes project scheduling, coordination and reporting, cost estimating and project control, interface management, environmental and planning, travel demand forecasting, bus/rail integration, station access, and modal interface, land use planning, transit-oriented development (TOD), traffic analysis, parking study, archaeological and cultural resources, and design management services, including management of final design contracts, review of final design submittals, system-wide signage, landscape, signal, and ITS operational support.

b.

(1) TITLE AND LOCATION (City and State): **Kihei Sub-Area Transportation Study, County of Maui, Department of Public Works, Kihei, HI**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2020; CONSTRUCTION (if applicable):

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Transportation Planner. Worked with County of Maui to develop transportation solutions for the Kihei area of south Maui. The roadway system involves local/county roadways and two major arterials that run parallel to one another on either side of the subarea that serve as critical lifelines into and out of the community. The study assessed multimodal infrastructure, transit services and facilities, and safety needs and deficiencies. Evaluation criteria established with public and agency stakeholders were used to categorize and prioritize potential solutions.

c.

(1) TITLE AND LOCATION (City and State): **Hawaii Statewide Transportation Plan, Hawaii Department of Transportation (HDOT), Statewide, HI**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: Ongoing; CONSTRUCTION (if applicable):

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Transportation Planner. This $2 million project involves collaborating with HDOT to update the HSTP, which helps to guide the direction of Hawaii's transportation system for the next 25 years. The HSTP establishes the framework to plan Hawaii's transportation system and provides guidance to system level and master plans of the three primary modes of transportation (air, water, land).

d.

(1) TITLE AND LOCATION (City and State): **Kamehameha Highway Wastewater Pump Station Force Main Replacement, City and County of Honolulu, Honolulu, HI**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2021; CONSTRUCTION (if applicable): 2021

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE — ☒ Check if project performed with current firm

Environmental Planner. Responsible for preparation of permit applications in support of construction activities for installation of a new force main using horizontal directional drilling (HDD). Prepared permit applications for a Special Management Area Permit (SMP), Conservation District Use Permit (CDUP), USACE Nationwide Permit under Section 10 Rivers and Harbors Act, and Clean Water Act (CWA) Section 401 Water Quality Certification (WQC).

e.

(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Hawaii Memorial Reef Project, Maunalua Bay, Oahu, HI	2017	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Environmental Planner. Responsible for preparation of a NEPA and HRS Chapter 343 compliant EA, and associated permit application documents for the proposed construction of an artificial memorial reef. Permits required for the proposed project included a Conservation District Use Permit (CDUP), USACE Section 404/Section 10 permit, Clean Water Act (CWA) Section 401 Water Quality Certification (WQC), and Coastal Zone Management (CZM) Consistency Determination. Responsible for compiling a complete list of required permits for project implementation and coordinating and attending meetings with regulatory agencies to discuss project scope and permit requirements. Other tasks included preparation of a cost proposal to complete the environmental permitting process for the project, preparation of meeting documents for an open house event to introduce proposed project to potential stakeholders and attending periodic client meetings and neighborhood board meetings.

SECTION F:
EXAMPLE PROJECTS WHICH BEST ILLUSTRATE FIRM'S QUALIFICATIONS FOR THIS CONTRACT

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 1

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Honolulu Rail Transit Project, Honolulu, Hawaii	Ongoing	Ongoing

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Honolulu Authority for Rapid Transportation (HART)	Nathaniel Meddings	808.768.6237

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

KEY RELEVANCE

Cost: $98.7 million (All Contracts)

Relevant Services:

- Environmental compliance with federal, state, and local regulatory permits and procedures
- Permitting
- Post-ROD environmental reassessment
- Environmental engineering
- Environmental consulting
- Integrated GIS platform development and data management
- Phase I and Phase II ESAs
- Environmental hazard evaluation and environmental hazard management plans
- Environmental release reporting and responses
- Testing and/or screening services on potentially contaminated soil and/or groundwater
- Stockpiling, segregating, containing, and/or transporting potentially contaminated soil and/or groundwater, and store, treating, recycling, and/or disposing of as needed
- Program management
- Scheduling and estimating
- Interface management and coordination
- Environmental services and planning
- Design management services
- Management of traffic during construction
- Travel demand forecasting
- Access management, modal interface
- Transit Oriented Development (TOD)
- Parking study and pedestrian access
- Roadway design, new and reconstruction
- Utility design and relocation
- Signal and Intelligent Transportation System (ITS) support

Performance Highlights:

- Providing program management services, including the management of the work breakdown structure, budget staffing plan, risk register, monthly progress and status reports, and contract administration through the design, construction, and implementation
- Using time impact analysis to realize cost savings and on-island contractor estimating to develop more accurate cost forecasts
- Leading the development of procurement strategy, bid documents, and independent cost estimates for major contracts
- Supporting administration of the Rapid Transit Stabilization Agreement (RTSA) to ensure labor compliance on construction contracts
- Assisting in the oversight of technical coordination, interface management and configuration management for each design and construction stage
- Providing environmental and planning support to ensure compliance with the state, city, and Federal Transit Authority (FTA) for decision documents of the project
- Implementing and/or reviewing contractor-prepared National Environmental Policy Act (NEPA) and Hawaii Revised Statutes (HRS) Chapter 343 environmental documentation and supporting technical reports for any elements of the original 20-mile
- Assisting in all areas of environmental compliance to comply with documented mitigation measures, decision documents for the project, permits, and all other commitments specified by the final Environmental Impact Statement (EIS)/Record of Decision and Section 106 Programmatic Agreement
- Supporting engineering and architectural design management services through design management, design services, quality reviews, and procurement through each design phase
- Supporting the reduction in costs, shortening of construction time, improved safety, and minimizing impacts to the public by providing design modifications to improve rail alignment
- Facilitating third-party collaborations to address design and construction issues

PROJECT DESCRIPTION

Jacobs is providing services under several contracts for the Honolulu Rail Transit Project (HRTP) to develop a 20-mile elevated rail line with 21 stations, beginning in East Kapolei, connecting with the Honolulu International Airport and downtown Honolulu, and ending at the Ala Moana Center. The system features modern, steel-wheel-on-steel-rail technology and fully automated (driverless) rail vehicles, able to serve the projected ridership of more than 115,000 weekday rider trips. The following details the scope of work for Jacobs' contracts for the Honolulu Rail Transit Project.

The Honolulu Rail Transit Project is the first metro system in the state and the first large-scale publicly run metro system in the U.S. to feature platform screen doors and a driverless operation system.

Civil Engineering & Inspection (CE&I) West Support

The CE&I West contract included work that began at East Kapolei proceeded down Kamehameha Highway in Pearl City ended at Aloha Stadium in Aiea. This section of the project included 10.7 miles of elevated Guideway, nine stations, and the maintenance facility (MOW).

We provided oversight of contractor project scheduling, cost estimating, project controls, requests for information (RFIs), submittal processing, progress reporting, construction inspections and contract compliance. Inspections included quality assurance (QA) of segment casting at the contractors casting yard in Kapolei, drilled shaft foundations, construction of the rail columns and segment assembly of the new elevated guideway, construction of the nine stations, all associated utility relocations and roadway improvements, coordination of the interface with the station contracts, and management of the rail stock materials yard.

Typical rail guideway section under construction from East Kapolei. Jacobs is maintaining audit-ready documents that meet compliance with Federal requirements.

General Engineering Consultant Support (GEC III)

We were selected by HART to provide GEC support for the project scheduling, coordination and reporting, cost estimating and project control, interface management, environmental and planning, travel demand forecasting, bus/rail integration, station access, and modal interface, land use planning, transit-oriented development, traffic analysis, parking study, archaeological and cultural resources, and design management services including management of final design contracts, review of final design submittals, system-wide signage, landscape, signal, and ITS operational support. In 2021, Jacobs was awarded a five-year extension of the GEC contract.

Scheduling and Estimating

We are providing scheduling and estimating services through design, construction, and project implementation. We are using the Oracle Primavera P6 software to establish contract baseline scopes, schedules, and budgets consistent with Federal Transit Administration (FTA) requirements; monitor and report on contractor progress against baselines using data collection, collation, and analysis; and perform project wide and contract-level trend analyses relative to cost and schedule.

Interface Management and Coordination

We are assisting with the oversight of technical coordination and interface management between contracts. Our tasks include preparing, maintaining, and updating the Project Interface Plan, and assisting in conflict resolution and processing change orders, etc.

Typical rail guideway section under construction from East Kapolei. Jacobs managing the environmental compliance and coordinating activities under the historic preservation program.

Environmental Planning Services

Services include preparation, implementation, and review of various environmental evaluation documents, supplemental environmental documents, and related supporting technical studies in compliance with applicable laws and requirements, such as the NEPA, HRS Chapter 343, and FTA environmental guidance etc., and support for State Department of Health (HDOH) section 401 Water Quality Certifications, HDOH Community Noise, US Army Corps of Engineers Section 404, National Pollutant Discharge Elimination System, and other environmental permits.

Environmental Compliance

Environmental compliance tasks include identifying and assisting in all areas of environmental compliance with documented mitigation requirements, decision documents for the project, permits, and all other commitments specified by the final EIS/Record of Decision and Section 106 Programmatic Agreement.

General Planning Support

We provide transportation and land use planning support. Activities include:

Travel demand modeling and analysis to determine projections of travel demand

- Traffic analysis (parking study, left-turn median opening study etc.)
- GIS and mapping, and graphic design support, including 3D modeling and photo simulations
- FTA coordination and New Starts support

Archaeological and Cultural Resources

We also coordinate necessary and required archaeological and cultural resources, including items required by HRS Chapter 6E.

On-call Design Support for Right-of-Way, Utilities, and Environmental Planning

We prepare concept plans or exhibits for use in preparing for stakeholder coordination, environmental documentation, and transit planning.

Design Management Services

We are providing support to manage the day-to-day aspects of the final design contracts, including the overseeing of scope, design criteria compliance, schedule, and budget and assisting in resolution of design issues that arise. We provide coordination support and assist with third parties and other public agencies coordination and lead the design review process involving multiple design disciplines.

Program Management

We are providing program management services, which include work breakdown structure, budget staffing plan, monthly progress and status reports, risk register, and contract administration support.

Rendering of a future rail station

National Environmental Policy Act (NEPA) Post-Record of Decision (ROD) Environmental Reevaluations

Jacobs provides environmental planning services including the preparation, implementation, and review of various environmental evaluation documents, supplemental environmental documents, and related supporting technical studies. These documents, along with all project elements, must be in compliance with applicable laws and requirements, such as NEPA, HRS Chapter 343, and FTA environmental guidance.

Environmental reevaluations are prepared for design changes proposed after the NEPA ROD. In support of the HRTP, Jacobs has performed the following limited supplemental environmental assessments (EAs) as post-ROD environmental reevaluations:

1. Pier Construction in Halawa, Moanalua, and Kalihi Streams

In 2015, we conducted a post-ROD environmental reevaluation of guideway pier construction in three streams that had not been evaluated in the Project EIS. The specific changes included a pier in Halawa Stream (where the EIS had anticipated clear span of the elevated guideway), the addition of one more pier in Moanalua Stream (increasing the number of piers described in the EIS from two to three), and two additional piers in Kalihi Stream (increasing the number from two to four). These changes were proposed to increase constructability, reduce project costs, and minimize traffic impacts on adjacent roadways. Because construction would occur in streams, the environmental evaluation required careful attention to potential impacts on aquatic resources, including an assessment of Essential Fish Habitat and consultation with the regulatory agency, the National Marine Fisheries Service.

2. Kakaako Guideway Realignment and Kakaako and Ala Moana Station Shifts

To improve the integration of future residential, commercial, and public use development plans in the Kakaako and Ala Moana areas, HART proposed shifts in the locations of the Kakaako and Ala Moana Stations and a slight realignment of the elevated guideway on Queen Street. A particular environmental issue associated with the design change involved the new Ala Moana Station location, which moved closer to a residential condominium and triggered the need for additional acoustic assessment of train station operations on the nearby residential units. Noise readings taken in the field and expert analysis determined that the location shift would not generate adverse impact exceeding criteria established by the FTA. Mitigation measures were proposed to reduce anticipated noise from the station's public address system.

3. Kalaeloa Precast Yard

The precast yard identified in the ROD was eliminated from consideration because of it lacked capacity to fabricate and store precast concrete elements on the scale needed for the elevated guideway. Therefore, HART identified an alternate property in Kalaeloa to support construction of the City Center section of the project. As part of the post-ROD environmental reevaluation, we conducted an archaeological field inspection, biological survey, and Phase 1 environmental site assessment. Historic preservation stakeholders were given an opportunity to review and comment on proposed use of the property as a precast yard, therefore the environmental surveys conducted were important in establishing the land use history and current condition of the site and validating the finding of no historic properties.

4. Emergency Generators

In the event of a significant power outage, the current electrification design for the project would not permit train movement on the system. Therefore, to ensure passenger safety, HART proposed the installation of four emergency standby generators to move stranded trains to the nearest station and prevent passengers from evacuating themselves onto the guideway. A post-ROD environmental reevaluation was conducted because emergency generators had not been included in the original project description. A key issue of the post-ROD assessment was the potential impact of monthly generator testing on noise sensitive receptors, such as residences. Our acoustic expert conducted site specific studies of testing impacts during the day and at night.

Recommendations were made for the design of noise attenuating enclosures for the emergency generators so that noise emissions would comply with state-regulated noise thresholds.

Site Characterization Sampling

On-Call Hazardous Materials Consulting

Jacobs manages the on-call hazardous materials consulting services contract for HART and has been awarded two contracts and 22 task orders. The scope of services for these contracts included broad support in the areas of project management and administration, and hazardous materials planning (development of various plans), reporting, identification (sampling, analysis, characterization, and profiling), remediation, handling (temporary storage/stockpiling, waste inspections), transport, and disposal. Many task orders required expedited planning and implementation to complete characterization and remediation before construction activities started at sites along the rail guideway corridor. To ensure timely implementation of project work, we worked closely with the HDOH and other stakeholders during the projects to expedite review and approval of plans and reports.

We also support HART with communication, coordination, and interactions with contractors working along the Rail guideway corridor, including assistance with providing guidance to the contractors to comply with a Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan (EHE-EHMP) we developed, and which was approved by the HDOH. The process described in the Programmatic EHE EHMP required involvement at various and progressive stages, from procurement

and planning to implementation and closure to make sure that hazardous materials potentially generated by contractors during construction are handled properly and do not result in violations of applicable laws and regulations.

The following are representative projects performed under these contracts, which demonstrate our experience and ability to provide various services at the project and program levels.

GIS Support

We supported HART for the design and implementation and conduct ongoing maintenance and updates of an ArcGIS online platform. The ArcGIS online platform is a simple and user-friendly tool that includes overview information; screening of sites with potential recognized environmental conditions along the rail guideline corridor; search, review, and download of release reports and environmental data for sites with confirmed environmental conditions (including underground storage tank sites); custom map/filtering; and mobile data/photo log collection for field staff.

The ArcGIS tool not only provides systematic and accurate data management, but also allows better decision making and planning, facilitating coordination with stakeholder.

Recognizing the need to manage historic, current, and future data for project continuity and cross-organizational benefit, Jacobs and HART have used the platform to facilitate tracking of real property transactions, cultural and historic resources, permits, and environmental incident tracking along the rail corridor.

To provide greater access to HART and other city employees without the need for individual licensing or Jacobs proprietary software, the ArcGIS platform was migrated to and is currently hosted on the City and County of Honolulu's Department of Information Technology (DIT) web servers.

Hazardous Materials Reporting

We developed streamlined release reporting forms to facilitate consistent and efficient preparation of release reports. We prepared and submitted over 200 release notification reports to HDOH. We also prepared numerous other reports including environmental summaries, technical memoranda, investigation, remediation, and waste characterization reports.

Development of Programmatic Environmental Hazard Evaluation and Environmental Hazard Management Plan (EHE/EHMP)

We worked closely with HART and HDOH to prepare the existing Programmatic EHE/EHMP for HART in support of the HRTP. This programmatic document presented the environmental hazards along the rail guideway corridor and explains how to properly manage contaminated materials from existing environmental conditions in accordance with applicable laws and regulations. Through negotiation with the HDOH Hazard Evaluation and Emergency Response Office and Solid and Hazardous Waste Branch (SHWB), HART successfully defined the entire rail corridor as one area of concern which allows HART contractors to transport and temporarily store contaminated media without the need to obtain RCRA permits. Without this key definition, contaminated media would need to be managed at the point of generation and/or require permits which would have caused logistical difficulties and costly delays. The Programmatic EHMP is also a functional document that identifies strategies for identifying, reporting, and managing contaminated media during construction so that work could continue in most cases without the need for extensive stop work, reporting, and development and HDOH acceptance of remediation strategies.

Environmental Due Diligence, Phase I ESAs, and Phase II ESAs

We performed environmental due diligence for 272 properties proposed for acquisition and completed and kept up to date Phase I ESAs for 112 properties along the rail guideway corridor. The due diligence and Phase I ESAs are performed in accordance with the All Appropriate Inquiries rule and standards set forth in ASTM 1527-13 for parcel acquisitions prior to construction of the HRTP.

Within the 5-mile city center section of the corridor, our team has been performing site reconnaissance inspections of up to 100 properties and their surroundings, approximately every 180 days. This includes thousands of publicly available environmental records with hundreds of known or suspected contaminated sites, underground and overhead utilities, and many potential recognized environmental conditions.

The project was configured as a large-scale, centralized data processing and analysis task with the goal of automating as many components as possible. Federal, state, and regulatory agency files from EDR were processed and reviewed together with environmental information readily available from both HDOH and HART environmental databases. Environmental datasets are batch-processed to determine distance, direction, and hydraulic flow relationship with each individual subject property. Data feeds into an enterprise data warehouse, evaluated through a semi-automated process, and final report production is generated directly out of the project database transforming a cumbersome report workflow into a turn-key product.

Across the project life cycle, spanning three (3) years and multiple delivery cycles, HART saw a high level of consistency and a continual reduction in cost per environmental report. Each delivery iteration brought increased efficiencies while maintaining quality throughout, resulting in the successful delivery of over 250 individual environmental reports to date. During each cycle, over 1,200 environmental records are being uploaded to our central database for regulatory status evaluation. Each site is then assigned to one or more subject properties along the corridor based on distance, direction, and ASTM screening criteria, resulting in a dataset of approximately 12,000 records that are

evaluated against spatial and environmental criteria (e.g., distance, hydraulic position, nature of potential release, substance mobility, and similar) to determine the likelihood to affect a subject property for each site. Based on the environmental records evaluation and the results of site reconnaissance and interviews, each property is assigned an environmental concern level to identify those with a higher environmental concern and recommend them for Phase II ESAs. Using data from the enterprise central warehouse, properties recommended for Phase II ESA were prioritized to identify those where Phase II ESA activities are more critical based on potential presence of contamination, magnitude of future construction work and workers exposure, accessibility, and acquisition status. Higher priority properties were grouped based on their geographic locations and a group-specific Phase II ESA and site characterization work plan was prepared for each of the five groups designing innovative investigation activities that will optimize fieldwork and create cost-efficiencies. The use of the centralized database allowed maximizing use of Phase I ESA data reducing work plan preparation-times.

Jacobs assisted HART with applying for and winning an EPA brownfields assessment grant that partially funded the Phase I and II ESA efforts.

Additional Investigation and Remedial Action at Various Locations along the HTRP, Honolulu, Oahu, Hawaii

We have performed numerous additional investigation and remedial actions for various locations along the HRTP, including petroleum-only sites, chlorinated solvents sites, and other hazardous substances sites. The objectives for these investigations and remediation projects were to investigate the nature and extent of contamination in the subsurface, identify and optimize soil remediation volumes, and complete remediation ahead of construction.

We adopted a dynamic approach involving progressive and iterative consultations with various stakeholders, including the HDOH, which resulted in expedited investigation and remediation, regulatory approval, and significant cost savings.

We assisted HART with applying for and winning an EPA brownfields cleanup grant, which partially funded the remediation of the proposed Iwilei Station. In addition, a few of these exemplary projects were selected to be presented at various national conferences.

Hundreds of environmental sites processed and evaluated along the City Center rail corridor.

Temporary UHWO Park and Ride

We are providing design services to support the development of a rail station near the University of Hawaii, West Oahu (UHWO) campus to comply with city, state, and federal requirements. To accommodate the anticipated ridership from this station, a temporary park and ride is planned for development to support this station. The park and ride project are approximately 3.5 acres and includes an access driveway and a new road. We are coordinating with stakeholders, designing to address the current needs of the project while planning for the future development of the site, and coordinating across several design disciplines including, structural design support for foundations, electrical for lighting and security, and civil designs and services which included site layouts, drainage, grading, traffic signage and striping, roadway design and vehicle maneuverability.

The park and ride design requirements include the following:

- Accommodate approximately 300 passenger cars
- Include six bus stops
- Meet current ADA requirements
- Provide for electric car requirements
- Minimize impacts to adjacent roads
- Meet city urban development requirements
- Provide for lighting and security
- Driveway design
- New roads for access to park and ride for both passenger vehicles and buses
- Acquire necessary approvals and permits for construction
- Erosion control
- Traffic control

This project is a temporary solution. The design provides the flexibility to be used by the university once the station is deemed no longer necessary and the site could be turned over.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Honolulu, Hawaii; Bellevue, Washington	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 2	
21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
Waiawa Pearl Highlands Rail Station Multimodal Access Improvement Study, Honolulu, Hawaii	PROFESSIONAL SERVICES: Ongoing	CONSTRUCTION (if applicable):

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City and County of Honolulu, Department of Transportation Services (DTS)	Honglong Li	808.768.5472

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS SERVICE CATEGORY (Include scope, size, and cost)

KEY RELEVANCE

Cost:

$400,000 (Planning and Environmental)
$200,000 (Conceptual and Preliminary)

Relevant Services:

- Station access and circulation
- Environmental services and permitting
- Transportation planning and operations
- Transit facility planning and design
- Transit ridership and travel demand forecasting
- Pedestrian bridge design
- Roadway design
- Utility design and relocation

Performance Highlights:

- Public outreach and stakeholder's coordination
- Multimodal access assessment and analysis
- Preliminary pedestrian concept development and 30% design
- Bus only ramps conceptual design
- Bus-stop conceptual design
- Developed planning level cost estimate, construction schedule

PROJECT DESCRIPTION

This project assesses transportation operations in and around the rail station for when interim rail service begins and rail passengers are able to access the station via bus transit, pedestrian and bicycle connections, and designated park-and-ride and Handi-Van locations. For the multimodal study, Jacobs is analyzing transit access and circulation between the rail station and regional highways, recommended bus stop locations, and assessed nonmotorized access across Kamehameha Highway near Kuala Street.

Bus Stop Locations

We identified nearby bus stops requiring improvements and upgrades and recommended new bus stop locations to maximize ridership, further enhance transit mobility, and increase accessibility to mass transit options.

Pearl Highlands Station rendering with elevated rail guideway

Bus Only U-Turn Ramp

When interim rail service begins, eastbound surface street buses on Kamehameha Highway can drop off and pick up passengers in a curbside bus zone fronting the Waiawa Pearl Highlands Station. These buses must then continue further east before they can turn around and return westbound. Our team explored options to provide a bus-only U-turn ramp near the station, enabling these eastbound buses from Kamehameha Highway to easily return westbound on Farrington Highway after serving the station.

We evaluated multiple ramp locations and potential alignments before identifying a preferred left-side U-turn access. Evaluation criteria included traffic operations impacts (e.g., merging and diverging lanes), right-of-way impacts and constraints, environmental considerations (e.g., disruption to adjacent historic trees and impacts to the surrounding stream system) and construction feasibility.

Grade Separated Pedestrian Bridge

The commencement of rail service enables riders to cross Kamehameha Highway at-grade via a traffic signal at Kuala Street. To enhance future access, we completed 30-percent design of a grade-separated pedestrian bridge over Kamehameha Highway, connecting the rail station with shopping and residential uses along Kuala Street. Our team developed conceptual bridge designs and alignments, working with city staff to select an alignment and a station connection point based on ease of access and feasibility of construction.

The mauka terminus of the elevated pedestrian bridge design is proposed for the east side of Kuala Street, near the northwest corner of Pearl Highlands Center. This location captures an optimal area of potential transit users. The bridge design runs roughly parallel to Kuala Street before traversing Kamehameha Highway at a perpendicular crossing. Near the northeast corner of the station, the bridge transitions to a pedestrian ramp descending to ground level in the station's free area.

The elevated bridge design touches down at-grade on both ends, increasing transit accessibility for non-motorized users of all abilities.

Environmental Services and Permitting Assessment

We are guiding the city through specific, potentially necessary environmental permitting and approvals requirements. This includes identifying and reporting key environmental resources, environmentally sensitive areas, and potential issues for each project analysis and design task.

Pearl Highlands Station with pedestrian bridge over Kamehameha Highway

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Honolulu, Hawaii; Bellevue, Washington	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 3	
21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
Rail Activation, Operations, and Maintenance Support for Honolulu's Integrated Public Transportation System, Honolulu, Hawaii	PROFESSIONAL SERVICES: Ongoing	CONSTRUCTION (if applicable): Ongoing

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City and County of Honolulu, Department of Transportation Services (DTS)	Chris Clark/Steve Bose	808.768.8399/808.768.5022

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS SERVICE CATEGORY (Include scope, size, and cost)

KEY RELEVANCE

Cost: $19.1 million

Relevant Services:

- Project management
- Rail system operations and feasibility analysis
- System operation and service compliance
- Rail system supports and maintenance
- Fare collection system
- Asset inventory and transfer
- Station access and security
- Complete Streets policies
- Traffic operations and simulation modeling
- Geographic Information System (GIS) mapping and analysis
- Strategic planning

Performance Highlights:

- Strategic planning and interagency coordination
- Street right-of-way database update
- Transit and paratransit fleet assessment
- Rail system operation, maintenance, and compliance
- Asset management of core system and fixed facilities
- Fare collection system
- Contractor negotiation
- Operation costs and assessment

PROJECT DESCRIPTION

Jacobs is providing services to the City and County of Honolulu, Department of Transportation Services (DTS) to ensure the agency is prepared to operate and maintain Oahu's future rail system along with the islands existing public transportation services.

The DTS is responsible for Oahu's public transit system (fixed route bus service, paratransit service), intermodal facilities (transit centers and park-and-rides), public parking (on-street and off-street), and bicycle and pedestrian facilities. The DTS also operates and maintains the city's traffic signals and contributes traffic information to the Joint Traffic Management Center (JTMC), a resource for multiple agencies to help manage traffic flow and support proactive responses to incidents on Oahu's roadways.

DTS operates public transit fixed-route bus service on Oahu

When rail service begins, DTS or its contractors will be responsible for the safety, operations and maintenance of the new 20-mile, 21-station elevated mass transit system. Jacobs is providing management services for DTS, including oversight of and coordination between subcontractors, subject matter experts, and task leaders, and project-wide administrative support. Jacobs is also helping the agency with organizational design and providing input on staffing plans and potential staff gaps to sustain the agency into the future. Major key tasks include:

Oahu Mass Transit Joint Operational Feasibility Study

Jacobs is developing a feasibility study to help DTS determine how to manage and oversee Oahu's entire multimodal transportation system, including bus and rail operations, most effectively. As part of this study, Jacobs is comparing the management of Oahu's multimodal transportation system with systems and operations in peer cities nationally and internationally and providing insight on how potential operational and management alternatives employed elsewhere could be effectively applied in the City and County of Honolulu.

Update of City's Right-of-Way Database

Planned street widening maps for Oahu are out of date, and many of the current modal plans have been independently authored resulting in uncoordinated implementation and a variety of challenges that negatively affect the local transportation network and reduce the ability for DTS to implement Complete Streets projects and policies.

Jacobs reviewed right-of-way information on Oahu and modernized access to it by developing a GIS database that included parcel data, modal investments and the City's priorities from various plans, policies, and goals. Jacobs reviewed the combined data and developed a methodology to categorize streets on the City's 1,440-mile roadway network into typologies, according to the definitions outlined in the Complete Streets Design Manual. The final deliverable was a web-based GIS dashboard that depicted the roadway network, graphically by typology, with links to all available supporting information on the street type sections.

Typical elevated rail guideway section in Waipahu

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Honolulu, Hawaii; Bellevue, Washington; Los Angeles, California; New York, New York	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 4	
21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
RapidRide I Line, Cities of Renton, Kent, and Auburn, Washington	PROFESSIONAL SERVICES: Ongoing	CONSTRUCTION (if applicable):

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
King County Metro	Greg McKnight	206.477.0344

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS SERVICE CATEGORY (Include scope, size, and cost)

KEY RELEVANCE

Cost: $13.5 million

Relevant Services:

- Innovative solutions to maximize resources
- Coordination with city, region, other transit agencies, and FTA to build consensus on demand results
- Use of the FTA STOPS demand model (we helped the FTA develop this model used on U.S. projects seeking Federal Small Starts funds)
- Custom tool development for data manipulation, analysis, and visualization

Performance Highlights:

- Advanced design integrating transit communication with adaptive traffic signals
- Modernized station elements to enhance rider experience
- Stakeholders and public outreach
- Used community inputs and bigdata to evaluate capital improvement benefits
- Prepared federal grant for construction funding

PROJECT DESCRIPTION

Jacobs is developing a RapidRide corridor from planning through final design, evaluating support facilities and coordinating with an area service plan update. We are designing the preferred solution, including concept development, final design, right-of-way acquisition support, and construction management.

Our team is evaluating alignments, regional service concepts, and corridor terminal options, including modal integration with underlying local service, nonmotorized, ITS, and freight systems.

Innovative Bus Rapid Transit (BRT) Design Elements

- Left turn from the curb lane, transit only lanes, queue jumps, contraflow lanes included in roadway treatments
- Development of station kit-of-parts for consistent branding, off-board fare payment, and accessible communication elements
- Integration of 5G and strategic communication for transit operations and passenger user data

Rendering of RapidRide I Line station with enhanced passenger amenities

- Adaptive traffic signals and support for municipalities with limited traffic operation centers to push transit data to roadway signals
- Proof-of-concept for operating plan and alternative vehicle technology

This project developed an overarching design standard and approach for future RapidRide-line design delivery, outlined a process for integrating next-generation transit signal priority, and was the first Federal Small Starts Capital Investments Grant for King County.

Consensus Building and Innovative Outreach.

Our team managed the stakeholder strategy and engagement, gaining design concurrence from the cities of Renton, Kent, and Auburn and from Washington State Department of Transportation (WSDOT), Sound Transit, and BNSF Rail Road. As part of the public outreach, Metro commissioned a sounding board to compensate representatives from the local communities for their time as they engaged to help shape the project.

First-of-its-Kind Equity Analysis

We pioneered a project-based equity analysis, using community input and big-data to evaluate the impact of each capital element on mobility, sustainability, and well-being of the county's priority populations, including those with low income, people of color, and individuals with limited English proficiency.

Other project tasks included funding analysis and strategy; safety analysis; area traffic management; land-use, economic, environmental, and equity integration; public outreach; high-occupancy-vehicle (HOV) and business access and transit (BAT) lane operations and analysis; ITS and adaptive signals; extensive operational simulation and traffic demand modeling; conceptual and preliminary design; cost estimating; federal grant funding application and securement; quality assurance and quality control; final capital improvement and station integration design; and document production.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Bellevue, WA	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 5	
21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
SR 522/NE 145th Street Corridor Bus Rapid Transit (BRT), Seattle, Washington	PROFESSIONAL SERVICES: Ongoing	CONSTRUCTION (if applicable):

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Sound Transit	Kathy Leotta	206.903.7028

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS SERVICE CATEGORY (Include scope, size, and cost)

KEY RELEVANCE

Cost: $1.6 million

Relevant Services:

- Transit planning and concept design
- BAT lane and transit queue bypass lane design
- Transit reliability assessment
- Interagency coordination
- Traffic operations analysis
- Preliminary engineering
- Impacts during construction

Performance Highlights:

- Strategic rail connections with local and regional bus service
- Improved transit reliability through design of BAT lanes and queue bypass lanes
- Expanded pedestrian and bicycle access and mobility
- Context sensitive design through extensive stakeholder involvement

PROJECT DESCRIPTION

This planned BRT system provides fast, frequent, and reliable bus service along the State Route (SR) 522/NE 145th Street project corridor, with interconnections to light rail and other bus service in the region. The project improves transit speed and reliability with a series of capital improvements including BAT lanes and transit queue bypass lanes, intersection and signal operation improvements, sidewalk improvements combined with roadway improvements, and park-and-ride garages.

Interagency Coordination

Our team is leading planning and design of the NE 145th Street corridor from 5th Avenue NE to the intersection with SR 522.

Project location borders the City of Shoreline and the City of Seattle requiring comprehensive interagency coordination and planning

The corridor is situated within multiple jurisdictions:

- The City of Seattle municipal boundary is the center line of NE 145th Street
- The City of Shoreline municipal boundary is the right-of-way line on the north side of NE 145th Street
- The area between these city boundaries is unincorporated King County, with WSDOT jurisdiction of the roadway and Seattle DOT jurisdiction for signal operations

Regional Rail Connection

The entrance to the Shoreline South/148th Link light rail station is on 5th Avenue NE, approximately 400 feet north of the intersection with NE 145th Street. This project enhances access to and mobility within the regional rail system with a new transit queue bypass lane and intersection capacity improvements.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Bellevue, Washington	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 6	
21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
Moderating Oahu's Traffic Conditions, Honolulu, Hawaii	PROFESSIONAL SERVICES 2020	CONSTRUCTION (if applicable)

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City and County of Honolulu, Department of Transportation Services (DTS)	Chris Clark	808.768.8399

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS SERVICE CATEGORY (Include scope, size, and cost)

KEY RELEVANCE

Cost: $3 million

Relevant Services:

- Congestion management and work zone traffic management
- Intelligent transportation systems, including adaptive traffic control technology and real-time roadway sensors and data
- Policy, regulations, and standards for autonomous and connected vehicles
- Stakeholder and agency involvement and coordination
- Development of plans, specifications, and cost estimates, and best practices guidelines
- Bikeshare and Micromobility planning program
- Training sessions and workshops

Performance Highlights:

- Corridor operation assessment and screening
- Developed guidelines and strategies to manage work zone and incident
- Applied advanced traffic control technology to reduce traffic congestion and improve corridor mobility
- Researched for opportunities to integrate future Autonomous and Connected Vehicles (AV/CV)
- Created Congestion Mitigation toolbox for City's decision makers
- Reviewed Bikeshare and Micromobility software benefits and implementation

PROJECT DESCRIPTION

Jacobs is contracted by the City and County of Honolulu, Department of Transportation Services (DTS) to moderate Oahu's traffic conditions through work zone traffic management and Intelligent Transportation Systems. The project seeks robust practices, procedures, and policies to moderate traffic congestion particularly due to work zones, incidents, events, and to improve overall traffic signal operations. The goal of the project is to implement proven techniques, modes, and strategies to stabilize travel time reliability and increase mobility in Honolulu.

The services performed by Jacobs comprised the overall planning and design services, including:

Oahu Congestion Mitigation Toolbox to improve corridor mobility

Improve Work Zone and Incident Mobility

Jacobs is developing implementable strategies, plans, and policies that moderate traffic congestion along major construction sites, incidents, or events and related alternative routes impacted to improve traffic flow in the most efficient level possible. Jacobs is determining the most feasible means to obtain accurate data of traffic flow on a sustained and continuous basis and develop proactive and acceptable guidelines and performance measures to significantly improve traffic conditions within the city in a manner that is identifiable, measurable and, sustainable.

An implementable plan will successfully coordinate all city, state, public and private projects and events, and will include evaluation of best practices for traffic control plans (TCPs) and street use permits (SUPs), re-routing of traffic options, contra-flow operations, use of special duty police, message boards, queue-following changeable message sign (CMS) trucks, and public service announcements and other means and methods to efficiently manage traffic and communicate with the motoring public.

Design and Specifications for Adaptive Traffic Control Technology (ATCT) and Real-Time Roadway Sensors and Data

Jacobs is identifying 10 congested traffic corridors that are best served by installation of ATCT, and up to 10 corridors that are ideal for the installation of real-time advance traffic sensors. Following approval of the corridors by DTS, Jacobs will develop plans, specifications, and cost estimates for implementation. A before and after analysis uses measures of effectiveness data such as average daily traffic (ADT) vehicle counts, speeds, cycle lengths, split times, phasing and, travel time data to document, compare, and validate the performance.

Prepare for Autonomous Vehicles and Connected Vehicles Testing

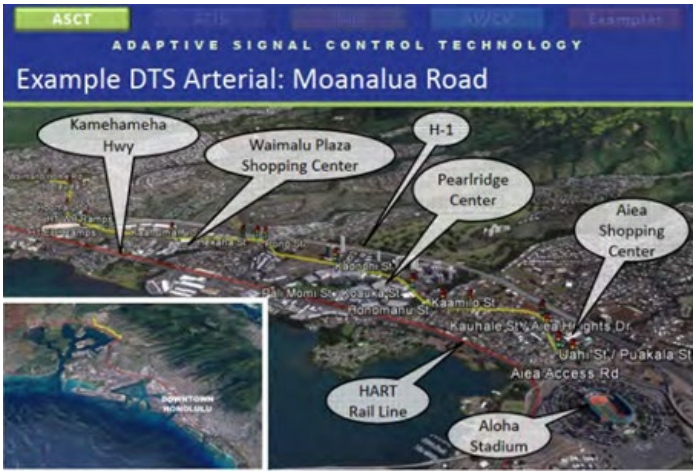
Jacobs is exploring, researching, and recommending actions, regulations, and policies necessary to address infrastructure and institutional barriers necessary to permit testing and operating autonomous and connected vehicles on Oahu.

Oahu Congestion Mitigation Toolbox

Jacobs is developing an Oahu congestion mitigation toolbox that will be a useful desk reference and guidance intended for elected officials, business and community leaders, council, media, and others interested in learning more about what options are available for moderating traffic congestion and improving mobility. The toolbox describes appropriate and proven solutions and strategies that will best fit different congestion or safety issues, circumstances, or concerns. Categories include active roadway management strategies, travel demand management/alternative travel modes strategies, and physical roadway capacity strategies.

Training Sessions and Workshops

Jacobs will implement various training programs for Joint Traffic Management Center personnel, stakeholders, and partners, preparing them to use or become aware of the facility as a major transportation resource and asset to moderate Honolulu's traffic congestion. A series of training and workshops will cover the Work Zone Mobility Program, ATCT, and the Oahu congestion mitigation toolbox.



Tyical congestion corridor that can be enhanced with Adaptive Signal Control System

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Honolulu, Hawaii; Bellevue, Washington	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 7	
21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
Transit Facilities Master Plan (FMP), Seattle, Washington	PROFESSIONAL SERVICES 2019	CONSTRUCTION (if applicable)

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
King County Metro	Jeff Arbuckle	206.263.0820

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS SERVICE CATEGORY (Include scope, size, and cost)

KEY RELEVANCE

Cost: $800,000

Relevant Services:

- Facility master planning
- Task order management
- Technical services for architecture, engineering, and planning

Performance Highlights:

- Developed bus maintenance facility optimizations
- Proposed operational and logistical enhancements to operations and maintenance activities

The first Facilities Master Plan for King County Metro included strategies for investment, infrastructure, and maintenance

PROJECT DESCRIPTION

Jacobs helped King County Metro develop their first FMP, a strategy for investing over $1 billion in infrastructure to increase the operational maintenance and base capacity needed to support envisioned system growth and a future, zero emission, more than 2,000-vehicle bus fleet. We developed a program schedule, proposed bus maintenance facility and operational logistic optimizations, and a bus maintenance facilities program to identify the types and size of activities and buildings needed to support operations and maintenance activities.

Facilities Master Planning Process

Our team developed programming assumptions, cost estimates, schedules, and alternative delivery strategies; established industry best practices; led consensus-building workshops; and contributed to the high-quality final document.

Project Management

As a subconsultant, we developed scope task language and reviewed the fee structures of other subconsultants.

Our team managed subconsultants in developing the final report, worked to expand the skillset of small business in developing the overall program and project schedule, and provided document, program budgeting, and cost calculation quality assurance and quality control through our subject matter expert network. The FMP involved multiple stakeholders within the organization; we organized site tours and workshops for multiple King County Metro departments.

Managing Facility Master Planning Work

We assembled the subject matter expert panel directing and reviewing key tasks.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Bellevue, Washington	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 8

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Kihei Sub-Area Transportation Study, Kihei, Hawaii	2020	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
County of Maui, Department of Public Works	Nolly Yagin	808.270.7437

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS SERVICE CATEGORY (Include scope, size, and cost)

KEY RELEVANCE

Cost: $681,000

Relevant Services:

- Multimodal transportation analysis
- Stakeholder outreach and public engagement
- Solution development and prioritization
- Long-range planning
- Funding strategies

Performance Highlights:

- Design of Floodwalls, Floodgates, Drainage and Waterfront
- Comprehensive Planning and Engineering Design Activities
- Reach consensus from Stakeholder outreach

PROJECT DESCRIPTION

Kihei is one of the fastest growing urban areas within the rapidly growing Maui District. Expanding population, commercial activities, tourism and visitors, and local businesses are increasing demands on Kihei's transportation infrastructure.

Our team is conducting a multimodal transportation study of the area to assess current and forecasted conditions, identify potential solutions to address needs and deficiencies, and recommend a prioritized set of improvements to enhance and optimize the transportation system for users across all travel modes. The collaborative effort among agencies, community stakeholders, and local groups provides balanced representation of public interests (e.g., recreational clubs, youth/school organizations, nonmotorized advocates, and visitor and lodging associations).

Solution Evaluation

Based on Kihei's specific transportation needs, we considered previously identified solutions and developed a wide range of new infrastructure solutions to address current and future potential deficiencies. Our team developed evaluation criteria to measure how well particular solutions addressed and achieved plan goals and objectives. We then used solution performance ratings to compare advantages and disadvantages and prioritize solution recommendations.

Before the COVID-19 pandemic, Jacobs facilitated a public information booth at a popular local community gathering event (Kihei Fourth Fridays) and an online open house with interactive GIS-based maps and feedback options.

Performance-based Planning

We used data-driven performance management to support decision-making throughout the project. Our process of analyzing, evaluating, and prioritizing solutions based on their ability to meet the plan goals resulted in a policy and implementation guide for improving Kihei's multimodal transportation system, meeting federal legislation guidelines and state and federal funding requirements.

Placing recommended solutions in cost categories helps the County with capital improvement planning and programming and provides an analysis of funding strategies with alternative revenue sources, such as land swaps, public-private partnerships, and grant opportunities.

Stakeholder Outreach

We facilitated multiple public outreach efforts throughout the project to share information, gather comments and suggestions, and provide plan updates. These included a public information booth at a popular local community gathering event (Kihei Fourth Fridays) and an online open house with interactive GIS-based maps and feedback options.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Honolulu, Hawaii; Bellevue, Washington	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 9

21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Hawaii Statewide Transportation Plan (HSTP), Statewide, Hawaii	Ongoing	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Hawaii Department of Transportation (HDOT)	Masatomo Murata	808.831.7984

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

KEY RELEVANCE

Cost: $2 million

Relevant Services:

- Establishment of goals and objectives
- Scenario planning
- Performance measures
- Financial analysis
- Implementation strategies
- Public engagement and stakeholder committees

Performance Highlights:

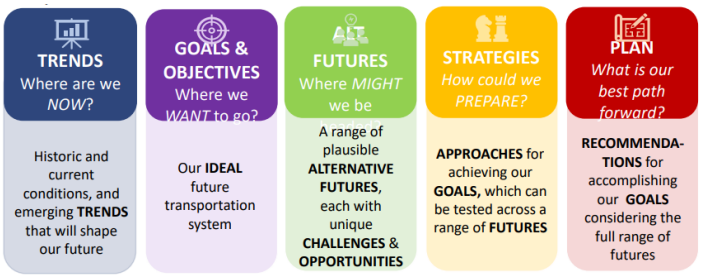
- Provides policy-level guidance for statewide air, water, and land systems
- Reviews emerging trends expected to influence transportation demand and characteristics
- Scenario planning approach considers alternative futures to increase preparedness and adaptability

PROJECT DESCRIPTION

Jacobs is collaborating with DOT to update the Hawaii Statewide Transportation Plan (HSTP), which helps to guide the direction of Hawaii's transportation system for the next 25 years. The HSTP establishes the framework to plan Hawaii's transportation system and provides guidance to system level and master plans of the three primary modes of transportation (air, water, land).

The workplan purposely uses a stepped process, designed to gain input and validation by key stakeholders along the way. The major tasks include:

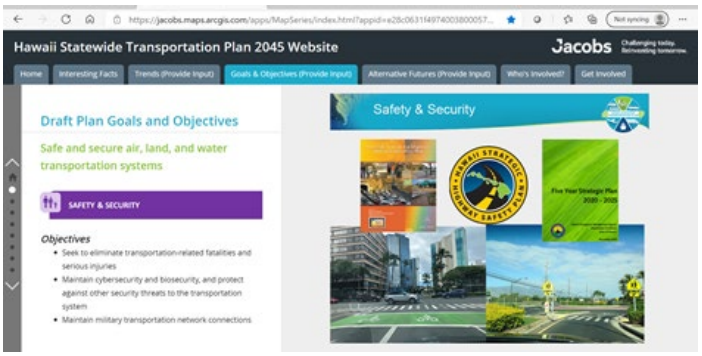
- Kick off meeting and team charter
- Plan and policy review of current plans, regulations, and policies
- Review of national best practices
- Evaluation of emerging trends
- Scenario planning and consideration of alternate futures
- Monitoring progress
- Development of implementation strategies
- Financial analysis and forecast
- Draft and final HSTP
- Public involvement plan



Planning process for Hawaii Statewide Transportation Plan

To ensure flexibility and engagement, the project team is using five primary stakeholder groups. Each stakeholder group has a role in providing input to others and ultimately to the DOT Director of Transportation, who retains the final decision-making authority.

The first group is the Project Management Team, which consists of planning staff from the Statewide Transportation Planning office, Harbors, Airports, and Highways. The second group is the Statewide Transportation Advisory Committee, which is a very comprehensive group of State, City, County, and Federal agencies. The third group is a Stakeholder Advisory Committee, comprised of representatives from industry resources, labor sectors, advocates for key interests, and different modes and environmental representatives. The fourth group are comprised of Technical Resources and Subject Matter Experts. The project team will reach out to have a focused discussion or interview with various subject matter experts throughout the project to provide guidance on specific topics (i.e., climate change, technology, energy, etc.). The fifth group of stakeholders is the public. The project team is engaging the public with a project website, public meetings, online surveys, media releases, and community events.



Interactive HSTP information website

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Honolulu, Hawaii	Prime Consultant

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT	20. EXAMPLE PROJECT KEY NUMBER 10
21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED
Hampton Roads Transit Asset Management (TAM) Plan, Norfolk, Virginia	PROFESSIONAL SERVICES: 2018 / CONSTRUCTION (if applicable):

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Hampton Roads Transit (HRT)	Scott Demharter	757.222.6000

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS SERVICE CATEGORY (Include scope, size, and cost)

KEY RELEVANCE

Cost: $200,340

Relevant Services:

- Asset management objectives and measures
- System inventory and performance gap identification
- Funding needs and financial planning
- Capital investment prioritization strategies

Performance Highlights:

- Developed an agency-wide inventory detailing condition of assets
- Determined capital funding needs and gaps
- Established prioritized list of asset management activities

PROJECT DESCRIPTION

Jacobs helped HRT develop their first, agency-wide TAM plan to meet the recently instituted, Federal Transit Administration TAM Rule's reporting requirements. The scope of work required design, development, and implementation of:

- Asset inventory
- Condition assessment
- Decision support tools
- Investment prioritization process
- Asset management policy
- Implementation strategy
- List of asset management activities
- Identification of resources
- Asset management evaluation plan

Services Provided

Jacobs evaluated HRT's strategic plan, mission, and vision to help structure its asset management policy framework. We also advised the client on structuring, leading, and engaging the agency's TAM steering committee. We supported TAM maturity assessment, gap analysis, and asset management prioritization efforts.

Drawing from many sources, our team built and validated an agency-wide asset inventory and condition assessment to determine backlog and capital funding needs over a 20-year span. Our team facilitated a workshop with HRT's TAM steering committee to establish an asset management action plan (list of prioritized asset management activities) for the next 4 years and coordinated assembly of plan components in a timely fashion, preparing it for review by senior leadership and approval by the top executive officer.

Project Challenges

Implementing the TAM plan required simultaneously developing processes and deliverables on three fronts to create the 4-year asset management action plan:

- Set an asset management policy framework aligned with the strategic plan, mission, and vision and defining roles and responsibilities for key senior staff
- Perform TAM maturity and asset management gap assessments
- Develop an asset inventory and condition assessment to determine the agency's backlog, capital funding needs for the next 20 years, and recommendations for prioritizing capital investment, given funding constraints

The Hampton Roads Transit Asset Management Plan sets a policy framework for assessing inventory and evaluating needs

Solutions and Outcomes

We developed our project implementation plan within schedule, meeting quality standards and the TAM rule requirements. We met project goals by subdividing various project elements among subgroups within our team, based on competency and experience. All subgroups operated with an extremely high level of coordination due to the interdependence of the tasks.

Throughout the implementation process, our team consulted with FTA headquarters to confirm the validity of our approach. We completed the project on time and within budget when HRT's president and CEO signed the fully compliant TAM plan on August 28, 2018.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
a.	Jacobs	Boston, Massachusetts; Baltimore, Maryland; Washington, DC	Prime Consultant

SECTION G:
KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL *(From Section E, Block 12)*	27. ROLE IN THIS CONTRACT *(From Section E, Block 13)*	28. EXAMPLE PROJECTS LISTED IN SECTION F *(Fill in "Example Projects Key" section below before completing table. Place "ü" under project key number for participation in same or similar role.)*									
		1	2	3	4	5	6	7	8	9	10
Ross Kaneko, PE	Principal-in-Charge/Project Manager	✓									
Abbey Mayer, AICP	Project Manager/Transportation Planner	✓	✓				✓		✓	✓	
Tung Le	Project Manager/Traffic Engineer	✓	✓	✓			✓				
Nick Ching, PE	Project Manager/Traffic Engineer	✓									
Kristen Nishimura, AICP	Project Manager/Environmental Planner										
John McKenzie, PE	Project Manager/Civil Engineer				✓	✓					
Richard Laver	Transit Asset Management Program Manager										✓
Angela Villar, PE	Task Manager/Civil Engineer				✓						
Jamey Dempster, AICP	Transit Planner/Project Manager			✓							
Victor Rivas	Asset Management Specialist										✓
Brin Owen	Payment Systems Specialist						✓				
Brian Shinn, PE	Civil/Transportation Engineer	✓									
Heather Fujioka	Travel Demand Modeler	✓	✓	✓					✓		
Miya Akiba	Transportation Planner	✓							✓	✓	

29. EXAMPLE PROJECTS KEY

NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)	NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)
1	Honolulu Rail Transit Project, Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii	6	Moderating Oahu's Traffic Conditions, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, Hawaii
2	Waiawa Pearl Highlands Rail Station Multimodal Access Improvement Study, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, Hawaii	7	Transit Facilities Master Plan (FMP), King County Metro, Seattle, Washington
3	Rail Activation, Operations, and Maintenance Support for Honolulu's Integrated Public Transportation System, City and County of Honolulu, Department of Transportation Services (DTS), Honolulu, Hawaii	8	Kihei Sub-Area Transportation Study, County of Maui, Department of Public Works, Kihei, Hawaii
4	RapidRide I Line, King County Metro, Cities of Renton, Kent, and Auburn, Washington	9	Hawaii Statewide Transportation Plan, Hawaii Department of Transportation (HDOT), Statewide, Hawaii
5	SR 522/NE 145th Street Corridor Bus Rapid Transit (BRT), Sound Transit, Seattle, Washington	10	Hampton Roads Transit Asset Management (TAM) Plan, Hampton Roads Transit (HRT), Norfolk, Virginia

SECTION H-I:
ADDITIONAL INFORMATION AND AUTHORIZED REPRESENTATIVE

H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUIRED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

1 | FIRM INFORMATION

ABOUT JACOBS

Jacobs is committed to global sustainability, which is exemplified in how we operate our business, how we perform our work, how we partner with clients and other organizations, and how we continue to look at ways to make a positive environmental, societal, and economic difference for businesses, governments, and communities locally and around the world.

At Jacobs, we are invested in making the world a better place—from addressing water scarcity and aging infrastructure to ensuring access to life-saving therapies and protecting against sophisticated cyberattacks—what we do is more than a job, it's an investment in the success of our clients, communities, and future generations. Therefore, we bring a thoughtful and collaborative approach to every one of our partnerships and help our partners make a positive impact on the world. Regardless of project size, we use best practices to provide a comprehensive and proactive approach to any project and deliver our clients' vision of success.

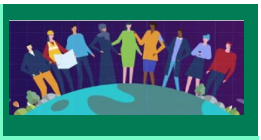
Jacobs Operations: Leadership on Climate Change

In April 2020, we published our first Climate Action Plan, committing to 100% renewable energy for our operations in 2020 and net zero carbon for our operations and business travel by 2030. Alongside achieving our 2020 targets, we developed science-based carbon-reduction targets for our direct and indirect emissions, approved by the Science-Based Targets Initiative.

In FY20, we saw a 33% reduction in total, calculated carbon emissions (Scopes 1 and 2 and a portion of Scope 3) to 116,466 tCO2e, as well as a 50% reduction in our travel-related carbon emissions—compared to our updated FY19 baseline. Most of these emissions reductions directly resulted from changes in operations due to the pandemic. We also outlined how we will start to bring climate uncertainty into the mainstream as part of our enterprise level risk assessment process, in line with recommendations made by the Task Force for Climate-related Financial Disclosure (TCFD).

Our ESG Disclosures Report provides supplementary information regarding our environmental, social, and governance (ESG) performance, organized according to the Sustainability Accounting Standards Board (SASB) framework.

Our Commitment



Jacobs provides several online reports detailing our policies and plans related to sustainable business practices, including:

- **Jacobs Climate Action Plan** captures the shared passion and pride of our people as we work to preserve our planet for future generations
- **Jacobs Sustainability Strategy** (2018-2020) sets out our plans for integrating sustainability into our business
- **Jacobs Sustainability Reports** detail our progress toward our goals, going back to 2009

Sustainable Solutions for Clients

Together with our clients, we craft solutions that affect the way people live. From accelerating the next generation of innovators to developing the world's first ultra-low emission zone, and from helping communities recover to protecting public health by monitoring water quality, we solve for better, never losing sight of our responsibility to each other. For example:

- Alongside Shell Pipeline Company, we turned more than 96,000 plastic bottles into a natural infrastructure solution helping protect Louisiana's shrinking coastline and serving as a model for balancing coastal infrastructure integrity and an evolving natural environment
- Transforming space waste into building blocks for future exploration and sustainability, our innovative solution for beneficial reuse of heat-resistant materials also eliminated $50,000 in disposal costs at Kennedy Space Center
- Employing digital twin technology and simulations, we helped one confidential, private-sector client reduce energy consumption by 33% using control-logic operational improvements
- Through safely managing one of the world's-largest remediation programs, the Central Plateau at the U.S. Department of Energy's Hanford Site, we've cleaned up more than 19.3 billion gallons of groundwater to date—supporting the overall mission of protecting the Columbia River

DIVERSITY, EQUITY, & INCLUSION

At Jacobs, we do things right, we challenge the accepted, we aim higher, and we live inclusion. In the face of these challenging times, we must focus on resilience, strength, and connection to emerge stronger, together. We, like you, are committed to diversity in employment and to increasing contracting opportunities for certified Disadvantaged, Minority-Owned, Women Owned, Emerging Small Business (D/M/W/ESB) enterprises. In addition to meeting requirements for subcontracting, we work closely with our D/M/W/ESB partners to identify appropriate, meaningful, and significant roles—with a commitment to truly deliver value on those scope assignments and promote a more inclusive workforce for future generations.

Our Cultural Competency/Diversity Training Efforts

Jacobs is committed to improving our talent management and development processes by distributing training, professional development, career advancement, and mentoring equitably across the company. A sampling of how we achieve this includes:

Jacobs Employee Networks (JENs). Our eight, active networks represent more than 23,000 employees, working to promote inclusion and equality companywide. These employee-led and organized groups are centered around offering opportunities to collaborate with others around the world and continuously develop a safe workplace where employees can be their authentic selves. A few examples include our Women's Network, Prism, Harambee, and Careers Network JENs' collaboration with human resources to appoint the first female executive vice president in the company's history; install gender-neutral bathroom facilities in offices; provide leadership development programs to accelerate advancement for black employees to mid- and senior-level leadership; and increase hiring to total 959 interns and 873 graduates globally.

Diversity in Succession Planning. We're developing all our talent to confirm we have broadly diverse candidate and succession pools and preparing our globally talent for more senior roles. Our Women's Network and Harambee JENs play a strong role in providing monthly career development presentations, regularly posting internal leadership positions, and being a constant advocate for diversity at all career levels, companywide.

Employee and Leadership Development Training. Jacobs offers more than 30 new Inclusion & Diversity eLearning courses for all employees to help advance awareness. Nearly all our employees (98%) have completed conscious inclusion training to develop the skills necessary to foster a more inclusive and diverse workplace. We also annually offer executive internships where young employees can partner with executive leaders to increase their business acumen and broaden their professional expertise across all career types.

Professional, Executive, and/or Technical Staff Comprising Women and/or Minorities

Having a culture of belonging where everyone can join in and thrive allows us to recruit and retain the best global talent and drive innovative solutions for our business, clients, and communities. That's why in a company of more than 60,000 professionals, our diversity counts are at:

Companywide		Jacobs' Northwest Region (including Hawaii)	
60%	**55%**	**31%**	**17%**
Executive Team	Board	Women	Minorities

We are continuously striving to increase our diversity counts by setting a goal to achieve a 40-40-20 gender-balanced workforce around the globe (40% men, 40% women and 20% open to any gender) over the next five years.

Processes used to Recruit Women and Minorities. Jacobs actively recruits woman, minority, disabled, and veteran applicants at all levels. This is achieved by posting promotional opportunities; assisting employees in identifying promotional opportunities, tuition reimbursement, training, and educational programs to enhance promotions and opportunities for job rotation or transfer; and evaluating job requirements for promotion.

A Culture of Service

Jacobs is an Industry Liaison with the Better Business Bureau (BBB), where we partner with local agencies and firms to foster STEAM career paths in Hawaii. Jacobs has partnered with the City and County of Honolulu, University of Hawaii, Department of Education, and local firms to outreach to K-12 students.

Company Initiatives to Promote Opportunities and Encourage Community Inclusion and Outreach Efforts

Company Initiatives to Advance Community Inclusion. Over the last year, we have seen tangible examples of progress from our approach to inclusion, the most remarkable being the launch of our global Action Plan for Advancing Justice and Equality. Driven by members of our Black employee network, Harambee, in partnership with our executive leadership team and Jacobs' board of directors, the plan sets out actionable initiatives and measurable objectives to address embedded and systemic racial inequalities both within Jacobs and in comm unities across the world. Other recent diversity and inclusion achievements include:

Jacobs Equality Matching Campaign. Launched the Jacobs Equality Matching Campaign, matching up to $100,000 of employee donations to eligible causes dedicated to inclusion, equality, and justice around the world.

Incentivize and Reward Inclusive Leadership. Created the global TogetherBeyond Inclusive Leader of the Year Award to incentivize and reward inclusive leadership.

Joined the Business Coalition. This group of more than 270 leading U.S. employers—including many of our clients—support passing federal legislation providing the same basic protections to LGBTI+ people as those afforded to other protected groups under U.S. federal law.

Position on the NSBE Board of Corporate Affiliates. We have a goal to strengthen our commitment to developing and hiring the best diverse talent with organizations like the U.S. National Society of Black Engineers (NSBE), the U.S. Society of Hispanic Professional Engineers (SHPE) and Building Equality, the U.K. construction industry's leading LGBTI+ alliance. This year, we were proud to take our place on the NSBE Board of Corporate Affiliates—their top national support level—and we are proud to have one of our leaders, Freddie Fuller, currently serving as National Chair of the Community of Minority Transportation Officials (COMTO).

The Valuable 500. We joined the Valuable 500, an organization seeking to place and keep disability inclusion on business leadership agendas across the globe.

Outreach Efforts for Underserved Communities. Successful team inclusion relies on developing relationships within the consultant community. Inclusion begins when individuals build rapport, understand each other's strengths and experiences, and identify mutually beneficial opportunities to pursue. We believe the strength of Jacobs' inclusion strategy and plan is centered around continuously building these relationships, which all begins with outreach—networking to make those initial connections that eventually lead to successful project delivery.

Our Plan to Obtain Maximum Utilization of Small Businesses

As a prime consultant, our responsibility is to share work won through large contracts with smaller firms. To that end, we continue to nurture our partnerships with the small, diverse businesses who can provide the experience and resources we need to deliver our projects. Our strategy is focused on building valuable partnerships and capacity for our partner firms. We develop an inclusion plan specific to each project, balancing the project's needs with inclusion goals. Jacobs has a long history of supporting and serving as mentors for small businesses in Hawaii.

Mentoring, Technical, or Other Business Development Services We Provide to Previous or Current Small Business Subcontractors or Partners

For Jacobs, inclusion is about more than meeting percentage goals. Mentoring is simply the natural progression of our relationships with our subconsultants, which builds their expertise, broadens their network, and strengthens their business acumen. We customize our approach to the unique needs of each relationship based on the specific challenges and desired outcomes. For each task order, we collaborate with the appropriate subcontractors to develop a technical approach and establish budget and schedule controls. We assess each subcontractor's workload and availability to deliver quality work products within the schedule. We develop staffing plans for each assignment, drawing on our D/M/W/ESB team members to provide meaningful growth opportunities for future work, reflecting our understanding and commitment to client's small business goals. We create opportunities using these and other approaches:

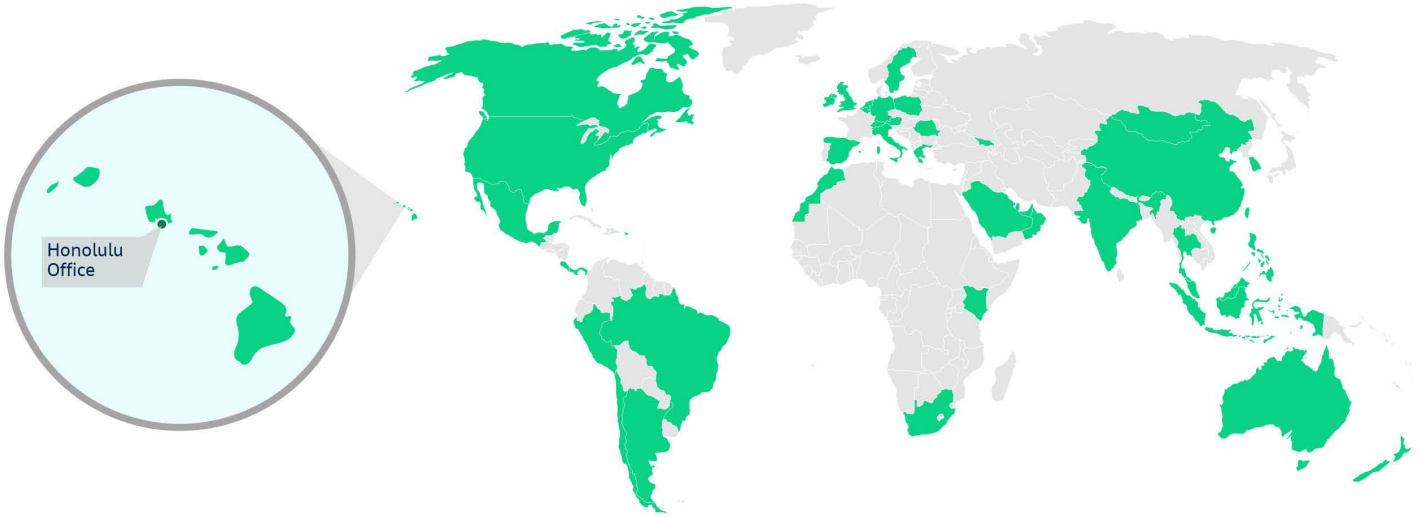
- Mentor D/M/W/ESB staff by delegating project management duties for small projects to our partner firms. In addition, production and senior technical staff across all partner firms are available for quality control and mentoring roles
- Provide meaningful and substantial roles on all work orders or contracts to leverage and develop our partner's capabilities
- Provide opportunities for thought leadership. Our D/M/W/ESB partners bring unique perspectives, and we capitalize on this to deliver broadly informed projects, plans, and policy to our clients

PRINCIPAL PLACE OF BUSINESS AND OFFICE LOCATIONS

Jacobs first project in Hawaii started with the design of the new Kihei Sewer Treatment Plant and Kihei Sewerage system in 1971. Since then, we have been dedicated to delivering complex projects and providing world-class expertise to our Hawaii clients. We primarily serve our clients with locally-based engineers, planners, and scientists in our Honolulu office, who provide a vast range of specialized expertise in transportation, water, wastewater, and environmental engineering, in all project phases—from planning to construction. Our full-service capabilities allow us to provide holistic and comprehensive professional services that can be customized and scaled to deliver projects large or small. Our local teams are frequently supported by industry experts, who bring best practices and lessons learned from delivering projects around the world.

Jacobs' first office was opened in Maui, located behind the old Kahului Railroad Station. The Maui office hosted OMI's Contract No. 1 in collaboration with former Mayor Arakawa.

Jacobs Office Locations



400 offices in **40+** countries **60,000+** employees worldwide **100+** local employees

2 | AGE OF THE FIRM AND AVERAGE NUMBER OF EMPLOYEES

Founded in 1947, Jacobs leads the global professional services sector delivering solutions for a more connected, sustainable world. With more than 60,000 professionals worldwide, we provide a full spectrum of services including scientific, technical, professional, and construction and project management for business, industrial, commercial, government and infrastructure sectors. Over the past five years, we have had **approximately 54,716 employees on average**.

3 | EDUCATION, TRAINING, AND QUALIFICATIONS OF KEY MEMBERS

Please refer to **Section E** for the education, training, and qualifications of our key members proposed for this contract. Upon project award, we will collaborate to provide a comprehensive team with the skills and understanding of island environments necessary to successfully deliver high quality work products.

4 | CLIENT REFERENCES

Our goal is to meet or exceed the expectations of our clients, collaborating to deliver high quality work products and services that achieve our clients' goals and visions.

Recent notable Hawaii projects we are involved in include, but are not limited to:

- ✓ Honouliuli WWTP Phase 1A, 1B, 1C, and Biogas Upgrades, City and County of Honolulu (Ongoing)
- ✓ Kamehameha Highway Wastewater Pump Station Upgrade Project, City and County of Honolulu (Ongoing)
- ✓ Hawaii Bridge Program, Central Federal Lands Highway Division (Ongoing)
- ✓ Waimea WWTP Clarifier Modification, Hawaii American Water (Ongoing)
- ✓ Mauna Lani Sewage Pump Station 1a Upgrades and Force Main 1A Replacement, Hawaii American Water (Ongoing)
- ✓ NPDES Storm Water Technical Training, City and County of Honolulu (Ongoing)
- ✓ Strategic Planning, Environmental, and Permitting Services, Hawaiian Electric Company (Ongoing)
- ✓ Facility/Infrastructure and Environmental Architect Engineering Services, Air Force Center for Engineering and the Environment (Ongoing)
- ✓ Construction Management Services for Airfield Maintenance and Repair Projects Statewide, HDOT (Ongoing)
- ✓ Kahului Airport Apron Pavement Structural Improvements Phase II, Kahului Airport, HDOT (Ongoing)
- ✓ Hawaii Statewide Transportation Plan, HDOT (Ongoing)
- ✓ Oahu Regional Transportation Plan, Oahu Metropolitan Planning Organization (Ongoing)
- ✓ Interstate H1 Eastbound (EB) Improvements Ola Lane Overpass to Likelike Highway Off-Ramp, HDOT (Ongoing)
- ✓ Honolulu Rail Transit Project, Multiple Contracts, HART (Ongoing)
- ✓ Moderating Oahu's Traffic Conditions, City and County of Honolulu (Ongoing)
- ✓ Integrated Solid Waste Management Plan, County of Kauai (Ongoing)
- ✓ Construction Management Services for Runway 8L Widening and Miscellaneous Improvements, Phase 2, Daniel K. Inouye International Airport, HDOT (Ongoing)
- ✓ Lahaina Wastewater Reclamation Facility Modifications, Stage 1A, County of Maui (2021)
- ✓ Waianae WWTP Improvements and Upgrade, City and County of Honolulu (2021)
- ✓ Kamehameha Highway Wastewater Pump Station Force Main Replacement, City and County of Honolulu (2021)
- ✓ Honouliuli WWTP Outfall Condition Assessment, City and County of Honolulu (2020)
- ✓ Kalaupapa National Historical Park (NHP) Electrical System Rehabilitation, National Park Service (2020)
- ✓ National Environmental Policy Act (NEPA) Compliance for Construction of a Distributed Common Ground Station Pacific Hub at Joint Base Pearl Harbor-Hickam, USACE Honolulu District (2020)
- ✓ Lahaina WWRF Odor Control Project, County of Maui (2019)
- ✓ Integrated Solid Waste Management Plan, City and County of Honolulu (2019)
- ✓ Construction Management Services for Runway 8L Widening and Miscellaneous Improvements, Phase 1, Daniel K. Inouye International Airport, HDOT (2019)
- ✓ Kaneohe-Kailua Sewer Tunnel, City and County of Honolulu (2018)

We are proud of the services we have delivered to our valued Hawaii clients since 1971. For more information, we encourage contacting our current client references:

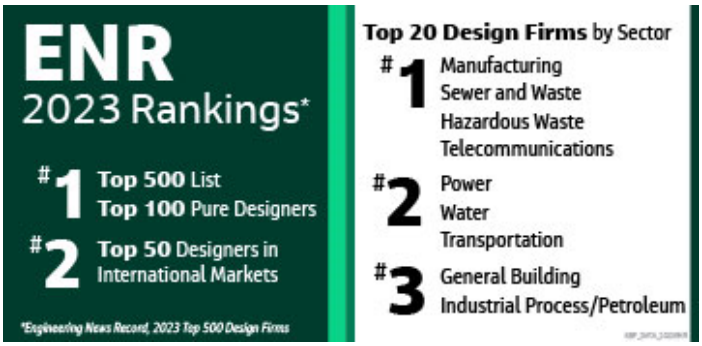
Client Name/Title/Organization	Organization	Contact Information
Ken Tatsuguchi * Head Planning Engineer	Hawaii Department of Transportation (HDOT), Highways Division	808.587.1830
Jon Nouchi * Deputy Director	City and County of Honolulu, Department of Transportation Services (DTS)	808.768.8304
Wai Yi Ng* Environmental Manager	Honolulu Authority for Rapid Transportation (HART)	808.768.6128
Kim Suzuki * Wastewater Engineering & Construction Division Assistant Chief	City and County of Honolulu, Department of Environmental Services (ENV)	808.768.8410
Benton Ho * Facilities Maintenance Section Head	Hawaii Department of Transportation (HDOT), Airports Division	808.836.6411

* Currently rendering services for

5 | PROMOTIONAL OR DESCRIPTIVE LITERATURE

The following pages highlight a selection of services we can provide. Further information on included or additional services is available upon request. This section contains details on the following services:

- Community Planning
- Transportation Planning and Design
- Rail and Transit Services
- Climate Change, Sustainability, and Resiliency
- Renewable Energy
- Civil Engineering
- Environmental Compliance
- Program and Construction Management Services



COMMUNITY PLANNING

In planning and developing any system, Jacobs first works with the client's staff to analyze the dependability and limits of the existing system and to identify future wants and needs. The analysis of need must consider regional needs, development scenarios, domestic vs. industrial flows, inflow/infiltration issues, and operating constraints; a simple projection of recent population growth and wastewater flows is neither realistic nor acceptable.

Computer simulation is often effective for identifying future system facilities required to accommodate projected flows and for providing data that can be used successfully to reduce energy usage and the associated costs. Wastewater engineering specialists, urban planners, and economists are all members of the team that Jacobs organizes and combines with utility staff to analyze current conditions and to accurately predict future growth and service requirements.

Based on the size of a community, its needs and time constraints, applicable regulations, geographic conditions, and public attitudes, Jacobs' personnel develop alternatives for services to meet short- and long-term needs for wastewater collection and treatment. Participation of client staff and the public is essential to selecting the most technically and economically feasible options for meeting existing and future needs. After client approval, the recommended plan provides a basis for decision-making on the use of existing facilities, design and construction of new systems, and the acquisition of land or water rights. Jacobs strives to provide a master plan that will successfully meet the needs of both the client and the people it serves.

Regulatory compliance is an integral aspect of facility planning work. Jacobs works closely with clients to create a complete picture of decision processes, to develop the most complete description possible for the proposed project and related approvals, and to determine which approvals will affect the project. The identification of key players and their concerns will be central to this effort. To address potential problems that could delay the project, we will need to fully understand who is involved in every decision that will be required during the project life cycle. Regulatory processes often are delayed because key persons or agencies were not identified as participants in the initial planning process.

Jacobs' Honolulu staff have a unique mix of experience in the preparation of federal environmental documents under the NEPA and Hawaii Revised Statutes Chapter 343, and in the preparation and processing of permits and approvals under federal jurisdiction.

Jacobs' environmental planning and permitting work has included EAs for six exploratory wells for the Honolulu Board of Water Supply: Halawa Nonpotable, Kalihi IV, Punalu'u III Addition, Wahiawa II Addition, and Whitmore Exploratory wells. We have also completed numerous projects involving linear utilities and infrastructure. Clients in this arena have included the City and County of Honolulu, the U.S. Army Corps of Engineers, the Hawaiian Electric Company, Hawaii Electric Light Company, and the Maui Electric Company.

Our Honolulu staff also have extensive experience in Hawaii environmental documentation and review under Chapter 343, Hawaii Revised Statutes and in State and local permitting processes. We have been involved in utility facility siting studies, public involvement programs, agency consultation, strategic planning services, and permit assistance.

Environmental planners in our Honolulu office are experienced in developing innovative and flexible approaches and methodologies that are tailored to each project and that integrate technical requirements with the realities of community opposition, political agenda, and agency practices in processing permits and approvals. We recognize that practical experience and local knowledge are indispensable to developing an appropriate strategy to acquire permits and approvals. In this regard, we provide strategic planning and management consulting services to our clients based on actual project experience in Hawaii to achieve the client's objectives.

TRANSPORTATION PLANNING AND DESIGN

Jacobs provides a comprehensive team with exceptional experience in transportation planning and design. Jacobs provides a full range of services essential in transportation engineering planning and design, including multimodal transportation planning, traffic operations and impact analysis, transit planning and design, roadway, and site design, as well as environmental assessment and permitting. Some of these services are highlighted below.

Transportation Planning

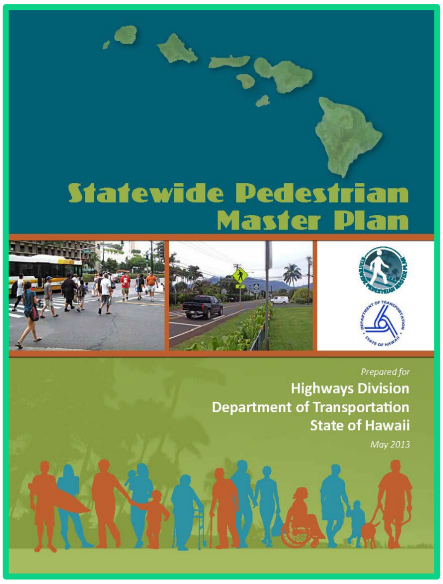
Jacobs provides a full range of transportation planning services from localized to comprehensive statewide plans, functional planning, modal integration, and travel demand modeling with over 1,500 transportation planners and engineers. We approach transportation planning projects from an overarching viewpoint integrating many disciplines including funding, safety, land use, security, sustainability, economic vitality, and operations. Given the increasing financial, environmental and land constraints, we understand that it is not possible to simply build our way out of congestion. We stress that agencies, communities, engineers, and planners must all work as partners to innovatively and strategically invest in improvements that create an efficient, seamless multi-modal system.

Jacobs Transportation Experience

- **20+** years of transportation planning in Hawaii
- **40+** transportation plans and studies completed in Hawaii
- **100+** bus rapid transit projects
- **1500** transportation planners and engineers
- **1,000** rail and transit professionals
- **20** years as FTA's Project Management Oversight Consultant (PMOC)

Jacobs helps communities create plans that are **community driven, right-sized, adoptable, and implementable**. Our integrated multidisciplinary approach applies a full range of multimodal experience, from planning through implementation. When coupled with our commitment to understand and advance local values, this translates into solutions that are tailored to the needs of each individual community.

We understand that no two communities are alike, so we offer unique solutions. Our project managers and staff are committed to active listening and a solutions-oriented approach. We begin by clearly defining the problem, opportunities, and constraints, as well as the community's values and goals. We then translate those conditions into solutions that will work, engaging the public in each step to create ownership in the plan. For example, on the **HDOT's Statewide and Regional Federal-Aid Highways 2035 Transportation Plans for the Districts of Maui, Hawaii, and Kauai**—three different districts and very different places—we began by understanding the local vision and transportation goals and then used them to develop a policy framework and evaluation criteria for the projects and programs. While the steps were the same, the process to achieve them and outcomes are different for each Plan. We also use public involvement specialists from each district – they know their communities best.



Jacobs has successfully delivered many transportations system plans, corridor plans, sub-area plans, long-range transportation plans, and freight, bicycle, and pedestrian plans. The integration of our planners, public involvement specialists, and engineers means we can help any sized agency anticipate how to get a plan adopted or a project built. We can also bring to bear the thought leadership we've used in other planning work, such as making the case for health benefits due to active transportation, which we've done in the **Statewide Pedestrian Master Plan and the Hawaii Pedestrian Toolbox**. The Statewide Pedestrian Master Plan is the first in the nation to have statewide, pedestrian-only focus, and is the recipient of the **2014 National Planning Excellence Award for Transportation Planning** by the American Planning Association (APA) and the 2013 Transportation Award by the APA, Hawaii Chapter.

In today's economic climate, creativity and efficiency are critical. Our range of expertise creates the conditions for both. Our civil design and engineering staff know the relevant standards inside and out, allowing agencies to predict issues and phase projects strategically. Our planners have the political acumen to confirm plans get adopted. Finally, our collaborative partnerships broaden our range of expertise even further. We shape project teams to add value for our clients—even (or especially) on projects where budgets are tight, and expectations are high.

Planning and Environmental Linkages (PEL). Jacob's innovative approach involving our PEL expertise will enable our team to develop a project solution that our clients can implement to address the needs of a corridor or an area, while maintaining the natural context of the area. Jacobs prepared the Planning & Environmental Linkages Handbook for the Colorado Department of Transportation. The Handbook was developed in coordination with FHWA and is used as a resource by many other agencies. Our approach is to model the PEL Process Flow Chart, including the four required FHWA Coordination Points. Our PEL approach will reduce the duplication of work by conducting detailed quantitative and qualitative environmental resource analysis at the planning stage. Our team is also experienced in advancing Innovation and in FHWA's Every Day Counts initiative and will look for opportunities to apply them to any improvement project.

Long-Range Planning. Jacobs has experience with long-range planning at all levels from city comprehensive plans all the way to state transportation plans. As an organization that is involved at all levels of project delivery, we bring a unique perspective to plan prioritization and performance measurement as well as innovative ideas for future transportation funding strategies.

Travel Demand Modeling. Jacobs is on the cutting edge of technology in the development, maintenance, and utilization of travel demand models. The depth of our capabilities allows for development of any of the major modeling platforms. Our technologists are also adept at creating user specific interface suites that integrate travel demand model data with other analysis tools and applications including geographical information systems (GIS). Our experiences in creating, enhancing, and validating travel demand models has yielded the knowledge of applying project and policy sensitivities to travel demand models and ensuring their practical implementation. We have built and applied modeling applications in all major travel demand modeling software platforms including Emme, TransCAD and VISUM.

Our modeling team has experience working on travel demand modeling projects for a range of clients including state Departments of Transportation, cities, counties, and Metropolitan Planning Organizations (MPO). We have worked on a wide range of projects including comprehensive plans, corridor studies, sub-area development, transit ridership forecasts, as well as long range plans. In all cases our approach is the same—we right size the analysis to help answer the questions being asked.

In addition to travel demand modeling, our modeling team is also experienced in the relatively new field of Dynamic Traffic Assignment (DTA) modeling. DTA is adding a new range of capabilities to supplement traditional travel demand modeling tools in the analysis of things ranging from the impacts of construction on the transportation system to traffic diversion impacts from tolling. DTA tools offer more flexibility than simulation models in the modeling of larger transportation systems but can include things like queuing and departure time choice that traditional travel demand models can't. Our experience in macroscopic and microscopic modeling has helped our technologists with the transition to new DTA modeling tools such as Dynus-T and Dynameq.

Traffic Impact Analysis/Traffic Studies. From small private developers to state departments of transportation, Jacobs provides traffic impact analyses. We offer a range of analysis tools and capabilities suitable for various facility types, multi-modal travel, specific project context, and intended audience. Jacobs conducts impact analyses studies for private and public developments, corridor and regional studies, transportation discipline reports, safety evaluations, access management and access point decision reports.

We are providing transportation planning and traffic engineering for the **Kihei Sub-area Transportation Study** in south Maui, developing short-term and long-term solutions to address multimodal mobility and congestion issues within the study area.

We have also just completed work on the **Multimodal Transportation Impact Assessment Guide**, which will provide direction on the scope and types of analyses required by the City and County of Honolulu when evaluating potential transportation impacts of a proposed City-driven project. The guide outlines a clear and consistent review process and is intended to assist City staff with implementing the Complete Streets Ordinance with a multimodal approach.

Asset Management. Asset management confirms that the right assets are created and managed, the overall cost of ownership is minimized, and the needs of the public and social, environmental, and economic responsibilities are met. Jacobs has developed a flexible methodology and tools to define a defensible, sustainable, risk-based strategy for managing assets at the desired level of service. Our approach is to define the optimal individual path toward better asset management resulting in sustainability. We can help you gain political and public support for the responsible spending needed to support the desired level of service. Jacobs has worked with HDOT to develop a **Transportation Asset Management Plan (TAMP)** that complies with the federal requirements under the Moving Ahead for Progress in the 21st Century (MAP-21) and FAST Act legislation. Jacobs has helped the HDOT establish an Asset Management Leadership Team to guide the implementation of asset management throughout the HDOT and to monitor the progress at every step and has also helped develop a data-driven Pavement and Bridge Management System that conducts the necessary life cycle analysis and performance scenarios for the TAMP.

Locally, Jacobs has successfully completed or is working on a wide variety of transportation planning projects, including:

- ✓ Hawaii Statewide Transportation Plan, HI
- ✓ Statewide Freight Plan, HI
- ✓ Statewide and Regional Federal-Aid Highways 2035 Transportation Plans for the Districts of Maui, Hawaii, and Kauai, HI
- ✓ City and County of Honolulu Multimodal Transportation Impact Assessment Guide, HI
- ✓ Bike Plan Hawaii Program Update, HI
- ✓ Statewide Best Practices for Traffic Impact Reports and Access Management Policies, HI
- ✓ Development of the HDOT's Complete Streets Policy, HI
- ✓ Update of the Guide for Public Involvement, HI
- ✓ Federal-Aid and State Highway Update: System Identification and Functional Classification, Statewide, HI
- ✓ Statewide Pedestrian Master Plan and Hawaii Pedestrian Toolbox, HI
- ✓ Curbing Aggressive Driving Program, HI
- ✓ Kihei Sub-Area Transportation Plan, Kihei, Maui, HI
- ✓ Kapaa Transportation Solutions, Kapaa, Kauai, HI

Our team leads projects of many sizes and levels of complexity. Together with the work of other firms on our team, Jacobs offers the breadth and depth of resources to address anything that comes our way, large or small. We are able to leverage thought leadership in other projects and deliver quality approaches that reflect the collective understanding Jacobs has by selectively engaging senior resources, in the areas of active transportation, project development, landscaping and streetscape enhancements, benefit and cost assessment, implementing code, and intersection safety. In addition, we have protocols to verify all deliverables are routinely reviewed by senior planning and engineering staff. These measures allow us to provide quality deliverables within budget.

Roadway/Site Civil Design

Jacobs provides a comprehensive team with exceptional experience in transportation design. We understand the interdependent relationship between the community and the transportation system, so we approach civil transportation design from a context sensitive perspective. We strive to balance the needs of the transportation system users with the values of the community, while keeping safety and mobility for all modes of travel at the forefront. It is important to find the appropriate balance between all modes of travel. The success of civil transportation design requires a team with extensive experience, and an in-depth understanding of transportation design, construction methods, and the O&M needs of staff. We provide a comprehensive team with exceptional experience in civil transportation design, including intersection design and improvements, bike and pedestrian paths, traffic control measures, plans, specifications, and estimates (PS&E), traffic and intelligent transportation systems (ITS), utilities, and drainage. Our team comprises people who bring solid engineering judgment and the ability to communicate effectively with the County of Hawaii, as well as partnering with agencies and the public. Our team provides an unmatched depth of staff, and a comprehensive inventory of skill sets for any transportation design project within the State of Hawaii.

Local presence combined with regional resources. We can dedicate staff as needed when they are needed. Our Honolulu office location confirms that we can meet face-to-face with County of Hawaii's staff as often as necessary. In addition, our staff has good working relationships with other agencies, which assist in any research, coordination, or permitting that may be needed. Our local resources are supported by national expertise in traditional and specialty subjects, such as Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and active transportation.

Comprehensive services and proven project management approach. Our services range from conceptual design and feasibility studies to design, inspection, and construction management. We combine our expertise in the full range of transportation and environmental engineering as appropriate to provide our clients with timely, comprehensive, and cost-effective solutions. Our approach to projects is based on our Project Delivery System (PDS), a clear, cost-effective management approach with the flexibility to accommodate change and resolve problems. We will use this approach to consistently deliver quality projects that are completed on budget and on schedule.

Commitment. Our team is committed to providing the County of Hawaii with high-quality services and efficient project delivery. We understand that cost and budget are important issues and that you are accountable to the residents of Hawaii. Our team will look for innovative solutions and cost savings, no matter the size of the project.

Context Sensitive Solutions (CSS). Jacobs is a leader in a new approach to engineering studies – CSS. This approach, as documented in *FHWA Flexibility in Highway Design,* urges designers to explore an open, interdisciplinary framework, which leads to transportation solutions that consider safety, mobility, and the preservation of scenic, aesthetic, historic, environmental, and other community values. CSS involves a collaborative, interdisciplinary approach in which citizens are part of the project team. We have assisted our clients through workshops, open houses, and technology tools to collect, group, and prioritize public information and build public consensus.

Sustainable Development. For Jacobs, building sustainable systems begins with a clear set of foundation principles and involves a thorough analysis of requirements for all the processes and people that will touch the system. Most importantly, Jacobs recognizes the fact that **people,** not **technology**, make systems work, and we pay careful attention to the political, cultural, and educational aspects of the systems we build. We developed a sustainability rating system for roadways. We led the development of INVEST for FHWA (www.sustainablehighways.org) and partnered with the University of Washington to develop Greenroads (www.greenroads.us). Greenroads is a rating system to distinguish more sustainable new, reconstructed, and rehabilitated roads. It awards credits for approved sustainable choices/practices and can be used to ceritfy projects based on total point value.

Greenroads

Greenroads provides: (1) a holistic way of considering roadway sustainability, (2) a defined and quantitative means to assess roadway sustainability, and (3) a tool for decision-makers, agencies, consultants, and contractors that enables informed design and construction decisions regarding sustainability. To see more about Greenroads visit **www.greenroads.us**

Greenroads was jointly developed by the University of Washington and Jacobs and is currently operated by the Greenroads Foundation.

INVEST identifies the characteristics of sustainable highway development via a web-based self-evaluation tool. INVEST considers the full life cycle of projects and has three modules to self-evaluate the entire life cycle of transportation services, including system planning (SP), project development (PD), and Operation & Maintenance (O&M). Each of these modules is based on a separate collection of criteria and can be evaluated independently. The tool is intended to provide a method for practitioners to evaluate their transportation projects and to encourage progress in the sustainability arena.

INVEST Sustainable Highways Self-Evaluation

INVEST (Infrastructure Voluntary Evaluation Sustainability Tool) was developed by FHWA as a practical, web-based, collection of voluntary best practices, called criteria, designed to help transportation agencies integrate sustainability into their programs (policies, processes, procedures, and practices) and projects. While the use of INVEST is voluntary, it can be used by transportation agencies, such as DOTs, MPOs, Council of Governments, public works departments, and their consultants and partners, to evaluate and aid the integration of sustainability into their programs and projects.

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To see more about INVEST, visit **www.sustainablehighways.org**

Roadway/Site Civil Design. Jacobs routinely provides roadway and site civil design as part of our full-range engineering design services for infrastructure and facility projects. These services include the design of local roadways through full-access control freeways and interchanges, the design of multi-modal facilities; traffic calming; traffic signalization and vehicle maintenance and corporation yards. Our experienced professionals are especially adept at developing layout solutions that minimize environmental impact, reduce required earthwork, take advantage of natural terrain features, adapt sites to natural drainage patterns, and provide safe and efficient facilities. Our roadway and site civil design services include:

Roadway Design. We provide design services for both new facilities and reconstruction of existing facilities, ranging from local streets to freeway facilities and interchanges across the nation. Our engineers are cognizant of applying context to all designs and incorporate it into geometric, modal, and roadside design decisions – and work closely with clients to provide them with sustainable facilities relating to the environment, construction, use and maintenance.

Pavement Design. We provide comprehensive pavement analysis, design, and management services. Our engineers excel in pavement reconstruction and new pavement design for flexible and rigid materials in any climatic environment. Our services include pavement evaluation, plate bearing, nondestructive testing, materials classificationanalysis, visual condition surveys and system-wide management of pavement conditions for maintenance prioritization.

Drainage Design. We have proven ability and expertise in storm drainage services. We understand, through hundreds of projects for municipalities and local and state transportation agencies that storm drainage management continues to evolve, and that managing the changes to this significant aspect of stormwater control is extremely challenging. In response, we bring a unique breadth and depth of planning, engineering, and scientific expertise to help you manage these challenges effectively. We practice effective study and implementation of stormwater BMPs and policies. We lead the industry in low-impact development practices, and we are experts in NPDES permit requirements and processing.

Traffic Signal Systems. We design traffic signal and signal system solutions that improve overall performance and facility efficiency. Our engineers provide traffic and pedestrian signal design, interconnect systems, transit priority treatments, and advanced traffic/driver information systems.

Traffic Calming. We plan and design traffic calming measures to preserve neighborhood safety and livability and are cognizant of the conflicting viewpoints and sensitivities involved with traffic calming solutions. We have implemented various approaches to traffic calming solutions to gain public awareness and acceptance of measures and have prepared guidelines outlining specific measures and procedures for implementation.

Non-motorized facilities. We have been involved in numerous pedestrian and bicycle trail projects that have addressed community consensus-building, bridge aesthetics and type selection, environmental issues, permitting, bike sharing program, micromobility infrastructure and construction over sensitive waterways.

Utility Management. Our UMS provides full services designed to support the management of your organization, and to help maximize your utility's value and contribution to the community. UMS helps utilities deal with the difficult management challenges you face today, from managing assets to enhancing system performance.

Civil Design. We provide engineering and design services in geotechnical, structural, industrial, mechanical, and electronic systems, vehicle maintenance and vertical facilities, fare collection, train control, trackwork, and traffic engineering. Our design experience includes road and track alignment, utility relocation, right-of-way, traffic signal and signage plans, and station architecture.

Visualization. We are the leader in cutting-edge visualization. Visualization is a tool that can solve many roadblocks during a project's life while creating an image of the project. We have used visualization for numerous projects. These displays have led to quick and cost-effective decisions and consensus building.

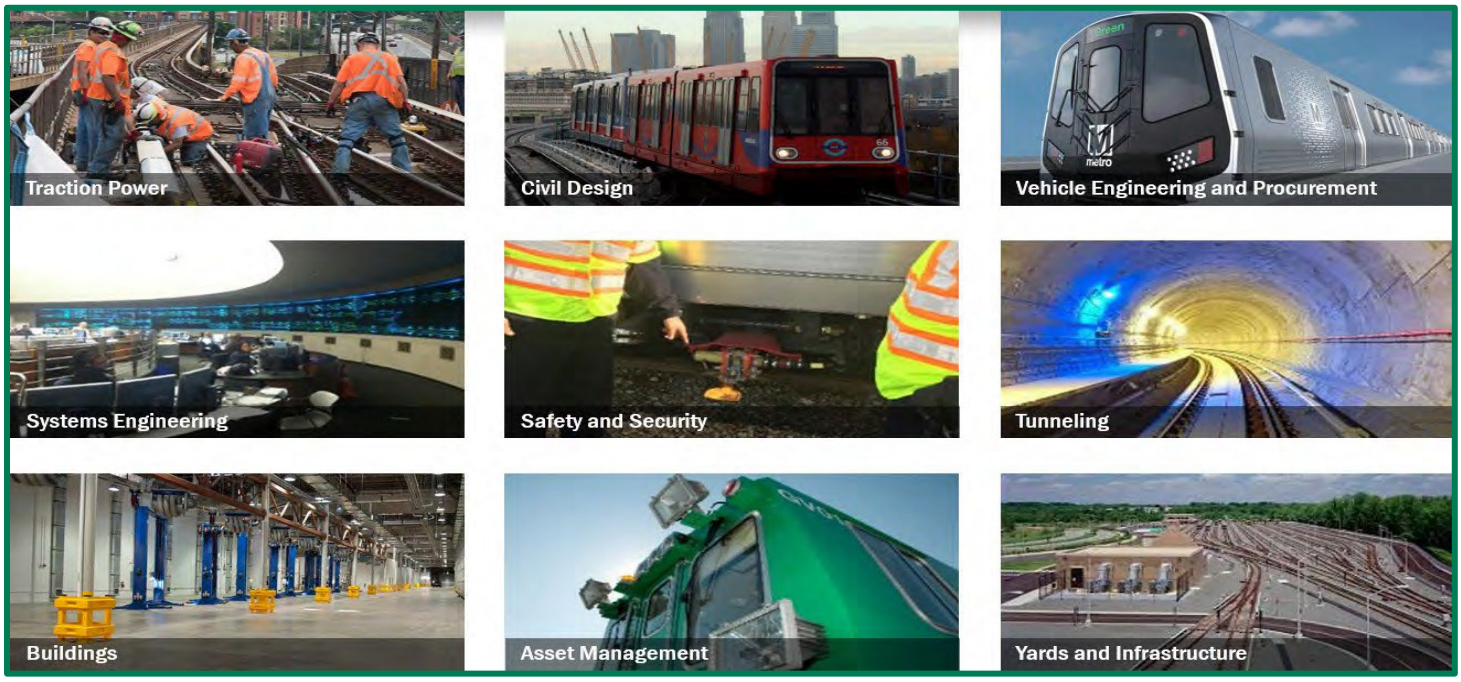
RAIL AND TRANSIT SERVICES

Jacobs offers several services and global technology benefits, as listed below. We provide a broad range of expertise and deliver our client's most complex investment requirements across different mass transit and transportation markets.

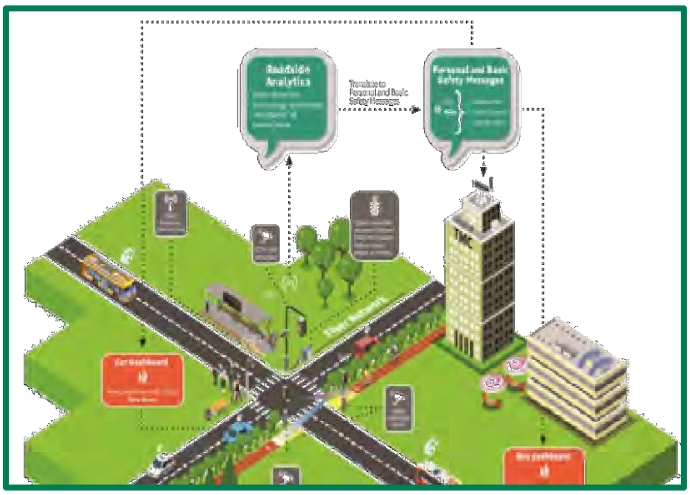
- Asset management
- Engineering design
- Environmental documentation
- Facility master plans
- Feasibility studies
- Intermodal facilities
- Intelligent transportation systems
- Management consulting
- Operations and maintenance
- Program and construction management
- Reliability assessment and optimization
- Revenue collection systems
- Safety and security, including cyber security
- Station, platform, and maintenance facilities
- Train control and communications systems
- Value engineering
- Vehicle engineering and procurement
- Zero-emission fleets

Jacobs has extensive experience with the top 30 transit agencies in North America. From buses and streetcars to light rail and high-speed rail, we deliver innovative, cost-effective solutions to move projects from initial concept to successful completion and operation. We have provided value engineering (VE) and planning services on more than 50 light rail, heavy rail, and bus rapid transit projects across the country. We offer VE services for high-occupancy vehicle (HOV) lanes, roadways, arterial streets, transit malls and centers, bus maintenance facilities, park-and-ride facilities, and mass transit systems.

Jacobs excels at delivering global expertise through local resources. With our integrated team of professionals, we have been instrumental in successfully delivering some of the world's leading public transport systems throughout North America, the United Kingdom, the Middle East, Asia, and Australia. We combine global knowledge with local understanding to identifykey drivers. We deploy our true, full-service portfolio; one of the best in the industry to help achieve community, business, and environmental goals.



Providing Essential Mobility for Commuters, Families, Students, Older Adults, and People with Disabilities



Public transportation systems, valued as some of the most equitable and sustainable modes of transportation, connect communities and help stimulate economic development. Expanding these complex systems and adding more advanced solutions, such as high-speed rail, to meet public demand can be an intricate, high-intensity ride.

Whether your journey includes keeping pace with capacity building and accelerating technology innovations, ensuring safety and security, or maintaining transport networks, we can serve all aspects of high-speed and conventional passenger rail, freight and logistics, mass and public transit, and innovative bus solutions. We're a globally recognized leader in the safe and efficient delivery of rail and transit solutions from planning, design and development to delivery and management.

Our more than 1,000 rail and transit professionals worldwide with the right mix of engineering, regulatory and business expertise thrive on working with clients to design and manage their most challenging capital improvement projects, hone vehicle and facility assets and put technology and safety programs into practice that keep people on the move and enhance the rider experience. Our record of successfully providing safe, innovative, economic, and sustainable solutions on major passenger and freight projects is enhanced by the expertise of our staff, many with extensive experience as employees of infrastructure managers, train operating companies, governments, and operating agencies. We blend this breadth of knowledge and depth of experience to deliver safe, efficient, constructible, operable, and maintainable transportation solutions.

Emerging Technologies and Digital Solutions

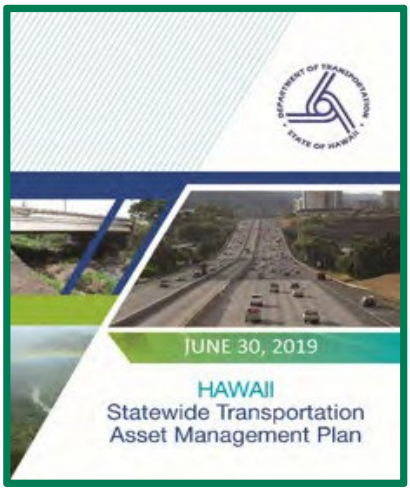
Jacobs' worldwide network of transit resources are available to help solve future transit problems by embracing new technologies and incorporating innovative transit concepts into solutions. We can provide expertise and guidance on:

- Connected and automated vehicles
- Field charging stations
- Intersections equipped with smart cameras
- Radio-frequency identification (RFID) systems
- RF/Voice Narrow banding
- Ultra-Wide Band (UWB)
- On-Board Video/Wi-Fi
- Distributed Antennas Systems (DAS)
- Adaptive Traffic Signal Systems

Bus Rapid Transit. Jacobs Bus Rapid Transit (BRT) system solutions bring fast, efficient congestion relief to areas where the cost and associated impacts of rail systems are not acceptable. With a focus on safe, clean, and convenient transportation, BRT solutions offer many advantages to communities. We use sound knowledge of traffic engineering, traffic forecasting, operational analysis, and street and highway design to identify site-specific conditions that promote BRT project solutions. Our engineers apply a proper mix of traffic planning and geometric design to provide optimal BRT systems.

We use cutting-edge technology, such as computer modeling and computer-operated traffic signal operation, control, and prioritization, to keep traffic moving smoothly along some of the country's busiest thoroughfares. These technologies are also used to design the BRT systems and high occupancy vehicle (HOV) lanes that maximize traveler throughput and reduce travel times. We design the BRT programs to increase transportation system capacity by providing attractive alternatives to private vehicles, supporting desired urban development patterns, improving the transportation linkages between urban core areas and dispersed employment centers, and improving the mobility in large metropolitan centers.

For the BRT design, we use priority lanes, enhanced bus stations, and cleaner and quieter vehicle technology to give buses the same features of rail at substantially lower cost. Dedicated bus lanes, traffic signal priority systems, and special access ramps on existing roads and freeways allow the BRT vehicles to speed past traffic congestion providing fast and reliable travel. We also design the BRT systems to maximize use of existing facilities and deliver proper integration with current land use policies.



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We provided Hampton Roads Transit consulting support to develop its first agency-wide **Transit Asset Management (TAM) Plan** to meet the recently instituted Federal Transit Administration's TAM Rule reporting requirements. Drawing from many sources, we built and validated an agency-wide asset inventory and condition assessment to determine the agency's backlog, and capital funding needs over a 20-year span.

CLIMATE CHANGE, SUSTAINABILITY, AND RESILIENCY

The recent Intergovernmental Panel on Climate Change (IPCC) Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC), and NOAA report as well as the recent literature in which they are based, continue to point to the importance of incorporating climate resilience into public infrastructure planning. Actionable climate science is required to drive decision making in infrastructure decisions as well as a clear application of that science onto local conditions, for local solutions. Jacobs' global team of experts can help cities, utilities and communities respond to the localized effects and impacts of higher sea levels:

- Forecasting & Scenario Planning: defining appropriate planning horizon and climate scenarios according to level of service goals and risk tolerance
- Vulnerability and Risk Assessment: defining exposure to hazards with different probabilities and quantifying vulnerability and risk for assets, facilities as well societal and economic impacts
- Planning, Evaluating, Designing, and Implementing Adaptation Measures: from evaluation of costs and risk reduction benefits of multiple solutions to design, construction and implementation of those solutions and appropriate emergency response plans
- Financial Assistance Support Services: identifying and applying for grants available for assessment of risk, hazard mitigation, hazard prevention and disaster recovery

Increasing climate uncertainty has serious implications for our water, infrastructure, and ecosystems. Such uncertainty also challenges the ability of planners, resource managers, engineers, and scientists to make risk-smart decisions. The long-term sustainability of our water supplies, flood management systems, infrastructure, and food systems all rely on the ability to make defensible, science-based assessments of climate-related risk.

Jacobs works with clients to assess climate risk as part of an overall risk profile, determine climate risk tolerance, and develop sound, incremental adaptation actions that balance climate risk with other priorities. Our services help clients identify and manage climate related risks to industry, agriculture, power, water, and transportation infrastructure, flooding and drainage, and water supplies.

Creating Climate Resilience

We help clients develop Climate Resilience strategies using a tested scenario planning process. The outcome: management plans with balanced, step-by-step responses to potential change—sequenced to meet community needs and constraints. Armed with these strategies, planners and managers have the tools to support flexible, reliable, and sustainable services through coming decades.

Helping Clients Manage Water Resources to Protect Our People, Infrastructure, and the Environment

Our clients face many challenges centered around water security and infrastructure resiliency. Flooding, drought, sea level rise, and erosion threaten our infrastructure, ecosystems, and way of life. Our clients need to prepare for these challenges so that critical services and infrastructure—such as water supply, power, and transportation networks—are protected, maintained, and restored. We apply state-of-the-art modeling and analytical techniques to understand the probabilities of these hazards occurring and we develop responses to protect vulnerable assets. Jacobs manages the complete built and natural water cycle to enable water security in times of drought, as well as integrated stormwater management and green solutions to improve water quality and minimize flooding risks. Similarly, we plan and design the restoration of habitats to deliver a range of environmental, social, and economic benefits. Our work includes climate change adaptation, flood protection plans, flood infrastructure engineering, integrated water resources management plans, coastal protection and restoration programs, irrigation projects, and blue-green infrastructure designs.

Our sustainability and resiliency projects require integrated solutions to help our clients address complex issues like permitting, competing water demands, climate change, extreme weather events, environmental improvements, aging infrastructure, and funding. Whether it helps clients manage water resources, mitigate flooding risks, protect, and restore the water environment, or modernize their infrastructure, Jacobs delivers tailored solutions worldwide.

Example Projects

- ✓ Kiribati Island Adaptation Plan, South Pacific. Land reclamation project, with land use and urban development plan to address rapid urbanization, limited water supply, and risk of flooding from king tides.
- ✓ TEAM2100, United Kingdom. Leading delivery of the first 10 years of the 100-year program to inspect, maintain, and upgrade flood defenses to London.
- ✓ Colorado River Basin Study, Wyoming, Colorado, Utah, New Mexico, Arizona, and California, USA. Comprehensive study and roadmap to improve water supply security considering municipal, industrial, and agricultural water conservation and reuse and water transfers.
- ✓ Seawall Resiliency Project, San Francisco, California, USA. A 10-year, $40 million project to reduce seismic and flood vulnerability, protecting infrastructure and historic city assets.
- ✓ Northern Victorian Irrigation Modernization Program, Australia. A modern, efficient, real-time, low-energy, automated irrigation system.
- ✓ Coastal Hardening Adaptation Planning and Design, New York City, New York, USA. Developed resilience designs and guidelines for wastewater infrastructure to address impacts of future climate change and population growth.
- ✓ Active, Beautiful and Clean Waters Program, Singapore. Innovative approach to stormwater control, creating flood resiliency projects with social, economic, and environmental benefits.
- ✓ Mississippi River Mid-Basin Sediment Diversion Program Management, Louisiana, USA. Diverting sediment to build and sustain land that has been lost due to erosion in coastal Louisiana.
- ✓ Onondaga County Green Infrastructure Program, Syracuse, New York, USA. Nine-year Green Infrastructure Capital Improvement Program to reduce 250 million gallons of combined sewer overflows annually.

RENEWABLE ENERGY

Our renewable energy, energy storage, and microgrid capabilities are centered around project development from initial steps through conceptual design and procurement, helping us to define the project. We lean on 50+ operating renewable energy projects where Jacobs created the initial designs and specifications. We leverage the depth of Jacobs' global renewables team's experience to deliver end-to-end solutions that are customized to our clients' most ambitious goals:

- Reduce carbon emissions
- Achieve 100% renewable energy goals
- Improve facility power reliability
- Identify and mitigate solar project development risk
- Balance project cost and technical reliability

Our capabilities span renewable technologies of solar, wind, hydro, in-line hydro, biomass, methane capture, pump hydro and battery storage systems, and community-based renewable energy.

Key Capabilities and Services

- Owner's engineer
- Program management and scheduling
- Risk identification and mitigation
- Site constraint identification
- Solar and storage technology evaluation
- Conceptual layout
- Utility routing and interconnection
- Class 1, 2, and 3 cost estimating
- Master planning
- Microgrid sizing lead evaluation planning
- Plant performance and economics
- Procurement package support
- Bid review and selection of EPC contractor
- Construction oversight and monitoring
- Performance testing and commissioning review
- Environmental planning and permitting
- Designs, plans, and specifications
- Training, technical support and O&M

CIVIL ENGINEERING

Jacobs brings industry-leading experience that includes general engineering, hydraulics, storm water improvement, transportation, wastewater, and solid waste collection and disposal. While we can perform these individual services well, Jacobs excels in providing comprehensive planning and problem solving within the context of multiple regulatory drivers, financial limitations, and public perception. We collaborate with our clients to holistically address your needs and build on your systems of planning, inspection, maintenance, financing, public acceptance, and regulatory compliance.

Coastal Engineering

Jacobs is a world leader in coastal and maritime engineering, balancing the need to provide resilient coastlines with the development of multi-functional, innovative coastal habitats, to deliver sustainable prosperous coastal environments. Throughout its history the firm has remained at the forefront of coastal and maritime engineering, coastal management and planning, and the analysis of coastal processes. Our large team of coastal engineering specialists and scientists, primarily based in the U.S., U.K., and Middle East, has a long history of successfully delivering coastal projects around the world. They are supported by GIS analysts, economists, environmental scientists, river engineers, surveyors, geologists and geotechnical engineers, business planning, finance and contract, and other specialists from within the wider Jacobs.

Our expertise covers all aspects of work in the coastal zone, encompassing integrated coastal management commissions, including flood and erosion hazard definition; strategic risk management; planning and design of shore protection projects; and consideration of sea level rise impacts. Additionally, Jacobs' expertise extends to coastal habitat and wetland restoration, coastal resilience and adaptation, and coastal and offshore developments. Jacobs' engineering capability covers all forms of marine design. For structural protection approaches, we are experienced with seawalls, groins, nearshore breakwaters, revetments, embankments, and many other forms of coastal and maritime structures.

Jacobs understands this and brings industry-leading expertise in developing a fundamental understanding of processes and conditions when developing resilient and sustainable solutions. We have invested heavily in a wide range of industry standard numerical models and have developed software tools to assist both our clients and our staff in managing and monitoring the terrestrial and marine environment. We have an in-house numerical modeling team who use one, two, and three-dimensional modeling platforms, including bespoke software that Jacobs has developed and commercial software packages such as Delft3D/Deltares and DHI's MIKE Suite of models. Jacobs also provides expertise in the design and supervision of physical model test programs.

We have significant expertise in applying this understanding of natural processes to a wide range of projects in the coastal and marine environment. Our experience includes projects involving:

- Dredging and reclamation
- Coastal flood and erosion risk management/storm damage reduction
- Strategic planning
- Project planning and design and supervision of coastal defense schemes
- Planning, appraisal, design, and construction of maritime infrastructure such as ports, marinas, outfalls, and marine renewable devices
- We offer a fully comprehensive consultancy service including all the planning, economic, environmental, engineering, and project management skills required to successfully model erosion and inundation hazards, conduct vulnerabilities assessments, and develop shoreline inundation projections to provide the strategic environmental assessments necessary to protect Hawaii

Our broad team of climate scientists, coastal engineering specialists, and climate adaptation leaders has a long history of successfully delivering coastal projects around the world. They are supported by GIS analysts, economists, environmental scientists, river engineers, surveyors, geologists and geotechnical engineers, finance and contract, business planning, and other specialists from within our considerable Jacobs staff.

Design Services

We offer the full range of architectural and engineering design services. Often the design of a transfer station or MRF begins with a feasibility study of potential facility sizes and locations, the preparation of a design-basis report, facility concepts, and the evaluation of concepts against sets of design criteria. After our specialists establish the functional requirements and performance standards for transfer stations, they develop preliminary and final site plans, floor plans, grading and paving plans, drainage plans, parking, and landscape design. Other design features include:

- Size of building
- Operational use of building
- Station layout
- Waste unloading
- Peak quantities
- Peak traffic use
- Traffic routing, queuing modeling
- Recycling unload area
- Alternative drop-off recycling configurations
- Compaction
- Mechanical equipment selection
- Transportation equipment compatibility
- Materials recovery
- Sewer and leachate handling facilities
- Site stormwater features
- Material flow
- Handling efficiency
- Tipping floor configuration
- Walking floor
- Site power, site lighting
- HVAC, process ventilation
- Safety features
- Customer service
- Operational efficiency
- Operator safety

ENVIRONMENTAL COMPLIANCE

Environmental engineering and compliance services have been an integral part of Jacobs' business for almost 60 years. Jacobs is well-versed in and experienced with environmental laws and regulations, including the Clean Water Act; Clean Air Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and Toxic Substances Control Act.

We understand the intricacies of the National Environmental Policy Act (NEPA), the Safe Drinking Water Act, the Endangered Species Act, the Native Graves Protection and Repatriation Act, the Federal Insecticide, Fungicide, and Rodenticide Act, and National Pollutant Discharge Elimination System (NPDES).

Our Honolulu office has over 25 years of experience in:

- Environmental Planning and Permitting
- Phase I and Phase II Environmental Site Assessments
- Site Characterization

This extensive experience includes a wide range of projects from site assessment to complete site closures and remedial actions.

Environmental Planning and Permitting

A variety of federal, state, and local rules and regulations require preparation and implementation of plans, and maintenance of supporting documentation. This is applicable to both operating and planned facilities, as well as remediation sites. On behalf of our clients, Jacobs:

- Conducts due diligence studies associated with biological, archaeological, and cultural resources
- Prepares environmental planning documents, including Environmental Assessments, Environmental Impact Statements, and Habitat Conservation Plans
- Prepares permit applications ensuring compliance with federal, state, and local regulations
- Provides planning and permitting services for alternative energy facilities (Jacobs is currently providing permitting consultancy services for a wind energy facility on the island of Maui)
- Prepares supporting documentation required under recordkeeping and reporting or training requirements
- Provides tools for managing and visualizing information (such as GIS and numerical modeling)

Jacobs has performed hundreds of studies and designs and developed plans for hazardous waste management. Based on this experience, we apply lessons learned to each new project to continually improve our accuracy and efficiency, while minimizing the impacts on an installation's operations.

Phase I and Phase II Environmental Site Assessments

Jacobs has extensive experience conducting and preparing Phase I and Phase II environmental site assessments (ESAs), to evaluate a property's environmental conditions and assessing potential liability for contamination as part of real property transfers or acquisitions, while meeting American Society for Testing and Material (ASTM) standards. These standards meet the requirements of All Appropriate Inquiries (AAI) under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) for federal, industrial, and municipal clients.

We are a leader in developing innovative and cost-effective approaches for our clients requiring Phase I ESAs as part of the acquisition of a high volume of properties. The configuration of large-scale data processing methods and analysis tasks allows Jacobs to utilize workflows that automate as many components as possible for Phase I ESA analysis and development. This data management and automation approach allows for the compilation of enterprise data warehouses and development of turn-key report production, resulting in production efficiencies and schedule enhancements.

Site Characterization

We plan our site characterization efforts by focusing on our clients' business objectives. We develop site closure strategies that meet regulatory requirements, conform to long-term management goals, and accommodate technology constraints. We understand that effective and timely communication among the key decision makers—who represent the technical and regulatory aspects of the project—is a critical success factor.

We help clients save money and time by focusing site characterization efforts on the goal of rapidly moving toward cost-effective site closure through:

- Using innovative characterization strategies that focus the investigation toward only the data needed to support remedial decision making
- Acting as our client's advocate while providing effective regulatory interaction and negotiation
- Using innovative field-testing methods to streamline investigations and reduce analytical costs

We have prepared hundreds of feasibilities and corrective measure studies to support remedial planning and engineering work. We have developed streamlined approaches to save our clients time and money in the evaluation of alternatives and the preparation of regulatory documents.

Our approach to conducting feasibility studies focuses on developing the most cost-effective approach to site closure that is acceptable to stakeholders, while protecting human health and the environment. We accomplish these savings with innovative technical approaches and legal, regulatory, and stakeholder knowledge and advocacy; then integrating these approaches with value engineering, constructability, and life-cycle cost principles provides further savings.

Our experience with feasibility studies ranges from simple, streamlined evaluations to full USEPA-required studies, including alternatives incorporating existing plant facilities at no capital cost to remediation costs that exceed $100 million. Our personnel have evaluated, pilot-tested, designed, or implemented virtually every remedial technology available to date. This allows us to focus on cost-effective solutions based on previous, successful results.

Our characterization experience is multimedia in nature and includes extensive experience with a range of contaminants, from chemicals introduced by commercial, government, and agricultural sources to naturally occurring materials and radionuclides.

We implement cost-effective field investigations by using technical approaches, investigation strategies, and procedures that support decision making with reduced analytical or sampling requirements. We make extensive use of field screening methods,where applicable, to reduce analytical costs and improve decision making in the field. We also use both "down-hole" and surface geophysical methods to understand subsurface site conditions in a cost-effectively manner. Jacobs has experience in classic data-collection methods and in using state-of-the-art techniques such as membrane interface probes, ROST™, and similar tools. These approaches provide real-time data evaluation, greatly reducing the need for multiple investigations. Statistically based sampling methodologies have been effectively used to reduce the number of samples needed to reach an agreed upon confidence level.

PROGRAM AND CONSTRUCTION MANAGEMENT SERVICES

Jacobs has been delivering full-service project management and construction management (CM) services since the firm's beginning. Our team's approach is to serve as an extension of our client's staff by managing contracts and representing the client's best interests. Open communication is key to understanding the client's definition of success and properly advise and guide client staff and project team members from the beginning of the project to ultimately deliver high-quality results on time and within budget. We also implement an integrated construction management approach that provides continual review of the quality of deliverables, schedule adherence, and budget performance. In recognition of this partnership, we consistently are ranked among the industry's top CM firms by *Engineering News-Record*.

In addition, our team has successfully implemented best practices from around the globe right here in Hawaii. Most notably, Jacobs has been collaborating with the State of Hawaii Department of Transportation (HDOT) and federal regulating agencies to recover overrun schedules and manage complex sequencing or construction management/inspection projects at the Kahului Airport, Lihue Airport, and Daniel K. Inouye International Airport.

Effective Project Control Systems Are the Backbone for Managing the Construction Process

Jacobs follows documented and proven CM processes that incorporate knowledge of construction as well as best practice techniques we have learned in 70 years of project delivery. Our CM staff is experienced in the latest versions of web-enabled project management systems to provide project controls for monitoring real-time project performance. However, we strive to be "technology neutral" when it comes to industry-leading software. We work closely with each owner to select project controls systems that best fit your project's needs. That includes adapting to a client's preferred software.

A project control system is composed of several processes and collaboration tools that assist in day-to-day managing of the project. These tools are tied together through a web-based portal and provide a mechanism for analyzing and sharing data and making informed decisions. Our project control system includes a project status dashboard system that monitors and reports performance at every stage of the project.

Award-Winning Taxiway Z Reconstruction at HNL

HDOT-A and Jacobs partnered to deliver the award-winning Taxiway Z Reconstruction project at Daniel K. Inouye International Airport. Together, HDOT-A and Jacobs coordinated the completion of 24 separate construction phases to reduce the operational impacts to the airport and the airlines, while also meeting FAA compliance.

Detailed phasing drawings were key to complete this project well ahead of schedule and allowed HDOT-A to add more reconstruction areas at the end of the project. This project was recognized in 2017 as the ASCE Hawaii Section Outstanding Engineering Award and the APWA Hawaii Chapter Public Works Project of the Year, Transportation.

The system includes the following functions:

- Contract administration
- Financial tracking/cost management
- Construction scheduling
- Quality management
- Invoicing and progress payments
- Earned value analysis
- Design management
- Reporting
- Procurement
- Resource management
- Document control
- Safety management
- Change order management
- Communications

Jacobs' CM teams use the project control system to provide easy and controlled access for all project team members. The system expedites the exchange of project documents, design submittals, and reviews; integrates cost with schedule; and manages the flow of documents.

The ability of all project team members to file and retrieve project documentation is critical to timely project delivery. Monthly reports can be generated and include information on progress, schedule, and cost performance; quality; safety; risk management issues; and up-to-date forecasts. A public information link could distribute appropriate information to the community and receive input on issues of concern.

QA Inspections/Special Inspections

Our onsite inspectors represent our clients. They are your eyes and ears in the field charged with verifying construction quality and helping to keep day-to-day project activities running smoothly and staying on schedule. Our experienced inspectors are onsite to quickly resolve issues, including design questions, contractor coordination, and quality concerns. These onsite inspectors verify that client construction quality goals and contractor obligations are met. We facilitate a smooth transition from design to construction and ultimately startup, and improve cooperation among owner, designer, and contractor. The result is improved quality at reduced risk and claims.

Our inspection scope of services includes the following tasks:

- Performing quality inspections of contractor's work, materials, and equipment
- Documenting construction progress with photographs
- Managing submittals, requests for information, and other documents
- Preparing daily and weekly status reports
- Reviewing drawings
- Preparing plans and specifications
- Coordinating efforts of subconsultants, such as additional inspection services, surveying, and special inspection and materials testing
- Coordinating with utilities
- Coordinating testing and startup of operation systems.

I. AUTHORIZED REPRESENTATIVE *The foregoing is a statement of facts.*	
31. SIGNATURE 	32. DATE June 30, 2023
33. NAME AND TITLE Ross Kaneko, PE, Client Account Manager	

PART II -
GENERAL QUALIFICATIONS

ARCHITECT–ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER *(If any)*

PART II – GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

2a. FIRM (OR BRANCH OFFICE) NAME	3. YEAR ESTABLISHED	4. UNIQUE ENTITY IDENTIFIER
Jacobs Engineering Group Inc.	1947	623838237

2b. STREET	5. OWNERSHIP a. TYPE
1003 Bishop Street, Pauahi Tower, Suite 1340	Corporation

2c. CITY	2d. STATE	2e. ZIP CODE	b. SMALL BUSINESS STATUS
Honolulu	HI	96813	

6a. POINT OF CONTACT NAME AND TITLE	7. NAME OF FIRM (If block 2a is branch office)
Ross A. Kaneko, PE, Client Account Manager	***Jacobs Engineering Group Inc.*** DUNS# 074103508

6b. TELEPHONE NUMBER	6c. E-MAIL ADDRESS
808.554.3791	ross.kaneko@jacobs.com

8a. FORMER FIRM NAME(S) (If any)	8b. YR. ESTABLISHED	8c. UNIQUE ENTITY IDENTIFIER

9. EMPLOYEES BY DISCIPLINE*

a. Function Code	b. Discipline	c. No. of Employees (1) FIRM	c. No. of Employees (2) BRANCH
002	Administrative	6322	9
006	Architect	1291	5
007	Biologist	221	9
012	Civil Engineer	1989	2
016	Construction Manager	1448	7
018	Cost Engineer/Estimator	572	2
021	Electrical Engineer	1834	2
024	Environmental Scientist	733	7
025	Fire Protection Engineer	119	1
029	Geographic Information System Specialist	351	2
030	Geologist	267	3
047	Planner: Urban/Regional	1031	4
048	Project Manager	5099	5
915	Project Controls	1350	19
914	QA/QC Specialist	999	8
939	Technologist	1066	2
060	Transportation Engineer	1870	2
062	Water Resources Engineer	902	6
	OTHER EMPLOYEES	33452	14
	Total	**60916****	**109**

10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL REVENUE FOR LAST 5 YEARS*

a. Profile Code	b. Experience	c. Revenue Index Number *(see below)*
B02	Bridges	10
C15	Construction Management	10
E11	Environmental Planning	10
E12	Environmental Remediation	10
H07	Highways; Streets; Airfield Paving; Parking Lots	10
U01	Unexploded Ordnance Remediation	2
R03	Railroad; Rapid Transit	10
S04	Sewage Collection, Treatment and Disposal	10
S13	Storm Water Handling & Facilities	10
T03	Traffic & Transportation Engineering	10
W02	Water Resources; Hydrology; Ground Water	10
S07	Solid Wastes; Incineration; Landfill	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS*

(Insert revenue index number shown at right)

a. Federal Work	10
b. Non-Federal Work	10
c. Total Work	10

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

1. Less than $100,000	6. $2 million to less than $5 million
2. $100,000 to less than $250,000	7. $5 million to less than $10 million
3. $250,000 to less than $500,000	8. $10 million to less than $25 million
4. $500,000 to less than $1 million	9. $25 million to less than $50 million
5. $1 million to less than $2 million	10. $50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE	b. DATE
	June 30, 2023

c. NAME AND TITLE

Ross A. Kaneko, PE, Client Account Manager

**The resources presented in this Part II represent the Jacobs Engineering Group Inc. family of companies inclusive of all Jacobs legal entities mentioned in this submittal.*

*** The total employee metrics were last updated in April 2023.*

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Jacobs

Challenging today.
Reinventing tomorrow.