CDM Smith

Bid Contact **Katy O'Brien-Connell**
obrienconnellkm@cdmsmith.com
Ph 804-377-2278

Address **2104 W Laburnum Ave, Suite 203**
Richmond, VA 23227

Bid Notes **CDM Smith looks forward to the opportunity to work with Broward County on your important transit-related projects.**

Item #	Line Item	Notes	Unit Price	Qty/Unit	Attch.	Docs
PNC2119955P1--01-01	General Planning Consultant Services for Transit Division	**Supplier Product Code:**	**First Offer -**	1 / lump sum	**Y**	**Y**
				Supplier Total	$0.00	

CDM Smith

Item: **General Planning Consultant Services for Transit Division**

Attachments

Evaluation Criteria 1_Professional Personnel.docx

Evaluation Criteria 2_Approach.docx

Evaluation Criteria 3_Past Performance.docx

Evaluation Criteria 4_Workload of the Firm.docx

Evaluation Criteria 5_Location.docx

CDM Smith Attachments.pdf



EVALUATION CRITERIA 1 –
ABILITY OF PROFESSIONAL PERSONNEL

Prime Consultant's Proposed Key Team Members

Enhanced mobility, linked communities, and alternatives to new roads are the catalysts for considering public transportation solutions. As an award-winning provider of transit-related services, CDM Smith applies in-depth industry knowledge, research, state- of-the-art planning tools, and creativity to communities everywhere. Our highly experienced team of transit specialists is supported by dedicated resources in environmental, statewide and multimodal, urban and land use, economics, economic community development, and sustainability planning. CDM Smith's planners recognize the importance of analyzing the total door-to-door trip and modal linkage and offer a full range of feasibility studies, scheduling, comprehensive operations audits, funding and grant applications support, strategic planning, land use and transit-oriented development, and traffic and travel demand services.

Our hand-selected team members provide a depth of General Planning Consultant (GPC) contract as well as transit-related task experience, both locally and from around the nation. We have chosen members, including our teaming partners, based on their location as well as their backgrounds in relevant services. This mix will provide the County the local, responsive service of a small firm as well as the diverse wealth of experience that only a large, nation-wide firm can provide. Our team members, outlined on the following page, have worked together on several similar contracts, such as the ones listed below. **Having worked together on numerous transit-related tasks around the country, our team knows how to collaborate with each other and the client to complete successful projects.**

Transit Planning & Engineering Support Services, FDOT Public Transit Office, FL

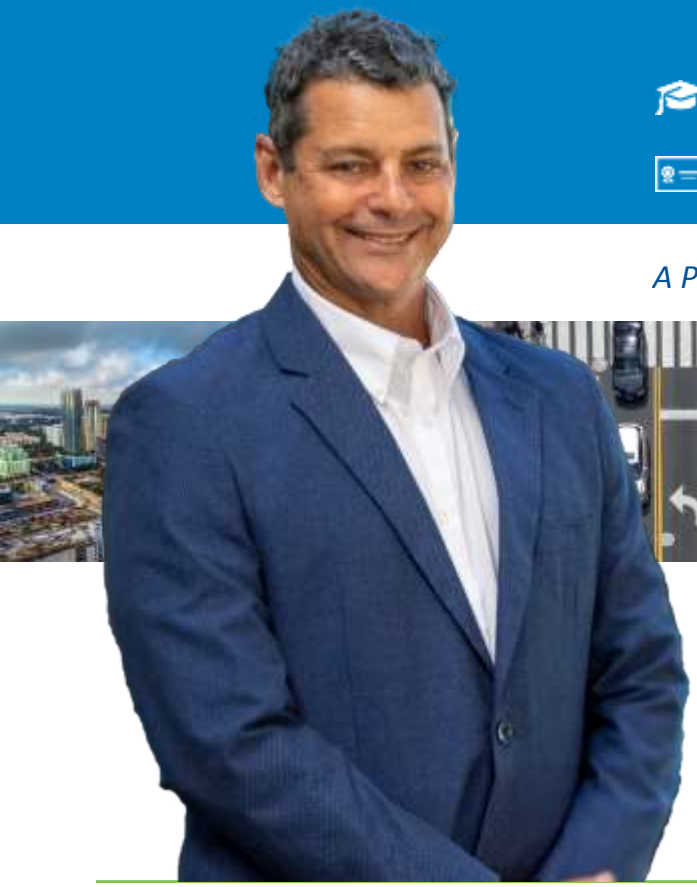
On-Call Transit Planning & Engineering Services, Chicago Transit Authority, IL

BRT Project Management & Engineering Services, Port Authority of Allegheny County, PA

Resumes for our project team members have been included at the end of this section.

As demonstrated in our attached resumes, our team members have experience successfully performing similar completing General Planning Consultant (GPC) contracts and/or other transit systems planning, analysis, and management projects nationwide.

Organizational Chart



Mark R. Pistiner, PE
Project Manager

Education: BS Civil Engineering

Registration/Certification/Licensing: Professional Engineer (FL)

A Proven Project Manager You Know and Trust to Deliver:

- ✓ 34 years of project management involving all aspects of transportation planning, design, and construction
- ✓ Senior level management of several bus rapid transit (BRT) and rail projects in South Florida
- ✓ Has completed more than 12 project development and environmental (PD&E) studies for FDOT

As a long-time resident of Broward County, Mark brings a high level of commitment to the County's projects

Mark has spent his entire career in South Florida, granting him long-term understanding of local conditions and regulations. He has forged strong relationships with County staff and local stakeholder agencies that will allow our team to integrate smoothly with your team and expedite decision-making. His local experience includes:

2019
Mark served as overall project manager and engineering lead for Miami-Dade County's Beach Corridor Rapid Transit project, a 12.5-mile fixed rail transit connection from Miami Design District to Miami Beach Convention Center.*

2018
As lead engineer and EOR, Mark was responsible for multiple critical design elements as part of the bid phase of the Wave Modern Streetcar. This project for South Florida Regional Transportation Authority (SFRTA) will provide a transportation alternative to the automobile trips within downtown Fort Lauderdale.*

2003
Under a GPC, Mark was project manager for Tri-County Commuter Rail Authority and SFRTA to assess the feasibility of providing rail and bus transit services in Miami-Dade, Broward, and Palm Beach counties. The scope involved planning and administrative efforts that were related to studies, projects, and agency activities.*

1991
Working directly with the County, Mark served as owner's representative for the construction of the 370,000-square-foot County Convention Center, a 2,500-vehicle multistory precast Port Authority parking facility, a $2M fountain plaza, $7M common area improvements, and $2M off-site roadway improvements.*

**Project completed while with a previous employer.*

Jenifer S. Palmer, AICP

Deputy Project Manager

Education: MS Public Administration; Masters Certificate in Urban and Regional Planning; BA Humanities and Critical Theory

Registration/Certification/Licensing: American Institute of Certified Planners (AICP)

A Multimodal Expert with Diverse Project Experience

- ✓ 13 years of expertise focused on large-scale federal Capital Investment Grant (CIG) program-funded transportation projects across the nation
- ✓ Experience in all major modes of transportation, including buses, BRT systems, heavy rail systems, roadway, and bicycle and pedestrian studies

Jen brings lessons learned from leading transit-related tasks for GPCs across the country!

Jen has worked on several transit agency, MPO, and statewide on-call General Planning Services contracts and understands how to manage and implement innovative and successful projects that meet and exceed client expectations. Her GPC and transit-related experience includes:

Florida Department of Transportation

For the Traffic Methodologies for BRT Projects, Jen led the team to develop methods for analyzing traffic impacts for transit projects and to streamline the planning, design, and implementation of multimodal projects between FDOT and transit agencies on BRT improvement projects.

Corridor studies • Service/operations planning • Traffic/transit engineering and modeling • Grants compliance/monitoring

Chicago Transit Authority

CTA Red and Purple Modernization. Jen was responsible for initiating and leading the simultaneous NEPA environmental classes of action for the phase one improvements, including development of two categorical exclusions and two environmental assessments.

Corridor planning/operations • NEPA/environmental • GIS • Public engagement/marketing

> "She [Jen Palmer] has been wonderful to work with, diligent, timely, people-oriented, and she has brought her valuable skillset and transportation knowledge to this project. The FDOT values her judgement and capabilities which will help bring better public transportation to the citizens of Florida."

Chris A. Wiglesworth, Transit Planner, FDOT Transit Office

> "NEPA lead Jenifer Palmer has been instrumental in successfully coordinating NEPA efforts and public involvement, and helping the CTA anticipate and address schedule issues and risks.

Michael Connelly, Vice President of Planning, CTA

Sub Consultant's Proposed Key Team Members

The CDM Smith team includes several teaming partners to provide an even greater depth and diversity of staff. Functioning as a seamless team, there will be no learning curve to our collaboration on projects, and their staff will serve in meaningful roles throughout the life of this contract. Resumes for our subconsultants have been included at the end of this section.

HBC Engineering

Traffic Engineering Services

HBC Engineering offers a unique blend of highly specialized and creative traffic and transportation engineers that handle assignments consisting of multiple simultaneous services including roadway design, traffic operations, transportation planning, mass transit, freight, TSM&O, ITS, 5G, and emerging technologies such as connected and autonomous vehicles, Smart infrastructure engineering, and Smart City and county systems. HBC Engineering provides transportation planning services including corridor and network microsimulation, regional network modeling, traffic projections, master planning, long-range multimodal systems planning, subarea/corridor planning, land planning/engineering, transportation statistics, policy planning, developments of regional impact (DRIs), parking studies, and ITS planning and implementation.

HBC Engineering's data collection capabilities are the envy of many traffic engineers in practice; they have 20 Miovision Scout Units with anonymous MAC Address readers, which allows them to perform origin-destination studies for a 20×20 matrix of locations for unlimited durations, and 24-hour unattended turning movement counts, all of which is electronically processed, thereby eliminating human error. They also maintain a full complement of road tube counters with EZ-Tubes to perform Average Daily Traffic counts with speeds and classifications. To assist in field reconnaissance and for queuing studies, HBC Engineering maintains a large drone and an FAA licensed pilot.

HBC Engineering is also a minority-owned, Florida-registered engineering consulting firm founded in 2006. They are certified as a DBE and SBE with Florida Department of Transportation (FDOT), as well as a CBE with Broward County, with a long history of successfully completed projects.

Holt Communications, Inc.

Public Involvement

Holt Communications is a South Florida based public involvement firm specializing in providing strategic communications, marketing, and public outreach services. Since 2006, the firm has delivered comprehensive communications strategies to meet public involvement needs of both public and private sector clients including Broward County Transit, the South Florida Regional Transportation Authority, Florida Department of Transportation, Palm Beach Transportation Planning Agency, Treasure Coast Regional Planning Council, Miami-Dade Expressway Authority, and Miami-Dade County Transportation and Public Works. The Holt Communications team has handled briefings with elected officials, stakeholder workshops for planning projects, public kick-off meetings, conflict resolution, daily public relations with traffic advisories to ensure that the public is aware of construction impacts, media availabilities, press conferences, groundbreakings, and ribbon cutting for signature projects.

Holt Communications is a Certified Disadvantaged Business Enterprise (DBE), Florida Statewide and Inter-Local Minority Business Enterprise (MBE), Broward County Business Enterprise (CBE) Broward County Small Business Enterprise (SBE) and a Miami-Dade County Micro/Small Business Enterprise (Micro/SBE).

Cyriacks Environmental Consulting Service, Inc. (CECOS)

Environmental Services

CECOS was formed in 2003 and provides high quality, professional environmental and ecological consulting services. CECOS has the expertise and staffing to provide high quality environmental services to meet your needs. CECOS provides a wide range of environmental and ecological consulting services including: environmental permitting, environmental monitoring/permit compliance, investigations and analyses of impacts to terrestrial, wetland and coastal marine resources in tropical and subtropical environments, threatened and endangered species surveys, and NEPA documentation. They have conducted numerous NEPA studies for infrastructure projects including transit, roadway and bridges, and airports and obtained numerous environmental permits from both the South Florida Water Management District (SFWMD) and USACE. For these projects, they prepared the NEPA documentation and provided support documentation, which could include natural resource investigations (i.e., wetlands – freshwater and marine, threatened and endangered species, and essential fish habitat), contamination, noise and air, and socioeconomic assessments.

CECOS is a 100% Woman-Owned Company and a certified SBE with the SFWMD. CECOS is a Florida Corporation with its corporate office located in Deerfield Beach, Florida.

Connetics Transportation Group (CTG)

Ridership Modeling and On-board Surveys

CTG is a transportation planning firm focused on improving the way communities move. While they are most well-known for their expertise in transit operations and service planning, CTG's multi-disciplinary team of planners, schedulers, modelers and data scientists brings a wealth of experience solving complex problems across all facets of the mobility spectrum. They develop data-driven solutions that are practical, implementable, and above all, community-inspired.

For ridership forecasts and modeling, CTG understands FTA's Capital Investment Grant criteria process and have ridership forecast and CIG analysis tools in place to help an agency understand a project's likelihood of obtaining these funds. CTG also develops and uses different methods of travel demand forecasting depending on the needs of the project. They have applied demand models to a wide variety of transportation plans, numerous traffic forecasting studies, master plans, and transit corridor projects.

Mark R. Pistiner, PE

PROJECT MANAGER; STATE OF FLORIDA/PD&E

Years of Experience: 34 **| Education:** BE – Civil Engineering **| Registration:** PE – FL

Mr. Pistiner is a principal project manager with more than 34 years of engineering experience. He assumes project management responsibilities for the conceptual and final design of major highways, bridges, rail transit systems, and bus rapid transit (BRT). Mr. Pistiner has substantial experience in final design and has completed 12 project development and environmental (PD&E) studies for the Florida Department of Transportation (FDOT) for both rail and PD&E including Categorical Exclusions (CE) through Environmental Impact Statements (EIS). He has participated extensively on FTA funded projects including all phases of the initial Tri-Rail start-up and all segment expansions through the $400M Segment 5 expansion. He has also been involved extensively with Miami-Dade's Metrorail and its Metromover APM.

Project Manager/Engineering Lead, Beach Corridor Rapid Transit Project, Miami-Dade County Transportation and Public Works, FL. Mr. Pistiner served as overall project manager and engineering lead for alternatives analysis (AA) and EIS for a 12.5-mile fixed rail transit connection from Miami Design District to Miami Beach Convention Center. He analyzed various modal technologies and alignments including heavy and light rail, monorail, streetcar, aerial cable car, personal rapid transit and bus rapid transit, development of cost estimates, public outreach to stakeholders, coordination with other SMART plan corridors, and land use charrettes. This project was completed while with a previous employer.

Lead Engineer/Engineer-of-Record (EOR), The Wave Modern Streetcar Design, South Florida Regional Transportation Authority (SFRTA), Fort Lauderdale, FL. The proposed Wave streetcar system will provide a transportation alternative to the automobile trips within downtown Fort Lauderdale, operating at-grade on a fixed rail and sharing the existing roadway right-of-way (ROW) with vehicular traffic. For Phase 1 of the $195M Wave Modern Streetcar project, 12 streetcar station stops were proposed. The streetcar route includes an off-wire segment on the Third Avenue bascule bridge crossing the New River. While with another firm, Mr. Pistiner was the lead engineer and EOR for multiple critical design elements as part of the bid phase of the project. Tasks included track alignment and design, wheel/rail interface, roadway reconstruction and resurfacing, traffic signal design, lighting, drainage, utility coordination, station area design, and vehicle maintenance and storage facility designs. Systems design included traction power electrification systems, substation design, communications and safety security systems, powered switch control, stray current corrosion control, and system integration. Structural engineering included final design for rehabilitation or reconstruction of the Third Avenue bascule bridge over the New River.

Civil Infrastructure Task Leader, North Corridor Metrorail Extension New Starts, Miami-Dade Transit, FL. This project involved final design and design services during construction for the North Corridor Metrorail Extension of the Miami heavy rail system. The 9.5-mile-long elevated, double-track rail extension includes seven stations serving the Northwest 27th Avenue corridor, northern Miami-Dade County, Opa-Locka, Miami Gardens communities, Miami-Dade College North, the Calder Race Track, and Dolphin Stadium. While with another firm, Mr. Pistiner was responsible for all infrastructure modifications including major utility relocations, major roadway modifications, station implementation with parking, and bus facilities as well as responsible for cost estimates.

Deputy Project Manager, Metrorail Extension/Multimodal Facility PD&E Study and Environmental Assessment (EA), FDOT District 6, FL. This project $100M project included a 1.2-mile extension of Metrorail, from the Hialeah Station to SR 826. As part of the Engineering Report, numerous alternatives were studied with emphasis on provided direct access connections from SR 826 such as C-D road implementation and weaving/merging analysis on the SR 826 mainline. This project also included a finalized electrified contact rail alignment and new station location and parking lot layout. This project was completed while with a previous employer.

Owner's Representative, Golden Glades Multi-Modal Facility Project, Miami-Dade County Transportation and Public Works, FL. As owners representative, Mr. Pistiner developed detailed capital cost and operating and maintenance (O&M) cost estimates for all necessary technical components for the Golden Glades Multimodal Transportation Facility (GGMTF) as well as review pertinent submittals from FDOT's project to upgrade the existing GGMTF. He was responsible for ensuring the ultimate facility is suitable for Miami-Dade operations as a turnkey project from FDOT as well the future

Mark R. Pistiner, PE

PROJECT MANAGER; STATE OF FLORIDA/PD&E

implementation of all systems engineering components to be designed and constructed by Miami-Dade. This project was completed while with a previous employer.

Project Manager Lehman Yard Wheel Truing Machine, Miami-Dade County Transportation and Public Works, FL. Mr. Pistiner served as overall project manager for development of an AA and design-build (DB) criteria package to implement a new automated underfloor Hegenscheidt double wheel underfloor wheel truing machine. This project analyzed multiple placement locations and considered major interior modifications to the existing vehicle maintenance facility. a cost estimate was developed at each alternative location and coordination was also provided with Hegenscheidt representatives to assist with the DB criteria package. This project was completed while with a previous employer.

Project Manager, Lehman Yard High Security Perimeter Fencing, Miami-Dade County Transportation and Public Works, FL. Mr. Pistiner served as overall project manager for development of a final design package to implement a new high security perimeter fencing around the Lehman Yard. This included final plans, specifications and permits for approximately 8,000 feet of high security perimeter fencing. Project challenges included resolution of ROW issues with FDOT, Florida Power and Light (FPL) and Miami-Dade County's Department of Environmental Resources Management (DERM), sheet piling along canal slope and conduit runs for a future CCTV system. This project was completed while with a previous employer.

Assistant Resident Engineer, Construction Engineering and Inspection (CEI) Services, Miami-Dade Transit, Miami-Dade County, FL. Prior to CDM Smith, Mr. Pistiner provided design support and CEI services, managing and inspecting all fixed facilities and systems work performed by the DB contractor to ensure compliance with contract requirements, construction and design standards, plans, and specifications. They supported Miami-Dade Transit during the design and construction phase of the project. The contract included four systems projects including the Lehman Center Test Track project, the Lehman Center Yard Rehabilitation and Expansion Phase 1 project, the Palmetto Traction Power Supply Substation project, and the Metrorail Central Control Upgrade project. Mr. Pistiner was responsible for contract reviews, schedules, and payment requests. He also acted as assistant resident engineer for the Lehman Center Test Track and Yard Rehabilitation project.

Project Manager, Key West Transit Development Plan, Key West Department of Transportation, Key West, FL. This project included the preparation of a 10-year (2010-2020) transit development plan as required by Chapter 14-73 of the Florida Statutes. Mr. Pistiner was responsible for the preparation of the transit development plan which included conducting an extensive public involvement program, collecting and analyzing base socio-demographic data, evaluating existing transit services, forecasting ridership services, analyzing the financial plan, and developing system future goals and objectives. This project was completed while with a previous employer.

Project Technical Design Manager, Station Area Aesthetics Design and Development (SADD) Project, FDOT District 6, FL. Mr. Pistiner managed station development plans for two transit station areas in a proposed East-West 12-mile rail transit line in Miami's most congested commuter corridor, which connects a major park-ride intercept facility, Miami's Airport, the CBD, and the Port of Miami.

Project Manager, SR 823 (Red Road), FDOT District 4, Miami-Dade/Broward County, FL. This project consisted of upgrading approximately 2.1 miles of SR 823 (Red Road). The project limits extend from the Miami-Dade/Broward County line to south of Pembroke Road and from the Flamingo Road/Red Road Connector to 800 feet south. The project consisted of upgrading the facility to current design standards including roadway elements such as guardrail and pedestrian crossings found within the existing ROW limits. It also included improving the existing roadway cross-section by adding paved shoulder widening to include an undesignated bike lane at right turns, and sidewalk at certain locations within the project limits. The project also included upgrading the existing signalized intersections, lighting, and drainage. Mr. Pistiner was responsible for the final design and post-design services. This project was completed while with a previous employer.

Other Notable Projects:

- Project Manager, Sawgrass Expressway PD&E and Final Design, Florida's Turnpike Enterprise (FTE),
- Broward County, FL
- Project Manager, 27th Avenue PD&E Study and Final Design, FDOT District 4, Vero Beach, FL
- Project Manager, SR 809/Military Trail PD&E Study and Final Design, FDOT District 4, Palm Beach County, FL

Jenifer S. Palmer, AICP

DEPUTY PROJECT MANAGER; AA/FTA PROJECT DEVELOPMENT; NEPA; STATE OF FLORIDA/PD&E; PERFORMANCE BASED PLANNING & TOOLS DEVELOPMENT

Years of Experience: 13 **| Education:** MS – Public Administration; Masters Certificate in Urban and Regional Planning; BA – Humanities and Critical Theory **| Certifications:** AICP

Ms. Palmer provides comprehensive multimodal transportation planning, analysis, and environmental assessments for approved, funded transit projects across the nation and has worked in all major modes of transportation including buses, bus rapid transit (BRT) systems, heavy rail systems, and high speed rail, as well as roadway and bicycle and pedestrian studies. Her diverse experience working with transit agencies, metropolitan planning organizations (MPOs), state departments of transportation (DOTs), and the Federal Transit Administration (FTA) has provided her with an ability to develop integrated and multi-modal solutions for both corridor-specific projects and larger policy level decision making processes. Ms. Palmer has also provided support for all elements of public involvement planning, including development of community outreach plans, outreach strategies and scheduling, website development, and preparation of collateral materials for complex transportation projects.

Transportation and Environmental Planner, General Engineering Consultant (GEC) Services to the FDOT Florida Rail Enterprise, Orlando, FL. As part of the effort to bring high speed rail to Florida, CDM Smith partnered with another firm to provide GEC services to the Florida Rail Enterprise branch of FDOT. Ms. Palmer provided a variety of environmental and transportation planning services. Environmental planning tasks included analyzing and documenting station impacts to meet federal environmental clearance requirements and performing a noise and land use analysis in Polk County. Transportation planning tasks included assisting traffic engineers in developing transportation impact analyses for stations in Polk and Hillsborough counties, performing field investigations to identify bridge lighting and maintenance of traffic issues, and performing a transit service analysis to determine how existing and future planned services would connect with high speed rail service. Ms. Palmer also assisted as a public involvement specialist on a number of stakeholder coordination and public meetings.

Transit and Environmental Planner, North and Southeast Corridor Bus Rapid Transit (BRT) PD&E and NEPA Projects, Jacksonville Transportation Authority (JTA), Jacksonville, FL. These projects represent two of five planned BRT phased implementation corridors to provide fast and reliable regional public transportation throughout the metropolitan Jacksonville area. The completed five corridors have now been branded by FTA as the “First Coast Flyer” system. CDM Smith was contracted by JTA to conduct two environmental assessments (EAs) in accordance with state (PD&E) and federal FTA (NEPA) requirements. Ms. Palmer was a part of the team that conducted planning, environmental, and conceptual engineering for each of these two corridors. As part of her role, she reviewed and supported technical memorandums and documentation for the EAs and provided collateral materials and support for public meetings and agency coordination efforts in accordance with state PD&E and federal NEPA requirements. Ms. Palmer also provided support for the federal Capital Investment Grant funding applications for each corridor including analysis, review, and assembly of capital and operating cost estimates.

Lead Environmental Planner, NEPA and Core Capacity Grant Funding Red Purple Modernization (RPM) Phase One Improvements, Chicago Transit Authority (CTA), Chicago, IL. Assisting the CTA at its offices, Ms. Palmer led planning and NEPA environmental services for the RPM Phase One improvements to the North Red and Purple Lines. The Red and Purple lines contain the highest ridership in the CTA rail system and stations were built in the early 1900s. The Red Line alone is one of the busiest passenger rail lines in the nation. Ms. Palmer was responsible for initiating and leading the simultaneous NEPA environmental classes of action for the Phase One improvements, including development of two Categorical Exclusions (CEs) and two EAs. She led development of several sections of the environmental analysis, coordination and documentation, including demographic and land use analysis, environmental justice population identification and outreach, community impact analysis, and Section 106 (historic) and Section 4(f) (historic and park resource) analyses. She also oversaw all critical elements of project development during the environmental phase. This included leading coordination efforts with both FTA regional staff and FTA Headquarters staff, coordination of all Section 106 historic consultation requirements, and oversight of agency and public involvement coordination as well as financial planning workshops, schedules, and coordination.

Jenifer S. Palmer, AICP

DEPUTY PROJECT MANAGER; AA/FTA PROJECT DEVELOPMENT; NEPA; STATE OF FLORIDA/PD&E; PERFORMANCE BASED PLANNING & TOOLS DEVELOPMENT

Lead Environmental Planner, NEPA and New Start Services Red Line Extension (RLE) Environmental Impact Statement (EIS), CTA, Chicago, IL. CTA and FTA initiated the environmental review process to extend the Red Line south 5.3 miles from the existing 95th Street Terminal to 130th Street. CDM Smith prepared a NEPA Draft EIS to summarize the environmental impacts associated with this project and outline appropriate mitigation measures to avoid or reduce identified adverse impacts. Ms. Palmer led key activities, such as project team coordination, agency and public coordination efforts, technical review and oversight of NEPA documentation, and development and monitoring of schedules for completion of the NEPA phase. She also led Section 4(f) analyses and coordination with FTA regarding park impacts resulting from this project, including detailed development of mitigation measures to support anticipated FTA findings.

Lead Environmental Planner, NEPA and Small Starts Grant Funding Red Line BRT, IndyGo, Indianapolis, IN. IndyGo has completed the process of planning for Phase 1 of the Red Line, a new 13-mile BRT line in the heart of Indianapolis, IN. This new line provides frequent, reliable service with limited stops, transit signal priority, and a mixture of dedicated and mixed-use lanes and is part of a regional plan for improving mass transit in Central Indiana (Indy Connect). Ms. Palmer provided NEPA oversight and Quality Assessment/Quality Control for development of the federal Small Starts Application for this project. This oversight was particularly important as the application was submitted just one month following FTA's newly released guidance for New Starts, Small Starts, and Core Capacity (CIG Program) applications.

Lead Environmental Planner, Ashland Avenue BRT Environmental Assessment, CTA, Chicago, IL. CTA and FTA conducted an environmental analysis for a new, center running 16-mile-long north-south corridor just east of downtown Chicago. Ms. Palmer served as the lead environmental planner on this project, and assisted with the FTA Small Starts Application for the project. She also assisted in the coordination of public involvement activities and supporting transit and traffic analyses for the project.

Lead Environmental Planner, Ashland Avenue BRT Project, CTA, Chicago, IL. CTA conducted a year-long alternatives analysis for an approximately 16-mile-long north-south corridor just east of downtown Chicago from Irving Park Road to 95th Street. The project included center running BRT and station platforms, as well as transit signal priority improvements. Ms. Palmer assessed a variety of socio-economic and origin and destination data and developed the FTA required purpose and need statement and supporting documentation to be submitted along with the federal Small Starts grant application package. This documentation helped to establish evaluation criteria for identifying the proposed improvements and to assess alternatives and determine trade-offs of alternatives in terms of time savings, reliability improvements, changes in mode split, potential for land use changes, and other elements. Upon selection of a Preferred Alternative, Ms. Palmer led NEPA environmental impact analyses, and supported cost and project justification elements needed to develop a grant application to the FTA.

Lead Environmental Planner, Port Authority of Allegheny County, Downtown-Uptown-Oakland-East End Bus Rapid Transit Corridor Project, Pittsburgh, PA. CDM Smith was selected to provide oversight and guidance in further developing this project, meeting federal requirements for environmental review, and advancing conceptual and preliminary engineering. Ms. Palmer led environmental oversight over the project, including review and advisement on elements needed to enter FTA's Capital Investment Program Project Development Phase, determination of environmental Class of Action, coordination with federal and state agencies related to environmental elements, environmental documentation, and Small Starts Application for rating criteria support.

Deputy Project Manager, Brown Line Core Capacity Vision Study, CTA, Chicago, IL. Ms. Palmer was deputy project manager for this project, which evaluated potential capacity improvements for CTA's Brown Line rail corridor, running approximately 10 miles from Downtown Chicago to the northwest suburbs at Kimball Yard. The Brown Line is the busiest of the five lines that serve Chicago's elevated loop structure and is the third busiest line in the CTA system behind the Red and Blue lines. Ms. Palmer managed work to identify land use and transportation connections at the end of line station, Kimball Station and Yard. This included review of existing bus and pedestrian/bicycle connections, identification of underutilized land, review of existing and needed zoning, and development of transit-oriented development guidelines and principles to be used for future development opportunities in the community.

Robert A. Hamm, PE

CLIENT SERVICE LEADER

Years of Experience: 27 | **Education:** MS, BS – Civil Engineering | **Registration:** PE – FL, TX, MS, LA

Mr. Hamm serves as CDM Smith's South Group area leader and provides oversight of various projects in Florida. He has a strong foundation as both a traffic engineer and transportation planner. His project involvement over the years has included a wide variety of transportation planning studies, traffic operational analyses, corridor studies, and traffic impact analyses. His transportation planning expertise includes statewide, regional, and local systems planning; corridor studies; long-range plans; and travel demand modeling. His traffic engineering foundation features parking studies, traffic operational analyses, microsimulation models, and traffic impact studies.

Project Manager, SIS/Florida Intrastate Highway System (FIHS) On-Call Planning Services, FDOT Central Office, Tallahassee, FL. Mr. Hamm is serving as project manager for this on-call services contract for the FDOT and the SIS and FIHS programs. Work assignments to date have included GIS and planning support for both the SIS and FIHS programs, as well as specific assignments including the evaluation and planning for statewide origin/destination (O/D) studies at freight and passenger terminals and intermodal facilities.

Project Manager, SIT Development, FDOT Central Office, Tallahassee, FL. CDM Smith assisted FDOT in the creation and development of the SIT. The SIT is a project prioritization tool to aid in the prioritization of projects for funding and includes 24 performance measures to score projects in five main SIS goal categories. Mr. Hamm worked with FDOT to develop a tool that satisfied both Central Office and District requirements, and he developed performance measures used in the prioritization process.

Project Principal, SIS Connector Study, FDOT Central Office, Tallahassee, FL. CDM Smith conducted this planning study to evaluate the current utilization of designated Greyhound connectors on Florida's SIS, along with data collection and analysis of seaport drayage routes. Mr. Hamm provided quality control services for data collection activities, the connector utilization analysis, and the study documentation.

Project Manager, On-Call Freight Planning Support, FDOT Central Office, Tallahassee, FL. CDM Smith was selected to provide freight planning support on an on-call basis including in-house staffing support services, with staff members serving as an extension of FDOT staff. Some services provided to date include intermodal logistics center (ILC) program support, preparation of presentation and communication materials for use by FDOT executives in telling the freight story, analysis of commodity flow and import/export statistics, and preparation of materials for use by the Governor on various international trade missions to Chile, Columbia, and Panama.

Freight Planner, Freight Mobility and Trade Plan (FMTP) – Policy Element, FDOT Central Office, Tallahassee, FL. The FMTP was developed in two phases for FDOT. The policy element melded four requirements into one plan. These included the Florida Governor's vision, Florida House Bill 599 (four requirements for freight mobility, expanding domestic and international trade, enhancing economic development, and supporting implementation of alternative fuels), the State DOT secretary's strategy, and the inclusion of the freight provisions in MAP-21. Mr. Hamm was responsible for development of goals, objectives, and strategies as well as coordination of the public outreach company.

Project Manager, Florida Freight and Logistics Portal, FDOT Central Office, Tallahassee, FL. The Florida Freight and Logistics Portal, now operational and was developed through a partnership between FDOT, Enterprise Florida, Workforce Florida, and the Florida Chamber Foundation. The site provides a one-stop web presence for all things freight in Florida, and includes sections on primary business sectors, ILCs, a logistics provider directory, statewide freight resources, interactive GIS mapping of freight resources, and details on the state's FMTP.

Project Principal, FMTP – Investment Element, FDOT Central Office, Tallahassee, FL. The FMTP was developed in two phases for the FDOT Office of Freight, Logistics and Passenger Operations (FLP). The FMTP Investment Element builds upon the Policy Element and is specifically intended to: identify freight needs; identify criteria for state investments in freight; prioritize freight investments across modes; and meet requirements of federal MAP-21. Mr. Hamm provided project oversight.

Robert A. Hamm, PE

CLIENT SERVICE LEADER

Project Manager, Federal Highway Administration (FHWA) Site Visit and Tour, FDOT Central Office, Tallahassee, FL. Mr. Hamm provided support to the FDOT Office of FLP to schedule, develop, and administer a tour of Florida's critical freight infrastructure for key administrators from the FHWA. The tour began in Miami and ended in Orlando with key tour sites including air cargo facilities at Miami International Airport (MIA), Port Miami, Hialeah Rail Yard, Port Everglades, Intermodal Container Transfer Facility (ICTF), and SpaceX Launch Facilities at Cape Canaveral. The tour also included travel by passenger rail on the Florida East Coast Railway between Miami and Port Canaveral.

Project Principal, Motor Carrier System Plan, FDOT Freight, Logistics and Passenger Operations, FL. The purpose of this task was to develop the first Florida Motor Carrier System Plan, focusing on the facilitation of truck movement and identifying key motor carrier policy issues. The work included stakeholder outreach, identification of motor carrier policy issues, analysis of truck movements from a private sector supply chain standpoint, evaluation of motor carrier safety and enforcement data, and technology impacts to the trucking industry. Mr. Hamm was the project principal and oversaw work efforts between on-site CDM Smith staff and industry stakeholders. Mr. Hamm provided project oversight.

Project Principal, Rail System Plan, FDOT Freight Logistics and Passenger Operations, FL. The purpose of this project was to create the Florida Rail System Plan, focusing on both freight and passenger rail. The projects included industry stakeholder coordination, technical analyses, and acting as lead quality assurance/quality control (QA/QC) for the technical review of the document.

Project Manager, FDOT Rail Office GIS Support Services, Tallahassee, FL. CDM Smith updated the FDOT statewide railroad GIS coverage and developed a rail linear referencing system. CDM Smith also rectified and corrected railroad grade-crossing locations, which total more than 4,000 throughout the state. Mr. Hamm provided quality control reviews for the corrected rail coverages and corrected grade-crossing locations.

Project Manager, Multimodal Project Prioritization State-of-the-Practice Review, FDOT Central Office, Tallahassee, FL. CDM Smith conducted a state-of-the-practice review of current federal, state, and MPO practices for prioritizing projects across multiple modes. FDOT desires to compare projects between all modes including aviation, seaport, highway, and rail. Mr. Hamm oversaw all phases of the research and development of the study report.

Project Manager, Florida Statewide Transportation Evacuation Model, Northeast Florida Regional Council, FL. CDM Smith developed 11 regional evacuation transportation models as part of the Statewide Regional Evacuation Study Program. The developed methodology allows for consistent analysis of evacuation traffic throughout the state using CUBE software. As the project manager, Mr. Hamm was responsible for overseeing the design and development of the evacuation modeling methodology and performed project management, communication, scheduling, and quality assurance. He also led the public involvement efforts, coordinating activities with all 11 regional planning councils and emergency management directors in all 67 Florida counties.

Project Manager, East Main Street Engineering Traffic Study, Bay County, FL. CDM Smith developed an engineering traffic study to review traffic and transportation related conditions near the East Main Street/Bayline Railroad grade crossings and determine if closing the crossing would have an adverse impact on traffic operations. Mr. Hamm was responsible for all phases of the project, including traffic operations analyses, recommendations, and study documentation.

Project Principal/Senior Traffic Engineer, I-10 Master Plan for Escambia and Santa Rosa Counties, FDOT District 3, FL. Mr. Hamm oversaw this project that included developing the recommended highway and multimodal improvements to I-10 needed to accommodate travel demands through the year 2040. The specific activities included data collection, traffic analysis, alternatives analysis, multimodal and managed lane considerations, public involvement activities, and project management.

Project Manager, I-95 Transportation Alternatives Study, FDOT Systems Planning Office, Tallahassee, FL. CDM Smith conducted this study of the statewide I-95 corridor to assess the travel demand and freight moving along the I-95 corridor against four measures: transportation, emergency management, homeland security, and economic development. Mr. Hamm was responsible for coordination and outreach activities with all statewide partner agencies, development of corridor conditions and needs, development of alternative options, and development of the final study product submitted to the governor before the legislatively mandated deadline.

Timothy P. Sorenson, PE

TECHNICAL ADVISOR & OVERSIGHT; PARK & RIDE PLANNING; TRANSPORTATION DEMAND MANAGEMENT, TRAFFIC STUDIES, ANALYSIS & MICROSIMULATION

Years of Experience: 31 | **Education:** BS – Civil Engineering | **Registration:** PE – KY, CT

Mr. Sorenson's focus has been on developing multimodal corridors that address mobility needs, infrastructure requirements and environmental impacts. Whether it is addressing the unique needs of a roundabout on a college campus, connecting historic communities around a major river crossing or creating a groundbreaking bus rapid transit solution, success is finding a way to bridge diverse options and perspectives in order to move forward into construction.

Transit Technical Lead, I-95 Integrated Mobility Study, Florida Department of Transportation (FDOT) District 6, Miami, FL. The I-95 Express Lanes have been very successful since their introduction and are a key element in the I-95 traffic management strategy. Recently, changes in how the lanes operate have caused deterioration of their operations. CDM Smith is working with FDOT District 6 to identify short- and medium-term changes/improvements that can bring the express lanes back to the desired operation. Strategies include changes in pricing, creating better ways to create and incentivize carpools, improve transit operations at the downtown connections and adding additional park and ride locations. Mr. Sorenson serves as the transit technical lead for this project.

Project Manager, Southeast Corridor BRT EA, JTA, Jacksonville, FL. An environmental assessment completed and FONSI approved for a proposed BRT service along both mixed-use and dedicated lanes and is the second of four proposed corridors. Mr. Sorenson serves as project manager.

Transit Technical Lead, WeGo Program Management, Nashville, TN. As part of the WeGo Program Management Team Mr. Sorenson has 1) supported the development of the key bus components included in the local referendum, 2) led the development of design standards for bus stops/station, neighborhood transit centers and park and ride lots, 3) led the preliminary design of new bus stops along the Nolensville corridor, 4) led the development of two conceptual designs for neighborhood centers at Tennessee State University and North Nashville, and 5) was the technical leader for the development of a Park and Ride strategic investment plan for the greater Nashville region.

Transit Technical Lead, Transit Technical Lead, Traffic Methodologies for Bus Rapid Transit (BRT) Projects, FDOT Tallahassee, FL. Mr. Sorenson served as a technical lead in developing guidance for the FDOT on acceptable levels of traffic analyses for BRT projects at planning and environmental stages of project development. This guidance is intended to provide greater transparency and consistency on acceptable methods of analysis for BRT projects. It highlights the coordination needed between FDOT and transit agencies early in development of project definition. The guidance addresses a variety of BRT treatments including dedicated or partially dedicated running-ways, curbside vs. center running considerations, and active versus passive transit signal priority (TSP).

Senior Technical Leader, SR 85 Transit Guideway Study, Valley Transportation Authority, CA. The Santa Clara Valley Transportation Authority (VTA), in cooperation with the California Department of Transportation (Caltrans), proposes transit and managed lane improvements along 24 miles of State Route (SR) 85 between US 101 in south San Jose and US 101 in Mountain View, California. These improvements are intended to enhance trip reliability, increase person throughput, encourage mode shift to transit and carpools, and provide long-term congestion management of the corridor. Opportunities include converting the current HOV lane to managed lanes, adding an additional lane, improved transit services, increased carpools, and potential intermittent access points for transit. Mr. Sorenson serves as a senior technical leader for this project.

Project Manager, Roosevelt High Capacity Transit Study, Seattle DOT, Seattle, WA. As part of the Seattle Long-Range Transit Plan (LRTP) the Roosevelt Corridor was identified as priority corridor for high capacity transit. This study included a detailed analysis of mode (streetcar or bus rapid transit), use of exclusive lanes, and project implementation.

Project Manager, Alumni Drive Roadway Planning and Design, Lexington, KY. This project was the complete reconstruction of Alumni Drive through the University of Kentucky campus. The design included two new roundabouts, a multi-use trail, and significant coordination with adjacent projects and the Arboretum. This green roadway project was

Timothy P. Sorenson, PE

TECHNICAL ADVISOR & OVERSIGHT; PARK & RIDE PLANNING; TRANSPORTATION DEMAND MANAGEMENT, TRAFFIC STUDIES, ANALYSIS & MICROSIMULATION

constructed on a fast track (90 days) during the University of Kentucky summer recess.

Lead Practitioner, IndyGo Red Line, Indianapolis, IN. Mr. Sorenson provided senior leadership for the planning and environmental phase of this project.

Senior Technical Advisor, Red Purple Line Modernization Environmental Document Project, Chicago Transit Authority (CTA), Chicago, IL. Mr. Sorenson assisted the team in review of the process for completing modernization of the Red and Purple lines for the CTA.

Senior Technical Advisor, Red Line Extension Environmental Document Project, CTA, Chicago, IL. Mr. Sorenson provided technical guidance on the development of alternatives and how to meet the requirements of the FTA process.

Project Manager, Western and Ashland Avenue Alternatives Analysis (AA), Chicago, IL. As two of the highest ridership corridors in Chicago, CTA hired CDM Smith to develop an FTA AA for Western and Ashland Avenues (42 miles). The process includes the technical analysis and public/stakeholder outreach. While the focus of this project is on BRT because it is within existing right-of-way the balance between all modes is being considered throughout the process making this a complete streets project.

Project Manager, Louisville Southern Indiana Ohio River Bridges Project Various Traffic Elements. As a member of the Program Management Team, Mr. Sorenson led the CDM Smith efforts which included several major tasks including the development of a time of day model, traffic forecasting for the SEIS, revenue forecasting, support of the Section 106 and MSAT processes, and supporting the development of the design build package. As part of the design build development, Mr. Sorenson led a team that updated the Transmodeler microsimulation package to include the southern Indiana connections to I-65 and the US-31 bridge and update the origins and destinations to reflect the tolling conditions.

Senior Technical Advisor, 95th Street Terminal Expansion Study, CTA, Chicago, IL. The 95th Street station is CTA's busiest and most congested rail and bus terminal. Mr. Sorenson served as senior technical advisor for the development of a terminal expansion study that examined the current station access and internal circulation service issues and developed a plan for expansion of the facility.

Task Manager, I-70 Truck Only Lanes Feasibility Study Phase 2, KS, IL, IN, and OH. The multistate coalition hired CDM Smith to study the possible implementation of Truck Only lanes through four states. As task manager Mr. Sorenson was responsible for technical leadership for traffic operations and tolling evaluations as well as contributing to the alternative concept development. The completed report outlined recommendations for potentially move this project forward.

Project Manager, "Jazz" Bay BRT Study, Monterey, CA. CDM Smith conducted this study to advance the implementation of BRT principles in the Monterey Bay area by establishing a preliminary vision for a regional plan for BRT service that would connect with other planned and existing transit projects in the region. CDM Smith also specifically reviewed potential BRT projects and processes for MST, Santa Cruz METRO and UC Santa Cruz. CDM Smith is serving as the program manager for implementation and is providing oversight of design and engineering elements. Mr. Sorenson serves as project manager for the current program management and design activities.

Senior Technical Advisor, Third Infantry Division Highway Corridor Study, GA, TN and SC. The Federal Highway Administration (FHWA) hired CDM Smith to complete a conceptual feasibility study, mandated by SAFETEA-LU which explores the costs and steps to construct a highway from Savannah, GA to Knoxville, TN, through the rich natural environment of the southern Appalachian Mountains. The effort included technical analyses and stakeholder/public coordination on a highly controversial project.

Project Manager, University of Kentucky Medical Center Traffic and Parking Study, Lexington, KY. The purpose of this project was to evaluate changes to traffic as a result of implementation of the UK Medical Center's Master Plan. This included comprehensive data collection and analysis. This work included assistance is selected a 1,500-space parking garage, development of patient drop-off and pick up areas and development of a visitor shuttle service. This study analyzed both several build and no-build scenarios using Synchro 6.0 and VISSIM 4.0. The VISSIM model was presented to local government officials, the Lexington Fayette Urban County Council, and the public. This micro-simulation software helped stakeholders to visualize the proposed improvements and resulting impacts.

Carleen M. Flynn, AICP

QUALITY CONTROL; PUBLIC OPINION RESEARCH, SOCIAL MEDIA

Years of Experience: 24 **| Education:** MA – Urban and Regional Planning, BA – Environmental Design **| Registration:** AICP

Ms. Flynn has extensive experience in transportation planning studying and implementing capital transit projects, and public involvement. She brings an understanding that regional mobility solutions are successful by providing complementary transportation planning solutions via multiple modes and technologies. With this philosophy in mind, she has managed several public involvement efforts from homeowners associations to statewide workshops and hearings and coordinated FDOT tentative work programs with 11 MPOs across Florida.

Project Manager, SR 50/UCF Connector Alternative Analysis, LYNX, Orlando, FL. Ms. Flynn managed the SR 50/UCF Connector Alternative Analysis (AA) study for LYNX, while with a previous employer. She completed the AA study for this 30-mile corridor study traversing Orange County and the City of Orlando with an adopted Locally Preferred Alternative. She coordinated the public involvement effort for adoption of the LPA of BRT in mixed traffic with a minimum operating segment and concurrent Express Bus project between multiple jurisdictions and community advocates. She assisted the Metroplan Orlando's efforts to evaluate the LPA as the region's first transportation related Health Impact Assessment.

Lead Planner, American Bus Benchmarking Group (ABBG), LYNX, Orlando, FL. To better evaluate and improve the performance of the regional bus system, LYNX joined the American Bus Benchmarking Group (ABBG), a consortium of mid-size transit agencies across North America. Each year ABBG collected and analyzed bus data and performance metrics and reported their findings to the group. Ms. Flynn was responsible for collecting LYNX's data from multiple departments within LYNX, reporting data to ABBG, disseminate the report findings back within the agency, and develop strategies for improvement, completed while with a previous firm.

Project Manager, LYNX Orlando Trail, LYNX, Orlando, FL. While with a previous employer, Ms. Flynn assumed project management of LYNX Orlando Trail, an extension of Gertrude's Walk, in downtown Orlando to complete design of the trail, coordinate the project with stakeholders, and work through permitting issues. This project is currently under construction.

Co-Project Manager, Pine Hills Bus Transfer Center, LYNX, Orlando, FL. Ms. Flynn co-managed the development of a bus transfer center in the Pine Hills community, west of downtown Orlando, while with a previous firm. She authored the successful FTA Ladders of Opportunity grant application for the replacement of the Pine Hills Transfer Center as well as managed the land use amendments, categorical exclusion documentation, property appraisal, and contract for purchase of a five-acre site to prepare the project for design and construction.

Project Director, General Engineering Consultant for District Traffic and Revenue (T&R) Studies, Florida's Turnpike Enterprise (FTE), Ocoee, FL. Ms. Flynn is the project director for this three-year contract with FTE. The contract entails conducting T&R forecasts for toll projects that are generated out of the FDOT districts. These projects include the I-95, I-595 and I-75/SR 826 Express Lanes in South Florida, Wekiva Parkway and I-4 Express Lanes BTU South, Tampa Bay Express (TBX), and Garcon Point Bridge. CDM Smith is tasked with updating traffic profiles, travel demand modeling, toll diversion analysis, 30-year T&R forecasts, and P75 risk analysis and may include origin-destination studies, stated preference surveys, and microsimulation modeling.

Deputy Project Manager, General Traffic and Earnings (T&E) Consultant Contract, Central Florida Expressway Authority (CFX), Orlando, FL. Ms. Flynn is the deputy project manager for this $3.75M five-year contract with the Authority. Ms. Flynn was responsible for multiple task authorizations for this contract including the development of the CFX 2.0 travel demand model to a 2010 base year and in Cube Voyager as well as the subsequent updates to the model to a 2015 base year, CFRPM network and revised SE date (CFX 3.0). She provides quality control for the CFX Annual Traffic and Earnings Report that outlines the Authority's traffic and revenue performance in the past year as well as provides a 30-year traffic and revenue forecast. CDM Smith was re-selected in 2017 after completing the five-year General T&E Consultant Contract with CFX.

Project Manager, Traffic Engineering Support for Osceola County Expressway Authority (OCX) Master Plan Concept, Feasibility, and Mobility Studies, CFX, Orlando, FL. Ms. Flynn is responsible for managing the design traffic and revenue

Carleen M. Flynn, AICP

QUALITY CONTROL; PUBLIC OPINION RESEARCH, SOCIAL MEDIA

traffic analysis of the four OCX Master Plan project that are being evaluated in four separate Concept, Feasibility, and Mobility Studies. This includes coordination with the four design consultants on design traffic, design alternatives and traffic engineering support, as well as managing the revenue traffic analysis of the design alternatives and development of the T&R estimates for the multiple alignments.

Lead Planner, Wekiva Parkway Investment Grade Traffic and Revenue Study, CFX, Orlando, FL. Ms. Flynn developed the scope and task authorization for this investment grade study, as well lead the socio-economic data updates through research of local comprehensive plans, developments of regional impact, existing housing trends, and stakeholder interviews. She also analyzed existing and proposed toll plans to develop a recommended toll schedule for the CFX portion of the Wekiva Parkway.

Project Manager, Lake Orange Connector Planning Level Study, CFX, Lake and Orange Counties, FL. Ms. Flynn served as the project manager for a planning level analysis of a corridor connecting US 27 in Lake County with SR 429 in Orange County. The project area was a new five-mile expressway connecting US 27 and SR 429 in the vicinity of Schofield Road. The study involved a project specific travel demand model that updated the street network and socio-economic data (land use development) in the project area to take into consideration the Horizon West and Wellness Way sector plan (state approved sector plans) and development saturations. The study considered three corridors through the project area and developed preliminary traffic and revenue to determine the regional need for a corridor. The study recommended a new corridor along the Schofield Road alignment. The study findings were presented to Orange and Lake County representatives, as well as the CFX Board, who recommended the project be moved forward for a PD&E study. This study was advanced to a PD&E study, which has recently started. Ms. Flynn will continue as project manager to provide traffic engineering and revenue forecasting support on the PD&E Study.

Lead Planner, SR 408E Extension PD&E Study, Design and Revenue Traffic for PD&E Study, CFX, Orlando, FL. CDM Smith assisted CFX on the development of the alternative corridor for the SR 408 East Extension, assisting the PD&E consultant in design traffic for corridor selection and preferred alignments. Ms. Flynn worked closely with the traffic engineer to complete traffic technical memorandum and managed the traffic and revenue estimates of the preferred alternative.

Project Manager, Lee County Toll Bridges General Consultant for Traffic Engineering and Bond Related Issues, Lee County, FL. Ms. Flynn served as the project manager for this continuing services contract, which required continual monitoring of traffic and revenue trends for three bridge crossings in Lee County including Cape Coral Bridge, Mid-Point Bridge, and the Sanibel Causeway. The contract includes a semi-annual report of traffic and revenue, an annual report of traffic and revenue, and a bi-annual bridge inspection report for all three bridges.

Project Lead, Comprehensive Traffic and Revenue Report Update, Tampa Hillsborough Expressway Authority, Tampa, FL. As the project lead, Ms. Flynn completed a report update to the Tampa Hillsborough Expressway Authority Traffic and Revenue Report. This update was required for the refunding of $444.7M Authority bonds. Ms. Flynn updated the tables, figures, and text for the report in a constrained timeframe to meet the Authority's schedule for bond sale. The updated report was included in the Official Statement for the bond sale.

Project Manager, Toll Rate Rule Amendments, Florida Turnpike Enterprise (FTE), FL. Ms. Flynn was responsible for several amendments to Florida Administrative Code (14-15.0081 F.A.C & 14-100.005 F.A.C) regarding indexing of toll rates in FDOT and FTE toll roads and implementing a new video billing procedure, TOLL-BY-PLATE, for FTE toll roads. Ms. Flynn developed new rule language, noticed proposed amendments, conducted workshops and public hearings, and updated the toll rate calculator. She introduced the concept of conducting the public meetings as statewide webinars, under rule Communication Media Technology (28-109 F.A.C), and managed electronic public outreach efforts, email notifications and online advertising.

Project Manager, I-75 Express Lanes Preliminary and Investment Grade T&R Studies, FDOT District 1, Lee and Collier Counties, FL. Ms. Flynn managed the preliminary and investment grade studies for I-75 Express Lanes in Lee and Collier counties for FDOT District 1, while with a previous employer. The project area was from SR 80 in Fort Myers to Golden Gate Parkway in Collier County. The preliminary study involved the evaluation of the I-75 PD&E study recommendation of six general use lanes and four special use lanes, as a potential express lanes project.

Martin E. Guttenplan, AICP, PMP

MULTIMODAL/BIKE-PEDESTRIAN; MULTIMODAL ACCESS PLANNING

Years of Experience: 28 **| Education:** MFA – Theatre; BA – Theatre **| Certifications:** AICP; PMP

Mr. Guttenplan's experience focuses on integrating the bicycle, pedestrian, and transit modes into all facets of transportation planning and design. He led the Florida Department of Transportation's (FDOT's) development of multimodal level of service (LOS) methodologies. He then incorporated these methodologies into the state's growth management process and developed an integrated transportation and land use planning process. These multimodal LOS measures form the basis for multimodal analysis in the Transportation Research Board (TRB) Highway Capacity Manual 2010. An avid cyclist, he served as vice president of the board of directors for the League of American Bicyclists and was instrumental in the development of its Bicycle-Friendly Community Program.

Project Manager, Access Management Practices and Design for Complete Streets, FDOT Central Office, Statewide, FL. This study is an update to current FDOT Access Management designs and practices due to the implementation of FDOT's Complete Streets policy. Previously, much of the emphasis regarding Access Management was on the efficient movement of motor vehicles on and off property near roadways. Though current practices provide significant safety and capacity benefits for motorists on arterial streets, there is a need for the same process for transit users, bicyclists, pedestrians, and freight. Mr. Guttenplan is leading the effort to identify best practices and recommend changes to FDOT and local governments to implement them.

Project Manager, Conceptual Engineering Report for Bicycle and Pedestrian Routes in Town of Lauderdale-by-the-Sea, FDOT District 4, FL. FDOT requested assistance with evaluating options and developing conceptual engineering typical sections to serve as a portion of the East Coast Greenway in Lauderdale-by-the-Sea and the City of Fort Lauderdale. Mr. Guttenplan provided policy guidance and agency/stakeholder coordination for the project. He guided the prime firm with engineering services and the final Conceptual Engineering Report.

Project Manager, Non-Motorized Transportation Count Data Collection Study, FDOT Transportation Statistics Office, Southeast FL. This study is developing and piloting a recommended practice for FDOT to establish a statewide pedestrian and bicycle count program. CDM Smith has worked with FDOT and selected partners to test the recommended methodology in southeast Florida. Four technologies are being tested and compared with to best catalogue their benefits under different conditions. To create the most useful and cost efficient program for the state, the project is partnering with existing count programs throughout the state.

Project Manager, Analysis of Traffic Conflicts at Driveways and Right Turn Lanes, FDOT Central Office, Statewide, FL. The purpose of this study was to evaluate traffic (both motorized and non-motorized) movements in the vicinity of driveways located in the exclusive right turn lanes on urban arterial and collector roads. Using a video-based conflicts analysis methodology the research team developed inferences which describe the different effects of the studied variables on conflicts.

Project Manager, Freight Roadway Design Considerations, FDOT, Statewide, FL. This statewide project is balancing FDOT's complete streets implementation plan and freight mobility. It is developing tools to best balance freight mobility with community livability based on land use context and other multimodal needs. Mr. Guttenplan is the project manager, in charge of taking a District planning document and putting it in a statewide context.

Project Manager, Multimodal Areawide Planning, FDOT, FL. While working directly for FDOT, Mr. Guttenplan developed the state's multimodal transportation district (MMTD) and Areawide Quality of Service Handbook and training for multimodal transportation and land-use coordination. A MMTD emphasizes non-automobile mobility, utilizes multimodal LOS standards, and integrated land use planning rather than only automobile LOS standards.

Project Manager, Transportation Impacts of Development Handbook Update, FDOT, FL. Working first for FDOT and then as a member of CDM Smith's staff, Mr. Guttenplan was responsible for updating the FDOT Site Impact Handbook to address all transportation impacts of development. At CDM Smith, he has led several projects which incorporated multimodal considerations, stakeholder input, and legislative changes throughout the document. These updates address the impacts

Martin E. Guttenplan, AICP, PMP

MULTIMODAL/BIKE-PEDESTRIAN; MULTIMODAL ACCESS PLANNING

of development on all transportation modes as well as changing growth management legislation and philosophy.

Instructor, Growth Management/Traffic Impact Analysis Training, FDOT, FL. Mr. Guttenplan was a key instructor in this FDOT training that provided solutions to growth management and traffic impact analysis issues for planners in all arenas. He led topics on LOS standards and multimodal mitigation techniques, transit, and linking transportation concurrency with comprehensive planning.

Project Manager, Safe Ways to School, The Role in Multimodal Planning, FDOT, FL. Mr. Guttenplan led this project which incorporated safe routes to school (SRTS) into the state's multimodal planning efforts. Recommendations were included to institutionalize a successful SRTS program through the state's many government and school partners. In addition, the report included recommendations for establishing FDOT's SRTS program. School siting guidelines based on complete streets principles were also included.

Project Manager, Developing National Bicycle Facility Inventory Data, Federal Highway Administration (FHWA), Nationwide. CDM Smith is leading a research team for FHWA to develop a national bicycle facility geospatial dataset to represent bicycle travel facilities such as routes, trails, and shared use roadways. Mr. Guttenplan is the project manager of this project which will ultimately provide a mechanism for FHWA to incorporate bicycle facility information within the Highway Performance Monitoring System. The project will also develop a web portal where new bicycle geospatial data information can be supplied by DOT's and local governments.

Project Manager, LOSPLAN Software Testing and LOS Support, FDOT, Tallahassee, FL. Mr. Guttenplan led the effort to test the beta versions of FDOT's LOSPLAN software, a planning application of the TRB Highway Capacity Manual 2010. He worked with FDOT staff to develop new generalized maximum service volume tables. The ARTPLAN module measures automobile, bicycle, pedestrian, and transit LOS simultaneously. Previously, while employed at FDOT, Mr. Guttenplan conceived the multimodal parts to this model.

FDOT Project Manager, Multimodal Trade-Off Analysis in Traffic Impact Studies, FDOT, FL. This project defined how to analyze the tradeoffs between different modes and land use configurations and recommended methods to reduce the impact fees or local access fees for development within multimodal environments.

Transportation Planner, US 80 Bridges Replacement Study, Savannah Metropolitan Planning Commission, Chatham County, GA. For this bridge replacement study, CDM Smith completed a feasibility study that included an analysis of alternatives, environmental screening data, and concept development. Mr. Guttenplan has developed bicycle/pedestrian alternatives in connecting Savannah with Tybee Island as part of this two-lane bridge replacement study. With no current non-motorized connections to Tybee Island and the McQueen Island Rail Trail, the recommended bicycle and pedestrian alternatives provide an economical link for transportation, recreation, and evacuation.

Project Manager, Non-Motorized Transportation Studies, KYOVA Interstate Planning Commission, Huntingdon, WV. CDM Smith is currently working with the KYOVA MPO to develop non-motorized transportation plans for the City of Milton and the Village of Barboursville. These smaller communities in West Virginia are in a high growth area of the state yet lack infrastructure for walking and bicycling. Mr. Guttenplan is the project manager directing these plans concurrently, to dedicate resources most efficiently.

Bicycle/Pedestrian Lead, Bicycle and Pedestrian Planning, City of Whitwell, TN. Mr. Guttenplan served as the technical lead directing this bicycle and pedestrian planning study for the City. The project focused on improving bicycle and pedestrian mobility and safety along State Route 28, which is the main arterial traveling through the City. He led a walking audit for City participants and directed public meeting and stakeholder presentations. Based on this input his team developed a phased plan for pedestrian/bicycle facilities.

Task Manager, 2035 Long-Range Transportation Plan/ Multimodal Level of Service Analysis, Pikes Peak Council of Governments, Pikes Peak, CO. Mr. Guttenplan led this effort to examine the multimodal impacts of completing the council's modeled 2035 network vs. the no-build scenario. He utilized FDOT's ARTPLAN software to conduct the analysis.

Bicycle/Pedestrian Lead, Mobility Plan, South Montgomery County, TX. As a subconsultant to another firm, Mr. Guttenplan led the bicycle/pedestrian planning element for this fast-growing area north of Houston, encompassing The Woodlands. In conjunction with stakeholders he laid out a conceptual bicycle/pedestrian network in coordination with planned roadway connectivity improvements. His work also included sample typical sections and planning level cost estimates.

Michael Bjork, PE

MULTIMODAL/BIKE-PEDESTRIAN; MULTIMODAL ACCESS PLANNING

Years of Experience: 7 **| Education:** BS – Civil Engineering **| Registration:** PE – WA

Mr. Bjork provides transportation planning services for urban corridors including light rail/streetcar, bus, pedestrian, bicycle, and roadway projects throughout the US. He is focused on transit design, networks, and how people interact with our transportation environment. As a daily rider of transit and a cyclist, he brings the ability to view transportation holistically, understanding mobility is about a system for all users. With a knowledge of urban street design standards set by the National Association of Transportation Officials (NACTO), Mr. Bjork offers teams a perspective that is driving many areas in today's modern environment—making our communities a place to go to, not just go through.

Transit Engineer, Madison Bus Rapid Transit (BRT), Seattle Department of Transportation (SDOT), Seattle, WA. Funded by both local and federal sources, Madison BRT aims to improve transit reliability, increase bicycle connectivity, enhance urban spaces for people, and greatly improve east-west transit connectivity on a 2.4-mile corridor between Downtown, First Hill, and Madison Valley. Mr. Bjork's responsibilities have included bicycle channelization and bicycle infrastructure design, general purpose and transit-only channelization, station development and design, general streetscaping design, and developing alternative concepts for improving places for people based on SDOT's work throughout Seattle.

Transit Engineer, Center City Connector (C3), SDOT, Seattle, WA. This 1.2-mile modern streetcar project is the central component to connecting two streetcar lines in Downtown Seattle; providing frequent rail service on exclusive guideway to several destinations and transit hubs. Mr. Bjork's roles included developing streetcar track geometry on Seattle's infamous hilly topography; modifications to existing diesel and trolley bus routing; pedestrian and bicycle conflict analysis; design of guideway surface treatments for visually sensitive, historic areas; and plans for expansion of two existing streetcar operations and maintenance facilities. This project was completed while with another employer.

Transit Engineer, Tacoma Link Expansion, Puget Sound Transit Authority (Sound Transit), Tacoma, WA. The Tacoma Link Expansion project will extend the existing 1.6-mile hybrid light rail/streetcar line by 2.4 miles, connecting Downtown Tacoma to the Stadium District and Hilltop neighborhoods with a double-track mixed-use guideway, six new stations, and one station relocation. Mr. Bjork has focused on developing track geometry of rail alignments along with leading the design effort for people walking and biking. He walked, biked, and reached out to community members throughout the design process to determine the needs and challenges presented by bicycle/streetcar interaction in the project area. Using real-world experience from the field and designs utilized in other cities, he identified treatments around stations and guideway to help maximize safety for vulnerable road users. This project was completed while with another employer.

Transit Engineer, Federal Way Link Extension, Sound Transit, Seattle, WA. A team of consulting firms was retained by Sound Transit to prepare the environmental impact study (EIS) and preliminary engineering for a 7.6-mile extension of Link Light Rail from Angle Lake Station in SeaTac to downtown Federal Way. Mr. Bjork assisted the design team for the conceptual design of light rail alignments on I-5 and SR 99, along with leading the design effort for alignment alternatives entering and exiting each of the proposed station locations being studied. His additional roles included creating demolition plans, civil/roadway design, and cost estimating. This project was completed while with another employer.

Transit Engineer, Los Angeles Streetcar, Los Angeles County Metropolitan Transportation Authority (Metro), Los Angeles, CA. Los Angles, the city ubiquitous for car culture, is rapidly expanding transit opportunities throughout the City. The 4-mile Downtown Los Angeles modern streetcar project will enable strong network connections between regional transit hubs and a growing historic district. Mr. Bjork's role focused on development of potential operations and maintenance facilities, including track layouts on multiple sites and working with track vendors to create innovative trackwork to maximize land usage while minimizing facility footprint. This project was completed while with another employer.

Transit Engineer, Georgetown Wet Weather Treatment Station, King County, Seattle, WA. To reduce Combined Sewer Overflow (CSO) runoff into the Puget Sound, King County's Wastewater Treatment Division is building a new treatment facility in Seattle's SODO Neighborhood. The four-year construction process, starting in 2017, will involve significant impacts to two major bus routes. Mr. Bjork created several routing solutions to meet King County's goal of minimizing

Michael Bjork, PE

MULTIMODAL/BIKE-PEDESTRIAN; MULTIMODAL ACCESS PLANNING

disruption to their transit customers. He coordinated with King County's Transit Division to lay out transit service during multiple project-related road closures, receive input from the operating agency, and develop a workable transit plan for the client. This project was completed while with another employer.

Transit Engineer, Accessible Mt. Baker, Seattle Department of Transportation, Seattle, WA. The City of Seattle is striving to improve safety on the Rainier Avenue Corridor and create a new urban center around a frequent transit hub. This community-focused plan will realign two major arterials and create new developable space in the diverse Mt. Baker Neighborhood. Mr. Bjork focused on bus, trolley, and transit aspects of this project; including routing, layover requirements, stop placement, trolley wire needs, and future phasing of transit center usage based on projected changes to Seattle's regional transit network. His familiarity and tours of the project site helped fellow engineers and planners understand community needs and issues to create an extremely successful project for the client. This project was completed while with another employer.

Transit Engineer, Ballard to Downtown Seattle High Capacity Transit Study, Sound Transit and SDOT, Seattle, WA. This project was a collaboration between Sound Transit and the City of Seattle to explore opportunities for creating high-capacity transit connections along several corridors between Ballard and Downtown Seattle. Tasks included providing pre-preliminary planning, engineering design, and cost estimating to support route and station location decisions, and taking them through the Level 1 Screening Process. Routes options include at-grade track, aerial guideways, long-span bridges, and tunnel alignments. The study results were a critical component to the November 2016 Sound Transit 3 ballot measure in the Puget Sound. This project was completed while with another employer.

Transit Engineer, Positive Train Control Implementation, North County Transit District (NCTD), San Diego, CA. As a passenger operator, NCTD is required to design, test, and install a Positive Train Control (PTC) system to support safer rail operations. Mr. Bjork tasks as civil lead included design of over 40 under-track conduit crossings and 10 miles of continuous conduit on an accelerated schedule to provide a fiber optic backbone for PTC facilities. Site work included engineering oversight of all construction activities relating to construction of under-track conduit crossings and conduit installation on an active passenger rail line. Additional tasks included numerous coordination meetings with the client throughout implementation of the PTC project and provided project document control for NCTD. This project was completed while with another employer.

Transit Engineer, Broadway Grade Crossing Improvements, NCTD, San Diego, CA. To improve train flow around San Diego's Santa Fe Depot, NCTD looked to reconfigure an existing grade crossing and install a new control point for use by NCTD, San Diego Trolley, and BNSF Railway. Mr. Bjork's tasks as civil lead included site visits, coordination with multiple stakeholder agencies, and development from preliminary design to final design. This project was completed while with another employer.

Transit Engineer, Traction Power Substation Upgrade, San Diego County Association of Governments (SANDAG), San Diego, CA. A major component of the Trolley Renewal Project for the Metropolitan Transit System in San Diego is upgrading and increasing the number of traction power substations to support conversion to a new fleet of low-floor vehicles and increase frequencies. This project included substation siting, site layout, final design, and oversight of construction of 14 substations in an urban environment. This project was completed while with another employer.

Transit Engineer, San Onofre to Pulgas Double Track, SANDAG, San Diego, CA. As part of increasing reliability and frequency of Amtrak's Surfliner service in Southern California, SANDAG approved the design and construction of a 5.8-mile second main track. Tasks included analysis of existing and proposed utilities, modeling of hydrologic impacts, under-track culvert design, rail alignment layout, and extensive site photography. This project was completed while with another employer.

Transit Engineer, Los Angeles to San Diego Segment, California High Speed Rail Authority, San Diego, CA. In 2008, California voters approved the design and construction of a high-speed rail system linking the Bay Area to Southern California. Mr. Bjork worked on identifying alternatives on the LA to SD segment; including conceptual engineering involving site analysis, laying out various alignments, profile design, and several site visits made to observe physical obstructions and large utilities. This project was completed while with another employer.

Jeffrey M. Sangillo, AICP

MARKET DEMAND & FEASIBILITY; SHORT & LONG-RANGE PLANNING; PROGRAM/ PROJECT MANAGEMENT PLANS; NEW GRANT OPPORTUNITIES SUPPORT; MOBILITY ON DEMAND APPLICATION PLANNING

Years of Experience: 13 **| Education:** MS – Transportation Policy; BS – Operations Management and Logistics, Transportation, and Supply Chain Management **| Certifications:** AICP

Mr. Sangillo's experience including planning; financial analysis; modeling and simulation; and evaluation of transportation plans, operations, technologies, and organizations. For more than a decade, he has assisted in developing transportation master plans, analyzing operational performance and ridership data, recommending operations best practices, and developing grants. Mr. Sangillo has used his diverse skill set to support transit (rail, bus rapid transit [BRT], local bus, and paratransit) projects across the country as well as highways, arterials, freight, parking, pipelines, ITS, and pedestrian/ bicycle facilities.

Deputy Project Manager, South Halsted Bus Corridor Enhancement Project, Chicago Transit Authority (CTA) and Pace Suburban Bus (PACE), Chicago, IL. Mr. Sangillo helped lead an effort to identify and evaluate BRT options for an 11-mile corridor connecting Harvey, IL to CTA Red Line. He led the production of various tasks related to the project and served as the primary contact to the project's clients. For the project's first task, he drafted an Existing Conditions & Needs and Deficiencies Report. The report analyzed existing roadway and traffic conditions, crashes and safety issues, existing transit service, ridership, and performance, land use, detailed demographic and employment information, and commuting patterns. It also highlighted transportation needs in the corridor including current deficiencies. Following this task, Mr. Sangillo and the project team identified potential corridor improvements including upgraded and consolidated stations, bus queue jumps, and dedicated transit lanes. Using a set of quantitative and qualitative measures, the team is currently evaluating corridor enhancement scenarios based on the project's Purpose & Need statement as drafted by Mr. Sangillo and approved by local stakeholders. Throughout the project's duration, he conducted biweekly progress meetings with the clients and conducted three community advisory group meetings during which the project team presented its findings to key stakeholders.

Small Starts Task Lead/Transportation Planner, Madison Street BRT, Seattle Department of Transportation (SDOT), Seattle, WA. Mr. Sangillo led the completion of the Small Starts application grant to obtain approximately $60M in federal funding. He directed the writing and analysis of qualitative and quantitative information that described the benefits that the project would have on mobility, congestion relief, land use, economic development, and the environment, as well as the project's overall cost-effectiveness and financial feasibility. His analysis also included analysis of potential ridership in the corridor, operating scenarios for buses in the corridor and related cost estimates, as well as analysis of local and regional demographics.

Transportation Planner, Roosevelt to Downtown High Capacity Transit Project, SDOT, Seattle, WA. Mr. Sangillo collected and synthesized data on existing conditions along the corridor and across the region. This information was used to provide a context for the project team on the project's goals and constraints. He developed an outcome-based evaluation framework with consideration for the project purpose, need and goals to provide direction and to meet Federal Transit Administration (FTA) criteria. He also developed a spreadsheet model to estimate expected vehicle operating characteristics based on observed travel times, traffic patterns, and existing and proposed infrastructure. His analysis was used to estimated capital and operating costs.

Deputy Project Manager, Illinois Route 390 Tollway Corridor Service Study, PACE, Chicago, IL. Mr. Sangillo helped lead an effort to evaluate and identify public transit service options for a newly constructed toll road, the Illinois Tollway's (Tollway) Elgin O'Hare Western Access (EOWA) Project, located within Pace's existing service area. He led the production of all tasks related to the project and served as the primary contact to the client. For the project's first task, Mr. Sangillo led a team that included transportation planners, travel demand modelers, and GIS technicians to draft an Existing Conditions and Market Assessment Report. The next task required Mr. Sangillo and his team to develop an Alternatives Analysis which compares various plans and policies already proposed throughout the region on relevant factors. Mr. Sangillo also lead the development of an Implementation and Financial Plan, which evaluated various previously proposed public transportation improvements along with new ones developed during this project and outline practical, implementable steps.

Jeffrey M. Sangillo, AICP

MARKET DEMAND & FEASIBILITY; SHORT & LONG-RANGE PLANNING; PROGRAM/PROJECT MANAGEMENT PLANS; NEW GRANT OPPORTUNITIES SUPPORT; MOBILITY ON DEMAND APPLICATION PLANNING

NEPA and Small Starts Task Lead, Red Line BRT NEPA and Design Services, Indianapolis Public Transportation Corporation, Indianapolis, IN. Mr. Sangillo led two separate tasks; the first task was the development of three Categorical Exclusions (CE) documents in accordance with National Environmental Policy Act (NEPA) requirements, one document for each of the project's three phases. He served as the primary author for multiple sections of each documents 22 categories, reviewing the project's potential impacts on the community and environment. He also coordinated the efforts of and reviewed the work of subcontractors and subject matter experts to deliver for final approval by the FTA, including liaising with IndyGo, FTA, the State Historic Preservation Officer (SHPO) to ensure that all comments were addressed and the Section 106 Historic Review Consultation process was complete. Mr. Sangillo reviewed historic and archaeological documents, summarized findings, received input, and interested consulting parties. Mr. Sangillo also led the completion of a Small Starts Application Grant for Phase 1 of the Red Line, which would seek to obtain approximately $75M in federal funding. Mr. Sangillo developed recommendations for steps to maximize the overall competitiveness of the applications, including qualitative and quantitative information that described the benefits that the project would have on mobility, congestion relief, land use, economic development, and the environment, as well as the project's overall cost effectiveness and financial feasibility. His analysis also included analysis of potential ridership in the corridor, operating scenarios for buses in the corridor and related cost estimates, as well as analysis of local and regional demographics.

Transit Planner, Downtown-Uptown-Oakland-East End BRT, Port Authority of Allegheny County, Pittsburgh, PA. Mr. Sangillo provided technical assistance in the completion of a Small Starts Application Grant the project, which would seek to obtain approximately $97M in federal funding. He provided subject matter expertise on the requirements of the application and coordinated with a team to complete sections relating to mobility, congestion relief, land use, economic development, and the environment as well as the project's overall cost effectiveness and financial feasibility. His conducted stop-by-stop ridership analysis for the corridor and helped to develop operating scenarios for BRT and local bus service.

Task Leader, Ashland & Western BRT Corridor Development: Business Parking Survey, CTA, Chicago, IL. Mr. Sangillo led an effort to survey business related parking along two 16-mile corridors, which were intended for the implementation of BRT service. Mr. Sangillo developed and implemented a data collection plan, including overseeing the efforts of two field teams. He then performed QA/QC on the data and synthesized into a report. The final product provided a detailed summary of all business-related parking, including on-street and off-street along the corridors.

Interim Technical Director, Dammam Master Transportation Plan, Dammam Municipality, Dammam, Saudi Arabia. Mr. Sangillo recommended for future public transit, parking, and pedestrian as part of high-level multimodal transportation plan, including infrastructure and policies to make transit a viable mode of travel the city based on the results of a travel demand model. He also developed long-range costs estimate for future expenditures. In the final stages of the project, he assumed the role of technical director, in which he set and managed project objectives and schedules related to the delivery of the overall final product including obtaining stakeholder input and incorporating client comments. This included coordinating the work of task leaders, support staff, and subconsultants.

Transportation Planner, Union Pacific West Line and Northwest Line Upgrade Environmental Assessments, Metra, Chicago, IL. Mr. Sangillo finalized the results of a two multi-year environmental assessments detailing the implications of updates to two Metra lines, including at both a system-wide and site-specific level. He managed the final deliverable process including synthesizing final results and addressing outstanding client and FTA comments.

Transportation Planner, Red Ahead Program: Red and Purple Modernization and Red Line Extension Projects, CTA, Chicago, IL. Mr. Sangillo provided on-site, long-range transit planning services. He was responsible for analyzing parcel and building displacements required for the projects, including gathering data and quantifying impacts. He also conducted financial analysis of future project cash flows and made improvements to the projects' cost estimates to better reflect construction schedules. He developed and reviewed outreach materials including FAQs, videos transcripts, flyers, newsletters, websites, and presentations.

Robin E. Ijams

VEHICLE ACCESS STANDARDS

Years of Experience: 30 | **Education:** BA – Environmental Studies

Ms. Ijams has more than 30 years of experience in environmental analysis and environmental regulation including preparation and management of environmental documents for complex, controversial projects. She has managed and participated in preparing environmental impact reports and environmental impact statements for a wide diversity of projects, ranging from small-scale environmental assessments to complex, multi-agency documents. She is experienced in airport and highway transportation projects, waste management/treatment facilities, wastewater projects, correctional facilities, and master planned communities.

Project Manager, Los Angeles International Airport (LAX) Mitigation Monitoring, Los Angeles, CA. Ms. Ijams has supported LAWA's Program Development Group (PDG) and Environmental Programs Group (EPG) in implementing and documenting compliance with Mitigation Monitoring and Reporting Programs (MMRPs) associated with the LAX CIP. She assisted LAWA in obtaining a coastal development permit waiver for the Bradley West Project, developed an innovative and cost-effective solution to fulfill mitigation obligations associated with tree removals for development of a construction staging area along Westchester Parkway, oversaw implementation of archaeological/paleontological monitoring requirements, and assisted EPG in documenting compliance with various biological resources mitigation measures. She has also assisted PDG and EPG in preparing MMRP Annual Progress Reports.

Project Manager, Environmental Impact Report related to the Los Angeles Westside Mobility Plan, Los Angeles, CA. Ms. Ijams managed the preparation of an EIR to evaluate impacts associated with amendments to the Coastal Transportation Corridor Specific Plan and the West Los Angeles Transportation Improvement and Mitigation Plan Specific Plan. The EIR was prepared on behalf of the City of Los Angeles Department of City Planning, in conjunction with the City's DOT. The amendments to the specific plans include proposed modifications to existing transportation impact assessment fees and the adoption of revised lists of transportation projects, which would be partially funded by those fees and are intended to improve mobility throughout the west side of Los Angeles. These transportation projects included a wide array of multi-modal improvements—transit, bicycle, pedestrian, and vehicular—and incorporate planning concepts such as livable boulevards, streetscape improvement plans, and the Mayor's Great Streets initiative.

Project Manager, Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for LAX Master Plan, Los Angeles, CA. Ms. Ijams managed the preparation of a joint EIS/EIR and other studies for the LAX Master Plan in the fulfillment of California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). The EIS/EIR was prepared on behalf of the Federal Aviation Administration (FAA) and Los Angeles World Airports (LAWA). Ms. Ijams worked closely with FAA and LAWA on the strategic resolution of environmental issues, and ensured that the documentation met all statutory requirements and regulatory guidelines. Ms. Ijams was responsible for day-to-day coordination, communication, and information management for a complex project team. She managed key technical studies, including comprehensive air quality modeling, human health risk assessment, and hydrology and water quality studies, as well as preparation of responses to over 19,000 comments received on the environmental documents. Over the course of the project, Ms. Ijams participated in over 20 public workshops and hearings, including several Environmental Justice workshops. Subsequent to the approval of the Master Plan, Ms. Ijams has continued to assist LAWA with implementation and other Master Plan-related issues.

Project Manager, Specific Plan Amendment Study (SPAS) and EIR for LAX, Los Angeles, CA. Ms. Ijams managed the LAX Specific Plan Amendment Study, which comprehensively evaluated alternative north airfield, north terminal, and ground access configurations to plan for the modernization and improvement of LAX. The Study consisted of three phases: concept development, alternatives selection, and environmental review. Nine alternatives were identified through the concept development process, all of which were studied in detail in the Draft EIR. Ms. Ijams managed the preparation of the LAX SPAS Report, which documented the study process and results. She also managed a multi-disciplinary team of technical experts in the completion of the SPAS Draft and Final EIRs. Public outreach was an integral component of the SPAS process, including a series of meeting during the concept development process to gain input from community members, airport neighbors, and other stakeholders; two public scoping efforts; and a broad public outreach effort during the Draft EIR comment period.

Robin E. Ijams

VEHICLE ACCESS STANDARDS

Project Manager, LAX Capital Improvement Program Environmental Documentation, Los Angeles, CA. Subsequent to the approval of the LAX Master Plan, Ms. Ijams managed a variety of project-level CEQA documents to support implementation of the LAX Master Plan and LAWA's related Capital Improvement Program (CIP). These included project-level EIRs for the South Airfield Improvement Project, Bradley West Project, and Crossfield Taxiway Project, as well as Negative Declarations and/or NEPA documents for recent north terminal improvement projects, including Terminal 1, Terminal 1.5, and the Terminal 3 Connector. She recently managed the preparation of the CEQA and NEPA documents for the Secured Area Access Post Project, with an emphasis on ensuring that the project was consistent with LAWA's recently developed LAX Preservation Plan, and was a team member for the LAX Landside Access Modernization Program EIR and EA. She has also prepared CEQA documents for several tenant improvement projects at the airport, including the United Airlines East Aircraft Maintenance and Ground Service Equipment Project EIR, Atlantic Aviation Hangar and Office Development Project Negative Declaration, and the American Airlines Commuter Facility Improvement Project documented CEQA categorical exemption.

Project Manager, EIR for LAX Bradley West Project, Los Angeles, CA. Constructed in preparation for the 1984 Olympics, the Tom Bradley International Terminal at LAX is in need of major facility improvements to meet the needs of the aviation industry in the 21st century and to serve as the primary Pacific gateway to the US. To enable this historic modernization, at $1.B (largest capital improvement in the City's history), Ms. Ijams managed the preparation of an EIR addressing the comprehensive reconfiguration of the landside facilities and the replacement of two airside taxiways. The project-level EIR for the Bradley West Project was tiered off the program level EIR prepared for the Master Plan and focused on issues particular to the construction of the proposed improvements, including traffic, air quality, human health risk, and biotic resources. In addition, the EIR included a thorough analysis of potential impacts related to global climate change associated with both operations and construction. Ms. Ijams provided support to move the project into execution, assisting in the implementation of mitigation measures and the resolution of permitting and environmental compliance issues.

Project Manager, EIR for LAX Crossfield Taxiway Project (CFTP), Los Angeles, CA. Ms. Ijams managed the preparation of an EIR for construction of new taxiways at LAX in fulfillment of the CEQA. The CFTP provided a new north-south taxiway and extension of an existing east-west taxiway at LAX and was an integral component of a $3B modernization program at the airport. These taxiway improvements were designed to alleviate periodic congestion on the airfield, improve the safety and efficiency of aircraft ground movements, and reduce aircraft taxi time and delay. The improvements were specifically designed to accommodate Aircraft Design Group VI aircraft, such as the Airbus A380 and Boeing 747-8. The project-level EIR for the CFTP was tiered off of the program level EIR prepared for the Master Plan and focused on issues particular to the construction of the proposed improvements. Due to the strategic importance of these improvements in the overall modernization program, the EIR was prepared on an aggressive schedule, with project approval obtained within 12 months of initiation of the environmental process.

EIR Task Manager, LAX South Airfield Improvement Project, Los Angeles, CA. Ms. Ijams oversaw the preparation of water quality and operational health risk analyses for the South Airfield Improvement Project Focused EIR. For the first project to be implemented under the LAX Master Plan, Ms. Ijams worked closely with LAWA to ensure that the project-level EIR was consistent with the Master Plan programmatic EIS/EIR. She managed the preparation of the Final EIR for the project, consisting primarily of responses to the 600+ comments received on the document. The Final EIR was completed in five weeks in order to ensure the availability of federal funds for project implementation.

Project Manager, EA for the Westchester Golf Course Three-Hole Restoration Project, LAX, Los Angeles, CA. Ms. Ijams managed the preparation of an EA for Westchester Golf Course three-hole restoration project at LAX. The project involved design of new three holes and preparation of the EA. The EA addressed a number of issues, including cultural resources, biological resources, water quality and cumulative impacts. The project required informal Section 7 consultation with the US Fish and Wildlife Service, coordination with the State Historic Preservation Officer and the Native American Heritage Commission, and tribal consultation. Ms. Ijams worked closely with FAA Western-Pacific Region, Los Angeles Airport District Office staff in the EA preparation.

John R. Pehrson, PE

VEHICLE ACCESS STANDARDS

Years of Experience: 35 **| Education:** MBA; BS – Chemical Engineering **| Registration:** PE – CA **| Certifications:** SCAQMD Certified Permitting Professional

Mr. Pehrson's experience include estimating past, current, and future greenhouse gas (GHG) inventories for comparison to GHG reduction goals and identification of potential GHG emission reduction measures. He is responsible for conducting quality control reviews of GHG emission calculations and supporting the identification of potential GHG emission reduction measures. Projects include development of CEQA GHG and climate change impact analyses for master plan and capital improvement projects.

Air Quality Task Manager, Berths 226-232 Container Terminal Expansion Project Environmental Impact Statement/ Environmental Impact Report (EIS/EIR), Port of Los Angeles, CA. Mr. Pehrson is leading a team of air quality specialists in modeling the potential air quality impacts of a major terminal expansion project in the Port of Los Angeles (Port) for a joint EIS/EIR. The analyses will address both local and regional air quality impacts from on-road mobile sources (container trucks and worker vehicles) and off-road mobile sources (ships, tug boats, cargo handling equipment, and rail locomotives). The impacts are estimated using ARB EMFAC, CalEEMod, and HARP2 models, as well as Environmental Protection Agency (EPA) emission factor reports, and AERMOD dispersion models. His team is also estimating GHG emissions from all sources located on the project site as well as utility plant emissions associated with power purchased to operate electrical equipment. Finally, Mr. Pehrson conducted the General Conformity applicability analysis and determined that project emissions would not exceed the de minimis thresholds.

Air Quality Task Manager, Berths 302-306 Container Terminal Expansion Project EIS/EIR, Port of Los Angeles, CA. Mr. Pehrson led a team of air quality specialists in modeling the potential air quality impacts of a major terminal expansion project in the Port for a joint EIS/EIR. The analyses addressed both local and regional air quality impacts from on-road mobile sources (container trucks and worker vehicles) and off-road mobile sources (ships, tugboats, cargo handling equipment, and rail locomotives). The impacts were estimated using ARB EMFAC, CalEEMod, and HARP models as well as EPA emission factor reports, and AERMOD and CAL3QHC dispersion models. His team also estimated GHG emissions from all sources located on the project site, as well as utility plant emissions associated with power purchased to operate electrical equipment. Finally, Mr. Pehrson conducted the General Conformity applicability analysis and determined that project emissions would not exceed the de minimis thresholds.

Air Quality Program Manager, Los Angeles International Airport (LAX) Master Plan Implementing Project EIRs, Los Angeles, CA. Mr. Pehrson led the air quality team to successful completion of the Final EIRs for the South Airfield Improvement, Crossfield Taxiway, Bradley West, and Central Utility Plant Replacement projects. The analyses addressed both local and regional air quality impacts from on-road mobile sources (passenger vehicles and cargo trucks); off-road mobile sources (aircraft, ground support equipment, and construction equipment); and stationary sources (utility plants, maintenance facilities, and fuel farms). Multiple air emission and dispersion models were applied to the project, including ARB EMFAC and OFFROAD emission models, FAA EDMS emission and dispersion model for airports (which incorporates AERMOD), and CAL3QHC-R for roadway intersection CO hot spots. His team assessed potential impacts from criteria pollutants, greenhouse gases and toxic (hazardous) air contaminants. Under his guidance, the air quality impact analyses demonstrated that future concentrations would meet or be better than the National and California Ambient Air Quality Standards, would conform to the SIP air quality budgets, and would not cause unacceptable risk from exposure to hazardous air pollutants.

Project Manager, LGB Sustainability Program Air Quality Benefits Analysis, Long Beach, CA. Mr. Pehrson was the technical lead in the analysis of air quality benefits associated with implementation of the LGB Green sustainability program. His team analyzed benefits associated with on-site recycling and reuse of soil and demolition materials; replacement of diesel GSE with gate power, preconditioned air, and electrical GSE; energy conservation programs; solar panel installation and operation; consolidated rental car facility; and expanded on-airport parking to replace off-airport parking shuttle trips. Their results indicated that over four million pounds of pollutant emissions had been eliminated, equivalent to removing over five million automobiles off the road annually.

John R. Pehrson, PE

VEHICLE ACCESS STANDARDS

Airport Carbon Accreditation Task Manager, Los Angeles World Airports (LAWA), Los Angeles, CA. Mr. Pehrson served as the task leader for the development of GHG inventories for LAX used to obtain Level 3 Certification from Airports Council International. His team completed GHG inventories for 2013 through 2016 demonstrating the LAWA controlled GHG emissions were lower in 2016 than the average of the previous three years. LAWA was awarded the Certification at the annual Airports Council International-North America meeting in September 2017.

Air Quality Task Manager, LAX Landside Access Modernization Program EIR, Environmental Assessment (EA), and General Conformity Determination, Los Angeles World Airports, CA. Mr. Pehrson is serving as the air quality program manager for the LAX Landside Access Modernization Program evaluations being conducted pursuant to the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and the federal CAA General Conformity regulations. His team conducted detailed air quality modeling of airport-related motor vehicle emissions, as well as construction equipment emissions using the California Air Resources Board's (ARB) EMFAC and OFFROAD models, and completed air dispersion and human health risk analyses using AERMOD. He negotiated General Conformity budgets with the South Coast Air Quality Management District (SCAQMD) and Southern California Association of Governments (SCAG).

Airport Emissions Inventory Project Manager, LAWA, Los Angeles, CA. Mr. Pehrson served as the project manager and task leader for the development of current (2012) and future (2017 – 2037) airport-wide criteria air pollutant and GHG emission inventories for LAX and Van Nuys Airport. These inventories were developed in conjunction with the update to the State Implementation Plan (SIP) for the South Coast Air Basin (the 2016 Air Quality Management Plan or AQMP). The final emission inventory reports were submitted to the SCAQMD for inclusion in the baseline inventory for SIP development. He also estimated the effect of various emission reduction measures on the future inventories.

Project Manager, SEATAC Air Pollutant Emission Inventories, Seattle, WA. Mr. Pehrson managed the verification of NOx emission reductions associated with landside improvements at the Seattle-Tacoma International Airport (SEATAC). This project also included the development of current and future criteria pollutant emission inventories for submittal to the Puget Sound Clean Air Agency (PSCAA). The work conducted for SEATAC was used to demonstrate that the capital improvement projects, particularly on roadways and parking lots, were generating the emission reductions claimed in the Master Plan EIS. Inventories were developed for current conditions and future years. Working with SEATAC, Mr. Pehrson negotiated with PSCAA to include the future inventories in the next revision of the Washington SIP.

Air Quality Program Manager, LAX Master Plan EIS/EIR and General Conformity Determination, Los Angeles, CA. Mr. Pehrson served as the air quality program manager and lead air modeler for the LAX Master Plan project EIS/EIR and General Conformity Determination. He led the air quality team to successful completion of the Final EIS, Final EIR, and Final General Conformity Determination. The project included extensive negotiation of air quality modeling protocols with the SCAQMD, ARB, US Environmental Protection Agency (EPA), SCAG, and Federal Aviation Administration (FAA). The analyses addressed both local and regional air quality impacts from on-road mobile sources (passenger vehicles and cargo trucks); off-road mobile sources (aircraft, ground support equipment, and construction equipment); and stationary sources (utility plants, maintenance facilities, and fuel farms). Multiple air emission and dispersion models were applied to the project, including ARB EMFAC and OFFROAD emission models, FAA EDMS emission and dispersion model for airports (which incorporates AERMOD), and CAL3QHC-R for roadway intersection CO hot spots. Under his guidance, the air quality impact analyses demonstrated that future concentrations would meet or be better than the National and California Ambient Air Quality Standards (AAQS), would conform to the State Implementation Plan (SIP) air quality budgets, and would not cause unacceptable risk from exposure to hazardous air pollutants. Mr. Pehrson provided technical expertise and management to the EIRs and other CEQA documents that were developed for implementation of specific LAX Master Plan projects, including the South Airfield Improvement, Crossfield Taxiway, Bradley West, and Specific Plan Amendment Study projects, as well as non-Master Plan projects, including the West Aircraft Maintenance Area and Central Utility Plant Replacement projects, and terminal improvement projects (Terminals 1, 1.5, 2/3, and 7).

Jacquelyn Murdock

FINANCIAL PLANNING & SUPPORT; PROGRAM/PROJECT MANAGEMENT PLANS

Years of Experience: 19 | **Education:** MA – Urban Planning, (Transportation Policy and Planning); BA – Environmental Policy and Latin American Studies

Ms. Murdock is a transportation planner with experience in federal, state, and regional planning conducting long-range plans, economic analysis, freight plans and priorities, project evaluation and performance management, and stakeholder engagement. Her experience includes developing transportation policy, identifying funding priorities, developing performance measures, and transportation project evaluation and prioritization. Prior to working at CDM Smith, she worked as a transportation planner and policy analyst for the Chicago MPO she developed transportation policy and funding priorities, performance measures, funding solutions, and programs for the Chicago region.

Transportation Planner, Pittsburgh Bus Rapid Transit (BRT), Port Authority of Allegheny County, Pittsburgh, PA. The Pittsburgh Urban Redevelopment Authority (URA), in cooperation with the Port Authority of Allegheny County, the City of Pittsburgh, and Allegheny County, is proposing to develop a new BRT project between Downtown Pittsburgh and Oakland. Ms. Murdock is helping complete the Small Starts application grant to obtain funding for the project. She directed the writing and analysis of qualitative and quantitative information that described the benefits that the project would have on land use and economic development. The project, known as the Downtown – Uptown – Oakland – East End BRT Project, would provide higher quality, reliable transit service between the region's two major employment centers (Downtown Pittsburgh and Oakland) and the residential communities to the east.

Grant Writer and Planner, Elmhurst Metra Station Architectural Design and Phase I Engineering Services, City of Elmhurst, IL. The City of Elmhurst selected CDM Smith for architectural design and Phase I engineering services of its Metra Station, which provides commuter rail service between the western suburbs and downtown Chicago. Building on its last three decades of downtown development, Elmhurst looks to renovate its aging station, reduce traffic congestion, and create a landmark that enhances the community fabric and economic development. Ms. Murdock provided planning and grant application assistance including CMAQ, STP, and the ICC Grade Crossing Fund for the project.

Associate Policy Analyst, Chicago Metropolitan Planning Organization (MPO), Chicago, IL. Prior to working at CDM Smith, Ms. Murdock worked as a transportation planner and policy analyst for the Chicago MPO. While there, she developed transportation policy and funding priorities, performance measures, funding solutions, and programs for the Chicago region. Her work included evaluating projects for federal and state funding, developing freight, transit and transportation analyses and policies, developing performance measures for the long-range plan, providing analysis to inform transportation agencies and transit providers, establish regional priorities through performance measures and performance-based planning, and transportation programming. Ms. Murdock led the development of several data driven documents assessing trends in transportation and freight data, supply chain and economic analysis, demographics, industrial land use, tax policy, and creating a more robust and inclusive economy.

Lead Planner, DuPage County Long-Range Transportation Plan (LRTP), DuPage County, IL. CDM Smith is preparing DuPage County's first LRTP. The project includes extensive stakeholder involvement, an update to the County's travel demand model, extensive analysis of maintenance and rehabilitation needs and policies, and a detailed financial plan, in addition to the capital improvement plan. The plan will be fully compliant with MAP-21. CDM Smith is also assisting with the update of the county's Road Improvement Impact Fee Ordinance. Since joining CDM Smith, Ms. Murdock has been leading the transportation planning elements of this project.

Lead Planner, Will County Community Friendly Freight Mobility Plan, Will County, IL. CDM Smith is completing an extensive analysis of freight movements in suburban Will County, home of the nation's largest inland port. The study includes extensive stakeholder engagement within the freight and distribution industry, community input, and extensive analytics using shipping datasets. Additionally, the study's workforce component will identify training needs and opportunities to assist employers in identifying needed staffing for this growing industry. Since joining CDM Smith, Ms. Murdock has been leading the transportation planning elements of this project.

Jacquelyn Murdock

FINANCIAL PLANNING & SUPPORT; PROGRAM/PROJECT MANAGEMENT PLANS

Planner, Strategic and Financial Planning Assistance for Alternative Contracting Methods, Illinois Department of Transportation (IDOT), IL. CDM Smith is assisting IDOT in investigating the feasibility of transportation projects to be delivered as public-private partnerships (P3) and potentially develop projects and procure projects utilizing the P3 delivery method. CDM Smith is working with IDOT to determine the financial, legislative, and engineering feasibility of implementing specific projects and to procure projects utilizing P3s and to develop, implement and procure projects through other alternative contracting methods. Ms. Murdock is assisting in the development and implementation of policies, procedures, specifications, and operating manuals related to alternative contracting methods.

Transportation Planner, LRTP Update, Indiana Department of Transportation (INDOT), Indianapolis, IN. The purpose of updating the LRTP is to understand future transportation needs and develop performance measures and targets used for assessing system performance. Ms. Murdock is primarily developing policy recommendations and analysis related to aviation, highways, bridges, ports and waterways, freight rail, passenger rail, bicycle and pedestrian, and public transit.

Lead Transportation Planner, Waller County Mobility Plan for Houston-Galveston Area Council (H–GAC), Houston, TX. CDM Smith is supporting the H–GAC, in partnership with Waller County, to create the Waller County Transportation Plan. Ms. Murdock is serving as a lead transportation planner. The Plan will examine transportation and socio-economic conditions in Waller County to determine Waller County's transportation needs. The Waller County Transportation Plan will include recommended revisions to the county thoroughfare plan and the creation of prioritized projects and policies in the form of "implementation workbooks" for each of the participating jurisdictions.

Transportation Planner/Task Lead, US 67 Corridor Master Plan, Texas Department of Transportation (TxDOT), El Paso and Odessa Districts, TX. For the TxDOT, Ms. Murdock is leading the public engagement and policy for the US 67 Corridor Master Plan. The US 67 corridor is a 142-mile long stretch of US 67 from I-10 near Fort Stockton to the Presidio/Ojinaga Port of Entry on the Mexican border. It provides access to the towns of Marfa, Alpine, and Presidio, as well as Big Bend National Park, the Marfa Lights, and other West Texas attractions. Although the corridor is rural, it has experienced traffic growth driven by many factors including international commerce and Permian Basin oil field development. A key task of the Corridor Master Plan will be to analyze current and future transportation and economic impacts, and assess options for accommodating the expected growth while preserving regional quality of life.

Planner, National Environmental Policy Act (NEPA) Services for the Red Line Extension, Chicago Transit Authority (CTA), Chicago, IL. CTA and the Federal Transit Administration (FTA) have initiated the environmental review process to extend the Red Line south 5.3 miles from the existing 95th Street Terminal to 130th Street. CDM Smith prepared a NEPA Draft Environmental Impact Statement (EIS) to summarize the environmental impacts associated with this project and outline appropriate mitigation measures to avoid or reduce identified adverse impacts. Once environmental processes are complete and FTA issues a Record of Decision on this project, a New Starts application is expected to be completed. Ms. Murdock assisted the environmental and planning project team with the alternatives analysis for this phase.

Graduate Researcher, California Center for Sustainable Communities, UCLA, CA. Prior to working at CDM Smith, Ms. Murdock worked with utilities, the Governor's Office, and the regional transportation agency to quantitatively analyze transportation and utility data in Los Angeles County and provide real-time information on the effects of transportation and land use policies. She quantified the effect land use has on transportation systems and updated existing modeling tools to improve the integration of energy and transportation considerations into future planning and development efforts.

Anastasia Richmond

CAPITAL PROJECT PLANNING, RESEARCH & ASSESSMENT; STRATEGIC PLANNING & POLICY; LAND USE; FDOT/FTA GRANT REPORTING, ADMINISTRATION; TRANSIT ASSET MANAGEMENT

Years of Experience: 25 | **Education:** MS, BS – Geography

Ms. Richmond has a keen understanding of how state policy can impact private property owners as well as state, resources, and facilities. She is skilled at working with stakeholders in the legislative process and implementing new legislation for impacting a wide variety of subjects including transportation facilities and services, land use, and the environment. She has an excellent background working with multi-agency and multi-jurisdictional issues related to Florida's growth management laws, including the Community Planning Act, as well as working with multiple FDOT offices to develop state-wide planning handbooks and transit plans, including the Florida Freight Mobility and Trade Plan (FMTP).

Planner, Systematic Grade Separation Document, FDOT Freight and Multimodal Operations Office, FL. Through an on-call task order with the Department, Ms. Richmond was the lead author of the Systematic Grade Separation document for the Rail Office. Ms. Richmond also provided QA/QC on the Rail Plan, FMTP Investment Element FAST Act Addendum, and FMO Guidebook.

Transportation Site Impact Handbook (TSIH), FDOT Systems Implementation Office, FL. Ms. Richmond served as lead reviewer for the rewrite of the TSIH. She collaborated with Gina Boyani of the Systems Implementation Office to review the TSIH and address the updates to the processes that were written in 2012. The TSIH guides professionals through the current generally accepted professional practice to estimate the transportation impacts of growth. The guidebook will assist agencies in making better decisions when studying the transportation impacts of new developments. It will also help professionals understand the existing statutes, rules, and policies of FDOT.

Planner, Strategic Intermodal System (SIS), FDOT On-site Systems Implementation Office, FL. Ms. Richmond worked on the Multimodal Unfunded Needs Plan for the SIS which identified transportation projects that help meet mobility needs, but where funding is not expected to be available during the 25-year time period of the SIS Funding Strategy.

Planner, Shared Use non-Motorized (SUN) Trail Program, FDOT On-site Systems Implementation Office, FL. Ms. Richmond worked on the SUN Trail Program, assisting with the mapping, funding scenarios, district trainings, and organizing and facilitation of the first statewide trail coordinators meeting.

Planner, 2016 Community Planning Handbook, FDOT Office of Policy Planning, FL. Ms. Richmond provided Office of Policy Planning staff with a streamlined process handbook on community planning (Part II Chapter 163). The handbook was intended to provide Central Office and District staff with a process to consistently review the impacts of plan amendments on transportation facilities and services. The handbook included sample letters to local governments and the state land planning agency. The handbook also included information on intergovernmental coordination between local governments, private land owners, and other agencies. Ms. Richmond assisted then Community Planning Manager with Comprehensive Plan Amendment Reviews.

Bureau Chief, Community Planning, Florida Department of Economic Opportunity, Tallahassee, FL. Ms. Richmond was responsible for the implementation and administration of the requirements of Chapters 163 and 380, F.S., on a statewide basis. She oversaw the review of local government comprehensive plans and plan amendments, as well as evaluation and appraisal reports submitted to the Department. In addition, she oversaw the review of applications of development approval, notices of proposed change, development orders, binding letters, agreements and other documents submitted to the Department. Ms. Richmond represented the Department at local public hearings, local and state committees, and provided legal testimony. During her time with the Department, Ms. Richmond worked on many landscape level planning projects including the Sector Plans adopted in Florida for Bay Walton County (75,000 acres); East Nassau Community Planning Area (24,000 acres); and North Ranch Sector Plan (130,000 acres) in Osceola County, FL. These plans were for long-range (up to 80 years) and included both a conceptual framework and detailed implementation strategies for urban form and infrastructure (roads, water, wastewater, schools, and fire) and environmental preservation.

Anastasia Richmond

CAPITAL PROJECT PLANNING, RESEARCH & ASSESSMENT; STRATEGIC PLANNING & POLICY; LAND USE; FDOT/FTA GRANT REPORTING, ADMINISTRATION; TRANSIT ASSET MANAGEMENT

Plan and DRI reviews included traffic analysis for sites from five to 130,000 acres with timeframes from 1 to 80 years. Ms. Richmond is well versed working with rural, urban, and suburban local governments throughout the state, and understands the unique opportunities and challenges facing both the local governments and the state agencies with regards to planning and the provision of infrastructure. This project was completed while with a previous employer.

Regional Planning Administrator, Florida Department of Community Affairs, Tallahassee, FL. In this role, Ms. Richmond managed the comprehensive and DRI processing and functions assigned to the Department under Florida's Growth Management Act and Florida Coastal Management Program to ensure the timely, proper and effective review of all local plans and plan amendments. She managed a team of five planners responsible for state planning activities; provided technical assistances to local governments; assisted local planning staff with geographic information system (GIS) mapping to facilitate comprehensive plan review; and monitored performance measures for quarterly and annual Long-Range Program Plan updates. Ms. Richmond represented the Department at local public hearings, local and state committees, and provided legal testimony, while with a previous firm.

Principal Planner, Florida Department of Community Affairs, Tallahassee, FL. Ms. Richmond reviewed local government comprehensive plan amendments and developments of regional impacts to determine consistency with statutory and administrative criteria, while with a previous employer. She provided technical assistance on planning issues to local governments throughout the state, including presentations to local government planners and elected officials regarding the growth management act and other department initiatives. Ms. Richmond served as the team leader for the implementation of optimal visioning and 10-year urban service boundary provision created by the 2005 growth management legislation. In addition, she assisted with the development of guidance and policy regarding regional and local visioning.

Technical Specialist, Engineering Consultant Firm, Tallahassee, FL. Ms. Richmond worked with local governments throughout the county to develop and implement special assessments, while with a previous employer. She also developed software using Visual Basic and Structured Query Language (SQL) with a mapping interface to ArcView GIS for clients to use in implementing these assessments.

Database/GIS Analyst, Government Services Group, City of Tallahassee, FL. Ms. Richmond performed data collection and standardization from various local and state sources to calculate special assessments and user fees for local governments in Florida, while with a previous firm. She developed databases and user manuals for local governments to implement these assessments and fees. Additionally, Ms. Richmond created routines to merge the special assessment data with word processing software to create Truth in Millage (TRIM) notices for Florida local governments.

Water Utility Services Specialist, Stormwater Management Department, City of Tallahassee, FL. Ms. Richmond developed a billing and tracking database to determine the stormwater utility fee for the City's 100,000 plus non-residential utility customers, while with a previous firm. Additionally, Ms. Richmond assisted in developing guidelines and procedures to streamline data input to minimize back billing. She also supervised field work to verify stormwater billing for existing customers.

Planner, Comprehensive Plan and Long-Range Transportation Plan (LRTP), Town of Mount Pleasant, SC. As a task order through an existing Indefinite Delivery Planning and Design On-Call Contract with the Town of Mount Pleasant, CDM Smith has developed the first joint Comprehensive Plan and municipal level transportation plan in the State of South Carolina. This planning effort was an integrated planning process that included all required elements of a Comprehensive Plan and incorporated mobility needs related to growth and development pressures facing the Town. The mobility plan included all traditional elements of a LRTP, including a needs assessment, demand forecasting, public engagement, and an implementation strategy with financial planning elements. Ms. Richmond served as a planner on the Comprehensive Plan and LRTP. She drafted plan polices related to land use and transportation for the Comprehensive Plan and for the LRTP. Ms. Richmond also provided background information on funding opportunities for the LRTP and a Regional Profile.

Timothy L. King, RA, LEED AP

MAINTENANCE & OPERATIONS FACILITY SITE ANALYSIS; FLEET/VEHICLE MANAGEMENT, FACILITIES & CAPITAL EQUIPMENT PLANNING

Years of Experience: 27 **| Education:** B-Architecture **| Registration:** RA – OH, AL, AR, CO, C, CO, GA, IA, IL, IN, KS, KY, MD, MI, MN, MO, MT, NE, NJ, OR, PA, RI, WV LEED Accredited Professional

Mr. King has 27 years of professional experience in architectural programming, planning, design, and construction. He has prepared design and construction documents for numerous industrial, municipal, medical, and commercial projects with a heavy emphasis on transit-related facilities. Mr. King has designed and managed 10 Transit related projects over the last 15 years. He has also served as a LEED accredited professional and sustainability champion for multiple projects for transit facilities.

CNG Technical Expert, Pennsylvania Department of Transportation Bureau of Public Transportation, Contract E02614 WO#20. Mr. King serves as a CNG technical expert for the CNG P3 project. He was actively involved with coordinating with 25 transit agencies, the Development Entity (Proposer) and other team members including legal, financial, and environmental consultants. Mr. King helped to develop the Technical Provisions and provide input on the Instructions to Proposers and Contract Agreement. Also, he helped to create conceptual site layouts and perform reviews and provide comments on the Development Entities preliminary designs for CNG fueling stations and building code modifications. This $85M project is now in the implementation phase with construction and Operation and Maintenance for a term of 20 years of the first 12 CNG stations and maintenance building upgrades.

Project Manager, Cambria County Transit Authority Bus Storage Improvements, Johnstown, PA. For addendum E02614 WO#19, Mr. King served as project manager to perform a CNG readiness assessment of the newly constructed maintenance and bus storage facility. CDM Smith reviewed existing drawings, walked the facility and evaluated the HVAC, electrical, and building structure for compliance with CNG codes and standards. Required modifications were documented and cost estimates were developed.

Project Manager, New Intermodal Transit Facility, Crawford Area Transportation Authority, Meadville, PA. Mr. King was the project manager, lead architect, and LEED administrator for the newly constructed Crawford Area Transportation Authority (CATA) facility that housed administrative and operations staff in a new 7,000-square-foot (sf) building.

Project Manager, Multimodal Transit Facility, Butler County, PA. Mr. King served as project manager and lead architect for the design and construction of the Butler Township/City Joint Municipal Transit Authority's new multimodal transit center. The Transit Center ("The Bus") encompasses a terminal, offices, 43,000 sf storage and maintenance facility, and a commuter park-and-ride lot. The administrative office building is planned to be two floors, approximately 15,000 sf in totality. The project design included several energy-efficient elements, and the administration building is designed to meet LEED Silver certification standards. This building will be heated and cooled by a new geothermal system, which will also heat the nearby bus maintenance facility through radiant floor heat. Issues of vehicular circulation, acreage requirements, security, site utilities, environmental impact, cost analysis, and alternative project delivery methods where determined during this initial need study. The facility is being planned to allow 25-year growth and accommodate seven full-size transit buses (30-35 foot), and 25 para-transit buses (20-25 foot). The facility and equipment are being configured to have the capability to house and service 40-foot vehicles.

Architectural Design, Joint Operations Facility, Erie Metropolitan Transit Authority, Erie, PA. Mr. King is providing architectural design for a new, consolidated, state-of-the-art, energy-efficient facility for indoor fleet parking, maintenance and servicing, fleet wash, and fueling for 160 buses and paratransit vehicles. The facility will include many sustainable design elements including geothermal heating and cooling systems and waste oil burners for a supplemental heat source.

Technical Adviser, Administrative and Maintenance Facility Renovations, Red Rose Transit Authority, Lancaster, PA. Mr. King served as a technical adviser on this project (now under construction), which involved architectural, engineering, and planning services to renovate and expand Red Rose Transit Authority's (RRTA's) administrative and maintenance facility. The renovation and expansion of RRTA's transit facility will allow more efficient operations while minimizing impact to the environment.

Timothy L. King, RA, LEED AP

MAINTENANCE AND OPERATIONS FACILITY SITE ANALYSIS; FLEET/VEHICLE MANAGEMENT, FACILITIES, AND CAPITAL EQUIPMENT PLANNING

Architect, Bus Maintenance Facility, Mid-Mon Valley Transit Authority, Donora, PA. Phase 1 2009 & Phase 2 2016. Mr. King was the architect of record for this project, which involved programming and design to modify an existing 42,000-square foot building to accommodate bus storage and office space, a park and ride canopy, a one-story 5,000-square foot maintenance facility with two maintenance bays and a bus wash. CDM Smith also designed site improvements to accommodate associated bus circulation, parking, a fueling station and security improvements including surveillance and fencing as well as an interior secure cash room. The facility will also incorporate LEED design principles and pursed LEED Silver certification for the bus storage facility.

Project Architect, Swift Gulch Public Works and Transportation Facilities Design, Town of Avon, CO. Mr. King was responsible for programming, master planning, and design for Avon's public works and transportation facilities to optimize bus operations, maintenance functions, and circulation while maximizing view corridors and enhancing both the employee and visitor experience. The design includes a phased approach for a new administration building, stockpile/yard improvements, a temporary bus/transit operations facility, parks and recreation facilities, and a new underground parking garage to utilize available site while protecting visitors and employees from the elements. CDM Smith also provided solar panel design as part of alternate energy sourcing for the new facility. This project is planned to be a LEED Gold rated facility while carefully planning meticulous aesthetics for each facility as they relate to "mountain contemporary" design within the locale of an affluent ski resort area.

Project Manager, Bus Storage Improvements, Phase 2, Port Authority of Allegheny County, PA. Mr. King served as project manager to perform a CNG conditions assessment for two facilities including East Liberty and Manchester. The work including site visual assessments of existing conditions to determine facility modifications necessary to meet building code and standards for storage and maintaining buses. The improvements were documented on existing drawings and then a detailed cost estimate was provided.

Project Manager, Plastic Extrusion Facility Design, Confidential Client, Gastonia, NC. Mr. King served as the project manager of design for this EPCM design building project located in Gastonia. The project was a $13.2M new facility located within the Gastonia Technology Park and included a large 18,000 sf (square feet) production area for plastic extrusion, 10,000 sf of high-density raw material storage and a two-story 14,000 sf administration building. The administration building included office, conference/training rooms, laboratory and various workshops. The project was constructed on a 5-acre site with raw material silos, finished good silos, truck weigh station, and various settling basins.

Project Manager, New Laboratory/Public Education Facility, Mooney Treatment Plant, Prince William County, VA. Mr. King is project manager for programming/design of a new 30,000 sf facility that will house administration staff, 6,000 sf of analytical laboratory space with public education and exhibit component to help teach the plant processes, watershed, and Chesapeake Bay wild life.

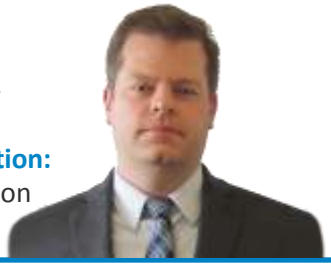
Project Architect, LEED Gold Environmental Learning Center, Los Angeles, CA. Mr. King was the project architect and LEED Administrator for this $15,000,000 LEED Gold Project. This project includes a HVAC technology referred to as "Chilled Beams," a green roof, photovoltaic panels, wind turbine, exhibit wetlands, bioswale, and urban garden to mention a few sustainable design features. The project will serve as an environmental learning science center for K-12 grade students in the City of Los Angeles Public Schools.

Project Architect, Ohio State University, Hall Renovations, Columbus, OH. This four-story 66,000 sf building will hold faculty offices, support spaces, dry research areas and wet laboratories. The college of public health will house 40 faculty and 300 students with an expected growth of 87 faculty and 600 students by 2016. The project includes construction of new elevators; new mechanical, electrical, and plumbing systems; a new roof and windows; and an improved way finding system.

Project Architect, Programming and Design Services. Mr. King served as project architect for initial programming and design services for the CESTM II Complex at University at Albany Institute for Materials. The $125M project includes a 300mm wafer prototyping and workforce training facility that will have a 35,000-square foot ISO Class 3-capable cleanroom, and a 120,000-square foot mixed use incubator office building housing a 15,000-square foot ISO Class 3-capable cleanroom, a 250-seat auditorium and "state-of-the-art" classrooms with virtual capabilities. A 9,000-square foot support building housing central utilities and process support equipment was included as part of the design.

Benjamin Harber, AIA, LEED® AP, NCARB

MAINTENANCE & OPERATIONS FACILITY SITE ANALYSIS; ELECTRIC VEHICLE FACILITIES; STATION AREA DEVELOPMENT/TOD; FLEET/VEHICLE MANAGEMENT, FACILITIES & CAPITAL EQUIPMENT PLANNING



Years of Experience: 17 **| Education:** MS – Architecture; BS – Architectural Studies **| Registration:** AIA – IL, OR, PA, WA, NC **| Certifications:** LEED AP; National Council of Architectural Registration Boards (NCARB)

Mr. Harber has more than 17 years of success in project management, architecture, and planning working on a diverse range of projects for both public and private clients in the United States and abroad. His depth of knowledge extends through all project phases—from working with stakeholders in early conceptual design all the way through construction. He brings to clients his understanding of the complexity of managing community, interagency, and financial objectives to create successful outcomes.

Lead Architect, Central Avenue Bus Rapid Transit (BRT), Pinellas Suncoast Transit Authority, St. Petersburg, FL. CDM Smith was recently selected as part of a team for final design on this 10-mile project connecting downtown St. Petersburg to the beaches. Mr. Harber will lead the team on station design and architectural components.

Project Manager, Metra Station and Downtown Planning – Architectural Design and Phase I Engineering Services, Village of Glen Ellyn, IL. The Village of Glen Ellyn selected CDM Smith for Architectural Design and Phase I Engineering Services of its Metra Station and Downtown based on the success of the work completed for the City of Elmhurst. Mr. Harber developed and is executing a project approach to gather community input, evaluate multiple alternatives, and selecting and developing a preferred alternative. Alternatives include development of a pedestrian underpass or overpass, realignment of downtown parking, pedestrian and bicycle safety/access, and planning for increased capacity of the station, while respecting the historic downtown. Phase I Engineering will be coordinated with the Illinois Department of Transportation and state and federal grants will be pursued.

Project Manager, Metra Station Architectural Design and Phase I Engineering Services, City of Elmhurst, IL. The City of Elmhurst selected CDM Smith for Architectural Design and Phase I Engineering Services of its Metra Station, which provides commuter rail service between the western suburbs and downtown Chicago. Building on its last three decades of downtown development, Elmhurst looks to renovate its aging station, reduce traffic congestion, and create a landmark that enhances the community fabric and economic development. Mr. Harber is managing the multifaceted team that will perform Illinois Department of Transportation Phase I Engineering, funding assistance, rail planning and design, bus and vehicular circulation, etc.

Project Manager, City of Joliet Facility Assessment and Asset Management Planning, City of Joliet, IL. The City of Joliet engaged Mr. Harber and a multi-disciplined CDM Smith team to evaluate all 55 municipal facilities including: office buildings, fire stations, police station, fleet maintenance facilities, libraries, and recreational facilities. The project included meeting with building engineers, documenting existing conditions, and developing cost estimates. Documents and tools were developed to assist the City in evaluating future costs over a 20-year horizon. Additionally, prioritization of projects and criticality of issues were included in the deliverables.

Lead Architect/Transit Oriented Development Planning Support, Brown Line Vision Study, Chicago Transit Authority (CTA), Chicago, IL. Mr. Harber provided general design and TOD planning for the Kimball Yard redevelopment concepts, as well as the Kedzie Brown Line Station. Key elements include community integration, identifying redevelopment opportunities, integrating rail operations, and developing comprehensive site planning. Mr. Harber met with local partners, including local community and business groups, as well as the Chicago Metropolitan Agency for Planning (CMAP).

Project Manager, 77th Street Bus Wash Facility, CTA, Chicago, IL. Mr. Harber led the design team in the renovation of an existing bus maintenance bay and the design of two drive-through bus washers. The system was designed to wash more than 250 standard bus equivalents each evening. Key elements included coordination of sequence of operations, as well as the client's desire to limit equipment damage from operator error and to achieve an 80 percent water reclaim goal in order to reduce potable water inputs.

Benjamin Harber, AIA, LEED® AP, NCARB

MAINTENANCE AND OPERATIONS FACILITY SITE ANALYSIS; ELECTRIC VEHICLE FACILITIES; STATION AREA DEVELOPMENT/TOD PLANNING; FLEET/VEHICLE MANAGEMENT, FACILITIES, AND CAPITAL EQUIPMENT PLANNING

Project Manager, Harlem Rail Washer Facility, CTA, Chicago, IL. Working through the General Engineering Task Order, the CDM Smith team designed a new rail washer for the existing Harlem Rail Yard facility. The existing exterior facility was in need of reconstruction and was limited due to exposure to weather. The site was very restrictive and close collaboration between rail operation, rail maintenance, and design team members was required to find the best solution that could be accommodated and readily maintained. Mr. Harber organized and led all project efforts, including multi-agency and municipality coordination. Close management of cost estimating was critical to the success of the project.

Lead Architect, Red Line Extension EIS, CTA, Chicago, IL. On the Red Line, the CTA proposed a 5.3-mile extension from 95th to 130th Street with three new intermediate stops in between 103rd, 111th, and 115th streets, a new station at 130th, and improvements to the 95th Street station. These additions would better serve local residents with upgraded stations, park-and-ride and bus facilities, and new transit opportunities for those on the Far South Side. Mr. Harber led design tasks for the station planning, concepts, maintenance facility concepts, renderings, and public involvement.

Lead Architect/Facilities Project Manager, Red Line BRT Station Design, IndyGO, City of Indianapolis, IN. Mr. Harber led the station planning and facility design for the City of Indianapolis's first BRT line. The station design included the coordination and integration of all ticketing, safety, platform design, and utilities. In addition, working closely with local and federal transit agencies and consulting parties, Mr. Harber led the station design through historic and preservation committees and public outreach.

Facility and Yard Operations Planning, 4th and King Terminal Study, Cal Train, San Francisco CA. CDM Smith was contracted by Cal Train to evaluate operation and facility planning for the 4th and King Terminal over the next 20 years. Mr. Harber, as part of the CDM Smith team, interviewed staff and developed alternative layouts to work with anticipated operational and facility needs. Additionally, the project evaluated future transit-oriented development (TOD) opportunities and coordination with several agencies and ongoing projects in direct proximity to the site.

Facility Design Review, Madison Street BRT Station Design, King County Metro, Seattle, WA. Mr. Harber provided review and design recommendations for the Madison Street BRT station planning and design throughout the development process. Reviews of codes and best practices within current transit station design were critical to the project success. The project extends from First Avenue in downtown Seattle to Martin Luther King Jr. Way in Madison Valley.

Lead Architect, Consolidated Facilities—Roof Replacements for Harlem and Des Plaines Rail Shops, CTA, Chicago, IL. Prior to working at CDM Smith, Mr. Harber led architecture tasks for replacement and repair of roof systems for the Harlem and Des Plaines Shops. Services included evaluation and programming of current roof systems, as well as procurement and permitting, construction, and post-construction services. Specific work tasks included architectural, mechanical, electrical, plumbing, and structural design to make improvements to these existing facilities.

Lead Architect, Fisk Power Plant Site Bus Garage Master Plan, CTA, Chicago, IL. Mr. Harber provided transportation architectural services for the Fisk Power Plant Master Plan prior to working at CDM Smith. Decommissioned in 2012, the 1903 Fisk Power Plant is located on a 60-acre site and drew complaints for decades about coal fire pollution. Tasks included conducting extensive evaluations to allow the CTA to determine needs, reuse opportunities, and community concerns, and addressing several historic landmarks on the site.

Lead Architect, 95th Street Terminal Expansion Phase I Engineering and Planning, CTA, Chicago, IL. Mr. Harber led the design team for the 95th Street terminal planning study and public involvement prior to working at CDM Smith. He led the analysis of site constraints, station planning, vendor and retail spaces, platforms, rail structure components, and the subsequent development of design recommendations. Through design charrettes with CTA staff, as well as interviewing users on site and in the community, multiple design scenarios were developed. Options included park-and-ride facilities, TOD, and expanded rail/bus service. The project included the examination of capacity and demand for each travel mode into the station. A traffic, pedestrian, bicycle, and transit rider analysis was included in the initial report.

Scott Kuznicki, PE

ELECTRIC VEHICLE FACILITIES; ELECTRIC VEHICLE SYSTEMS PLANNING & INTEGRATION

Years of Experience: 13 | **Education:** BS – Civil Engineering | **Registration:** PE – CA |
Certifications: FAA Private Pilot & FAA Unmanned Aerial Systems Remote Pilot Certificates

Mr. Kuznicki is a business strategy leader and project manager with extensive experience as a transportation mobility expert, traffic operations and safety engineer, human factors scientist, and transportation technology research and policy luminary. He has prepared project management plans and managed contracts on behalf of public agencies, those ranging in value from $10,000 to $1.2 billion. He has conducted emerging mobility integration exercises in cooperation with transit agencies, studying shared mobility services and their impacts on transportation systems.

Greater Amman Smart City Transportation Management Platform, Greater Amman Municipality, Jordan. Working with a cross-disciplinary team of transportation and smart cities personnel on this project, funded by the US Trade and Development Agency, Mr. Kuznicki is leading the development the transportation management platform architecture for the Municipality, incorporating applications and technologies exhibiting the core characteristics of a smart city, including communications systems, data collection systems, machine learning tools, and visualization platforms, and customer-facing tools. This project incorporates a full suite of conventional ITS elements, including detection, monitoring, management, and control systems. The project incorporates cutting-edge communications technologies and hardware and involves advanced implementations of traffic signals and parking management systems.

Technical Lead, Qatar Parking Master Plan, Doha, Qatar. Mr. Kuznicki's work as the technical lead involves research, assembly, and production of technical documentation related to policy, strategy, processes, planning, systems engineering, operations management, and future planning for parking services on a national scale. This work has included customer-focused studies related to parking access, wayfinding, and integration with existing and planned public transit services.

Project Manager, Regional Aviation Baseline Study, Puget Sound Regional Council, Seattle, WA. Mr. Kuznicki led a team developing models for regional access to aviation services, prepared technical documents summarizing present and anticipated airport needs in the Puget Sound region, and provided local expertise coupled with aviation advocacy experience in the process of engaging stakeholders, community organizations, and users of the region's airport facilities and aviation services in the long-range planning process.

Technical Lead, Bellevue Connection Electric Circulator Shuttle, Bellevue Chamber of Commerce, Bellevue, WA. Mr. Kuznicki developed conceptual routes, service models, preliminary engineering cost estimates, and acquisition, startup, and revenue service costs for a local circulator shuttle connecting a major shopping mall, large regional transit center, and major medical complex; the plan accommodates future deployment of electric shuttles that are also autonomous. This project was completed while with a previous employer.

Technical Programs Director, Automated, Connected, Electric, and Shared Northwest Network, Seattle, WA. While with a previous employer, Mr. Kuznicki prepared marketing materials and technical information reaching an audience of 200,000 people and developed continuous program of conferences with leading industry speakers and panelists.

Project Manager, Congestion Trends Reports, Lyft, San Francisco, CA. Mr. Kuznicki led a team of skilled analysts to deliver Congestion Trends Report series, distilling trip information to identify key trends in major markets related to demographics and access to mobility alternatives. This project was completed while with a previous employer.

Project Manager, Electric Bus Replacement Needs Analysis, Port of Seattle, WA. Mr. Kuznicki delivered needs analysis with recommendations for electric vehicle replacement and infrastructure, performing complex multi-variable alternatives analysis with changing requirements and inputs. This project was completed while with a previous employer.

Project Manager, Washington State DOT (WSDOT), Olympia, WA. Mr. Kuznicki interviewed state DOTs and prepared a final report highlighting policies supporting mobility innovation. This project was completed while with a previous employer.

Mobility Program Director, Campus Refresh, Microsoft Corporation; Redmond, WA. Mr. Kuznicki assisted senior leadership in development of strategy and tactics improving employee mobility. This project was completed with a previous employer.

David D. Tucker, PE, CEM, PMP

ELECTRIC VEHICLE FACILITIES

Years of Experience: 24 | **Education:** BS - Electrical Engineering | **Registration:** PE – FL, IN, MI, OH, WI, MN | **Certifications:** PMP

Mr. Tucker's project experience includes rehabilitations and upgrades to existing sites, as well as the design of new facilities. He has experience with single and multiple bidding contract projects, equipment procurement contracts, and various design-build and alternative delivery methods. For facility/building electrical systems, he has provided services includes lighting and lighting control systems, voice and data communication systems, access control systems, building and perimeter security systems, closed circuit television (CCTV) surveillance systems, fire alarm systems, toxic and hazardous gas detection systems, and energy and facility management systems.

Senior Electrical Engineer / Project Manager, Electrical Master Plan for Naval Support Activity (NSA) Bahrain, Naval Facilities Engineering Command (NAVFAC) Atlantic, Manama, Bahrain. NSA Bahrain has been undergoing significant changes and upgrades with the addition of new facilities and activities on site. In addition, the Navy has plans for significantly more upgrades and additions planned over the next 10 years. As a result, in 2015 CDM Smith was contracted with NAVFAC Atlantic to develop an electrical system master plan for the electrical utility infrastructure located at NSA Bahrain. The purpose of the master plan is to further investigate the existing electrical system and make the necessary recommendations to accommodate these growth plans as well as improve the reliability, resiliency, and safety of the 11kV electrical utility system. Mr. Tucker's tasks included a complete power system analysis (short circuit, load flow, protective device coordination, arc flash, motor starting) of the entire 11kV electrical utility system which stretched over the 100+ acre military complex and included the utilities 66 kV, 40 MVA substation, 25 11kV/415V substations and switchgear, and hundreds of points of service to buildings and facilities.

Lead Electrical Engineer, Standby Power Facility, DuPage County, Wheaton, IL. DuPage County contracted with CDM Smith to initiate a program of engineering services and design projects to improve the power reliability of their campus and minimize the disruption to County government and services. In September 2008, CDM Smith completed an electrical study to analyze the campus' electrical load profile, the overall campus power distribution system, and a condition assessment of the existing emergency generators. Based on this study CDM Smith recommended a new Standby Power Facility for the Campus. CDM Smith developed contract documents for bidding and procuring the Standby Power Facility's three 4.16kV, 2500kW, diesel engine generators (with provisions for a fourth engine generator), 12.47kV medium voltage switchgear, 4.16kV medium voltage switchgear, a 10MVA 4.16kV-12.47kV step up transformer. The Standby Power Facility is capable of providing backup power to the buildings through automated controls and switchgear. As project manager, Mr. Tucker led the entire project team from initial study phases to establish the size of the standby power system and siting of the facility on the County's campus, and through the preliminary design stage of the standby power facility as well as the engine-generator procurement contract. In this role, Mr. Tucker met routinely with DuPage County stakeholders, ComEd, and Inland Detroit Diesel to establish and coordinate the projects characteristics.

Senior Electrical Engineer, White River Water Treatment Plant Arc Flash Study, Citizens Energy Group, Indianapolis, IN. The White River Water Treatment Facility is a 96-mgd conventional surface water filtration treatment plant. In 2014, CDM Smith was contracted by Citizens Energy Group to perform an arc flash study for the White River Water Treatment Plant. The project included four major phases: data gathering, electrical system analysis, application of the arc flash labels, and safety training. As senior electrical engineer and engineer of record for the project, Mr. Tucker led and reviewed the power system analysis work for the plant's electrical system which includes e two 4.16kV feeders serving the water treatment facility from the Electric Utility (Indianapolis Power & Light Company), 5kV Main Switchgear, two 5kV Motor Control Centers and the 5kV North/South Loop Switchgear. The 5kV North/South Loop Switchgear serves seven 5kV pad mounted switchgears that are connected in a loop throughout the water treatment plant to 14 4.16kV-480V transformers which serve all of the building at the water treatment plant.

Electrical Engineer, Water Treatment Plant Improvements, City of Highland Park, IL. CDM Smith has been Highland Park's consultant for water system improvements since 2000. Following the development of a facility plan in 2002, CDM Smith proceeded with multiple feasibilities studies. In 2005, CDM Smith completed a preliminary engineering report for the WTP improvements. In 2008, the City authorized CDM Smith to proceed with detailed design and currently the project is

David D. Tucker, PE, CEM, PMP

ELECTRIC VEHICLE FACILITIES

under construction. The project entails upgrades to the raw water pump station, new membrane treatment facility, new 15kV ComEd electrical services, and new standby engine-generators. The plant capacity will be 30 mgd. Mr. Tucker served on the project as electrical engineer of record for the capacity upgrade and plant improvements projects. He also defined the electrical scope of the project, and provided to design development and oversight of the electrical design team.

Lead Electrical Engineer, MMSD, Jones Island RAS Pump Station Improvements, Milwaukee, Wisconsin. For MMSD at the Jones Island Water Reclamation Facility, Mr. Tucker was the lead electrical engineer for the design of a variety of improvements to the return activated pumping process system and facility. This included the replacement of the 480V, 4,000 Ampere switchgear associated with the RAS Pump Station. Due to space limitations and associated electrical infrastructure, it was necessary for the new switchgear installed in the same footprint as the existing switchgear. Electrical work included development of a detailed construction sequence and associated staging drawings to guide the construction to completion while not impacting the plant's treatment process. Successfully completed, the switchgear replacement resulted in zero unplanned shutdowns of process operations as well as zero reductions in pumping/treatment capacity.

Electrical Engineer-of-Record, UV Disinfection System Expansion Project, Green Bay Metropolitan Sewerage District (GBMSD), De Pere Wastewater Treatment Plant, DePere, WI. For GBMSD, Mr. Tucker served as the electrical engineer of record for the expansion and replacement of the UV disinfection system at the 30-mgd De Pere Wastewater Treatment Plant. Project entailed the conversion of the existing chlorine contact chamber into an UV facility. The project modified and expanded the existing 480 Volt power distribution system to support the new UV disinfection units.

Senior Electrical Engineer, M-3 Pump Station, Montgomery County, OH. For Montgomery County, Mr. Tucker provided senior electrical engineering and review for the design the new 6-mgd M-3 Pump Station. The project included a new pump station facility, new electrical systems, new utility and standby power sources, and new SCADA communication systems.

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Lead Electrical Engineer, New Generator Facility, DuPage Water Commission, Elmhurst, IL. Mr. Tucker was the lead electrical engineer for the design of the new standby power facility for the DWC's DuPage pumping station. The new facility will provide 10 MW of diesel engine-generator standby power at 4,160 volt to power the existing pumping systems. The new standby power facility is designed to achieve LEED® Silver certification and expands an existing structure for the new use which includes new office spaces. Additionally, the project includes a procurement phase for the nine 2,500 kW diesel engine-generators used at the DuPage pumping station and Lexington pump station.

Richard C. McChane

TRANSIT STOP GEOCODING; GRAPHICS, MAPPING, 3D & PRESENTATION SUPPORT

Years of Experience: 4 | **Education:** MUPP – Urban Planning and Policy; BA – Sociology

Mr. McChane is a transportation planning professional with an emphasis on transit, bicycle, and pedestrian planning and policy. His background includes transit planning, environmental review, and public involvement; bicycle and pedestrian safety education, outreach, and policy issues; bike share system planning and outreach; and sustainable designs. His additional experience includes complete streets facilities design, geospatial analysis and mapping using ArcGIS, and database management using SAS and SQL.

Environmental Planner, Red Line Extension (RLE) Project Section 4(f) Parklands Replacement, Chicago Transit Authority (CTA), Chicago, IL. CTA and FTA have initiated the environmental review process to extend the Red Line south 5.3 miles from the existing 95th Street Terminal to 130th Street. Mr. McChane was responsible for drafting and revision of project maps, written informational materials, exhibit boards, and collateral materials as part of the Draft Environmental Impact Statement publication process. In support of the Section 4(f) process to identify replacement park sites for potentially impacted parkland, Mr. McChane used a desktop GIS analysis to perform initial site selection and evaluation, performed field work to further refine potential park replacement sites, and assisted in the creation of site plans of three final options for presentation at the public hearing.

Transportation Planner, Red Line Extension (RLE) Project Environmental Impact Statement (EIS), CTA, Chicago, IL. CTA's proposal to extend the Red Line south 5.3 miles from the existing 95th Street Terminal to 130th Street in Chicago potentially includes the use of a half-mile linear park for project alignment. CDM Smith was tasked with creating a technical memorandum on the feasibility of a potential bicycle path to be constructed along the park adjacent to the rail alignment. Mr. McChane researched planning and design standards from local, state, and national sources and wrote significant portions of the memorandum text.

Complete Streets Planner, Brown Line Kimball Station Area Transit Oriented Development (TOD) Study, CTA, Chicago, IL. CDM Smith was contracted to complete a TOD Principles and Guidelines document and Kimball Station Area development concepts as part of the Brown Line Core Capacity Vision Study. The study involved extensive public outreach, including the establishment of a Technical Advisory Committee and three public meetings. Mr. McChane contributed to the development of the TOD Principles and Guidelines, a Visual Preference Survey administered during the first public meeting, and various other meeting materials. He also presented information to, and solicited feedback from, community stakeholders at the Streetscape Experience station in the workshop portion of two public meetings.

Transit Planner, BRT Small Starts Grant Funding, Seattle Department of Transportation (DOT), Seattle, WA. Seattle DOT is in the process of planning for the Madison Street Bus Rapid Transit (BRT), a 5-mile BRT line that would run northeast from downtown Seattle. Mr. McChane was a primary contributor to the economic development section of the Project Justification Criteria document for the Small Starts application.

Transit Planner, Downtown-Uptown-Oakland-East End BRT Study, Pittsburgh Urban Redevelopment Authority (URA), Pittsburgh, PA. Pittsburgh URA is proposing to develop a new BRT project connecting downtown Pittsburgh with residential and employment centers in the Oakland neighborhood. Mr. McChane analyzed current ridership of existing routes within the proposed corridors, and used GTFS and model data to complete warrant analyses for four BRT project alternatives. Mr. McChane completed a demographic analysis of the City of Pittsburgh and proposed corridors and developed project maps and other deliverables.

Transit Planner, IndyGo, Red Line BRT Categorical Exclusion (CE) Documentation, IndyGo, Indianapolis, IN. Public transit provider IndyGo is in the process of planning for the Red Line, a new 13-mile BRT line in the heart of Indianapolis. Mr. McChane assisted with development of the CE for this project, including writing sections of the document detailing impacts to parks, wetlands, floodplains, and safety, and creating project impact maps for all three phases of the project.

Richard C. McChane

TRANSIT STOP GEOCODING; GRAPHICS, MAPPING, 3D & PRESENTATION SUPPORT

Transit Planner, Pace Suburban Bus Service, Pulse Dempster Line Categorical Exclusion Documentation, Chicago, IL. Pace is proposing to create an Arterial Rapid Transit line on Dempster Avenue in the north Chicago suburbs. Mr. McChane was a primary contributor to the NEPA Categorical Exclusion documentation, including writing sections on project area land use and zoning, traffic impacts, acquisitions and relocations, social impacts and community disruption, and environmental justice. He also provided key analysis, mapping, and graphics support to Section 106 review of historic resources and Section 4(f) review of the use of public parkland and recreation areas.

Environmental Planner, CDBG-DR Program, Cook County, IL. Mr. McChane provided environmental review services to Cook County for their 2013 CDBG-DR funds. He implemented the environmental review process for the residential resilience program, and his responsibilities include data collection and desktop analysis. Mr. McChane also assisted with management and quality control of subconsultant services.

Environmental Planner, NEPA Environmental Review Services, Chicago Department of Fleet and Facility Management (2FM) and Chicago Housing Authority (CHA), Chicago, IL. Mr. McChane provides environmental review services in accordance with City of Chicago procedures and HUD NEPA regulations for a number of housing and infrastructure programs for the City of Chicago Department of Fleet and Facility Management and the CHA. The City of Chicago and CHA programs are funded by a variety of HUD funding sources including the CDBG and CDBG-DR programs. Mr. McChane is experienced in completing environmental assessments (EAs), categorically excluded reviews, and Tier 2 reviews, and his responsibilities include data collection, desktop analysis, and field assessments. Mr. McChane also assists with management and quality control of subconsultant services.

Transit Planner, Brown Line Core Capacity Vision Study, CTA, Chicago, IL. CDM Smith was contracted to complete a vision study exercise to assess current conditions and capacity constraints on the CTA Brown Line rail and develop a program of potential projects that would be eligible for FTA Core Capacity funding. Mr. McChane contributed to writing significant portions of the existing conditions report, including demographic and ridership analysis, researched the history of the Brown Line and its capital projects, and created many of the maps used in the report. He also contributed to the QA/QC process, responded to client comments and suggestions, and documented responses. Mr. McChane attended project planning meetings at CTA and was responsible for preparation of meeting materials.

Transit Planner, System-Wide Capacity Analysis, CTA, Chicago, IL. CWC Transit Group and CDM Smith were contracted to develop an analysis of system-wide capacity of CTA's rail operations to identify potential capital projects to expand rail capacity. Mr. McChane was a primary author of the executive summary, a public-facing document summarizing this analysis, its conclusions, and recommendations. The executive summary is expected to be published on the CTA website.

Transit Planner, El Metro 2016 Transit Development Plan, Laredo Metropolitan Planning Organization (MPO), Laredo, TX. The Laredo MPO, the City of Laredo Planning Department, and Laredo Transit Management, Inc. (El Metro) contracted with CDM Smith to create an updated 2016 Transit Development Plan. Mr. McChane assisted the project team near the end of plan development in recreating GIS maps and developing stakeholder presentation materials, and was a primary author of the executive summary document.

Transportation Planner, Pace Suburban Bus Service, Illinois Route 390 Tollway Corridor Service Study, Arlington Heights, IL. CDM Smith was contracted to evaluate and identify public transit service options as a result of construction of the new tollway between Lake Street and Illinois Route 83 as part of the Illinois Tollway's Elgin O'Hare Western Access project. Mr. McChane developed the existing pedestrian/bicycle conditions report as part of this study, which included assessment of existing dedicated bicycling facilities, study of the pedestrian environment using the pedestrian environment factor and walkability metrics, and analysis of network connectivity in the project area.

Transportation Planner, County Long-Range Transportation Plan, DuPage County Department of Transportation, DuPage, IL. CDM Smith was contracted to provide an existing conditions report of transportation amenities in DuPage County for its long-range planning exercise. Mr. McChane developed the existing pedestrian/bicycle conditions report as part of this study, which included assessment of existing dedicated bicycling facilities, study of the pedestrian environment using the pedestrian environment factor and walkability metrics, and analysis of network connectivity in the project area.

Jamie N. Hughes, GISP

TRANSIT STOP GEOCODING; GRAPHICS, MAPPING, 3D & PRESENTATION SUPPORT

Years of Experience: 12 **| Education:** MS – Geographic Information Systems; BS – Geography **| Registration:** Geographic Information Systems Professional Certification (GISP)

Ms. Hughes is a geographic information system (GIS) specialist with experience in transportation networks, linear referencing systems, stormwater management, environmental management, and disaster management. She has experience in data manipulation, migration and management, database management, computer-aided design (CAD) data interoperability, spatial analysis, raster analysis, and geoprocessing.Her program proficiencies include Esri's ArcGIS Desktop software, including Data Reviewer, Spatial Analyst, Utility Analyst, and Network Analyst extensions as well as ArcGIS Online.

GIS Specialist, Hurricane Risk Analysis, Florida Department of Transportation (FDOT), FL. Ms. Hughes assisted with data collection and analysis for the project deliverables. She also produced a high volume of maps to accurately illustrate the modeling and analysis results for several sensitivity and vulnerability scenarios statewide.

GIS Specialist, FEMA 4283-FL Summer Haven Environmental Assessment, Federal Emergency Management Agency (FEMA), Summer Haven, FL. Ms. Hughes worked closely with the project staff to create clear and precise figures for inclusion in project documentation including a US Fish and Wildlife Service (USFWS) letter, State Historic Preservation Office (SHPO) letter, and general scoping letter.

GIS Specialist, Louisiana Trustee Implementation Group Restoration Plan/Environmental Assessment, Coastal Protection and Restoration Authority (CPRA), LA. Ms. Hughes provided mapping support by creating figures to display proposed and planned improvement project details and updating the figures accordingly throughout the decision-making process of stakeholders.

GIS Specialist, Eufaula Reservoir Environmental Impact Statement (EIS), United States Army Corps of Engineers (USACE), Tulsa District, Multiple Counties, OK. Ms. Hughes assisted in a large amount of GIS data acquisition and organization to be used for analysis and in figures for EIS reports. She managed a large data conversion into a Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) standardized geodatabase for a deliverable.

GIS Specialist, Non-Motorized Transportation System Plan, Kentucky, Ohio and West Virginia Interstate Planning Commission (KYOVA IPC), Barboursville & Milton, WV. Ms. Hughes provided mapping support to accurately digitize and illustrate the location of existing, future planned, and proposed non-motorized transportation infrastructure within the Barboursville and Milton city limits.

GIS Specialist, AeroATL Greenway Plan, Aerotropolis Atlanta CID, Atlanta, GA. Ms. Hughes created multiple poster presentation maps highlighting various types of transportation infrastructure such as pedestrian, bicycle, transit bus and rail facilities, railroads, parking, truck routes, and major corridors within the concept study area. These maps were utilized at client and public meetings.

GIS Specialist, GIS Electric Data Migration of GIS Data, Naval Facilities Engineering Command (NAVFAC), Multiple Locations. Ms. Hughes migrated existing GIS data and created new data sourced from CAD and pdf record drawings to deliver a complete electric inventory database in the most recent version of the SDSFIE database schema. She worked on deliverables for multiple naval facilities around the world.

GIS Specialist, Hurricane Ike CDBG Housing, Galveston, TX. Ms. Hughes created maps for multiple project sites within the focus area to be included in applicant property environmental reports. She also assisted with data and database creation, maintenance, and management and census block data analysis.

GIS Specialist, Hurricane Ike Housing Management, Harris County, TX. Ms. Hughes created maps for multiple project sites within the focus area to be included in applicant property environmental reports. She also assisted with data and database creation, maintenance, and management.

Jamie N. Hughes, GISP

TRANSIT STOP GEOCODING; GRAPHICS, MAPPING, 3D & PRESENTATION SUPPORT

GIS Specialist, Digital Flood Insurance Rate Map (DFIRM) and Flood Insurance Study (FIS) Production, Federal Emergency Management Agency (FEMA), Multiple Locations. Ms. Hughes provided assistance with Summary of Map Actions (SOMA) and revalidation letter production for multiple studies. The work included determining the study footprint and reviewing the existing Letter of Map Change/Amendment (LOMC/LOMA) cases to determine validity based on the new effective. Ms. Hughes also provided support to produce Flood Risk Reports (FRR) and DFIRM for various studies.

GIS Specialist, Federal Highway Administration (FHWA), All Roads Network of Linear Referenced Data (ARNOLD) ARNOLD, Multiple Counties, PA. Ms. Hughes managed the project team to ensure data consistency and a timely deliverable. She assisted the team effort by merging source roadway data, editing and cleaning the roadway network, populating required ARNOLD attribute fields, creating linear referenced routes, and implementing quality control measures.

GIS Specialist, ARNOLD, FHWA, Statewide, NM. Ms. Hughes was a member of the ARNOLD project team. The team reviewed the roadway GIS data for the state of New Mexico and identified locations of inadequate data quality based on FHWA standards.

GIS Specialist, Florida Truck Parking Studies, Statewide, FL. Ms Hughes assisted the project team with creating informative maps to be included in a summary and publication regarding truck parking in the State of Florida.

GIS Specialist, Gainesville-Hall MPO Freight Plan, Hall and Jackson Counties, GA. Ms. Hughes assisted the project team with GIS data management and editing as well as creating detailed figures for presentation to stakeholders.

GIS Specialist, Opa-Locka Airport Stormwater Atlas, Opa-Locka, Opa-Locka, FL. Ms. Hughes assisted in updating and finalizing the existing stormwater atlas for the Opa-Locka Airport. She used periodically updated CAD drawings in ArcGIS to map and highlight stormwater features. Those features were also converted to KML/KMZ format and delivered to the client.

GIS Specialist, Port Bienville Railroad Feasibility Study, Hancock County, MS. Ms. Hughes assisted the project team through multiple project phases by conducting data analysis of spatial analysis results previously created by others using the Alternatives Analysis Research Tool. She managed and distributed project data to team members. She also created and updated figures and exhibits for presentation as well as the final report deliverable.

GIS Specialist, Whitwell Pedestrian and Bicycle Master Plan, Whitwell, TN. Ms. Hughes assisted the project team by creating, editing and analyzing project GIS data. She also produced high quality maps for the deliverable document.

GIS Specialist, CDBG Program Management Services, Louisiana Department of Natural Resources, Multiple Parishes, LA. Ms. Hughes helped to compile property applications by providing figures showing property location, benefited area, minority statistics, and low to moderate income statistics. She also analyzed census data to provide activity beneficiary forms for the applications.

GIS Specialist, Map Modernization Project, FEMA, Multiple Locations. Ms. Hughes assisted the project team with labeling issues, feature and panel revisions and map exports using Flood Map Desktop. She has also assisted creating and incorporating changes to datasets. Her work helped the team meet their scheduled goals for the FEMA MAP MOD Region 1 project, which covered multiple locations.

GIS Specialist, Golden Gate Tamiami Well Field Salinity, Collier County, FL. Ms. Hughes used point depth information to interpolate a surface layer representative of the underground water depths in the Tamiami well field area. She then created clear and concise figures to present the analysis results as well as the asset locations.

GIS Specialist, Collier County 10-Year Water Supply Facilities Work Plan Update, Collier County, FL. Ms. Hughes provided GIS support by collecting and creating data layers for the water supply system. She created several figures to include in the plan document that clearly display the current assets as well as the proposed assets.

GIS Specialist, Broward County Water and Wastewater Master Plan, Broward County, FL. Ms. Hughes created and updated report figures detailing Broward County's water, wastewater and raw water distribution systems. She also created sewer shed boundaries using a geometric network to trace sewer flow.

GIS Specialist, Carrier Bridge Pump Station, Buncombe County, NC. Ms. Hughes merged service area with traffic analysis zones (TAZ) to be used in future flow projections. She also digitized future land use data from various area plan documents.

Alison Townsend, AICP

NEPA

Years of Experience: 27 **| Education:** MS – Urban and Regional Planning; BBA – Business Administration **| Registration:** AICP **| Certifications:** Certificate of Transportation Studies

Ms. Townsend has over 23 years of experience as an urban planner working for a private sector planning and engineering firm and, more recently, as a Strategic Advisor for the Seattle Department of Transportation (SDOT), where she managed the conceptual design process for transit and multimodal corridors. She has also participated in transportation, freight, land use, and economic analysis projects. Her skill set includes all facets of project management, alternatives analyses, population, demographic and ridership forecasting, developing inputs for travel demand modeling, survey methodology, data collection and analysis, benefit cost analyses, and environmental documentation. Ms. Townsend has significant experience in public and stakeholder outreach as well as facilitation of working groups and presentations to clients such as boards, commissions and elected officials.

Project Manager, Transit-Plus Multimodal Corridors, SDOT, Seattle, WA. Ms. Townsend managed conceptual design studies for bus rapid transit corridors. Her responsibilities included RFQ development, consultant selection and all other project management functions such as coordination with stakeholders (both internal and external), working with partner agencies, work product review, overseeing the alternatives development and analysis process, and completing all deliverables for hand off to the SDOT Capital Projects Division for further design and environmental review. These projects included significant coordination with partners and stakeholders including King County Metro, Sound Transit and WSDOT. This project was completed while with a previous employer.

Agency Representative, Planning Endeavors, SDOT, Seattle, WA. Ms. Townsend represented SDOT on various local and regional working groups. She participated in the working group tasked with negotiating a service purchase agreement with King County Metro for the purchase of $40 million in annual service hours to improve service and address crowding on Seattle routes. This project was completed while with a previous employer.

Senior Planner and Project Manager, The Corradino Group, Louisville, KY. Ms. Townsend was responsible for managing the firm's transit planning practice while also lending expertise to other divisions and groups within the firm, such as aviation, roadway design, environmental, land use planning, and civil engineering. She worked on projects in the following areas:

- **Project Manager, Various Projects, Various Clients, Nationwide.** Ms. Townsend managed various types of transportation and transit planning projects as well as land use and urban design/redevelopment studies, performance assessments and financial and economic analyses. She typically managed three to four projects simultaneously, usually in multiple states. She supervised company staff and subconsultants. Ms. Townsend was responsible for all aspects of the project from developing teams of internal staff and subconsultants, writing proposals, project interviews, scoping, and contract negotiations. Once the project was under contract, Ms. Townsend oversaw all work products and adherence to scope, schedule, and budget. This project was completed while with a previous employer.
- **Project Manager/Senior Planner, Transportation and Transit Projects, Various Clients, Nationwide.** Ms. Townsend provided planning services to transportation long-range plans, area plans, corridor studies, alternatives analyses, and environmental impact studies. She also worked on roadway expansion projects as well as those involving airports, ferry service, freight and public transit. Her responsibilities included managing projects or task elements. Her work on environmental documentation projects and long-range plans included alternatives identification and analysis, developing cost feasible project lists, and analyzing impacts such as noise and those involving Environmental Justice issues. She worked on a wide variety of transit planning projects, from single route or corridor studies to transit development plans, alternatives analyses, comprehensive operations analyses, and coordination studies involving multiple providers and modes. Clients included large transit operations in Broward County (Fort Lauderdale), FL; Detroit, MI; and Indianapolis, IN. Clients for medium-size urban areas included Knoxville, TN; Akron, OH; and Rockford, IL as well as smaller communities in Michigan, IN, Kentucky, OH, Missouri and Florida. This project was completed while with a previous employer.

Alison Townsend, AICP

NEPA

- **Project Manager/Senior Planner, Land Use Projects, Various Clients, Nationwide.** Ms. Townsend managed and participated in comprehensive and master plans for cities including Portage, MI; Kalamazoo, MI; Toledo, OH; and Dearborn County, Clarksville and Utica, IN. She completed redevelopment and superfund site reuse studies. She managed various neighborhood planning studies, and the property acquisition mapping for the Louisville Airport Relocation Plan including aggregation of surplus parcels for sale to UPS and others.
  Ms. Townsend developed cost metrics for various land use types and commercial and residential relocation as part of the alternatives analysis for the expansion of the 1997 Miami International Airport. This project was completed while with a previous employer.
- **Data Collection Manager, Survey and Analysis Projects, Various Clients, Nationwide.** Ms. Townsend managed survey efforts involving intercept surveys, online surveys, Title VI surveys, and mail-out surveys. She conducted surveys for a variety of purposes, including transit and transportation planning and data for travel demand models. She managed boarding and alighting surveys for systems without APC equipment at the stop level, using handheld devices such as iPods or iPads. She also participated in survey methodology as well as design and data collection supervision activities for elements of the Southeast Florida Regional Transportation Characteristics Study and intercepts surveys with and origin and destination pairs for all transit systems in the Southeast Michigan Council of Governments region. In addition, Ms. Townsend has conducted surveys used in outreach activities to assess transportation needs and land use and development visions. This project was completed while with a previous employer.
- **Public Involvement, Various Projects, Various Clients, Nationwide.** Ms. Townsend facilitated workshops and focus groups and presented at public meetings and hearings. She attended question and answer sessions and explained recommendations, alternatives, and service changes in a public forum. She also facilitated coordination between multiple service providers and public and private agencies. She supervised and acted as the presenter for public and client outreach on nearly all the projects she managed and participated in outreach and public hearings on large environmental projects such as the Detroit Intermodal Freight Terminal, Detroit River International Crossing Study, and the Fort Lauderdale-Hollywood International Airport Runway Expansion. This project was completed while with a previous employer.
- **Travel Demand Modeling, Various Projects, Various Clients, Nationwide.** Ms. Townsend assisted in developing travel demand models, including developing base year zonal data such as households, population, and employment. She provided QA/QC of model results, and developed travel demand survey instruments and managed data collection efforts. This project was completed while with a previous employer.

Business Analyst, Dun & Bradstreet, Dubuque, IA.
Ms. Townsend developed and updated business credit reports through interviews with business principals and a variety of data sources. This project was completed while with a previous employer.

Jennifer Graf, PMP

NEPA

Years of Experience: 30 **| Education:** BS – Natural Resource Management **| Certifications:** PMP

Ms. Graf has over three decades of experience in managing major new highway construction, high speed passenger rail and streetcar projects. She is a national expert in managing and preparing National Environmental Policy Act (NEPA) documentation, alternative analyses, planning studies, environmental studies, Section 4(f) documentation, Section 106 documentation, Section 7 documentation, traffic studies, and engineering studies. Her experience includes complex bi-state projects built on extensive public involvement activities and multi-jurisdictional coordination. She has worked on transportation projects throughout the United States and is a nationally recognized NEPA expert.

Environmental Task Leader, Newport News Transportation Center, VA. Ms. Graf was responsible for guiding the project through the NEPA process. She managed efforts to complete a Purpose and Need Statement, EA with supporting technical reports, Section 106 documentation, agency coordination, and public involvement. The City of Newport News in cooperation with the Virginia Department of Transportation and FHWA is proposing to relocate and reconstruct a 30-year old Amtrak Station into a state of the art multi-modal transportation center.

Deputy Project Manager and Environmental Task Leader, Tulsa to Oklahoma City Corridor Investment Plan, OK. Ms. Graf was the deputy project manager and environmental task leader responsible for guiding the project through the Federal Railroad Administration's project development process and the NEPA process. Ms. Graf managed efforts to complete a feasibility study, Purpose and Need Statement, agency coordination and public involvement. The Oklahoma Department of Transportation was evaluating alternatives for a 100-mile corridor between Tulsa and Oklahoma City, which has no passenger rail service. This corridor is part of the South Central High Speed Rail Corridor and is a federally designated high-speed rail corridor.

Environmental Task Leader, Rochester-Twin Cities Passenger Rail Corridor Investment Plan, MN. Ms. Graf was the environmental task leader responsible for guiding the project through the Federal Railroad Administration's project development process and the NEPA process. The Olmstead County Regional Rail Authority evaluated alternatives for the approximately 100-mile corridor between Rochester and the Minneapolis/St. Paul area. This corridor is part of the Midwest Regional Rail Initiative, which will connect the Twin Cities and Chicago.

Senior Environmental Manager, Cincinnati Streetcar, Cincinnati, OH. Ms. Graf was the senior environmental manager responsible for leading the environmental studies and preparation of an environmental assessment for a new streetcar line in downtown Cincinnati. Ms. Graf coordinated efforts to meet federal requirements that include a Purpose and Need Statement, environmental assessment with supporting technical reports, Section 106 documentation, Section 4(f) documentation, agency coordination, engineering studies, public involvement, and a Finding of No Significant Impact.

Senior Environmental Manager, 3C Corridor High Speed Passenger Rail, OH. Ms. Graf was the senior environmental manager responsible for leading the environmental studies and preparation of a Tier 1 EIS for new high speed passenger service through the state of Ohio. Ms. Graf coordinated efforts to meet federal requirements that include Purpose and Need Statements, various NEPA documents with supporting technical reports, Section 106 documentation, Section 4(f) documentation, agency coordination, engineering studies, and public involvement for the Ohio Department of Transportation.

Project Manager, Statewide Bridge Inspections, North Carolina Department of Transportation (NCDOT), NC. Ms. Graf is the project manager for bridge inspection services throughout the State of North Carolina. The work includes inspection and reporting of the condition of state, municipal, and privately-owned bridges. Load rating analyses are also conducted for municipal structures.

Environmental Task Leader, U-5536 Great Wagon Road Extension, NCDOT, Lewisville, NC. Ms. Graf is the environmental lead responsible for guiding the project through the NCDOT's project development process. The work includes state environmental documentation, public involvement, traffic studies, roadway design services through final design, utilities coordination, hydraulic design, and erosion control. The project proposes to construct a three-lane, minor thoroughfare on

Jennifer Graf, PMP

NEPA

new location with accommodations for on-street parking, bicycle lanes sidewalks, and a roundabout.

Environmental Task Leader, U-6073 Fisher Road Widening, NCDOT, Fayetteville, NC. Ms. Graf is the environmental lead responsible for preparing the NEPA documentation and facilitating public involvement activities for the project. The project proposes to widen 2.1 miles of Fisher Road. The proposed design is a four-lane divided curb and gutter super street concept with a 23-foot wide median, 11-foot wide travel lanes, 5-foot-wide sidewalks and 5-foot-wide bike lanes.

Environmental Task Leader, U-6041 US 64 and SR 1124, NCDOT, Alexander County, NC. Ms. Graf is the environmental lead responsible for guiding the project through the NCDOT's project development process. The work includes state environmental documentation, environmental studies, traffic forecasting, roadway design services through final design, utilities coordination, hydraulic design, erosion control, signing and pavement markings, and ROW acquisition. The project proposes to construct a turn lane on westbound US 64.

Environmental Planner, I-526 Lowcountry Corridor Phase 2, South Carolina DOT, Charleston, SC. Ms. Graf is an environmental planner responsible for responsible for preparing the NEPA documentation and facilitating public involvement activities for the project. The project consists of operational improvements, including interchange improvements, and mainline widening for approximately 12 miles on I-526 in Charleston and Berkeley counties.

Environmental Planner, Nationwide Hazard Assistance Grant Programs, Federal Emergency Management Agency, Nationwide. Ms. Graf is an environmental planner responsible for preparing NEPA documentation and compliance reviews for project applications submitted under Hazard Mitigation Assistance (HMA) programs. These services enable FEMA regional and program offices to award HMA funds so that mitigation projects can be implemented by state and local governments.

Project Manager, Bridge Replacement 0013943, SR1/ US 27 at West Chickamauga Creek, Georgia DOT, Walker County, GA. Ms. Graf is the project manager for this bridge replacement project. CDM Smith is a subconsultant to Long Engineering, responsible for preparing the ecological report and NEPA documentation. CDM Smith is also responsible for conducting public involvement activities for the project. The proposed project will replace the existing structurally deficient bridge carrying SR 1/US 27/Martha Berry Highway over West Chickamauga Creek (Structure ID: 295-0004-0). The proposed mainline will consist of four 12-foot travel lanes, one 14-foot center turn lane, and 10-foot shoulders.

Project Manager, Bridge Replacement 0013994, SR 136 at Coosawattee River, Georgia DOT, Gordon County, GA. Ms. Graf is the project manager for this bridge replacement project. CDM Smith is a subconsultant to Long Engineering, responsible for preparing the ecological report and NEPA documentation. CDM Smith is also responsible for conducting public involvement activities for the project. The proposed project will replace the existing structurally deficient bridge carrying SR 136 over the Coosawattee River. The proposed mainline will consist of two 12-foot travel lanes and 10-foot shoulders.

Environmental Planner, Communications Plan, District of Columbia Water and Sewer Authority (DC Water), DC. Ms. Graf was responsible for conducting research and writing a Communications Plan to guide DC Water staff in implementing the agency coordination and public involvement requirements under the NEPA and other environmental regulations. This document is a user-friendly guide for communicating with agencies, the public, and other stakeholders during the NEPA process. It outlines DC Water's standard procedures for NEPA-related communications and interactions with those outside of DC Water, in addition to the roles and responsibilities for DC Water staff. This manual focuses on preparing Environmental Assessment documents in coordination with the National Park Service (NPS).

Environmental Planner, Little Duck Creek Bicycle Trail Feasibility Study, Madisonville Community Urban Redevelopment Corporation, Cincinnati, OH. Ms. Graf was responsible for the preliminary environmental assessment for the bicycle trail feasibility study. The feasibility analysis of the alignment alternatives included an engineering review of the plans to date, coordination with existing bike trail facilities, field inspection, utility review, right of way literature search, geotechnical literature search, traffic review, preliminary environmental assessment, and preliminary cost estimate. A public meeting was held to garner public input from impacted property owners and trail users.

Wendy Cyriacks

NEPA

Office Location
Deerfield Beach, FL

Education
- B.S. Marine Biology, Nova Southeast University (graduate classes completed, 2004)
- B.S. Biology, University of Miami, 1983

Special Qualifications/Certifications
- Extensive environmental permitting & NEPA experience
- Former FDOT Environmental Administrator, Districts 4 & 6
- FDEP Certified Erosion/Sediment Control Inspector (2004)
- PADI Open Water, Nitrox, Rescue & ASUS Diver

Wendy Cyriacks has over 30 years' experience in environmental analysis and impact studies, permitting and NEPA documentation studies. Wendy serves as Principal in Charge and/or Chief Scientist on large scale environmental projects. She has coordinated extensively with permitting agencies and has been responsible for obtaining state, federal and local environmental permits on numerous public sector projects. She has managed and/or conducted natural resource studies including wetlands, marine benthic studies, threatened and endangered species, and contamination assessments. She has also developed mitigation and monitoring plans and conducted permit compliance reviews.

PROJECT EXPERIENCE

NEPA Documentation, Wildlife Surveys & Environmental Permitting, *SR 80/Southern Boulevard Bridge*, *FDOT District 4, Palm Beach County, FL* - This project involved the replacement of the two bridges over the Intracoastal Waterway and Lake Worth Lagoon. Project Manager/Chief Scientist responsible for preparing the NEPA documentation, Wetlands, Endangered and Threatened Species and Essential Fish Habitat Reports. Other activities include conducting wetland impact assessment, evaluating impacts to the environmentally sensitive resources due to construction methodology, and, conducting wildlife surveys including the piping plover. Also conducted agency coordination and prepared permit applications and obtained permits from the USACE, USCG and SFWMD.

- **NEPA Documentation,** *SR 968/Flagler Street Premium Transit PD&E Study, FDOT District 6, Miami-Dade County, FL* – The Federal Transit Agency is the lead agency for this 21-mile-long project which entails conducting a PD&E Study to evaluate transit options, primarily BRT. Environmental Manager responsible for preparation of the NEPA document and support environmental documentation including Noise, Air, Natural Resources, Contamination, Section 4(f) and Socio-economic impacts. The project traverse a primarily urban area, therefore key issues include impact to parks and other community features, community impacts, contamination and noise.
- **NEPA Documentation,** *East-West Corridor Metrorail Extension Project Development & Environment (PD&E) Study, Miami-Dade Department of Transportation and Public Works (MDTPW), Miami-Dade County, FL* - The 11-mile long project consists of conducting a Project Development and Environment (PD&E) Study for the East-West Corridor Metrorail Extension from the Miami Intermodal Center (MIC) to Florida International University (FIU). Two transits modes are being evaluated including Heavy Rail and Bus Rapid Transit. Environmental Manager responsible for preparation of the NEPA document and support environmental documentation including Natural Resources, Contamination, and Section 4(f).
- **Environmental Permitting, Mitigation & Monitoring,** *Sundance Trails Ranch, LLC, Okeechobee County, FL* - This project involved developing a 768-acre property into a residential equestrian community. Project Manager and Sr Scientist responsible for obtaining a Section 404 permit from the USACE for impact to over 200 acres of federal jurisdictional wetlands. Specific tasks included evaluating the USACE jurisdictional wetland delineation, assessing the on-site wetland communities using UMAM, analyzing the wetland impacts and developed a wetland mitigation plan utilizing on-site creation, restoration and preservation. Extensive coordination with the USACE was required to obtain this "after-the-fact" permit. Responsible for monitoring onsite mitigation for compliance with permit conditions.
- **NEPA Documentation & Support Environmental Studies,** *SR 710 PD&E Study - Environmental Assessment/Finding of No Significant Impact, FDOT District 4, Palm Beach & Martin Counties, FL.* Environmental Manager/Chief Scientist for a 25-mile road improvement. The project traverses extensive environmentally sensitive areas including conservation lands and habitat for listed species. Responsible for managing all environmental activities including preparation of NEPA document (EA/FONSI) and support environmental documents (including Endangered Species Biological Assessment, Wetlands, and Contamination). Specific tasks included wetland/habitat mapping (over 900 acres), threatened & endangered species surveys (caracara, wading birds, snail kite, gopher tortoise, etc), Section 7 consultation for caracara, snail kite and wood stork, conducted a wildlife crossing study, developed mitigation plan, and conducted extensive agency coordination.

Wendy Cyriacks

NEPA

- **Environmental Permitting, Mitigation & Monitoring,** *West Relief Bridge Replacement, Town of Bay Harbor Islands, Miami-Dade County, FL* - Environmental Permitting, Mitigation & Monitoring - Responsible for obtaining environmental permits, developing a mitigation plan for the construction of a new bridge, located in Biscayne Bay, an OFW and Aquatic Preserve. Conducted marine benthic surveys to determine impacts to the benthic communities which included seagrass and hard bottom habitat. Prepared permit application packages and obtained permits from Broward County EPD, SFWMD, and USACE. Also conducting 5 year monitoring of the mitigation site (artificial reef).
- **Marine Benthic Survey and Mapping Lake Worth Lagoon,** *FDOT District 4, Palm Beach County, FL* - Project Manager responsible for conducting annual detailed marine benthic survey of the waters adjacent to the Flagler Memorial, Southern Boulevard and Tide Relief Bridges. Approximately 25 acres of marine habitat was surveyed for the Flagler Memorial Bridge and 34 acres for the Southern Boulevard Bridges. The work tasks associated with the survey included data collection and field preparation; conducting the benthic survey with use of SCUBA; developed a Geographic Information Systems (GIS) map of the surveyed area for each bridge; and, preparation of a final reports documenting the results of the survey. Conducted qualitative assessment of habitat conditions.
- **Environmental Habitat Mapping and Permitting,** *SR 786/PGA Boulevard, FDOT District 4, Palm Beach & Martin Counties, FL* - This 2-mile project traversed the environmentally sensitive Loxahatchee Slough and involved elevating the roadway and constructing a new bridge to reduce roadway flooding and to improve water flow between the north and south sides of the Slough. Environmental Manager responsible for project oversite, scheduling and quality control. Major tasks involved habitat mapping of 6,589 acres in Loxahatchee Slough, conducting biological evaluations, environmental permitting for direct and indirect roadway impacts and development of an onsite mitigation plan. Extensive agency coordination with SFWMD, (USACE) and Palm Beach ERM occurred during the development of the mitigation plan.
- **Environmental Permitting, Wildlife Surveys and Compliance Inspections,** *Palm Beach County General Consulting Services, Palm Beach County Department of Airports, Palm Beach County, FL* - Environmental Manager for three separate PBC DOA General Consulting Services contract since 2011; providing environmental and permitting services including wildlife studies surveys (burrowing owl, gopher tortoise, wildlife hazard assessment), environmental permitting for NCO and LNA, annual SWPPP updates and NPDES compliance inspections, wetland delineations and agency coordination.
- **Wood Stork Use of Roadway Corridor Features in South Florida,** *FDOT District 4, Palm Beach County, FL* – This study was done in association with FAU. Project Manager responsible for project oversite, supervision, scheduling of staff resources, and quality control. This project involves evaluating foraging habitat of roadside water features and comparing habitat within features between land use types across south Florida. Vegetation community structure within water features is compared to wood stork foraging locations. This study will provide a better understanding of how to mitigate impacts to wood stork foraging habitat.
- **Environmental Permitting,** *Port Everglades Berth 27, Fort Lauderdale, FL* - The project involves extending Berth 27 located within Port Everglades for a length of approximately 360 feet, within Port Everglades, adjacent to the Intracoastal Waterway. Responsible for preparation of permit applications (USACE, FDEP and BCEPD), RAI responses and agency coordination. Issues include water quality and circulation impacts, and developing construction methods to avoid/minimize turbidity and sedimentation impacts.
- **Marine Benthic Survey and Wetland Delineation**, *Young's Communication Co., Dania Beach*, *Broward County, FL* - This project entailed conducting a marine benthic survey under the Dania Beach Boulevard Bridge to identified seagrass, corals, and hard bottom habitats as well as conduct a wetland delineation along a one mile section of a mangrove forest that potentially could be impacted by the installation of a communication cable. Also prepared GIS maps of all benthic resources and wetland. Project Manager responsible for project coordination, scheduling, development of survey protocol and quality control reviews.
- **Environmental/Wildlife Monitoring,** *Modifications to Tamiami Trail Modified Water Deliveries Project, USACE, Miami-Dade County, FL* – This 10-mile construction project involved replacing a one-mile roadway segment with a bridge to restore the water flow south to the Everglades National Park. Environmental Manager responsible for overseeing all environmental activities and coordinating with client and agencies. Specific tasks included conducting wildlife monitoring for wood stork, snail kite and migratory birds and mammals, wetland monitoring including conducting a GIS analysis to determine offsite wetland impacts and turbidity monitoring.

Karen L. Hadley, AICP

EJ/TITLE VI

Years of Experience: 18 | **Education:** BA – Geography; BA – Environmental Studies | **Registration:** AICP

Ms. Hadley has expertise in the disciplines of environmental planning, natural resource compliance, NEPA documentation, long range planning, corridor planning, and public involvement/agency coordination. She has managed and prepared NEPA documentation for several state DOTs including FDOT, SCDOT, and CDOT. She is familiar with Section 4(f)/6(f), hazardous waste sites, farmlands, cultural resources, socio-economics, wetlands, 303(d) impaired waters, threatened and endangered species, water quality, and floodplains.

Environmental Planner, Tier 1 Draft Environmental Impact Statement (DEIS) for Florida's High-Speed Rail System, Federal Railroad Administration (FRA) and Florida Department of Transportation (FDOT), FL. Ms. Hadley was responsible for National Environmental Policy Act (NEPA) analysis of various railway stations for the programmatic/system wide Tier 1 DEIS for Florida's high-speed rail corridors. The primary purpose was to meet FRA requirements for obtaining funding for high-speed rail projects under the American Recovery and Reinvestment Act (ARRA) of 2009 and to provide continuing environmental analysis as required by NEPA.

Environmental Planner, On-Call NEPA Compliance, South Carolina Department of Transportation (SCDOT), Statewide, SC. Ms. Hadley assisted with NEPA process/documentation for on-call environmental services contract with the SCDOT. On-call environmental services included NEPA process management, documentation, field surveys, noise studies, agency coordination, public involvement, and 404 permitting.

Deputy Project Manager, Environmental Impact Statement (EIS), Mark Clark Expressway, SCDOT, Charleston County, SC. Ms. Hadley was responsible for leading a multidisciplinary team through the planning and design process to obtain a joint NEPA document that serves both the Federal Highway Administration (FHWA) and US Army Corps of Engineers (USACE) legal requirements. She was responsible for delivering quality products on schedule and within budget, and producing monthly invoice reports. She coordinated agency involvement which included a pilot NEPA/404 merger process to help streamline the participating regulatory agencies review time. Primary author and responsible for: Agency and Public Involvement Plan, development of purpose and need, development of alternatives, alternatives analysis, indirect and cumulative impact analysis, GIS data analysis, and extensive public involvement due to extreme public controversy. Strategized with the SCDOT, FHWA, and USACE to mitigate highly political and controversial issues, including impacts to a 300+ acre county park, threatened and endangered species, wetlands, visual, and environmental justice impacts. She was the task manager and accountable for technical review of project impacts on: noise, Section 4(f)/6(f), hazardous waste sites, farmlands, cultural resources, socio-economics, environmental justice, essential fish habitat, wetlands, 303(d) impaired waters, threatened and endangered species, water quality, and floodplains. In 2016, she co-authored a re-evaluation document for the project. In 2017 she updated the re-evaluation document with additional information for Collector Roads A and B.

Project Manager, Larimer County, Namaqua Bridge Replacement Categorical Exclusion, Colorado Department of Transportation (CDOT), CO. Ms. Hadley served as the project manager responsible for the completion of the Categorical Exclusion document and other relevant documents required to satisfy NEPA and CDOT Region 4 environmental clearance process. Ms. Hadley managed the field work and the evaluation of all technical resources including noise, hazardous materials, natural resources – wetlands, threatened and endangered species, noxious weeds and SB 40, archaeology, historic resources, and non-historic 4(f) properties. Ms. Hadley was responsible for scope preparation, budget, schedule, and other project management activities including the supervision of technical resource specialists and sub-consultants.

Project Manager, US 24 Minturn Drainage and Pedestrian Improvements Categorical Exclusion, Town of Minturn and CDOT Region 3, Eagle County, CO. Ms. Hadley served as the project manager responsible for the completion of the Categorical Exclusion document and other relevant documents required to satisfy NEPA and CDOT Region 3 environmental clearance process. Ms. Hadley managed technical resource specialists and the completion of the environmental clearances for historic resources, vegetation and noxious weeds, SB 40, threatened and endangered species, and wetland delineation and permitting. As a local agency project, this effort required a high level of coordination with CDOT Region 3 as it is

Karen L. Hadley, AICP

EJ/TITLE VI

located in downtown, historic Minturn. Ms. Hadley collaborated with the engineering team members and agency representatives, to develop and refine the design to avoid and minimize impacts to historic properties. Ms. Hadley worked closely with CDOT to develop a methodology and approach for cultural resources compliance to meet schedule and budget requirements. Ms. Hadley was responsible for scope preparation, budget, schedule, and other project management activities including the supervision of technical resource specialists and sub-consultants.

Deputy Project Manager, EIS – Houma-Thibodaux to LA 3127 Connection, Lafourche Parish, LA. Ms. Hadley was accountable for all aspects of project management and for document development including authoring the purpose and need and alternatives analysis and indirect and cumulative impact analysis for the proposed new location roadway through an environmentally sensitive area. She was responsible for technical review of the: Section 4(f)/6(f), hazardous materials, air quality, economics, land use, cultural resources, wetlands, threatened and endangered species, water quality, floodplains, environmental justice, and community impacts sections of the document.

Environmental Planner, Draft and Final Environmental Impact Statement (DEIS and FEIS), Interstate 73, SCDOT, Richmond and Scotland Counties, NC and Dillon, Horry, Marion, and Marlboro Counties, SC. Ms. Hadley was a co-author for two DEIS and FEIS documents. She was the task leader and primary author responsible for the community impact assessment (CIA) and CIA technical memorandum—responsible for gathering and analyzing socioeconomic data and the development of community outreach techniques for surveying the local population, farmlands (highly controversial due to large amount of farmland in the project area), environmental justice, and for the indirect and cumulative impact analysis that focused on land use change to identify regional economic and development potential.

Deputy Project Manager, Environmental Assessment (EA), I-26/Port Access Road, SCDOT, Charleston, SC. Ms. Hadley was responsible for the schedule, budget, and management, including the supervision of sub-consultants and invoice preparation of the EA. She coordinated environmental studies, managed reviews, document and FONSI preparation for this controversial project. She also organized public involvement efforts and facilitated communication between multiple resource agencies.

Deputy Project Manager, Bishopville Bypass EA, SCDOT, Lee County, SC. Ms. Hadley was the co-author of an EA that provided technical oversight/review of the floodplains, farmlands, noise, hazardous materials impacts, socioeconomics, environmental justice, and indirect and cumulative impacts analysis. She was tasked with various aspects of GIS mapping/analysis and document preparation. Major issues included community impacts, environmental justice communities, multiple historic sites and districts, wetlands, and farmlands.

Senior Technical Review, Environmental On-Call Contract, Tennessee Department of Transportation (TDOT), Statewide, TN. Ms. Hadley served as the senior technical reviewer for the all environmental task orders under this contract. CDM Smith was selected by the TDOT to perform on-call environmental services as part of a two-year, $2.5M maximum contract. These tasks include Categorical Exclusions (CEs), EAs, EISs, etc.

Environmental Task Manager, Berkeley County Indefinite Delivery Contract, Berkeley County, SC. Ms. Hadley was responsible for scope, budget, schedule, and other project management activities including the supervision of sub-consultants for wetland delineation and permitting tasks for over six road improvement projects. She performed GIS mapping, wetland delineation field work, T&E surveys, preparation of jurisdictional determination, and permitting packages for submittal to regulatory agencies.

Environmental Task Manager/Principal Author, CE – Welpine Road and US 76 Intersection Realignment, Anderson County, SC. Ms. Hadley was the principal author of the environmental documentation for the intersection realignment of Welpine Road and US 76. She evaluated proposed alternatives for impacts on socio-economics, threatened and endangered species, farmlands, floodplains, wetlands, cultural resources, and hazardous waste sites.

Environmental Task Manager/Principal Author, CE – Three Bridge Replacements, SCDOT, Anderson County, SC. Ms. Hadley was the principal author of environmental documentation to provide replacements for three bridges. Evaluated proposed alternatives for impacts on cultural resources, hazardous waste sites, threatened and endangered species, farmlands, floodplains, wetlands, and socio-economics. She was also responsible for the 404 permitting, mapping, and documentation.

Kathleen J. Ruvarac, PE

STATE OF FLORIDA/PD&E; WATER MANAGEMENT DISTRICT PLANNING

Years of Experience: 29 **| Education:** BS – Civil Engineering **| Registration:** PE – FL **| Certifications:** FDEP Qualified Stormwater Management inspector; FDOT Advanced TTC; FHWA Inspection and Maintenance of Ancillary Highway Structures; FHWA Fracture Critical Inspection Techniques for Steel Bridges; FHWA Safety Inspection of In-Service Bridges; NASSCO Pipeline and Manhole Assessment Certification Program PACP/MACP; OSHA 10-hour; Confined Space Entry

Ms. Ruvarac, who is based in Tampa Bay, FL, is a design engineer with three decades of experience including managing infrastructure projects for highways, bridges, high-speed and light rail and site development. She also has extensive experience working on drainage related projects for Florida clients. She was named Engineer of the Year by the American Society of Civil Engineers' (ASCE) Florida West Coast Branch in 2019.

Engineer-of-Record (EOR)/Quality Manager, Central Avenue Bus Rapid Transit (BRT), PSTA, City of St. Petersburg, FL. Ms. Ruvarac is serving as the transportation EOR/quality manager providing roadway design oversight, coordinating with PSTA and stakeholders, and attending project meetings on behalf of project manager. The BRT project is the first of its kind in the Tampa Bay regions and encompasses 22 miles of a new transit way. CDM Smith is responsible for the design of the City of St. Petersburg downtown stations and architecture of all stations.

Senior Drainage Engineer, Various Projects, Professional Engineering Firms, Various Locations. Ms. Ruvarac served as senior drainage engineer for various projects throughout the nation. While working for a previous employer, she provided design of primary and secondary drainage systems; permitting through the Florida Water Management Districts and the US Army Corps of Engineers (USACE), hydrologic and hydraulic watershed analysis, and floodplain and culvert analysis. She also provided design of transportation projects using FDOT PPM & Design Standards, plans production, quantities computation, survey and utility coordination, post design coordination efforts, pond siting, and location hydraulics reports. Projects completed in this role include:

- US 1 (SR 5), FDOT District 5, Brevard County, FL
- Palm Bay Parkway PD&E, FDOT District 5, Brevard County, FL
- SR 408 Widening from West of Tampa Avenue to I-4, Central Florida Expressway Authority (CFX), Orange County, FL
- Charlotte Area Transit System (CATS) Light Rail, City of Charlotte, NC
- Transportation Expansion Project (TREX) Light Rail Design-Build, Colorado DOT and Regional Transportation District, Denver, CO

Structural Engineer, Florida's Turnpike Widening from Atlantic Boulevard to Palm Beach County Line, FTE, FL. Ms. Ruvarac served as structural engineer for this project. Her responsibilities included bridge geometrics, structural design and analysis, quantity computation, roadway, drainage, and utility coordination. This project was completed while working for a previous employer.

Project Manager, Sunshine Skyway Wave Attenuation Devices, St. Petersburg, FL. Ms. Ruvarac is serving as project manager and project engineer providing structural engineering oversight of construction plans and coordination with client and subconsultant RS&H on this design-build project. CDM Smith is preparing construction drawings for the installation of precast concrete dome structures which will facilitate seagrass mitigation near the Sunshine Skyway bridge.

Bridge Specialist, FEMA Technical Area Contractor (TAC) Bridge Specialist, FEMA Public Assistance Recovery Efforts, FEMA, Various Locations. Ms. Ruvarac was the FEMA TAC bridge specialist for public assistance for several projects including: Disaster DR-1981-ND – (2011), Bismarck and Minot, ND; FEMA Disaster DR-1894-RI -Warwick, RI (2010); FEMA Disaster DR-1829-ND - Fargo and Bismarck, ND (2009).

Project Design Engineer, Florida High Speed Rail (FHSR), FDOT/Florida's Turnpike Enterprise (FTE), FL. Ms. Ruvarac was the project design engineer for horizontal and vertical control of an 11-mile segment of the Tampa to Orlando route within the I-4 median. In this role, she designed the Kathleen Road Station roadway design layout, and prepared quantities

Kathleen J. Ruvarac, PE

STATE OF FLORIDA/PD&E; WATER MANAGEMENT DISTRICT PLANNING

computation packages for construction cost estimates. She also prepared design variances/exceptions packages for FDOT. Project Engineer, I-75 Express Toll Lanes, Southwest Florida Expressway Authority, FDOT District 1, Lee and Collier Counties, FL. Ms. Ruvarac served as project engineer performing a traffic and revenue study and conceptual design for a 35-mile widening of I-75 to accommodate six express toll lanes.

Deputy Project Manager, Veterans Expressway Bridge Painting at Gunn Highway and Ehrlich Road, FTE, Hillsborough County, FL. Ms. Ruvarac served as deputy project manager responsible for preparing maintenance of traffic (MOT) concept and plans detailing detours.

Deputy Project Manager, Neal Road Paved Shoulders, Lee County, FL. Ms. Ruvarac served as the deputy project manager of the three-mile roadway design project, extending from Buckingham Road to Orange River Road. In this role she provided design, plans production, and project management.

Project Engineer, Honore Avenue/Pinebrook Road Extension Design, Sarasota County, FL. Ms. Ruvarac served as project engineer for the structural design and quality control (QC) of plans for a 3.8-mile, four-lane divided urban roadway on a new alignment.

Senior Project Engineer, Sand Lake Road Widening Project, FDOT District 5, FL. Ms. Ruvarac served as senior project engineer on this project and managed the drainage design of storm sewer system and pond for the addition of 2,700 linear feet (lf) of auxiliary lane east of Kirkman Road for a private developer. This project was completed while working for a previous employer.

Confirming Engineer and Inspection Team Leader, Overhead Sign Structures and Bridge Inspections, Greater Orlando Aviation Authority (GOAA), Orlando International Airport, Orlando, FL. Ms. Ruvarac was the confirming engineer and inspection team leader of Monotube Overhead Sign Structures and Bridges inspections as a subconsultant to another firm. This project was completed while working for a previous employer.

Confirming Engineer and Inspection Team Leader, LPGA Boulevard over I-95 and LGPA Boulevard over the Tomoka River Bridge Inspections, FDOT District 5, FL. Ms. Ruvarac was the confirming engineer and inspection team leader for the structural assessment of existing bridge facilities as a subconsultant to another firm's preparation of an Interchange Justification Report. This project was completed while working for a previous employer.

Confirming Engineer and Inspection Team Leader, Dam Bridge Inspections, Tennessee Valley Authority, TN. Ms. Ruvarac was the confirming engineer and inspection team leader for multiple dam bridge inspection including Pickwick Landing, Chickamauga Dam, and Watts Bar Dam Bridge. While working for a previous employer, she performed inspections to AASHTO Element reporting standards. The project included fracture critical inspection of steel truss bridges with multiple superstructure girder configurations. Structures were located adjacent to in-service hydro-electric and nuclear power plant facilities. This project was completed while working for a previous employer.

Engineer III – In-House Design Team Leader/Supervisor Engineering Division, Capital Improvement Program (CIP) Projects, City of Largo, FL. Ms. Ruvarac served as engineer III and in-house design team leader/supervisor of design for CIP projects of local roadways, including repair and pavement maintenance, as well as sanitary sewer inspection, design of repair projects, and traffic engineering. While working for a previous employer, Ms. Ruvarac provided construction supervision, contract document preparation, and project procurement. She managed the repair of four concrete single span bridges abutment embankment repair using flowable fill.

Road and Bridge Inspector, Federal Emergency Management Agency (FEMA) Disaster DR-4145-CO, FEMA, Denver, CO. Ms. Ruvarac was the road and bridge inspector and FEMA technical area contractor bridge/ project specialist for the FEMA Public Assistance Recovery Program. This project was completed while working for a previous employer.

Construction Inspection, West Dearborn Street Low Impact Development (Innovative Drainage Solutions) Pilot Project, Sarasota County, FL. Ms. Ruvarac provided shop drawing review, construction inspection services, permit compliance for the West Dearborn Street Low Impact Development in Sarasota. This project was completed while working for a previous employer.

Timothy W.A. Ogle, MS

State of Florida/PD&E

Office Location
Miami Lakes, FL

Education
- M.S. Environmental Engineering, University of Central Florida, 1995
- B.S. Environmental Engineering, University of Central Florida, 1991

Special Qualifications/Certifications
- Certified Traffic Noise Analyst – FDOT
- FDOT Noise Task Team
- USDOT - Transportation Research Board-ADC40/ Highway Noise Subcommittee Friend

Tim Ogle has more than 26 years of professional experience in Florida, particularly relating to transportation air quality and noise impact reviews and analyses as required by NEPA, FHWA and FDOT regulations. His expertise includes project oversight, field assessment, computerized air quality and traffic noise analyses, noise abatement design, project design change analyses and public involvement for air quality and traffic noise assessments. Mr. Ogle has been involved in transportation noise issues for the FDOT over his more than 20 year career and has conducted noise impact and barrier analyses for PD&E, Final Design and Design-Build projects on most of the primary expressways and significant surface streets in Miami-Dade County. Mr. Ogle has also performed numerous QA/QC reviews of FDOT noise studies and has conducted public involvement for FDOT projects and roadways in south Florida. Mr. Ogle has played a prominent role in conducting and reporting on air quality and traffic noise assessments for more than 50 PD&E projects statewide and nearly as many final design projects for the FDOT and other agencies in the State of Florida. He is currently assisting FDOT District 6 with various Districtwide noise issues and is working on transit noise analyses for the Flagler and Kendall Premium Transit projects.

PROJECT EXPERIENCE

- **Noise Analysis,** *SR 968/Flagler Street/SW 1st Street Premium Transit Study, FDOT District 6, Miami-Dade County, FL* This project will provide Premium Transit (BRT or LRT) service and infrastructure along Flagler Street from west of the HEFT to east of I-95 and along SR 985/NW 107th Avenue from SW 8th Street to Flagler Street. Mr. Ogle is the Senior Environmental Scientist responsible for the development of the noise analysis associated with the Transit Study.
- **Noise Analysis,** *SR 25 (Okeechobee Road) PD&E Study, FDOT District 6, Miami-Dade County, FL* - This project proposes to improve overall traffic operations on the 9.6-mile-long segment of Okeechobee Road from SR 997/Krome Avenue to NW 79th Avenue. Mr. Ogle is the Senior Environmental Scientist responsible for the development of the air and noise analysis associated with the Cat-Ex Type II for this PD&E Study.
- **Noise Analysis,** *SR A1A PD&E Study, FDOT District 4/City of Deerfield Beach, Broward County, FL* - This project will add lanes and improve an 0.8-mile-long segment of A1A from SE 3rd Street to NE 7th Street. Mr. Ogle was the Senior Environmental Specialist responsible for the development of the air and noise analysis associated with the Cat-Ex Type II for this PD&E Study.
- **Noise Barrier Study,** *SR 874/Don Shula Expressway (87409) Final Design, MDX, Miami-Dade County, FL* - SW 88th Street/North Kendall Drive to SR 826/Palmetto Expressway. Completed in 2010. This project included a detailed design-phase noise barrier analysis for a project corridor located adjacent to multiple residential communities. This project also included extensive coordination with the project's design team and noise barrier specific public involvement efforts.
- **Noise Barrier Study,** *SR 826/Palmetto Expressway - SR 836/Dolphin Expressway Interchange Final Design, FDOT District 6, Miami-Dade County, FL* - SW 8th Street to NW 25th Street, SW 97th Avenue to SW 72nd Avenue. Completed in 2009. This project included a detailed design-phase noise barrier analysis for a project corridor located adjacent to multiple residential communities. This project also included extensive coordination with the project's design team.
- **Air & Noise Analysis,** *SR 826/Palmetto Expressway Express Lanes PD&E/CE Type II, FDOT District 6. Miami-Dade County, FL* - Roadway improvements (including express lanes) along an approximately 6-mile-long segment of SR 826/Palmetto Expressway from SR 836/Dolphin Expressway to SR 932/NW 103rd Street. Mr. Ogle was the Senior Environmental Scientist responsible for the development of the air and noise analysis associated with the CE Type II.

Timothy W.A. Ogle, MS
State of Florida/PD&E

- **Noise Analysis,** *Districtwide Environmental Data and Report Consultant, FDOT District 6, Miami-Dade County and Monroe County, FL* - Air Quality and Noise Specialist for numerous projects in FDOT District 6. Tasks include conducting noise analyses for roadways such as NW 107th Avenue, I-195 and SR 826; preparing NEPA documentation and reevaluations for various District 6 projects; noise-related public involvement and responding to citizen's complaints; noise policy and guideline development for District 6 and Statewide including Chapter 17 of Part 2 of the PD&E Manual and Chapter 32 of the Plans Preparation Manual; and, in-house transportation noise-related training.
- **Air & Noise Analysis,** *Project Development and Environment (PD&E) Study for Golden Glades Interchange SR 826 / Palmetto Expressway Eastbound to I-95 Northbound, FDOT District 6, Miami-Dade County, FL* - This project proposes to provide a direct connection between eastbound SR 826 and northbound I-95 along with other operational improvements. Mr. Ogle is the Senior Environmental Scientist responsible for the development of the air and noise analysis associated with the Cat-Ex Type II for this PD&E Study.
- **Noise Analysis, S***R 997/Krome Avenue South EIS, FDOT District 6, Miami-Dade County, FL* - This project will add lanes and improve an approximately 10-mile long segment of Krome Avenue from SW 296th Street/Avocado Drive to SW 136th Street/Howard Drive in the south Miami-Dade County. Mr. Ogle was the Senior Environmental Scientist responsible for the development of the noise analysis for the DEIS and FEIS.
- **Noise Analysis,** *SR 924/Gratigny Parkway Western Extension PD&E/CE Type II, Miami-Dade Expressway Authority (MDX) Miami-Dade County, FL* - This project will extend SR 924/Gratigny Parkway to the approximately 4.3 miles to west in northwestern Miami-Dade County between SR 826 and the HEFT. Mr. Ogle was the Senior Environmental Scientist responsible for the development of the noise analysis associated with the CE Type II. The project is anticipated to receive approval and LDCA by FHWA in early 2014.
- **Noise Barrier Analysis,** *SR 826/Palmetto Expressway Final Design, FDOT District 6, Miami-Dade County, FL* - This project widened and improved five segments of the SR 826 corridor between US-1 and I-75. This project also included extensive design phase coordination and public involvement efforts and build phase noise analysis/coordination. Mr. Ogle conducted the Final Design noise barrier analysis and portions of the project's public involvement program. Completed under Districtwide Miscellaneous Environmental Services contract.
- **Air & Noise Analysis,** *SR 836/Dolphin Expressway PD&E Study, FDOT District 6, Miami-Dade County, FL* - This project widened and improved SR 836 between NW 17th Avenue and I-95. Mr. Ogle was the Senior Environmental Scientist for the development of the air and noise analysis associated with the SEIR for this PD&E Study.
- **Air & Noise Analysis,** *I-75 Express Lanes PD&E Study, FDOT District 6, Miami-Dade County, FL* - This project widened, improved and added express lanes along an 8.6 mile long segment of I-75 from SR 826/Palmetto Expressway to the Miami-Dade/Broward County line and along SR 826 from NW 103rd Street to NW 154th Street. Mr. Ogle was the Senior Environmental Scientist responsible for the development of the air and noise analysis associated with the Cat-Ex Type II for this PD&E Study.
- **Air & Noise Analysis,** *SR 80/Southern Boulevard PD&E Study,* FDOT District 4, Palm Beach County, FL - CR 880 to Forest Hill Boulevard. Responsibilities include PD&E phase traffic noise impact and air quality analyses for the project corridor.
- **Noise Barrier Analysis,** *CR 714/SW Martin Highway Final Design, FDOT District 4/Martin County, Martin County, FL* - This project will add lanes and improve an approximately 1.9-mile-long segment of Martin Highway from Florida's Turnpike to west of Mapp Road. Mr. Ogle was the Senior Environmental Specialist responsible for the development of the Final Design noise barrier analysis.

Benjamin J. Pernezny, PE, PMP

WATER MANAGEMENT DISTRICT PLANNING

Years of Experience: 13 **| Education:** BS – Environmental Engineering **| Registration:** PE – FL **| Certifications:** PMP

Mr. Pernezny is a water resources engineer with a focus on stormwater modeling and design. His experience includes regional model development in SWMM5 and ICPR3, design of stormwater conveyance and treatment systems, roadway and transportation drainage design, modeling and calculation support for stormwater design projects and permitting, stormwater utility development, GIS support and data collection, and analysis and summarization.

Drainage Engineer, Hoagland Boulevard Phase IV Project Development and Environmental (PD&E) Study, City of Kissimmee, FL. Under a continuing services agreement, the City has retained CDM Smith to provide planning, engineering, and environmental, and management support for the potential improvements to approximately 0.9 miles of Hoagland Boulevard from US 192 N to just south of Carroll Street. Mr. Pernezny is serving as drainage engineer for this project.

Drainage Engineer, US 27 at Crowder Road Intersection Improvements, Leon County, FL. Under a continuing services agreement, CDM Smith was retained to provide final design engineering services for a proposed westbound right-turn lane on Crowder Road at the intersection of US 27. For this task order, Mr. Pernezny served as the drainage engineer and provided permitting support.

Drainage Engineer, Oak Ridge Road and SR 61 Turn Lane Analysis, Leon County, FL. FDOT is performing a Signal Warrant Analysis on the intersection of Oak Ridge Road and SR 61 in 2010. The results of that study did not warrant a full signal at this location, but did provide recommendations for adding turn lanes on Oak Ridge Road and SR 61 to improve capacity. Based on FDOT's recommendations, the County retained CDM Smith to analyze the impacts and feasibility of adding a westbound right-turn lane on Oak Ridge Road. Our team is providing engineering services to perform an analysis of the existing intersection and determine the impacts of constructing a westbound right turn lane on Oak Ridge Road. As part of this work, Mr. Pernezny is the drainage design engineer and provided permitting support.

Project Engineer, Wekiva Parkway Section 5/CR 46A Realignment, Florida Department of Transportation (FDOT) District 5, Lake County, FL. Mr. Pernezny is a drainage engineer for the realignment of CR 46A in Lake County as part of the high-profile Wekiva Parkway project. Mr. Pernezny is responsible for the design of stormwater ponds, cross-drains and drainage ditches in accordance with FDOT drainage design guidelines to provide appropriate drainage for the proposed roadway while minimizing pollutant discharges to the ecologically-sensitive Wekiva River Basin. Mr. Pernezny's tasks have included ICPR3 modeling of proposed stormwater ponds, calculation of floodplain compensation requirements, drainage ditch design, cross-drain analysis and layout and drafting of these elements using Bentley MicroStation.

Project Engineer, Orange Avenue Box Culverts, St. Lucie County, FL. CDM Smith provided professional engineering services in the area of roadway, intersection, and drainage design for the evaluation of five existing box culverts located at various places along Orange Avenue in western St. Lucie County. Mr. Pernezny performed the hydrologic and hydraulic evaluation of the five box culverts.

Project Engineer, Stormwater Master Plan (SWMP) Update of System-wide Modeling, Village of Royal Palm Beach, FL. Mr. Pernezny was responsible for updating Village SWMM model to reflect South Florida Water Management District (SFWMD) HEC-RAS modeling of C-51 Canal and incorporating permitted ITID discharges and M-1 Canal operational schedule into model.

Project Engineer, Moving Lake Okeechobee Water South to Benefit the Everglades, SFWMD, FL. CDM Smith developed and evaluated options to utilize existing conveyance assets in conjunction with new pump stations and flow control structures to divert Lake Okeechobee discharges to Stormwater Treatment Area 5/6 for treatment prior to being discharged to the Everglades. As the lead project engineer, Mr. Pernezny's roles included the development of five novel concepts for delivering diverted flows to STA-5/6, performing a comparative analysis of nine conveyance options to assist the District in selecting five for further analysis, hydraulic modeling of the conveyance alternatives using HEC-RAS, conceptual design, and the development of an analysis matrix to compare and contrast the expected performance, benefits, issues, and costs of the conveyance alternatives.

Benjamin J. Pernezny, PE, PMP

WATER MANAGEMENT DISTRICT PLANNING

Project Engineer, Orange Avenue Box Culverts, St. Lucie County, FL. CDM Smith provided professional engineering services in the area of roadway, intersection, and drainage design for the evaluation of five existing box culverts located at various places along Orange Avenue in western St. Lucie County. Mr. Pernezny performed the hydrologic and hydraulic evaluation of the five box culverts.

Project Engineer, SWMP, City of Lake Worth, FL. Mr. Pernezny was a member of the modeling team for the alternatives analysis phase of the stormwater master plan for the City of Lake Worth. He was responsible for modeling improvements to correct identified flood control level-of-service deficiencies throughout the City, as well as developing cost estimates for the proposed improvements and providing GIS support for meetings and report development.

Project Engineer, SWMP Update, City of North Miami, FL. Mr. Pernezny served as a SWMM5 modeler for the development of alternatives for flood control in the City of North Miami. He was the lead modeler for the alternatives analysis phase of the project and was responsible for modeling improvements to correct over 20 identified level-of-service deficiencies throughout the City. Mr. Pernezny was also responsible for the development of conceptual cost estimates for the proposed alternatives.

Project Engineer, SWMP, City of Miami Beach, FL. Mr. Pernezny served as a SWMM5 modeler for the development of alternatives for flood control in the City of Miami Beach. He was given a lead role in the formulation and modeling of flood control improvements in several high-profile, flood-prone areas of Miami Beach. His tasks included data collection and updating of existing conditions analysis where necessary to provide appropriate detail, performing iterative analyses to develop a set of project components to improve flood control level-of-service and the preparation of materials for meetings and reports.

Project Engineer, Edgemon Avenue and Lombardy Road Drainage Improvements, City of Winter Springs, FL. Mr. Pernezny developed the conceptual design and provided modeling and calculation support for this design project involving the replacement of a ditch with a series of culverts. His tasks included updating and revising an existing ICPR3 model to provide the necessary detail to model the proposed design, an alternatives analysis to determine a design that would meet permitting requirements and the development of the environmental resource permit application for the final design.

Project Engineer, Watershed Model Peer Review: Double Hammock and Lower Coaster Watershed Management, Southwest Florida Water Management District (SWFWMD), FL. CDM Smith was retained by the SWFWMD to perform peer reviews of both the Double Hammock and Lower Coastal regional hydrologic/hydraulic watershed models developed by others. Our team was responsible for peer reviewing components of model development (i.e. model input parameters) and simulation results for both calibration simulations as well as design storms (i.e. model development and floodplain delineation). The reviews were done in tandem with completion of milestones by District's watershed management plan consultant. For this project, Mr. Pernezny provided technical and quality review of work performed by others, with emphasis on review of ICPR modeling.

Project Engineer, Solary Canal Stormwater Treatment Area Improvements, City of Winter Springs, FL. To maintain compliance with the Lake Jesup TMDL, CDM Smith assisted the City with proposing improvements to the existing Solary Canal Stormwater Treatment Area (STA) to further reduce nutrient loads and improve water quality to Lake Jesup. As project engineer, Mr. Pernezny assisted with the preparation of the Environmental Resource Permit (ERP) and US Army Corps of Engineers (USACE) permit applications, pollutant loading estimates and final construction documents.

Project Engineer/Task Manager, Black Hammock Creek Restoration, Seminole County, FL. For Salt Creek, Mr. Pernezny served as task manager and was responsible for data collection, modeling, and permitting efforts. For Sweetwater Creek, he served as design engineer responsible for modeling and conceptual design.

Project Engineer, Southeast Lakes Conceptual Improvements, City of Orlando, FL. The Southeast Lakes Basin is a 3,500-acre flood-prone watershed within the City of Orlando that includes areas of downtown, as well as many of its signature lakes and parks. As project engineer, Mr. Pernezny worked with the team to design conceptual improvements to facilitate better management of the 19 surface water lakes during wet and dry weather, improve overall water quality within the basin, and reduce flood elevations in critical areas. Significant data collection, modeling, and permitting were accomplished to implement the concept plan. CDM Smith served as program manager for the final design and construction services to implement the various improvements.

Brendan V. Brown, PWS

WATER MANAGEMENT DISTRICT PLANNING

Years of Experience: 13 **| Education:** MS – Biological Science, BS – Forest Environmental Resources **| Registration:** Professional Wetland Scientist; Florida Master Naturalist Coastal Systems and Coastal Restoration

Mr. Brown has been lead author on numerous NEPA documents throughout Florida evaluation impacts to wetlands and protected species. He is experienced in wetland and protected species permitting and consultation in Florida with USFWS, USACE, Florida Fish and Wildlife Conservation Commission, SWFWMD, and FDEP. His numerous field activities include state and federal wetland delineation, protected species surveys including assessing Florida panther habitat, and vegetation surveys.

Environmental Task Leader, DeLand Airport Runway 12-30 Rehabilitation Focused Environmental Assessment (EA), City of DeLand, FL. Mr. Brown was responsible for developing the Focused EA in accordance with Federal Aviation Administration (FAA) National Environmental Policy Act (NEPA) requirements for the airport runway rehabilitation project. Mr. Brown also conducted the wetland delineation and threatened and endangered species surveys. He prepared and submitted permit applications for wetland impacts with the USACE and St. Johns River Water Management District (SJRWMD). He also submitted permit applications to the FWC for impacts to gopher tortoise burrows and gopher tortoise relocation.

Project Biologist, Blind River/Convent Small Freshwater Restoration Project, USACE and Louisiana Department of Natural Resources, Coastal Restoration Division, LA. Mr. Brown served as project biologist and assisted with environmental evaluations, ecological field surveys, and NEPA documentation. The project involved planning and developing preliminary concepts for a freshwater diversion into the Blind River from the Mississippi River in St. Johns Parish. A Feasibility Study and an EIS were developed. The EIS include all components of a large and complex NEPA study including environmental, engineering, public involvement, and agency coordination. Mr. Brown conducted the Phase I Environmental Assessment of the 36-square-mile parcel.

Project Scientist, Clinton Drive Categorical Exclusion, Texas Department of Transportation (TDOT), Houston and Harris County, TX. For this TDOT project, Mr. Brown conducted wetland evaluations and vegetation surveys in support of NEPA documentation for the improvement of Clinton Drive.

Project Scientist, Environmental Assessment, Tallahassee Regional Airport, Tallahassee, FL. Mr. Brown was the project scientist responsible for the wetland field delineation and species evaluation, and primary analyst and author of sections of the EA document, including Biotic Resources, Federal Threatened and Endangered Species, and Wetlands. The proposed project is the rehabilitation of Runway 9-27 and extension of Runway 18-36 at Tallahassee Regional Airport. The EA is being prepared in accordance with FAA Order 1050.1E Environmental Impacts: Policies and Procedures, FAA Order 5050.4B NEPA Implementing Instructions for Airport Projects (including the 2007 Environmental Desk Reference), as well as applicable Executive Orders, and other federal, state, and local laws and regulations.

Project Scientist, MSEG NEPA Documentation, Gulf Coast, MS. For multiple infrastructure projects in the Gulf Coast area, Mr. Brown was in charge of leading a team of biologists and scientist conducting field assessments of wetlands, listed species, and Phase I ESAs in support of NEPA documentation. He also prepared the report sections of the Environmental Assessment document.

Environmental Task Leader, US 441 SR 500 Widening, Florida Department of Transportation (FDOT), Mount Dora, FL. Mr. Brown was the environmental task leader for environmental permits, compliance, and clearance associated with the widening project. He conducted wetland delineations, gopher tortoise surveys, and Sherman fox squirrel surveys. He prepared consultation letters for US Fish and Wildlife Services (USFWS) concerning sand skink surveys. He was responsible for all environmental reports and environmental updates to the Pond Siting Report. He prepared the Ecological Assessment Report, Permit Determination Memorandum, USACE Nationwide Application, and Environmental Resource Permit (ERP) application for the project.

Brendan V. Brown, PWS

WATER MANAGEMENT DISTRICT PLANNING

Environmental Task Leader, SR A1A Access Management, FDOT, Brevard County, FL. Mr. Brown was the environmental task leader for environmental permits, compliance, and clearance associated with the project. He conducted wetland delineations and protected species surveys. He prepared the Permit Determination Memo for the project.

Lead Environmental Scientist, Wetland Permitting and Mitigation Evaluation – Sexton Cove Roadway and Drainage Improvements, Monroe County, FL. CDM Smith was retained by Monroe County to provide engineering design, permitting, and construction administration services for paving, roadway rehabilitation, drainage, and associated improvements to roadways located within the Sexton Coves Estates subdivision. Mr. Brown conducted an evaluation of potential wetland and protected species impacts. He also evaluated the necessary project permits at the state and federal level. He developed a cost plan for necessary environmental mitigation for impacts to mangroves.

Senior Environmental Scientist, Salt Marsh Mitigation Monitoring, Maintenance, and Reporting, Fort Pulaski National Monument Bridge Replacement, Federal Highway Administration (FHWA), Chatham County, GA. CDM Smith is conducting monitoring of a salt marsh mitigation site for a bridge replacement project as required by the USACE and specified in the Final Compensatory Wetland Mitigation Plan for Tidal Marsh Wetland Restoration Project FOPU 10(3) Fort Pulaski National Monument. CDM Smith is conducting field visits to collect data on vegetation, topographic elevation, water quality, hydrology, and wildlife usage to determine wetland functions and values in support of mitigation success evaluation. CDM Smith is also responsible for the maintenance including exotic and nuisance species control. Mr. Brown is the field team lead for site data collection and is responsible for preparing the monitoring report specified in the USACE Regulatory Guidance Letter No. 08-03.

Environmental Scientist, Patriots Point Road Relocation, Town of Mount Pleasant, SC. Mr. Brown conducted a Waters of the US field delineation of wetlands and surface waters of the project area. He flagged the jurisdictional extents of federal wetlands. He prepared the USACE 404 permit application and obtained a Nationwide permit for the project from USACE.

Senior Environmental Scientist, Bridge Bundles, Georgia Department of Transportation (GDOT), GA. Mr. Brown is serving as the environmental task manager for a number of GDOT bridge replacement projects in northern Georgia. This work involves conducting the environmental field work and preparing the Ecology Resource Survey Report.

Environmental Scientist, General Aviation Airports Wildlife Hazard Assessments, Louisiana Department of Transportation (LADOT), LA. Mr. Brown provided technical review and oversight of database management for monthly wildlife survey results for nine General Aviation Airports in Louisiana. Tasks include database set up, entry, management, and management recommendations for all nine airports.

Senior Environmental Scientist, Brampton Road Connector, Georgia Ports Authority, GDOT, GA. This project is intended to alleviate blockage and reduce congestion along the SR 25 corridor and provide better access to I-516, I-16, and Gate 3 at the Garden City Terminal by providing a new location roadway. Mr. Brown is responsible for the environmental documentation and permitting for the project including field work. He conducted the updated wetland delineation and submitted the revised preliminary jurisdictional determination packet to the US Army Corps of Engineers. He was responsible for evaluating state waters on the project and worked with Georgia Department of Natural Resources Environmental Protection Division (GADNR) to receive an updated state waters determination for the project. He is also revised and completed the GDOT Ecology Assessment of Effect Report based on the updated design. He is responsible for completing the USACE individual permit and GADNR buffer variance application for the project including assessing wetland and surface water impacts and necessary mitigation.

Project Biologist, Environmental Services, GDOT,Cherokee County, GA. Mr. Brown conducted threatened and endangered species surveys, habitat assessments, and wetland and stream delineations for a GDOT road project in Cherokee County, Georgia. He wrote the combined Ecology Resource Survey and Ecology Assessment of Effects Report documenting the presence of listed species, USACE jurisdictional wetlands and Georgia Environmental Protection Division jurisdictional streams, project impacts, and mitigation requirements.

C. John Melendez III

ECONOMIC DEVELOPMENT PLANNING

Years of Experience: 20 **| Education:** BS – Civil Engineering, Biological Science

Mr. Melendez has 20 years of experience in transportation planning, traffic engineering, and community outreach. He has served in diverse roles including project manager, transportation practice lead, outreach specialist, and field analyst. His background in transportation is rooted in performing transportation analysis and completing traffic engineering as well as engaging stakeholders to inform them of the benefits and impacts of the project. His professional capabilities include field data collection, operational and qualitative analyses, intersection analysis and design, safety analysis, technical writing, policy development, management, contract negotiations, and public involvement.

Chairman, Jacksonville Transportation Authority (JTA) Technical Advisory Panel (TAP) on Transit-Oriented Development (TOD), Jacksonville, FL. Mr. Melendez led an Urban Land Institute (ULI) TAP made up of transit experts from around the United States and Canada to provide an outside evaluation of JTA's Southwest bus rapid transit (BRT) corridor and two potential TOD sites to assist in JTA's Station Area Planning effort. The Collins Road and San Juan Avenue BRT stations were evaluated with regard to financial feasibility, community economic development, planning and land use policy, and ridership potential. A comprehensive report and presentation were provided for use by JTA staff for future site selection decisions. This project was completed while with a previous employer.

Outreach Specialist, I-275 Regional Rapid Transit Project Development and Environmental (PD&E) Study, Tampa Bay Area Regional Transit Authority (TBARTA), Hillsborough County, FL. Mr. Melendez was responsible for supporting the project team to develop community outreach tools, messaging, and materials; participating in outreach events to engage stakeholders on critical technical issues; and reviewing planning and design of deliverables. This project was completed while with a previous employer.

Outreach Specialist, Colonial Parkway PD&E Study, Florida's Turnpike Enterprise, Orlando, FL. Mr. Melendez served as outreach specialist for public outreach efforts to support the project team. He attended and facilitated two public meetings and one public hearing alongside planning and design staff. Mr. Melendez engaged the public utilizing SmartBoard technology on project issues including right-of-way (ROW), access management, and typical sections, as well as directing them to other subject matter experts. This project was completed while with a previous employer.

Project Manager, Public Involvement Quality Review and Analytics, Florida Department of Transportation (FDOT) District 2, Lake City, FL. Mr. Melendez served as project manager and client liaison to support the Department's public involvement program with regard to communications issues critical to the client's goals and objectives. Mr. Melendez led the analysis of the program, developed program recommendations, and authored the existing conditions and final recommendations reports reviewed and approved by the GEC Program Manager and District Communications Manager. This project was completed while with a previous employer.

Project Manager/Outreach Specialist, US 17/92 Access Management Improvements, FDOT District 5, Winter Park, FL. Mr. Melendez was responsible for scheduling and preparing materials for public meetings. He also coordinated with the client and project team to develop content and oversee production of the project newsletters, stakeholders' mailers, project videos, and public meeting exhibits, as well as maintenance of the project stakeholder database. This project was completed while with a previous employer.

Outreach Specialist, US 301 PD&E Study, FDOT District 5, Sumter County, FL. Mr. Melendez worked with the project team to prepare for and attend the community outreach meetings to inform residents of the City of Coleman and The Villages of alignment alternatives of a proposed widening and realignment of US 301 in Sumter County. He also provided technical expertise in the production of deliverables, including design input and Quality Control (QC) review of the Access Management Report and the Pavement Type Selection Report. This project was completed while with a previous employer.

C. John Melendez III

ECONOMIC DEVELOPMENT PLANNING

Project Manager/Outreach Specialist, American Council of Engineering Companies-FL (ACEC-FL) Engineering Awareness/Branding Campaign, FL. Mr. Melendez was responsible for project management and coordination with the client, ACEC-FL, to deliver an 8.5 inch by 11-inch bi-fold brochure, all brochure technical content and campaign tag line to raise awareness of the positive impact engineers have on the daily lives of Floridians through the projects they design. The brochure and tag line, "Engineers, Behind the Everyday and the Extraordinary," is intended to be used by ACEC-FL in subsequent campaign activities, and as the foundation for additional engagement material. This project was completed while with a previous employer.

Project Manager/Outreach Specialist, KARS Platform Brochure, KYRA Solutions, Lakeland, FL. Mr. Melendez was responsible for coordinating with the client and design staff to produce an 8.5 inch by 11-inch brochure for KYRA Solutions, a technology firm which provides solutions to the tolling industry. The brochure was designed to inform potential clients of the benefits of the KARS platform with regard to the benefits KARS delivers in automated license plate reader (ALPR) cashless tolling automation rates. Mr. Melendez interviewed tolling agency staff with KYRA Solutions to develop messaging and technical data content for the brochure. This project was completed while with a previous employer.

Project Manager/Client Liaison, Sheldon Road and Waters Avenue Improvements PD&E Study, Hillsborough County, FL. Mr. Melendez oversaw and coordinated the production of the PD&E traffic analysis report, resulting in a border-width variation approval by staff, and led the production effort and presentation to staff of nine alternatives for intersection improvements. Alternatives included conceptual geometric layouts, signal design and upgrades, intersection capacity analysis and preliminary pond location review. The preferred alternative saved Hillsborough County $2M in ROW acquisition. This project was completed while with a previous employer.

Project Manager/Traffic Analyst, Polk Street and Van Buren Street Traffic Study for Two-Way Street Conversion, City of Hollywood, FL. Mr. Melendez performed traffic analysis and field reviews and assisted in the development of conceptual layouts and geometric designs for the conversion of a one-way pair (Polk and Van Buren Streets) to a two-way operation. This project was completed while with a previous employer.

Deputy Project Manager, Selmon Greenway Pocket Parks, Tampa-Hillsborough Expressway Authority (THEA), Tampa, FL. Mr. Melendez facilitated a design-build teaming arrangement with the contractor to secure the project. He coordinated with the design and contractor team to refine concepts for client review and approval and worked with City staff to sufficiently complete ROW permit plans. He also conducted field visits and recorded photographs for concept development, located visible utilities, and provided insight for design concepts adherent to the project scope and budget. This project was completed while with a previous employer.

Project Designer/Analyst, US Highway 1 Lighting Improvements, City of Palm Bay, FL. Mr. Melendez authored a design variation report which led to district design engineer approval of a clear zone variation for approximately two miles of aesthetic lighting. He engaged the contractor, agency staff, and construction manager to develop the variation report, which required a safety and crash review of the corridor that Mr. Melendez also performed. This project was completed while with a previous employer.

Project Manager, Wood Valley Traffic Calming, City of Clearwater, FL. As project manager during construction, Mr. Melendez oversaw the post-design services at construction progress field meetings and construction walk-throughs with the client. The project consisted of reconstructing a portion of Fairwood Avenue including two roundabouts, oval medians, and speed tables to address traffic issues in the neighborhood and improve safety. This project was completed while with a previous employer.

Analyst/Client Liaison, Residences at Riverwalk (Residential High-Rise), City of Tampa, FL. Mr. Melendez directed and worked with roadway design staff to produce 60 percent roadway concept design plans for roadway and intersection improvements associated with a proposed high-rise in downtown Tampa at Cass Street and Tyler Street. He presented to City officials and planning staff to facilitate understanding of the complex roadway geometries and realignments and ensure compliance with City of Tampa design standards. This project was completed while with a previous employer.

Melissa Ann Ziegler, CEcD

ECONOMIC DEVELOPMENT PLANNING; MARKET FEASIBILITY/FINANCIAL; NEW GRANT OPPORTUNITIES SUPPORT; CAPITAL IMPROVEMENT PLANS & FINANCIAL ANALYSIS

Years of Experience: 39 **| Education:** MBA - Management; MPA - Finance; BS - Philosophy/ Political Science **| Certifications:** International Economic Development Council Certified Economic Developer

Ms. Ziegler's greatest strengths are her essential understanding of multi-jurisdictional dynamics and her national experience in emerging trends and issues, multimodal transportation, and economic development. She has created integrated solution strategies for a number of development challenges including economic development, transportation, trade, and land use issues and is a frequent speaker at national conferences. She offers clients a crucial understanding of transportation and development dynamics along with the national experience needed to lead successful community, regional, and multi-jurisdictional planning and implementation projects.

Task Leader, Multimodal Project Prioritization Process and Tool, Pennsylvania Department of Transportation (PennDOT), PA. In conjunction with the Long-Range Transportation Plan (LRTP) and the Comprehensive Freight Movement Plan, Ms. Ziegler led the development of an innovative GIS-based multimodal project prioritization process and tool that provides additional analytical rigor for making performance-based investment decisions. The tool incorporates analysis of quantitative performance criteria, economic development and competitiveness, quantitative condition criteria, and other factors and includes a cross-modal economic impact model which was developed as part of this process.

Task Leader, Missouri State Freight Plan, Missouri Department of Transportation (MoDOT), MO. Ms. Ziegler led the development of a multimodal freight prioritization framework, building on the plan's goals and performance measures to analyze and prioritize freight projects based on goals and objectives, economic impacts, and economic development. She prepared business case studies for selected modal types and market conditions for each of the five Department of Transportation Districts. The prioritization process applied a corridor segment economic impact score, which estimated the economic impacts of freight activity for certain modes on various corridor segments by integrating commodity flows, IMPLAN multipliers, and other economic data.

Project Leader, Port Bienville Economic Development Benefits and Opportunity Analysis for the Federal Rail Administration and Mississippi Department of Transportation (MDOT), MS. The multimodal transportation network serving the Mississippi Gulf Coast includes two interstate highways, Stennis International Airport, Stennis Space Center, ports and waterways, and Class I rail service. This study evaluated industrial transportation needs and future demand, economic development benefits from existing business operations, alternative multimodal corridor alignments, and revenue sources to support the development of dual Class 1 rail service. Ms. Ziegler led the economic evaluation and development strategy including industrial demand analysis and economic competitiveness assessment, and recommended financing and funding strategies for the project. Based on the study findings, FRA and MDOT approved proceeding to Phase II analysis of this project.

Task Leader, PennDOT Project Prioritization Process, Statewide Transportation and Freight Plan, PennDOT, PA. Ms. Ziegler led the development of the state's multimodal prioritization process, which included airports, freight and passenger rail, ports and waterways, public transportation, and highways. The process provided additional analytical rigor to decision-makers, evaluating projects and investments using technical merit and economic impact components. Both quantitative and qualitative data were used to evaluate 11 different multimodal project types. The economic impact model developed exclusively for this process utilized big data to predict the future impact of transportation improvements on private industry in terms of jobs and economic output. Created in tandem with the LRTP and Statewide Freight Plan, this collaborative effort involved active participation by planning partners, PennDOT, and the Advisory and Management Committees to ensure the process reflected the regional and statewide transportation needs most critical to support the state's economic future.

Project Manager, Mohawk Erie Multimodal Transportation and Economic Development Study, New York State Department of Transportation, Upstate New York, NY. As project manager, Ms. Ziegler is leading multiple public agencies, business executives, and diverse stakeholders in developing a realistic and implementable strategy to enhance the multimodal transportation network serving this critical 435-mile trade corridor. This multimodal system supports the economies of adjacent communities, freight and people intensive businesses, as well as tourists and business travelers,

Melissa Ann Ziegler, CEcD

ECONOMIC DEVELOPMENT PLANNING; MARKET FEASIBILITY/FINANCIAL; NEW GRANT OPPORTUNITIES SUPPORT; CAPITAL IMPROVEMENT PLANS & FINANCIAL ANALYSIS

enhancing the livability and sustainability of the region. In an economy that is increasingly export-oriented, innovation-driven, and focused on environmental sustainability, a multimodal transportation system that supports these goals is critical.

The CDM Smith team is developing an innovative tool to prioritize transportation investments to best support economic competitiveness and quality of life in the corridor. Ultimately this plan will improve linkages between strategic multimodal transportation networks, economic opportunities, and transportation policy and regulatory issues, and will position the region to respond to the changing transportation needs of competitive businesses and communities to realize greater prosperity for the region's future.

Project Manager, St. Clair County Economic Development Strategic Plan, Port Huron, MI. Ms. Ziegler led more than 100 stakeholders to create a strategic plan to revitalize downtowns, improve economic competitiveness, renovate vacant industrial facilities, capitalize on practical innovation capabilities, and build a new level of community collaboration. As part of the environmental mitigation plan for the expansion of the Blue Water Bridge international border crossing, CDM Smith created a plan to revitalize the area's economy, leveraging business and workforce expertise, freight and transportation assets, and community livability. CDM Smith developed an action plan to help the region retain businesses and residences dislocated by the bridge plaza expansion, evaluated sites for future business parks, and prepared a targeted business strategy for future business recruiting efforts.

Project Manager, Economic and Transportation Development Plan for Corridor K, Multi-State Study Area, TN, NC, GA, and AL. Through an innovative outreach and visioning process led by Ms. Ziegler, a coalition of diverse stakeholders was built around a common vision and the planning process for this project was able to move forward. This multi-state corridor plan links Asheville, NC to Chattanooga, TN, serving a diverse urban, suburban, and rural region. Some communities in the region continue to suffer from limited employment opportunities, lower family incomes, constrained local revenues, and poor connectivity. Previous planning efforts had failed to achieve consensus among key stakeholders, including community leaders and environmental groups, and support from the business community was lacking.

CDM Smith's approach focused on identifying sustainable economic development opportunities, the evolving transportation needs of key business sectors, community livability, safety and capacity issues of the existing east-west highway corridor, and challenges to economic competitiveness. The study considered transportation needs of sustainable existing businesses and targeted emerging businesses, as well as non-transportation assets required for successful economic development, while balancing economic prosperity and environmental quality.

Project Manager, Mega Site Feasibility Study, Statewide, South Carolina Department of Commerce, SC. Ms. Ziegler developed criteria for evaluating the state's mega industrial sites and subsequently evaluated and prioritized potential mega sites throughout the state. A mega site matrix was developed to compare the South Carolina sites with other mega sites in the southeastern US. Ms. Ziegler conducted a competitiveness assessment of South Carolina sites in relation to a broader market area. Meeting with local economic development officials, elected officials, and power board members, Ms. Ziegler reviewed the analysis process and development feasibility of each site submitted for assessment. This mega site analysis was conducted in conjunction with the Statewide Rail Plan, and the firm also evaluated the feasibility and cost of providing rail services to each of the potential mega sites.

Project Manager, FHWA Rural Access Transportation Performance Measures, FHWA. Ms. Ziegler headed this effort to develop rural accessibility performance measures to help decision-makers at the regional, state, and federal level prioritize transportation investments that support strategic accessibility goals. She was responsible for coordination and communication with the internal team (including subconsultants) and with the FHWA project manager, led several tasks, and developed the final report. While transportation performance measures have traditionally been based on mobility factors—travel times and travel speed—this study focuses on the ability to reach destinations. In rural areas accessibility varies, yet access is essential to job creation, vibrant local economies, enhanced workforce skills, freight movements, and connections to community services. Access to tourism venues, natural areas, agricultural production and forestry remain important components of the rural economy, but high-tech services, alternative energy production, communications, and advanced manufacturing have become important economic drivers.

David V. Sousa, RLA, AICP

MARKET FEASIBILITY/FINANCIAL; STATION AREA DEVELOPMENT/TOD

Years of Experience: 40 **| Education:** BS - Environmental Design/Landscape Architecture **|**
Registration: RLA – CT **| Certifications:** AICP

Mr. Sousa has experience in comprehensive master planning, urban design, transportation planning, environmental studies, and public involvement and has managed the planning, design and construction administration of large-scale transportation, urban redevelopment, park, and street enhancement projects. He has authored numerous studies on transit-oriented development (TOD), complete streets, and the integration of transportation and land use. As a disciple of smart growth, walkable urbanism, and green infrastructure, he has focused his career on creating more livable, sustainable and attractive communities and more viable urban centers.

Senior Planner, Downtown Now! Transit-Oriented Development (TOD) Feasibility Study, Derby, CT. Mr. Sousa provided transportation and infrastructure planning services for a TOD study on former industrial sites adjacent to downtown Derby and within walking distance of the Derby-Shelton train station. Working with City and the Naugatuck Valley Council of Governments on a multi-disciplinary team led by DPZ Partners, CDM Smith identified infrastructure needs and recommended practical and efficient improvements that will set the stage for compact, sustainable, mixed-use development while preserving the riverfront environment and complementing the historic character of downtown Derby. CDM Smith also helped the team develop concepts for new “slow streets” that provide safe connections and shared public spaces that prioritize travel by walking and cycling while accommodating new transit-oriented, infill development.

Senior Planner, Bethel Forward: TOD Feasibility Study, Bethel, CT. CDM Smith provided innovative transportation and infrastructure planning services for this TOD feasibility study as part of a multidisciplinary team led by DPZ Partners. The vision of the project is to build on Downtown Bethel’s historic heritage, village charm, and distinctive character to re-energize the village center as a healthy, vibrant, dynamic, pedestrian friendly community. Mr. Sousa’s role in developing concepts to attain this vision included conceptualizing a new, hierarchical typology of slow streets in areas within walking distance of the train station that: i) accommodates all users (pedestrian, bicyclist, transit riders, motor vehicles); and, ii) provides safe connections and shared public spaces that prioritize travel by walking and cycling while accommodating projected travel and parking demand and new transit-oriented, infill development.

Senior Planner, Brown Line Core Capacity Vision Study, Chicago Transit Authority, Chicago, IL. Mr. Sousa’s role in this study is to develop recommendations that promote TOD at Kimball Station—the terminal station of the Brown Line. The objective is to complement investment in transit with mixed-used, higher-density development that includes affordable housing. Accordingly, CDM Smith will work with the CTA and the community to prepare TOD principles, specific to the Kimball station area. The principles will include an overview of the benefits that can be attained through TOD and are an important tool in developing community acceptance of TOD. Mr. Sousa is also leading a team to prepare TOD concepts in concert with the community. The concepts will integrate numerous, interrelated elements including transit supportive land uses, form-based zoning guidelines; Complete Streets that prioritize non-motorized travel; shared parking needed to support TOD; and station designs that will facilitate intermodal connectivity—all to foster sustainable, private redevelopment.

Senior Planner, Route 8 Corridor TOD and Alternate Transit Modes Assessment Project, Bridgeport to Waterbury, CT. Mr. Sousa is working with the Naugatuck Valley Council of Governments (NVCOG) and an interdisciplinary planning team headed by another firm to assess the feasibility of implementing alternative modes of travel within the Route 8 and Waterbury branch rail line corridors. CDM Smith’s role on the project team is: i) Prepare TOD concepts in each of seven Valley communities that integrate design elements of the private realm of land use and the public realm of infrastructure (e.g. mixed-use buildings, land use regulations; Complete Streets, shared parking, green infrastructure) with intermodal station designs in order to facilitate intermodal connectivity and foster the use of transit and non-motorized travel; ii) Assess and measure life-cycle costs and benefits that accrue from sustainable transportation and TOD strategies as well as prioritize where investments in such systems would be most effective.

David V. Sousa, RLA, AICP

MARKET FEASIBILITY/FINANCIAL; STATION AREA DEVELOPMENT/TOD

Landscape Architect/Transportation Planner Glenbrook-Springdale Transit-Oriented Development Feasibility Study, Stamford, CT. Mr. Sousa worked with a specialized, interdisciplinary team, selected by the City of Stamford, to improve mobility and access, identify Complete Streets solutions and prepare station area plans for Glenbrook and Springdale. Each of these urban villages has a distinct, mixed-use, urban core and each has a commuter rail station on the New Canaan Branch Line of the Northeast Corridor. CDM Smith's analysis of the village districts included a determination of deficiencies and needs relative to traffic safety, bicycle travel, walkability, bus transit, commuter rail parking and downtown parking. Our recommendations to improve the vitality of the villages focused on building on the existing strengths of the neighborhoods as "walkable" village districts including Complete Streets improvements, green infrastructure, bicycle connectivity, parking management and access improvements, streetscaping, and station improvements that will facilitate intermodal travel.

Transportation Planner, Hill-to-Downtown Community Plan, New Haven, CT. Mr. Sousa provided planning and conceptual design of street systems to support plans for transit oriented development within an underutilized quarter of the City of New Haven that lies between Union Station, Downtown, the Hill Neighborhood and Yale-New Haven Hospital. The plan will guide the creation of a dense, mixed-use, mixed-income and walkable community. Mr. Sousa was responsible for assessing existing deficiencies relative to transit, pedestrian, and bicycle transportation and for identifying Complete Streets alternatives that will enhance mobility for all users.

Urban Planner, Hill-to-Downtown Municipal Development Plan (MDP), New Haven, CT. Upon completion of the Hill-to-Downtown Community Plan, the City of New Haven retained CDM Smith to prepare an MDP under the requirements of the CT Department of Community and Economic Development. An MDP is a necessary precursor to state investment in infrastructure and property acquisition for large-scale capital projects where public/private partnership is needed to stimulate responsible growth and economic and community development. Key components of the MDP included:

- An assessment of existing conditions
- A 'Plan Concept' and 'Recommended Strategies' (including alternatives considered, market trends and assessments of development potential, proposed land uses, infrastructure, zoning and land use controls)
- A description of 'Public Benefits' (property tax benefits, blight and environmental remediation, jobs, housing, improved standard of living and economic competitiveness)
- An Implementation Plan (financing plan, estimated project costs, acquisition and disposition, relocation plan and environmental review)

Transportation Planner, South Norwalk TOD Pilot Program, Norwalk, CT. Mr. Sousa led a multi-disciplinary design team to restore connections between the heart of SoNo and the South Norwalk commuter rail station, the Norwalk waterfront, and surrounding residential districts. Improving how people can travel safely and conveniently among these assets is key to building investor confidence to implement the City's visionary plans for TOD. CDM Smith developed recommendations and detailed construction documents to improve multi-modal and non-motorized transportation systems that accommodate and promote TOD. Utilizing emerging principles of Complete Streets and Green Infrastructure, our work is creating safe, multi-use routes for pedestrians, cyclists, and transit riders and is providing a more attractive, sustainable, vibrant and walkable TOD district.

Lead Landscape Architect/Transportation Planner, Meriden Transit Center and TOD District, Meriden, CT. Mr. Sousa prepared preliminary plans of Complete Streets elements and streetscaping for Meriden's TOD District. The project utilizes innovative Complete Streets principles to facilitate access to the Meriden Intermodal Center Station, create a more attractive, contextual, vibrant and walkable downtown and attract transit-oriented development. Foremost among the project's objectives is to reconstruct the city streets to promote the operation of motor vehicles at responsible speeds, and to enable the safe use of the streets by pedestrian, bicyclists and transit riders. The project incorporates state-of-the-art green and energy efficient strategies to provide for a better quality of life and cleaner environment for city residents and workers. As the "front door" of Downtown Meriden, the design of the TOD District must complement and enhance the historic character of Meriden and reflect the City's commitment to livability and sustainability.

Sarah Sutherlin, AIA, LEED® AP

STATION AREA DEVELOPMENT/TOD

Years of Experience: 3 | **Education:** BA – Architecture | **Registration:** AIA – WI, IL | **Certifications:** LEED AP

Ms. Sutherlin is a licensed architect, member of the US Green Building Council, and designer with detailed understanding of design and construction processes at a variety of scales. She is skilled in several advanced design programs including Revit AutoCAD, Rhinoceros, 3Dsmax, and Adobe CC. On several facility projects, he has used various technologies, along with hand crafts such as sketching, welding and carpentry, to inform and communicate designs.

Project Architect, Facility Assessment, Joliet, IL. Ms. Sutherlin led a high-level assessment of all (50+) city-owned buildings, analyzed existing condition, and prioritized the required/recommended repair and maintenance work over the next 20 years. The project involved field observations, preparation of report with cost estimate recommendation, and development of a facility management database.

Project Architect, City of Joliet Public Buildings Condition Assessments, Joliet, IL. This project included an appraisal and cost services study for 50+ buildings managed by the Joliet Park District. Ms. Sutherlin was the lead architect for field assessments. Buildings assessed include fire stations, city hall, water treatment facilities, baseball stadium, theatre, police department, train station, and other municipal facilities.

Architect, Metra Station Preliminary Design and Phase I Engineering, Glen Ellyn, IL. CDM Smith provided analysis, planning, design, and Phase I Engineering services for the Village's Metra station and surrounding downtown district of Glen Ellyn. The Village understood that while the existing 1960s facility had fulfilled basic services, the station facility and site was not meeting current and future needs. Ms. Sutherlin's work included attending public outreach meetings, where she collected feedback and public input, and then implementing solutions into the design process.

Architect, Brown Line Core Capacity Vision Study, Chicago, IL. Ms. Sutherlin developed transit-oriented design guidelines for the neighborhood surrounding the terminal station of the Chicago Transit Authority's Brown Line. She also facilitated public outreach to gain community input and support then implemented solutions into the design process. The guidelines included technical recommendations with illustrative graphics that were based on the extensive community input process as well as land-use and zoning analysis.

Project Architect, Facility Assessment, Joliet, IL. Ms. Sutherlin is leading a high-level assessment of all (55) city-owned buildings, analyzing existing condition and prioritizing required/recommended repair and maintenance work over the next 20 years. The project involves field observations, preparation of report with cost estimate recommendation, and development of a facility management database.

Architect, Electrical Improvements & Generator Design, Wilmette, IL. CDM Smith was contracted to perform the detailed design for the Wilmette WTP electrical improvements based on the recommendations of our previous study and conceptual report. CDM Smith designed the replacement of the main switchgear, two new 1,000-kW standby engine-generators, and five new MCCs. The new main switchgear and standby diesel engine-generators are being designed for a closed-transition transfer to provide a seamless transfer back to utility power following a loss of power event. Ms. Sutherlin is working on the architectural design of the new building to house two diesel engine-generators, building addition for a new electrical room housing the new main switchgear and three new MCCs, and modifications to the existing electrical room and existing lunch room to construct a new smaller electrical room for two new MCCs and a new 400-hp VFD for one of the high lift pumps.

Technical Director, Great Chicago Fire Festival, Redmoon Theater, IL. Prior to CDM Smith, Ms. Sutherlin directed technical design of pyrotechnic and mechanical spectacle objects. She also managed construction including scheduling, budget, and fabrication crew. As a consulting architect, Ms. Sutherlin developed space planning layouts for cultural festivals and fundraising events.

Tim Crobons

Customer & System-Wide Passenger Surveys; Transit Operations & Scheduling

Mr. Tim Crobons has over 30 years of transportation planning experience. His experience includes a variety of transit projects around the country with an emphasis on short and long-range transit planning and operational efficiency analysis. Tim has experience with a wide variety of transit-related projects including long-range transit development projects such as FTA Section 5309 New Starts Corridor level projects (AA, DEIS, FEIS, PE), Short-Range and Long-Range transit service plans, Comprehensive Operations Analyses (COA) / system restructuring and efficiency plans, Transit Development Plans and Systems Planning.

Professional Background

- Extensive experience with a wide variety of transit-related projects including service plans and O&M cost estimates for systems plans
- Expertise in FTA Section 5309 New Starts Corridor Planning (AA, DEIS, FEIS, PE); Comprehensive Operations Analysis (COA); Transit Development Plans and systems planning

Education

- B.A. Business Admin Management, University of South Florida-Tampa (1990)
- M.B.A., Master of Business Admin, University of Central Florida (1999)

Relevant Experience

DART Comprehensive Operations Analysis, Dallas, TX

CTG completed a Comprehensive Operations Analysis for DART in Dallas, TX. Tim served as Project Manager. Under Tim's leadership, the consultant team developed Cost- Neutral, Moderate Growth and Full-Service plans. The Full-Service Plan incorporates transportation-related goals set forth in the 2030 Transit Systems Plan and guiding principles established for the development of the 2040 Transit Systems Plan, DART's 20 Year Financial Plan and the NCTCOG's Mobility 2035 Plan. The Moderate Growth Plan is a staging of the Full-Service Plan based on a moderate investment level. The cost-neutral recommendations focus on what can be done to improve transit services, maximizing the use of existing resources. Creative spreadsheet-based tools were created to analyze stop level ridership activity, line loads and route on-time performance. The project has also reviewed travel origin-destination data gathered through AirSage – an innovative technology that aggregates travel patterns through cellphone movements. All of these inputs have been geographically mapped for use in system plan development. Service implementation packages were prepared to assist DART in implementation of the recommendations in an incremental manner over the course of several service bid periods. Tim is currently (2018-19) managing an update to the previous DART COA as well as a new DART 2045 Transit Systems Plan.

LYNX Transit Development Plan / Route Optimization Study, Orlando, FL

Connetics Transportation Group (CTG) was part of a consultant team that provided transit planning support to the Central Florida Regional Transportation Authority (d.b.a. LYNX) for its 2018 Transit Development Plan (TDP) Major Update and accompanying Route Optimization Study (ROS). Tim served as the Project Manager for the Route Optimization Study phase of the project. CTG laid the foundation for the development of a reimagined LYNX network through data collection, field observations, and internal stakeholder interviews with bus operators, supervisors, and customer service staff. Using innovative tools developed by CTG, the team analyzed LYNX' service productivity, cost effectiveness and efficiency, on-time performance at the system, route, and stop level. CTG also prepared a detailed market and travel patterns analysis which helped identify needs and opportunities for transit development throughout the Orlando region. CTG led a series of interactive workshops with LYNX' planning, operations, and customer service staff over the course of several months to incrementally build the reimagined network based on Near-Term (fiscally constrained) and Long-Term (fiscally unconstrained) planning horizons and cost scenarios. The service plan scenarios were built using Remix software and exported to GTFS files to facilitate ridership forecasting in STOPS. CTG utilized the outputs from the analyses, to prioritize elements of each service scenario to create the final Near and Long-Term plans.

NYCDOT Select Bus Service Studies – Bronx – Webster Avenue; Queens - Flushing-Jamaica; and S. Brooklyn SBS, New York, NY

Tim managed CTG's role on the Bronx Webster Avenue SBS study for New York City DOT as a subcontractor to AECOM. The study considered SBS improvements for the Bx41 bus line. He analyzed terminal operations to identify improved bus circulation and dwell location, developed a corridor operating plan including detailed run time estimates for the Webster Avenue SBS, and developed a feeder bus service plan identifying modifications to the supporting bus lines. Tim also performed similar supporting roles for the Flushing to Jamaica SBS and the South Brooklyn SBS projects.

Central Corridor Engineering Services, Minneapolis/St. Paul, MN

Tim was responsible for preparing bus and Light Rail Transit (LRT) operations plans for the SDEIS project alternatives. He worked closely with Metro Transit service planning staff and ridership forecasters in defining the operations plans, estimating operating statistics and annual O&M costs. Operating plans developed for this study effort included No Build, Baseline and Build LRT alternatives, which were used for FTA New Starts submittals. Additionally, he was responsible for developing LRT run times used for travel demand modeling. Others tasks included development of a resource build-up Metro Transit O&M cost model and a train simulation model to examine downtown Minneapolis LRT operations with combined Central Corridor line and Hiawatha line operations.

Southwest to Northeast (SW2NE) Corridor EIS, Ft. Worth, TX

Tim developed bus and rail operations plans and annual operating and maintenance (O&M) cost estimates for a No Build, Baseline and Build alternatives, which were used for FTA New Starts submittals. The location and alignment of this rail corridor results in a significant restructuring and expansion of the existing Ft. Worth Transportation Authority (The "T") transit system. This rail corridor is designed with connections to two commuter rail lines and one LRT line, as well as the Dallas/Ft. Worth International Airport (DFW). Tim continued to support annual New Starts Submittals as this project advanced towards a Full Funding Grant Agreement.

Statewide Transit/TDM Plan, Commonwealth of Virginia

Tim served as Deputy Project Manager for development of the Virginia Statewide Transit/ TDM Plan completed in February 2013. He was responsible for identifying and documenting Statewide transit need for all plan capital and operating investment strategies (Low, Moderate and High) including state of good repair, service capacity enhancements and major transit capital investments; guiding financial planning and cash flow analysis; and developing financially constrained and unconstrained statewide transit plans.

TBARTA Regional Master Transit Plan, Tampa, FL

Tim developed multimodal transit operating plans for transit services identified in the Regional Master Plan, as well as background bus networks for an eight-county region. Additionally, he was responsible for developing annual operating and maintenance (O&M) cost estimates for all transit modes identified in the Master Plan. This study effort involved three screening analyses to narrow the final alternative corridors and transit modes. Tim was responsible for preparing operating plans, estimating modal run times, coordinating with travel demand modeling tasks, and developing annual O&M cost estimates for all phases of this project, as well as coordinating these operating plans with eight counties, seven transit operators, and six Metropolitan Planning Organizations (MPOs). Subsequently, he participated in two updates of TBARTA's Master Plan.

Other Representative Projects

Comprehensive Operations Analyses: Palm Tran – West Palm Beach, FL, JTA – Jacksonville, FL, RTS – Gainesville, FL, CATS – Baton Rouge, LA, The Rapid (ITP) – Grand Rapids, MI, MARTA in Atlanta, GA, COTA in Columbus, Oh. **BRT**: Orlando SR 50, Ft. Lauderdale Oakland Park Boulevard, Broward Boulevard and US 1 Corridors, Lansing Michigan/Grand Avenue, Grand Rapids Division Avenue; Streetcar: Ft. Lauderdale, FL, Columbia Pike Arlington, VA, Miami, FL, Washington DC; **LRT**: Pinellas County Alternatives Analysis, Denver West and I-225 corridors, Minneapolis Central Corridor, Minneapolis Hiawatha (Blue Line) Corridor, Dallas, TX Northwest (Orange Line) and Southeast (Green Line) Corridors; **Commuter Rail**: Orlando Central Florida Commuter Rail (A.K.A. SunRail); Ft. Worth, TX TexRail

Yvette Holt

Public Opinion Research, Social Media

Education
Bachelor of Science,
Public Relations,
University of Florida

Certifications
- Disadvantaged Business Enterprise (DBE)
- Florida Statewide and Inter-Local Minority Business Enterprise (MBE)
- Broward County - County Business Enterprise (CBE) and Small Business Enterprise (SBE)

Yvette Holt is the president of Holt Communications, Inc., a full-service agency specializing in public engagement, strategic planning, marketing, and special event management. She has more than 20 years of experience as a strategic communications professional.

Relevant Project Experience
The Palm Beach Transportation Planning Association (TPA) - Long Range Transportation Plan (LRTP)
Ms. Holt leads the public engagement effort for the Palm Beach TPA's LRTP. She is responsible for ensuring that the Palm Beach County public is aware of, active participates in, and engaged to the maximum extent possible in all phases of the 2045 LRTP effort. This includes the development of a survey of transportation needs that was shared online and in person at various community events throughout the county.

South Florida Regional Transportation Authority (SFRTA) - Boca Raton II Tri-Rail Station Project Development and Environment (PD&E) Study
As Public Information Manager, Ms. Holt lead the outreach effort for SFRTA's PD&E Study to evaluate alternatives for a second Tri-Rail station within the South Florida Rail Corridor in the City of Boca Raton. Ms. Holt developed a strategic public involvement program to build consensus for the improvements by working closely with residents, officials and special interest groups. This included community outreach, development of educational and informational materials, property owner communications and presentations to stakeholder groups.

Miami-Dade County Department of Transportation and Public Works (DTPW) - General Engineering Consult (GEC)
Holt Communications serves as a member of the General Engineering Consultant team to the Department of Transportation and Public Works (DTPW). Ms. Holt currently leads the public involvement effort for the Beach Corridor Rapid Transit Project, a Project Development and Environment (PD&E) Study of rapid transit options along the Beach Corridor. The Beach Corridor is one of the six rapid transit corridors of the Strategic Miami Area Rapid Transit (SMART) Plan. She is responsible for the development and execution of a Public Involvement Plan including extensive public and official outreach, public meetings and educational information.

In addition to the Beach Corridor she serves as the Public Information Officer for DTPW's Bus Express Rapid Transit (BERT) Network. This project includes eight proposed express bus routes throughout Miami-Dade County.

Miami-Dade Expressway Authority (MDX) - General Engineering Consultant (GEC)
As a member of the General Engineering Consultant team, Ms. Holt develops and implements the strategic public involvement programs for the construction of the MDX work program. She is responsible for informing key stakeholders of the impacts, benefits and status of construction projects at various phases. Ms. Holt represents MDX to the communities that are most directly impacted by construction activities and is responsible for the mitigation of any issues that arise. Some of the key projects that she has handled include:

- SR 874/Don Shula Expressway and Killian Parkway Interchange – This capacity improvement project added an additional lane northbound and southbound on SR 874 between SW 120th Street and Killian Parkway/SW 104th Street. The widening and improvement of the Killian Parkway interchange, including a new three-lane westbound exit ramp. More than two miles of sound barrier walls and the construction of Open Road Tolling (ORT) lanes to replace the conventional toll plazas.

- State Road 874/Don Shula Expressway Entrance Ramp – This construction project included the construction of sound barrier walls and a flyover ramp that provided a new northbound connection to SR 874 and SR 826/Palmetto Expressway.

- SR 836/Dolphin Expressway – Design/build of a 1.7-mile auxiliary lane, including bridge widening over NW 57th Avenue and the Tamiami/C-4 Canal, drainage improvements and new retaining walls.

- SR 836/Dolphin Expressway Extension – This 3.1 mile, four-lane extension of the expressway provided drivers heading to and from the western suburbs of Miami-Dade County with a more direct connection to central Miami-Dade County.

South US 1 Bus Rapid Transit Improvements Study – Broward County Transit (BCT)
Ms. Holt lead the public involvement and community outreach activities for Broward County Transit's examination of Bus Rapid Transit (BRT) along one of its busiest routes, Route 1, along US 1 between the Broward Boulevard/Broward Central Terminal in downtown Fort Lauderdale and the Aventura Mall in Miami-Dade County. Ms. Holts tasks included the development of a comprehensive Public Involvement Plan, development of a Technical Advisory Review Committee (TARC), public workshops, stakeholder interviews and public information materials.

General Planning Consultant - South Florida Regional Transportation Authority (SFRTA)
As part of the General Planning Consultant team, Ms. Holt worked on the Environmental Assessment of the proposed transportation solutions for the WAVE. Ms. Holt coordinated the Public Hearing for the WAVE at the City of Fort Lauderdale's City Hall. Work activity included stakeholder identification, public outreach and coordination with WAVE partner agencies. The Holt Communications team also conducted a market research effort that included community outreach and focus groups for Tri-Tail in Miami-Dade, Broward and Palm Beach counties.

Broward Boulevard Gateway Improvement Plan – City of Fort Lauderdale
A partnership between the City of Fort Lauderdale, Broward County, Broward County Transit, FDOT, Broward MPO, and the South Florida Regional Transportation Authority to develop recommendations for the future of land use, redevelopment and mobility on Broward Boulevard. Holt Communications' tasks included development of the Public Involvement Plan, public meetings, workshops and small group presentations.

City of Miami Beach and Florida Department of Transportation (FDOT), District Six
West Avenue Connector Bridge Project Development and Environment (PD&E) Study
The West Avenue Connector Bridge is a Local Agreement Program with FDOT and is the very first PD&E conducted by the City of Miami Beach. Holt Communications provides public involvement services in accordance with the PD&E Manual including strategic program development, community outreach, notification, advertising and documentation.

Meghan A. Marion

PUBLIC OPINION RESEARCH, SOCIAL MEDIA

Years of Experience: 15 | **Education:** BS – Business Management

Ms. Marion brings knowledge of project prioritization, database management, public involvement, planning coordination, long-range transportation planning, transit planning and development, and state, federal, and local requirements. She has worked with various transportation and transit agencies, regional planning councils, Metropolitan Planning Organizations (MPOs), and state and local governmental agencies. Notably, she served as FDOT MPO liaison responsible for providing instructional materials and training for FDOT's District-based MPO liaisons.

Project Planner, Best Practices in Evaluating Transit Performance, Florida Department of Transportation (FDOT) Public Transit Office, Tallahassee, FL. To assist Florida transit agencies in improving their performance evaluation mechanisms, the FDOT Public Transit Office contracted with CDM Smith to explore best practices in evaluating transit performance in the United States and how these practices can be adopted by Florida transit agencies. As project planner, Ms. Marion is responsible for gathering information from transit agencies regarding their data collection for performance measures; developing a matrix of best practices from all of the different transit agencies in the State of Florida; preparing a technical memorandum discussing the effects of MAP-21 on transit agencies; and developing a list of performance measures by category for transit agencies for their use with data sources.

Project Planner, Seaport Transportation and Logistics Educational Needs Assessment Update, FDOT Seaport Office, Tallahassee, FL. This task will update the last feasibility study completed in September 2014. The previous study was conducted for the purpose of collating and analyzing information from industry stakeholders and online resources that can be used for the advancement of seaport and logistics educational/training programs in Florida. The updated document will examine existing programs in Florida and other states and include one or more sections which review programs and opportunities for the training of minorities and secondary school students in job skills associated with employment opportunities in the maritime industry. Ms. Marion was responsible for capturing meeting notes from each of the coordination meetings, conducting internet research and updating information, and document writing.

Project Planner, Strategic Intermodal System (SIS) Project Catalog, FDOT Central Office, Tallahassee, FL. Ms. Marion was tasked with project research and document writing for each of the different projects included in FDOT's SIS first five years of the work program. The document included coordination with all interested parties, map production, report and database creation, and project research. We received positive response which led to supplemental books that included the SIS second five-year plan and continuing annual updates.

Project Planner, SIS Support, FDOT Systems Implementation Office, Tallahassee, FL. Ms. Marion was tasked with drafting and updating of department transportation funding plans and other related documents, data interpretation, and other services as requested in support of the SIS.

Project Planner, Statewide SIS Coordinators Meetings, FDOT Systems Implementation Office, Tallahassee, FL.
Ms. Marion was tasked with gathering stakeholder input during these planned meetings by engaging attendees during the breakout sessions.

Project Planner, Investing in Florida's Future 2016 Update, FDOT Systems Implementation Office, Tallahassee, FL.
Ms. Marion was tasked with coordination with district representatives to select projects for inclusion, drafting and editing of project summaries, data collection, acquisition of photography and images, and collaboration with staff graphic designer for layout and branding.

Project Planner, SIS Newsletter, FDOT Systems Implementation Office, Tallahassee, FL. Ms. Marion was part of the team for the semi-annual publication of the Systems Implementation Offices informational SIS Newsletter. Tasks involved with this effort include identifying pertinent and interesting topics for articles, researching these topics, drafting articles and identifying specialists to assist in drafting, coordinating with graphic design staff for the layout and imagery, and proofreading and editing for content, clarity, and accuracy.

Meghan A. Marion

PUBLIC OPINION RESEARCH, SOCIAL MEDIA

Project Planner, Strategic Investment Tool (SIT), FDOT, Tallahassee, FL. Ms. Marion was tasked with data collection and analysis and document writing on how to implement and maintain the SIT for state highway corridors across Florida. This tool is used in the prioritization and decision making of project selection and funding of SIS highway projects for the FDOT Work Program and Cost Feasible Plans.

Project Planner, SR 60 Corridor Study, FDOT Systems Planning Office, FL. CDM Smith assisted with assessing the travel demand and freight movement along SR 60 by way of four measures—transportation, emergency management, homeland security, and economic impact and development—in an effort to find a cohesive solution for the SR 60 corridor from I-75 in Hillsborough County (District 1) to I-95 in Indian River County (District 4), spanning four districts. The study identified improvement projects included in the Multi-Modal Unfunded Needs Plan, Freight Connector Operational Quick Fix Program, and consideration for Intelligent Transportation System (ITS). The project included analysis of transportation/ land use relationships and identification of the context land use zones along SR 60 as a pilot project for FDOT's Complete Streets Policy to provide safer, context-sensitive roads. Ms. Marion was tasked with data collection and document writing.

Project Planner, Motor Carrier System Plan, FDOT, FL. The purpose of this project was to develop the first Florida Motor Carrier System Plan. The Plan focused on the facilitation of truck movement and identifying key motor carrier policy issues. Work included stakeholder outreach, identification of motor carrier policy issues, analysis of truck movements from a private sector supply chain standpoint, evaluation of motor carrier safety and enforcement data, and evaluation of technology impacts to the trucking industry. Ms. Marion was tasked with data collection and analysis and document writing.

Project Planner, Freight Mobility and Trade Plan (FMTP) Policy Element, FDOT, Tallahassee, FL. The FMTP was developed in two phases for FDOT. The policy element melded four requirements into one plan. These included the Florida Governor's vision, Florida House Bill 599 (four requirements for freight mobility, expanding domestic and international trade, enhancing economic development, and supporting implementation of alternative fuels), FDOT's strategy, and the inclusion of the freight provisions in MAP-21. Ms. Marion was responsible for data collection for inclusion in Fact Sheets; summarizing information related to MAP-21 and the effects to the FMTP; project prioritization process by mode; and the priority lists by mode. The policy element melded Governor Scott's vision, Florida House Bill 599 (four requirements for freight mobility, expanding domestic and international trade, enhancing economic development, and supporting implementation of alternative fuels), Florida DOT's strategy, and inclusion of the freight provisions in MAP-21.

Project Planner, Genera Planning Services, Lee County MPO, Lee County, FL. CDM Smith is providing services to the Lee County MPO for general planning services. Tasks include: completion of State and Federal Certifications, assistance with audit; public involvement services; assistance during board and committee meetings; long-range planning assistance; and website re-design. As a project planner, Ms. Marion is responsible for preparing and running meetings; notifications to the public regarding upcoming events; assisting in the FY 2013 Single Audit for the MPO; assembling of agenda packets for upcoming meetings; updating information on the MPO website; and review of invoicing for submittal to FDOT for reimbursement.

Project Planner, Functional Classification System, City of Fort Myers, FL. The City is reviewing all existing and planned city owned roadway facilities to update the designated functional classification of City owned streets. The updated functional class designations will assist city staff in the implementation of Ordinance 3609. The work program has been developed and designed specifically to update the City of Fort Myers' functional classification system. The study was comprised of a total of three tasks, including: Task 1: Data Collection and Review; Task 2: Functional Classification Designations; and Task 3: Documentation and Meetings. Ms. Marion served as the project planner responsible for coordination with the City of Fort Myers, Lee County MPO, and CDM Smith staff in gathering information to be consistent with state functional classifications of roadways; review of City of Fort Myers' Functional Classification document and map for submittal to the city staff; and final deliverables and preparation of final invoice and progress report.

Gregory Harleston

Public Opinion Research, Social Media

Education

Bachelor of Arts, Communications Media & Journalism, Kean University, Elizabeth, NJ

Key Qualifications

- Knowledgeable of Public Involvement Handbook and FD&E Manual Requirements
- Social Media Strategy and Management
- Established media relations, daily story development and deadline proficient
- Proven community relations and conflict resolution abilities

Gregory Harleston is a self-motivated, client service driven professional. As the Senior Communications Specialist at Holt Communications, Inc., he is responsible for developing strategic communications messages to best fit our client's needs and project goals.

Relevant Project Experience

Miami-Dade Expressway Authority (MDX)

General Engineering Consultant (GEC) Public Information Officer

Holt Communications provides public involvement services for the construction of the MDX work program. Mr. Harleston has been an integral member of the public involvement team for more than five years where he implements Community Awareness Plans to ensure optimum public engagement as MDX reconstructs the region's busiest east-west corridor, the SR 836/Dolphin Expressway. As PIO he works with project managers and contractors to develop the weekly MDX Traffic Advisory. He works with media outlets to ensure that maximum outreach is achieved for all construction related impacts to drivers. He responds to questions and complaints from drivers and property owners with careful documentation of claims. Projects for which he has served as the PIO include:

SR836/Dolphin Expressway Modernization Project

This 4.4 mile widening of SR 836 also includes the reconstruction of key interchanges at NW 27th Avenue, NW 42nd Avenue and NW 57th Avenue. The project also introduced South Florida's first Diverging Diamond Interchange. Mr. Harleston develops informational materials, documents claims regarding vehicle and property damage, manages stakeholder outreach, and drafts and distributes traffic closures.

SR 836/Dolphin Expressway Interchange Modifications at NW 87th Avenue

The current reconstruction of the SR 836 mainline and NW 87th Avenue interchange to enhance operations and improve safety on the SR 836 corridor. Mr. Harleston serves as the communication specialist and is responsible for coordination of public workshops and business owner meetings. Mr. Harleston is also responsible for stakeholder identification and established and maintains a database of stakeholders to receive relevant project information.

Dolphin Station Park-and-Ride Transit Terminal Facility

MDX in partnership with Miami-Dade County and the Florida Department of Transportation is constructing a terminal facility to be called the Dolphin Station. Mr. Harleston is responsible for event planning, stakeholder identification and establishes a database of stakeholders to receive relevant project information. He researches and identifies those business and homes possibly affected and conducts community outreach to ensure the public is aware of the projects and its impact in a timely manner.

MDX Strategic Communications

Mr. Harleston also supports the MDX strategic communications mission by serving as the agency's social media manager. He develops content for Twitter and Facebook and engages with followers on a variety of issues.

Miami-Dade County Department of Transportation and Public Works (DTPW)

General Planning Consultant (GPC) - Beach Corridor Rapid Transit Project

A PD&E to examine various rapid transit systems to connect major centers of population, tourism and economic growth in Miami-Dade. The focus was on evaluating various transit modes, technologies, and alignments which may result in one or more rapid transit options that can be implemented in the corridor.

South Florida Regional Transportation Authority (SFRTA)

General Planning Consultant (GPC) - Boca Raton II Tri-Rail Station PD&E Study

The SFRTA conducted a Project Development and Environment Study to evaluate alternatives for a second Tri-Rail station within the South Florida Rail Corridor in the City of Boca Raton between just north of Glades Road and south of Palmetto Park Road. Mr. Harleston was responsible for coordination of public workshops, transcribing discussion during public meetings, and developing and producing meeting materials and recap reports.

Palm Beach Transportation Planning Association (TPA)

Long Range Transportation Plan (LRTP)

Mr. Harleston provided strategic guidance for the outreach plan to support the 2045 LRTP Public Survey. He identified locations for survey intercepts, organized survey teams and was critical to securing survey completions in the field.

Broward County Transit (BCT)

South US 1 Bus Rapid Transit Improvements Study

This project was Broward County Transit's examination of Bus Rapid Transit (BRT) along one of its busiest routes, Route 1, along US 1 between the Broward Boulevard/Broward Central Terminal in downtown Fort Lauderdale and the Aventura Mall in Miami-Dade County. Mr. Harleston was responsible for coordination of public workshops and Technical Advisory Review Committee Meetings. He developed meeting materials, takes minutes and develops meeting recap reports. Mr. Harleston serves as the communication specialist and is responsible for coordination of public workshops and Technical Advisory Review Committee Meetings. He develops meeting materials, takes minutes and develops meeting recap reports. He has worked closely with the offices of elected officials to schedule project briefings.

Heidy Brenes, PE

GRAPHICS, MAPPING, 3D & PRESENTATION SUPPORT

Years of Experience: 16 **| Education:** AS – Architectural Design **| Certifications:** FDOT Geopak Roadway Training; Advanced Work Zone Traffic Control Certification; Electronic Specification Package Training

As a transportation designer for CDM Smith, Ms. Brenes has been an instrumental force in the development of client presentations, graphics, and other visualization tools. Her expertise is in CADD design for roadway projects and strong experience using Microstation software in the design of FDOT roadway projects. She is also responsible for creating numerous 3D models, developing PD&E studies, providing engineering design support, and assisting in plans preparation and coordination throughout each project.

Transportation Designer/3D Modeling and Rendering Lead, Project Development and Environment (PD&E) Study for the Widening of SR 80/Southern Boulevard from Seminole Pratt-Whitney Road to Forest Hill Boulevard, FDOT District 4, Palm Beach County, FL. This study consisted of a four-mile corridor to include widening from four to six lanes and upgrading to SIS, FIHS, and Access Management Standards. This corridor is one of two major east-west corridors within northern Palm Beach County. Ms. Brenes was responsible for 3D renderings and typical sections for presentation. This project was completed while working with a previous employer.

Transportation Designer/3D Modeling and Rendering Lead, Port of Palm Beach Corridor Analysis, FDOT District 4, Palm Beach County, FL. For this corridor study for a new connector road to the Port of Palm Beach. Ms. Brenes was responsible for the development of various 3D project renderings involving overpass and depressed roadway alternatives and for the development of various display boards. This project was completed while working with a previous employer.

Transportation Designer/3D Modeling and Rendering Lead, SW 10th Street Corridor Feasibility Study from the Sawgrass Expressway to I- 95, FDOT District 4, Broward County, FL. This project encompasses the development of a corridor feasibility study evaluating potential transportation improvements for a three-mile corridor connecting two limited access facilities. Ms. Brenes was responsible for 3D renderings of various alternatives. This project was completed while working with a previous employer.

Transportation Designer/3D Modeling and Rendering Lead, Florida High-Speed Rail Program Management Contract, FDOT Central Office, Tallahassee, FL. As part of the effort to bring high speed rail to Florida, CDM Smith partnered with another firm to provided general engineering consultant (GEC) services to the Florida Rail Enterprise branch of FDOT. As a senior roadway designer, Ms. Brenes provided rail design services for the HSR segment between Tampa and US 98 in Lakeland, (40 miles). She also assisted in plans preparation and coordination throughout the project. In addition, Ms. Brenes created numerous 3D models and renderings that were used in public involvement and stakeholder presentations.

Transportation Designer/3D Modeling and Rendering Lead, SR 44 PD&E Study, FDOT District 5, Volusia County, FL. Ms. Brenes served as designer providing computer aided design and drafting (CADD) support for this PD&E study involving analysis of safety and operational improvements along a 12-mile corridor of SR 44 through the City of DeLand. She also developed graphics for community awareness workshops/public meetings. This project was completed while working with a previous employer.

Transportation Designer, County Road (CR) 46A Realignment from North of Arundel Way to SR 46 (Wekiva Parkway Section 5), FDOT District 5, Lake County, FL. This project includes the design of the relocation of CR 46A out of the Seminole State Forest, thereby improving habitat connectivity and reducing the risk of conflicts between vehicles and wildlife. CR 46A would be realigned 1.8 miles from north of Arundel Way to connect to SR 46 in the area between Hojin Street and Camp Challenge Road. The project included designing roadway widening, medians and turn lanes, drainage, lighting, sign and pavement markings, utilities, and other roadway features. Ms. Brenes was responsible for creating numerous 3D models and renderings that were used in public involvement and stakeholder presentations. She also assisted in plans preparation, deliverables and coordination of the project. She used software design platform including Microstation SS2 and Geopak.

Heidy Brenes, PE

GRAPHICS, MAPPING, 3D & PRESENTATION SUPPORT

3D Modeling and Rendering Lead, Final Engineering and Design Services for Wymore Road Improvements, Seminole County, FL. This project is to develop and evaluate alternatives to improve drainage, traffic operations, and pedestrian and bicycle safety to Wymore Road. Ms. Brenes was responsible for creating numerous 3D models, renderings and animations that were used in public involvement and stakeholder presentations. She was also responsible for developing the 3D templates, training, documentation, and organization of the project. She used the software design platform Autodesk Civil 3D.

SR 500/US 441 from SR 46 to SR 44/Donnelly Street, FDOT District 5, Lake County, FL. This project includes the widening/ reconstruction of SR 500 into a six-lane divided urban roadway, a total distance of approximate 2.4 miles in length. It consists of designing roadway widening/ reconstruction, medians and turn lanes, drainage, lighting, sign and pavement markings, utilities, and other roadway features. Ms. Brenes was responsible for creating numerous 3D models, renderings and animations that were used in public involvement and stakeholder presentations. She also developed the 3D templates, training, documentation, and organization of the project. In addition, she was responsible in plans preparation, deliverables and coordination of the project. Software design platforms she used included Microstation SS3 and Geopak.

Transportation Designer, US 27/Crowder Road Intersection, Leon County Public Works, FL. CDM Smith is providing the preliminary and final design services as part of a continuing engineering services contract for the US 27/ Crowder Road Intersection for Leon County. The project involves performing the traffic analysis and final design documents for the addition of a new right turn lane on Crowder Road at the US 27 intersection. The project also incorporated a four-foot sidewalk, drainage improvements, signalization upgrades, and utility coordination. The project work also included conducting a tree impact survey and cost estimating services. Ms. Brenes served as a transportation designer on this project, and was responsible for developing the PD&E study.

Transportation Designer, Winchester Boulevard, Charlotte County, FL. CDM Smith provided engineering analysis, design, plan preparation, contract bid documents, environmental permitting services, and construction phase services for a new four-lane section of Winchester Boulevard from SR 776 to CR 775 in the City of Englewood. Ms. Brenes' responsibilities included updating the current design plans and specifications to current standards including roadway and drainage design standards.

Transportation Designer, SR 15/US 17 from South of Plymouth Avenue to South of US 92, FDOT District 5, Volusia County, FL. Prior to joining CDM Smith, Ms. Brenes served as roadway designer for the resurfacing, restoration, and rehabilitation (RRR) improvements to approximately one mile of SR 15/US 17, a four-lane, divided, urban arterial in DeLand, FL. The project involved potential design variations or exceptions for cross slope and pavement design to include analysis for intersection of Plymouth Avenue that contained an asphalt top layer underlain by concrete pavement. The project also included upgrades to multiple curb ramps for Americans with Disabilities Act (ADA) compliance, replacement of the overhead cantilever sign south of US 92, including utility adjustments and re-looping the intersection of Plymouth Avenue.

Transportation Designer/3D Modeling and Rendering Lead, SR 426 (Aloma Avenue) from West of the Orange County Line to West of Tuskawilla Road, FDOT District 5, Seminole County, FL. Ms. Brenes was the designer for milling and resurfacing of approximately two miles of SR 426. Work included re-looping of signalized intersections and signing and pavement marking. This project was completed while working with a previous employer.

Transportation Designer/3D Modeling and Rendering Lead, SR 423 from West Colonial Drive to Wymore Road, FDOT District 5, Orange County, FL. Ms. Brenes was the designer for milling and resurfacing of approximately 5.5 miles of SR 423, a four-lane divided urban arterial including ADA compliance, re-looping signalized intersections, and signing and pavement marking. This project was completed while working with a previous employer.

Transportation Designer, SR 500/Indian River Relief Bridges Replacement Project Design-Build, Private Client, FDOT District 5, FL. CDM Smith served as the lead design firm on this $9.3M design-build project. The project involved the replacement of three low-level "relief" bridges on the SR 500 crossing of the environmentally sensitive Indian River. A specific requirement of this project was the maintenance of four lanes of traffic throughout construction on this hurricane evacuation route from the Town of Indialantic to the Florida mainland. Ms. Brenes' responsibilities included updating the design plans and specifications to meet current standards, including roadway and drainage design standards.

Pooja H. Chaudhari

GRAPHICS, MAPPING, 3D & PRESENTATION SUPPORT; TRANSIT PLANNING DATA COLLECTION/ANALYSIS

Years of Experience: 4 **| Education:** MS – Community and Regional Planning; BA – Architecture

Ms. Chaudhari has experience with urban design, data analyses, performance evaluation, intelligent transportation, transit-oriented planning, public economics and finance, critical writing, community engagement, visual communication, master planning, real estate, land development codes, and land use planning law. She has experience in the architecture, urban design, planning and transportation fields, spanning the private sector, public sector, and transportation research institutes.

Charleston Rural Workforce Transportation Study, Berkley-Charleston-Dorchester Council of Governments (BCDCOG) , Charleston, SC. BCDCOG initiated this regional study. Ms. Chaudhari was a Transit Planner for the project, which involved an intensive regional level study and development of transportation strategies for achieving the region's economic development goals. She was involved in final technical report writing, GIS mapping, developing regional transportation strategies, cost study and researching for proposed pilot programs and funding opportunities for vanpools. She also assisted in the coordination and supporting activities for the public involvement and stakeholder meetings.

FDOT Traffic Methodologies for BRT Corridors: Recommended Guidance, Statewide, FL. CDM Smith was selected to prepare a recommended guidance document with a consistent methodology and best practices for traffic analyses based on various types of BRT projects and proposed improvements. This included a literature review and analysis of state of art practices for BRT in the US. Ms. Chaudhari provided graphics, mapping, and presentation support to the report using InDesign, Illustrator and Photoshop.

Hoagland Boulevard, Phase IV Project Definition Report, City of Kissimmee, FL. The City of Kissimmee initiated a study for the widening of a one-mile Hoagland Boulevard corridor from two lanes to four lanes. The undertaken study included an examination of existing conditions, identifying potential environmental impacts and investigating variations and alternatives for widening. The concluding report included recommendations at high level planning and the required public agency coordination as next steps for the City to realize the widening.

Mobility as a Service (MaaS) in Central Florida, Mobility Week, FDOT District 5, FL. This was one of the events planned as part of FDOT Dist. 5's annual Mobility week. The topic was 'Learning about MaaS in Central Florida' and the event included a keynote presentation and panel discussion. Ms. Chaudhari served as a Public Involvement Coordinator for the planning of the event. She handled planning- related tasks for the event, like making flyers, AV arrangements, managing online event presence and invites, and coordination at the event itself.

City of Austin, Texas Economic Development and Planning and Zoning Department, TX. Prior to joining CDM Smith, Ms. Chaudhari provided planning and research support for the following tasks:

- Business Incentive program. Ms. Chaudhari served as a research analyst senior with the Global Business Expansion division to uplift several priority program areas per the City Manager's Strategic Direction 2023. She supported the newly launched Business Incentive Program, conducted target market analyses, and conducted research and best practices for pilot projects for the department.
- Transit-oriented developments. Ms. Chaudhari served as a planner in the Planning and Zoning Department, where she conducted performance evaluation of transit-oriented developments and special regulating districts in the city of Austin. She researched and identified ideal performance metrics for Austin. She further innovated a standard for evaluation using ArcGIS, as well as created, managed databases using ACS, ArcGIS and TCAD data. This empirical data was gathered and analyzed for the identified performance metrics.
- Application Reviews. Guidelines for installation of small cells were still in the nascent stages. Ms. Chaudhari conducted small cell application reviews using AMANDA while providing feedbacks for edits of design guidelines.
- Land Development code reform (CodeNext). Austin proposed drafts of a new land development code—CodeNext—for the city. Ms. Chaudhari supported the CodeNext process by conducting research on the existing city plans (Downtown Austin Plan) and analyzing the implications of recommendation memos.

H. Scott Aldridge

GRAPHICS, MAPPING, 3D & PRESENTATION SUPPORT

Years of Experience: 26 **| Education:** BS – Computer Engineering Technology **|**
Certifications: FAA Certified Small Unmanned Aircraft System Pilot

Mr. Aldridge, leader of the Innovation and Disruptive Technology group at CDM Smith, is responsible for providing guidance and driving awareness of emerging technologies in pursuit of digital business innovation. Working directly with business leaders to champion technologies that can help create a competitive advantage and generate value, Scott focuses on incremental, sustainable and strategic innovations that are aligned with corporate strategy and business outcomes. His work on all aspects of innovative technologies—from research to socialization—has helped solidify CDM Smith's competitive advantage in the areas of mixed reality, disruptive technology, and unmanned aircraft systems.

Strategic Technology Trends. Mr. Aldridge prepares the firm for the impacts of disruptive trends on people, businesses, and IT departments and helps determine how they can provide a competitive advantage to the firm. He is focused on the long-term evolution of the user experience for both clients and employees as conversational systems, augmented reality (AR), virtual reality (VR) and mixed reality (MR) continuous/contextual user experiences that will radically change the way people interact with systems. He is also exploring opportunities to incorporate AI and machine learning systems for augmenting existing apps and things and examining specific, targeted, and high-value use cases to apply AR/VR/MR.

Mixed Reality Collaboration Service. Mr. Aldridge is leading the firm's efforts to create a mixed reality collaboration services where multiple users of the Microsoft HoloLens, regardless of location, can have a shared holographic experience with additional participants possible from a PC, tablet, or mobile phone. He works with the firm and its clients to harnessing the power of this mixed reality technology that can help design, build, and operate infrastructure assets faster and more efficiently.

Digital Business Strategy Leader. Mr. Aldridge is a leader in the firm's involvement and commitment to developing and implementing a digital business strategy. He is involved with the rigorous evaluation of needed IT modernization and transformation investments required when engaging in digital business pursuits. He is engaged with our firms CIO in supporting close alignment with the C-suite leaders, ensuring both business leaders and IT are on board and able to bring the needed expertise, culture, governance, and workflows to support fast, agile ideation and rigorous and effective implementation of innovative technologies.

Internet of Things (IoT) Thought Leader. IoT is an IT solution that collects data from physical objects, analyzes that data, and takes action to accomplish a business goal. Mr. Aldridge has a passion for IoT and is able to research, understand, and distill a broad spectrum of operational and IoT technologies. He understands the business needs and objectives of IoT and is able to communicate how IoT can transform the business. He has the technical proficiency to establish IoT solutions and is a systems thinker who can orchestrate how the IoT edge, platform, and operational systems work together to form a solution.

Small Unmanned Aircraft Systems. CDM Smith was one of the first firms in the US to be granted a waiver from the Federal Aviation Administration (FAA) to use unmanned aerial vehicles or drones in several aspects of the firm's work. Mr. Aldridge is one of the leaders in this field of work for the firm and has received his FAA sUAS Certification which allow him to legally fly drones for client work. Mr. Aldridge has recently flown drones in support of construction site photogrammetry and critical infrastructure assessments of dams after Hurricane Matthews.

Zachary M. Teders

FDOT/FTA GRANT REPORTING, ADMINISTRATION

Years of Experience: 17 | **Education:** MS – Environmental and Transportation Planning; BS – Geography

During his career, Mr. Teders's has focused on the development and implementation of a statewide network of high-capacity and high-speed multimodal facilities throughout Florida. His experience includes project funding allocation multimodal facility designation, project identification, and project prioritization. In addition, he has served the Systems Planning Office for more than 15 years as both a consultant and FDOT employee.

Project Manager, SIS Planning Consultant, FDOT Central Office, Tallahassee, FL. Mr. Teders is the on-location manager for ongoing task work orders, including overseeing in-house staff located at FDOT headquarters. The task work orders include staff coordination regarding map preparation, research, report writing, graphics production, and FDOT customer training. The work includes corridor alternative studies, multimodal prioritization efforts, on demand productions for governors and legislators, long- and short-term project planning exercises, highway capacity impacts, freight movements, and computer programming application development.

Project Manager, SIS Office of Policy Planning, FDOT Central Office, Tallahassee, FL. Mr. Teders is the on-location manager for an on-call contract, which has overseen assistance in metropolitan planning organization (MPO) training, legislative policy interpretation (as it relates to SIS), support for the Future Corridors initiative, in-house support, as well as SIS funding eligibility and designation.

Project Manager, SIS Project Catalog, FDOT Central Office, Tallahassee, FL. Mr. Teders led an effort to document more than 400 projects in FDOT's SIS first five years of the work program. The document included coordination with all interested parties, map production, report and database creation, and project research. CDM Smith received positive response which led to supplemental books that included the SIS second five-year plan and continuing annual updates.

Project Manager, SIS Atlas, FDOT Central Office, Tallahassee, FL. Mr. Teders led a team to update a long dormant, but much sought after, atlas of all SIS facilities throughout the state. The project implemented a new mapping style and presentation of the information in coordination with eSIS, as well as active integration with FDOT database systems.

Team Lead, Strategic Investment Tool (SIT), FDOT Central Office, Tallahassee, FL. Mr. Teders continues as team lead in implementing and maintaining the SIT. This tool is used in the prioritization of SIS highway projects for FDOT's work program and cost feasible plans.

Project Manager, SIS Portal, FDOT Central Office, Tallahassee, FL. Mr. Teders led a team to coordinate with FDOT users and create a completely re-designed online gateway into the System Planning Office internal website, pulling many resources into one easy to use site.

Team Lead, County Freight and Logistics Overview, FDOT Central Office, Tallahassee, FL. Mr. Teders led a multi-disciplined approach of providing maps, data, photographs, and contact information in an easy to understand multipage document for public officials. The document was individualized for every county in Florida, as well as a number of uniquely created versions for specific regions and special state government trade missions abroad.

Transportation Planner, Project Prioritization, Pennsylvania Department of Transportation, Harrisburg, PA. Mr. Teders worked with a team to develop a methodology to prioritize multimodal projects across a set of measures to be used in Pennsylvania's long-range transportation plan update.

Transportation Planner, Various Projects, FDOT Systems Planning Office, Tallahassee, FL. Prior to joining CDM Smith, Mr. Teders was a transportation planner and modal coordinator where he oversaw numerous projects relating to the ongoing implementation of SIS, a system of high-speed and high-capacity multimodal facilities across Florida.

Zachary M. Teders

FDOT/FTA GRANT REPORTING, ADMINISTRATION

Project Task Leader/Transportation Planner, SIT, FDOT Systems Planning Office, Tallahassee, FL. While working directly for FDOT, Mr. Teders acted as a project task leader in production of the SIT for SIS project prioritization. This multi-year effort incorporated numerous offices and all geographic regions within FDOT to create a data driven online application that would repeatedly score and rank highway projects based on set goals and measures developed for SIS.

Project Task Leader/Transportation Planner, SIS Modal Prioritization, FDOT Systems Planning Office, Tallahassee, FL. While working directly for FDOT, Mr. Teders was the project task leader for the SIS modal prioritization effort. A multi-year research effort to discover and implement a way to prioritize SIS capacity projects across different modes of travel.

Transportation Planner, SIS Funding Equity Application, FDOT Systems Planning Office, Tallahassee, FL. While working directly for FDOT, Mr. Teders was responsible for the creation of a SIS funding equity application, which integrated historical and future funding and compared them with population and gas tax receipts and geographic districts.

Transportation Planner, SIS Funding Strategy, FDOT Systems Planning Office, Tallahassee, FL. While working directly for FDOT, Mr. Teders was a lead contributor and designer of the SIS Funding Strategy. This strategy involved a 5-, 10-, and 15-year work program and cost feasible plan time-frame for SIS highway and modal projects. The effort included annual updates of multiple plans' maps and databases and the first attempts at integrating multimodal aspects into these plans.

Analyst Intern, StarMetro Transportation Alternatives Study, Tallahassee, FL. Prior to joining CDM Smith, Mr. Teders was involved in a traffic modeling effort using Citilabs Cube Voyager software in coordination with the Florida State University and StarMetro transit to examine potential transit corridor alternatives in an urban/suburban land use arena connecting two universities, a community college, multiple dense commercial areas, downtown central business district, and both urban and suburban residential areas.

Transportation Planner, SIS Planning Consultant, FDOT Systems Planning Office, Tallahassee, FL. With another firm, Mr. Teders was responsible for on-call consultant support with emphasis on the development of SIS.

Transportation Planner, SIS 2030 Multimodal Unfunded Needs Plan, FDOT Systems Planning Office, Tallahassee, FL. Prior to joining CDM Smith, Mr. Teders was involved in GIS mapping and database development for the SIS 2030 Multimodal Unfunded Needs Plan.

Transportation Planner, SIS Legislation Consultant, FDOT Systems Planning Office, Tallahassee, FL. Mr. Teders was involved in the implementation of the 2005 legislation related to growth management and the resulting infrastructure project selection and financing, while with a previous employer. He was involved in the designation and funding effort for SIS Connectors, facilities between highway and rail corridors, and hubs.

Transportation Planner, SIS Funding Strategy – Future Corridors Initiative, FDOT SPO, Tallahassee, FL. Prior to joining CDM Smith, Mr. Teders was an integral component of the 2006 Future Corridors governor's initiative which involved large scale public meetings, presentations, reports, and mapping.

Analyst Intern, Comprehensive Plan Update, City of Archer, FL. Prior to joining CDM Smith, Mr. Teders was integral in the public outreach as well as document research and publication of the hazardous material and evacuation component of the local comprehensive plan update.

Transportation Planner, FDOT District 6 Planning Support, Miami, FL. Mr. Teders applied his GIS abilities and familiarities with Florida roadway characteristics in a comprehensive analysis of the Miami-Dade County state roadway system, while with a previous firm. The project involved extensive data collection, travel, and mapping.

Transportation Planner, FDOT District 3 Planning Support, Chipley, FL. Mr. Teders applied his GIS abilities in the completion of a way-finding project, while with a previous employer.

Christopher R. Nazar, AICP

PERFORMANCE BASED PLANNING & TOOLS DEVELOPMENT

Years of Experience: 20 **| Education:** MS - Urban Planning; BA - Urban Studies and Economics **| Certifications:** AICP

Mr. Nazar serves as a principal planner, team leader, and project manager. He manages environmental and transportation planning projects and his duties include project budgeting, scheduling, coordination, supervising teams, document delivery, client coordination, and quality assurance. His technical specialties include transportation planning, environmental studies, economic impact analyses, and public involvement.

Project Manager, Route I-49 Environmental Assessment & Re-Evaluation, Missouri Department of Transportation, MO. Mr. Nazar was the Project Manager and responsible for providing an environmental assessment update to complete the vital Bella Vista Bypass, which will serve as the final link of the I-49 corridor from Louisiana north to Kansas City, MO. MoDOT secured a BUILD grant to construct the project; thus, the environmental document needed to be re-evaluated for the final designed alignment and for purpose and need review, environmental justice analysis, cultural resource investigation, and FEMA floodplain mapping. The project had an aggressive six-month schedule to meet the current BUILD grant requirements and was a direct result of exemplary client service and commitment on previous MoDOT projects.

Project Manager, Will County Community Friendly Freight Mobility Plan, Will County, IL. CDM Smith prepared a unique and innovative freight plan for one of the fastest growing freight counties in the nation. The plan examined the current state of freight activity including aviation considerations, future freight growth and needs including project prioritization, performance measures, and workforce development. As project manager, Mr. Nazar led all elements of the plan coordination and development.

Project Manager, Indiana Future Transportation Needs Report, IN. Mr. Nazar served as the project manager on INDOT's update to the Future Transportation Needs Report. The plan was produced in a more concise graphical format and includes updates related to goals, multimodal transportation needs, integration of modal and other plans including aviation, development of performance measures, statewide transportation data, and policies. Mr. Nazar was responsible for the team delivering the plan and all phases of the work.

Deputy Project Manager, Kansas Department of Transportation Freight and Rail Plans, KS. Mr. Nazar served as deputy project manager and data analysis task lead for completion of a FAST Act Compliant Freight Plan including aviation and economic impact analysis for Kansas DOT. Mr. Nazar was involved in all aspects of the work including economic analysis, development of project prioritization tools, performance measures, and document development.

Project Manager, Colorado Statewide Long-Range Transportation Plan, CO. Mr. Nazar served as project manager for the CDM Smith team in preparing the Colorado Department of Transportation's (CDOT's) 2040 Statewide Long Range Transportation Plan. The plan was developed as an on-line, web-based series of products using different media types. Several sections of the plan are delivered using videos along with short, concise, graphically intensive summary documents. Other parts of the plan are being presented through interactive Prezi presentations that allow the reader to choose which topics to explore in more-depth. The CDM Smith team was engaged in all aspects of plan development including data analysis, corridor visions and strategies, development of project lists, stakeholder and public interactions, policy analysis, needs and funding gap analysis, multimodal transportation analysis and plan integration, including freight, web-based communication tools, and telephone town halls. Mr. Nazar and CDM Smith are now part of the team updating the plan for 2045.

Project Manager, Oklahoma Long-Range Transportation Plan, OK. Mr. Nazar served as project manager for the update to the Oklahoma Long-Range Transportation Plan. This included the supervision of all deliverables including demographic analysis, multimodal transportation needs analysis, financial and funding analysis, safety, security, and all modes of transportation as well as final plan documentation. A highly graphical executive summary was also included. Mr. Nazar also worked on policy updates for all modes of transportation along with ODOT's first formal set of performance measures.

Christopher R. Nazar, AICP

PERFORMANCE BASED PLANNING & TOOLS DEVELOPMENT

Project Manager, CDOT Futures Forward Initiative, CO. Building on CDM Smith's work on CDOT's Statewide Long-Range Transportation Plan, Mr. Nazar led a team that assisted CDOT with its Futures Forward Initiative. This included work with five working groups: Technology, Big Data, Funding and Finance, Extreme Weather, and Workforce Development. All of the groups examined future scenarios and steps that CDOT could take to better prepare for the future. The effort culminated in a workshop with Senior DOT staff to identify next steps and help feed into the Executive Director's Three Peaks Initiative. In addition to managing the team, Mr. Nazar directly worked with the Funding and Finance group to prepare their workshop material.

Project Manager, CDOT Statewide Plan Lessons Learned, CO. Building on CDM Smith's work on CDOT's Statewide Long-Range Transportation Plan (LRTP), Mr. Nazar conducted a review effort with plan stakeholders to develop a technical report on Lessons Learned for the Statewide Plan. The effort including interviewing approximately 35 internal and external plan stakeholders/participants, a meeting with MPO representatives and a workshop with representatives on the Statewide Transportation Advisory Committee. Mr. Nazar prepared a final report which identified top lessons learned and suggested implementation steps and sequencing for the next plan process.

Deputy Project Manager, Missouri Freight Plan, MO. CDM Smith completed a MAP-21 compliant freight plan for Missouri DOT. This plan addressed all modes for freight in Missouri including road, rail, aviation, and water. The plan included extensive coordination with public and private stakeholders through interviews, surveys, and forums. The plan built on the work in the Missouri Statewide Plan: On the Move. Mr. Nazar was engaged in all facets of the analysis and coordination. He delivered forum presentations and worked directly with stakeholders. Mr. Nazar also served as task lead for the data collection and trends and needs analysis tasks as well as assisted with the project prioritization process.

Technical Reviewer, Texas State Freight and Passenger Rail Plan, TX. CDM Smith updated the State Freight and Passenger Rail Plan for the Texas Department of Transportation (TxDOT). Mr. Nazar served as the technical reviewer and technical review committee chair for all parts and chapters of the plan, ensuring legislative and scope of work compliance as well as technical accuracy.

Task Leader and Technical Reviewer, Texas Freight Plan, TX. CDM Smith completed the first freight plan for TxDOT. This compliant plan addresses all freight modes and includes extensive coordination with public and private freight stakeholders. Mr. Nazar served as a technical reviewer for all final plan chapters. Mr. Nazar also was responsible for the community impacts task work for the plan. This included an examination of five MPO case studies on the community effects of freight movement and key freight facilities as well as environmental justice analysis. A sample analysis of the effects of at-grade rail crossings was also included.

Technical Reviewer, Kentucky Statewide Freight Plan, KY. CDM Smith produced the first compliant freight plan for the State of Kentucky. Mr. Nazar served as the technical reviewer and technical review committee chair for all parts and chapters of the plan, ensuring legislative and scope of work compliance as well as technical accuracy.

Senior Planner, Mississippi Long-Range Transportation Plan, MS. CDM Smith updated Mississippi's Unified Long-Range Transportation Infrastructure Plan, MULTIPLAN 2035, for the Mississippi Department of Transportation. The project included integration of three MPO plans with the statewide being updated in parallel. Mr. Nazar prepared the multimodal analysis of 10 major corridors traversing the state. The corridor analysis included recommendations on strategies, priorities, and specific projects.

Senior Planner, Minnesota and Wisconsin Regional Freight Studies, MN and WI. CDM Smith assessed a series of potential projects to improve freight flows and promote economic development in northern Minnesota and Wisconsin. Mr. Nazar guided and reviewed analysis of key freight data and development of technical documentation.

Task Leader, Michigan Statewide Transportation Network Feasibility Study and Statewide Plan, MI. CDM Smith was selected to lead the efforts for updating MDOT's State LRTP (Michigan Transportation Plan). The plan serves as a policy document which contains a 25-year investment strategy and vision for transforming the current transportation system into the preferred transportation system. The updated plan set a direction for MDOT's transportation decisions and investments through 2030. Mr. Nazar was responsible for key aspects of the writing and editing of the environmental technical memorandum for the project. He also led a series of local coordination meetings in northern Michigan.

Nathan A. Hicks, AICP

STRATEGIC PLANNING & POLICY; TRANSIT PLANNING DATA COLLECTION/ANALYSIS

Years of Experience: 4 **| Education:** MS, BS –Planning/Sociology **| Certifications:** AICP

Mr. Hicks is a transportation planner in CDM Smith's Miami office. He has experience with developing planning and policy level documents for state transportation agencies. He also has assisted with the development and implementation of educational and training materials for state transportation agencies on topics ranging from Quality/Level of Service and Access Management. He also has experience with developing planning level documents for non-motorized transportation modes such as bicycling and walking.

Planner, Non-Motorized Transportation Count Data Collection Study, Florida Department of Transportation (FDOT), FL. Mr. Hicks served as one of the transportation planners for the research project "Non-Motorized Transportation Count Data Collection Study" for FDOT. The purpose of this research was to review national practices and identify a standardized methodology for counting non-motorized traffic at a statewide level for FDOT. His responsibilities were to assist with the literature review, coordinate between the other project staff for the pilot study phase, analyze and organize data from the pilot study phase, and assist with the writing of the final report.

Transportation Planner, On-Call SIS Support, FDOT District 6, FL. Mr. Hicks served as a transportation planner and assisted FDOT District 6 staff on various tasks including review of projects for inclusion into the 2045 update to the Unfund Needs Plan. He also assisted FDOT District 6 staff with review of level of service (LOS) data in regards to specific corridors throughout the agency's jurisdiction.

Transportation Planner, Access Management Practices and Design Complete Streets Study, FDOT Systems Management Office, FL. Mr. Hicks served as one of the transportation planners for the research project "Access Management Practices and Design for Complete Streets Study" for FDOT. The purpose of this research was to identify Access Management practices that integrate all modes of transportation, review FDOT's Access Management current policies and to develop a list of recommendations for the Study Advisory Committee. His responsibilities were to assist with the literature review and coordination throughout the research project.

Transportation Planner, Analysis of Conflicts at Driveways and Right Turn Lanes, FDOT Systems Management Office, FL. Mr. Hicks serves as one of the transportation planners for the "Analysis of Conflicts at Driveway and Right Turn Lanes" for FDOT. The purpose of this research was to identify conflicts that arise from driveways that are located within a right-turn lane on a roadway so to better understand and make recommendations for improvements. His responsibilities included assisting in the coordination of communications between all the project staff and the review of projects documents as necessary.

Transportation Planner, Interchange Access Request (IAR) Training, FDOT Systems Management Office, FL. The IAR training focused on providing the attendees with an overview of the recent changes in policy for requesting access to a highway with an interchange. Mr. Hicks was responsible for the coordination and setup of the trainings throughout the FDOT districts. He was assisted with developing the training materials that were used as well as presenting on specific sections.

Transportation Planner, Quality/Level of Service (Q/LOS) Training, FDOT Systems Management Office, FL. The Q/LOS training focused on providing the attendees with an overview of the LOSPLAN2012 software and how to perform multimodal Q/LOS analyses on roadway corridors based on Florida conditions. Mr. Hicks was responsible for the coordination and setup of the trainings throughout the FDOT districts. He was also responsible for developing the training materials that were used as well as presenting on specific sections.

Project Planner, Developing National Bicycle Facility Inventory Data, Federal Highway Administration (FHWA), Nationwide. Mr. Hicks serves as one of the project planners for the research project "Developing National Bicycle Facility Inventory Data" for the FHWA. The purpose of this research is to review national practices and identify a standardized methodology for inventorying bicycle facility data at a national level. His responsibilities include assisting project coordination and research as necessary and will include development of the final product throughout the project.

Nathan A. Hicks, AICP

STRATEGIC PLANNING & POLICY; TRANSIT PLANNING DATA COLLECTION/ANALYSIS

Transportation Planner, Barboursville Non-Motorized Transportation Study, Kentucky, Ohio, West Virginia Metropolitan Planning Agency (KYOVA MPO), WV. Mr. Hicks served as one of the transportation planners for the Milton Non-Motorized Transportation Study for the KYOVA MPO. The study's purpose was to review existing conditions of the City and develop a plan for incorporating more non-motorized transportation. His responsibilities included data collection and review of the study area, as well as assisting with the final report development.

Transportation Planner, Whitwell Pedestrian and Bicycle Master Plan, Tennessee Department of Transportation (TDOT), TN. Mr. Hicks served as one of the transportation planners for the "Whitwell Pedestrian and Bicycle Master Plan" for TDOT. The purpose of this project was to review the existing conditions within Whitwell, TN and develop a master plan for building a pedestrian and bicycle network for the city. His responsibilities were to assist with the data collection, examine the existing conditions, and assist with developing the recommendations for a master plan.

Transportation Planner, I-20/26/77 Corridor Management Plan: Lexington/Richland Counties, SCDOT, SC. Mr. Hicks served as one of the transportation planners for the I-20/26/77 Corridor Management Plan for Lexington and Richland counties in South Carolina. His responsibilities included reviewing the existing conditions within the study area and determining future multimodal options.

FSU/FDOT Transit Fellow Intern, Miami-Dade County Transit (MDT), Miami, FL. Mr. Hicks wrote a grant proposal for MDT requesting $4.5M from FDOT to assist in the funding of one of their primary transportation corridor projects along Biscayne Boulevard. He collaborated with the project manager to develop a grant proposal presentation for FDOT. He also participated in MDT's service planning evaluation of their overall transit network. In addition, he initiated a highest-and-best-use study on a parcel of property near the Miami-Dade busway.

Transportation Planner, Barboursville Non-Motorized Transportation Study, Kentucky, Ohio, West Virginia Metropolitan Planning Agency (KYOVA MPO), WV. Mr. Hicks served as a transportation planner for the Milton Non-Motorized Transportation Study for the KYOVA MPO. The purpose of this study was to review the existing conditions of the city and develop a plan for incorporating more non-motorized transportation. His responsibilities included data collection and review of the study area, as well as assisting with the final report development.

Transportation Planner, Milton Non-Motorized Transportation Study, KYOVA MPO, WV. Mr. Hicks served as one of the transportation planners for the Milton Non-Motorized Transportation Study for the KYOVA MPO. The purpose of this study was to review the existing conditions of the city and develop a plan for incorporating more non-motorized transportation. His responsibilities included data collection and review of the study area, as well as assisting with the development of the final report.

Transportation Planner, I-20/26/77 Corridor Management Plan: Lexington/Richland Counties, South Carolina Department of Transportation (SCDOT), SC. Mr. Hicks served as one of the transportation planners for the I-0/26/77 Corridor Management Plan for Lexington and Richland counties in South Carolina. His responsibilities included reviewing the existing conditions within the study area and determining future multimodal options.

Transportation Planner, 2040 LRTP, Grand Strand Area Transportation Study (GSATS), SC. Mr. Hicks served as one of the transportation planners for the update to the LRTP for the GSATS MPO in South Carolina. Mr. Hicks' role in this update was to review portions of the previous LRTP and update it as necessary for upcoming LRTP. His responsibilities included reviewing previous and future projects for inclusion within the LRTP, as well as assisting with the review of available public transportation throughout the MPO's region.

Webinar Assistance, TRB Bicycle/Pedestrian Data Subcommittee, Washington, DC. In this role, Mr. Hicks is assisting the subcommittee leadership with the development and delivery of several webinars for the members of this subcommittee. The purpose of these webinars is to allow for those within the subcommittee to discuss new techniques, technologies, and topics that relate to pedestrian and bicycle data collection and research.

Nathan M. Shay, PE

TRANSIT RIDERSHIP MODELING

Years of Experience: 4 **| Education:** MS, BS – Civil Engineering; MCRP – City and Regional Planning **| Registration:** PE – TX, LA

Mr. Shay is an experienced transportation planner and engineer with expertise in travel demand modeling and other transportation data analyses. While he excels at efficiently performing the technical tasks within traditional planning processes, he also relishes the opportunity to take on new and difficult problems, priding himself on fast learning and creative solutions. Mr. Shay is also adept at explaining technical work to audiences with varying familiarity levels with the projects and methods being used. His time working for metropolitan planning organizations gives him an understanding of municipal and regional planning needs. He is skilled in Cube Voyager, TransCad, STOPS, R, Streetlight, INRIX insights, and Python.

Transportation Planner, Travel Demand Model Feasibility Study, Corpus Christi MPO, Corpus Christi, TX. Mr. Shay tested and documented the development and use of an FTA Simplified Trips-on-Project Software (STOPS) transit model of the Corpus Christi Regional Transit Authority's 30 routes over their two-county service area. Mr. Shay led a transit modeling workshop in which he outlined the basics of the STOPS modeling platform's theory, data requirements, and use; conducted a live demonstration of scenario testing with the STOPS model, including displaying and reviewing results in tables and maps; and outlined how the client could use the STOPS model for their own needs, be it transit scenario testing, grant application, or as a supplement to other regional modeling efforts.

Transportation Planner, 3C Model Development and Autonomous Vehicle Modeling, Ohio Department of Transportation, Columbus, Cleveland, and Cincinnati, OH. Mr. Shay assisted in the validation and testing of the 3C model, which is an activity-based model intended for use by the large metropolitan planning organization's in the state. He specifically analyzed origin-destination flows from the Streetlight data platform to validate origin-destination flows in the models for the Cleveland and Cincinnati metropolitan regions. Additionally, Shay has worked on a select-link analysis in the Columbus model, as part of an effort to test the model's implementation of a connected-autonomous vehicle scenario modeling feature.

Transportation Planner, Four-Year Safety Plan, Texas Department of Transportation – El Paso District, El Paso, TX. Mr. Shay analyzed five years of crash data for the six-county El Paso district in order to identify safety problems and ultimately identify and develop safety projects for a four-year safety plan prioritized project listing. Throughout this process, he created crash hot-spot maps, identified safety issues at specific hot spot locations, and developed safety projects by selecting appropriate countermeasures to address observed problems. He also implemented a prioritization framework that includes benefit-cost analysis utilizing estimated benefits based on a crash modification factor methodology to establish project priority and preferred letting schedule.

Transportation Planner, Eclipse Modeling, Ohio Department of Transportation, Columbus, OH. Mr. Shay collected, analyzed, and summarized three years of hourly traffic count data from continuous count stations in Kentucky and Tennessee to capture the impacts of the 2017 total solar eclipse. Mr. Shay's provided statistics and mapping will be used to create a special event trip table for use in the Ohio statewide model to forecast impacts of the 2024 eclipse event for transportation planning and operations purposes.

Data Analyst, Houston-Galveston Area Council, Houston, TX. Mr. Shay applied, analyzed, and summarized travel demand models and related transportation data. He provided data support for alternatives analysis and project selection. Mr. Shay acted as part of a coordination team with the Metropolitan Transit Authority of Harris County in order to ensure consistent travel demand modeling practices between the agencies and to coordinate on regional data collection efforts, such as transit origin-destination surveys. Mr. Shay also worked on special projects to investigate scenarios, including higher than expected development rates in rural areas, changes in managed lane policies and major construction, and investigating how highway and transit travel in the region would be impacted by each scenario.

Nathan M. Shay, PE

TRANSIT RIDERSHIP MODELING

Senior Engineer/Associate Engineer, Mid-Ohio Regional Planning Commission, Columbus, OH. Mr. Shay forecasted traffic and land use for the Greater Columbus Metropolitan Area using an activity-based model. Shay interfaced with the Central Ohio Transit Authority (COTA) and assisted with their transit modeling and data needs including attending a 3-day intensive FTA STOPS modeling course in order to review and use an implementation of STOPS for COTA's transit planning purposes and providing employment data summaries and statistics to support in the planning stages of the C-Pass Program (i.e., a program that provides free transit passes for individuals employed in Downtown Columbus). He also used the STOPS model's transit skimming capabilities to determine transit travel sheds that reflected the current detailed COTA service data contained in General Transit Feed Specification (GTFS) files. Mr. Shay conducted subregional traffic studies from start to finish including input data preparation and network coding, scenario development and forecasting, and summarizing results in maps, tables, text, and oral presentations.

Lecturer, Urban Transportation Demand Forecasting, The Ohio State University, Columbus, OH. Mr. Shay taught 22 students in a six-week course that established the role of transportation demand forecasting in the wider transportation planning process, outlined simple growth models and the traditional four-step model, and delved deeper into trip generation and traffic assignment methodologies. He was solely responsible for course lectures and grading homework and exams.

Graduate Research Associate, Campus Transit Lab, The Ohio State University, Columbus, OH. Mr. Shay collected and analyzed transit origin and destination data on the Campus Area Bus Service. He also constructed discrete choice models for analysis of a survey with over 4,500 respondents assessing dynamic ridesharing as a mode.

David Schmitt, AICP

Transit Ridership Modeling

Mr. Schmitt has provided transportation planning services for 24 years. His experience includes travel demand forecasting, transit ridership estimation, applied model research, New Starts analysis, traffic- and highway-oriented modeling and alternative development and analysis. Mr. Schmitt is proficient in many prevalent travel demand software packages and programming languages. He has worked with models from around the United States, including Washington DC, Houston, Miami/Ft. Lauderdale, Atlanta, Nashville, Cincinnati, Orlando, Columbus Ohio, Jacksonville, Tampa, and Cleveland. Mr. Schmitt has developed travel demand model components and forecasting procedures to support regional, corridor, and sub-area planning activities. His experience includes developing transit components, refining travel distribution models and enhancing auto assignment procedures.

CTG Connetics Transportation Group

Professional Background

- American Institute of Certified Planners (#016625) since 2001
- Member, TRB Transportation Planning Applications Committee (ADB50)
- Member, Florida Model Task Force and the Transit & Rail Committee

Education

- B.S., Statistics and B.S., Mathematics, Florida State University (1993)
- M.S., Planning (Transportation), Florida State University, 1995

Relevant Experience

Central Florida Regional Planning Model Versions 6.0-6.2-7.0, East Central Florida

Mr. Schmitt has led several efforts to update and improve the CFRPM. In 2014-2015, David led the Action Improvement Plan, which was a bi-faceted strategy to improve the CFRPM. One facet addressed immediate technical needs. The other engaged the model users and asked for their thoughts on the current state of CFRPM and suggestions to improve it. Additionally, David led the development of FORECAST, a traffic forecast accuracy database, to store traffic counts and traffic forecasts as far back as 2001. In 2016, David helped lead the Interchange Access Plan, which began model improvements ahead of a major I-4 design traffic project. It also initiated research into some of the more technical issues in CFRPM. For most of 2017, David has been leading the technical work that developed CFRPM v6.2. This work addressed several long-standing issues with CFRPM, including insufficient representation of travel patterns, inconsistent coding of roadway speeds and volume-delay functions, and short-trips along limited-access facilities. As part of this effort, Mr. Schmitt led a comprehensive validation review of the CFRPM. This review identified several technical issues that will be addressed in the coming years. Mr. Schmitt served as Project Manager for FDOT-D5 Continuing Services Contract for Model Support from 2014-2016 and has continued to serve as a task leader since 2018. **Client:** Florida DOT District V, 2014-ongoing

Activity-Based/Traditional Model Sensitivity Research

Mr. Schmitt was task manager for a research team (led by University of Texas-Austin) analyzing the differences between the traditional ("4-step") and activity-based models used in Columbus Ohio. This unique research effort tested both models on a variety of transportation projects. This project is considered the first empirical effort to compare both types of models. **Client:** Ohio Department of Transportation, 2009-2011

Southeast Florida Regional Planning Model (SERPM) Version 8.0 Update

CTG is part of the consultant team updating the Southeast Florida Regional Planning Model (SERPM). CTG is leading the efforts to enhance the transit elements of the model, including recalibration and validation using the latest available ridership data in the region. SERPM 7.0, the current version of the regional model is the first activity-based model in the region. The model has a base year of 2010 and horizon year of 2040, which will be updated to 2015 and 2045 respectively in the version 8.0 update. Mr. Schmitt is the senior technical lead for CTG, which developed the base year (2015) transit network. Another completed task is the merging of the on-board surveys from the four major transit providers in the region. The on-board survey data will be used in determining the mode choice model structure suitable for region's transit markets and travel patterns. Upcoming tasks include calibrating and validating the transit components of the regional model. **Client:** Florida DOT District IV, 2017-ongoing

Multi-Modal Support Contract, Ft. Lauderdale, FL

Mr. Schmitt is currently the Project Director, after serving for many years as the Project Manager, for this on-call contract providing transit forecasting, FTA New/Small Starts, transit survey and environmental expertise. One primary purpose of the contract was to collect and analyze corridor-specific auto and transit travel data prior to initiating Systems Planning or Alternatives Analysis efforts. Toward this goal, Mr. Schmitt developed a standard pre-analysis package summarizing the analysis of auto speed data (Bluetooth, INRIX and floating car), transit travel patterns (on-to-off and origin/destination surveys), and general transportation patterns (CTPP, ACS and other data) to be used to inform scopes of work for upcoming corridor studies. He managed the first transit survey efforts in the region that utilized personal interviews, tablet technology, leading-edge sampling fame strategies, and innovative expansion processes. **Client:** Florida DOT District IV, 2011-ongoing

Traffic Forecasting Accuracy Assessment Research (NCHRP 08-110), Nationwide

Mr. Schmitt is co-Principal Investigator for this study. The objective of this study is to develop a process to analyze and improve the accuracy, reliability, and utility of project-level traffic forecasts. He is currently leading the development of a database that will incorporate project traffic forecasting and count information for over 3,000 projects from seven states. When the database is complete, its information will be analyzed for patterns and trends in forecasting accuracy. After that, Mr. Schmitt will lead the "deep dive" analysis of three projects to assess the utility, reliability and accuracy of traffic forecasts. **Client:** Transportation Research Board, 2017-ongoing

Traffic Forecasting Accuracy Database (FORECAST), Initial Phase, Central Florida

Mr. Schmitt led the initial phase of District V's Traffic Forecasting Accuracy Database, known as FORECAST. The purpose of FORECAST is to analyze the accuracy of design traffic forecasts. These design traffic forecasts help make Equivalent Single Axle Load (ESAL) determinations, which help determine the necessary pavement thickness. District 5 sought to analyze the accuracy of these traffic forecasts in order to identify issues with traffic **forecasts** produced using the Central Florida Regional Planning Model, as well as to identify reasons why CFRPM may not have been used to produce traffic forecasts in lieu of other methods. This information will assist greatly the Department in prioritizing CFRPM improvements and future data collection efforts.

CTG began populating the database with over 30 ESAL reports produced by the District in 2001. Subsequent phases will populate the 2002-2015 ESAL reports. CTG also populated the database with all FDOT traffic counts in the 9-county District from 2000-2015 (2015 was the most recent year information was available). In addition, dozens of queries were also developed that provide QC checks on data entered into the database. **Client:** Florida DOT District V, 2015-2016

Sujith Rapolu, P.E., PTP

Transit Ridership Modeling

Mr. Rapolu has eight years of experience in travel demand model development, corridor planning studies, demand forecasting, transit ridership estimation, transit survey expansion, New Starts analysis and design traffic projects. He has processed and applied transportation travel data including traffic and transit surveys as well as various big-data sources in meaningful and innovative ways to help inform the decision-makers about the travel patterns and travel needs in a corridor or a region. He has experience working with Cube Base/Voyager and Cube Florida Standard Urban Transportation Model Structure (FSUTMS) travel demand forecasting software packages. He is an expert in FTA's Simplified Trips-On-Project Software (STOPS) and has developed and applied STOPS models in numerous transit projects across the country. He has also developed data-driven ridership forecasting models in Cube Voyager for applications in Southeast Florida. He has used ArcGIS, statistical software packages, and various programming languages for applied and research purposes. He also has experience with statistical tools such as R and has used Microsoft SQL Server and Excel VBA for data analysis and interpretation.

Professional Background

- Professional Engineer, State of Arizona #59784 (2015)
- Professional Transportation Planner #468 (2014)
- Travel demand modeling – Extensive experience with STOPS, Cube Voyager and data-driven techniques
- Transit ridership forecasting
- New Starts analysis
- Transit rider survey analysis
- Multi-modal corridor planning
- Design traffic

Education

- M.S. Transportation, Massachusetts Institute of Technology (2010)
- B.Tech, Civil Engineering, Indian Institute of Technology, India (2008)

Relevant Experience

South Florida Commuter Park-n-Ride Model Development

CTG is developing a transit specific commuter park-n-ride (PNR) model for FDOT District 4 to assist in the development of potential Express bus short-term service plans and master plans in the region. The model will be a highly simplified version of the four-step trip-based model in Cube Voyager and will cover six counties in South Florida. The model will be calibrated using the I-95 Express bus on-board surveys currently being collected in the region. In the short-term, it'll be applied for ridership forecasting on express buses and determining PNR lot sizes. Further, as part of this project, a standalone PNR market analyzer will also be developed in Python to identify the size of commuter market between user-selected origins and destinations using LEHD data. Mr. Rapolu is providing technical oversight, performing QA/QC, and guiding the staff through every stage of this project. **Client:** Florida DOT District 4, 2019-ongoing

Southeast Florida Regional Planning Model Development Version 8.0

Mr. Rapolu served as the lead modeler and project manager for updating the transit elements of version 8 of SERPM model. This is an activity-based model and was updated to 2015 conditions using the 2017 household travel survey conducted in the region. CTG's tasks included developing the region's transit system network, analyzing the various on-board transit surveys conducted in the region over the past five years, developing transit model calibration/validation targets, updating the Cube Voyager scripts and inputs to the transit model, developing transit reporting routines and assisting in developing guidelines for modeling new services such as Brightline in the region. **Client:** Florida DOT District 4, 2017-2018

STOPS Model Development & Transit Planning Support, New Orleans, LA

Mr. Rapolu is part of the team responsible for providing technical support to Transdev (NORTA's transit operator) in the areas of transit service assessment, ridership forecasting, data analysis and operations planning. As part of the support services, Mr. Rapolu developed a STOPS ridership model of the NORTA system intended to provide ridership estimation support for NORTA's Streetcar expansion efforts, regularly scheduled service changes, regional fare increases and other service planning efforts. **Client:** New Orleans Regional Transit Authority, 2016-ongoing

Gold Line BRT Traffic and Ridership Analysis – FTA Project Development Phase, St. Paul, MN

CTG is part of the Project Management consulting team responsible for guiding Gold Line BRT project through CIG's Full Funding Grant Application process. The project is currently in FTA's Project Development phase and is scheduled to be operational in 2024. CTG is leading all technical tasks related to travel demand modeling. STOPS is being used to estimate transit ridership. Mr. Rapolu provided technical oversight and performed QA/QC during the development of traffic volume forecasts from the Met Council's Activity Based Model (ABM). Mr. Rapolu also assisted in the development of the STOPS model. He is currently leading the application of the model for ridership forecasting for the project alternatives. He is also assisting in the coordination efforts with FTA planning staff responsible for reviewing ridership forecasts. **Client:** Metropolitan Council, 2018-ongoing

Georgia 400 Corridor Transit Initiative Study

The goal of this study is to identify potential and feasible transit alternatives in the Georgia State Route 400 (GA 400) corridor. Mr. Rapolu is leading the ridership forecasting efforts for the various alternatives being evaluated in this study. As part of this study, he has supervised the development and calibration of an incremental STOPS model using the 2009-2010 Regional On-Board Transit Survey. The model was applied to evaluate five Build alternatives that focused on identifying station locations in the corridor. **Client:** Metropolitan Atlanta Rapid Transit Authority, 2018-ongoing

Connect Gwinnett: Transit Plan, Gwinnett County, GA

Mr. Rapolu led the ridership forecasting efforts for the short-, medium-, and long-range improvements being recommended as part of Gwinnett County's comprehensive system reviews, *Connect Gwinnett: Transit Plan*. STOPS is being used as the modeling tool. Mr. Rapolu implemented and calibrated the STOPS model with a focus on Gwinnet County transit routes. This is also one of the first-ever applications of STOPS to evaluate the ridership impacts as part of a service planning effort. The various improvements evaluated in STOPS by Mr. Rapolu include local/express bus service improvements as well as extension of existing heavy rail and new BRT/LRT alternatives within the County. **Client:** Gwinnett County Transit, 2017-2018

I-95 Treasure Coast Master Plan, South Florida

CTG was part of the consultant team responsible for all engineering and planning services required to prepare an I-95 Multimodal Master Plan for the Strategic Intermodal System (SIS) highway corridor segment from Palm Beach/Martin County Line to Indian River/Brevard County Line. Mr. Rapolu supervised the development of the current and future year AADT estimates on I-95 mainline and all interchanges along I-95. Further, peak hour balanced turning movement counts at 60 plus intersections were developed by CTG for the current and future years. The Treasure Coast Regional Planning Model version 4.0 updated by FDOT District 4 for the SIS corridors was used as the modeling tool. **Client:** Florida DOT District 4, 2017-2018

Federal Transit Administration's Predicted vs. Actual Study

CTG is leading the efforts to prepare FTA's fourth study of the predicted versus actual (PvA) outcomes of completed transit projects. This fourth PvA study will examine the accuracy of predicted capital costs, unit operating costs and ridership on 29 CIG projects that have opened around the country since 2007. Mr. Rapolu is assisting FTA in extracting, tabulating and summarizing key information for each outcome (physical scope, capital costs, transit service levels, O&M costs, and ridership) including the actual outcome, the prediction at each milestone during project planning and development, the identified causes of differences, and any identified lessons learned. **Client:** Federal Transit Administration, 2018-2019

Traffic Turning Movement Counts Visualization and Balancing Tool

Mr. Rapolu supervised the development of a process in R to streamline and automate efforts related to developing and reporting turning movement counts (TMC) and forecasts. The prototype tool reads and processes the raw TMC data for all intersections, automatically balances the TMCs, and generates static and interactive output plots of unbalanced and balanced flows. Users can customize the tool for different corridors/projects using an input Excel file. **Client:** Florida DOT District 4, 2019

Kris Wuestefeld

FARE POLICY & TECHNOLOGY; ELECTRONIC FARE COLLECTION SYSTEMS PLANNING

Years of Experience: 32 | **Education:** BA – Political Science

Mr. Wuestefeld is responsible for managing the electronic toll collection (ETC), all electronic tolling (AET), electronic road pricing (ERP), and the intelligent transportation and parking systems design group. Major areas of project experience include ETC, open road tolling (ORT), and ERP system planning, evaluation, design, development of specifications, contractor selection, and implementation oversight. He is also experienced in overall contract and project management, system design documentation review, factory and field testing of systems, system implementation planning, and system performance evaluation.

Project Director, 95 Express Lanes, Florida Department of Transportation (FDOT) District 6, Miami-Dade and Broward Counties, FL. As project director, Mr. Wuestefeld provided technical support for toll system planning, design, testing, and deployment of the I-95 Express Managed Lanes program. The project involved the conversion of existing high-occupancy vehicle (HOV) lanes along I-95 between Miami and Fort Lauderdale where non-HOVs could pay a toll to bypass general purpose lane congestion. Efforts included coordination between project stakeholders (Florida Turnpike Enterprise [FTE], FDOT Central Office, District 6, and District 4), development of a concept of operations document, system development oversight, factory and field testing, and performance monitoring after system deployment.

Toll Technology Project Manager, Miami-Dade Expressway (MDX), Miami, FL. This project for MDX was for an open road tolling assessment and planning study. The study involved a comprehensive analysis to determine what operational, technical, and cost impacts deployment of an ORT system would have on the MDX, a local transportation authority. Mr. Wuestefeld served as the toll technology project manager.

Project Manager, Louisville Indiana Southern River Bridges (LISORB) Design-Build Project, Louisville, KY. Mr. Wuestefeld served as project manager to the Kentucky Transportation Commission to develop the design-build team tolling and intelligent transportation systems (ITS) related requirements, including the project layout and configuration, new all electronic tolling (AET) and ITS systems, system operations, hardware design, and system maintenance. The downtown phase of the LSIORB project included the I-65 tolling of all cross-river traffic on the proposed northbound bridge and the existing Kennedy Bridge. Tolling will begin as increased cross-river capacity is added by either the opening to traffic of the new northbound river crossing in this downtown phase or the opening to traffic of the new East End river crossing.

Project Director, Electronic Tolling Collection System Design Services, Maryland Transportation Authority, MD. CDM Smith reviewed and evaluated existing toll system functions and operations including lane, plaza, and Host software and hardware; violation enforcement system; account management; and overall revenue collection and reporting operations. As project director, Mr. Wuestefeld worked closely with client staff on toll technology and operations related activities, including reviewing the existing toll system to identify system improvements during the next lifecycle and evaluating the existing contract with the systems integrator and back office operator to ensure their services met industry standards. He worked with the project manager during development of a new toll systems integrator and operations request for proposal (RFP) to support the next generation tolling system, reviewed and evaluated integrator proposals, and helped the client select the new contractor. He provided technical support to the project manager during the system integrator contract oversight process and during the toll system planning, system design, RFP development, contractor selection, and integrator oversight services for a new AET facility for the InterCounty Connector.

Deputy Project Director, AET System, MassDOT, MA. MassDOT replaced their entire toll system with a new, state-of-the-art AET system under a design-build contract. He served as the deputy project manager for this Raytheon-lead $130M contract. His responsibilities included program administrative support to the Raytheon PM, coordination of the civil design effort, toll system design, development and testing work, as well as the integration with the backoffice system and review of the program schedule.

Project Director, I-394 and 35E MnPASS Express Lane, Minnesota Department of Transportation (MnDOT), Minneapolis, MN. MnPASS is a HOT lane system that was deployed on I-394 and 35E. Mr. Wuestefeld provided managerial and technical support for contract management, toll system planning activities, development of toll system concept and system

Kris Wuestefeld

FARE POLICY & TECHNOLOGY; ELECTRONIC FARE COLLECTION SYSTEMS PLANNING

requirements, and oversight of the system development and testing process. In 2016, he oversaw the transition of the MnPASS operations to another team.

Project Director, Newport/Pell Bridge E-ZPass Implementation, Rhode Island Turnpike and Bridge Authority, Newport, RI. Mr. Wuestefeld served as project director responsible for all aspects of the Rhode Island Turnpike and Bridge Authority's toll system replacement project that included implementing E-ZPass at its Newport Bridge toll plaza. CDM Smith developed a technical and cost needs analysis and provided recommendations regarding strategies pertaining to toll system replacement. Mr. Wuestefeld oversaw the development of electronic toll collection (ETC) system and E-ZPass back office specifications, the review and evaluation of proposals, and assisted the authority during toll contractor selection. His tasks also included closely monitoring the toll contractor during the toll system design and development, integration, testing, and implementation phases of the project.

Project Director, I-15 Congestion Pricing, San Diego, CA. Mr. Wuestefeld served as the project director responsible for development of the managed lane system requirements, design of the tolling system, and preparation of an RFP for the ETC and violation enforcement system for the I-15 Managed Lanes project. This project permits single occupant vehicles (SOVs) to use previously underused reversible high-occupancy vehicle (HOV) lanes along an 8.5-mile section of I-15 north of San Diego for a toll charge.

Project Director, Eastbound I-580 Express Lanes, Alameda County Congestion Management Authority (ACCMA), Oakland, CA. This project included conducting a feasibility study of converting a new eastbound HOV lane on I-580 to a combined HOV/high-occupancy toll (HOT) lane. As project director, Mr. Wuestefeld provided managerial and technical support for the project's preliminary toll technology planning, system design, development of the concept of operations (including the systems engineering management plan [SEMP]), and development of the systems integrator RFP. Additional tasks included selection of the systems integrator and overseeing the contract via system design documentation review, participation in system design meetings, equipment/system testing, and system deployment oversight.

Technical Support, Dubai ITS, Dubai, United Arab Emirates. Mr. Wuestefeld provided toll technology and operations related technical support to the project manager for the planning, design, system engineering, integration, and construction management for initial regional ITS deployment in Dubai, involving design and integration of freeway management systems with existing adaptive traffic control.

Project Director, SR 237/I-880 Express Lane, Santa Clara County, CA. Mr. Wuestefeld served as the project director for this study for the Santa Clara Valley Transportation Authority (VTA) to analyze the potential to implement an Express Lane at the SR 237/I-880 interchange in San Jose. The Phase 1 express lane, which opened in March 2012, allows single-occupancy vehicles (SOVs) to pay a toll to use the additional capacity of the HOV lane. Tasks included providing managerial and technical support to the project team for the planning, system design, development of an SEMP, and development of a concept of operations plan for the project. He also assisted VTA staff in the systems integrator procurement process. Additional work included system integrator contract oversight which involved the review of system design documents, oversight of system integration factory and field testing, installation oversight, and system performance evaluation. The same work tasks are currently being performed for the Phase 2 project.

Project Director, I-680 Northbound Express High-Occupancy Toll (HOT) Lane, Alameda County, CA. As project director, Mr. Wuestefeld provided managerial and technical support for the project planning, system design, development of the concept of operations and other system documents including the SEMP, and development of the procurement document. Additional work tasks included assisting in the proposal review and evaluation and selection of the electronic toll system (ETS) contractor.

Project Director, I-680 Southbound Express HOT Lane, Alameda County, CA. The I-680 HOT lane project for the Alameda County Transportation Commission (ACTC), allows SOVs to pay a toll to use the additional capacity of the HOV lane. As project director, Mr. Wuestefeld provided managerial and technical support for the project planning, system design, development of the concept of operations and other system documents including the SEMP, and development of the procurement document. Additional work tasks included assisting in the selection of the electronic toll system (ETS) contractor and overseeing the toll system contract via system design documentation review, participation in system design meetings, equipment/system testing, and system deployment oversight.

Wesley T. Blackwell, PMP

FARE POLICY & TECHNOLOGY, SYSTEM INTEGRATION PLANNING

Years of Experience: 32 | **Education:** BA – Political Science | **Certifications:** PMP

Mr. Blackwell brings over 24 years of experience in the tolling industry. Specializing in sales, bid, and proposal development and analysis, product development, and contract negotiations in both US and international arenas. Areas of tolling system project experience include AET, cordon zone pricing, managed lanes, electronic toll collection system operations and equipment design, ticketing and coin machine equipment design and integration, toll system procurement, toll system testing, business rules development, and systems analysis.

Toll System Technical Engineer, I-95 Express Lanes, Florida Department of Transportation District 6, Miami-Dade and Monroe Counties, FL. As toll system technical engineer, Mr. Blackwell provided technical inputs to the team regarding the Express Lane system design document review, testing, system commissioning oversight, and field performance testing for the I-95 Express Lanes project.

Deputy Project Manager, SR 85 Express Lanes, Santa Clara Valley Transportation Authority, San Jose, CA. As deputy project manager, Mr. Blackwell was responsible for the system design and development of procurement documentation for the SR 85 Express Lanes Phase 2 project. His responsibilities have included toll system design coordination with the authority, review and evaluation of technical and cost proposals, toll contract monitoring, factory and field testing, assisting staff during system deployment and commissioning, and system performance evaluation.

Project Manager, SR-237 Express Lanes Phase 2, Santa Clara Valley Transportation Authority, San Jose, CA. As project manager, Mr. Blackwell was responsible for the system design and development of procurement documentation for the SR-237 Express Lanes Phase 2 project. This project extends the existing SR-237 Express Lanes and adds violation enforcement capabilities. His responsibilities include toll system design coordination with the authority, review and evaluation of technical and cost proposals, toll contract monitoring, conducting factory and field testing, providing assistance to staff during system deployment and commissioning, and system performance evaluation.

Project Manager, Minnesota Department of Transportation (MnPass) I-394 and I-35 West HOV/SOV Lanes, Minneapolis, MN. As project manager for the MnPASS operations team, Mr. Blackwell was responsible for the oversight and coordination of the project's operations subcontractor on the all-electronic toll collection system for HOV/SOV lanes on I-394 and I-35W in Minneapolis. His duties included coordination with the project's systems and operations subcontractors for daily operation and system expansion as well as directing day-to-day project activities.

Subject Matter Expert, Abu Dhabi Department of Transport Cordon Toll Zone Project, Abu Dhabi, UAE. Mr. Blackwell was responsible for the preparation of tolling back office system procurement documents for the proposed Abu Dhabi cordon zone tolling project. His responsibilities included writing technical requirements for the toll system back office computer, coordination with the authority's ITS consultant including: technical documentation, RFP development, and presentations to the authority.

Deputy Project Manager, Georgia State Road and Tollway Authority I-85 HOV to HOT Lanes, Atlanta, GA. Mr. Blackwell was responsible for the toll system oversight of the dynamically priced I-85 HOV to HOT lanes project. His responsibilities included oversight of the toll system design coordination with the authority's systems consultant including: review and evaluation of technical and cost proposals, toll contract monitoring, factory and field testing, quality assurance support for GEC documents, assisting staff during system deployment and commissioning, and system performance evaluation.

Deputy Project Manager, Maryland Transportation Authority Toll Facilities, MD. As deputy project manager, Mr. Blackwell is responsible for the system design and development of procurement documentation for the next generation electronic toll collection system, the I-95 Express Toll Lanes open road tolling (ORT) project, and the InterCounty Connector ORT project. His responsibilities include toll system design coordination with the authority, review and evaluation of technical and cost proposals, toll contract monitoring, factory and field testing, assisting staff during system deployment and commissioning, and system performance evaluation.

Wesley T. Blackwell, PMP

FARE POLICY & TECHNOLOGY, SYSTEM INTEGRATION PLANNING

Toll System Technical Engineer, Texas Turnpike Authority Statewide Tolling Project, Statewide, TX. In the position of toll system technical engineer, Mr. Blackwell provided technical inputs to the team for developing comprehensive toll system technical provisions that were used as the basis for the comprehensive development agreement for the TTA Statewide Tolling Project. Additional work activities included toll system contractor oversight, design document review, testing, system commissioning oversight, and field performance testing.

Toll System Technical Engineer, Alameda County Transportation Authority I-680 Express Lane Project, Alameda County, CA. In the position of toll system technical engineer, Mr. Blackwell provided technical inputs to the team in developing the concept of operations plan, the Systems Engineering Management Plan, and the electronic toll system RFP for the I-680 Express Lane Project.

Project Manager, Florida Turnpike Ticket System Upgrade, FL. Mr. Blackwell served as project manager for the supply of 60 lanes of new toll ticketing equipment for the Florida Turnpike. His responsibilities included confirmation of system requirement adherence to the RFP, contract monitoring, equipment installation oversight, equipment factory and field testing, documentation, training, and future warranty period monitoring. This project was completed while with a previous employer.

Project Manager, New Jersey Turnpike Ticket System Upgrade, NJ. Mr. Blackwell served as project manager for the supply of 396 lanes of new toll ticketing equipment for the New Jersey Turnpike. His responsibilities included confirmation of system requirement adherence to the RFP, contract monitoring, equipment installation oversight, equipment factory and field testing, documentation, training, and future warranty period monitoring.

Project Director, Secretary of Public Works Toll System, Dominican Republic. Mr. Blackwell served as the director for the supply and installation of a new three-plaza toll and central computer system in the Dominican Republic. Supply included ETC, VES, manual terminals, AVC, coin machines, UPS, and server/router equipment. His responsibilities included contract negotiation, contract monitoring, equipment installation oversight, equipment factory and field testing, documentation, training, and future warranty period monitoring.

Project Manager, Kansas Turnpike Ticket System Upgrade, KS. Mr. Blackwell served as project manager for the supply of 140 lanes of new toll ticketing equipment for the Kansas Turnpike. His responsibilities included confirmation of system requirement adherence to the RFP, contract monitoring, equipment installation oversight, equipment factory and field testing, documentation, training, and future warranty period monitoring.

Project Manager, North Texas Tollway Authority ACM Supply Project North Region, TX. Mr. Blackwell served as project manager for the supply of 198 lanes of new ACM equipment for the North Texas Tollway Authority. Responsibilities included confirmation of system requirement adherence to the RFP, contract monitoring, equipment installation oversight, equipment factory and field testing, documentation, training, and future warranty period monitoring.

Project Manager, Harris County Toll Road Authority ACM Supply Project, Harris County, TX. Mr. Blackwell served as project manager for the supply of 118 lanes of new ACM equipment for the Harris County Toll Road Authority. His responsibilities included confirmation of system requirement adherence to the RFP, contract monitoring, equipment installation oversight, equipment factory and field testing, documentation, training, and future warranty period monitoring.

Project Manager, Denver E-470 Public Highway Authority ACM Supply Project, Denver, CO. Mr. Blackwell served as project manager for the supply of 32 lanes of new ACM equipment for the Denver E-470 Public Highway Authority. His responsibilities included confirmation of system requirement adherence to the RFP, contract monitoring, equipment installation oversight, equipment factory and field testing, documentation, training, and future warranty period monitoring.

Charlotte Frei, PhD, PE

TRANSIT OPERATIONS & SCHEDULING; MOBILITY ON DEMAND RESEARCH/ PLANNING; STANDARD OPERATING PROCEDURES ASSESSMENT/DEVELOPMENT; MOBILITY ON DEMAND APPLICATION PLANNING

Years of Experience: 6 **| Education:** PhD – Transportation Systems Analysis and Planning; MS – Transportation Systems Analysis & Planning; BS – Civil Engineering **| Registration:** PE – IL **| Certifications:** Certificate in Management for Scientists and Engineer

Focused in transportation research and modeling, Dr. Frei's work combines engineering and planning practices with statistical, econometric and operations modeling to understand travelers and improve transport systems. She is able to effectively combine data analysis with emerging trends and opportunities to fit a solution to stakeholder objectives.

Data Analyst, Multiple Bus and Rail Projects, Chicago Transit Authority (CTA), Chicago, IL. Dr. Frei built simulation tools to assess existing and potential capacity of rail junctions in the Chicago central business district. She synthesized interview results and field observations to identify critical problem areas. Projects involved gathering numerous, disparate data files, working with clients to understand the location and names of available files to assess their contents, then creating data figures, tables, and analyses to present a holistic view of weaknesses and opportunities for improvement. Dr. Frei consolidated observations, key staff interview findings, and data analysis into technical reports to inform alternatives analysis.

Database Design and Entry, Statewide Maintenance Facilities Assessment, Illinois Department of Transportation (IDOT), IL. Dr. Frei has reviewed large volumes of data from the IDOT to develop and oversee a procedure for uniform data extraction and long-term management of facility information. She employed Google's Optical Character Recognition (OCR) image tools in a python script to detect and assimilate facility information into a document information database. She is working with facility engineers to develop an assessment survey for deployment in Summer 2019. The results of the existing assessments and Summer 2019 survey will be combined into a single geodatabase for the client to use for long-range planning and asset management needs for 2020-2070.

Project Technical Assistant, Environmental Impacts of Waste Disposal Alternatives, Fairfax County Solid Waste Management Program, Fairfax County, VA. Dr. Frei assisted in composing the technical approach for an environmental impact analysis of waste management strategies, which will include air quality, transportation, cost, and demographic impacts. She directly assists the project manager and project technical lead in drafting memoranda and meeting notes for the client. She coordinates communication and technical deliverables from team members with environmental and economic skillsets to produce publication-quality documents.

Data Analytic Support, Illinois State Toll Highway Authority (ISTHA), Lisle, IL. Dr. Frei is conducting literature reviews, data analysis, and data visualization regarding connected and autonomous vehicle operations and third-party data providers including HERE, Inrix and Verizon. She is currently combining data from the three providers with the Illinois Tollway system data to evaluate the data quality, using R and Shiny, for numeric and visual verification.

Demand Responsive Service Planning, McHenry County Long-Range Transit Study, TranSystems, McHenry County, IL. Dr. Frei evaluated opportunities to convert existing fixed route services in rural/suburban McHenry County to entirely on-demand system using wheelchair accessible vans, as well as ride-sourcing options such as taxis and TNCs. The service model is intended to improve customer service and reduce operating cost by concentrating service in the areas that need it most while still providing cross-county connections. Dr. Frei examined existing services, service providers, and demand patterns. She then tested multiple service design options in a custom simulation routine, which included varying levels of fixed and variable cost resources, to recommend to the client alternatives which would provide same or improved level-of-service at same or reduced cost. She provided the client with a list of software companies to solicit RFQs from in order to confirm each software's operating, administrative, and user features.

Project Manager/Service Analysis Lead, Shared Mobility on Demand Pilot Program, Nashville Metropolitan Transit Authority (MTA), Nashville, TN. Dr. Frei conducted a service area analysis for general public demand responsive services, as well as evaluated MTA's existing Americans with Disabilities Act (ADA) paratransit program to identify opportunities for improvement. Dr. Frei worked with the MTA to develop a same-day paratransit service including business rules, cost structure, call center flow that allowed MTA to create a pool of providers that can accept same-day paratransit trips

Charlotte Frei, PhD, PE

TRANSIT OPERATIONS & SCHEDULING; MOBILITY ON DEMAND RESEARCH/PLANNING; STANDARD OPERATING PROCEDURES ASSESSMENT/DEVELOPMENT; MOBILITY ON DEMAND APPLICATION PLANNING

that might otherwise be served on paratransit vans. Dr. Frei worked with a database architect to develop data requirements and a reporting format, then interfaced with three transportation operators to facilitate their data reporting; finally, she computed performance metrics for client technical memoranda. The pilot has been ongoing since February 2018; Dr. Frei evaluated performance measures including utilization, cost, and induced demand for the same-day service to make operating recommendations for continuing or discontinuing the pilot and reforming in-house ADA-compliant services for operating improvements.

Service and Software Analyst, LA Now Microtransit Service Planning, Los Angeles Department of Transportation and MV Transit, Los Angeles, CA. Dr. Frei conducted service planning for several scenarios to aid the client in selecting the right service for this Mobility-as-a-Service (MaaS) pilot project. The parameters tested included service area size, fleet size, and anticipated levels of demand expected throughout the roll-out. Simulation revealed ideal configurations of service for initial launch; dozens of simulations were run on AWS servers in order to produce results and recommendations for decision-making in less than four weeks. Dr. Frei also worked with MV Transit to communicate DemandTrans's software capabilities to the client and communicated the client's desired custom changes and specifications to the DemandTrans software developers.

Research Analyst, Developing Transactional Data Specifications for Demand Responsive Transit G-16, Transit Cooperative Research Program, DC. The objective of this project was to define the specifications for demand-responsive trip exchanges, which are of particular value to human service agencies, non-emergency medical trip providers, and other public, for-profit and not-for-profit entities. The goal of the project was to define a specification that could serve as a foundation to a universally accessible MaaS framework. Developing these specifications involved understanding the most important data elements for system users and operators to design a database and data specification that contained all relevant variables. Dr. Frei was responsible for determining and defining variables related to customer information, payer, and agency information, and operating constraint information so that appropriate customer and operator information could be shared via the exchange, enabling higher quality and more accessible services. Dr. Frei also wrote chapters for the project report, including describing the purpose of the specification and specific variables, detailing how a transactional specification can evolve with industry and non-profit needs, and recommendations for governance based on lessons learned from similar efforts in other industries. The TCRP report is an important step to mobility management and improved mobility services coordination.

Service Planning and Analysis, Regional Mobility Management Plan for Yavapai County, Central Yavapai Metropolitan Planning Organization, Prescott, AZ. Dr. Frei worked with a team to develop a mobility management plan leveraging human services agency and volunteer resources to improve mobility for residents with challenges related to senior, veteran, employment, and healthcare transportation. She conducted service planning for Prescott Valley transit routes, including demand-response, flexible route, fixed route, and first/last mile connections served by potential bike-share system to support mobility throughout the region. Her transit service recommendations were directly tied to overall Mobility Management objectives and opportunities for the MPO's region.

Research Scientist, User-Driven Demand Adaptive Transit, Center for Commercialization of Innovative Transportation Technology, Various Locations. Dr. Frei adapted a method to identify bus stop locations for a flexible service with characteristics of both fixed-route and demand-responsive transit. She developed a simulation to test operations of potential services to select one with most efficient operations, weighing performance measures important to both users and operators. The methodology is appropriate for determining checkpoint locations and timing to structure dial-a-ride services, and it can be extended for comprehensive design of flexible transit in any low-density area. Dr. Frei also created and implemented an online stated preference study using efficient design and Google Maps API to extract precise travel characteristics of respondents; the stated preference data was used to estimate choice models. She applied the modeling technique to several cities' transit service areas including Denver, CO; Los Angeles, CA; Chicago, IL; and McHenry County, IL.

Robert J. Guthart, AICP

SHORT & LONG-RANGE PLANNING

Years of Experience: 7 **|Education:** MCRP – City and Regional Planning (Transportation Planning); BA – Environmental Science **| Certification:** AICP

Mr. Guthart is a transportation planner with a background in multimodal transportation planning, international freight operations, and academic research. He has work experience abroad in both Asia and Europe. He is skilled in comprehensive transportation planning, bicycle and pedestrian planning and programming, freight planning and operations, traffic studies, and GIS mapping and analysis.

Transportation Planner, Mark Clark Extension, South Carolina Department of Transportation, SC. Mr. Guthart is serving as a transportation planner for the Mark Clark Extension Environmental Impact Study in Charleston, SC. His major contribution to the project is leading the Navigation Impact Study. The purpose of the Navigation Impact Study is to provide an understanding of waterway usage of emergency and government vessels as well as present and prospective recreational and commercial vessel traffic along the Stono River also part of the Atlantic Intracoastal Waterway.

Transportation Planner, US 67 Corridor Master Plan, Texas Department of Transportation El Paso District, TX. Mr. Guthart is serving as a transportation planner to develop a corridor master plan for US 67. The US 67 Corridor Master Plan will include the identification of current and future transportation needs along the US 67 corridor and recommendations of projects and strategies for short-, mid-, and long-term implementation to enhance system efficiency, safety, and mobility along the corridor. Mr. Guthart is involved in developing a complete streets toolbox of a variety of bicycle and pedestrian improvements that can be implemented in the communities along the corridor.

Transportation Planner, 2020-2045 Laredo Metropolitan Transportation Plan, Laredo Metropolitan Planning Organization, TX. Mr. Guthart is serving as a transportation planner to update the 2020-2045 Metropolitan Transportation Plan (MTP) for the Laredo Metropolitan Planning Organization (MPO). The MTP provides a vision for meeting the existing and anticipated travel demands of the multimodal transportation system serving the Laredo region through the year 2045. The 2020-2045 MTP is being developed in compliance with FAST Act requirements and to support and improve a balanced, multimodal, and sustainable transportation system that enhances livability in this growing area. Mr. Guthart's role involves multimodal data collection and analysis, public outreach, and writing of the final plan document.

Transportation Planner, Horizon Boulevard Corridor Master Plan, Texas Department of Transportation El Paso District, TX. Mr. Guthart is serving as a transportation planner to develop a corridor mater plan for Horizon Boulevard in El Paso County, Texas. The plan will identify current and future transportation needs along the corridor and recommend projects and strategies for short-, mid-, and long-range implementation to enhance efficiency, safety, and mobility along the corridor. Mr. Guthart is involved with data collection and analysis, preparation of materials for public outreach, and development of graphics for current and future scenarios.

Transportation Planner, JOHRTS Area Metropolitan Transportation Plan 2045, South East Texas Regional Planning Commission, 2018 – 2019. Mr. Guthart is serving as a transportation planner to update the Metropolitan Transportation Plan (MTP) for the Jefferson, Orange, and Hardin Transportation Study (JOHRTS) Area. The 2045 MTP develops a vision for addressing the existing and expected travel needs of the multimodal transportation system serving the JOHRTS area through the year 2045. The 2045 MTP will support a balanced, multimodal, and sustainable transportation system that will enhance livability within the growing region. Mr. Guthart is involved in multimodal data collection and analysis, public outreach, development of performance targets, identifying multimodal transportation needs and improvements, financial planning, compliance with FAST Act requirements, and writing of the final plan document.

Transportation Planner, Regional Freight Mobility Plan, South East Texas Regional Planning Commission, TX. Mr. Guthart is serving as a transportation planner to develop a regional freight mobility plan for the South East Texas Regional Planning Commission (SETRPC). Mr. Guthart is involved in developing an existing conditions assessment of the current condition and performance of the freight transportation system and outreach to regional freight stakeholders.

Robert J. Guthart, AICP

SHORT & LONG-RANGE PLANNING

Transportation Planner, Waller County Transportation Plan, Houston-Galveston Area Council, TX. Mr. Guthart is serving as a transportation planner to develop a comprehensive multimodal transportation plan for Waller County, Texas. Mr. Guthart's role includes development of the county thoroughfare plan update, public outreach, identification and evaluation of transportation needs, and technical writing for the final plan document.

Transportation Planner, City of Houston Planning and Development Department, TX. Mr. Guthart provided technical planning support to the development and adoption of the 2017 Houston Bike Plan. He assisted in the development of the City of Houston's annual update to the Major Thoroughfare and Freeway Plan by researching policy, developing maps, and presenting recommendations to the Planning Commission. He was also a member of the Lower Westheimer Corridor Study team, planning and executing two stakeholder advisory meeting and two public meetings which informed the context sensitive design for the unique Westheimer corridor in central Houston. This project was completed while with a previous employer.

Logistics Analyst, TMC, A division of CH Robinson, TX. Mr. Guthart designed freight operational procedures by implementing freight consolidation and cost savings opportunities to clients, communicating carrier KPI's to mitigate performance exceptions and strategize for improvement, and creating automated processes to replace manual tasks. He redesigned the standard operating procedures for a client's inbound freight from Asia to Europe, reducing a six hour daily task into a two hour daily task. This project was completed while with a previous employer.

Graduate Research Assistant, Georgia Institute of Technology, GA. Mr. Guthart supported the research of Dr. Timothy Welch at the Georgia Institute of Technology Center for Quality Growth and Regional Development. Mr. Guthart's main research focus was the development of a data-driven tool that planners, engineers, policymakers, and researchers could use to determine how future investments should be made to maximize return on investment. This project was completed while with a previous employer.

Transportation Planning Intern, HNTB, GA. Mr. Guthart provided GIS and planning support to various projects of regional significance to the Atlanta metropolitan region, including the Georgia Multimodal Passenger Terminal (MMPT), the Atlanta to Charlotte Passenger Rail Corridor Investment Plan Tier 1 Environmental Impact Statement, the Metro Atlanta Operational Planning Study, and the Atlanta Regional Managed Lanes Implementation Plan. He also prepared data in GIS for use in Cube to develop travel demand models and conducted research to prepare for project bids. This project was completed while with a previous employer.

Engineering Technician, City of Atlanta Department of Watershed Management, GA. Mr. Guthart assisted with the conversion of historic engineering plats mapping the locations of the City of Atlanta's water assets into GIS format. He also administered geographic data requests by creating GIS maps for various offices and departments within the City of Atlanta. This project was completed while with a previous employer.

Ybette M. Ochoa

TRANSPORTATION DEMAND MANAGEMENT, TRAFFIC STUDIES, ANALYSIS & MICROSIMULATION

Years of Experience: 8 | **Education:** MSc, BS – Civil Engineering

Ms. Ochoa is experienced in a variety of transportation planning, traffic operations, and ITS projects. She is proficient in the management of large databases, including crash data and speed data, and in traffic signal and coordination optimization projects. She has used various modeling software including VISSIM, HCS, Syncrhro, SimTraffic, Arc GIS, AutoCAD, and Microsoft Office.

Task Leader, Ashland Avenue Bus Rapid Transit (BRT) Environmental Assessment and Conceptual Engineering, Chicago Transit Authority (CTA), IL. The Ashland Avenue BRT project involves the study and conceptual engineering for more than 16 miles of Ashland Avenue and associated parallel routes within the City of Chicago. Ms. Ochoa led a team of traffic engineers in developing 15 VISSIM models for 15 key intersections within the study area. Task included modeling of existing scenarios and build scenarios with transit signal priority strategies for the BRT operations, as well as testing mitigation measurements to address potential operational issues with the implementation of the BRT. Ms. Ochoa prepared 3D animations in VISSIM for the public involvement meetings and portions of the traffic report.

Task Leader, Roadway Safety Assessment, Illinois State Toll Highway Authority (Illinois Tollway), IL. Ms. Ochoa provides assistance to the Illinois Tollway Safety Committee to perform Roadway Safety Assessment (RSA) studies of selected locations that have recurrent safety and operational issues. Ms. Ochoa is responsible for performing crash analysis to identify safety and operational issues, video observations and field visits. Based on the analysis findings potential short and medium term solutions are proposed that can be related to signage, pavement marking, signal timing or geometric improvements. The RSA study area vary from isolated interchanges to several miles of roadway. Some study examples include 95th Street and I-294 interchange, I-88 from Orchard Road to IL 59 and I-88 from IL 83 through I-294/I-290 interchange and I-88 to I-294 Mary and Nora Ramps.

Task Leader, Traffic Crash Reports, Illinois Tollway, IL. Ms. Ochoa develops annual, quarterly, and monthly traffic crash reports for the Illinois Tollway, covering nearly 300 miles of urban and rural expressways in northern Illinois, using a customized SQL query process. Ms. Ochoa also participates in crash investigation committee meetings with Illinois State Police and Illinois Tollway staff.

Task Leader, Performance Measure Reports, Illinois Tollway, IL. Ms. Ochoa develops quarterly and monthly performance measure reports for the Illinois Tollway, covering nearly 300 miles of urban and rural expressways in northern Illinois, using a customized SQL query process. This report documents all data that is currently being gathered by the Illinois Tollway, and assists in the estimation of travel time index, delay and speed profiles for each Tollway segment to provide base comparison.

ITS Engineer, Color Dynamic Message Sign (DMS) Test Plan, Illinois Tollway, IL. The Illinois Tollway plans to test, with Federal Highway Administration (FHWA) approval, a series of messages in a Type I DMS that is capable of generating full color text and graphics to expand their capabilities of communicating with the driving public. Ms. Ochoa supported the development of the message prototypes, the DMS off-road test survey, the preparation of the Concept of Operations, the logistics for the field test, and the preparation of the Request for Experimentation and the roadside Test Plan to be implemented in late Fall 2015.

ITS Engineer, Speed Limit Study, Illinois Tollway, IL. CDM Smith underwent a speed limit study based on the new Illinois Department of Transportation (IDOT) methodology. Ms. Ochoa supported the team managing crash information, Annual Average Daily Traffic, speed sensor data and other relevant data needed to derived speed limits using the IDOT methodology. Ms. Ochoa supported in the elaboration of several documents and presentations for the Tollway to present findings and recommendations. Currently, supporting the Tollway on ad-hoc requests that support the speed limit study.

Ybette M. Ochoa

TRANSPORTATION DEMAND MANAGEMENT, TRAFFIC STUDIES, ANALYSIS & MICROSIMULATION

Traffic Engineer, Pavement Marking, Permanent Signage, and Maintenance of Traffic (MOT) Review, Illinois Tollway, IL. As part of a multi-year contract, Ms. Ochoa provides technical assistance to the Illinois Tollway reviewing pavement marking and permanent signage plans, and maintenance of traffic plans. Major plan reviews included portions of the Elgin O'Hare Western Access and I-90 Widening and Reconstruction.

ITS Engineer, Iowa Statewide DMS Plan, Iowa DOT, IA. Ms. Ochoa assisted in the development of a statewide DMS plan. She was responsible for reviewing the DMS inventory, working with the Iowa DOT staff to develop needs and goals, and identifying a method to determine how well those needs are currently met. Ms. Ochoa also supported in the preparation of the Final Report.

Traffic Engineer, US 183/Mopac Interchange Study, Central Texas Regional Mobility Authority (CTRMA), Austin, TX. This interchange study includes 12 interchanges, located along three miles of US 183 and six miles on MoPac. Ms. Ochoa developed and calibrated VISSIM models for existing conditions and two future scenarios that included different managed lane configurations. Ms. Ochoa also developed a database and excel spreadsheets to automate the VISSIM output processing to optimize the process and provide results more efficiently.

ITS Engineer, ITS Design for Furousiya Street, Doha, Qatar. Ms. Ochoa was part of the ITS design team of a 5-mile expressway (Furousiya Street) in the City of Doha, in Qatar. Ms. Ochoa responsibilities includes design of sections of the ITS network, quality assurance and quality control of the ITS design plans, and quantity take-offs.

Traffic Engineer, US 183/ SH 114 and Loop 12 Managed Lanes, Texas Department of Transportation (TxDOT), Austin, TX. This project is a Level 3 comprehensive traffic and revenue study for the US-183, SH-114, and Loop 12 in the Dallas-Fort Worth region. As part of this project, managed lanes are planned along 16 miles of US 183, three miles along Loop 12, and 11 miles along SH 114. Ms. Ochoa assisted the project team in post-processing the traffic data counts and INRIX speed data and evaluating traffic operations of the existing corridor and the future scenarios with the implementation of the managed lanes using VISSIM.

ITS Engineer, I-35 ITS Plan, City of Austin, TX. Ms. Ochoa was responsible for supporting the development of an ITS plan for the City of Austin, TX. This includes drafting the Goals and Objectives (G&O) for the City of Austin's ITS department, recommend projects that fulfill the proposed G&O and can be implemented in the short term.

ITS Engineer, Traffic Management Study, Savannah, GA. Ms. Ochoa wrote portions of the Phase I report that included the ITS needs for the new Traffic Control Center and its impact on the truck and evacuation routes.

Deputy Project Manager, Route 7/287 Interchange Study, Virginia Department of Transportation (VDOT), VA. Ms. Ochoa developed the existing 2012 volume balancing and forecasted volumes for two future years (2014 and 2020) using ITE trip generation manual and approved TIAs for VDOT. She performed the traffic operations analysis of the existing and future scenarios using Synchro and VISSIM to identify potential problem locations in the future years and proposed spot improvements. Her responsibilities included preparation of the technical memorandum documenting existing, 2014 baseline, and improved traffic operations, preparation of materials, and presentation at the TAC meetings.

Traffic Engineer, Washington DC Mall Area and Vicinity Simulation (MAVS), Washington, DC Department of Transportation (DDOT), DC. Ms. Ochoa developed and calibrated VISSIM simulation models for use as a planning tool to quantify five most critical evacuation routes and operations during special events and daily operations of the downtown area in DC. The VISSIM model included more than 500 intersections for the AM and PM peak hour operations. She contributed to the final report and meeting presentations provided for DDOT.

Traffic Engineer, I-95/I-395 HOT Lanes Project, VDOT, VA. Using HCM and Synchro, Ms. Ochoa performed corridor and intersection level of service analysis for existing conditions and proposed alternatives for VDOT. She prepared briefings of the interchanges operational studies and assisted in the preparation of the Interchange Justification report (IJR) and the Springfield Interchange Modification Report (IMR).

Om P. Kanike, PE, PTOE

TRANSPORTATION DEMAND MANAGEMENT, TRAFFIC STUDIES, ANALYSIS, MICROSIMULATION

Years of Experience: 17 **| Education:** MS, BS – Civil Engineering **| Registration:** PE – FL **| Certifications:** Professional Traffic Operations Engineer (PTOE)

Mr. Kanike leads survey and data collection efforts, such as the I-4 Ultimate and Tampa Bay Express Traffic and Revenue (T&R) Studies, for FDOT and other toll agencies in Florida. His project experience includes T&R forecasting, design traffic forecasting, traffic studies, traffic simulation, developing planning concepts, traffic signal, and signing and pavement marking design. He is proficient with CORSIM, VISSIM, CUBE VOYAGER, HCS, MicroStation, ArcGIS, Python, R, and Java software.

Lead Traffic Engineer, SR 408 Extension Project Development and Environment (PD&E) Study, CFX, Orange County, FL. As lead traffic engineer, Mr. Kanike was responsible for overseeing and developing the design traffic forecasts and design traffic report to support the PD&E study. He led the data collection effort and worked closely with the subconsultants on the traffic count and Bluetooth O-D surveys. He also led travel and delay collection efforts. He reviewed and assisted with socio-economic data and travel demand model development. He also developed a methodology for toll sensitivity modeling to estimate optimal revenue toll rates. He worked closely with the PD&E consultant and CFX and assisted in developing project alternatives. Mr. Kanike developed CORSIM and SYNCHRO models to study the impacts of interchange configurations along with analyzing measures of performance for existing and future conditions and developed mitigation measures. The mitigation measures included choosing the location and type of the interchange along with providing lane geometry.

Transit Planner, Southeast Corridor Environmental Assessment, Jacksonville Transportation Authority (JTA), Jacksonville, FL. This project involved the environmental assessment of a proposed bus rapid transit (BRT) service along both mixed-use and dedicated lanes. As a transit planner, Mr. Kanike was responsible for conducting traffic assessment; developing concept plans; identifying potential transit improvements, including queue jumps and exclusive bus lane locations; identifying benefits for each of these improvements; and cost estimation tasks.

Transit Planner, North Corridor BRT, JTA, Jacksonville, FL. This project involved the environmental assessment of a proposed BRT service along both mixed-use and dedicated lanes. Mr. Kanike was responsible for conducting traffic assessment, developing concept plans, and cost estimation tasks.

Lead Traffic Engineer, Osceola County Expressway Authority (OCX) Projects – Design Traffic, CFX, Osceola County, FL. This project included design traffic estimates and T&R estimates for a 60-mile new expressway corridor, comprising of four different projects in Osceola County. Mr. Kanike has been instrumental in developing innovative ways of modeling and summarizing results. These innovations made use of parallel programming and data sciences techniques and resulted in modeling run-time by an order of Magnitude. He has analyzed and summarized origin and destination (O-D) data from Streetlight, a Big Data vendor, and a created a web-based dashboard to visualize and easily communicate O-D results. Also, Mr. Kanike has used Streetlight data extensively to calibrate external stations travel patterns along with travel patterns from local theme park companies' special generator. He developed a methodology for toll sensitivity modeling to estimate optimal revenue toll rates. In addition, he developed preliminary design traffic and assisted with developing T&R estimates.

Lead Traffic Engineer/Deputy Project Manager, I-4 Beyond the Ultimate T&R Study, FDOT, FL. Mr. Kanike developed scope and budget for the traffic and data collection tasks and participated in project negotiation meetings. He led the traffic count and travel time data collection survey efforts. He developed traffic profiles, analyzing Sun Guide speed data. He also assisted with the travel demand modeling and T&R forecasts. In addition, he served as a deputy project manager.

Lead Traffic Engineer, General Traffic and Earnings Consultant, Central Florida Expressway Authority (CFX), Orlando, FL. Mr. Kanike served as the lead traffic engineer for various task assignments including annual reports, master plan, and traffic studies. He reviewed and assisted with T&R forecasts and developed traffic profiles for annual reports. He also developed socioeconomic data sets and assisted with the travel demand modeling. He also conducted traffic studies for CFX including I-4/SR 408 to Orange Blossom Trail operational analysis, SR 429/Daniels Road interchange analysis, and Marden Road T&R. Mr. Kanike also provided design traffic growth forecasts for use in the CFX Master Plan development.

Om P. Kanike, PE, PTOE

TRANSPORTATION DEMAND MANAGEMENT, TRAFFIC STUDIES, ANALYSIS, MICROSIMULATION

Lead Traffic Engineer, SR 528 Airport Plaza Removal Impacts, CFX, FL. Mr. Kanike led the data collection team and managed a Bluetooth survey, which included processing and analyzing the Bluetooth data. He assisted with the development of a spreadsheet diversion model used to estimate the impacts of removing Airport Mainline Plaza and collection of tolls associated with the Airport Mainline Plaza at the Turnpike's Beachline West Plaza. In addition, Mr. Kanike completed a traffic operations analysis of the impacts of adding toll collection activities at the Boggy Creek Road and Conway Road ramps movements to or from the east.

Traffic Engineer, T&R Studies, Tampa-Hillsborough Expressway Authority (THEA), FL. Mr. Kanike served as the traffic engineer for the US 301/Selmon Expressway ramp tolling T&R analyses and the development of revenue neutral options for the mainline Selmon Expressway customers. Mr. Kanike conducted the travel demand modeling and the traffic engineering tasks.

Lead Traffic Engineer, Master Plan 2040 Update Support, CFX, FL. Mr. Kanike assisted with developing short-term and long-term growth rates for all CFX facilities. The short-term growth rates were estimated using the historical toll transaction trends and were used in development of the CFX five-year Work Program. The long-term growth rates relied on both historical trends and travel demand model output for use in the development of the CFX Master Plan. He also participated in the Work Program and the Master Plan development meetings with other CFX consultants.

Lead Traffic Engineer/Deputy Project Manager, Tampa Bay Express T&R Study – Phase I and II, FDOT District 7, Hillsborough and Pinellas Counties, FL. The purpose of this project was to develop traffic and revenue forecasts for over 30 miles of express lanes along I-275 and I-4. Mr. Kanike served as lead traffic engineer and deputy project manager to develop the scope and budget for the traffic and data collection tasks. He participated in project negotiation meetings and was responsible for leading the traffic count, Bluetooth, and travel time data collection survey efforts. He was also responsible for developing the traffic profile, developing Bluetooth summarization, and assisting with T&R forecasts. The O/D data collected for this study was used to modify proposed access locations along the I-4 and I-275 corridor. For Phase II of the project, he developed inputs for traffic diversion model using the CORSIM simulation model. He also assisted with the travel demand modeling and T&R forecasts.

Lead Traffic Engineer, SR 408 Extension Project, CFX, Orlando, FL. Mr. Kanike developed project scope and budget for this project and is responsible for overseeing and developing design traffic forecasts. He led the data collection effort and worked closely with the subconsultants on the traffic and Bluetooth surveys. He reviewed and assisted with socioeconomic data and travel demand model developments. He attended meetings with the PD&E consultant and CFX and assisted in developing project alternatives. Mr. Kanike will be responsible for analyzing measures of performance for existing and future conditions and developing mitigation measures, along with reviewing and writing the project report.

Lead Traffic Engineer, Andes Avenue Extension T&R, CFX, FL. In this role, Mr. Kanike assisted with model development by updating socioeconomic data and reviewing model output. He used streetlight O/D data and developed innovative ways to visualize data. These visualizations were of great value in presenting travel pattern information to non-technical stakeholders. He also assisted with project scope and budget development, attended project meetings, and assisted with project documentation.

Lead Traffic Engineer, SR 429/CR 535/Daniels Road Design Traffic and Interchange Analysis, CFX, Orange County, FL. SR 429/CR 535 is one of the most congested interchanges within the CFX system and has resulted in frequent backups on the SR 429 mainline. CDM Smith was tasked to study this interchange and provide mitigation measures. Mr. Kanike served as the lead traffic engineer for various task assignments including data collection, streetlight O/D analysis, forecasting design traffic, and providing design recommendations. He developed a VISSIM simulation model and calibrated the model using Python scripts to run VISSIM iteratively by changing the model parameter and improving the model calibration process. This VISSIM model was used to test a set of different design/operational alternatives. The 2017 study required the development of design traffic for a scenario with an additional pair of ramps. Mr. Kanike used Streetlight O/D data along with the travel demand model to estimate the traffic diverting to the new pair of ramps. Using the growth rates from travel demand model and historical trends, design traffic numbers were developed. In addition, SYNCHRO and HCS software were used to analyze future traffic conditions and evaluate if the design provided sufficient weaving distances between the on-ramps and off-ramps on SR 429 mainline.

ADEBAYO COKER, PE

Transportation Demand Management, Traffic Studies, Analysis & Microsimulation

HBC Tenure: 13 Years

Industry Experience: 27 Years

Education: BS, Civil Engineering
Florida International University, 1992

Work History:
HBC Engineering Company
Principal in Charge
2008 Present

Florida Department of Transportation (FDOT) District 6
1996 2008

Professional Registrations:
Professional Engineer, Florida No. 55322

Office Location: Miami, FL

KEY PROJECTS

OVERSAW PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES AS DISTRICT PROJECT DEVELOPMENT ENGINEER (TASK INCLUDED DEVELOPMENT OF PD&E STUDIES, RRR SCOPING REPORT, AND TRAFFIC REPORT). Flagler Street 2nd Ave to 27th Ave (CE2), NW 74th Street from 114th to SR 826 (Noise Study), Card Sound Road (EA), I-75 from county line to SR 826 (EIS/ EA),Tamiami Canal Swing Bridge (EA), Alton Road from 5th to Michigan (CE2), I-395/SR 836 PD&E (EIS), NW 138th street from NW 57th to NW 67th Avenue (SEIR), NW 42 Ct/Perimeter Road (SEIR), Krome Truck Bypass from Lucy to 296th (Pending Class of Action Determination). Numerous RRR Studies, Rickenbacker Causeway Lane Repurposing Study, NW 27th Avenue Express Bus Service Study.

DADELAND SOUTH PARKING LOT EXPANSION, MIAMI-DADE TRANSIT, PROJECT REFERENCE: ORLANDO CAPOTE, 786-469-5248: Engineer of Record for site planning for the design of the parking lot expansion with over 98 parking spaces and the existing parking lot with over 180 parking spaces. Designed paving, grading, lighting, and drainage systems. Laid out the concept plans and ADA accessibility route for the entire parking including the existing lot. Prepared drainage report, pavement design, direction driveway access design, and coordinated the dry run permitting and landscape design. Water quality attenuation was provided through exfiltration trench. Performed drainage calculation and generated drainage report. He performed the permitting process with DERM, FDOT, MDPWD and Miami Dade County Building Department. Duration: 2008 –2009

I-95 SOUTHBOUND RIGID PAVEMENT REHABILITATION PROJECT FROM NW 103RD STREET (MP 8.823) TO NW 125TH STREET (MP 10.195), PROJECT REFERENCE: JASON CHANG, P.E., 305-470-1533, Jason.Chang@dot.state.fl.us: Project Manager for the rehabilitation of the existing concrete pavement of southbound mainline I-95 and three ramps. Responsibilities include but not limited to coordination with FDOT Maintenance and Traffic Management Center, coordination of personnel for the design activities and supervision of design of roadway and Maintenance of Traffic. Duration 2013 – 2015

NE 2ND AVENUE FROM NE 84TH STREET TO NE 91ST STREET – TOTAL RECONSTRUCTINO, PROJECT REFERENCE: PROJECT MANAGER LUIS BALDO, 305-375-2111, Baldo@miamidade.gov: Served as Lead Designer responsible for development of plans to 90%. Project included design for drainage, lighting, signalization, roadway reconstruction as well as public involvement. Duration: 2016-2017

Adebayo Coker, PE

SR 821 HEFT ROAD STREET (SUNSET DRIVE) TO SW 40TH STREET (BIRD ROAD) – SIGNALIZATION & UTILITY RELOCATIONS, FP ID Nos. 427146-1-5601 AND 42146-1-52-01 FDOT DISTRICT 6, MIAMI, FLORIDA, PROJECT REFERENCE: STEPHANIE SHARP, 407-384-4412, stephanie.sharp@dot.state.fl.us: Served as Design-Build Project Manager for signalization design and improvements for ten (10) signalized intersections. Design includes news signalization loops and assembly, new and relocated signal heads, pedestrian heads and detectors, sign panels including internally illuminated signs, video monitors, mast arms and traffic controller assembly. Also served as Project Manager for utility line relocation of 2,500 feet of 8-inch water line and 900 feet of 4-inch sewer line. Duration July 2014 – ongoing (90% plan stage)

NW 36TH STREET BRIDGE BETWEEN LEJUENE ROAD (NW 42ND AVENUE/STATE ROAD 953) AND OKEECHOBEE ROAD (US 27, STATE ROAD 25) MOT, FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), DISTRICT 6, MIAMI-DADE COUNTY, FLORIDA, PROJECT REFERENCE: DANIEL IGLESIAS, P.E., 305-470-5289, daniel.iglesias@dot.state.fl.us: Served as Project Manager to perform MOT for the proposed bridge improvements i.e. converting the existing 4 lane bridge to 5 lane divided bridge, two lanes eastbound and three lanes westbound. FDOT plans to close the bridge to expedite the construction. Prepared the Maintenance of traffic and Detour Plans and construction documents for the roadway closure. Performed analysis of a maximum three viable detour alternatives and produced one complete set of MOT documents for the preferred MOT alternative to close NW 36th Street for a maximum of 6 months. Duration: 10/2010 – 2013

SW 147TH AVE. FROM SW 17TH STREET TO SW 26TH STREET, MIAMI-DADE PARKS & RECREATION: RPOJECT REFERENCE: LYDIA SALAS, 305-755-5456, Lydia.Salas@miamidade.gov: Responsible for the design of the horizontal and vertical alignment, storm drainage system, cross sections, drainage structures for the proposed reconstruction project of 0.5 mile. Project required extensive coordination with South Florida Water Management District and DERM to acquire the environmental permits for the proposed construction. Also generated signing and pavement marking plan, lighting and traffic control plans. Duration: 6/2009 – 2014

I-595 CORRIDOR ROADWAY IMPROVEMENTS PROJECT, AECOM/FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), DISTRICT 4, BROWARD COUNTY, FLORIDA: PROJECT REFERENCE: REY RIVAS, 305-594-0457: Performed interdisciplinary coordination of structural, geotechnical, utilities, drainage, MOT, SUE, and surveying for this Private-Public Partnership project (P3) which extends from I-75 to I-95. The project length was approximately 14 miles. Reviewed engineering design plans for roadway, utilities, drainage, ITS, signalization, structures, TCP and lighting. Coordinated and scheduled survey, geotechnical, CCTV, and SUE field activities. Oversaw project scheduling, cost estimate, weekly design meeting, permits, landscaping, roadway, ITS, Geotechnical reports, miscellaneous structures, bridge, emergency access gate design, power design plan submittal packages. Attended meeting with local municipalities and permit agencies to present project and report status. Performed public involvement and attended public meetings. Supervised design activities and coordinated personnel. Duration: 3/2009 – 2014

NW / SW 12TH AVE. FROM SW 13TH TO NW 7TH STREET, FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT), DISTRICT 6, MIAMI-DADE COUNTY, FLORIDA: PROJECT REFERENCE: HAROLD DESDUNES, 305-470-5271: Served as Project manager for a RRR Milling and resurfacing project with slope correction, drainage, traffic calming, and ADA sidewalk construction. The construction cost of the project was $7,294,000. Responsible for the design and preparation of construction plans including roadway plans, signing & pavement marking, MOT, drainage, cross sections, signalization, grading, and traffic calming bulbouts. Duration: 8/2005 – 4/2007

GREGORY A. PRYTYKA, PE

Transportation Demand Management, Traffic Studies, Analysis & Microsimulation

HBC TENURE: 1 year

INDUSTRY EXPERIENCE: 38 Years

EDUCATION:
B.S., Engineering,
University of South Florida, *1981*

PROFESSIONAL EXPERIENCE:
HBC Engineering Company
Traffic Engineering Director, *2018 present*

The Corradino Group
Sr. Project Manager/Chief Engineer,
2017 2018

F.R. Aleman & Associates, Inc.
Senior Project Manager, *2014 2017*

Florida Department of Transportation
Roadway Design Engineer, *2011 2014*

A&B Engineering, Inc.
Vice President/Director of Engineering,
2003 2011

PROFESSIONAL REGISTRATIONS:
Professional Engineer in Florida No. 36868

AFFILIATIONS:
Fellow, Institute of Transportation Engineers

PUBLICATIONS:
Guidelines for the Landfill Disposal of Solid Waste, for USEPA
Federal and State Environmental Regulations Impacting Synthetic Fuels Development, for USDOE

OFFICE LOCATION: Doral, FL

KEY PROJECTS

NORTH MIAMI DOWNTOWN CONCEPT PLAN, CITY OF NORTH MIAMI, FL, PROJECT REFERENCE: TANYA WILSON, AICP. (305) 895-9828, twilson@northmiamifl.gov: Provided master planning and conceptual construction plans for two Greenway Trails and 6 municipal parks including a bandshell.

MIAMI DADE COUNTY VISION ZERO PLAN, TRANSPORTATION PLANNING ORGANIZATION (TPO) – MIAMI-DADE COUNTY, FL, PORJECT REFERENCE: KEVIN WALFORD, (305) 375-4507, kevin.walford@mdtpo.org : – Primary author of the Vision Zero Plan for Miami-Dade County which seeks to eliminate all traffic-related fatalities by the year 2030. The project included county-wide crash records processing to identify high-incident locations and developing mitigative efforts to eliminate fatalities. The Vision Zero Plan was adopted by the MDC Board of County Commissioners.

MARINE ACADEMY OF SCIENCE & TECHNOLOGY (MAST), WOLFBERG ALVAREZ & PARTNERS/MIAMI-DADE COUNTY PUBLIC SCHOOLS DISTRICT, MIAMI-DADE COUNTY, FL, PROJECT REFERENCE: MARCEL MORLOTE, (305) 666-5474, mmorlote@wolfbergalvarez.com: The MAST is a proposed 600-student Magnet High School to be sited on the Florida International University, Bayfront Campus. Mr. Prytyka prepared the Traffic Impact Statement for the application for development approval. The analyses supporting the statement included trip generation, trip distribution, trip assignments, capacity and Level of Service report for the surrounding network and signals.

FDOT DISTRICT 6, SR 25/US 27/OKEECHOBEE ROAD FROM MIAMI-DADE COUNTY LINE TO SR 826, MIAMI-DADE COUNTY, FL, PROJECT REFERENCE: BAO-YING WANG, P.E. (305) 470-5211, baoying.wang@dot.state.fl.us: Project Engineer in responsible charge of overall corridor review of roadway design, signing and pavement markings, signalization, and ITS plans for the reconstruction of this 10-mile section including four major interchanges. New conceptual designs were developed to improve traffic operations and increase capacity.

FDOT DISTRICT 6, HIALEAH FREIGHT STUDY: Project Manager and engineer of record for data collection activities supporting a freight mobility plan for the city of Hialeah, Florida. Data collected included turning movement counts at 29 intersections over a period of 7 days within 3 weeks.

FDOT DISTRICT 6, SR 90/US 41/SW 8TH STREET ASCT PILOT PROJECT FROM SW 132ND AVE. TO SW 62ND AVE, MIAMI-DADE COUNTY, FL, PROJECT REFERENCE: JAVIER RODRIGUEZ, P.E. (305) 640-7307, javier.rodriguez@dot.state.fl.us: Project Manager and EOR for the first Adaptive Signal Control Technology (ASCT) system installed in District 6. This design-build project was an implementation of Rhythm Engineering's InSync system at 29 intersections along the project corridor and included

replacement of all traffic signal controllers and cabinets, new HD CCTVs, new conduit and pull box subsystems, upgrading pedestrian features and ADA retrofits. The InSync system optimizes not only progression and local signal timings, but also optimizes phasing using high definition video cameras to measure queues. Placement of the high definition video cameras is critical, and coverage plans were prepared to minimize the possibility of occlusion. Video cameras were mounted on both span wire and mast arm installations. This major project progressed from Notice to Proceed to Release for Construction plans in just over 6 months. Duration: 2016 – 2017

FDOT DISTRICT 1, I-75 AT UNIVERSITY PARKWAY INTERCHANGE, MANATEE COUNTY, FL, PROJECT REFERENCE: DONNIE HOLCOMB, (941) 342-2705, donnie.holcomb@hdrinc.com**:** ITS Project Manager and EOR as a sub-consultant to HDR. This project represents construction of the first Diverging Diamond Interchange (DDI) in the State of Florida. Mr. Prytyka provided ITS design which included relocation and replacement of ITS devices affected by the roadway construction, new ITS devices, new ATMS devices, relocation of 2,500 feet of Fiber Optic Cable, and Installation of 4,500 feet of new 96 count Fiber Optic Cable. Mr. Prytyka served as ITS Project Manager and EOR. Duration: 2016-2017

FDOT DISTRICT 2, SR 23 (FIRST COAST EXPRESSWAY) CLAY & DUVAL COUNTIES, FL, PROJECT REFERENCE: XAVIER ARROYO, (407) 563-6260, xavier.arroyo@tylin.com**:** SR 23 is a 7.8-mile new toll facility being constructed in the Jacksonville Metro Area. Mr. Prytyka served as ITS Project Manager and EOR for the ITS plans which included CCTVs, MVDSs, DMSs, TTSs, Local, Master Hubs, and dual 96 count fiber optic cable for ITS and Tolls for the length of the project. Duration: 2014-2016

FDOT DISTRICT 2, I-295 EXPRESS LANES, DUVAL COUNTY, FL, PROJECT REFERENCE: ERIC SHIMER, (904) 360-5661, eric.shimer@dot.state.fl.us**:** This project includes the widening of 7.5 miles of I-295 in the Jacksonville Metro Area from an existing six-lane section to an eight-lane section including express lanes. Mr. Prytyka served as the ITS Designer for this $90,000,000 Design-Build project. The ITS system provides CCTVs, MVDSs, and DMSs on the Buckman Bridge. Mr. Prytyka served as Project Manager and EOR for the ITS component of this project. Duration: 2014-2016

FTE, VETERANS EXPRESSWAY SECTION 4 GUNN HIGHWAY TO SUGARWOOD, HILLSBOROUGH COUNTY, FL, PROJECT REFERENCE: ERIC GORDIN, P.E. (407) 264-33164, eric.gordin@dot.state.fl.us: This 1-mile section of SR 589/Veterans Expressway is being reconstructed to include express lanes. Mr. Prytyka provided ITS plans which includes interface with the master hub at the Sugarwood Toll Plaza. Intense coordination was required to ensure all ITS and tolling devices were served with the necessary infrastructure. Mr. Prytyka was ITS Project Manager and EOR for this project. Duration: 2014-2015

FDOT DISTRICT 5, I-95 FROM SR 44 TO US 92, VOLUSIA COUNTY, FL, PROJECT REFERENCE: TUSHAR PATEL, P.E. (386) 943-5315, tushar patel@dot.state.fl.us**:** The entire ITS system for an approximate 13-mile segment of I-95 was upgraded to include all new MVDSs, CCTVs, TTSs, fiber optic backbone, new cabinets, and a master hub at the I-95/I-4 interchange. Mr. Prytyka was ITS Project Manager and EOR for this project. Duration: 2014-2015

CITY OF NORTH MIAMI, DOWNTOWN CONCEPT PLAN, MIAMI-DADE COUNTY, FL, PROJECT REFERENCE: TANYA WILSON-SEJOUR, AICP (305) 895-9828, Tsejour@northmiamifl.gov**:** Mr. Prytyka provided engineering design and cost estimates for the conceptual plans for the Downtown Concept Plan. The conceptual designs included four parks and three Green Trails. This illustrative Report for Key Elements of the Downtown Concept Plan focuses on civic improvements promoting strategic redevelopment within the boundaries of the Downtown District, as recommended by the City's Downtown Master Plan. Duration: 2017

CITY OF HOMESTEAD, TRAFFIC IMPACT STATEMENT REVIEWS, MIAMI-DADE COUNTY, FL, PROJECT REFERENCE: CATE MCCAFFREY, (305) 224-4403, catemccaffrey@cityofhomestead.com**:** Mr. Prytyka provided peer reviews of traffic impact analyses submitted to the city for various medium to large developments throughout the city. Duration: 2017-2018

MIAMI-DADE COUNTY PUBLIC SCHOOLS, MARINE ACADEMY OF SCIENCE AND TECHNOLOGY, (MAST) TRAFFIC IMPACT STATEMENT, MIAMI-DADE COUNTY, FL, PROJECT REFERENCE: BEN WEINSTEIN, (305) 995-4250, bweinstein@dadeschools.net**:** Mr. Prytyka prepared a complete Traffic Impact Analysis for a new 1,200 student High School on the campus of Florida International University, Biscayne Bay. This project included traffic data collection, future traffic forecasting, trip generation studies, trip assignments, and capacity analyses. Duration: 2017

DAVID COKER

Transit Planning Data Collection/Analysis

HBC TENURE: 3 Years

INDUSTRY EXPERIENCE: 3 Years

EDUCATION:
BS, Civil Engineering
Florida International University, 2018

PROFESSIONAL EXPERIENCE:
HBC Engineering Company, Miami, FL
Principal in Charge
2016 Present

Florida International University Parking and Transportation Department, IT Specialist
2014 2016

TRAINING & CERTIFICATIONS:

OFFICE LOCATION: Miami, FL

KEY PROJECTS

MIAMI-DADE COUNTY, BUS EXPRESS RAPID TRANSIT, SMART PLAN BUS EXPRESS RAPID TRANSIT (BERT), PROJECT REFERENCE: ODALYS DELGADO, (305) 507-5583, Odalys.Delgado@parsons.com: Traffic Engineer responsible for conducting traffic control analysis by comparing measures of effectiveness at multiple signalized and unsignalized intersections, arterial corridors, and urban networks. Task was performed by supervising the data collection phase which encompassed the set up and dismantling of Miovision Cameras to record turning movement counts (TMC) and automatic traffic recorder (ATR) tubes to record speed-volume data at key intersections. Responsibilities also included updating and processing results through Miovision's Data Link Software. Utilized the latest versions of Synchro, and Vissim to analyze the effects of the interaction of multiple modes on the operational efficiency of any combination of roadway elements. Performed optimization and microsimulation of subject intersections to more closely examine the operational and safety effects of various improvement options while simultaneously incorporating pedestrian, bicycle, motor vehicles and transit. Utilized transit microsimulation capabilities such as transit signal priority to optimize the balance between mobility and safety in both urban and rural scenarios.
Duration: 2019-ongoing

PLANS REVIEW, FDOT DISTRICT 6: PROJECT REVIEWED:

- **SR 9A/I-95 NB FROM BISCAYNE RIVER CANAL TO SR 860/MIAMI GARDEN DR**
- **HIALEAH GRDNS BOULEVARD FROM SOUTH OF WEST 84 STREET TO NW 138 STREETX**
- **US 1 SIGNALIZED INTERSEC. LIGHTING FM LEJEUNE RD TO SE 4TH STREET**
- **KROME AVENUE FROM SW 136 STREET TO SW 88 STREET**
- **SR 9/NW 27 AVENUE OVER MIAMI RIVER BRIDGES 870731 & 870763**
- **SR 934/NE 82 St from NE 4 Place to SR 5/US-1/Biscayne Blvd**
- **SW 336 ST/DAVIS PKWY FROM SR 997/KROME AVENUE TO US 1 (TRUCK BYPASS)**
- **SR 9/NW 27 AVENUE FROM NW 23 STREET TO NW 26 STREET**

DAVID COKER
Transportation Data Analyst

- **PALMETTO EXPY FROM E. OF NW 42 AVE TO E. OF NW 32 AVE**
- **SR 5/OVERSEAS HIGHWAY AT SUGARLOAF KEY FROM MM 15.46 TO MM 20.14**
- **WEST FLAGLER STREET FROM SW 27 AVENUE TO SW 14 AVENUE**
- **KENDALL DRIVE FROM SW 77 AVE TO US 1**
- **PALM DRIVE FROM SR 997/KROME AVE TO SR 5/US**

CADD Technician responsible for plan reviews to comply with specifications, FDOT Design Standards and District 6 requirements for roadway, signing and pavement marking, lighting, signalization, ITS, structure, and landscape plans. Duration: 2016-Present

Bethany Long, AICP

STANDARD OPERATING PROCEDURES ASSESSMENT/DEVELOPMENT; SAFETY/ SECURITY ASSESSMENTS, RESEARCH & PLANNING

Years of Experience: 17 **| Education:** BA – Production Management **| Certifications:** AICP; OSHA 30-hr

Ms. Long is a certified planner with more than 17 years of experience in planning, design, and construction administration. Her career has been focused on transportation, with an emphasis on facility design for transit. She has worked as a quality reviewer, project manager, senior designer, and senior planner on numerous facilities for various agencies. She also worked for the Greater Cleveland Regional Transit Authority as the Planning Team Leader responsible for the coordination and delivery of facilities projects.

Quality Assurance Manager, Fire Protection, Chicago Transit Authority (CTA), Chicago, IL. This project is being performed under our general engineering contract with the CTA. The project scope encompasses fire protection design and engineering for the vehicle maintenance facility at the 63rd Storage Yard. Ms. Long works closely with CTA engineering and construction staff and monitors that all work is in conformance with CTA quality requirements.

Construction Administration, Red Line Bus Rapid Transit (BRT) National Environmental Policy Act (NEPA) Services, Design and Construction Service, IndyGo, Indianapolis, IN. CDM Smith was selected to lead the NEPA documentation, design and construction services for the Red Line BRT, a 35-mile corridor that runs through urban and suburban areas, including civic, commercial, entertainment, and residential developments. An initial 13-mile segment ($96M) is currently under construction. Ms. Long led the construction administration phase of the project, overseeing CDM Smith and subconsultant staff on RFI responses and design issues. She was responsible for ensuring all quality review processes were completed. Ms. Long also assisted the agency with commissioning and Safety and Security Certification.

Project Manager, Bus Hoist Improvements, CTA, Chicago, IL. Ms. Long was the project manager for the design and construction administration services to install new bus hoists and inspection/wash pits at all eight of the CTA maintenance facilities. Work was coordinated with the CTA bus operations to arrange the new equipment in a manner that would better facilitate work in the facilities. This included design revisions after the installation of the first set of lifts for subsequent garages in the bidding/design phases to incorporate lessons learned. Ms. Long wrote the Design and Construction Administration phase Quality Management Plans and was responsible for ensuring their compliance by the design team, including all subconsultants. This project was completed while with a previous employer.

Project Manager and Senior Planner, Various Rail Stations, Greater Cleveland Regional Transit Authority, Cleveland, OH. Ms. Long managed the planning and design of major station reconstruction projects. Her work efforts ranged from design and compliance review to public meetings, planning commission coordination, public art coordination, and environmental documentation. She provided A/E firm specific agency requirements for the facility and ensured compliance with agency operational and maintenance requirements. She ensured that the designer for each project followed internal quality procedures and managed the cross-department quality reviews within the agency. All of the rail stations went through the Safety and Security Certification process, co-managed by the GCRTA Safety and Engineering departments. This project was completed while with a previous employer.

Project Manager, Danville Transit Center, Danville, IL. Ms. Long managed the final design for a new bus transfer facility. The new center provided an enclosed waiting area and parking for eight buses. The building included solar energy and state of the art communications systems. Ms. Long managed the design by internal and subconsultant staff, including adherence to Quality Management process. This project was completed while with a previous employer.

Lead Designer and Quality Control Coordinator, Laketran Administration, Operations, and Maintenance Facility Expansion, Painesville, OH. Ms. Long was the lead designer and quality coordinator on the expansion of the existing Laketran administration, operations, and maintenance facility. Work efforts involved programming, conceptual design, document development, and construction administration to expand the maintenance and operations areas and renovate the administration area. Work involved retrofitting two bus lifts, parts storage expansion, and construction of a dispatching center with adjacent driver's welfare area. This project was completed while with a previous employer.

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STANDARD OPERATING PROCEDURES ASSESSMENT/DEVELOPMENT; SAFETY/SECURITY ASSESSMENTS, RESEARCH & PLANNING

Deputy Project Manager, University-Cedar Rapid Transit Station Reconstruction Design Cleveland, OH. Ms. Long was the deputy project manager for the Authority managing the planning and design of the major station reconstruction project. The University-Cedar Rapid Transit Station is the key station for RTA within in the University-Circle area. It not only has the rail passenger platforms, it is one of the largest bus transfer areas on the east side of Cleveland. Lying within Rockefeller Park, the station design is integrated into the area, including the provision of a green roof system for the rail headhouse structure and a public plaza. An amalgamation of different facilities for rail and bus on different sides of a pedestrian unfriendly arterial street, the planning for the station recommended a complete relocation of the bus terminal to enhance non-motorized access and rationalize the bus area. The station has a goal of LEED® Silver certification. Primary work efforts involved public meeting, design review, and planning commission coordination; review of planning and design for compliance with RTA operational and maintenance requirements; coordination of environmental documentation within a park area; public art coordination; and providing A/E firm specific RTA requirements for the facility. This project was completed while with a previous employer.

Deputy Project Manager, E55th Rapid Transit Station Reconstruction Design Cleveland, OH. Ms. Long was the deputy project manager for the Authority managing the final design document development for the reconstruction of a major rail facility. Located at the GCRTA Central Rail Maintenance Facility, the E55th Rapid Transit Station is only one of two stations located on the joint operating territory of both the heavy and light rail transit systems. The location required an extensive program for separate high and low boarding platforms, yard access, and patron access via a pedestrian bridge to a station building with bus loop and parking. Complicating the project were excessively poor soil conditions and complex track geometry. She managed an extensive subsurface conditions analysis including field observation of track side drilling operations. Ms. Long also coordinated a complete review of operational and cost components of track geometry and platform options. She managed the final production of bid documents and assisted in the procurement and bidder review.

Project Manager, Transit System Administration, Operations, and Maintenance Facility Analysis, Janesville, WI. Ms. Long served as project manager and lead design for the schematic planning for a new administration, operations, and maintenance facility for the City of Janesville, Wisconsin transit system. The work involved the development of the facility requirements and program through a series of interviews and site visits. In conjunction, a site selection analysis was performing in close coordination with the City to determine the feasibility of several potential locations. The program was translated into a “Greenfield” facility as well as considered for integration into the existing public works and water department complexes. The work was completed in conjunction with a local architectural firm that provided coordination with previous city projects and local cost estimating.

Project Manager, CitiBus Administration, Operations, and Maintenance Facility Planning Study, Davenport, IA. Ms. Long served as project manager and lead planner for an analysis of combining the transit functions into the existing City Public Works facility. CitiBus was operating their administrative functions out of an outdated intermodal terminal in downtown Davenport. Maintenance functions were part of a joint facility with the Quad Cities located in Rockport. The project developed the program of requirements and analyzed how they could be integrated into the existing Public Works building. The project recommended two additions—one for the administrative and operations functions adjacent to the public works employee break area and lockers. For maintenance and bus storage, it was recommended that the existing sanitation truck bays be repurposed for transit for better circulation through a proposed bus wash and to relieve a capacity constraint.

Lead Designer, WAVE Transit Center, Administration, and Maintenance Facilities Study, Wilmington, NC. Ms. Long was the lead designer for a transit center, administration, and maintenance facility study for WAVE Transit. Initial project involved the development of the facility program and adoption of the administration, operations, and maintenance functions only to several sites under contract with the SCDOT. Subsequent work was contracted separately to look specifically at a parcel owned by an adjacent large industrial company. Constrained by wetlands, the front portion was to be developed into a transit center, with adjacency to a planned shopping complex. The administration, operations, and maintenance were planned to be integrated into an under-utilized former trucking facility at the rear of the property. Work involved the development of schematic level plans based on survey and environmental data with associated cost estimates.

Claire R. Baldwin, PhD

HUMAN RESOURCES & STAFFING; EMPLOYEE TRAINING & DEVELOPMENT PROGRAMS

Years of Experience: 27 **| Education:** PhD – Organizational Management; MS – Urban and Regional Planning; MA – Geography; BA – Geography; Certificate in Industrial/Labor Management

Dr. Baldwin is a specialist in organizational management and effectiveness. Her doctoral research has focused on industrial psychology, emotional intelligence in team communications dynamics, and enhancement behavior in performance. Her experience is grounded in urban and regional planning in its environmental, technical, regulatory, and financial aspects of municipal authorities and communities.

FEMA NY/NJ, EPHO Grants Program – Organizational Change Workshop Facilitator. FEMA's Environmental Planning and Historic Preservation grant program has evolved providing funding following natural disasters such as hurricane Katrina and Superstorm Sandy. Progression divergence between on-site teams and cross-state teams in the interpretation of FEMA guidelines resulted not only in varied application of the funding guidelines and inter-group conflict. A central goal was to explore the impressions of integrity between groups as there had been suggestions that some staff believed other groups were acting in an unethical fashion leading to much conflict and lack of communication. This workshop was held to reach a higher level of mutual understanding of the current vs. necessary state of affairs in the FEMA program.

US EPA Region 9 (Pacific Southwest) Facilitator. Dr. Baldwin facilitated workshop to explore EPA's method of addressing issues that arise regulating compliance with the Clean Water Act in US territories and holdings outside the United States. It had been noted that very often island communities such as Guam and Puerto Rico, have had low rates of successful compliance or organizational sustainability in knowledge management, which results in failure to meet the regulatory tenets of this Act. The facilitation explored the trends and themes across the Region 9 in an effort to collectively understand what options the agency has to enhance compliance and avoid regulatory legal action.

Organizational Advisor, Succession Planning, Workforce Engagement and Long Term Alignment for Sustainability, Camden County Municipal Utilities Authority, Camden NJ. Dr. Baldwin has worked as a direct advisor and facilitator to the leadership team at CCMUA in first clarifying and then developing an execution plan for the knowledge management and succession planning process the utility is undertaking. This work is being conducted in a knowledge transfer format to support and extend the knowledge base of the senior staff while also moving towards details development plans by job competencies and classes.

Organizational Optimization Consultant, Program Management Consultant Team, Puerto Rico Aqueduct and Sewer Authority, Puerto Rico. Dr. Baldwin has served as a key technical consultant and lead organizational facilitator on the development of an optimization program for a multi-year assignment in the automation development of the Puerto Rico Aqueduct and Sewer Authority (PRASA). This work has extended the theoretical effectiveness model of the facilitation of team interaction on a wide range of subjects from energy, chemical and warehousing optimization processes into the dynamics of staff strengthening, functional team development, and partnering with operations for optimization in support of PRASA's planned transformation efforts to address current operational challenges.

Institutional Capacity Building Specialist, Program Management Consultant Team, Guam Water Authority, Guam. Dr. Baldwin provided executive stakeholder facilitation and insight in the development of a utility wide process for developing the capacity of staff to ensure a sustainable future. Working with subject matter experts, her team created standard operating procedures as well as developing knowledge capture methods and enhance the technological capacity of the organization to manage its' knowledge and processes in order to meet the EPA consent goals for the Island.

Strategic Planning Retreat Facilitator, New York Water Environment Association. This facilitated day-long retreat was aimed developing a group vision and rough draft of a strategic plan at a not-for profit industry group. Issues of concern ranged from membership engagement, to future trending in the industry, membership industry and volunteer roles driving working committees. Participants ranged across all educational levels and areas of the state as well as varied professional roles within the water and wastewater industry. A scenario planning methodology was used to explore the key themes with both 5- and 10-year planning horizons.

Claire R. Baldwin, PhD

HUMAN RESOURCES & STAFFING; EMPLOYEE TRAINING & DEVELOPMENT PROGRAMS

Business Technology Strategic Planning Retreat Facilitator. This 2.5-day retreat was held with the dual focus of team building among a divided stakeholder group (operations, innovation and destructive technology) as well as framing the themes and goals of a functional strategic plan for the upcoming year. As a group, this team was responsible for the business technology functions of a 1.6 billion business. Finding a way to manage the group conflict creatively while supporting innovative use of new technology was critical to the group and a key desired outcome of the retreat.

Facilitator, Parents Apart, NYS Pilot Program Putnam County, NY. Originated in 2005, by the New York State Unified Courts, and piloted in Putnam County NY in 2008. This Program was designed to educate divorcing or separating parents about the impact of their breakup on their children. As a pilot trainer, Dr. Baldwin was trained to create a safe and open a participatory environment, how to model a positive attitude that would enhance the participants creativity in problem solving and allow them to explore alternative outcome in these stressed relationships.

Organizational Specialist, Cincinnati, Ohio, Program Management Consultant Team, Cincinnati, OH. Dr. Baldwin provided organizational facilitation in the realignment of wastewater engineering teams within the design and contrition program to support the $2B wet weather improvement program for the Cincinnati Metropolitan Sewer District. As part of this process, Dr. Baldwin worked with the on-site technical teams to ensure that the procedures accurately reflect the needs of the project and that supported them forming partnership that reflect both the right roles and responsibilities while been properly aligned with the programmatic needs.

Lead Facilitator and Strategy Task Leader, Broward County Solid Waste Master Plan, Fort Lauderdale, FL. Dr. Baldwin provided the technical lead facilitation on the partnering based process of the creation of a long-range strategic business plan for the Broward County Solid Waste District which was undertaking a renewal of its Interlocal agreement (ILA) Dr. Baldwin conducted a series of interactive workshops with member communities to explore the various barriers to renewal of the ILA partnership that had been highlighted from the membership survey. Chief among these dialogues was the revision of the mission to reflect “green” technologies as well as how to increase organizational transparency under the governance system and customer value.

Strategic Analyst and Lead Facilitator, Strategic Development, City of Palm Bay Vision Plan, Palm Bay, FL. Dr. Baldwin was a principal author and lead facilitator in the process including the development of public planning workshops with stakeholders to address community concerns. The workshops provided the public with an opportunity to take a direct and influential role in planning the future of their community, developed essential information for the scenario-planning element of the project.

Terri Slack

HUMAN RESOURCES & STAFFING; ELECTRONIC FARE COLLECTION SYSTEMS PLANNING

Years of Experience: 21 | **Education:** MBA; BA – Political Science, Economics

With an extensive background in public finance and the delivery of large toll programs, Ms. Slack brings a unique perspective to transportation financing. She has helped clients such as the Georgia State Road and Tollway Authority and the Washington State Department of Transportation (WSDOT) secure funding for capacity improvement and infrastructure projects, including helping WSDOT implement toll financing on Seattle, Washington's State Route 520 to increase roadway capacity. She has served on the Board of Directors for the International Bridge Tunnel and Turnpike Association as well as serving as its Vice Chairman of Audit Committee.

Technical Support, Traffic Engineering Retainer Contract, New Jersey Tunrnpike Authority (NJTA), NJ. CDM Smith was tasked by NJTA to provide a Scope of Work (SOW) to determine if the current process of handling Image Tolls (iToll), Violation Tolls (vToll) and Violations can be improved. With Terri's expertise in toll operations and process improvements, Terri is assisting the CDM Smith team in analyzing the data to determine if and where improvements can be made. CDM Smith will prepare a "long list" of policy alternatives that could be utilized to limit the iToll, vToll, and Violations related revenue losses.

Technical Support, All Electronic Conversion Cost Analysis - November Traffic and Revenue Forecasting Services, Maryland Transportation Authority (MDTA) Toll Facilities, MA. Ms. Slack provided project support drawing from her extensive knowledge of budgetary oversight for toll authorities with demonstrated experience in the implementation of organizational, process, and operational improvements. She is providing technical oversight and management for the work in the All Electronic Tolling Conversion Cost Estimates.

Senior Vice President of Finance and Accounting/CFO, Citizens Property Insurance Corporation, Tallahassee, FL. Ms. Slack was responsible for financial services for a 1.2M policy holder residual market entity. Provided oversight of the financial operations of $3B in operating organization. She coordinated a $3B financial transaction in preparation of the 2006 hurricane season, including the investment of the proceeds. She also managed purchasing, facilities, and corporate analytics. This project was completed while with a previous employer.

CFO, Orlando-Orange County Expressway Authority, Orlando, FL. Ms. Slack was responsible for the financial operations of the organization with $188M in annual operating revenue while gaining experience in innovative financing, governmental practices, as well as developing skills comparable to Associate (Deputy) Executive Director. Prepared the financial plan and implemented the funding for a $1.4B five-year capital improvement plan. Coordinated and implemented a $1.1B revenue bond issuance in 2003—the largest in the southeast United States—as well as a $500M revenue bond issuance in 2005. Provided oversight of all financial and administrative departments including finance, information technology, human resources, and business development. This project was completed while with a previous employer.

National Toll and Finance Program Manager, Seattle, WA. Ms. Slack was the HOV to HOT conversion program manager responsible for all aspects of the project. She served as project manager for a feasibility study to replace the back-office systems and customer service center operations resulting in a client-funded $28M project. She was responsible for managing projects of all sizes in both budget, scope, and schedule ranging from 30 days at $30,000 to 11 years at $6M. Ms. Slack was program manager to the Washington State Department of Transportation (WSDOT) Toll Division providing strategic advice and project management and controls throughout the state. Projects included SR 520 toll point installation, oversight of back office system implementation (2011), and back-office system procurement as well as the I-405 Express Toll Lane Project. She served three times as Interim Finance Director for the WSDOT Toll Division during state recruitment of the position. She was project manager of traffic and revenue studies for two clients as well as certified project manager for large scale projects. This project was completed while with a previous employer.

Kevin Soloka

TRANSIT ASSET MANAGEMENT

Years of Experience: 4 **| Registration:** Engineer in Training **| Education:** ME, BS – Civil Engineering

Mr. Soloka a civil engineer with experience with traffic simulation and safety, highway geometric design, transportation studies and planning, and application of Arc-GIS in transportation. His software skills include Microstation, AutoCAD/Civil 3D, HEC-RAS, VISSIM, Synchro, HCS/HCM, Arc-GIS, Trans CAD, Visum, MatLab, R and Python, SPSS, and Stata.

Traffic Engineer, Transit Asset Management, WeGo Public Transit, Nashville, TN. WeGo Public Transit was one of many transit agencies that had to create a Transit Asset Management as part of new FTA regulations for federal fund recipient agencies. Mr. Soloka worked on assessing transit inventory data and conducted multiple field inspections on both rail and bus providers facilities. He assisted in rating the existing conditions of the assets onsite and what recommendation are required for some of the sites and facilities.

Traffic Engineer, Standard Guidelines, WeGo Public Transit, Nashville, TN. Mr. Soloka assisted in preparing transit guidelines for bus stops and standards of best practices for WeGo Public Transit, Nashville TN. His responsibilities included preparation of bus-bike facility or stops drawings while ensuring ADA requirements are strictly met. Working with other multiple experts, he assisted in collecting and exploring existing transit guidelines and state and local requirements for the specific shared cycle track bus stops.

Designer, Mt Juliet Park and Ride, WeGo Public Transit, Nashville, TN. Using AutoCAD Civil 3D, Mr. Soloka assisted in preparation of plans for 60% design for Mt. Juliet Park and Ride facility expansion. This project required CDM Smith to create site layout plans, design and grade and erosion control plans for the new facility. Mr. Soloka worked on specific design components of the project including site layout, minor erosion control plans, and details of the drainage.

Transit Shelter Designer, Nolensville Shelters, WeGo Public Transit, Nashville, TN. Mr. Soloka has also worked in preparing bus shelter facilities and design for Nolensville road shelter improvements. He facilitated CAD drawings with AutoCAD C3D to develop design shelter stop and sidewalk improvements on 20 different site locations. He worked to identify and provide shelter placement and design.

Traffic Analyst, I-526 Lowcountry Country Corridor, South Carolina Department of Transportation (SCDOT), SC. Mr. Soloka collected, interpreted and analyzed traffic data obtained from SDOT quality counts and tubes and assisted in preparation of a data collection memo. He specifically checked the volumes counts and provided volumes balance estimates for the movement of traffic. He also participated in creating the LOS figures as well as the volume counts figures.

Traffic Analyst, Spartanburg Area Transportation Study (SPATS) Intersections, SCDOT, SC. The SPATS project involved the improvement of intersection between SC9 and Boiling Springs in Spartanburg, SC. Mr. Soloka checked the traffic and utilized Synchro to analyze the effects on traffic for proposed improvements. He worked in preparing the volume memo and traffic growth memo for the intersection changes.

Traffic Analyst, Library Drive Improvements, Lexington, KY. Mr. Soloka developed a microsimulation model to analyze traffic operations including pedestrians for a proposed roundabout intersection on Library Dr at the University of Kentucky. He additionally evaluated the impact of the proposed roundabout to the adjacent signalized intersection at Limestone Ave.

Site Designer, Wescott Boulevard Parking Expansion, Knox County, TN. Using AutoCAD Civil 3D, Mr. Soloka assisted in the preparation of plans for 100 percent design for a parking lot site in Knox County. This project required CDM Smith to create site layout plans, design and grade, and erosion control plans for additional parking in an existing site. Mr. Soloka worked on specific design components of the project including site layout, minor erosion control plans, and details of the drainage.

Roadway, Hoagland Blvd Alternative Concepts, Kissimmee, FL. Using AutoCAD Civil 3D, Mr. Soloka assisted in the preparation of conceptual plans and alignment improvements for Hoagland Boulevard. The concept included an intersection improvement and an additional reverse curve component on a 3-mile road. Mr. Soloka worked on specific alignment design components and some concept CAD preparations for the project.

James E. Livermore, CISA, CRISC

SAFETY/SECURITY ASSESSMENTS, RESEARCH, PLANNING

Years of Experience: 30 **| Education:** BS – Business Management, AS – Information Systems **|Registration:** Certified Information Systems Auditor (CISA), Certified in Risk and Information Systems Controls (CRISC)

Mr. Livermore is a senior information technologist with 30 years of global experience in IT operations, compliance, security, audit, and risk management. He oversees CDM Smith's Global Information Security Department and is an innovative and progressive change leader who specializes in assessments, strategy and planning, project design, process improvement, and employee training across municipal, federal, and commercial sectors; including healthcare, global supply chain, consumer products, and government. Mr. Livermore also has an extensive history providing guidance and support to many organizations on security risk assessments, compliance requirements, data protection, design and hardening of Industrial Control Systems and SCADA networks, emerging technologies, and security awareness training

IT Security Reviewer, Microsoft Hololens Security Hardening. The project involved reviewing security aspects and identifying potential vulnerabilities of the Microsoft Hololens, which resulted in updates to the operating system and supporting software to more effectively secure the device.

Lead Technical Architect, Production Build Documentation Automation Project. The project consisted of replacing a manual based labor-intensive production build documentation process with a computer-generated based process. Metadata CAD files were merged with product design data and bill of material (BOM) information to create a color keyed, three-dimensional assembly aid that could be accessed on video monitors at build stations throughout the plant. Mr. Livermore presented the concept to management and was the lead technical architect for the project. The project resulted in a significant reduction in build times, while also greatly improving quality. The project was so successful funding was quickly approved by the Board of Directors and subsequently implemented at all plants globally.

Technical Team Leader, Air Defense System Upgrade Project. Mr. Livermore performed as technical team leader in the design, installation, and testing of a large scale technology project involving the replacement of a country's 40-year-old air defense system with a completely new state of the art system. It included the installation and testing of computer technology at more than sixty sites with two-way encrypted communication to local, regional, and central command centers.

IT Security Professional, Hartford MDC SCADA Living Model Project, Hartford, CT. The project consists of collecting data from the town's SCADA network, then applying data analytics principles to improve water flows in the city during peak periods. Mr. Livermore developed and coordinated the IT activities to set up a secured communication channel between the city and CDM Smith, which enabled data to be collected and utilized in a secure and efficient manner.

IT Reviewer, Springfield SCADA Network Upgrade, Springfield Water and Sewer Commission, Springfield, MA. This project involved adding additional remote sites to the city's SCADA network. Mr. Livermore assisted the town's IT department in reviewing the plans, proposed recommendations from a security perspective, and assisted in the successful presentation to management.

IT Security Consultant, Municipal Network Risk Assessments and Security Upgrades, Multiple Locations. Mr. Livermore has performed as a consultant to multiple municipalities and utilities in the evaluation of their network security and recommendations to harden it. This work typically consists of a comprehensive assessment to identify potential security vulnerabilities, followed by recommendations and report to town officials. Based on these projects, Mr. Livermore has prepared and given presentations on the security threats that commonly exist on town networks, and ways that towns can address these threats in a cost effective manner (Ref: IT Security Threats – Is Your Town Ready? and Town Employee Security Awareness Training).

Independent Technical Consultant, Town of Worcester Mobile Software Upgrades, Worcester, MA. Mr. Livermore acted as an independent technical consultant between the town's information security vendor and the software vendor to review security vulnerabilities found in the code and provide recommendations to resolve them. Mr. Livermore's direct involvement and expert understanding of the issues resulted in effective resolutions that both sides accepted, enabling the project to resume as planned.

Jessica S. Carroll, PE, PTOE

SYSTEMS INTEGRATION PLANNING; REGIONAL ITS ARCHITECTURE PLANNING; AV SYSTEMS PLANNING & INTEGRATION

Years of Experience: 21 **| Education:** ME – Energy Engineering; BS – Civil and Environmental Engineering **| Registration:** PE – IL **| Certifications:** Professional Traffic Operations Engineer

Ms. Carroll is a civil engineer with experience in transportation planning, transportation engineering, and intelligent transportation system (ITS) design. Her transportation planning experience includes preparing feasibility studies, environmental assessments and impact studies, traffic noise impact analysis, alternatives evaluation, and public involvement. Her transportation engineering experience includes traffic forecasting, traffic signal warrant analysis, highway capacity analysis, conceptual design, signing and marking plans, cost analysis, preparation of final construction documents, and resident engineering. Ms. Carroll's ITS experience includes reviewing and recommending current ITS technologies, ITS infrastructure placement and design, site planning, and developing PS&E packages.

ITS Lead, Illinois State Toll Highway Authority, General Engineering Consultant (GEC), IL. Ms. Carroll is the team lead for ITS unit for this GEC contract. Tasks include 5-year ITS strategic plan development for the Illinois Tollway including deployment, maintenance, and operations outlook; directing ITS team in design review, construction support/ walkthroughs, ITS base sheet and special provisions development and revisions; providing assistance in ITS research and best practice to assist in developing a toolkit for ITS strategies; and assisting with a connected vehicle pilot development and deployment on Tollway facilities.

Project Manager, Kane County Division of Transportation System Operations Manager, IL. Ms. Carroll serves as the project manager assisting in launching a new arterial operations center and creating the standard operating procedures to monitor and report on all KDOT maintained traffic signal systems and ATMS communications infrastructure. The contract also includes operational trouble shooting and responding to public complaints regarding traffic signal operation; electrical maintenance contractor (EMC) supervision; field inspection; engineering "peer" review of signal timing and optimization plans, traffic signal/ traffic signal/roadway lighting/ITS plans, catalog cuts, and the county's Traffic Signal Specifications Traffic Network Architecture, specifications, and other related standards and guidelines; project management and administration; and QA/QC.

Deputy Project Manager, City of Orlando Project 1900, Intelligent Transportation System, Orlando, FL. Ms. Carroll served as Deputy project manager during the 90 percent design phase, responsible for coordinating and finalizing 90 percent drawings for the ITS equipment installed as part of this design-build contract. She was also responsible for managing the design team and the QA/QC efforts. The partnership created with the prime design-build contractor and the City's representative were key elements to reducing redundant efforts and completing the submittal on schedule.

Project Engineer, Borman Expressway Fiber Optic Backhaul Replacement, Indiana DOT, Northeastern IN. Ms. Carroll serve as project engineer responsible for coordinating and finalizing as-built drawings for the ITS equipment installed as part of this design-build contract. She also responsible for managing the survey crew in the GPS inventory of ITS devices and working with the design-build contractor for verification of the construction plans. Collaboration with INDOT on the device annotation and GPS database format were important components to the success of the final submittal.

Project Engineer, US Route 12 (Rand Road) and IL Route 53/68 (Dundee Road), Illinois Department of Transportation, Northeastern IL. Ms. Carroll served as project engineer for redesigning the existing fiber optic interconnect equipment to accommodate the redesign of five traffic signals. Coordinated resetting the red-light running equipment and designing five temporary traffic signals. She also assisted in cost estimating for the temporary signal designs and interconnect installation.

Project Engineer, USH 41 ITS Design, Wisconsin Department of Transportation, Green Bay, WI. Ms. Carroll served as project engineer, Jessie providing support on communications design, temporary work zone ITS design, CCTV design, vehicle detection design, cost estimating, and QA/QC. The project provided preliminary and final design on USH 41 in Winnebago County from STH 26 to Breezewood Land; and in Brown County from Orange Lane to CTH M.

Project Engineer, Advanced Parking Guidance System, Phase 2, City of Milwaukee Department of Public Works, Milwaukee, WI. Ms. Carroll worked on Phase 2 of the expansion of the advanced parking guidance system for downtown Milwaukee. The system will collect parking availability information from several different parking facilities in the central

Jessica S. Carroll, PE, PTOE

SYSTEMS INTEGRATION PLANNING; REGIONAL ITS ARCHITECTURE PLANNING; AV SYSTEMS PLANNING & INTEGRATION

business district, process the data, and distribute it to the traveling public using electronic guidance signs and partner agencies via an Internet web page. System design included routing, sign layout, field inspections, software analysis, and public outreach.

Traffic Engineer, ITS Design Services Upon Request, Illinois State Toll Highway Authority, Northern IL. Ms. Carroll was involved with several of the tasks, which included working to complete PSE documents for the Jane Addams Memorial Tollway (I-90) remote traffic microwave sensor (RTMS) expansion, construction oversight for installation of RTMS devices as part of the Jane Addams reconstruction near Rockford, strategic planning for proposed Tollway ITS projects, drafting sections of the Tollway's ITS Deployment Guide, and development of PSE documents for weigh-in-motion station installations along the Tri-State Tollway (I-294).

Traffic Engineer, Indianapolis Advanced Traffic Management System (ATMS) Phase 5, Indiana DOT, Indianapolis, IN. Ms. Carroll was responsible for coordinating with INDOT on evaluating proposed CCTV camera tower and vehicle detection site layouts and site constructability for deployment of ITS equipment. She conducted field visits to verify the site layout including identifying power sources and communication links, inventorying existing ITS devices, and incorporating existing ITS devices into the proposed design. Additional project tasks included developing the engineer's estimate and preparing final plans, special provisions, and estimate documents for construction.

Traffic Analyst, Central Avenue Connector, Illinois Department of Transportation, Chicago, IL. Ms. Carroll was responsible for portions of the traffic analysis, technical writing, and impacts to Midway airport approach surfaces for the Phase I Project Report. This project involves planning to create a new crossing of the Belt Railway of Chicago's clearing yard and the CSX intermodal yard. The preferred alternative includes a long grade-depressed roadway between 63rd Street in Chicago and 79th Street in Burbank.

Traffic Engineer, 104th Avenue Corridor Improvement, JR Engineering, Commerce City, CO. Traffic engineer responsible for conducting a traffic impact analysis including reviewing existing and future 2030 development, Synchro analysis, lane queue length verification, providing air quality analysis data, creating signal timings, and feasibility analysis of intersection design and control. Documentation of findings and recommendations was submitted in technical memo and report format to allow the client to easily share project information with the local municipality.

Transportation Engineer, Strategic Transportation Plan, City and County of Denver, Denver, CO. Ms. Carroll was responsible for reviewing and incorporating previous studies into the River North Travel shed analysis report. Identified trends of growth, redevelopment, and transportation needs and determined recommendations for transportation improvements throughout the travel shed including pedestrian/bike, safety, access, and intersection improvements. She attended several consultant meetings to keep the client informed of progress and proposed improvements within the travel shed. She also prepared for and attended STP public meetings to help the community understand the findings and recommendations of the study. A formal report documenting all findings and recommendations was included as a final submittal.

Task Lead, Illiana Corridor Phase I Study, IL. Ms. Carroll was traffic engineering task lead on the Phase 1 study for 45 miles of highway located between Interstate 55 and Interstate 65 through central Illinois. Phase I consisted of evaluation of the environmental impact statement (EIS), environmental studies, geometric studies, interchange design studies at three new system to system interchanges and several service interchanges; drainage design; field surveys, right-of-way plat preparation; and other related Phase I services. Task management included road connectivity analysis, LOS analysis, environmental impact study evaluation of impacts to transportation facilities, and management of data collection effort including counts, vehicle classification, and origin/destination study.

Traffic Engineer, Riverside Parkway, City of Grand Junction, Colorado, Grand Junction, CO. Ms. Carroll was traffic engineer for a new arterial facility planned for the southern side of Grand Junction. Tasks included preparing the Alternatives Development Report, reviewing and analyzing crash data and traffic operations, and public involvement. Documented analyses for the environmental assessment and CDOT's 1601 interchange approval process. Also supported coordination with Union Pacific Railroad (UPRR) since the parkway affected several grade crossings and crosses over the UPRR tracks. Assisted in designing construction traffic control plans for the project, including the project's key interchange with a state highway. Presented traffic information at several public meetings and the NEPA public hearing.

Randolph (Randy) W. Butler, DBA, PMP

SYSTEMS INTEGRATION PLANNING; AV SYSTEMS PLANNING & INTEGRATION

Years of Experience: 47 **| Education:** DBA; MBA; MS – Management of Information Systems; MA – Transportation Policy; BS – Engineering Technology **| Certifications:** PMP

Dr. Butler has experience with the development and deployment of ITS connected vehicle technologies to improve safety and efficiency in the transportation network. He works for CDM Smith as a freight operations and technology strategy leader and leads several ITS deployment projects: Smart Columbus Truck Platooning (part of the USDOT Smart City Challenge grant) and Port of Los Angeles FRATIS deployments.

Project Manager, Research and Development, Truck Platooning Early Deployment Assessment, Phase 1, Broad Agency Announcement BAA No 693JJ3-18-BAA-0002, USDOT/FHWA Office of Operations. Mr. Butler is currently leading the Truck platooning Early Deployment Assessment, Phase 1. Work included development of the concept of operations, developing the system requirements, development of a test plan for the requirements, developing a partnership plan, assessment of system readiness, and a project proposal for the deployment of the system under Phase 2.

Project Manager, Expanded-ITD Program Plan and Top-Level Design, Montana Department of Transportation (MDT), MT. Mr. Butler is leading the Montana Department of Transportation development of new projects that are approved under the FMCSA's Expanded ITD Program. Work includes using MDT to identify new projects that meet criteria of the USDOT Expanded ITD Program. Identification of new projects will focus on collecting stakeholder feedback on new projects that will enhance: Driver Information Sharing; Enhanced Safety Information Sharing; Smart Roadside; and Expanded Electronic Credentialing. The work includes a project management plan, project alignment verification, cost-benefit analysis, and a final project selection model.

Project Manager, Smart Columbus Truck Platooning Deployment, USDOT, Office of the Secretary, Columbus, OH. Mr. Butler is leading development and deployment of the Smart Columbus Truck Platooning Project in Columbus, OH. Work includes development of the strategy plan, concept of operations (ConOps), trade study, interface control document, testing, capture of performance measurement data, maintenance plan, operations plan, and project platooning firms and their customers.

Project Lead CV AERIS, LA Metro FRATIS Modernization – ATCMTD Grant, Los Angeles, CA. Mr. Butler is currently leading the CV applications focused on the environmental applications for USDOT AERIS Los Angeles (LA) Metro's Modernization of the Freight Advanced Traveler Information System (FRATIS), using the original concept developed by the USDOT and applying current technologies to increase efficiency. The new design focuses on improving freight flows and reducing fuel consumption and emissions in LA Metro's jurisdiction. The system's modernization will spark commercial and widespread deployment resulting in regional truck transportation efficiency and environmental benefits that have been the program's goals since concept inception.

Project Manager, LA Metro FRATIS, USDOT FHWA, Los Angeles, CA. Mr. Butler was USDOT program manager for development of a bundle of applications that provides freight-specific planning and performance information and optimizes drayage operations, improving efficiency of freight shipment movements between freight facilities and reducing freight congestion, emissions, and fuel consumption. This project was completed while with a previous employer.

Program Manager, USDOT FHWA, Open Source Application Development Portal. Mr. Butler directed the process from the development of the concept of operations through the completed portal now in operation. Users can upload their open source code to the portal to share development of applications and prototypes for future development. This project was completed while with a previous employer.

Project Manager, USDOT FHWA Electronic Freight Management (EFM). Mr. Butler oversaw development and testing of the EFM project, which tested technology and business case elements of an international supply chain deployment in a real supply chain between the US and China. The EFM project proved reduction of the amount of paper used in the transfer of information among the supply chain elements (e.g., manufacturer, shipper, and freight forwarder to air carriers). This project was completed while with a previous employer.

Randolph (Randy) W. Butler, DBA, PMP

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Project Manager, FHWA Drayage Truck Operation Efficiency, Kansas City Cross Town Improvement Project (C-TIP). Mr. Butler provided subject matter expertise on C-TIP for the development of a transportation efficiency application that maximizes loaded moves and minimizes empty moves in the drayage industry. The project comprised the development and the deployment of an information sharing/transfer capability that enabled the coordination of moves between parties. This project was completed while with a previous employer.

Logistics Subject Matter Expert, South Al-Batinah Logistics Area Development Project. Mr. Butler served as a technology logistics subject matter expert on a major economic development project in Oman. He played a key role in developing an inland port/logistics hub for the Public Establishment of Industrial Estates (PEIE), an entity of the Sultanate of Oman.

Project Manager, Intermodal Capital Planning, Union Pacific Railroad, US. As general director of Union Pacific's Intermodal Capital Planning, Dr. Butler was the project manager for delivery of new concepts and technologies that delivered a high level of efficiency of Union Pacific's drayage truck intermodal container terminals and railroad port interfaces. Projects included the development and deployment of the first automated intermodal gate system in the US. This system is currently being used by intermodal and marine terminals world-wide.

Railroad Infrastructure Maintenance and Construction. Dr. Butler's role as a division engineer and Assistant District Engineer at Union Pacific Railroad encompassed managing the maintenance and construction of railroad infrastructure on the Union Pacific's Eastern and Southern Regions. Responsibility included managing over 800 employees in the day-to-day operations of construction of new facilities and maintenance of structures.

General Director, Union Pacific's National Customer Service Center. As general director of Union Pacific Railroad's National Customer Service Center, Dr. Butler directed the national customer service center in the day-to-day operation using advanced technology to deliver a superior level of customer satisfaction. He managed the deployment of technology that improved a customer service representative's efficiency and at the same time delivered a high level of customer satisfaction.

Program Manager Business Process Reengineering. As Assistant Vice President at Union Pacific Railroad, Dr. Butler directed the Union Pacific's Intermodal Business Process Reengineering Team. The team focused on the redesign of business processes to support the interaction of the railroad's intermodal customer's operations.

Logistics Subject Matter Expert, South Al-Batinah Logistics Area (SABLA) Development Project, Public Establishment of Industrial Estates (PEIE), an entity of the Sultanate of Oman, Muscat, Oman. Dr. Butler provided subject matter logistics expertise for a project to develop an inland port/logistics hub for the PEIE, an entity of the Sultanate of Oman. The PEIE is developing a 95-square-kilometer parcel as a part of a major economic development project in Oman, which will contain a major freight logistics hub, including a dry port facility, warehousing and distribution centers, support functions and the capability to provide a one-stop-shop for domestic and import/export freight movement. Duties include the development of a 4PL concept for SABLA, review and coordination of master plans, coordination of activities of the various engineering firms involved in the project, overseeing procurement activities, attracting potential investors and developers, engaging with commercial interests and providing technical and management support to the PEIE Project Engineer.

Subject Matter Expert, Port Operations Drayage Truck Operations, Port of Los Angeles, CA. Dr. Butler is currently providing the subject matter expertise for the Port of Los Angeles deployment of a grant that would provide efficiency to the operations at the Port. His duties include project management and logistics expertise to manage the grant for the Port.

Project Manager, GO-81 Corridor Freight Information System, USDOT, New York, Pennsylvania, Virginia, West Virginia, Tennessee and Maryland. Dr. Butler was responsible for direction of "GO-81," an action-oriented project that will use technology to improve the safety and efficiency of freight movement in and around the I-81 Corridor. This Interstate supports the movement of people and goods along the eastern half of the United States. I-81 is a major truck route and is increasingly relied upon as an alternate to I-95. A more reliable movement of freight is important for the six states that form the I-81 Corridor Coalition as well as for businesses and consumers in other parts of the country. The project includes detailed freight origin-destination and routing analysis, and the development of a plan for implementing a corridor-wide truck parking information system.

Roger T. Schiller, PMP

SYSTEMS INTEGRATION PLANNING

Years of Experience: 11 **| Education:** MS – Planning, BA – Economics and International Affairs **| Certifications:** PMP

Mr. Schiller's experience identifying/prioritizing freight transportation improvement projects; developing, testing, and evaluating freight technology; and statewide and regional multimodal freight planning. He provides economic analysis, cost-benefit analysis, policy analysis, and commercial vehicle operations/enforcement. His national experience leading numerous freight mobility plans and assessments

Lead Analyst, Community Friendly Freight Mobility Plan, Will County, IL. CDM Smith led an innovative public-private partnership (P3) to develop a Community Friendly Freight Mobility Plan. The freight industry in Will County has grown tremendously over the last several years, leading to traffic growth that has compromised the condition, capacity, and reliability of the County's transportation infrastructure. Mr. Schiller helped develop a framework of strategies to enable Will County to accommodate existing freight movements; prepare for anticipated industry growth; and reduce the negative impacts of freight movement on residential and natural areas.

Lead Analyst, Smart Columbus Truck Platooning Project, US Department of Transportation (USDOT), Columbus, OH. For the Smart Columbus Program, CDM Smith (as part of a team) is leading the Truck Platooning Project. Mr. Schiller was the lead author for the Truck Platooning Concept of Operations (ConOps), which included describing trucking operations in the Columbus region today, assessing the problems and shortcomings associated with them, and proposing use cases and operational scenarios for a truck platooning and freight signal priority system that would mitigate some of the issues associated with goods movement in the area. The ConOps also proposes performance measures to assess the system's success in improving freight traffic flow, reducing freight emissions, and increasing freight efficiency.

Task Lead, Kansas Statewide Freight Plan, Kansas DOT, Statewide, KS. CDM Smith created a FAST Act-compliant statewide freight plan. Mr. Schiller developed a GIS-based tool to facilitate ranking and prioritization of the highway and rail freight projects within the plan. The tool included metrics that supported key goals of the freight plan including economic development, access to key freight generators, state of good repair, environmental impacts, and alleviation of freight bottlenecks.

Analyst, US 67 Corridor Master Plan, Texas DOT (TxDOT) El Paso and Odessa Districts, TX. Mr. Schiller is leading the freight assessment for the US 67 Corridor Master Plan. The US 67 corridor is a 142-mile long stretch of US 67 from I-10 near Fort Stockton to the Presidio/Ojinaga Port of Entry on the Mexican border. It provides access to the towns of Marfa, Alpine, and Presidio, as well as Big Bend National Park, the Marfa Lights, and other West Texas attractions. Although the corridor is rural, it has experienced traffic growth driven by many factors including international commerce and Permian Basin oil field development. A key task of the Corridor Master Plan will be to analyze current and future freight traffic and economic impacts, and assess options for accommodating the expected growth while preserving regional quality of life.

Analyst, Central Midlands Regional Freight Mobility Plan, Columbia Region, Central Midlands Council of Governments (CMCOG), SC. CDM Smith is developing a Regional Freight Mobility Plan. Mr. Schiller led the existing conditions assessment for this project, which included evaluating the existing multimodal freight transportation system; identifying regional truck freight bottlenecks; summarizing current and predicted freight flows by weight and value; and analyzing the economic impacts of goods movement in the region. Mr. Schiller also developed a Best Practices in Freight Planning report for this project, which involved an assessment of national and state freight planning guidance and legislation; a peer review of best freight planning practices from other regions; and an assessment of current trends in freight technology and Intelligent Transportation Systems applications, with potential applications and public-private partnerships in the CMCOG region.

Analyst, I-26 Corridor Management Plan, South Carolina DOT (SCDOT), Columbia Region, SC. For SCDOT, CDM Smith is developing a corridor management plan for the I-26 corridor around Columbia, SC. This plan will assess the overall condition and operation of the I-26 corridor; identify challenges, opportunities, and constraints; and develop targeted recommendations to help improve the operation of the corridor. Mr. Schiller prepared a freight assessment for this task, including an overview of freight infrastructure and current/forecasted commodity flows along I-26, identification of truck

Roger T. Schiller, PMP

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bottlenecks and truck parking shortages, an evaluation of freight strategies and technologies, and recommended strategies and policies for implementation in the corridor.

Analyst, Louisiana Freight Mobility Plan, Louisiana Department of Transportation and Development (LA DOTD), Statewide LA. CDM Smith is preparing a FAST Act-compliant freight plan. Mr. Schiller led an assessment of non-highway freight bottlenecks for this effort, which included interviewing LA DOTD modal staff to identify the issues affecting goods movement at the state's ports and airports and on its rail and waterway networks. This task also included an evaluation of emerging technologies and regulations affecting multimodal freight operations in Louisiana and their potential implications for goods movement in the state.

Analyst/Task Lead, Horizon Boulevard Corridor Master Plan, TxDOT El Paso District, TX. Mr. Schiller is providing analytical support for the Horizon Boulevard Corridor Master Plan. The Horizon Boulevard corridor consists of 9.4 miles of Horizon Boulevard in El Paso, from Alameda Avenue to Ascension Street. The corridor is expected to see increased growth in the future with many new developments in the planning or construction phases. The Corridor Master Plan will define the transportation opportunities and challenges on the corridor and provide possible solutions. Mr. Schiller is leading the existing conditions and health impacts assessment tasks and providing support for the public outreach task.

Deputy Project Manager, Freight Advanced Traveler Information System (FRATIS) Program, FHWA, Los Angeles, CA and South Florida. Mr. Schiller served as deputy project manager for the FHWA FRATIS program, which developed and tested a package of technology applications designed to improve freight operations through dynamic routing, information sharing between intermodal terminals and trucking companies, and drayage load planning optimization. This included development of a Concept of Operations (ConOps) and System Requirements Specifications which laid the technical groundwork for FRATIS, followed by system development and small-scale testing in Los Angeles and South Florida. Mr. Schiller led the assessment of existing and emerging freight technologies for the ConOps, assisted with requirements gathering and prioritization, and helped train drayage company drivers and staff in the use of the FRATIS system. Mr. Schiller was also the lead interface with the independent evaluation team, ensuring that the evaluators had access to all the data necessary to conduct their assessment. This project was completed while with a previous employer.

Deputy Project Manager, Smart Roadside Initiative Gap Analysis, FHWA, Nationwide. For the FHWA, Mr. Schiller served as deputy project manager for the Smart Roadside Initiative (SRI) Gap Analysis project. SRI is a technology package designed to improve commercial vehicle safety and freight mobility via information sharing and roadside technology investments. This project assessed the as-built functionality of SRI against its initial functional requirements and recommended ways for FHWA to fill the identified gaps, including addressing operational, institutional, and technical issues that are impeding the full realization of SRI operational scenarios. Mr. Schiller led the assessment of existing SRI functionality and assisted with the identification of gaps between the existing system capabilities and the SRI "target" functionality. This project was completed while with a previous employer.

Analyst, Strategic Freight Network, Oregon DOT, Statewide, OR. Mr. Schiller helped develop a data-driven method to identify and designate "strategic" freight system assets in Oregon, including ports/waterways, critical freight rail and highway corridors, airports, and other multimodal assets. This involved reviewing other states' best practices, collecting relevant data, interviewing stakeholders to validate findings, and applying threshold criteria and analytical methodologies to identify key infrastructure. This project was completed while with a previous employer.

Analyst, Texas Waterborne Freight Corridor Study, TxDOT, Coastal Texas, TX. For TxDOT, Mr. Schiller helped develop the Texas Waterborne Freight Corridor Study. This study assessed the regional, national, and global trends driving freight demand at Texas ports and waterways; identified key landside and waterside chokepoints that are impeding freight flows; and recommended infrastructure, operational, and institutional strategies to help TxDOT and its local partners better address security, safety, mobility, and reliability issues facing Texas' maritime economy. This project was completed while with a previous employer.

Piyali Chaudhuri, PhD

SYSTEMS INTEGRATION PLANNING

Years of Experience: 15 | **Education:** PhD, MS, BE – Civil Engineering (Transportation Engineering)

Dr. Chaudhuri specializes in Intelligent Transportation Systems (ITS) optimization techniques, ITS design and implementation, traffic operations, transportation engineering, planning, project management, database management, technical analysis, and research studies. She is currently providing ITS services for DOTs and transit agencies across the country, including MDT, TxDOT, LADOT, and Illinois Tollway, to help enhance safety and improve mobility.

Project Engineer, Expanded Innovative Technology Deployment (ITD) Program Plan and Top-Level Design, Montana Department of Transportation (MDT), MT. CDM Smith is updating the Expanded ITD Program Plan and Top-Level Design document. The ITD program is part of USDOT's drive to improve commercial vehicle safety and efficiency. Montana is updating its plan to identify new project concepts that will enhance safety, improve commercial vehicle operations in the state, and target limited enforcement resources towards trucks and carriers that are more likely to be out of compliance. Dr. Chaudhuri is responsible for background research on ITD programs in other states, identify their functionalities and projects, and provide recommendation for MDT ITD initiatives. The work includes work with MDT to identify new projects that meet the criteria of the USDOT Expanded ITD Program.

Project Engineer, Tollway Project, Illinois Tollway Authority, IL. CDM Smith has maintained a continuing contract with the Tollway for more than six decades, which has included ITS projects, traffic safety monitoring, transit related projects, and support their $14B 15-year Move Illinois program. Dr. Chaudhuri is responsible for editing annual crash report and conducting the third-party crash data analysis and traffic analysis for the connected vehicle pilot project on Central Tri-state.

Project Engineer, Corridor Master Plan, US-67, Texas Department of Transportation (TxDOT), TX. Dr. Chaudhuri is working on the ITS memo and traffic analysis. This is primarily a rural two lane corridor with limited services. Crashes and weather events are a primary concern. Projects identified focus on crash mitigation and traveler information as well as incident management.

Project Engineer, Corridor Master Plan, Horizon Boulevard, TxDOT, TX. Dr. Chaudhuri is leading the writing of the Horizon Boulevard ITS memo for TxDOT.

Project Manager, Traffic Signal Installations, UCLA Transportation, Planning Policy & Traffic Systems, Los Angeles, CA. Ms. Chaudhuri provided project management oversight, while with a previous firm. She wrote scopes of work (RFP), reviewed proposals, engineering design and drawings from consultants, managed contractor/consultant contracts, invoices, and contractor bidding, and coordinated between departments for traffic signal design implementation and signal timing optimization projects. She also evaluated project performance. She coordinated with consultants for issuing Los Angeles Department of Transportation (LADOT)-approved traffic control plan and traffic signal plan (complaint with Caltrans standard) to manage traffic during construction. Dr. Chaudhuri also managed and administered contracts for regular maintenance and necessary liaisons with LADOT. She used SYNCHRO and SimTraffic analysis to forecast traffic congestion and plan mitigation measures.

Project Manager, Planning and Deployment of ITS Devices, UCLA Transportation, Planning Policy & Traffic Systems, Los Angeles, CA. Dr. Chaudhuri managed the design and deployment of campus-wide ITS devices, such as wireless sensor installations, traffic monitoring cameras, and a Network Video Surveillance System consisting of traffic cameras, network infrastructure, storage solution, and software for managing the system. She managed the consultants and contractors involved in ITS infrastructure design and installation, monitored ITS data communication, and managed the traffic data platform. She led research studies, technical analysis, and statistical and analytical data generation, and prepared the annual traffic cordon count report. She also developed UCLA's traffic camera policy. This project was completed while with a previous employer.

Piyali Chaudhuri, PhD

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Project Lead, Traffic Calming Initiatives, UCLA Transportation, Planning Policy & Traffic Systems, Los Angeles, CA. Ms. Chaudhuri developed a radar spot speed traffic study, mounted radar signs at potential locations, and managed traffic data platform. She planned active transportation into traffic engineering projects, evaluated incident scenarios, and provide engineering solutions,such as adding stop signs, pavement markings, curb extensions, and sidewalk widening to mitigate traffic problems.

Project Manager, Campus Infrastructure/Transportation Demand Management Projects, UCLA Transportation, Planning Policy & Traffic Systems, Los Angeles, CA. Ms. Chaudhuri was responsible for the capital planning of multi-modal projects, including budget involvement, while with a previous employer. She was also responsible for campus traffic systems management, circulation analysis, transportation demand management (TDM), traffic mitigation, long range transportation planning. She managed campus traffic operation by developing maintenance of traffic (MOT) plans during construction, incidents, or special events, and coordinated project activity with Cap Programs, Campus Architect, and Parking. She led technical analyses to support comprehensive sustainability efforts at UCLA, particularly land use (housing) and transportation/traffic-related efforts. She developed and managed a transportation asset management database system in GIS platform, and conducted a quarterly demographic analyses of commuters using GIS to map, group, and monitor commuter locations to measure location densities; analyze results to do targetmarketing for transit options, Earn-a-Bike programs and to market promotion of the Expo Rail Line to commuters who live close to Expo stations.

Graduate Research Assistant, Evaluation of Optimal Traffic Monitoring Station (TMS) Spacing on Freeways, Utah Department of Transportation, UT. Dr. Chaudhuri studied the accuracy and reliability of TMS detector speed data to determine the optimal TMS detector data aggregation interval, while with a previous employer. She examined the effect of TMS spacing on congestion metrics, such as travel time estimates. She developed a multi-objective optimization tool to determine the optimal spacing of TMS.

Graduate Research Assistant, I-15 Express Lanes Dynamic Pricing Algorithm, Utah Department of Transportation, UT. Dr. Chaudhuri evaluated a Congestion Pricing Algorithm, then developed a feedback-based algorithm using drivers' dynamic lane-switching mechanism. She studied the parametric sensitivity of the feedback-based congestion pricing algorithm, as well as demand elasticity. This project was completed with a previous employer.

Graduate Research Assistant, Developing a Statewide Road User Cost, Utah Department of Transportation, UT. While with a previous employer, Dr. Chaudhuri built simulation models in VISSIM for various work zone scenarios to determine road user delay and costs due to work zones. She repeated it for multiple Utah road types: freeways, rural heavy truck roads, and other roads.

Graduate Research Assistant, Assessing the User Cost of Fast Track Highway Construction, Utah Department of Transportation, UT. Ms. Chaudhuri built simulation models in VISSIM to determine road user delay and costs due to work zones. This project was completed while with a previous firm.

Graduate Research Assistant, Utah Department of Transportation Traffic Operations Center Operator Training, Utah Department of Transportation, UT. While with a previous employer, Dr. Chaudhuri developed typical traffic and incident scenarios and best traffic management responses. She developed, planned, facilitated, and documented the results of simulation.

Assistant Engineer, Tripura Assembly and Secretariat Building, India. Dr. Chaudhuri analyzed the whole building in STAAD PRO software and designed all the components of building structure and preparation of construction drawings using AUTOCAD software.

Assistant Engineer, State High Court building, Tripura, India. Ms. Chaudhuri analyzed the whole building in STAAD PRO software and designed all the components of the building structure and preparation of construction drawings using AUTOCAD software. This project was completed while with a previous firm.

Assistant Engineer, Water Supply Project for towns in Muscat, United Arab Emirates. While with a previous employer, Dr. Chaudhuri analyzed water reservoirs using STAAD PRO software, designed all components of the water reservoirs using British Standard, and prepared detailed structural drawings using AUTOCAD software.

Kenneth F. Troup

SYSTEMS INTEGRATION PLANNING; AV SYSTEMS PLANNING & INTEGRATION

Years of Experience: 46 | **Education:** MS – Engineering Management; BS – Electrical Engineering

Mr. Troup has extensive expertise working for the federal government in intermodal freight transportation, intelligent transportation systems, and logistics systems. He is widely respected for his ability to quickly analyze problems, understand the issues at hand, and articulate what he learns in high-quality products that clients, colleagues, and the public value. He has planned and conducted workshops and training on ITS and transportation data issues with industry and government leaders.

Task Lead, Basic Ordering Agreement on Truck Platooning, USDOT/FHWA. Mr. Troup served as task lead for test plan development as part of the CDM Smith team conducting planning for a revenue service (host fleet operations on highways) truck platooning demonstration, which is part of the FHWA Basic Ordering Agreement on Truck Platooning. He plays a key role in task planning and resource definition and is involved with definition of performance measurement and data collection requirements for the demonstration.

Lead Author and Editor, Connected and Automated Vehicle Literature Study, Ohio DOT, OH. As lead author and editor of a well-received 2019 report on the modeling of Connected and Automated Vehicles (CAVs), Mr. Troup is aiding the Ohio Department of Transportation in understanding the impacts on future transportation and the likely implementation timeframe for CAVs. He is responsible for updating a compendium of documents on CAVs and related technologies and also for updates to an on-line resource about CAVs and modeling. Work is part of a multicompany collaborative effort to address potential changes to simulation and modeling to account for varying CAV penetration rates.

Research Analyst, Smart Columbus Truck Platooning Deployment, City of Columbus, USDOT Office of the Secretary, Columbus, OH. Mr. Troup was responsible for preparation and review of ConOps in accordance with IEEE 1362-1998 including definition of user needs and operational scenarios. He provided research for and was co-author of a trade study document for selection of truck platooning technology for Columbus, including performance measures related to safety and fuel savings, and characterization of platooning technology from key manufacturers.

Principal Investigator, Primer on Coordination and Communications in Last Mile Urban Freight Delivery, USDOT Volpe Center and FHWA. Mr. Troup served as principal investigator for development of primer related to institutional aspects of urban freight innovations, particularly last-mile truck pick-up and delivery issues. He examined stakeholder interactions, sharing of freight data between the public and private sectors, and techniques for increased public involvement in freight decisions.

Analysis of Use of Scenario Planning in Transportation (Sept 2017-Feb 2019). Mr. Troup provided online research into case studies and results of the application of scenario planning to development of transportation plans at the state and local level. His duties included review of the use of modeling and transportation statistics in scenario planning studies. Mr. Troup was involved in the internal CDM Smith effort to enhance scenario planning techniques.

Analysis of Autonomous Vehicle Testing in the US and Internationally. Mr. Troup provides on line research into the status of autonomous vehicle testing and the legislation and regulation of autonomous vehicles at the state level. He has compiled extensive reference list and prepared in house PowerPoint to convey the current status. Other responsibilities include continuous monitoring and assessment as part of the internal research into emerging transportation technologies Mr. Troup participated in the Automotive Cybersecurity Conferences in October 2017 and March 2018.

Principal Investigator, Assessment of ITS Freight Advanced Traveler Information System (FRATIS), for ITS JPO and FHWA. Mr. Troup led the Assessment Team for three FRATIS intermodal demonstrations in California, Texas, and Florida. The demonstrations involved movements of containers between ports and inland drayage origins and destinations. Analyses included causes and impacts of congestion and strategies for improving drayage operations. He presented preliminary results at TRB meeting in June 2015. Final assessment report was published by USDOT in January 2016.

Contributor, Impact Assessment of Smart Roadside Initiative (SRI) Demonstration Projects, FHWA. Mr. Troup was a contributor to assessment of the impacts of truck weigh-in-motion and related ITS technologies implemented

Kenneth F. Troup

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for demonstrations by several states. The objective was to increase the accuracy and reduce the time and expense involved in truck inspections. Mr. Troup assisted in the preparation of assessment plan and the assessment methodology and provided inputs to the SRI assessment report.

Co-author, Intelligent Transportation Systems e-Primer Freight and Commercial Vehicles, ITS JPO, USDOT. Mr. Troup was co-author of Module 6 in the USDOT ITS web-based e-Primer, Freight Transportation and Commercial Vehicle Operations. The primer includes information on congestion mitigation and technologies to improve the rail and truck freight movement. Mr. Troup updated materials and conducted a webinar on the e-Primer on March 30, 2016.

Lead Analyst, Freight Data Sharing Analysis Projects, TRB and FHWA. Mr. Troup served as lead analyst and principal author on two sequential projects for the Federal Highway Administration and Transportation Research Board. Both projects involved analysis of freight data sharing projects and practices in the public and private sector, including railroads and trucking companies, with emphasis on the use and analysis of GPS data from trucking companies and the exchange of transportation carriers with government. He prepared the final report for FHWA and developed a guidebook for use by state-local transportation practitioners for TRB, which was published as NCFRP Report 25. The NCFRP project included planning, facilitating, and leading a workshop of industry and regional-level public sector transportation executives.

Advisory Board and Finance Committee Member, Massachusetts Regional Transit Authority, MA. Mr. Troup was appointed member of the board that oversees operation of bus transit, and special needs transportation in cities and towns in central Massachusetts, including commuter rail terminals. Mr. Troup has been a member of Finance Committee since 2014 and its current chairperson.

Elected and Appointed Positions in Town Government, Bolton, MA. Mr. Troup was appointed member of Conservation Commission (1977-1981), elected member of 3-person Board of Selectmen (1982-1997, 1998-2010), and appointed member of Advisory (finance) Committee (2016-2017) for town of 5,000 residents. Mr. Troup has served as volunteer in numerous other capacities in the community related to land preservation and town and community relations including emergency medical response and congestion mitigation and roadway improvements.

Co-author, Freight Technology Story: Intelligent Freight Technologies and Their Benefits, for FHWA. Mr. Troup was co-author of research report for the FHWA Freight Office. The report shares information about the adoption of intelligent freight technologies by industries, including railroads and trucking companies, and their customers along with triggers for and barriers to deployment and discusses the types of multimodal intelligent freight technologies and their benefits and field operational test results. The published report was widely distributed in the U.S. and Canada. Mr. Troup gave ITS technologies keynote addresses at two Canadian ITS conferences (2005-06).

Technical Paper Review, Transportation Research Board. Mr. Troup participate in the annual review of papers submitted to the Transportation Research Board. This review usually involves two to four papers, including providing detailed comments to the authors and comments about publication to the TRB staff. The primary subject matter is freight data, multimodal freight network analysis, freight congestion, and freight operations at intermodal terminals. Mr. Troup attends TRB Annual Meeting each year in Washington DC.

President, Bolton Access Television Corporation. Mr. Troup serves as volunteer president of local public access television station, supervising staff and interacting with town officials, the public, service contractors, and other local access stations. Mr. Troup is head of a nine-member board of directors that oversees a $120,000 annual budget for operating two TV channels and You Tube channel. Other duties have included management of renovation of space in an old municipal building to house the station in 2011-12.

Senior Analyst, Electronic Freight Management System Evaluation, FHWA and ITS JPO. Mr. Troup was a key member of an independent evaluation team for field test of air freight supply chain improvements in Columbus, Ohio. In this position he defined performance measures and analyzed projected benefits and costs. Mr. Troup co-authored two evaluation reports, one about the EFM deployment test itself and the other a more general view of the benefits related to use of visibility software in Columbus and throughout the industry. Mr. Troup also co-authored a Supply Chain Management Review article based on the industry review. He has also presented evaluation results at a national technology conference.

Jeffrey J. Hochmuth, PE, PTOE

REGIONAL ITS ARCHITECTURE PLANNING; AV SYSTEMS PLANNING & IMPLEMENTATION

Years of Experience: 32 **| Education:** MS - Transportation Planning; BS - Civil Engineering **|**
Registration: PE – IL, IA, TX, IN **| Certifications:** Professional Traffic Operations Engineer

Mr. Hochmuth has extensive Intelligent Transportation Systems (ITS), systems integration, connected vehicle (CV) and autonomous vehicle (AV) studies, operational and technical experience for both the public and private sectors. Prior to CDM Smith, he served as manager of the Illinois Statewide ITS program for Illinois Department of Transportation (IDOT), where he gained experience in expressway operations and worked on and managed complex ITS computer systems. He has provided ITS and emerging technology solutions to clients across the country including the Illinois Tollway, Washington Metropolitan Area Transit Authority, as well as several state DOTs including Florida, Texas, Montana, and Illinois.

ITS Task Manager, Traffic and Revenue Forecasting, Illinois State Toll Highway Authority (Tollway), IL. Mr. Hochmuth is the ITS task manager responsible for all ITS and traffic operations activities under this contract (approximately $500k/ year). Sample tasks include analysis of Active Traffic Management and operational issues. This also includes ITS planning and operations such as performance measures, data archive support, and recommendations concerning technology and operations. Additional operational analyses include maintenance of traffic review, signing, accident analysis, and corridor master planning. Some of the recent major tasks under this contract include the following:

Connected Vehicle Pilot Study. Mr. Hochmuth is task lead on designing, implementing, and evaluating a connected vehicle deployment for the Illinois Tollway. The small-scale deployment has been designed and procured and is currently being installed on 10 miles of I-90. Task will evaluate performance, oversee integration into TMC, and evaluate potential applications. Work is expected to include interfacing with third-party vendors testing CV applications.

Speed Limit Studies. Mr. Hochmuth managed review of all speed limits on almost every portion of the Illinois Tollway. Not only did this include the technical work from field data through applications of the latest methodologies, but the preparation of numerous public and internal documents and presentations on the subject.

Color Dynamic Message Signs (DMS). Mr. Hochmuth led study of potential color and graphics use on DMS. This included a literature review, off-road testing, and formal field test for color DMS.

I-90 Smart Corridor Concept of Operations. Mr. Hochmuth managed revisions to the I-90 Smart Corridor Concept of Operations. This included development of additional scenarios and a half-day work shop with practitioners. This new version also included full development of the integrated operations concept throughout the scenarios and document.

Technical Lead, I-90 Incident Management and Closure Plan, Statewide, Montana Department of Transportation (MDT), MT. Mr. Hochmuth was the technical lead on developing projects and programs related to road closures on I-90 throughout most of Montana. The focus of this project is on incident management and traveler information for weather events in particular. The team is developing new methods to provide safer closures and more effective management of storm events.

ITS Task Manager, US 67 ITS and TSM&O Plan Statewide, SC . Mr. Hochmuth was the task manager for the ITS and transportation system management and operations plan for the US 67 corridor. This is primarily a rural two lane corridor with limited services. Crashes and weather events are a primary concern. Projects identified focus on crash mitigation and traveler information as well as incident management.

ITS Task Manager, Passiac River Basis Flood Plan, Newark, NJ. Mr. Hochmuth was the task manager for ITS and Incident Management plan of the overall flood mitigation plan. Working with State and County OEMs to identify ITS and operational needs to assist with transportation management during flood events.

Project Manager, Statewide DMS Plan, IA. Mr. Hochmuth was the project manager for the development of a statewide DMS plan. His work included reviewing the inventory, working with the Iowa DOT staff to develop needs and goals, and identifying a method to determine how well those needs are currently met. As part of this work, CDM Smith provided a review and recommendation for type of side mount DMS to be used throughout the state.

Jeffrey J. Hochmuth, PE, PTOE

REGIONAL ITS ARCHITECTURE PLANNING; AV SYSTEMS PLANNING & IMPLEMENTATION

Senior ITS Engineer, Mackinac Bridge Weigh in Motion Design, Mackinac Bridge Authority, MI. Mr. Hochmuth was the senior ITS engineer for the design of a new high-speed weigh in motion (WIM) system, and replacement of the existing low speed WIM system. Work includes operations analysis and design of a new communications system for the WIM to mobile devices.

Senior ITS Engineer, TMC Feasibility Study, Coastal Regional Authority, Savannah, GA. Mr. Hochmuth was the senior ITS engineer studying the feasibility of a regional traffic management center for the greater Savannah area. This includes inventorying the current ITS systems and centers, developing goals, objectives, and requirements, and determining the best approach for integrating the new and legacy systems.

ITS Lead, Commercial Vehicle Pre-Clearance System Evaluation, Minnesota DOT, MN. Mr. Hochmuth was the technical lead for study that examined the operational and technical feasibility of several alternative pre-clearance systems. Work included evaluation of various systems communications, back-office operations, and level of complexity.

ITS Lead, I-70 Truck Only Lanes Study, Indiana DOT, MO, IL, IN, and OH. Mr. Hochmuth was the ITS lead for study of the feasibility of truck only lanes on I-70 for a four state corridor. Work included developing concepts for how ITS will be applied to the corridor to improve safety and operations. Projects will include data acquisition and archive for planning analysis.

Lead ITS Manager, Smart Parking Concept of Operations, Washington Metropolitan Area Transit Authority, DC. Mr. Hochmuth was the lead ITS manager for the development of a concept of operations for a smart parking system. Work included identifying technologies, writing requirements, and completing the concept of operations document.

Project Manager, I-10 Freight Corridor ITS Architecture, I-10 California to Florida, TxDOT, TX. Mr. Hochmuth was the project manager for the development of the ITS architecture and deployment plan for this 8-state corridor. Responsible for the enhancement of ITS portions of this planning study, including the initial look at corridor-wide architecture and the development of a concept of operations, all building from the initial corridor-wide program.

Project Manager, Mexico National ITS Architecture, US Trade and Development Agency and Mexico SCT, Mexico. Mr. Hochmuth was the project manager for the development of the National ITS Architecture for Mexico. Work included all aspects of the architecture, including stakeholder input/consensus and development of the national framework and development of high level regional ITS architectures.

Project Manager, I-74 Bridge Incident Detection and Management System, Iowa DOT, Quad Cities, IA. Mr. Hochmuth was the project management for this effort included identifying and designing the elements of an incident detection and warning system and creating the initial program for the various elements. Work included developing the concept of operations and coordinating activities between many agencies across two states.

ITS Program Management, Illinois Department of Transportation (IDOT), IL. Mr. Hochmuth was responsible for making policy and program decisions for Illinois DOT concerning ITS. This involved working closely with the FHWA and the various districts and divisions within Illinois DOT. He assisted with technical and financial resources for all nine districts and several statewide bureaus. His efforts included provision of real time connections from this office to roughly 20 other agencies.

Project Manager/Technical Lead, Advanced Dynamic Vehicle and Navigation Concept (ADVANCE), IDOT, IL. Mr. Hochmuth was the lead technical staff for Illinois DOT for this project. This was the largest ITS project in the nation at that time and was one of the first dynamic route navigation projects, providing real time information with turn by turn in-vehicle instructions. He served as project manager for the central computer and software and was responsible for the operations of the center.

Project Manager/Technical Lead, Illinois Tollway "I-PASS" Transponder Travel Time Calculation Research Project, IDOT, IL. Mr. Hochmuth obtained funding for this project and worked as both the project manager and lead technical staff. This project was one of the pioneering efforts in using toll tags for travel time calculation.

Project Manager/Technical Lead, Illinois Tollway "I-PASS" Transponder Travel Time Calculation Research Project, IDOT, IL. Mr. Hochmuth obtained funding for this project and worked as both the project manager and lead technical staff. This project was one of the pioneering efforts in using toll tags for travel time calculation.

James D. MacKay, PE

REGIONAL ITS ARCHITECTURE PLANNING

Years of Experience: 23 **| Education:** BS – Civil Engineering **| Registration:** PE – PA, TX **|**
Certifications: IMSA Traffic Signal Field Technician – Level II; OSHA 10-hr

Mr. MacKay brings 23 years of engineering experience with 18 years focused on transportation related projects for numerous state and local agencies. During his tenure with PennDOT District 11-0, and as an engineering consultant, he has gained extensive experience in all aspects of traffic engineering. His work has included designing integrated, multiple-phase, traffic signal systems on highly congested corridors that include emergency vehicle preemption, railroad preemption, transit priority, spread spectrum radio interconnect, fiber-optic communications, video camera and radar detection, computer controlled real-time monitoring, closed loop coordination, and data collection sessions software. He has developed local intersection timing plans and multiple intersection coordination timing plans using Highway Capacity Software, Synchro, and SimTraffic.

ITS Designer, SR 0279, Section A83, PennDOT District 11-0, Allegheny County, PA. Part of this bridge and roadway reconstruction project consists of upgrades to the entire High Occupancy Vehicle (HOV) system. Mr. MacKay was responsible for the entire design to include replacing access gates, fast-acting gates, changeable message signs, controller cabinets, detectors, and a new Wrong Way Driving (WWD) system. His work involved performing nationwide research on the current state of WWD and recommending a preferred system used in many states including Texas, Florida, and Ohio. Detailed coordination with the City of Pittsburgh was required because three of the access points have Intelligent Transportation System (ITS) controllers connected to City traffic signal controllers. This is necessary to activate different signal phases depending upon the state of the HOV lanes. As part of construction phase services, Mr. MacKay worked on the implementation of an FHWA and PennDOT research project to develop a pilot work-zone ramp metering system. He was responsible for researching ramp metering nationwide, providing recommendations to PennDOT, developing a preliminary design, and helping to coordinate the imminent installation of an entirely wireless system. Current responsibilities for work under CDM Smith's contract involves HOV testing, responding to requests for information (RFIs), and supporting the ramp metering system.

ITS Designer, NJDOT Route 130 Resurfacing, Burlington County, NJ. Preliminary and final design consisted of roadway resurfacing, traffic signal improvements, signing/striping upgrades, and ITS facilities. Mr. MacKay was responsible for ITS design of a seven-mile-long section of fiber-optic trunk line to connect 18 signalized intersections, while with a previous employer. Additional work includes mid-block detectors to be used for a traffic adaptive system. Challenges include significant utility conflicts, limited right-of-way, and coordinating with traffic signal and highway lighting upgrades and new installations. A 96-count fiber-optic trunk cable will be connected with 12-count fiber drop cables at signalized intersections and mid-block detector locations.

Senior Traffic Engineer, SR 0024, Section 022, PennDOT District 8-0, York County, PA. This project consisted of lengthening a turn lane from US 30 off-ramp onto PA 24, signal upgrades, and roadway improvements for an existing coordinated system of eight intersections along the PA 24 corridor. Mr. MacKay supervised and evaluated the collection of turning movement and ATR counts, performed travel time runs, monitored existing queues, and evaluated left turn phasing. Lead-lag left turn phasing was installed at one heavily-congested intersection to improve the coordination. Mr. MacKay recommended using a traffic responsive system was to take advantage of the directional and consistent nature of the traffic patterns. He used Synchro to develop three timing plans with four different cycle lengths to be used as the "library" for the traffic responsive system. Additional upgrades included new NEMA cabinets at all eight intersections, radar for closed-loop system detection, and single-mode fiber-optic interconnect. This project was completed while with a previous employer.

Systems Engineer, Elizabeth River Tunnels, MLK Extension Project, Norfolk, VA. Mr. MacKay served as the QA witness for the system factory acceptance testing (SFAT) to formally verify the functional performance requirements of the tunnel and traffic management system, while with a previous firm. This system included components of ITS and supervisory control and data acquisition (SCADA) systems. The primary purpose of the SFAT was to verify that the fundamental system capabilities required for tunnel operations were performing properly and in accordance with the allocated requirements and design specifications. The majority of tests were conducted on representative devices to verify functionality prior to

James D. MacKay, PE

REGIONAL ITS ARCHITECTURE PLANNING

installation. The ITS components included closed circuit television cameras (CCTV), dynamic message signs (DMS), lane control signals (LCS), lane use signals (LUS), microwave vehicle detection system (MVDS), variable speed limit signs (VSLS), reversible lane control signals (RLCS), reversible lane use signals (RLUS), over-height vehicle detection (OHVD), an AM/FM rebroadcast system (CanAM), a network video recorder, and an automatic incident detection (AID) system. The SCADA system was comprised of jet fans, air quality sensors (AQS), a fire alarm control panel (FACP), and tunnel lighting control. Testing was successfully completed, and the project moved into the site acceptance testing (SAT) phase.

Lead Traffic Engineer, SR 20, Section S05, PennDOT District 1-0, Erie County, PA. This project involved upgrading the traffic signals, lighting, and pavement markings at the intersections of SR 20 with Mill Street, SR 89, and Vine Street in the North East Borough, Erie County. Mr. MacKay was responsible for all traffic tasks for preliminary and final design as well as signing and pavement marking, traffic control, and traffic signal plans. Three signalized intersections located in a historic district were completely reconstructed with decorative traffic signal supports, accessible pedestrian signals (APS), countdown pedestrian signals, radar detection, and updated timing plans. Because of existing roadway geometry, the stop bar for SR 89 NB is set back 80 feet to accommodate trucks turning right from SR 20 EB. Using near side signal heads to stop approaching traffic on SR 89, Mr. MacKay designed a lagging signal phase to clear vehicles that might be trapped between the stop bar and the edge of the road. This phasing helps to keep the section of roadway clear of vehicles to allow trucks to negotiate this difficult right turn. This project was completed while with a previous employer.

Lead Traffic Engineer, SR 0001, Sections RC1, PennDOT District 6-0, Bucks County, PA. This project includes widening approximately 1.25 miles of SR 0001 and replacement of four bridges to improve the safety and mobility of the SR 0001 corridor and the realignment of the SR 132 (Street Road) interchange and the PA Turnpike interchange. Two new intersections (the ramps for SR 0001) and one reconstructed intersection (ramps to PA Turnpike) on Street Road will be integrated into an existing adaptive traffic signal system. There are 14 additional signalized intersections along the emergency detour route for SR 0001 that are being upgraded with an adaptive traffic signal system. While with a previous firm, Mr. MacKay developed a Synchro model of the updated corridor and designing the temporary and permanent signal plans. Detailed coordination with utilities and the ITS design were required to extend the temporary and permanent fiber-optic interconnect for the adaptive traffic operation.

Lead Traffic Engineer, US 40/PA 381, Section 10B, PennDOT District 12-0, Fayette County, PA. This safety and operational improvement project consists of relocating the southern leg of PA 381 to form a plus intersection with the northern leg of PA 381 and PA 40. While with a previous employer, Mr. MacKay was responsible for final design of temporary traffic control, temporary traffic signal, signing, pavement marking, and the permanent traffic signal plans. Design features for this new signalized intersection include advance radar detection with dilemma zone protection and emergency vehicle preemption.

Lead Traffic Engineer, Rehabilitation of K and H Street Bridges over Center Leg Freeway (I-395), DC. Rehabilitation of the H Street Bridge included the reconstruction of two signalized intersections and upgrade of another. While with a previous employer, Mr. MacKay was responsible for design of all three intersections. Coordination with the lighting designer was essential since many traffic signal pole locations included luminaires and shared the same conduit and electrical manholes.

Lead Traffic Engineer, Brighton/Tuscarawas Roads Bridge Replacement, PennDOT District 11-0, Allegheny County, PA. These combined design-build projects included the complete replacement of two adjacent bridges over I-376, a limited access highway. Brighton Road Bridge is also an interchange for I-376. The projects were combined because only one bridge could be replaced at a time since the other bridge would be needed for a detour. While with a previous firm, Mr. MacKay designed an innovative work zone emergency vehicle conflict warning system in response to municipal concerns about emergency vehicles safely negotiating emergency turn-arounds on I-376. Siren-activated emergency preemption receivers turned on the system. Wireless communication equipment then activated six changeable message signs to notify drivers on I-376 that an emergency vehicle was entering the highway. Because of the signs, emergency vehicles could then safely enter the highway, and if necessary, change direction using two turn-arounds that were temporarily installed in the median. This project, and the emergency warning system, were profiled in "In Case of Fire," published by *Roads and Bridges Magazine*, January 2011.

DANIEL RODRIGUEZ, E.I.

Regional ITS Architecture Planning

HBC TENURE: <1 yr

INDUSTRY EXPERIENCE: 4 Years

EDUCATION:

FLORIDA INTERNATIONAL UNIVERSITY
M.S in Electrical Engineering

UNIVERSITY OF ALABAMA
B.S in Electrical Engineering

PROFESSIONAL EXPERIENCE:
HBC Engineering Company
Engineer Intern, *2019*

HNTB Corporation
Engineer I,
2018 2019

City of Columbus Division of Power
Engineer in Training I,
2016 2017

TATA Consulting Services
Software Engineer, *2015 2016*

TRAINING & CERTIFICATIONS:
- Engineer In Training (EIT)
- Lean Six Sigma Yellow Belt

OFFICE LOCATION: Miami, FL

KEY PROJECTS

FDOT DISTRICT 6 DISTRICTWIDE ITS TECHNICAL CONSULTANT, MIAMI-DADE AND MONROE COUNTIES, FL
Provided districtwide technical and program management support for ITS infrastructure research, evaluation, analysis, procurement, design, post-design construction support, operations and maintenance. Supported the development of request for proposal (RFP) for the District's annual ITS device replacement project and an availability based ITS maintenance contract. Conducted a district wide communications redundancy assessment. Provided project design and engineering review support for ITS construction projects such as the I-395 signature bridge project and ITS replacement projects including revision of ITS plans, maintenance of communications (MOC) plans and shop drawings. Research the implementation of new technologies such as smart work zones (SWZ) and connected vehicles (CV)

TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS (TSM&O) SERVICES, FDOT DISTRICT 6, FL
Provided support for multiple projects including, but not limited to, the Monroe County Traffic Signal System Transition, the Traffic Signal Maintenance and Compensation Agreement Signal Inspections, TSM&O Performance Measures. Responsibilities for some of the projects included the elaboration data tables, presentations, and details aided by Geographic Information System (GIS) tools.

GENERAL ENGINEERING CONSULTANT (GEC) SERVICES, FLORIDA'S TURNPIKE ENTERPRISE (FTE), FL
ITS Technical Reviewer for numerous projects at different phases from planning to construction. Document reviews include, but are not limited to, ITS Plans, ITS related Shop Drawings, and Interdisciplinary plans review to identify conflicts with ITS infrastructure.

MDX SR 836 SOUTHWEST EXTENSION/KENDALL PARKWAY, MIAMI EXPRESSWAY AUTHORITY, FL
Prepared ITS design concept plans which included the installation of new ITS infrastructure such as 144-count single mode fiber optic cable backbone, power subsystems, CCTV cameras, Dynamic Message Signs, Microwave Vehicle Detection Systems and Wrong Way Vehicle Detection Systems.

US-1 FROM SE 17 STREET TO BROWARD BOULEVARD & HENRY KINNEY TUNNEL RECONSTRUCTION, FDOT DISTRICT 4, FL
Prepared ITS plans included which included the installation of new ITS infrastructure such as 144-count single mode fiber optic cable backbone, power subsystems, CCTV cameras, Dynamic Message Signs, Microwave Vehicle Detection Systems and Wrong Way Vehicle Detection Systems.

DANIEL RODRIGUEZ
Engineering Intern

DISTRICTWIDE MISCELLANEOUS PE DESIGN CONSULTANT C9S96 (PEDESTRIAN LIGHTING RETROFITS), MIAMI-DADE COUNTY, FL
Assisted in the plans preparation and lighting design support for multiple task work orders/projects. Corridors include NW 12th Ave, and NW 27th Ave. Responsibilities included CADD design support and voltage drop calculations.

DISTRICTWIDE MISCELLANEOUS PE DESIGN CONSULTANT C9S97 (PEDESTRIAN LIGHTING RETROFITS), MIAMI-DADE COUNTY, FL
Assisted in the plans preparation and lighting design support for multiple task work orders/projects. Corridors include, Normandy Drive, and Collins Ave in Miami Beach. Responsibilities included CADD design support and voltage drop calculations.

PRIOR WORK EXPERIENCE

ENGINEER IN TRAINING I, COLUMBUS, OH 2016 – 2017

- Reviewed construction engineering plans for streetlight, distribution and transmission projects.
- Developed CAD drawings for several systems including electrical, fiber optics, and wireless communications systems using AutoCAD.
- Designed transmission and distribution systems based on NEC and NESC standards.

SOFTWARE ENGINEER, TATA CONSULTING SERVICES **2015 – 2016**

- Developed and implemented software test plans for several clients.
- Coordinated with various cross-functional teams to resolve open system defects.
- Reported work progress continuously to clients thought project meetings.

Marwan Madi

AV SYSTEMS PLANNING & INTEGRATION

Years of Experience: 18 | **Education:** MS – Transportation Systems and Public Policy; BE – Civil Engineering

Specializing in freight and transportation technology, Mr. Madi has worked closely with federal, state, and local agencies to identify and assess trends affecting their networks and to develop and implement new strategies and technologies to improve travel and safety. For the Federal Highway Administration (FHWA), Mr. Madi helped lead scenario planning of future freight and passenger traffic flows across America's borders with Mexico and Canada. He also supported FHWA's Office of Freight in testing the Freight Advanced Traveler Information System—a freight-specific travel planning and performance application—in three regional locations. For Columbus, OH, Mr. Madi is supporting the design, testing and deployment of a connected freight truck platooning demonstration, as part of the federally funded Smart City initiative. He is also active in the Transportation Research Board's (TRB) respective committees on Freight Transportation Economics and Regulation, and Transportation and Economic Development.

Emerging Technology Lead, Long-Range Transportation Plan, Virginia Department of Transportation (VDOT), Statewide, VA. Mr. Madi is using exploratory scenario planning frameworks to consider the potential impacts and opportunities associated with emerging mobility technologies, including Connected Vehicles (CV), Automated Vehicles (AV), and Mobility as a Service (MaaS). He is creating a step-by-step guidance for Virginia to test emerging technologies scenarios in their planning processes, and/or to develop alternative futures suited to their contexts by creating new combinations of driving forces, policy actions, and outcomes. Mr. Madi is working with DOT staff, project advisors, and key stakeholders representing Virginia's rural and urban communities, regions, and municipalities, as well as other interests groups from both the public and private sector to develop a tailored approach that takes into account CV/AV and MaaS related data, information, and policies developed in recent years by state transportation agencies and Secretariat.

Key Staff, CV/AV Testing Guidelines, Illinois Tollway Authority, Statewide, IL. Mr. Madi developed CV/AV Testing Guidelines for the Illinois Tollway Authority to maximize potential benefits and minimize potential threats. Recommended strategies and implementation actions centered around 1) ensuring that CV/AV advance the Tollway Authority's multiple transportation goals and policies, including vision zero, climate pollution reduction and cleaner air, equity, physical activity, economic opportunity, great places, cost-effectiveness, mode share, and reducing vehicle mile traveled; and 2) Using a full range of tools to ensure that CV/AV and private data communications devices installed on Tollway Authority right of way contribute to achieving transportation system plan goals and policies. He is also working with the Illinois Tollway Authority to evaluate the feasibility of deploying CV/AV technologies on key highway facilities in the Chicago region.

Program Manager, Impact Evaluation of CV/AV on Multimodal Transportation Systems and Infrastructure, Ohio Department of Transportation (ODOT), Statewide, OH. Mr. Madi is leading this project that requires the framing of CV/AV scenarios and modeling to understand the potential impacts on travel behavior and infrastructure capacity (highway, transit, freight) from the implementation of new CV/AV technologies. As part of this effort, CDM Smith is developing new and expanding existing planning and modeling tools to help better understand the uncertain behavioral and infrastructure (design, operations, etc.) impacts of emerging technologies in the State of Ohio.

Program Manager, Deployment of ITS Technologies for Trucks and Truck Operations, Smart City Columbus, OH. Mr. Madi is currently leading an advanced transportation Smart City Columbus deployment program in Columbus, OH. The project promotes and deploys numerous multimodal traveler information and mobility applications (e.g., truck parking, and alternative routing); provides robust data management that supports efficient data collection, storage, aggregation, and analysis; provides real-time flow data, incident information and reporting, and performance measures tools; and addresses prioritizing and enhancing emergency vehicle preemption passage through intersections. Mr. Madi is leading the development of a ConOps for a truck platooning initiative.

Impacts Analysis Contractor, FHWA Impacts Analysis Assessment of FRATIS, FHWA, Nationwide. Mr. Madi supported FHWA's Office of Freight in FRATIS as Impacts Analysis Contractor by preparing and conducting independent evaluations of the results of FRATIS prototype bundle demonstrations at three different regional locations in the United States to

Marwan Madi

AV SYSTEMS PLANNING & INTEGRATION

assess and verify expected transformative benefits from the demonstration, then determine the implications of those benefits to the greater freight operations in each region.

Program Manager, ITS JPO Dynamic Mobility Applications Program Evaluation and National Mobility Impacts Estimation, USDOT, Nationwide. Mr. Madi led the effort to evaluate the DMA program. The focus of this work was to (a) assess the value of research efforts to date; (b) estimate the costs and benefits of planned research efforts; (c) understand the stakeholders' perspectives with respect to their sustained use of the program's assets such as the Open Source Applications Development Portal (OSADP), as well as what the program's success means from their viewpoint; (d) identify applications that have the greatest potential in terms of realizing the program's objectives and anticipated outcomes (i.e., provide most bang for the buck); (e) identify if a change in research focus and approach is warranted; (f) determine the extent of further investments needed to research, develop, and test the applications with the greatest potential; and (g) develop a program plan that is backed by a solid justification for the planned spending.

Manager, Scenario Planning of Future Freight and Passenger Traffic Flows Across the US/Mexico and US/Canada Borders, USDOT, Nationwide. Mr. Madi led a collaborative research project involving USDOT (Office of the Secretary of Transportation [OST]), FHWA's Office of Planning and Freight Management Office, Transport Canada, and the Mexican Secretariat of Transportation and Communications to promote the use of scenario planning processes and tools to develop common understanding and consensus between and within Canadian, Mexican, and US agencies regarding a range of future scenarios that might impact multimodal surface and air traffic flows across the US-Mexico and US-Canada borders through the year 2045.

Emerging Technology Lead, Surface Innovation Deployment Communication, Marketing, and Outreach, FHWA Center of Accelerated Innovations, Nationwide. Mr. Madi worked with the Center to address the wave of highway initiatives and new technologies and to execute marketing and communication tactics to capture initial adopters of a technical or process initiative and to build momentum for widespread acceptance and use of the technology or process innovation.

Project Manager, Effectiveness of Safety and Public Service Messages on Dynamic Message Signs, FHWA ITS/JPO, Nationwide. Mr. Madi assessed the effectiveness of disseminating safety and public service announcements (PSA) messages on dynamic message signs (DMS) through surveys targeted toward motorists in four urban areas.

Reviewer, OST International Highway Technology Scanning Program, USDOT, Nationwide. Mr. Madi worked with senior DOT executives, including Secretary of Transportation Ray Lahood, to review, evaluate, and develop recommendations for improvements for FHWA's International Highway Technology Scanning Program.

Research Lead, Off Hours Delivery Research and Project Support, FHWA Office of Freight Management, Nationwide. Mr. Madi is working with the FHWA Office of Freight Management to develop decision support tools, informational materials and technical assistance for the purpose of helping urban areas with emerging congestion problems consider whether off-peak commercial delivery programs are a viable option for congestion management. As part of this effort he is working directly with commercial vehicle operators on the development of a detailed decision support system to help incorporate off-peak hours commercial vehicles operation strategies into daily management decisions.

Research Lead, Guidebook for State, Regional, and Local Governments on Addressing Potential Equity Impacts of Road Pricing, FHWA, Nationwide. Mr. Madi led the development of a guidebook designed to assist transportation agencies to better assess and mitigate perceived and potential equity impacts of road pricing projects on local communities, commuters, and system users. Addressing potential equity issues is often vital to obtaining support needed to implement road pricing projects. In order for road pricing projects to succeed, the implementing state, regional, and local agencies must understand equity issues, develop mitigating measures, and articulate the issues and mitigation strategies to both the decision makers and the public. This guidebook will help agencies understand and communicate both the horizontal and vertical equities of their road pricing policies and projects. The guidebook was published in April 2013.

EVALUATION CRITERIA 2 – PROJECT APPROACH

Approach to the Project

As the Broward County Transit (BCT) moves forward with projects and becomes a transit agency of the future, the County may face several challenges down the road. CDM Smith has worked with several transit agencies as well as local, state, and federal clients to come up with innovative solutions to the transit needs of communities across the US and internationally. Our team brings lessons learned and institutional knowledge for each item listed in the Scope of Work, as outlined on the following pages. We look forward to the opportunity to support Broward County on these exciting transit forward projects.

POTENTIAL CHALLENGES	CDM SMITH SOLUTIONS
• There is an increased awareness among citizens that planning matters, that decisions made today regarding the environment and public investment will have a lasting effect on the quality of life here in Broward County.	• Our team is committed to environmental stewardship and meeting all current NEPA requirements as well as new requirements tentatively issued in 2020.
• We also understand Broward County faces several challenges to the development of their future transit networks while maintaining state of good repair of their current system. With the passing of the Penny Sales Tax for Transportation in November 2018, this provides the County with a dedicated funding source to maintain and upgrade their existing bus network for the long-term future. It also allows matching funds from other sources including FDOT and the FTA. At the Federal level, there is significant uncertainty about future funding.	• Our team has a wealth of expertise in this area and will optimize the County's competitive chances on obtaining matching funding for many of your programs. At the State level, opportunities do exist, and our team has vast experience working with FDOT as a partner.

A. CAPITAL PROJECT PLANNING AND DEVELOPMENT

To assist Broward County Transit with capital planning and development tasks, CDM Smith will focus on maximizing the planning dollars spent to leverage capital budgets responsibly and effectively. From corridor improvements to enhancing operations, maintenance and route service, our experienced experts will provide you with the support you need.

CDM Smith partners with clients from initiation, planning, and design through implementation. We will work with BCT to see your projects through to the end.

A. 1 Alternatives Analysis/Project Development-related FTA Capital Project Support

The CDM Smith team has worked with transit agencies across the nation to develop practical and realistic solutions on projects from the early Alternatives Analysis (AA) phase to design and implementation. We bring extensive experience working with FTA on Capital Investment Grant (CIG) funded transit projects. Many of these projects are in final design or operation including marquee projects like the Cleveland Healthline BRT in Cleveland, OH; Green and Blue Line BRT in Jacksonville, FL; IndyGo Red Line BRT in Indianapolis, IN; and Central Avenue BRT in St. Petersburg, FL. Our success is based

in developing early planning details on costs, ridership, interoperability of general traffic and transit on state and local roads, safety and complete streets improvements, as well as station level improvements and right-of-way needs to move projects into implementation quickly and in line with community expectations.

Having completed an array of AAs and transit projects in Florida and across the nation, we have developed a proven five-step approach for successful completion of planning-level studies that are feasible, meet cost and funding availability, and that are supported by the public, local, state and federal agencies, and key stakeholders in the community.

Step 1 – Project Mobilization: Establish a plan of action that mobilizes and energizes the project team, client, and key stakeholders. This includes identifying and strategizing ways to address critical success factors and key challenges proactively as well as engaging key stakeholders early on. As part of this step, we also collect all planning, design, traffic, guiding programs and policies, and applicable standards that will be essential to developing comprehensive and technically-sound analyses and recommendations.

Step 2 – Existing and Future Conditions: Conduct data collection, site visits, and analysis of corridor features. We will perform traffic analysis to understand congestion using Synchro and regional travel demand models. Origin-Destination (O-D) information, to understand how trips come into and out of the corridor, will be conducted at this stage and future conditions and forecasting using growth rate factors will be developed to understand how the corridor will change in the next 10, 15, and 20 years.

Step 3 – Identifying Needs and Deficiencies: Build a comprehensive list of needs so that a concise but encompassing purpose and need statement can be developed. From our experience, there could be perceived deficiencies that may need to be addressed as well as deficiencies that exist that aren't perceived. It is critical that this be backed by quantifiable data. For instance, if the need is to improve transit travel times, existing comparative data on transit and vehicular travel times must be identified so that alternatives can be evaluated on their performance compared to existing conditions.

CDM Smith used screening for the Ashland Avenue BRT study. Results of the evaluation criteria, defined in the Purpose and Need task, helped to concisely document comparative capital and operational costs.

Step 4 – Defining and Evaluating Corridor Improvements: Develop an array of potential solutions to address the project purpose and need and to identify a recommended alternative. Initial screening considers a broad array of modal and/or alignment options, while later screening processes further define potential running-way configurations, station locations, and other project elements with comparative performance related to ridership, traffic impacts, bus speed and reliability improvements, capital and operating costs,

PROVEN FIVE-STEP APPROACH FOR SUCCESSFUL COMPLETION OF PLANNING-LEVEL STUDIES

1	2	3	4	5
Project Mobilization, Strategy, and Data Gathering	Existing and Future Conditions Analysis	Identifying Needs and Deficiencies	Defining and Evaluating Corridor Improvements	Recommendations and Strategy

Continuous and Cohesive Public and Stakeholder Engagement

public input, and environmental impacts. Stakeholder agency input is essential at this step to ensure all potential alternatives are identified along with any non-starters.

Step 5 – Corridor Recommendations and Strategy: Identify an implementable and fundable solution for the County. For a project to successfully progress from the planning stage, you need accurate project costs and funding needs to right-size projects, as well as support from all stakeholders to identify trade-off decisions early to facilitate decision-making. Our final recommendations for a locally preferred alternative are more than lines or station dots on a map – they represent a well-defined, cost effective, and publicly supported project for subsequent engineering, environmental analysis, and design.

A.2 Multimodal Project Planning

Integrating bike and pedestrian improvements into planning is essential to generate use of transit and leverage your capital investments. At a general planning level, we help our clients combine transit stop location and amenity data with additional field surveys to develop comprehensive, updatable tools to manage and improve stop assets. We also help our clients develop a "kit of parts" for all stops, from simple flag stops to major transit hubs and to park and rides. We provide Americans with Disabilities Act (ADA) recommendations at each stop to maximize and prioritize capital improvement plans. For corridor improvements, we align transit agency guidelines with NACTO, ADA, and other standards, including bike lanes and multimodal design criteria, to deliver a first-class transit experience for users.

CDM Smith incorporates bicycle and pedestrian capital improvements as part of all transit planning projects to meet DOT requirements, multimodal user needs, and enhance transit and overall transportation network performance. These small-scale additional capital investments help enhance safety and make transit more attractive potential users.

Innovative Complete Streets Concept for Madison Street: Seattle, WA

As part of transit planning activities, CDM Smith developed running-way and transit station improvements and worked to develop an integrated multimodal corridor – providing vehicular turning needs, increasing pedestrian space and site distances at intersections, enhancing the transit network, and even re-contextualizing a one-way street into a new protected bicycle facility. These concepts were reviewed from the start with DOT staff to make sure all users could be accommodated and to develop safe, integrated multimodal solutions throughout this complex multiuse corridor.

A.3 Market Demand and Feasibility

Capturing value from transit improvements requires effective integration of land use and development trends with transit infrastructure capital planning efforts. Our approach to market demand and feasibility analysis for capital planning-related task is focused on leveraging transit investments with other available funding and resources to integrate land use planning, economic development, and transit-oriented development (TOD).

In addition to economic development tasks (Section D), we see two areas to assist BCT:

1. Leveraging your "Penny Sales Tax" capital planning dollars through development of market demand studies. These studies will focus your improvement funds on economic development and jobs in the region and to leverage.
2. Leveraging additional funding for integrated land use and TOD with transit corridor improvement plans.

First, our experience in market analysis will help the County further delineate existing, underserved, and potential new markets for transit services. This will involve bringing together an array of data to create travel market profiles, including:

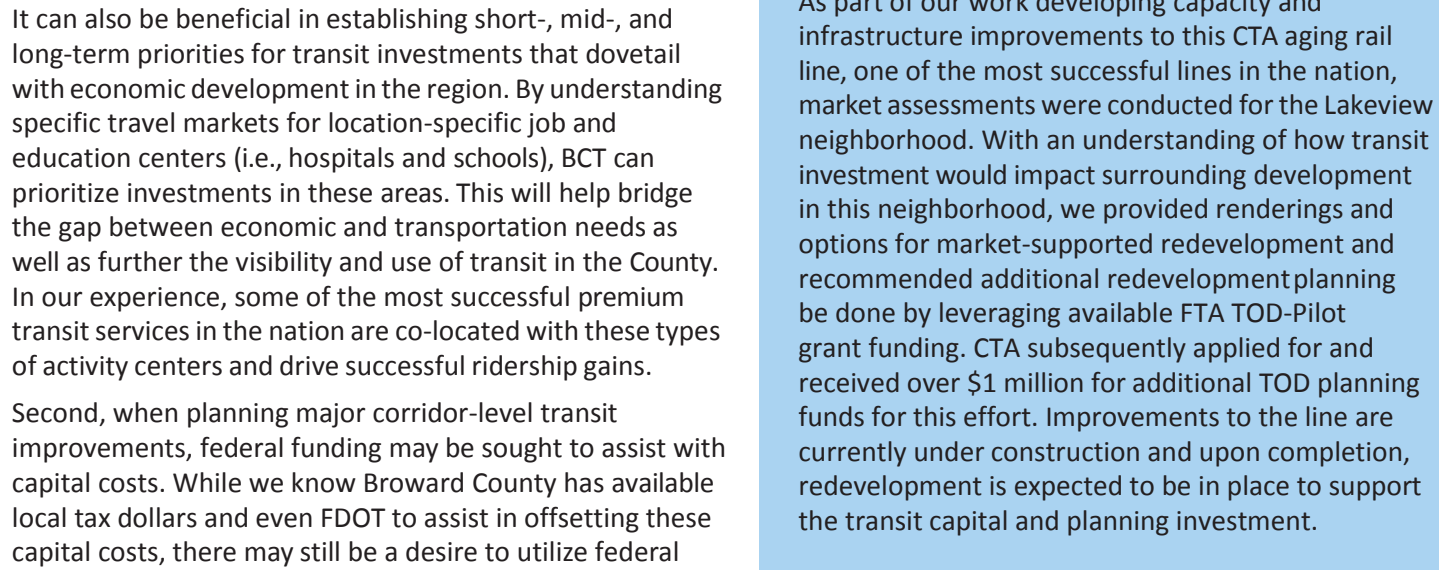
- Detailed demographic and employment information
- Journey to work and OD information and commuting needs
- Existing and planned land uses in coordination with walk and bike shed analyses

- Existing and planned transit routes and stops/stations/ transfer points
- Identification of first and last mile gaps

Based on these travel market profiles, we compare information on current and planned transit to other modes and against the needs and issues that influence travel decisions. This data, along with analysis of other market conditions, help to guide the development of streamlined, cost-effective transit service and capital improvements. It can also be beneficial in establishing short-, mid-, and long-term priorities for transit investments that dovetail with economic development in the region. By understanding specific travel markets for location-specific job and education centers (i.e., hospitals and schools), BCT can prioritize investments in these areas. This will help bridge the gap between economic and transportation needs as well as further the visibility and use of transit in the County. In our experience, some of the most successful premium transit services in the nation are co-located with these types of activity centers and drive successful ridership gains.

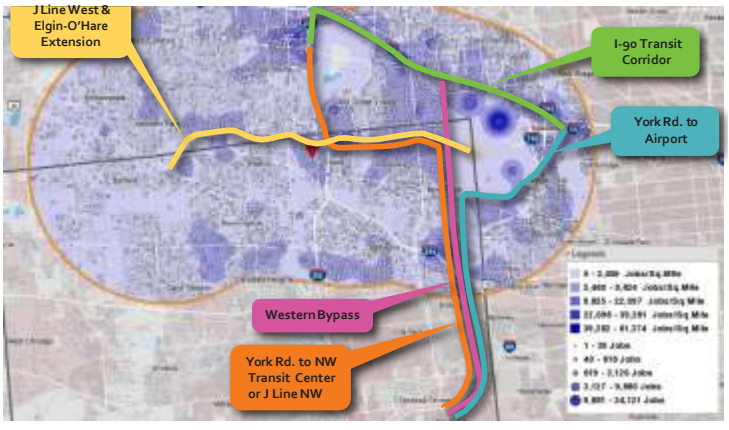
Second, when planning major corridor-level transit improvements, federal funding may be sought to assist with capital costs. While we know Broward County has available local tax dollars and even FDOT to assist in offsetting these capital costs, there may still be a desire to utilize federal funds such as CIG dollars. Criteria in obtaining favorable ratings for these funds involves several factors, including station area planning. Having supported applications of three of the five highly rated FTA projects in 2019, we bring a knowledge of the desired land use patterns around stations that result in high ratings from FTA on projects.

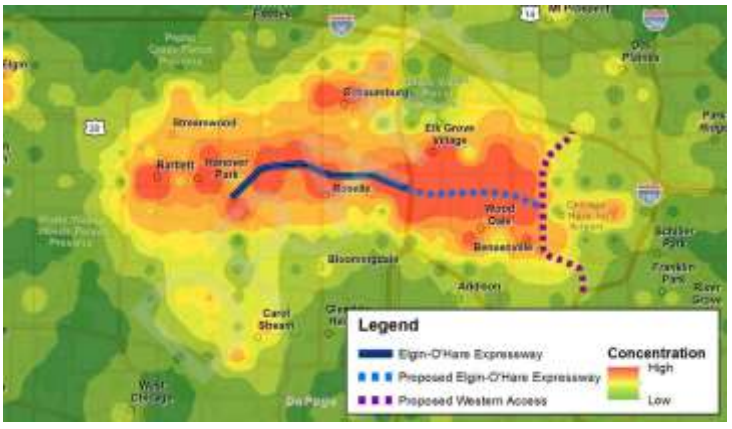
Bringing together market analysis with station improvement planning, we will assist BCT in making the right investments in the right places to maximize transit use and ridership. One of the keys is to leverage other available planning funds, such as FTA TOD Pilot Grant funds, to do the land use and market studies that often need to be completed prior to major transit corridor investments. Land use and zoning change recommendations, affordable and mixed housing stock policies and provisions, and work with developers to incentivize growth around transit and station areas are time consuming; therefore, we recommend strategies to help clients integrate these activities with major transit investments. When a new line or premium service opens, we make sure it is successful from day one.



Innovative Complete Streets Concept for Madison Street: Seattle, WA

As part of our work developing capacity and infrastructure improvements to this CTA aging rail line, one of the most successful lines in the nation, market assessments were conducted for the Lakeview neighborhood. With an understanding of how transit investment would impact surrounding development in this neighborhood, we provided renderings and options for market-supported redevelopment and recommended additional redevelopment planning be done by leveraging available FTA TOD-Pilot grant funding. CTA subsequently applied for and received over $1 million for additional TOD planning funds for this effort. Improvements to the line are currently under construction and upon completion, redevelopment is expected to be in place to support the transit capital and planning investment.





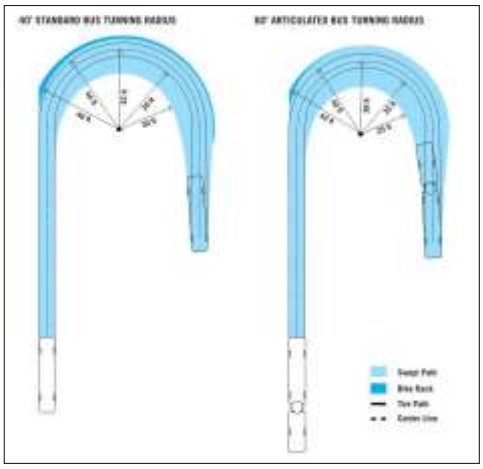
Our market assessment for the Elgin O'Hare Western Bypass study helped to identify O-D and coinciding travel market needs to recommend short, mid-and long-term transit investments that leveraged roadway access improvements and connections to the O'Hare airport in Chicago.

A.4 Transit Vehicle Access Standards

As part of developing comprehensive bus design standards, CDM Smith incorporates transit vehicle access standards that assist in developing capital plans that meet all bus operational needs in the fleet and for each area context. We will inventory the variety of fleet used for fixed route and paratransit services as well as available fleet equipment such as bike racks, wheelchair ramp equipment location and features, and any shared use facilities for multiple vehicle fleet types. We can then develop vehicle access standards for each type of vehicle in the fleet and for each type of bus stop typology in the system. A variety of intersection design principles will be developed to consider:

- Vehicle turning radius needs and requirements by context type (i.e., at shopping centers, bus pull-outs, or other locations).
- Desired distances of vehicles from crosswalks and bus stops.
- Considerations of vehicle safe access near parking.
- Other specialized treatments such as queue jumps or bypass lanes.

Roadway design standards that address vehicle access needs are also addressed in our standards development process and consider these bus dimensions and tuning radii needs plus specific standards to meet overhead/ vertical clearances, land width, grades, and roadway pavement conditions.



Example of intersection vehicle access standards we developed for Port Authority of Allegheny County in Pittsburgh, PA

A.5 Financial Planning and Related Support

Financial planning and support are a critical component in bringing projects to fruition. CDM Smith brings several evaluation techniques to assist in financial planning for your capital improvement needs. These techniques include both risk assessments and value for money analyses—both of which are essential to good capital financial planning. Risk assessments help assign risk to parties most efficiently able to bear it and help to establish the level to which your agency will be "on the hook" throughout a project's construction and beginning of operations. Value for money analyses provide further insights into how differing project delivery methods can yield the highest value to the transit agency, given associated project risks.

In addition to these project level tools, we will also support your financial planning needs with the following other areas of expertise in financial planning strategy development:

- ***TIFIA:*** The USDOT's TIFIA program supports transit improvements through less expensive and flexible provisions. TIFIA repayment revenues can come from a variety of sources, including value capture (VC). The 2015 Fixing America's Surface Transportation Act (FAST Act) expanded TIFIA to support VC and transit-oriented development (TOD) projects.
- ***Private Financing Strategies:*** Obtaining funding from the private sector through private financing strategies can be an effective way to build financial capacity for certain projects where private development interests are tied to transit investments. Our analyses look at ways to structure payment and revenue-based private-public partnership (P3s). These strategies may consider options in which a private developer designs, builds, finances, and even operates and maintains transit stations or other infrastructure, with the public sector operating the service. We help provide the options, risks, and costs and benefits for these exciting P3 opportunities.
- ***Developing Project Financial Plans and Models:*** To effectively evaluate the financing options for a project, we develop comprehensive financial plans, which consider project revenues, operating costs, capital costs, as well as all financing and funding terms. This model usually projects these assumptions for a 30 to 50-year period, as appropriate, and are a critical element in establishing project financial feasibility and valuation.

A.6 Capital Project Planning, Research, and Assessment

CDM Smith is ready and able to assist your agency with any and all capital project planning, research, and assessment that may be needed under this contract. Our experience in FTA's CIG program includes successful applications for the CTA's Red and Purple Line in Chicago, IL; Madison BRT in Seattle, WA; IndyGo's Red Line in Indianapolis, IN; and JTA's Green and Blue Line BRTs in Jacksonville, FL. We bring lessons learned in how to develop highly rated, wining grant funding proposals should you seek CIG funds. Additionally, our FTA planning experts are at the forefront of grant funding opportunities and notices and will help alert you to new grant funding opportunities to maximize your financial capacity to make needed improvements.

We also have experience in planning research and assessments that reach outside traditional funding sources.

Innovative funding sources such as VC analyses can be used to generate additional operating and capital revenues. Developers of transit infrastructure have increasingly looked to VC, that is, capturing the value from surrounding real estate which has benefited as a result of new infrastructure, through establishing special districts or business improvement districts, tax increment financing mechanisms, and other property owner contributions. Bringing experience from across the nation, we have found that VC can capture at least 20 percent of project costs. Often, this is the difference in financial planning funds needed to bring a project from planning to implementation. We stand ready to assist you in these and any other capital planning research needs you may have.

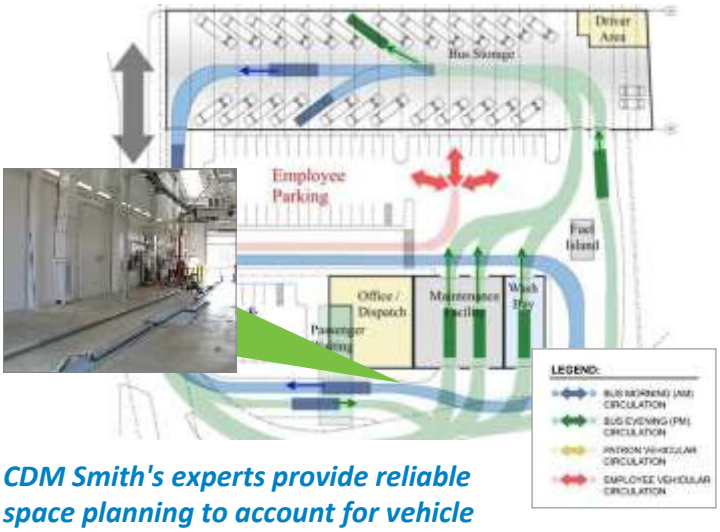
A.7 Maintenance and Operations Facility Site Analysis

CDM Smith has planned, designed, and executed hundreds of transit and public works facilities nationally, including intermodal facilities for various transit agencies across the US. Our unique expertise includes site planning and ultimately delivering safe, functional, cost effective and energy-efficient intermodal transit facilities. In your capital planning for maintenance and operations facilities, we bring together both service planning experts that understand the connectivity needs of a transit system with experts in engineering, design, and architecture of facilities so that you have accurate cost estimates and maximize investments in these facilities.

Our approach to transit facility work is consistent with our environmental roots: reduce and reuse where possible. Adaptive reuse of facilities not only saves money, but it also creates good public perception—communities are happy when a structure can still be used for good versus being torn down. In terms of materials, there is more creative reuse of components today. Repurposing plastics, metals, concrete, glass, and materials cuts costs for clients and helps them achieve green standards or LEED® certification.

Transit Maintenance Facility	Environ. Site and Efficiency Analysis	Energy Audits/Efficiencies			Emissions Analysis/ Alternative Fueling	Solar Energy and Lighting		Green/LEED Building Standards	
		Low-Floor/ Plumbing Efficiencies	Geothermal Systems	Efficient HVAC Systems		Solar Panels	Energy Efficient Lighting	Cisterns and Native Plantings	Green Roofs
El Metro Transit Facility, Laredo, TX	✓	✓		✓	✓	✓	✓	✓	
McDonough County Public Transit Program	✓	✓		✓			✓		
Mid-Mon Valley Transit Authority	✓	✓		✓			✓		✓
Butler Transit Authority	✓	✓	✓	✓	✓		✓		✓
Erie Metro Transit Authority	✓	✓	✓	✓			✓		
Crawford Area Transit Authority	✓			✓			✓	✓	✓
Red Rose Transit Authority	✓		✓			✓	✓		✓
Switch Gulch Public Works	✓	✓		✓		✓	✓		
Key West Bus Transit Facility	✓			✓			✓		

Successful facilities space planning comes from an understanding of operational needs and efficient traffic flows. During transit maintenance facility planning, CDM Smith's experts provide reliable space planning to account for vehicle turning radii, typical circulation on site, bus storage, and especially maintenance, washing, and fueling needs.



CDM Smith's experts provide reliable space planning to account for vehicle turning radii, typical circulation on site, bus storage, and especially maintenance, washing, and fueling needs.

A.8 Electric Vehicle Facility Planning

Electric buses are emerging in various stages of planning and implementation by a number of our major transit clients, such as LA Metro in Los Angeles, IndyGo in Indianapolis, CTA in Chicago, and the Port Authority in Pittsburgh. With Broward County currently testing and purchasing 100 percent battery powered buses, we can assist in transitioning to electric buses that will provide more efficient, environmentally sound, and cost-effective solutions to your current fleet. As battery technology continues to emerge, we predict vehicle costs will go down and battery longevity will increase. Having implemented similar solutions across the country, we bring the latest lessons learned in this still developing market and an approach that is grounded in experience.

We know incorporating electric vehicles into a fleet requires both operational and maintenance (O&M) considerations. Our approach is based on the latest understanding of O&M issues, which we are currently working with other transit agency clients to address. We will develop an early profile for performance-based decisions, determine if your fleet needs are in line with operational considerations, incorporate maintenance needs into vehicle planning, and recommend the right vendor to meet your goals.

Steps to Meet Your Electric Vehicle Facility Planning Goals:

Develop a profile for performance-based decisions: FTA provides some guidance on the useful life and lifecycle costs of a variety of vehicle technologies, bus manufacturers also provide key profiles on their anticipated life and costs, and best practice research also aids in understanding battery performance and other issues. Additionally, your own maintenance staff often have key insights into existing fleets and their advantages and drawbacks. Bringing these together to develop comparative life-cycle costs of initial capital investments and operations and maintenance is a major first step in any fleet decision.

Determine your fleet and infrastructure needs and operational considerations: One of the key challenges we have seen in implementing this technology relates to operations. Understanding where you plan to implement this new fleet into your system, whether you have enough buses, and where charging and other equipment will be needed along a route is essential to rolling out operations that work within your system.

Make sure to plan for maintenance needs: At your facilities, site analysis will be needed to develop dedicated spaces for safe storage of battery and other equipment and space for electric vehicle maintenance must be considered. Additionally, while your maintenance staff are highly trained in industry-standard bus maintenance, electric vehicle maintenance is somewhat specialized and will require additional training. Making sure this training is in place by the time you plan to implement this new fleet is very important in effective planning.

Review past performance in selecting the right bus manufacturer: While electric buses provide a lot of advantages, the technology continues to evolve, and manufacturer-provided life cycle factors may not pan out in reality. There are a few key issues that must be considered, such as range performance and temperature control on buses, and which impact performance and longevity. Current ranges of performance have been significantly below anticipated performance specs in implementation to date and have required mid-system charging and other fleet operational changes that were not initially considered. Similarly, performance in extremely hot conditions like we see in Florida and the bus AC needs significantly impact the efficiency of battery life.

A.9 Transit Stop Geocoding

As data is more prevalent than ever with connected vehicles and GPS, analyzing and visualizing the data is essential in planning strategically. CDM Smith brings wide-ranging experience in GIS applications development (including web-based tools), geography-based socioeconomic and gap analysis, and service planning integration with GIS.

We will assist BCT in leveraging tools to allow you to make timely, data-informed decisions through transit stop geocoding that:

- Links additional tools, such as GTFS and Remix software, for access to important data for service planning and transit market analyses
- Provides geocoding with detailed information to monitor and track capital asset management
- Helps service and capital planners within your agency proactively monitor transit assets, amenities, and conditions

As a leader in the implementation of asset management programs, our expertise encompasses asset management planning, GIS-based asset inventory and condition assessment, criticality and risk assessments, technology implementation, operation and maintenance programs, and capital planning.

Our approach to asset management considers the whole organization and how it operates to help implement holistic programs that benefit the County and stakeholders. Throughout this process, our asset management experts work alongside our GIS and technology experts to help implement strategies, processes, and integrated technology solutions that support more effective asset management.

For clients across the country, CDM Smith uses an ArcGIS Online, cloud-based GIS solution (Esri) to perform asset inventories and condition assessments and brings experiences working with massive datasets. We can compile data into a variety of formats depending on desired uses, including supporting real-time, cloud-based databases. We also bring experience developing dashboard applications that allow our clients to continually monitor stop and location conditions and assets alongside performance indicators for assets and schedules for asset improvements.

B. TRANSPORTATION PLANNING AND ANALYSIS

CDM Smith offers more than six decades of transportation planning expertise and a team of experienced planners and engineers in all facets of transit system development including planning, development, implementation, and evaluation of bus and other commuter services. From strategic planning to fare policies reviews, from traffic and transit route-level and system studies to integration of land use and multimodal improvements, we bring the dedicated staff resources on any and all BCT transportation planning task work orders. Our approach to each of these tasks is tailored to fit your project goals and objectives and begins with sound data collection and use of experienced technical staff with demonstrated successful experience in each area under this contract.

B.1 and B.2 Strategic Planning and Policy Development

For an agency to move forward they should look at where they are and where they could be. The County is in the driver's seat, with the passage of the Penny for Transportation, to chart its own course for the future. Developing a sound strategic plan that defines desired goals and strategies with implementable policies, that are measured annually, is key to ensuring success and meeting the public's expectations. Our experience in leading strategic plans for transit agencies as well as State and Regional agencies, including Florida Aviation System Plan and Florida Freight Mobility and Trade Plan-Policy Element, allows us to assist BCT in develop a meaningful strategic plan that can guide the decision making process for transit improvements, services and programs into the future. CDM Smith, in coordination with the Broward MPO, can guide a strategic planning process that examines the current state of the agency, investigates where employees and stakeholders want to go, creates goals, strategies and policies on how to get there, determines the measures and metric to ensure

Our GIS and transit specialists bring you a variety of tools that can be customized to meet your transit planning and asset management needs:

- Enterprise GIS system planning and business process evaluation
- Transportation geodatabase design, data acquisition, and data development
- Esri Roads and Highways and All Road Network of Linear References Data (ARNOLD) implementation
- Transportation asset management programs
- Mobile and cloud-based data collection and asset inventory applications
- Custom WebGIS applications, integrated executive dashboards, and custom ArcGIS Online solutions
- CMMS design and implementation
- Training, support and long-term enterprise consulting

the goals and strategies are being implemented, and sets a process by which the goals/strategies and metric are reviewed for annually and adjusted. Strategic planning is not a static plan; it is a living document that guides decisions daily, provides the policies to justify major improvements and services, and sets common strategies to help the County achieve its vision for the future.

B.3 and B.5 Transit Ridership Modeling and Schedule Run Cutting

CDM Smith's Service Planning services are grounded in creating overall mobility management solutions for the entire transportation network. Over the past 10 years, we have completed dozens of multimodal corridor intermodal station and area-wide transit operating studies. CDM Smith brings together transit and traffic operations analysis, ridership and microsimulation modeling and other operational planning and has teamed with **Connetics Transportation Group** to provide TBEST and STOPS ridership modeling support. Transit ridership modeling starts with an understanding of O-D patterns determined either by on-board surveys or using big data, such as Streetlight Data Inc. to determine desire lines. Streetlight is a low cost big-data provider that CDM Smith uses regularly in many traffic planning studies. We have experience using regional travel demand models including SERPM to forecast overall travel demand, as well as TBEST to examine the potential for new routes and route changes, as well as the STOPS model, FTA's long-range planning model, to forecast the potential for Capital Grant funded premium transit projects. Long range planning using transit ridership modeling complements the service planning work of Schedule Run Cutting. This is specialized work, using Trapeze or other platforms, to provide daily schedules for routes and operators so that the bus system runs smoothly and makes it connections.

B.4 Fare Policy and Technology Analysis

Being in multiple facets of transportation, CDM Smith has the unique understanding of fare policy as well as technology analysis. Representing toll and transit agencies across the nation, CDM Smith understands the role fares play in the use of transportation and transit systems, how equity across demographics and facility usage play into fare policy and how fare policy can impact an agency financially as well as politically. CDM Smith has completed design services for most of the operating Bus Rapid Transit projects across the country and have experience with the technologies and decision-making process on determining on-board vs. off-board fare collection systems and can assist BCT on these decisions for it upcoming projects.

Pace IL 390 Service Planning Study: Illinois

CDM Smith developed a Transit Propensity Index for the Pace IL 390 service planning study to evaluate potential service corridors. The tool scores market areas that have potential for transit demand and utilization using demographic factors that traditionally indicate transit-dependence and other, thereby approximating the likelihood of using transit across travel markets within zones of the study area.

CDM Smith also developed a Transit Access Index that accounted for pedestrian and bicycle support facilities, existing routes, and PNR facilities. These tools, combined with travel demand model origin-destination pair information and Census LEHD data, create a data-driven approach for transit-based market analysis.

B.6 Short and Long-Range Transit Planning

To successfully move transit projects forward, the collective understanding of agency partners' traffic patterns at a regional and corridor-specific level is key. It is also crucial to develop plans that meet design and multimodal operational criteria, especially on state roads. As a national leader in traffic engineering, CDM Smith's staff are focused on traffic engineering locally and nationally to support transit improvement projects such as when determining the viability of changes to the roadway and/or in selecting site-specific stop and station locations for service. For nearly two decades, CDM Smith has supported FDOT, Miami-Dade Expressway Authority (MDX), Central Florida Expressway Authority (CFX), and Florida's Turnpike in numerous traffic engineering efforts across the state, spanning on-call, multi-task, multi-year programs as well as dedicated arterial studies. Over the course of our relationship, we have completed 500+ tasks, arming us with unmatched expertise in a comprehensive range of facilities and traffic engineering principles.

B.7 Capital Improvement Plans (CIP)

Capital improvement planning must be tied to your transit development plan (TDP) goals and objectives, transit asset management planning, and meet FTA requirements in timeframes for different capital asset improvements desired. It also needs to be tied in with regional long range planning to leverage local, state, and federal funding

resources. In developing CIPs for transit agencies, we work to develop tools that bring all these factors together into dashboard or other user- friendly tools for BCT staff and establish performance metric tools to assess and prioritize investments in your short-term CIPs. We also work on developing accurate cost estimates utilizing both planning staff and our construction engineering division expertise so that you have realistic planning-level estimates and contingencies that account for more detailed design- level estimates. Finally, we know that a key to effective CIP assessments is to understand and leverage other infrastructure improvement projects on a roadway to streamline and coordinate construction schedules and to make the most of your available budgets. For instance, as we developed the JTA North Corridor BRT project and capital improvement planning, we were able to coordinate effectively with DOT's schedules for roadway repaving programs and get the needed transit infrastructure improvements in place without costing the transit project even more money.

B.8 Multimodal Access Planning

Our experience in service planning, design, and operations is focused on creating real community assets from stations and transfer facilities and creating stations and stop locations that are accessible, incorporate ADA requirements, and provide flexibility based on location and right-of-way. More than "dots" on a map with service planning around it, we create places for people and develop service plans and designs that best meet customer needs. From planning to design, there are several steps to bring station and service planning and design to reality.

Bus Stop Guidelines that Incorporate Bike/Ped and ADA Transition Planning

CDM Smith has developed transit design guidelines in coordination with transit agencies, local governments, and state DOTs around the nation – including Bus Stop and Light Rail Design Guidelines for the Port Authority of Allegheny County in Pittsburgh, PA and WeGo in Nashville, TN. They build on and align with NACTO, ADA and other standards to include bike lanes and other multimodal design criteria.

B.9 Transportation Demand Management (TDM) Planning

Traffic congestion and high demands on the transportation system are issues Broward County residents encounter every day. Like most urban areas, the County and FDOT has conducted multiple studies to address the transportation needs of today and future development, but there is also a need to establish a county-wide strategy for identifying and prioritizing transportation improvements that will help BCT achieve its mobility, safety, and quality of life goals.

CDM Smith has assisted jurisdictions like Broward County to take a comprehensive look at all the policies and recommendations related to transit and transportation demand management that have been developed to date. We have also assisted with filling in data gaps, developing additional strategies where needed, and providing a roadmap to implementation. This analysis allows the County to develop a comprehensive approach in prioritizing county-wide transportation improvements and to effectively utilize revenue from new developments and the new surcharge tax to address transportation needs.

Transit and Transportation Demand Management Plan: City of Allameda, CA

CDM Smith is developing a comprehensive Transit and Transportation Demand Management Plan through an inclusive process that involves community stakeholders, the business community, and transportation agencies. We are applying an implementation-focused approach that uses innovation and best practices to support the City's overarching goals of increasing residents' use of efficient commuting options and enhancing multimodal intra-city mobility. CDM Smith is:

- Working closely with stakeholders to develop strategies that can be advanced to implementation;
- Developing innovative approaches to tackle Alameda's complex transportation problems;
- Finding opportunities to implement strategies and achieve results in the near-term; and
- Providing multimodal expertise to develop comprehensive transit and transportation demand management solutions.

B.10 Land Use Planning

Land use planning around stations and other transit infrastructure, if done effectively, drives successful ridership and other transit performance metrics. Developing guidelines and requirements around your stations and infrastructure is a hallmark of our experience. A key tool we have used for integrated land use planning is developing transit-oriented development (TOD) guidelines near your transit investments.

While most TOD studies have traditionally focused around rail stations, TOD is just as transferrable to good bus area planning and place making. CDM Smith has developed TOD guidelines for a variety of agencies across the nation and helped to develop real, implementable TOD plans that bring together governmental agency partners with the developer community. These aren't just "feel good" TOD guidelines with architectural or development type desire lines, they obtain developer perspectives up front to understand their considerations in making investment decisions as well as what types of land use and zoning incentives might help to achieve specific community visions for implementation.

Our approach and experience will provide you with:

- Community supported, architecturally-sound design principles for TOD specific plans
- Alignment of community desires and future land use plans with both transit investment priorities and the types of incentives packages that will make development achievable
- Recommendations on specific changes to land use and zoning that you can bring to your land use agency partners – not just asking them for help, but providing them with the changes needed and reasoning behind it
- An ability to capture value from potential land use investments for these proposals BCT can make to better lease facilities and generate sources of added income

B.11 Park and Ride Planning

CDM Smith has completed parking needs and parking financial feasibility studies for clients in over 12 states and four countries and have proven success on parking demand and revenue studies. We bring national and international industry experts in comprehensive parking studies, parking needs studies, and financial feasibility analyses and a specialist in park-and-ride parking management. CDM Smith's parking expertise includes supply and demand analysis, parking operations and management financial and physical feasibility, special activity parking studies and comprehensive traffic and parking studies.

Our team has provided station access planning and monitoring services to BART for 18 years and has implemented a demand-based parking management program at over 30 BART stations. CDM Smith also assisted San Bernadino Metrolink explore the feasibility of instituting parking fees at seven park-and-ride locations, supported Washington DOT with a park-and-ride privatization study to finance the expansion of the park-and-ride system and worked with CalTrans to develop the statewide Park-and-Ride Program Resource Guide manual.

ARTIST'S RENDERING OF STREETSCAPE EXPERIENCE: MODEL BLOCK

1. Activate street edge w/ transparent welcoming facades and pedestrian-friendly uses
2. Incorporate resilient plantings to improve pedestrian experience, water infiltration, air quality and public health
3. Furniture zones and cafes encourage pedestrian use. Ensure pedestrian circulation zone remains clear
4. Sidewalks should provide adequate space for circulation, gathering, and transit connections. Additional sidewalk space at pinch points can be achieved through slight building setbacks
5. Accessible sidewalks and clearly marked crosswalks enhance pedestrian safety
6. Plaza / gathering space to facilitate a variety of public uses

CDM Smith has developed TOD guidelines for a variety of agencies across the nation and helped to develop real, implementable TOD plans that bring together governmental agency partners with the developer community.

This is an example from CTA's Brown Line Vision Study. CDM Smith provided TOD Guidelines around Kimball Station.

B.12 Traffic Studies, Analysis and Micro-Simulation Modeling

In transit improvement and operations projects, we work intensely with regional travel demand models, Synchro corridor level analyses, and microsimulation models like VISSIM to understand current traffic and to provide recommendations for transit and multimodal improvements. Our traffic engineers have extensive experience in developing O-D patterns and developing sound, realistic transit operation plans that effectively build ridership. In fact, we're currently leading the development of acceptable traffic methodologies for transit/BRT projects for FDOT Central Office. As Broward County embarks on their own initiatives for innovative multimodal corridors, like SR 7/US 441 and Oakland Park Boulevard, we will provide the County with traffic and multimodal analyses that support premium transit solutions, help you advocate for the best use of transit in these corridors, and bring you on as an integral, engaged partner in creating these mobility solutions.

CTA Ashland Avenue BRT: Chicago, IL

CDM Smith used VISSIM modeling to evaluate BRT service and demonstrate satisfactory traffic operations for the Ashland Avenue BRT corridor in Chicago. The model tested the effects of traffic signal prioritization (TSP), queue jumps, station locations, and pedestrian crossing locations along the corridor. This was utilized and proven to be a successful methodology to analyze existing and proposed BRT, local bus, pedestrian, bike, auto, heavy vehicle, and freight rail crossing conditions.

B.13 Financial Analysis and Planning

See Section A.5, D.2, and H of our approach. From FTA financial plans to innovative tools to finance transit to market feasibility and financial planning and grant funding planning, we offer expertise and distinct approaches to every type of financial planning task BCT may need.

B.14 Mobility on Demand (MOD) Program Research and Planning

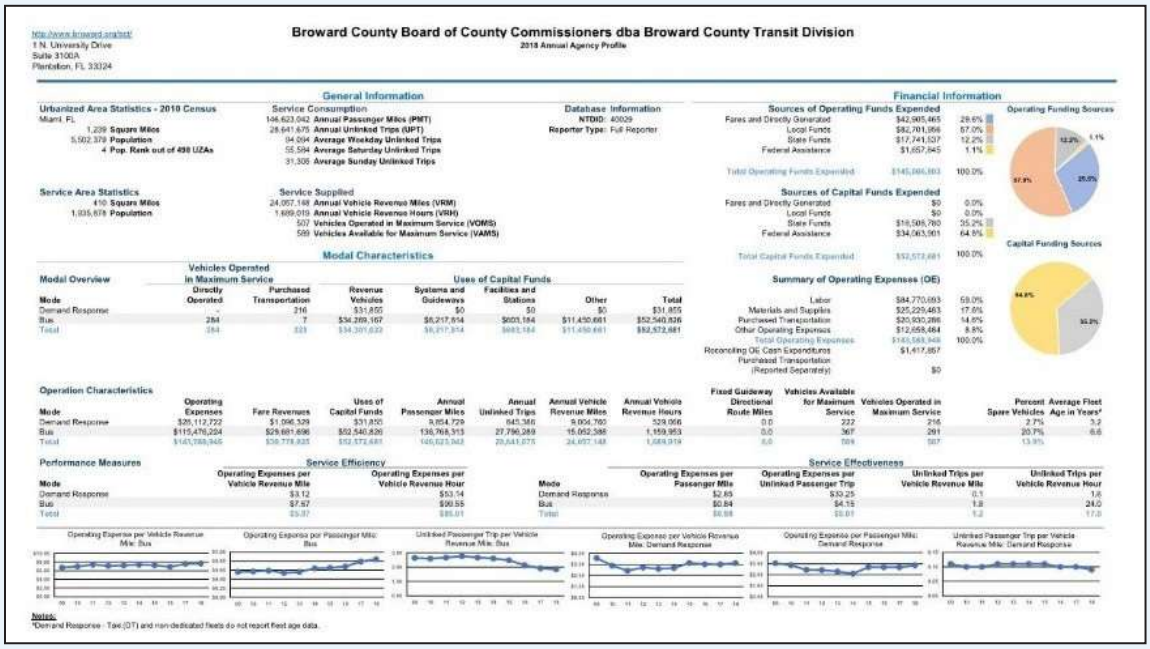
As a new initiative from the US Department of Transportation (USDOT), led by the ITS Joint Program Office (JPO) and the Federal Transit Administration (FTA), MOD enables and leverages advancements in technology and operations to create an environment with safe mobility options, reliable information on mobility options and a multimodal network that prioritizes individual, on-demand mobility. MOD can also be an avenue for the County Community Shuttles to improve service and expand its reach to mobility challenged populations.

As part of our planning work with FDOT District 5 on their 2019 Mobility Week initiatives, we've developed the theme around mobility as a service (MaaS) and how to integrate all these different features that are separately at work in Central Florida and truly implement mobility of service effectively in region. Developing a plan for integrating platforms that are currently standalone will be an important step forward for BCT in developing short and long-term incremental solutions for MOD and MaaS. It will require firms like ours with regional transit and urban mobility knowledge and agency relationships working collaboratively with your staff and private mobile software and shared ride platforms companies like Cubic, Masabi and Via, who bring experiences implementing MOD and MaaS applications for government agencies around the nation.

We are developing MOD transportation solutions in Charleston, SC focused on building the rural workforce, involving new and innovative transit solutions and funding between transit providers and workforce and economic development agencies, employers, and training/educational centers. We focus on service planning and integrated funding efforts to connect employees to transit through dedicated micro-transit services, applications, and marketing/outreach.

B.15 Transit Planning Data Collection and Analysis

In the age of Big Data, transit agencies have been collecting data and now sharing data to improve service to its riders. Transit agencies report their ridership data annually, which can be analyzed to better understand its service and where it might be excelling or falling short. CDM Smith can assist BCT in using existing ridership and operation data from reports prepared for FTA to develop metrics to compare with other agencies. This includes collection and reporting of National Transit Database (NTD) data and performance measures required by FTA annually – including



Broward County Board of County Commissioners dba Broward County Transit Division
2018 Annual Agency Profile

1 N. University Drive
Suite 3100A
Plantation, FL 33324

General Information

Urbanized Area Statistics - 2018 Census
Miami, FL
1,239 Square Miles
5,502,379 Population
4 Pop. Rank out of 498 UZAs

Service Area Statistics
410 Square Miles
1,935,878 Population

Service Consumption
146,623,042 Annual Passenger Miles (PMT)
28,641,675 Annual Unlinked Trips (UPT)
94,094 Average Weekday Unlinked Trips
55,594 Average Saturday Unlinked Trips
31,306 Average Sunday Unlinked Trips

Service Supplied
24,057,198 Annual Vehicle Revenue Miles (VRM)
1,689,019 Annual Vehicle Revenue Hours (VRH)
507 Vehicles Operated in Maximum Service (VOMS)
599 Vehicles Available for Maximum Service (VAMS)

Database Information
NTDID: 40029
Reporter Type: Full Reporter

Financial Information

Sources of Operating Funds Expended

Fares and Directly Generated	$42,985,965	29.6%
Local Funds	$82,701,956	57.0%
State Funds	$17,741,537	12.2%
Federal Assistance	$1,657,845	1.1%
Total Operating Funds Expended	$145,086,303	100.0%

Sources of Capital Funds Expended

Fares and Directly Generated	$0	0.0%
Local Funds	$0	0.0%
State Funds	$18,508,780	35.2%
Federal Assistance	$34,063,901	64.8%
Total Capital Funds Expended	$52,572,681	100.0%

Operating Funding Sources

Capital Funding Sources

Modal Characteristics

Modal Overview

Mode	Vehicles Operated in Maximum Service: Directly Operated	Vehicles Operated in Maximum Service: Purchased Transportation	Uses of Capital Funds: Revenue Vehicles	Uses of Capital Funds: Systems and Guideways	Uses of Capital Funds: Facilities and Stations	Uses of Capital Funds: Other	Uses of Capital Funds: Total
Demand Response	-	216	$31,855	$0	$0	$0	$31,855
Bus	284	7	$34,269,167	$6,217,614	$603,184	$11,450,661	$52,540,826
Total	284	223	$34,301,022	$6,217,614	$603,184	$11,450,661	$52,572,681

Summary of Operating Expenses (OE)

Labor	$84,770,693	58.0%
Materials and Supplies	$25,229,463	17.6%
Purchased Transportation	$20,930,286	14.6%
Other Operating Expenses	$12,658,864	8.8%
Total Operating Expenses	$143,589,306	100.0%
Reconciling OE Cash Expenditures	$1,417,857	
Purchased Transportation (Reported Separately)	$0	

Operation Characteristics

Mode	Operating Expenses	Fare Revenues	Uses of Capital Funds	Annual Passenger Miles	Annual Unlinked Trips	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Vehicles Operated in Maximum Service	Percent Spare Vehicles	Average Fleet Age in Years*
Demand Response	$26,112,722	$1,096,329	$31,855	9,854,729	845,366	9,904,760	529,066	0.0	222	216	2.7%	3.2
Bus	$115,476,224	$29,681,696	$52,540,826	136,768,313	27,796,289	15,052,386	1,159,953	0.0	367	291	20.7%	6.6
Total	$143,589,306	$30,778,025	$52,572,681	146,623,042	28,641,675	24,957,146	1,689,019	0.0	589	507	13.9%	

Performance Measures

Service Efficiency

Mode	Operating Expenses per Vehicle Revenue Mile	Operating Expenses per Vehicle Revenue Hour
Demand Response	$3.12	$53.14
Bus	$7.57	$99.55
Total	$5.97	$85.01

Service Effectiveness

Mode	Operating Expenses per Passenger Mile	Operating Expenses per Unlinked Passenger Trip	Unlinked Trips per Vehicle Revenue Mile	Unlinked Trips per Vehicle Revenue Hour
Demand Response	$2.65	$50.25	0.1	1.6
Bus	$0.84	$4.15	1.8	24.0
Total	$0.98	$5.01	1.2	17.0

Operating Expense per Vehicle Revenue Mile: Bus
Operating Expense per Passenger Mile: Bus
Unlinked Passenger Trip per Vehicle Revenue Mile: Bus
Operating Expense per Vehicle Revenue Mile: Demand Response
Operating Expense per Passenger Mile: Demand Response
Unlinked Passenger Trip per Vehicle Revenue Mile: Demand Response

Notes:
*Demand Response - Taxi (DT) and non-dedicated fleets do not report fleet age data.

CDM Smith's work with FDOT's Central Office Transit brings BCT expertise in FTA NTD Reporting. We also use NTD system-wide performance metrics as a tool for more detailed data and analysis of route-level performance – helping you understand at both route and system-wide levels changes that may be needed to provide effective and efficient service.

overall service characteristics, such as service span or area covered, service area population, and capital and operating characteristics and expenses as well as service and cost efficiency and effectiveness measures like passengers per revenue hour and mile, cost per revenue hour and mile, on-time performance, and safety information on miles between service calls for vehicle fleets. We understand that this is more than meeting a reporting requirement—it is about measuring and continuing to monitor and adjust service based on performance and is part of overall service and cost efficacy in the short and long-term for your agency.

From our work for FDOT Central Office Transit, our staff are skilled at obtaining and reporting out this data using FTA templates and forms accurately and timely to meet all FTA deadlines and to make sure that reporting of NTD data is validly reflecting performance characteristics that affect your federal funding. This same staff, working with transit agencies across Florida, also bring experience navigating through FTA agency triennial review processes and requirements to demonstrate compliance of the agency with all federal requirements. As your triennial reviews occur, we can work with the County to make sure that this often arduous and time-consuming task is completed efficiently and effectively to the satisfaction of FTA triennial managers.

B.16 Transportation Planning Services as Requested

We understand that Broward County has the responsibility of implementing a transportation program that is supported by stakeholders. CDM Smith will support BCT with any transportation planning service requested by its oversight board, citizens, or the Board of County Commissioners. The Penny for Transportation initiatives stand to fundamentally change and advance transit and urban mobility in the County. CDM Smith can assist in services from comprehensive route analysis, to corridor studies and premium transit design, from transit-oriented development (TOD) planning to advanced planning and programming for the future that will include electric buses and automated/ connected vehicles - transforming the BCT organization into a true mobility management agency.

C. ENVIRONMENTAL PLANNING

At the crux of planning and design, environmental planning for transit projects requires an understanding of federal, state, and local procedures and policies; sound understanding of transit infrastructure engineering improvements and footprints; and the ability to quickly communicate across disciplines and with a variety of agencies, stakeholders, and the public to address social, man-made, and natural environmental concerns. Effective and efficient environmental reviews provide valuable improvement to project proposals to foster responsible, cost-effective decision-making that are supported by agencies and the public alike.

C.1 National Environmental Policy Act (NEPA) Planning

CDM Smith has led planning, NEPA, and engineering services for hundreds of NEPA documents, including some of the major transit capital investment grant (CIG) projects across the nation, such as the Eastside Connector EIS in Los Angeles, CA; CTA Red Line Extension EIS and Red and Purple Line Modernization EAs in Chicago, IL; IndyGo Red Line BRT CE in Indianapolis, IN; Downtown to East End BRT CE in Pittsburgh, PA; and JTA Green and Blue BRT line EAs in Jacksonville, FL. We collaboratively bring planning and environmental planners, designers, and financial specialists together to create competitive, successful projects from planning and environmental work to implementation.

CDM Smith Excels in BRT Planning, NEPA, and Design Services. The matrix below represents the team's national BRT experience with NEPA services.

RELEVANT BRT EXPERIENCE	FUNDING			WORK TASKS								DELIVERABLE				
	New Starts	Small Starts	Very Small Starts	Public Involvement	Traffic Analysis	Travel Demand Modeling/Assess.	Economic Development	Urban Planning	Alternatives Evaluation	Cost Estimating	Financial Analysis	Feasibility Study	Alternatives Analysis	NEPA/Environmental Documents	Conceptual/Preliminary Eng.	Final Design
NATIONAL TRANSIT PROJECTS																
Red Line BRT (IndyGo), Indianapolis, Ind.		✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Madison Street BRT, Seattle, Wash.		✓		✓	✓	✓		✓	✓	✓	✓			✓	✓	✓
Laker Line BRT, Grand Rapids, Mich.		✓		✓	✓	✓			✓	✓		✓	✓		✓	✓
NEPA/New Starts: Regional Connector, Los Angeles, Calif.	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HealthLine BRT, Cleveland, Ohio	✓			✓	✓	✓		✓	✓	✓			✓	✓	✓	✓
Silver Line BRT, Grand Rapids, Mich.			✓	✓	✓	✓		✓	✓	✓		✓		✓	✓	✓
Western/Ashland Corridor BRT, Chicago, Ill.		✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	
NEPA/New Starts Red Purple Modernization, Chicago, Ill.	✓			✓	✓				✓	✓	✓	✓		✓	✓	
NEPA/New Starts Red Line Extension, Chicago, Ill.	✓			✓	✓				✓	✓	✓	✓		✓	✓	
NEPA/New Starts Red, Orange, and Yellow Lines, Chicago, Ill.	✓			✓					✓		✓			✓		
Jazz BRT, Monterey, Calif.			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Stevens Creek Corridor, San Jose, Calif.		✓		✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	
Piedmont Triad BRT, Winston Salem/Greensboro, N.C.	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Ogden Weber BRT, Salt Lake County, Utah		✓		✓	✓			✓	✓	✓	✓		✓			
CTFastrak BRT, New Britain-Hartford, Conn.	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
North Corridor BRT, Jacksonville, Fla.			✓	✓	✓	✓	✓		✓	✓	✓		✓	✓		
Southeast Corridor BRT, Jacksonville, Fla.			✓	✓	✓	✓	✓		✓	✓	✓		✓	✓		
5600 BRT, Salt Lake City, Utah		✓		✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	
BRT Manchester, Vernon, Conn.	✓			✓	✓	✓		✓	✓	✓	✓		✓	✓		
Roosevelt BRT Corridor, Seattle, Wash.	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	
Southwest Salt Lake County Transit Corridor, Utah	✓			✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	
Broad Street Corridor BRT, Richmond, Va.		✓		✓	✓		✓	✓	✓		✓	✓	✓	✓		

C.1.a – C.1.d – Developing Sound CEs, EA/FONSI, and EISs for Transit Projects

Moving from the alternative analysis (AA) phase to seeking state or FTA support for premium transit improvements, we are ready and experienced in helping you navigate through this regulatory process to create competitive, multifaceted, and environmentally-sound planning decisions. Determining the appropriate Class of Action for projects is the first step in any CIP seeking federal or state funds. We bring expertise in all Class of Actions–from straightforward Documented Categorical Exclusions (CE) where there are no substantial environmental impacts to Environmental Assessments (EA) where more analysis may be needed to determine the level of environmental impact. Our experience ranges from developing documents for a Finding of No Significant Impact (FONSI) to large-scale projects with significant environmental impacts, requiring Environmental Impact Statements (EIS) to fully disclose the levels of adverse impacts and where additional identification of mitigation measures must be further developed. Regardless of the environmental Class of Action, our approach to environmental review fully analyzes and discloses all man-made, natural, and social impacts of a project, including:

- Changes or impacts to land use
- Cultural resources
- Community and neighborhood cohesion
- Aesthetics
- Transportation
- Noise and vibration
- Wetlands and water resources
- Other defined resource areas under FTA requirements

For each project, our environmental approach starts with rigorously defining the project so that environmental impacts can be defined and examined. This includes overall project development activities prior to environmental documentation, such as:

- Identifying project funding early and defining project improvements in line with available resources
- Solidifying project definition in collaboration with agency partners
- Refine block-by-block designs to meet agency and stakeholder needs
- Identifying trade-off decisions early and facilitating engagement and decision-making consensus
- Building project champions
- Meaningful public engagement and proactive outreach to Environmental Justice communities

Starting with these activities provides the level of detail needed to conduct meaningful analyses and to develop the right environmental solutions to project challenges.

While many factors must be considered in environmental reviews and documentation, sound traffic and transportation analyses that helps generate consensus between roadway, rail, and transit agencies is likely to be one of the most important aspects of completing an environmental review process with a project that is feasible, prudent and supported as future design and construction phases commence.

Often, transit investments are most needed in urbanized, state designated roadways where ridership is generated. Achieving consensus and concurrence with these agencies on transit proposals is therefore a critical success factor in maximizing improvements to serve transit travel time and reliability enhancements while managing safe multimodal and vehicular access in a corridor. Sound traffic engineering principles, including Synchro corridor and intersection analysis and more detailed microsimulation at specific areas along a corridor are needed to produce successful outcomes with FDOT along their facilities. Additionally, providing design level details at early stages of project development help to define ROW challenges, trade-offs, and opportunities. As such, we work to develop analytical and visual tools to communicate these detailed design-level options and decisions early on. This avoids confusion on project definition and proposals at later stages of design and helps to proactively address traffic and transportation impacts.

CDM Smith has developed an innovative approach to improvement development and visualization which provides dynamic visualization through 3D flyover video and fully immersed virtual experience. Improvements are developed in 3D, based on horizontal, vertical, and cross-sectional elements, to show a detailed 3D view of the design such as the image above, showing the IndyGo Red Line BRT station at College and Broad Ripple. The model can be efficiently converted to a 3D flyover video to further emphasize the visual message and clearly communicate to the public how the station will look and function at specific locations.

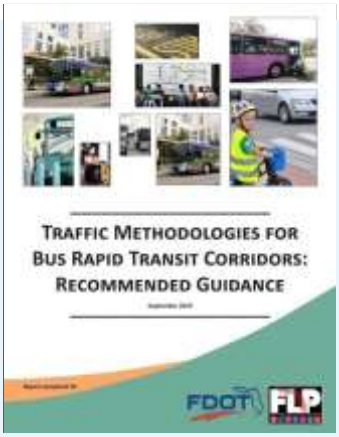
C.2 and C.3 Environmental Justice (EJ) and Title VI Planning

Environmental Justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. All EJ analysis will be performed in accordance with related federal and state laws and guidance including Title VI of the 1964 Civil Rights Act, Executive Order (EO) 12898, EO 13166, and FTA Circulars 4703.1 and 4702.1B.

The project team will establish the presence of low-income and minority populations using US Census data and jurisdictional boundaries defined by local municipalities. To avoid artificially diluting or inflating the presence of minority and low-income populations, the project team analyzes all census tracts or block groups along a corridor within each affected jurisdiction to determine whether the area contains a predominantly minority or low-income population. We document EJ communities within or near specific corridors and analyze the potential for disproportionately high or adverse impacts to these communities. In developing this analysis and coordinating with the project definition and evolution, our team works proactively in addressing EJ concerns so that there are no disproportionately high adverse effects from our projects. Our aim is to provide meaningful outlets for reaching and receiving input from EJ communities and to coordinate transit improvements that enhance transit access and pedestrian environment to meet the needs of all users in the community.

C.4 State of Florida Environmental Planning Requirements

CDM Smith staff are at the forefront of integrating FDOT's Project Development and Evaluation (PD&E) manual, Transit Concept and Alternatives Review (TCAR) processes with FTA NEPA requirements for transit projects. We have advanced these efforts most recently by developing statewide guidance on acceptable traffic methodologies for BRT projects on state roads. This best practice guidance serves to enhance transparency and coordination between transit agencies and FDOT on evaluating and determining acceptable levels of transportation impacts in projects. We offer Broward County a team well-versed in national BRT best practices, FDOT specific PD&E experience, and other related procedures and policies that will help make the case for providing the maximum level transit improvements necessary to drive transit use and ridership.



CDM Smith is at the forefront of integrating State of Florida PD&E and TCAR manuals to advance transit in the state, recently developing traffic methodological guidance for transparency and enhanced coordination between FDOT requirements and aims of transit improvement proposals.

C.5 Environmental Planning-Related Cost Estimates

Costs to mitigate project impacts are included into our overall project financial plans and cost estimates. We incorporate environmental related costs into FTA's SCC capital cost worksheets to provide standard cost estimation techniques to our clients and all cost estimates of planning related costs to a project are documented in assumptions technical memorandums we provide. This allows for an understanding of the basis of cost estimation for environmental related costs from early plan development with larger contingencies in unknowns and that can be refined consistently through design and implementation of a project. Bringing blended staff expertise in planning level environmental and FTA cost estimation with construction engineering and environmental permitting, we develop realistic estimates of environmental planning related costs based on historical trends, recent projects, and local Florida cost knowledge.

C.6 Local and State Water Management District Environmental Planning

As a full-service consulting firm, CDM Smith offers a variety of water resources services to regional, state, municipal, and federal agencies; industries; public and private organizations; and individuals. Our services have supported projects ranging from small pilot-scale studies and specialized consultation to complex national studies requiring a multi-disciplined approach. Our team is thoroughly experienced, staffed, and equipped in all phases of engineering design and construction services and brings expansive experience and resources locally in Florida to help you proactively manage coordination with water management districts.

For each project, we identify the required permitting and notifications including Florida Department of Environmental Protection (FDEP) for new construction; South Florida Water Management District (SFWMD) and the local governing Broward County drainage districts for site stormwater improvements; Broward County Environmental Protection and Growth Management (BCEPGM) for asbestos removal, lead based paint removal, diesel fuel storage, sodium hypochlorite storage, site drainage, site air quality, tree removal, and building drains; and the local City Planning, Zoning, and Building requirements.

D. ECONOMIC DEVELOPMENT PLANNING

D.1 Economic Development Planning

Broward County communities can be more livable and economically vibrant by implementing economic development plans that better integrate land use and transportation. High-quality, mixed-income housing that is co-located with restaurants, shops and services and that is well served by transit and/or enables safe and seamless pedestrian and bicycle travel can convert underperforming districts into vibrant, healthy places.

Quality, compact development situated along transit corridors that offers a convenient mix of uses and a high-quality walking environment can provide a dynamic place for people to live, work, shop, and play. This form of smart growth would also enable the County to attract new investments and jobs, use its land and natural resources more wisely, and enhance long-term economic vitality.

Due to CDM Smith's Smart Growth and transit-oriented development (TOD) planning and design work across the US, our team understands the numerous factors and interrelated principles that blend urban design/land use and transportation/transit planning to create more livable and prosperous communities. We have formulated and refined strategies that encourage compact, mixed use development and provide the specialized infrastructure needed to support it. These strategies simultaneously address the codependent hemispheres of livable communities: the public realm and the private realm.

The public realm encompasses Complete Streets, transit, and other infrastructure that combine to create safer pedestrian and bicycle-friendly districts, reduce traffic congestion, and improve intermodal connections and transportation choice.

The private realm includes vibrant, compact, mixed-use development that fosters community and intergenerational interaction, revitalizes main streets and downtowns, improves housing choice, reduces land consumption, and maximizes opportunities for transit use for work trips, entertainment, or daily life. ***We will work with the County to develop dynamic place for people to live, work, shop, and play—a healthy, vibrant county!***

The CDM Smith team will help Broward County understand and assess the benefits that can accrue from sustainable, smart growth strategies and investments and formulate plans that will enable the County to leverage local, state, and federal investments in the public realm to catalyze private reinvestment in the private realm.

CDM Smith's six-point approach to the study economic development within the County could include:

1. Envision new, transformative land uses
2. Manage and calm vehicle traffic
3. Design for pedestrians and bikes
4. Foster the use of transit
5. Provide for sustainable/resilient systems
6. Identify realistic, marketable real estate solutions

Our experienced and specialized senior staff will work under two separate but related teams to determine the character, form, potential build-out, and marketability of responsible growth in the County. We bring a team of land use and community planners as well as a economists.

The team of land use and community planners will identify vacant and underutilized sites and assess and plan for the physical capacity of those sites to accommodate new development considering physical constraints, current or future zoning, neighborhood context, and citizen preferences.

The team of economists will conduct a real estate trends analysis, inclusive of performing interviews with knowledgeable real estate development professionals (e.g., brokers and developers); a supply/demand analysis by land-use type; and financial feasibility of the potential build-out.

These two teams will work in parallel to understand the physical capacity for new and revitalized development as

well as market demand within a pre-established planning horizon to ensure that the development potential that they identify can be 'absorbed' by the marketplace within that planning horizon.

Smart Growth Principles: The CDM Smith team can develop land use and transportation principles, specific to each area of study, which will echo and evoke the Six Livability Principles promulgated by HUD, EPA, and USDOT. For example, a principle may be creating communities that are healthy, stable, economically vibrant, have safer streets, improve mobility and result in reduced environmental impact. Accordingly, the principles will touch upon critical factors in both the public and private realms including vehicular, pedestrian, and bicycle access; neighborhood connectivity; intermodal needs; amenities; parking need based on multi-modal and mixed-use development reduced parking demand; transit supportive land uses; and form-based zoning guidelines.

The principles will be concise and include graphics to allow residents, stakeholders, and policy-makers to understand the activities that should be considered in all station areas. Importantly, the principles will include an overview of the benefits that can be attained through smart growth and will be an important tool in developing community acceptance of the Draft Plan.

We will also identify where these principles compare with current development and zoning regulations and policies of Broward County, as well as where major infrastructure investments may be required to implement smart growth (e.g., utility and road extensions or upgrades).

Land Use: The CDM Smith team will review existing land use in the corridor and consult the County's long-range plans of development to determine if significant changes to land use are needed to achieve project goals.

The land use patterns of Broward County directly affect the following:

- Vehicle trip generation and potential traffic concerns
- Viability of robust transit
- People's inclination to engage in active transportation (walking and bicycling). An important question to ask residents and stakeholders when undertaking economic development studies is "Do current land use and zoning reflect what the community wants?"

Key questions to bring to residents and stakeholders include:

- "What land use patterns work?"
- "What isn't working and should be changed?"
- "Are there models of development in other communities that you feel will greatly improve the built environment and make the community more prosperous and livable?"

Engaging the community early in the study will facilitate the development of alternatives and bolster residents' ownership of a draft plan.

Concept Development: The CDM Smith team can prepare development concepts or scenarios for specific study areas or opportunity sites. These concepts would be developed in concert with residents and the County—ideally through visual preference surveys, scenario planning, and interactive design charrettes—and will integrate numerous, interrelated planning and critical design elements in the co-dependent public and private realms; including architectural design, zoning; streetscape design, and parking demand needed to support new development.

These concepts will consider the physical, natural, cultural, and historic constraints and opportunities unique to the study area and will factor land uses and development intensities preferred by residents, sympathetic to surrounding established land uses, and preliminarily determined to be realistic and marketable by the real estate/ market/financial analyses.

A highly integrated economic development planning process is essential to creating more sustainable and economically viable communities. It requires several disciplines working together, including planners, zoning experts, engineers, urban designers, architects, market and financial analysts, real estate and brokerage experts, and P3 specialists. It's important for the team to share information in their respective sphere of influence, be cognizant of areas of overlap, and coordinate all activities with practitioners in each sphere while communicating and collaborating with residents. It is only through this integrated and collaborative process that successful, contextual, and sustainable economic development can occur.

D.2 Market Feasibility and Financial Studies

CDM Smith's team of experienced financial and economic professionals understands the opportunity for market-driven investments leveraged against transportation assets and the importance of capturing and presenting those tangible and non-tangible benefits to a diverse audience. We work regularly with a broad range of municipalities and counties, and the direct experience of many of our team members with development incentives and public finance gives us a unique perspective of the synergies created from these developments. We recognize the unique character and challenges that each station area or other planning district presents and the different regulations and community requirements that impact these development opportunities.

Whether it is evaluating various development scenarios and fiscal impacts, or assessing financial feasibility, we understand the development dynamics of transit-oriented development (TOD) and station area development and

the range of financial impacts to both the public and private sectors.

Despite the growing market demand for walkable urbanism and the many potential benefits that are derived from focusing growth in a downtown environment, undertaking and constructing mixed-use development is not widely understood – and it is not easy. There are numerous barriers to creating a sustainable mix of housing and uses, including:

- Limited financing options
- Ever-changing market demand that makes it difficult for developers to predict the ideal ratio of uses within a building or on a mixed-use block
- Coordinating and managing multiple lessees of varying uses and varying needs
- The misguided perception that density leads to blight, congestion and loss of value

Our seasoned development team has a deep experience in this complicated and nuanced form of real estate venture. Additionally, the team is experienced in helping residents of host communities understand the value of TOD relative to: a) how successful mixed-use development projects provide a greater return on investment to the county, municipality, and local neighborhood; and, b) mixed-use development can provide new forms of housing various market rate price points to help rebalance downtowns or urban villages.

The CDM Smith team understands national trends in redevelopment including trends in programming a mix of uses, design approaches, scale of development, phasing strategies, market positioning, and branding. We develop and assess case studies that reveal key development characteristics and metrics such as population, income levels, projected growth, retail spending per capita, housing values, education levels, job types and projected job growth, accessibility to transit, walkable street, and other similar traits and trends. The case studies highlight success factors which inform market redevelopment potential of TOD opportunity sites.

We are also skilled in conducting local and regional market assessments to ascertain market receptivity for new TOD uses based on a primary and secondary "trade areas" and representing the local and regional draw areas for potential new tenants, employers, residents, and investors. This assessment includes retail, commercial office, residential, tech/light industrial, recreation, and tourism/hospitality. Market trends or factors in each of these categories, including vacancy rates, price points, construction starts and pipeline projects, absorption rates, and demand outlook, need to be examined. Our analyses utilize comprehensive data from sources such as ESRI Business Analyst and CoStar as well as interviews with local market experts including commercial realtors, developers, and economic development professionals.

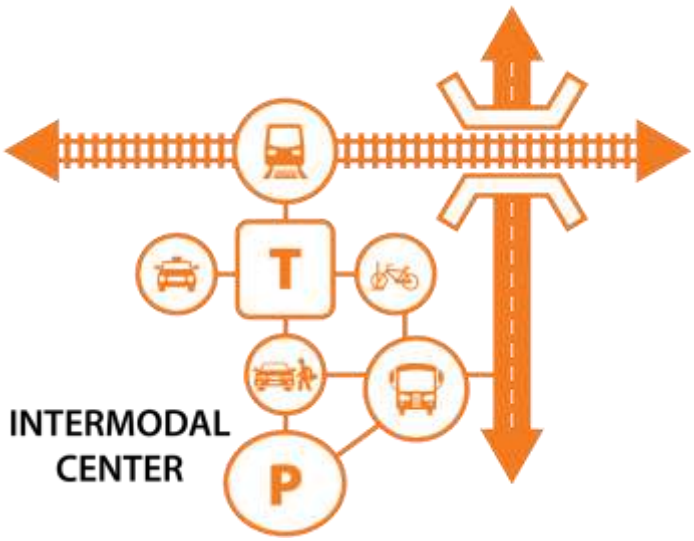
Our economic feasibility analyses also examine other factors such as physical feasibility (infrastructure/site capacity) and political/community feasibility based on the input from local and regional officials and key stakeholders. This feedback helps us to refine project concepts or alternatives and determine financial feasibility from a private developer's perspective, including potential return on investment, and whether that return, considering the range of development costs and future revenue flows, is sufficient to induce a private developer to undertake a project.

In the event the project is not financially feasible, we identify "funding gaps" and analyze whether reasonable public assistance or incentives could be utilized to fill that funding gap. These can include various value capture techniques such as tax increment financing (TIF), floor area ratio (FAR) bonuses for TOD near transit hubs, reductions in mandatory parking requirements, bonus units for affordable/senior housing, and direct connections to transit stations.

D.3 Station Area Development Planning

Responsible station-area planning must focus on intermodalism or enhancing the ability for commuters and other travelers to reach rail transit stations by bus, taxi, shared-vehicle, on foot, or by bicycle. First-mile/last-mile strategies facilitate practical connections to transit and boosts ridership. Specific intermodal strategies that could improve intermodal connectivity and first-mile/last mile challenges include:

- State-of-the-art, real-time transit information (schedules, routes, and location or status of specific transit vehicle) through smart phone applications, at transit terminals, and at bus shelters.
- Smart parking systems and appropriately sized parking supply at transit terminals, especially to encourage car-pooling.
- Secure, sheltered bicycle parking at stations and key nodes.
- Improved walking and cycling routes (e.g., Complete Streets improvements and bicycle lanes), especially between residential areas and transit terminals, and between stations and other centers of activity or employment.
- Traveler amenities such as restaurants, cafes, and convenient services adjacent to transit terminals.
- Accommodations for private transportation providers such as car rental companies, shared vehicle operators (e.g., Zip Cars), taxi operators, and shared bicycle networks to locate facilities or rental outlets adjacent to stations.



Enhancing the ability for commuters and other travelers to reach rail transit stations by bus, taxi, shared-vehicle, on foot, or by bicycle is key to station-area development.

- Encourage development that enhances economic development, transit ridership, and the pedestrian environment using context sensitive solutions and Crime Prevention Through Environmental Design (CPTED) strategies.
- Integrate land use and transportation to provide seamless transitions among all modes of travel, both motorized and non-motorized.

D.4 Transit-Oriented Development Planning, Policy and Guidelines Development

Demand for multi-use, transit-oriented neighborhoods is strong and growing. Increasingly, people want to live in vibrant, compact, traditionally-designed settings that offer a range of housing choices and where they can walk to shops, services, and jobs or just hop on a train or bus to commute. Moreover, for many, living in a downtown or an urban village is more affordable than living in a suburb because it is more densely developed and offers a variety of residential options and price points.

TOD allows communities to attract investment and enhance the long-term quality of life for its residents.

The implementation of a deliberate, thoughtful TOD leverages transit as a catalyst for positive economic, social, and environmental change. High quality, compact development near transit stations can offer the surrounding community a convenient mix of uses and an appealing walking environment that provides a dynamic place for people to live, work, shop, and play, as well as an environment that supports a lifestyle that does not require car trips for daily activities.

As a leader in sustainable planning and TOD as demonstrated by our transit, transportation, urban planning, architectural design, and place-making work throughout the US and abroad, CDM Smith understands the numerous factors and interrelated principles involved in blending urban design and transportation/transit planning to create successful TODs.

We also understand and value the benefits TODs provide to individuals, the community, and the economy, including:

- Creating more pedestrian-friendly districts
- Encouraging healthy and active lifestyles
- Reducing energy and land consumption
- Optimizing the use of transit infrastructure
- Expanding housing and transportation choices
- Increasing local tax revenues
- Enhancing private reinvestment

Broward County is becoming more sustainable by capitalizing on its impressive transit system, enhancing modal connections and making its neighborhoods more accessible to public transportation and more conducive to non-motorized travel (i.e., walking and biking). TODs help to make urban villages along rail lines and BRT corridors more vibrant, livable, and economically viable.

The CDM Smith team is experienced in diagnosing of existing development regulations, including zoning, the development approvals process, subdivision regulations, local incentive programs, etc. We can examine these regulations and policies for their general "development-friendliness" as well as for their alignment with the uses and design concepts developed for TOD opportunity sites or other redevelopment opportunity districts. Recommendations can be provided on regulatory amendments that should be made to facilitate the development of a preferred concept.

The CDM Smith team can also work within zoning codes and other land-use related regulations, and complement those regulations with citizen-driven, TOD design guidelines based on select aspects of the "Smart Code" to create "regulating plans" that developers must adhere to in the implementation of the private components of TOD. The guidelines should be specific enough to control ground

floor uses (i.e., active and lively storefronts, restaurants, or cafes, and other transit-supportive uses where appropriate), building location, heights, massing, human-scaled, traditional forms, and streetscape design, as well as the area of each site that must be dedicated to public use. Guidelines must also be flexible enough for developers to respond to evolving market conditions, end-use preferences, and technological innovation. The result will be new construction that will be sympathetic to the scale, style, and uses of neighboring buildings while allowing stylistic latitude or individuality to achieve a sense of authenticity that enables TOD to fit in with each community. Sameness should not be the objective, but design coherence and contextualism should be.

E. ORGANIZATIONAL ASSESSMENT, RESEARCH, ANALYSIS, AND PLANNING

We are here to build a relationship with you and your team; we aren't here for a 30-minute sales pitch. CDM Smith is invested in the community and the success of BCT as an organization. We have real world examples of our projects that are in service as well as examples of projects that didn't work and why. We are here to make transit more thoughtful, more enjoyable to interact with, we want the users and your staff to describe it as a delightful experience. As opposed to a firm that will just come in and present on recommended changes (i.e., policy, behavioral, etc.), CDM Smith will implement a truly collaborative approach to work hand-in-hand with your staff to make changes as needed.

Our team understands the balance of public safety, community needs, fiscal responsibility, all in our 21st century mobility framework. Our extensive experience working with state and local agencies on the creation, updating, and implementation of standard operation procedures (SOPs), employee development and training programs, and agency financial planning. Our public engagement staff can use creative strategies and technology, such as Microsoft HoloLens, to effectively engage the staff in virtual trainings. We will take this experience to work with BCT at all levels to ensure staff is not only up to date on his or her skills, but their career is rewarding to help reduce staff turnover.

E.1 Standard Operating Procedures (SOPs) Assessment

CDM Smith has engaged public clients across the country, helping them streamline their organization and processes. We understand SOPs will need to be updated as work plans and improvements are made to your infrastructure.

The best example of this effort, led by **Dr. Claire Baldwin**, was working with the Philadelphia Water Department (PW) to improve their organizational effectiveness. PW is embracing green infrastructure and low impact design striving to be "the Greenest City in America." CDM Smith has worked with the Department leadership to identify both organizational barriers and cultural styles of the agency can leverage to enhance the leadership team's ability to work in a "new environment" with its attendant different difficulties and pace.

Dr. Baldwin brings a wealth of organizational experience to the County, focused on industrial psychology, emotional intelligence in team communications dynamics, and enhancement behavior in performance.

CDM Smith was hired to consult to the PW as they looked to their future in the areas of talent management and organizational sustainability as expressed through knowledge management under this new paradigm. The teams were involved in the modeling and redesign of the following human resources business processes:

- Talent development through apprentice and university co-op programs
- Discipline and organizational learning
- Determining needs and quality of service provided to internal customers by the human resources and IT teams

Other assignments included unit-wide succession planning and knowledge capture as well as preparing a multi-tiered leadership program to drive the resilience of the agency. CDM Smith has experience reviewing SOPs and recommending changes to the SOPs to meet the forward-looking plans. Our work also includes leadership coaching, the development of SOPs and training on technical project management, and instructional support on the use of technology to support and expend work functionality in support of the change process the Department is undergoing.

E.2 Development and Human Resources and Staffing

The CDM Smith team understands and has experience in assessing current organizational structure of transportation agencies to determine if the agency is prepared to manage the current and future work plan. It is important for a transportation agency to operate at its optimum capabilities. To do so, our team is prepared to assess the current organizational structure and work with the agencies human resource department in considering factors of organizational structure, task assignment, organizational technology, and human resources elements that affect productivity. To assess these elements, an analysis is performed on current positions and organizational interactions between functional sections within the Department, as well as the Transportation Department's interactions with other

units within the County. This analysis is used to develop recommendations for improving the efficient and effective delivery and operation of operations and the work plan.

This plan documents the work to be accomplished by BCT and the resources necessary to accomplish the work.

E.3 Employee Training and Development Programs

The most difficult factor to effect in improving productivity is that of personnel. It is extremely important that personnel operate in a professional manner especially in an environment where there are considerable interactions with other organizational units to accomplish the work program. Once a staffing analysis has been performed (section E.2 above), a gap analysis is prepared which identifies areas of improvements for current employees or opportunities for creation of new position. This analysis will be used to determine employee training plans. In addition, depending on the results of the assessment and the County's goals, an overall development plan may be developed to foster organizational improvements for the Department.

We will work with Broward County leadership early to assess employee opportunities for advancement, both subjectively and objectively, and help develop curricula, tracks, and lead training. We will develop programs for your planning department on specific topics, using our experts, state of the practice knowledge, and lessons learned to enhance their knowledge and understanding on a variety of multidisciplinary areas, such as:

- Thinking programmatically about planning initiatives
- Traffic analysis for bus and rail improvement programs
- Streamlining FTA NEPA environmental processes through sound advanced planning

E.4 Fleet/Vehicle Management Planning

Following FTA's OP 37 "Fleet Management Plan Review" and as part of the fleet management planning task, our CDM Smith team will begin by evaluating the current fleet system operating policies, peak vehicle requirements, and transit effectiveness. Once this evaluation is complete, we will determine growth needs of the existing revenue and non-revenue fleet. We will provide projected needs based on future system forecasts and/or service expansion. With this data we can develop a timeline for vehicle demand growth. As the County gets closer to implementing the future vehicle demand, our team can assist in the procurement of new vehicles as well as determining capital costs and maintenance costs.

The existing fleet can also be evaluated based on maintenance demand, road service activities and system spare ratio.

Harnessing Mixed Reality at CDM Smith: Microsoft HoloLens

At CDM Smith, we're harnessing the power of Microsoft's HoloLens, a mixed reality technology, to help our clients design, build and operate their infrastructure assets faster and more efficiently. HoloLens is a wearable, self-contained holographic computer featuring a see-through display with advanced sensors that enables users to interact with a blend of the physical environment and 3D holograms. In this mixed reality environment, users can "pin" holograms to physical objects and interact with data using gesture, gaze and voice commands.

Mixed reality experiences will almost assuredly empower the next generation of industry training, going far beyond what today's video conferencing and screen sharing solutions are able to provide. Using this hands-on mixed reality technology, our clients can replace mostly verbal training communication with mostly visual training communication.

The result of this planning effort will be documents to include:

- Future fleet and service projections summary
- Maintenance demand by vehicle type
- Reserve fleet requirements
- Existing vehicle inventory
- Procurement financial plan

E.5 Transit Asset Management (TAM) planning

Beyond meeting newer federal requirements, if used correctly, TAM is a strategic and systematic process for solving these challenges, focusing on the effective operation, maintenance, upgrade, and expansion of physical assets through a whole-lifecycle approach. Through our experience with TAMs across Florida, for transit agencies across the US, and for all types of government agencies, CDM Smith offers the County a results-driven approach that fully integrates your TAM into your organizational and business decisions.

A RESULTS-DRIVEN APPROACH THAT FULLY INTEGRATES YOUR TAM INTO YOUR ORGANIZATIONAL AND BUSINESS DECISIONS

Consistent Performance Targets: We will work with BCT to align goals and leverage your case for adequate funding of your TAM.

Review and refine goals and measures to align with your long-range plans, as well as national transit asset goals and goals at an MPO and state-level.

Create consistency to effectively integrate your asset needs and capital planning with federal and state funding decision making.

Data Collection and Management Protocols: The best TAMs develop connected platforms to reduce silos of asset management and produce auto generated capital planning plans.

Reduce silos of information into a connected, automated platform to reduce the potential for accounting duplications and create one source of realistic data to support cooperative decision making within the agency.

Understanding Asset Management Issues: We will work with BCT to understand what caused deterioration and how those factors can be mitigated.

Using deterioration models incorporating past experiences, we can forecast where your assets will be in 15 to 20 years under a variety of scenarios. With these future scenarios in mind, planning and budgeting for maintenance, plans for replacements and/or new fleets and facilities can be improved.

Whole-Life Financial Outlook: We will help BCT achieve performance targets and operational objectives.

Identify direct costs (design, construction, equipment and fleet acquisition, and maintenance) and hidden costs (deprecation, financing, operations, preventative maintenance, and management) for every asset.

Cross-Asset Allocation: We will help identify the effects of all decisions.

Create a decision-making strategy to balance the risk/rewards of managing assets (i.e., if BCT chooses to fund specific fleet replacements, it may reduce available Section 5339 grant funds for bus facilities improvements that are also needed.)

Resilience Evaluations: These are integral to a modern TAM practice and can help with risk-based financial planning.

Develop action plans to bring their assets back to full operation in the event of a disaster.

Knowledge Management Procedures: This step involves managing one of the most valuable assets an agency has—its institutional knowledge.

Document core business processes and implement programs for knowledge acquisition and transfer to minimize disruption should staff retire or leave the agency.

Building on the successes of Farebox Recovery the CDM Smith team will work with BCT to on methods to increase ridership and bus pass sales. Our team's subject matter experts in public engagement will help to ensure a successful launch of the BCT's Mobile Fair App to further fiscal stability and efficiency. Examples of our proven TAM project success include:

For the FDOT Public Transportation Office's TAM Plan, we served as on-site staff augmentation and support to compile information for the TAM on behalf of 28 Tier II transit providers located in six FDOT Districts across the state in accordance with FTA requirements. The TAM Plan covered a four-year period (FY 2019 – FY 2022) and included a full inventory of capital assets (rolling stock, equipment, and facilities), a conditions assessment of inventoried capital assets, a decision-support tool, and analysis of asset conditions to prioritize State of Good Repair (SGR) needs over the specified time period.

We also develop the Transit Capital Asset Prioritization (TCAP) Tool for Montana DOT. This customizable decision-support tool assists in prioritizing transit capital investments and asset replacements. The TCAP tool incorporates age, mileage, condition, and maintenance needs of the rolling stock into a replacement prioritization score (RPS) for each asset. Based on prioritization

categories and user input, the system pipelines asset replacement years. In each prioritization run, the tool generates the SGR targets (in this case, percent of rolling stock meeting or exceeding the associated useful life benchmark (ULB)) and the capital budget utilization to assist the user in the pipelining process.

E.6 Financial Planning

The culmination of the analysis of resources, both people and assets, is the preparation of the financial plan, both the annual operating budget and capital work plan. A financial plan is developed to better implement the following goals:

- Establish credibility, accountability and transparency in transit operations
- Supply funding plans to allow improvements to be implemented
- Improve safety and performance
- Improve application of future technologies
- Develop policy framework and strategic plans for transit applications
- Provide positive and consistent customer experience
- Develop reliable systems
- Properly collect and account for transit revenue

The financial plan supports the annual budget process and should establishes a baseline for identifying coordination between BCT and other units within the County, well as entities external to the County. As part of the assessment of the SOP's development of best business practices particular to BCT may be done which will identify budgetary changes.

Our staff have experience in preparing financial plans for numerous transportation agencies across the country. In addition, CDM Smith is comprised of former government finance professionals who are familiar with governmental budgeting and reporting.

E.7 Facility Needs Assessment and Planning

Following the "FTA Facility Condition Assessment Guidebook," our team will provide an assessment of existing and future facilities. We can evaluate the existing facilities to include administrative facilities, maintenance facilities, general purpose maintenance facilities, heavy maintenance facilities, passenger and parking facilities. We will provide inventory data and condition assessments and make recommendations for improvements.

We can help Broward County plan improvements for expansion and modernization as needed to accommodate growth and technology upgrades. Our team is familiar with the FTA's analysis and guidance on climate change preparedness for transit agencies that has focused largely on asset management due to the high capital costs to repair or replace transportation assets after severe weather events such as floods and hurricanes. We can also evaluate and mitigate potential impacts to facilities caused by rising sea levels also. We are also very experienced working with FEMA to assist Broward County in documenting post-hurricane damages.

E.8 Equipment Needs Assessment and Planning

Our team will evaluate current and outdated equipment that must be fixed and/or replaced. In consultation with staff and national, state, and local standards, we will identify existing and future needs for the County to include bus and vehicle maintenance facilities based on current and projected staff levels. We will assess the physical condition of the existing facility and provide an asset inventory if required, including:

- Structural and plumbing/HVAC/mechanical Issues.
- Compliance with ADA requirements for public buildings and with building codes and other life-safety requirements.
- Maintenance issues/concerns, storage, and furniture/ equipment needs.
- Parking, security of facilities (access points, reception area safety, cameras) both in public and non-public areas.
- Sustainability (including energy efficiency).
- Hand, hydraulic, and electric tools and equipment.
- Future facility needs pertaining to the following: a) space needs for each department including both shared and individual workspace potential; b) staffing growth potential; c) storage; d) breakroom; e) meeting rooms; f) sustainability including energy, environment, and efficiency; g) IT and computer equipment; h) audio visual needs; and i) facility safety and security such as cameras, access points, etc.

We will also do the following:

- Evaluate the adequacy of the current facilities and make recommendations that address the needs and requirements identified for the various department/ functions. The recommendations will include estimated costs to renovate and/or expand these facilities, including site layouts for expansion. We will consider a time window of five to 30 years into the future.
- Explore and identify opportunities to lease or renovate as needed.
- Provide a comparison of the life cycle for renovating and upgrading the current equipment.
- Provide an acquisition schedule and budget based on service life and replacement.
- Provide a risk management assessment and performance targets for the asset management process.
- Provide an investment plan going forward.

E.9 Capital Equipment Specification

Our team will provide capital equipment specifications based on the County's internal staff needs and requirements. Every attempt will be made to develop specifications that will be non-proprietary in nature to ensure fair bidding opportunity to all potential bidders. The most current and most relevant specifications will be provided to ensure all purchases will be readily obtainable to the greatest extent possible, repairable, and replaceable. Our specifications will provide for "Buy America" provisions, training, manuals, and warranty information as needed. They will also include a quality assurance and quality control (QA/QC) specification section. In most cases a CSI numbering format will be utilized.

E.10 Safety and Security Assessment, Research, and Planning

Transit safety planning has becoming increasingly more complex; CDM Smith understands this involves driver and passenger safety, cybersecurity and site hardening. Part of our training for BCT will include compliance with Rule 14-90, F.A.C. and the Broward County Comprehensive Plan. Our team has been working with universities and private companies on innovative solutions for driver safety. At the same time safety, perceived and real, is a top concern for many transit users and potential transit users. Our team has worked on research to address ridership safety and in our public outreach we will address public safety to increase ridership. CDM Smith has also been working to enhance cybersecurity for transit agencies.

Our team will work with the County staff to develop and maintain the Safety and Security Management Plan (SSMP) and System Safety Program Plan (SSPP) throughout the life of each project. We will assist the County to determine if the Department or its vendors are adequately performing required safety and security management activities for each project assigned to CDM Smith under this contract.

The SSMP must meet current FTA guidelines. Following Chapter II, Paragraph 2 of FTA's Circular 5800.1 identifies the minimum, specific activities required as part of the safety and security management program developed for capital projects. The safety and security management activities shall be documented in a separate SSMP that is submitted as part of the project management plan (PMP) and conforms to Chapter IV of FTA's Circular 5800.1. The PMP shall contain a section that references and summarizes the separate SSMP. It is expected that the SSMP will follow Oversight, 49 C.F.R. pt. 659 as well as FTA Circular 5800.1, Safety and Security Management Guidance for Major Capital Projects. Our team shall be thoroughly familiar with these regulations and documents as well as:

- FTA Safety and Security Management in Rail Transit Projects Guidebook, March 2009
- FTA Handbook for Transit Safety and Security Certification, November 2002
- FTA Implementation Guidelines for 49 C.F.R. pt. 659, March 2006
- FTA Frequently asked Safety and Security Management Plan Questions
- FTA Resource Toolkit for States Implementing 49 C.F.R. pt. 659, March 2006
- Hazard Analysis Guidelines for Transit Projects, 2000
- FRA, Collision Hazard Analysis Guide: Commuter and Intercity Passenger Rail Service, October 2007
- Federal Emergency Management Agency, Lessons Learned Information Sharing Network
- FTA Project and Construction Management Guidelines
- FTA Quality Assurance/Quality Control Guidelines, 2012 update

Project Grantee Submittals from FTA guidance as well as Critical Safety and Security Management Program Interfaces and Documentation identifies typical interfaces between the safety and security management program and other project activities the County would expect to see referenced in documentation. Rail Fixed Guideway Projects, not subject to regulation by the Federal Railroad Administration (FRA), shall be subject to State Safety Oversight Agency (SSOA) jurisdiction as specified in the Rail Transit Agency Safety Plan. The reviews conducted by our team may be performed in conjunction with County personnel and/or other support staff.

Our team will review the adequacy and soundness of the Broward County's current safety and security management program in conjunction with the express review authority by the Broward County SSO. As directed by the County, our team can perform the following activities:

- ***Initial Review:*** Conduct an initial review of the safety and security management program prior to completion of 30 percent design in coordination with Broward County SSO personnel.
- ***Follow-Up Reviews:*** Review the SSMP each time it changes substantially and provide formal comments. At a minimum, the SSMP is reviewed with every PMP update.
- ***Adherence Reviews:*** Conduct a safety and security management program Adherence Review at 90 percent design and at 50 percent construction. This on-site activity requires document reviews, interviews and field verifications regarding the implementation of the County's safety and security management program.

- ***Coordination:*** Coordinate and support, as directed, the implementation of other oversight activities and reviews. We will coordinate the safety and security management program reviews with PMP reviews. Since the safety and security management program is part of the project management plan (PMP), the County's evaluation of the PMP cannot be completed until the safety and security management program is reviewed.
- ***SSMP Updates:*** Provide updates on the development and implementation of the safety and security management program in monthly reports or as directed. We will use an FTA approved checklist to complete our review and assess if the SSMP meets the requirements. The checklist also requires our team to identify and review any documents referenced in the SSMP describing the approach to performing specific safety and security management activities.

E.11 Strategic Issues Planning Support

Our team is uniquely positioned to help BCT build on past accomplishments such as the planning phases for the first two BRT routes: SR 7/US 441 and Oakland Park Boulevard and the process of initiating a Rail Network Corridor Study (RNCS). We have successfully completed projects like these for other clients with including robust public engagement and involvement campaigns for BRT and rail, and TSP and queue jump systems, vehicle branding, and enhanced stations for BRT projects. As with staff development our public engagement team will be involved with tools and techniques to ensure early public trust and buy in of the processes and projects.

With an aging service population, the demand for paratransit will continue to grow for BCT, coupled with rising costs and the competitive trend to decrease costs. This usually results in more customer complaints that are difficult to address. However, CDM Smith has worked with transit agencies across the nation on outside the box solutions to provide affordable, reliable paratransit. We recognize the importance of Demand Response transit and meeting the needs of the elderly and less capable transit dependent population.

F. INFORMATION TECHNOLOGY (IT)

F.1 Systems Integration Planning

CDM Smith has the depth of experience required to support BCT's Information Technology (IT) planning. Systems development and integration for transportation requires not only understanding the needs of the agency and its users, but also how the new systems will interact with regional and statewide ITS architectures.

CDM Smith is a leader in systems integration planning for emerging transportation technologies. Developing useful systems engineering documents requires understanding user needs. Our approach focuses on the end user and key stakeholders for transportation technologies.

What are users looking for and how do they expect the system to behave? What metrics are needed to understand system effectiveness post-deployment, and what data are available or can be collected to support such measurements? Answering such questions provides a firm foundation for sound development and deployment.

- For Smart Columbus, we developed a Concept of Operations (ConOps) to deploy truck platoons in and around Columbus, along with a Freight Signal Priority application that would keep prospective platoons together until reaching a highway where platooning could begin. The team collected user needs via multiple means including interviews with logistics firms, discussions with the City of Columbus, and a Truck Platooning Working Group.
- For the Federal Highway Administration, CDM Smith created a ConOps and accompanying Test and Evaluation Plan for deploying truck platoons in a two-state corridor with a logistics company partner, hauling real freight for real customers. The team gathered user needs via two stakeholder workshops held with public and private sector stakeholders, which were translated into system requirements and detailed operational scenarios describing how the platoons and data collection systems would operate. The Test and Evaluation Plan laid out procedures for testing the system and gathering the necessary data to measure system performance. It also outlined procedures for system validation and acceptance during and after development.
- For LA Metro, our team is supporting the Concept of Operations and System Requirements Specifications for DrayFLEX Trip, which is a suite of Connected Vehicle applications designed to improve the safety, efficiency, and environmental impact of drayage truck trips in Southern California. We led the Concept Exploration for DrayFLEX Trip, which evaluated candidate technologies against LA Metro and stakeholder needs and then ranked the technologies based on a weighted average scoring approach for further development within the DrayFLEX program. This was used as an input for the ConOps and System Requirements Specifications.
- CDM Smith recently updated Montana's Innovative Technology Deployment (ITD) Program Plan and Top-Level Design. The update included an assessment of how each project would interact with Montana's existing ITD architecture including any new database connections that might be required. The project also included outreach to ITD stakeholders to identify new projects, development of use case scenarios that described how

the new systems would work, and project cost and schedule estimates.

- Our team continues to perform traffic engineering services supporting the Illinois State Toll Highway Authority's (ISTHA) Intelligent Transportation Systems (ITS) and operational activities including planning, design, and implementation assistance. This has included numerous tasks related to ITS and TSMO including developing the 5 year ITS plan and currently working on the Tollway's long term TSMO plan. We have supported the Tollway in updating the regional ITS architecture and in supporting the initial planning for the MPO's regional data archive. A concept of operations was created for the Tollway's first Active Traffic Management (ATM) system. Over the past several years, we have developed informative, easy-to-understand reports on numerous performance measures. Developing these reports in a timely and accurate manner requires our team be familiar with nearly a dozen data sources and systems.

In addition, CDM Smith designed and is managing the Tollway's first connected vehicle (CV) pilot deployment. This pilot has installed roadside readers on two of the Tollway's five roadways and developing the system to collect the data. The Tollway is currently studying what applications to consider implementing.

F.2 Electronic Fare Collection System Planning

Fare collection systems can mean many things from electronic credit cards to smartphone apps and to even more far-reaching MaaS applications. These technologies link customers to an array of transportation choices and provide single payment options for users of public and private transportation services—from buses and commuter services to tolling systems and coordination with transportation network companies such as Uber, Lyft, and shared mobility options like ZipCars and bike-share systems. As a consultant to some of the premier transit providers in the nation, we will bring lessons learned in integrating service payment methods, as well our 50+ years of success with electronic tolling payment systems, so that BCT can develop solutions to streamline operations, reduce costs, and provide customer-driven solutions.

Our experience bridges the gap between transit fare collection and toll collection systems and can help create new, innovative partnerships for BCT. Keys to our approach will involve:

- ***Working with BCT to understand their desires for electronic fare collection:*** This will involve both near-term desires as well as longer-term desires and ways to leverage work done to date.
- ***Developing comparative data to evaluate options and partnership potential:*** Using our existing relationships with transit and tolling agencies across the nation and Florida, we can develop comparison data on technologies used and their pros/cons and help synchronize mutual agency goals that can be used to establish potential partnerships.
- ***Develop a comprehensive, incremental, and realistic plan for rollout:*** Working with software companies and other potential agency partners, we can help identify the backroom platform challenges to interoperability and develop solutions to address data and monitoring needs and help establish a framework for implementation. New systems can be daunting for existing users of a system and their access to technology proposed is essential. From our experience in Chicago, we know that even moving from a paper card technology to credit card type technology required 6+ months of noticing and allowing both technologies to work as well as customer service lines and offices to address issues as they arose and provide customer focused solutions.

CDM Smith has been a leader in developing all electronic tolling from the initial idea through implementation, having worked on the earliest applications of all electronic tolling. Our work with the Illinois Tollway is an example of how integration can benefit all travelers. By providing an integrated system and partnership with the regional bus provider (PACE) for I-90, bus only lanes on the tollway now help move buses faster through their smart corridor.

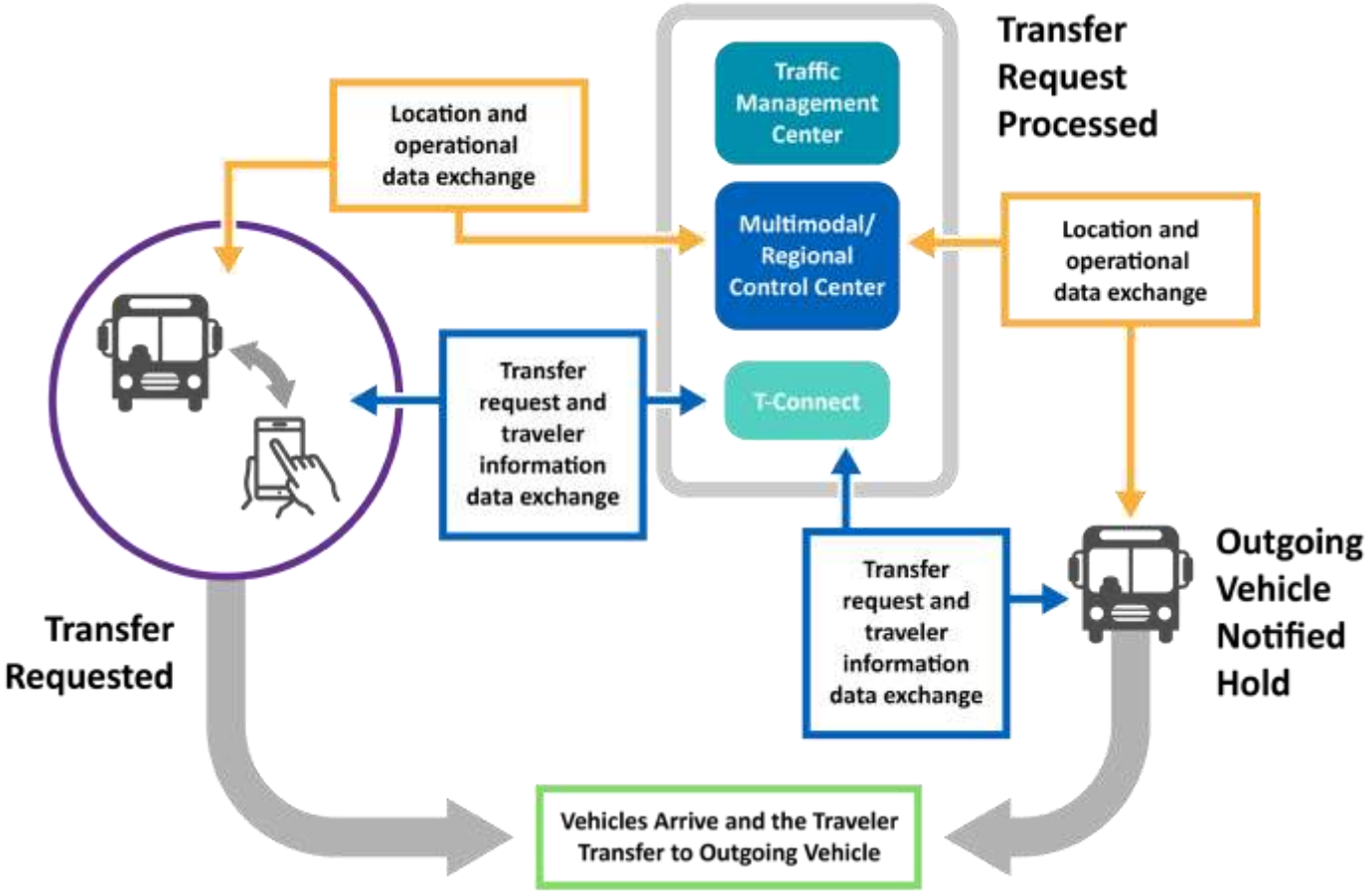
We also provided project oversight for an FDOT and University of South Florida Research Study evaluating and deploying a mobile phone fare payment system. Phase 1 reviewed several existing mobile fare payment systems and provided a recommended framework for transit agency implementation. Using STAR Metro in Tallahassee, Phase 2 involved selection of routes for mobile fare payment, a vendor to provide mobile application, and pilot deployment.

F.3 Regional Information Technology Systems (ITS) Architecture Planning and Development

The most advanced ITS deployments in existence today are operated by agencies that have successfully implemented full-fledged connected ITS systems. We bring two decades of assisting these clients with their roadway and ITS solutions to BCT as you further develop a more comprehensive strategy. In addition, our work with FDOT's Central Office Strategic Intermodal System (SIS) and work program development provides us with knowledge on funding ITS improvements to mutually benefit FDOT and BCT.

There will be many elements to developing a comprehensive roadmap for ITS architecture and investment for BCT. To help our clients better understand the potential impacts, we have embraced scenario planning for ITS and smart cities master planning efforts in places like Los Angeles, CA and Cleveland, OH with the focus on providing a better understanding of the range of outcomes possible with investments to make intelligent, resource-driven decisions. In addition to these tools and methods, keys to developing successful work for BCT include:

- Aligning ITS plans and BCT transit initiatives: Several key corridors are already under investigation with FDOT for effective TSP implementation; however, as with most areas in Florida, the actual transit benefit is limited. Our traffic engineers speak the same language as FDOT and, through analyses of peak intersection delays and microsimulation, will work with them in advancing TSP and other solutions to maximize bus operations while minimizing disruptions to general traffic flow.
- Finding funding that links transit ITS and overall operational improvements: Having worked on FDOT Central Office's work program development, we bring an understanding of funding available for ITS improvements for FDOT-owned roadways. While specific funding for the SIS does not allow use for transit capital investment, it does allow for integrated transit planning projects, such as ITS. One such application that BCT may consider is planning for future transit dynamic assignment (as shown below), which can provide real-time traveler information and passenger transfer connection protections.



FDOT SIS funding can be leveraged for transit ITS planning, such as exploring Transit Dynamic Assignment strategies, that have been identified in FDOT's ITS Master Planning and which can improve real-time BCT operations.

F.4 Mobility on Demand (MOD) Application Planning

MOD has emerged as (1) information and communication technologies enabling more dynamic uses of people and equipment has collided with (2) always increasing customer expectations wrought by the prevalence of real-time goods and services (e.g. Amazon, Netflix). Fundamentally, transportation networks are not designed to give everyone exactly what they want at the same time – traffic signals that allocated time through an intersection are not water mains. Through our work with agencies, municipalities, and DOTs, we understand the pressures agencies face when it comes to rising customer expectations, and we have helped clients to design appropriate services and the accompanying mobile applications to deliver the right balance of operating cost and user satisfaction to drive productivity.

F.5 Autonomous Vehicle (AV) Systems Planning and Integration

CDM Smith understands that life-cycle costs and the range of transportation investments needed to support emerging technology will be essential in developing AV/CV Mobility Plans for BCT that help bridge short-term investments with longer term goals. We bring experience in the ground-breaking advancements in this field through our recent work in Columbus, OH on their Smart Cities initiative and freight platooning pilot program.

BCT has taken great strides forward with your pilot testing on dedicated transit running ways. At the same time, we know that elected officials in the region are further questioning the potential for use of AV buses on other corridors without current dedicated ROWs. At this time, we understand that technology is limited for this type of advancement. For an AV/CV mobility plan to be truly effective and useful for you, we want to arm you with the right information for addressing these requests and visionary ideas with realistic, quantifiable data. A key to our approach involves use of scenario planning tools that helps you visualize the ramifications of your decisions on your capital investments and operations and can give you the type of costs and benefits to share with your elected officials and agency partners. Another essential element in our approach is to provide active educational outreach plans to all your county-wide partners to understand where current technology is, what advancements are being made, how to identify potential P3 opportunities, and the true costs of investments. We like to be visionary in our approaches, but we also know that risk management is essential for feasible solutions in this market.

CDM Smith provides BCT with national and local leaders specializing in disruptive transportation technologies. We develop videos and other materials that educate, entertain, and engage diverse audiences. As we look to create educational campaigns for BCT to inform your elected officials and the general public on MaaS, electric and autonomous vehicles, economies of travel, and big data analytics and what they mean to BCT, you will be armed with inspiring tools to inform and serve your communities and customers.

Smart Cities Initiative: Columbus, OH

We helped secure grant funding and supported development of a freight platooning concept. While not fully autonomous at this point, they provide connect vehicles at high speeds and allow for greater throughput. They rely on a mix of central computing units on vehicles, radar, cameras, high-speed wireless communication, collision avoidance, and special break systems to allow for real-time adjustments. Solutions like this may seem futuristic, but are already being deployed in pilot projects and may be a potential for interstate and toll road operations of buses in the near future.

F.6 Electric Vehicle Systems Planning and Integration

See Section A.8 on our detailed experience and approach to Electric Vehicle planning and integration.

G. PUBLIC INVOLVEMENT AND OUTREACH

G.1 Customer and Systemwide Passenger Surveys

Our approach is to obtain unbiased and representative survey responses from a statistically significant number of BCT customers. The surveys will provide scientific and objective evidence on customer utilization and preferences from various population groups. Our team will work with BCT to develop a survey instrument. The survey may include both binary data measures (yes-no questions) and scale questions. While the survey may be conducted as an intercept on transit buses, transit origin and destination, at community centers of activity, or online, the core survey questions must be consistent across data collection methods and languages.

With all data collection methods identified by BCT, a number of strategies can be applied to increase the reach and participation in the survey including incentives such

as a bus pass or logo materials to provide customers with an appreciation for the time and information. Incentivized approaches will give us access to individuals who previously weren't interested in participating.

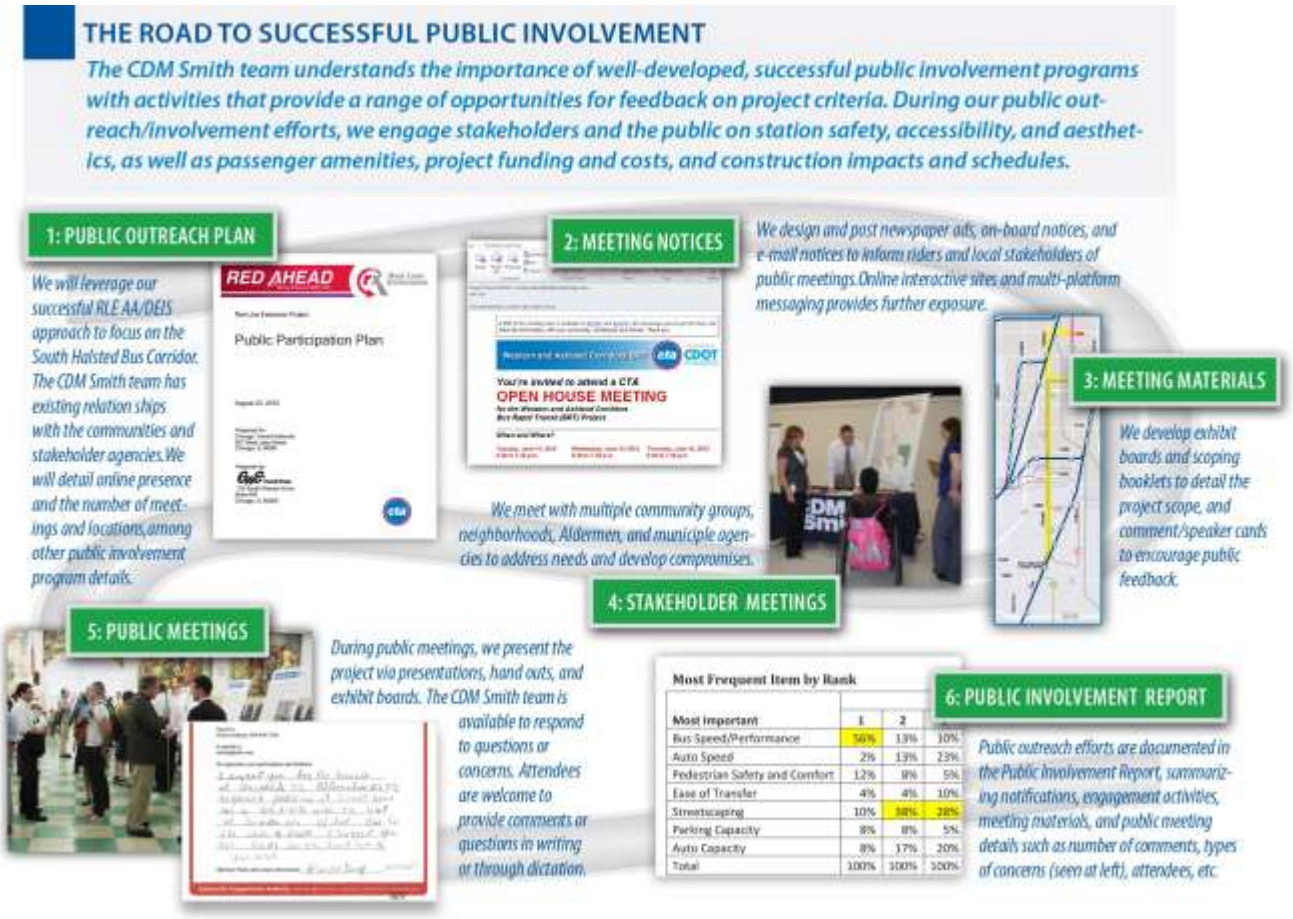
Whether it is on-board public transportation, on the platform, or at local community events, we feel the intercept surveys provide excellent information both in the form of survey answers and with the team interaction with the community members. Our staff is trained to take notes after each interview to capture the pertinent information that may not have been clearly communicated though the series of questions asked in the intercept survey. We believe this is the most important part of community outreach.

We can use traditional paper surveys to gather information or use electronic like iPads connected to digital data. The public involvement team will also spend time at stations with the highest ridership at am and pm peak times, while riders are awaiting their mode of transportation to gather information. A calendar of events and locations will be created to participate in city and town events for intercept surveys and customer satisfaction surveys. For an online version, our goal would be to extend participation through community partnerships such as linking to municipal websites and social media accounts, alerting in email blasts or advertising in water bills.

G.2 Public Meeting Organization and Facilitation

Community support for BCT projects is a critical component of overall success. For community and transportation programs across the nation and locally, CDM Smith and our subconsultant Holt Communications will facilitate public meetings to make complex issues understandable to stakeholders while identifying their needs and concerns. We know how to reach the public, various agency, and business stakeholders; how to engage them during open houses, public meetings, and project workshops; and how to obtain constructive feedback.

Holt bringing specific local and Florida expertise and will follow the FDOT Public Involvement Handbook and the PD&E Manual for organizing any public meeting or hearing. Recognizing that the traditional large-scale public meetings don't consistently attract significant attendance, we employ additional efforts to increase participation. Facebook Live is an excellent, low-cost tool we have experience using where a meeting can be promoted in advance allowing for engagement by soliciting questions in advance, participation during the meeting and review post meeting. Additional tools for increasing participation include electronic phone calls to targeted communities, transit advocacy group participation, partnerships with municipalities and business groups, and media relations. We also focus on offering



proactive outreach efforts, such as pop-up events or mobile workshops, to reach people in places they are already organizing in—effectively bringing public engagement efforts to them and increasing input from important members in the community.

The CDM Smith team understands the importance of well-developed, successful public involvement programs with activities that provide a range of opportunities for feedback on project criteria. During our public outreach/involvement efforts, we engage stakeholders and the public on station safety, accessibility, and aesthetics as well as passenger amenities, project funding and costs, and construction impacts and schedules.

G.3 Public Opinion Research

The value of public opinion research is how the research questions are written. Holt's experience is to massage the questions to get to a point where we can gather pertinent information. Whether it's good, bad or indifferent, everyone has an opinion about transit. Our team will capture that opinion to analyze and categorize into positive, negative, and neutral groups. We will prepare BCT and the project team with the information they need to make decisions or defend decisions that have already been made. The results from this research will be in a fluid matrix that tracks opinions on various transportation topics.

G.4 Social Media Outreach

Our team's social media outreach is to identify the appropriate social platform to best meet the project objective. For example, Facebook Live as a tool for public meeting participation, while Nextdoor or Neighborland is better suited for collaboration and consensus building. Using social media to effectively gather information requires carefully crafted posts, knowing which accounts to target, which accounts to avoid, and creating opportunities for discourse. For each project, we will evaluate the social media channels and create a social media marketing plan to extend our message to the target audience.

G.5 Graphics, Mapping and Presentation Support

CDM Smith has developed and led expansive public engagement and marketing initiatives for some of the largest transit agencies in the nation. Public outreach planning and execution and public relations/marketing are distinct service lines to achieve differing purposes, and we work collaboratively with our clients and public relations strategists to develop comprehensive solutions and innovative ways to market and brand your initiatives.

The CDM Smith team will develop a tailored brand for each project. Creating a familiar visual that is connected to each project will help to extend the impact of our messaging. We will produce high definition graphics, display boards, and maps to be used in meetings, presentations and online.

Mixed Reality Technology for Public Engagement: CDM Smith is currently using Microsoft Hololens for several of its transit projects across the nation and has been extremely effective in developing immersive views of corridor alternatives so that stakeholders can experience the impacts of potential multimodal improvements firsthand. ***It's an out-of-the-box way to get people involved. The technology allows clients to walk large groups of people through a site, helping sell the ideas to the public.***

US 67 Corridor Master Plan: TxDOT El Paso District, TX

Innovative Public Involvement Fuels Corridor Planning in Texas. Using the HoloLens, residents were able to walk through 3D holographic models of intersection design alternatives that were projected onto the public meeting floor. The public was able to see some of the improvements we were proposing as if they were built. Without spending the money to build anything, and without having to be physically outside in traffic, they were able to look at three or four different options and provide their input, which we recorded and used to build our recommendations.

The HoloLens models were created using roadway condition data captured via unmanned aerial vehicle flights over the corridor. That data was then bolstered by traditional traffic data collection and modeling performed by the team.

H. GRANT COMPLIANCE, MONITORING, AND DEVELOPMENT

H.1 FDOT/FTA Grant Administration and Procedures

CDM Smith is familiar with the FTA grant administration process. In particularly, CDM Smith has helped clients including IndyGo, Seattle DOT, and the Port Authority of Allegheny County through the process of being recommended for funding as part of the competitive CIG

Small Starts process, including required coordination with FTA and working with transit agencies and other stakeholders to develop a competitive bid package. For example, as part of the project development process, CDM Smith recommends developing assessing the grant competitive of transit alternatives under different scenarios. The table to the right shows potential sample Small Starts scenarios with consideration for desired rating and total funding availability.

Component	Scenario A	Scenario B	Scenario C	Scenario D
Total Cost ($ million)	$150,000,000	$170,000,000	$170,000,000	$202,000,000
Mobility Improvements (8.3%)	Medium-Low	Medium-Low	Medium-Low	Medium-Low
Cost Effectiveness (8.3%)	Medium	Medium-High	Medium-High	Medium-High
Congestion Relief (8.3%)	Medium	Medium	Medium	Medium
Environmental Benefits (8.3%)	Unknown	Unknown	Unknown	Unknown
Land Use (8.3%)	Unknown	Unknown	Unknown	Unknown
Economic Development (8.3%)	Unknown	Unknown	Unknown	Unknown
Project Justification	**Medium**	**Medium**	**Medium**	**Medium**
Local Financial Commitment Percent (50%)	33%	41%	50%	50%
Local Financial Commitment Rating	**Medium**	**Medium**	**Medium-High**	**Medium-High**
Overall Rating	Medium	Medium	Medium-High	Medium-High

H.2 Program/Project Management Plans (PMP)

Program/Project Management Plans (PMP) are an integral part of how CDM Smith conducts each of its projects, which can be adapted for Broward County's efforts as well. Every plan prepared by CDM Smith is guided by our Quality Management Process Manual (QMP-1). QMP-1 provides guidance developed by CDM Smith based on the firm's 72 years of experience in proven techniques for project management and QA/QC. CDM Smith integrates QMP-1 with all planning and design efforts, providing defined checkpoints and a standardized approach to quality management. For more extensive design projects or those with complicated circumstances, CDM Smith develops a project-specific project quality management (PQM) workshop to clearly identify the quality management needed for the project. Following the FTA requirements, we can also prepare more agency specific PMPs utilizing FTA's "Project and Construction Management Guidelines" and following FTA's OP20 for PMP review.

H.3 Development of Performance Outcome Measurements and Validation Tools

As a full-service civil infrastructure firm, CDM Smith has the ability to use professionals with varied experience in developing best in class performance management tools. In addition to work with our transportation clients, we have helped non-transportation clients develop grant management systems and project tracking systems for public sector clients in housing development, economic development, and disaster relief. Our work includes building programs to provide technical assistance and monitoring compliance with labor requirements as well as monitoring construction and job progress and developing web platforms to facilitate grants management.

H.4 Grant Reporting

For large federal grants, after an initial favorable review, additional reporting is often required as the project continues as part of the planning and design process. After submitting the initial grant, we will work with BCT to continue to update grants and meet additional criteria, as we have done for other transit clients.

CDM Smith continues to update the Seattle DOT Madison BRT project's grant application since it was originally submitted in 2016. Resubmittals with an updated cost estimate and funding package have been submitted each year since.

H.5 Research and Development of New Grant Sources and Related Applications/Submissions

CDM Smith has helped clients identify and complete a variety of grant applications and submissions. An important part of the Small Starts funding process is to identify and obtain federal, state, and local funding sources such as to cover the entire cost of the project. CDM Smith has worked with its clients to develop achievable packages that meet required funding thresholds and federal regulations.

Program Management Method

Potential projects under this contract have the makings to be transformational to the County, and our team has the technical resources and proven project management strategies to ensure the projects meet those expectations and the County is seen as a trend setter in the transportation community. At CDM Smith our motto is Listen. Think. Deliver. Our approach will be to listen to the needs of Broward County and provide the most thought out solutions while delivering a quality product that will

help solve the Counties greatest transit needs. Our team brings best management practices from similarly complex, successful programs, such as the Chicago Transit Authority's (CTA) General Planning Consultant contract we've held since 2012.

CDM Smith and its team members understand projects must be conducted with recognition and consideration of Broward County's objectives to improve transportation along County, FDOT and city facilities. We are committed to assisting the County in your goal to improving transit ridership and bringing new riders onto your existing bus network and future BRT and LRT systems. ***Our team is ready to stand by you to make improvements to your existing bus network as well as many other exciting transit initiatives under this contract.***

CDM Smith, led by project manager **Mark R. Pistiner, PE** and deputy project manager **Jenifer S. Palmer, AICP**, will be responsible for project management of all tasks under this contract. Three integral pieces of our approach, from NTP through construction, are communication, schedule control, and quality control.

Communication

Communication and coordination are vital to the success of any project and is a very important part of our management plan. In addition to the normal correspondence through emails and memos, Mr. Pistiner will facilitate communication between the project staff (including subconsultants) and County staff by keeping all parties apprised of critical issues, events, schedules, and submittal due dates. The coordination effort will include all the design decisions and commitments that may have previously been made by the County to the local citizens. Our team will conduct monthly progress meetings with County staff and provide monthly progress reports. Mr. Pistiner will reside in our Plantation office less than one mile from the Broward County Government Center West complex.

Schedule Control

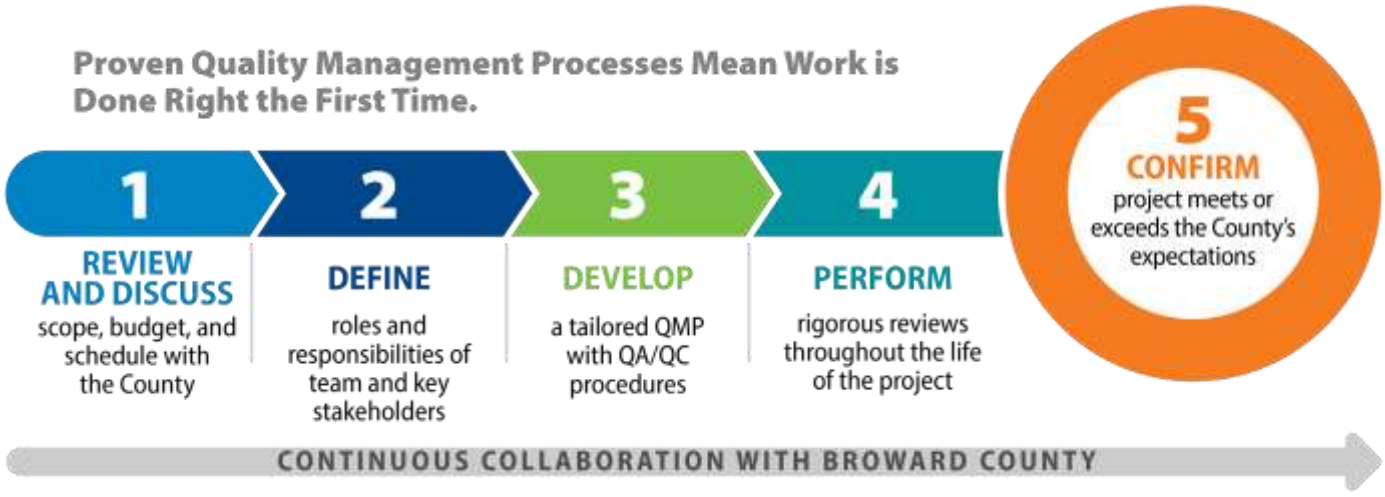
After our kickoff meeting, the list of action items and responsibilities will be incorporated into our P6 design schedule. Identified submittal milestones, progress meetings, owner's submittal reviews, and quality control reviews will be sequenced to establish a completion date. The project schedule is a working tool used to manage and track progress during the team's internal and client progress meetings. Mr. Pistiner will proactively communicate any unforeseen issues to the County early in the process to advance each project without conflict. Using the project schedule and weekly telephone conferencing, the team will efficiently communicate progress, monitor project completion and milestone dates.

Quality Control

One of the most important aspects of project management is Quality Assurance/Quality Control (QA/QC). QA/QC measures are inherent parts of our project approach that will be clearly delineated in the scope of work for each assigned task. Quality reviews will be completed on all deliverables before they are provided to the County ensuring excellent work products. We will follow the strict guidelines of CDM Smith's internal Quality Management System (QMS) to ensure quality is maintained throughout every aspect of our work for the County.

As part of the Kickoff Meeting, we will clearly define the roles and responsibilities of the key stakeholders in the project, review and discuss the scope of work, budget, and schedule constraints, and identify factors that will have an impact on the outcome of the project and agree on critical success factors for the project.

The following highlights QA/QC activities that may take place during the project depending on task size and needs.



- ***Checking:*** A document checking process will be conducted throughout the project. Assumptions, calculations, and process criteria development files are independently crosschecked throughout for accuracy, clarity, and technical quality. All our process and equipment decisions are reviewed on a number of levels for completeness and applicability. Calculations, performance specifications, and drawings undergo technical, completeness, and constructability reviews.
- ***Technical Review Committee (TRC) Meeting:*** We will conduct a peer review called a TRC meeting as the project progresses. At TRCs, the approach and conclusions are reviewed by subject expert senior reviewers who are not directly involved in the project development. For this project, we will include County staff in the TRC to provide an open forum to review the technical approaches taken by the project team.
- ***Value Engineering Review:*** Value engineering is important to effective cost control. It is a process aimed at value creation rather than mere cost reduction. By evaluating ideas early in the project, when changes are less costly, we can provide the greatest value alternatives for the project.

Subconsultants

We are excited to include several highly qualified subconsultants to our team including **Holt Communications** (CBE), **HBC Engineering** (CBE), **Cyriacks Environmental Consulting Service** (CBE), and **Connetics Transportation Group**. We selected our team members based on their experience providing specialized services that will be of great advantage to the County on multiple projects.

Our approach to meeting the 25% SBE/CBE goal will be to assign a CBE/SBE/DBE compliance coordinator that will track and report all assignments and ensure that we are on schedule to meet these goals. By providing opportunities for our subconsultants to participate on all potential task orders, this will provide an opportunity for them to expand their technical expertise outside of their specialized fields. In cases where CDM Smith has an expert to offer for a task order, with the County's approval, we would like to bring along our subconsultant staff to allow them to participate, providing productive staff while training and providing growth opportunities.

In addition, we will hold our subcontractors to the same rigid standard of quality control that we follow internally. Work performed by subcontractors will be reviewed by their internal organization before being submitted to CDM Smith.

CDM Smith is committed to our CBE/DBE/SBE subconsultant program. We are extremely committed in meeting and exceeding minority goals on this and all projects and are proud of our current "A+" DBE usage grade with FDOT where we achieved a 26.01% DBE utilization which was well above the 10.65% goal.

Vendor Process to Respond to a Specific Task Order Requests

The GPC Request for Proposal highlights eight key service areas that support the mission of Broward County, the mobility of people, and the vision of the Broward County Penny Oversight Committee. Specifically, the scope of services calls for an array of activities and processes for public transportation planning, information technology, public involvement and grants compliance. The CDM Smith team is composed of firms and individuals who can address the full range of services.

CDM Smith's commitment to the County and our familiarity with the processes for initiating and managing multiple task order assignments will allow County staff to focus on their most important roles, supporting the growth of public transit, while minimizing the energy spent on administrative items. We have a proven approach to task order-based contracts. The following describes CDM Smith's general approach to initiation and execution of a project that may be identified by the County.

Project Initiation

Our team's approach to delivering quality projects on time and within budget is to utilize effective communication tools from the outset of each task to develop an agreed upon scope of work, a realistic project schedule, and proven quality assurance methods to ensure the accuracy of deliverables.

Once a work assignment is initiated, Mr. Pistiner will coordinate with the County's project manager and consult with appropriate CDM Smith staff for input and availability. Also, an initiation/scoping meeting is scheduled to fully discuss scope and identify the schedule and coordination issues, if any, so that a scope of work and budget can subsequently be prepared. Mr. Pistiner will develop a staffing plan formulated to deliver personnel with the skill sets required for the specific work assignment. With each task work order assignment, a design team will be

chosen based on the challenges of the task. We will review all available documentation and perform a field review in preparation for an efficient project scoping and negotiations.

Once a work assignment is approved, we will conduct a kick-off meeting with the County and other involved parties at the outset of the project. The purpose of this meeting is to discuss project parameters, technical issues, project schedule, and communication lines during project execution.

Project Execution

Based on the kick-off meeting and notes, a project execution plan will be developed to address project milestones, a project specific quality plan, and communication plan. The project budget and schedule will be reviewed and updated to meet County goals. Coordination with other projects or other critical stakeholders will continue throughout the project lifecycle.

Our team will collect and evaluate existing data and field conditions to develop a comprehensive plan that meets the County's objectives for each task. We will obtain and review existing information pertinent to the project and prepare draft and final design/report documents.

Upon receiving comments from the County, our team will prepare the final report to 100 percent completion. Our plan will always consider safety first with emphasis on present and future needs. When required, our team will coordinate with stakeholders, local agencies, adjacent projects, and emergency services to ensure the everything is compatible with pertinent needs and plans.

Management Procedures to Oversee Work on Multiple Task Orders Simultaneously.

Our team is adept at managing several projects concurrently while still meeting client goals. Both CDM Smith employees and our teaming partners will be upheld to the same level of quality our clients have come to expect and rely on for the past 72 years. Through this experience, we have learned two crucial pieces to meeting these expectations are assigning the right personnel as they are needed as well as establishing controls for schedule and budget early in the projects.

How Personnel will be Assigned

CDM Smith will administer the projects under this contract in accordance with the guidelines set forth by the County. As project manager, Mr. Pistiner will be the primary point of contact for the County. He will be responsible for reviewing the scope of work for each project and submitting a detailed staffing plan for each project to the County for approval. The staffing plan will consist of the personnel as shown in our proposed organizational chart in a format that outlines the duration and percentage of time that each person is anticipated to work on the project. To provide the County with the most cost-effective services, all projects will be staffed utilizing only the minimum number of personnel required to sufficiently cover all operations without sacrificing our high-quality standards. In the event additional personnel are needed and with County approval, CDM Smith can pull from more than 400 Florida resources as well as nearly 4,800 professionals nationwide to ensure the County receives the right support team at the right time.

The CDM Smith team is more than able to staff the County's projects while meeting budget and time requirements, and we have proven our ability to do so for many years now. We are accustomed to fluctuating workloads and have successfully met changing workload commitments while successfully maintaining our technical quality and meeting stringent schedules.

Controls Utilized to Maintain Schedule and Budget

CDM Smith's internal controls are based on the Project Management Institute's (PMI) proven approach to project management. As a proven project manager, Mr. Pistiner will implement the tools necessary to manage and control schedule in accordance with industry best practices and CDM Smith's QA policies. Our approach focuses on three primary areas: planning, executing, and controlling the schedule.

In planning the project schedule, we develop activity lists and assign durations based on staff availability and project constraints. Once established, this schedule becomes part of the project baseline and is monitored throughout project execution. Our extensive nationwide portfolio of bus and bus rapid transit engineering projects allows us to develop a project baseline that is realistic and achievable, while our deep bench of staff allows us to assign the right number of resources to the project to meet delivery timelines. We will work with the County during initial stages of the project to understand the scope of work, as well as the level of detail required for each deliverable. Based on the documented criteria, we will then develop a work plan. From this, a more detailed activity list will be generated for each task. These detailed activities are resourced and linked to the overall project schedule, including required deliverables and their associated due dates, so that progress may be continually monitored.

Successful project execution is dependent upon resource management, communication, and risk management to ensure project schedules are met. CDM Smith is committed to aligning the right person to lead every task order.

As previously mentioned, quality management, including project schedule controls, is an integral and mandatory

component of each project undertaken by CDM Smith. After the project is enrolled and work has begun, the project manager and other key team members have access to several analytics and reporting tools that greatly improve our ability to monitor and control schedules. The primary amongst these related to maintaining schedule is earned value analysis (EVA), a comparison of the actual project progress against plan to provide the project manager with quick yet accurate assessment of the project compared to time, budget, and deliverables. The EVA schedule performance index and schedule variance provide an early warning of potential problems which the project manager is then able to address proactively.

A key element in delivering a successful project is change management. Mr. Pistiner will use the budget and schedule information from the EVA to analyze potential impacts to the project and make informed decisions. Use of these tools in conjunction with the team's creativity results in a quality project that is completed on time and within budget. If, in any case, the scope of a project changes due to decisions made during project implementation, we will work with the County to adjust the scope of services accordingly and bring projects to a successful completion.

Schedule and Budget Control Tools

- ***Ecosys:*** A simple visual dashboard that allows a quick look at financial data such as project budget, project expenditures, and billing information. All financial information is updated weekly therefore allowing a project manager to keep a close eye on project budgets.
- ***Oracle:*** A project accounting system that provides project managers with a central location for detailed project financial information. Available data includes tracking all project hourly charges, invoices, and overall project financial status.
- ***Earned Value Analysis:*** On a weekly basis, the project manager compares actual expenses to the budget and develops project expenditure projections. The curve below indicates the budget versus time, as well as the actual expenses versus time. A comparison of the two provides the project manager with quick yet accurate assessment of the project compared to time, budget, and deliverables.



EVALUATION CRITERIA 3 – PAST PERFORMANCE

Experience in Managing and Completing Transit-Related Tasks

Through meaningful and productive client partnerships, CDM Smith delivers transit planning, engineering, construction, and operations services for lasting, sustainable, and linked public transportation systems. We have built successful relationships with some of the nation's most prominent transit agencies with contracts that are still in effect today. To the right, we have listed our experience in managing transit-related tasks within the past five years. Our team offers lessons learned from this experience, which will allow us to hit the ground running on the County's projects under this contract. Our proven approach to handling tasks under GPCs is included in **Evaluation Criteria 2 – Project Approach**.

CDM SMITH'S TRANSIT RELATED TASK EXPERIENCE WITHIN THE LAST 5 YEARS

CLIENT	CONTRACT/PROJECTS
Chicago Transit Authority	Red Line Extension EIS (2018 – 2019)
	Red Line Extension Project Management (2019 – Ongoing)
	Brown Line Vision Study (2016 – 2018)
	Lawrence Avenue Transit Oriented Design (2016 – 2018)
	77th Street Garage Bus Washer Design (2015 – 2016)
	77th Street Garage Fire Alarm Design (2016 – 2017)
	77th Street Garage Fueling Facilities/Drainage Design (2015 – 2016)
Indianapolis Public Transportation Corporation (IndyGo)	Red Line BRT NEPA and Design Services (2015 – 2016)
	Red Line BRT Final Design (2016 – 2019)
Pinellas Suncoast Transit Authority	Central Avenue BRT Final Design Services (2018 – 2020)
Pace Suburban Bus	Elgin O'Hare Bypass (IL 390) Corridor Service Study (2016 – 2017)
	Pulse Dempster Line Preliminary Engineering, NEPA & Public Involvement (2017 – 2019)
Central Florida Expressway Authority	Traffic and Earnings General Consultant (2012 – 2017)
	Traffic and Earnings General Consultant (2017 – Ongoing)
WeGo Public Transit	Program Management (2018 – Ongoing)
Florida Department of Transportation	Central Office SIS Contract (2010 – Ongoing)
	Central Office Freight & Intermodal (2012 – 2018)
	Central Office Transit (2008 – 2019)
Seattle Department of Transportation	Delridge Corridor Multimodal Project (2018 – Present
	RapidRide: Roosevelt to Downtown High Capacity Transit (2015 – 2016)
	Madison Street BRT Final Design Services (2016 – 2018)
Erie Metropolitan Transit Authority	Transit Facility Design (2011 – 2019)
	CNG Fueling Station (2013 – 2016)
Los Angeles County Metropolitan Transportation Authority	Eastside Transit Corridor (2015 – Ongoing)
Port Authority of Alleghany County	Downtown to East End BRT Preliminary Design and Project Management (2017 – 2019)
	On-call Architecture Design (2017 – 2019)

Team's Past Experience Relevant to the Scope of Work

CDM Smith offers Broward County a demonstrated ability to deliver multi-disciplined projects with similar scopes and multiple, concurrent assignments. Perhaps the best testimony to our commitment to **QUALITY** and **SERVICE** can be found in the words of our clients themselves. As per Solicitation PNC2119955P1, we have completed Vendor Reference Verification Forms for similar work performed to show evidence of CDM Smith's unmatched qualifications in water treatment and raw water supplies for clients other than Broward County. For ease of review, we have summarized these vendor references in the table below. The forms themselves can be found in CDM Smith's Attachment Documents.

VENDOR REFERENCE VERIFICATION FORMS

Project Name	Summary of Services	Client Reference
 Transit Planning and Engineering Support Services Tallahassee, FL	CDM Smith provided in-house staff and remote planning support on various transit-related projects as well as supported FDOT to meet state and federal compliance for transit planning regulations and activities.	**EXCELLENT** FDOT Public Transit Office Gabrielle Matthews, Transit Planning/Commuter Assistance Administrator Tel: 850.414.4803
 On-Call Transit Planning and Engineering Services Chicago, IL	CDM Smith has completed a variety of transit planning and environmental services to CTA.	**EXCELLENT** Chicago Transit Authority Leah Mooney, Director of Strategic Planning & Policy Tel: 312.681.4250
 Bus Rapid Transit Project Management and Engineering Services Allegheny County, PA	CDM Smith provided environmental, planning and grant application services for this BRT program.	**EXCELLENT** Port Authority of Allegheny County David Wohlwill, Program Manager, Long-Range Planning Tel: 412.566.5110

> "CDM Smith has a strong relationship with the FDOT Public Transit Office and **has consistently provided superior work products** and in-house staffing for our office."
>
> Gabrielle Matthews, Transit Planning/Commuter Assistance Administrator,
> FDOT Public Transit Office, FL

Transit Planning and Engineering Support Services

FDOT Public Transit Office, FL

FIRM'S ROLE | Prime

TYPE OF WORK |
A, B, C, D, E, F, H

CLIENT REPRESENTATIVE | Gabrielle Matthews, Transit Planning/Commuter Assistance Administrator
Tel: 850.414.4803

PROJECT DURATION | Jan 2013 to Sep 2019

COMPLETED ON TIME | Yes

PROJECT DOLLAR VALUE | $2.5M

TOTAL DOLLAR VALUE | $2.5M

COMPLETED ON BUDGET | Yes

PROJECT STAFF |
Palmer (Senior Planner); Richmond (Senior Planner/On-Site Support); Teders (Client Service Leader); Chaudhari (Planner); Sorenson (Principal Engineer); Ochoa (Traffic Engineer); Guttenplan (Senior Multimodal Planner); Kanike (Senior Traffic Engineer)

The Florida Department of Transportation (FDOT) Public Transit Office is responsible for identifying, supporting, and managing transit service across the state to maximize efficient use of the state's surface transportation facilities. They provide an array of services to transit agencies, metropolitan and rural areas around the state, including transit planning and operational technical support, transit facilities design and guidance, transit development plans (TDPs), conduct research and establish best practices guidance, develop tools and technology to facilitate transit planning and operations use, and provide Federal Transit Administration (FTA) grant administration and compliance support.

Under this contract, CDM Smith provided in-house staff and remote planning support to FDOT on a variety of transit and traffic engineering, planning and technology initiatives, ridership forecasting and tools development. Our team also provided grant administration and support, policy level consulting services, best practice research reviews and recommendations, and asset management planning. We supported the Department to meet state and federal compliance for transit planning regulations and activities.

We have assisted FDOT in advancing multimodal and transit projects and worked with District and transit agency staff across the state. The following highlight some of these key areas of support in further detail.

Best Practice Guidance for Acceptable Traffic Analysis Methodologies for BRT Projects: The purpose of this study was to develop consistent, transparent methods for analyzing traffic impacts for transit projects and to better streamline the planning, design, and implementation of these multimodal projects between FDOT, who owns a number of these roadways, and transit agencies who are often leading BRT improvement projects but are less familiar with traffic and multimodal operational concerns and criteria. CDM Smith evaluated existing practices in assessing transportation impacts during planning, environmental review, and design for BRT projects as well as developed best practices and a consistent methodology for traffic analyses of various types of BRT project elements and proposed improvements.

The outcome of this study provided recommended methodologies for BRT projects that involve an FDOT roadway and the corollary transportation analysis needed for these projects.

Utilizing the TBEST Ridership Estimation Model and Toolsets to Evaluate Transit Scenarios in the GO Raleigh Model: The FDOT Transit Office has been at the forefront in the development of state-of-the-art transit planning software and continues to enhance tools like TBEST to model transit ridership and other factors. This task included analysis and use of existing TBEST models outside of the state, particularly for the Raleigh, North Carolina regional model, and to identify potential use and advancements of TBEST modeling toolsets.

Transit Planning and Engineering Support Services, FDOT Public Transit Office, FL

Additionally, serving FDOT at their offices, we have provided oversight, technical support, and recommendations for the following major transit research and development tasks:

FDOT Statewide Asset Management Plan: Our team developed a group TAM Plan on behalf of the 28 Tier II transit providers located in six FDOT Districts across the state in accordance with FTA requirements.

Economic Impacts of Sun Rail Stations (Phase II): We provided oversight and recommendations to the team of researchers from Florida State University (FSU) tasked with benchmarking and quantifying the property value changes and development related tax revenues associated with SunRail commuter rail system in the Orlando Metropolitan Area.

University of Florida Mobile Eye Study: We provided technical support and recommendations on research evaluating the effectiveness of the Mobileye Shield+ collision avoidance system to reduce conflicts between transit buses and pedestrians and bicycles.

Transit Stop Locations by FDOT Context Classification: We provided technical support and recommendations to a consultant team developing a framework for designing for transit by context classification.

FDOT District 4 Transit Signal Priority for Freight and Transit Prioritization: Our team provided oversight and recommendations to the team of researchers from Florida Atlantic University (FAU) to develop a strategy and guidelines to plan, design and implement a Freight Signal Priority, to improve freight mobility, sustain good transit service, and minimize congestion on an arterial network with the consideration of the simultaneous application of FSP and TSP.

District-Wide Transit Performance Measures Review: CDM Smith provided technical support and recommendations to a consultant team inventorying the transit performance measures in use within the Department, a gap analysis, and providing recommendations regarding program-oriented measures to use to show a connection between transit office programs and outcomes.

On-Site FTA Grant and Compliance Reporting: Finally, as grant support specialists, we have provided on-site grant support, compliance, and coordination with transit agencies, metropolitan planning organizations (MPOs), and FDOT/FTA for Section 5310 and 5311 FTA funding. We have worked with FTA grant software, developed tools and coordination mechanisms for ongoing tracking, and maintained compliance with FTA triennial reviews.

Innovative Fare Payment Methods Research: CDM Smith served as the project manager for FDOT for a contract with University of South Florida (USF) for a two-part research study to evaluate the efficacy of deploying a mobile phone fare payment system. This pilot study evaluated the effect of mobile phone fare payment software upon transit operations and customer satisfaction. Phase I reviewed several existing mobile fare payment systems and provided FDOT with a framework for the implementation of a mobile payment pilot with a Florida transit agency.

CDM Smith served as project manager, overseeing the innovative implementation of a mobile fare payment app.

Subsequent to the completion of Phase I, FDOT selected StarMetro in Tallahassee as the pilot transit agency and Token Transit as the vendor supplying the mobile phone app for Phase II. Four routes were pre-selected by StarMetro, including the Gadsden Express, operated by Big Bend Transit, Inc.

The Token Transit app provided StarMetro/Big Bend Transit with the opportunity to configure a regional fare of $2.00 for Gadsden Express customers to transfer to any StarMetro route. The Token Transit app was configured to allow StarMetro customers to pay for their bus tickets by mobile phone, to ride on three other routes, via visual validation only.

StarMetro/Big Bend Transit configured all ticket options within their Administrative Web Portal, as provided by Token Transit. StarMetro worked in an ongoing manner with Token Transit to finalize the details of the deployment and answered Token Transit's questions, as needed. This was followed by the deployment of the mobile fare payment app.

On-Call Transit Planning and Engineering Services

Chicago Transit Authority, IL

FIRM'S ROLE | Prime

TYPE OF WORK |
A, B, C, D, F, G, H

CLIENT REPRESENTATIVE | Leah Mooney,
Director of Strategic Planning & Policy
Tel: 312.681.4250

PROJECT DURATION |
Oct 2012 to Dec 2019

COMPLETED ON TIME | Yes

PROJECT DOLLAR VALUE | $3.7M

TOTAL DOLLAR VALUE | $3.7M

COMPLETED ON BUDGET | Yes

PROJECT STAFF | Palmer (Senior Planner; Sangillo (Transit Planner); Ochoa (Traffic Engineer); Sorenson (Traffic Planner/ Engineer); Murdock (Regional Planner); Harber (Architect); McChane (Planner/On-Site Support); Sutherlin (TOD Planner/Architect)

CDM Smith has provided transit consulting services to the CTA since 1991, when we were first contracted for the Fueling Facility Upgrades Designs across the City of Chicago. Since then, we have completed a variety of planning, environmental and design services to CTA including on-site staff support, Core Capacity Vision Studies, Alternatives Analyses (AAs), environmental planning and conceptual engineering to meet all requirements under the National Environmental Policy Act (NEPA), station planning, operating and design plans, and transit-oriented development (TOD) plans, and we are now providing Program Management and third-party oversight services. In the last 15 years, we have performed various analysis and engineering tasks at CTA rail stations and maintenance facilities, bus garages, and storage facilities. Our continuous selection for these contracts cements our expert capabilities, high level of client service, and understanding of large transit agency operations and procedures.

Red Line Extension NEPA, Conceptual Engineering, and Program Management (2009 – Present): This project is proposing to extend CTA's Red Line 5.3 miles to 130th Street. As part of a joint venture, we served as contract and project manager for NEPA, conceptual engineering, and coordination of an extensive agency and public outreach program, developing and analyzing a series of potential alternative alignments; provided engineering support and led development and coordination of the Draft Environmental Impact Statement (EIS) with CTA and Federal Transit Authority (FTA). As part of a subsequent contract with another firm, CDM Smith is now providing on-site program management services to advance this project through the Final EIS and Record of Decision, project development and grant support, engineering, and construction phases as part of the FTA's New Starts Program.

For the Red Line Extension, we developed a web-based GIS database to track property impacts and conducted early door to door community outreach. Through renderings and videos, we were able to reach CTA's riders on a platform they were familiar with and increase project knowledge.

South Halsted Bus Corridor Enhancements (2018 – 2019): This project was a joint effort between CTA and Pace Suburban Bus to identify and evaluate bus rapid transit (BRT) options for an 11-mile corridor connecting Harvey, Illinois to the CTA Red Line at 79th Street and the 95th Street/Dan Ryan Expressway Station. It is anticipated that each agency will operate integrated service along sections of the corridor. For Pace, the project represents the agency's third arterial rapid transit corridor, branded as "Pulse." CDM Smith led this effort, identifying needs and deficiencies for corridor operations, developed a purpose and need for the project, developed and evaluated a series of strategies and concept design solutions, and recommended a final corridor improvement definition in concert with public outreach.

On-Call Transit Planning and Engineering Services, Chicago Transit Authority, IL

Brown Line Core Capacity Vision Study (2016 – 2018): This study evaluated existing and near-term capacity constraints on the entire CTA rail system and developed programmatic and project specific recommendations to improve operational capacity on the line and make capacity improvements to the Kimball station and yard. This work also involved developing a plan to allow them to eventually apply for federal funding. CDM Smith conducted an extensive analysis of Brown Line conditions and maintenance facility needs, conducted a System-Wide Rail Utilization and Capacity Analysis, and developed a series of alternatives for expansion to the Kimball station and yard.

Our team also developed TOD guidelines for the Lawrence Avenue station area based on community preferences and sound real estate marketing analyses.

Lawrence Avenue Station Transit-Oriented Development (TOD) Guidelines (2016 – 2018): This project developed TOD guidelines and principles at the Kimball station area, the current end of the line for the Brown Line and location of the Kimball Rail Yard. Public and stakeholder engagement and technical analysis on capacity and operational analyses were undertaken to define parameters for this study. The study results identified the community vision for this station area and provided guidance for balancing multimodal transportation needs in the area and desired TOD development around the station.

Red and Purple Modernization and Phase 1 NEPA and Conceptual Engineering (2010 – 2015): Starting in 2010, CDM Smith provided environmental and NEPA analysis and conceptual engineering. In late 2012, CTA and FTA decided to move forward with a phased approach to the line. Assisting CTA at their offices, we led the environmental analysis to develop two environmental assessments (EAs) and two categorical exclusions (CEs) as part of Phase 1 improvements, successfully completing these projects in less than two years. We also worked closely with FTA, managed and implemented a comprehensive public involvement program and oversaw grant and financial planning for the project. A full funding grant agreement was received in early 2017, making this the first approved FTA Core Capacity Program in the nation.

Ashland Avenue BRT AA, NEPA, and Conceptual Engineering (2010 – 2013): CDM Smith developed a BRT AA for the 20-mile Western Avenue and Ashland Avenue corridors and subsequently performed NEPA and conceptual engineering services for Ashland Avenue BRT. In this work, we performed transit operations planning, corridor analysis, station design, impact quantification, financial planning, traffic modeling, and ridership analyses to identify and evaluate options that led to the selection of a Locally Preferred Alternative.

95th Street Station Planning and Design (2011 – 2012): For the CTA's 95th Street Terminal Expansion, CDM Smith performed an examination of capacity and demand for each travel mode into the station. An analysis for traffic, pedestrian, bicycle, and bus and rail transit rider was conducted. The first part of the study identified physical space needs of the terminal for existing and future services. The second part of the planning effort developed design recommendations, cost estimating, and a land use assessment for the immediate surrounding area of the multimodal terminal.

Bus Rapid Transit Project Management and Engineering Services

Port Authority of Allegheny County, PA

FIRM'S ROLE | Prime

TYPE OF WORK |
A, B, C, F, G, H

CLIENT REPRESENTATIVE | David Wohlwill, Program Manager, Long-Range Planning
Tel: 412.566.5110

PROJECT DURATION |
Nov 2016 to Jun 2019

COMPLETED ON TIME | Yes

PROJECT DOLLAR VALUE | $1.9M

TOTAL DOLLAR VALUE | $1.9M

COMPLETED ON BUDGET | Yes

PROJECT STAFF | Palmer (Lead Environmental Planner); Bjork (Design Engineer); Sangillo (Capital Investment Grant Planner); Murdock (Capital Investment Grant Planner); King (Facilities Planning); McChane (GIS/Planning Support); Ochoa (Traffic Engineer); MacKay (Design Engineer)

The Downtown-Uptown-Oakland-East End BRT project will be Pittsburgh's first BRT service and will provide a vital east-west connection between downtown Pittsburgh and the Uptown, Oakland, and other East End neighborhoods. The project includes 7.4 miles primarily along Fifth and Forbes Avenues plus an additional 3.8 miles of the existing East Busway (each direction) using dedicated lanes. The project includes two branches—the Highland Park Branch that extends 3.4 miles (each direction) and the Squirrel Hill Branch extends 2.9 miles (each direction), both of which would remain mixed-flow. The project will include 44 stations/pairs (53 platforms) with enhanced/branded stations, dedicated transit lanes, transit signal priority (TSP), smart signal technology, curb bump outs, a real-time bus arrival information system, and the purchase of 25 branded battery electric articulated buses and the rebranding of 34 diesel buses. The project's current estimated capital cost is $195.5 million.

CDM Smith's involvement on the project included work on three major tasks. The first involved oversight and review of the consultant developing the NEPA documentation for the project. Major elements of this task were coordinating with the Federal Transit Administration (FTA) on the determination of the class of action. It was determined that the project would be a categorical exclusion due to the project being mostly within the current right-of-way. CDM Smith also coordinated with FTA on the Section 106 aspect of the project and reviewed information being sent to the Pennsylvania State Historic Preservation Office.

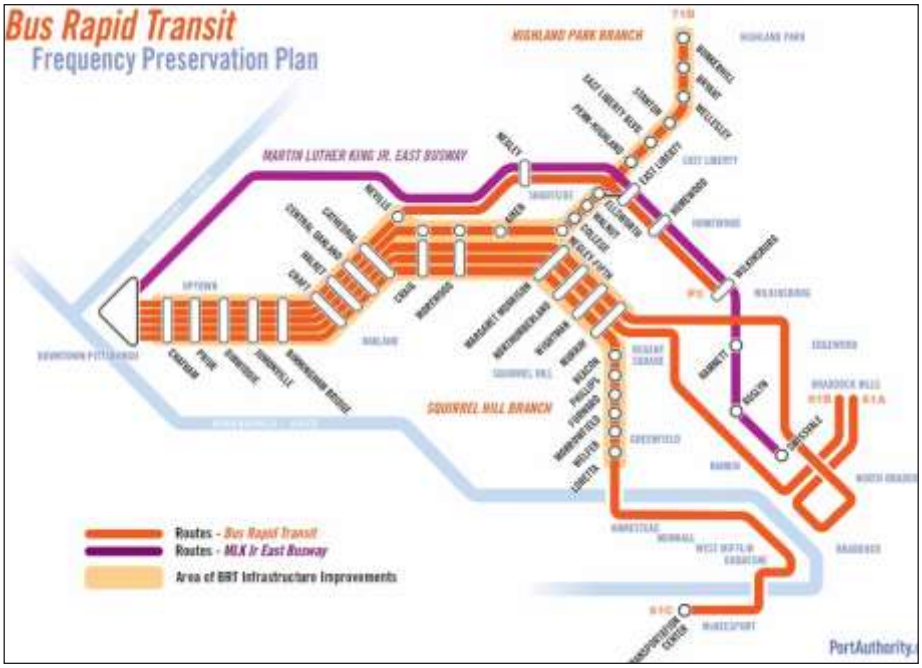
The second task was the development of the 30 percent preliminary engineering plans. Major elements of this task included collecting survey information (LiDAR) of the corridor and utilizing that information to develop the plans. Staff also coordinated with utilities along the corridor, particularly with the Pittsburgh Water and Sewerage Authority for storm water improvements needed within the Uptown area. This work also involved coordinating with PennDOT and a betterment project within the Oakland area of the corridor.

The third task assisted the Port Authority with entering the project into the FTA Project Development (PD) process. When CDM Smith started the project, it was found that the project was not in the PD process. Staff worked quickly to enter the project into the process allowing the Port Authority to have the funds count towards the Small Starts funding. A Small Starts application was developed and submitted in the Fall of 2017 for inclusion in the FY2019 President's Budget. CDM Smith staff managed a finance committee of partner organizations including the Port Authority, City of Pittsburgh, Allegheny

Bus Rapid Transit Project Management and Engineering Services, Port Authority of Allegheny County, PA

County, Urban Redevelopment Authority, and the EcoInnovation District, a transit redevelopment investment district (TRID) in Uptown and West Oakland, to develop a financial plan that rated high. This task also included public involvement, developing presentation materials, and attending numerous public meetings. Presentation materials included developing 3D graphics of station concepts and electric vehicle charging stations.

At the April 2018 Authority Board Meeting, the CDM Smith team was authorized for additional funding for services to assist the Authority and BRT project government agency partners with advancing the design of key project elements and submission of an updated Small Starts grant application in September 2018. The additional services included traffic signal engineering, traffic modeling, development of intersection details, additional LiDAR survey and data processing, continued utility coordination, developing right-of-way plans for property acquisitions, support for continued public engagement, support for other grant applications, and development of FTA's Small Start application update.

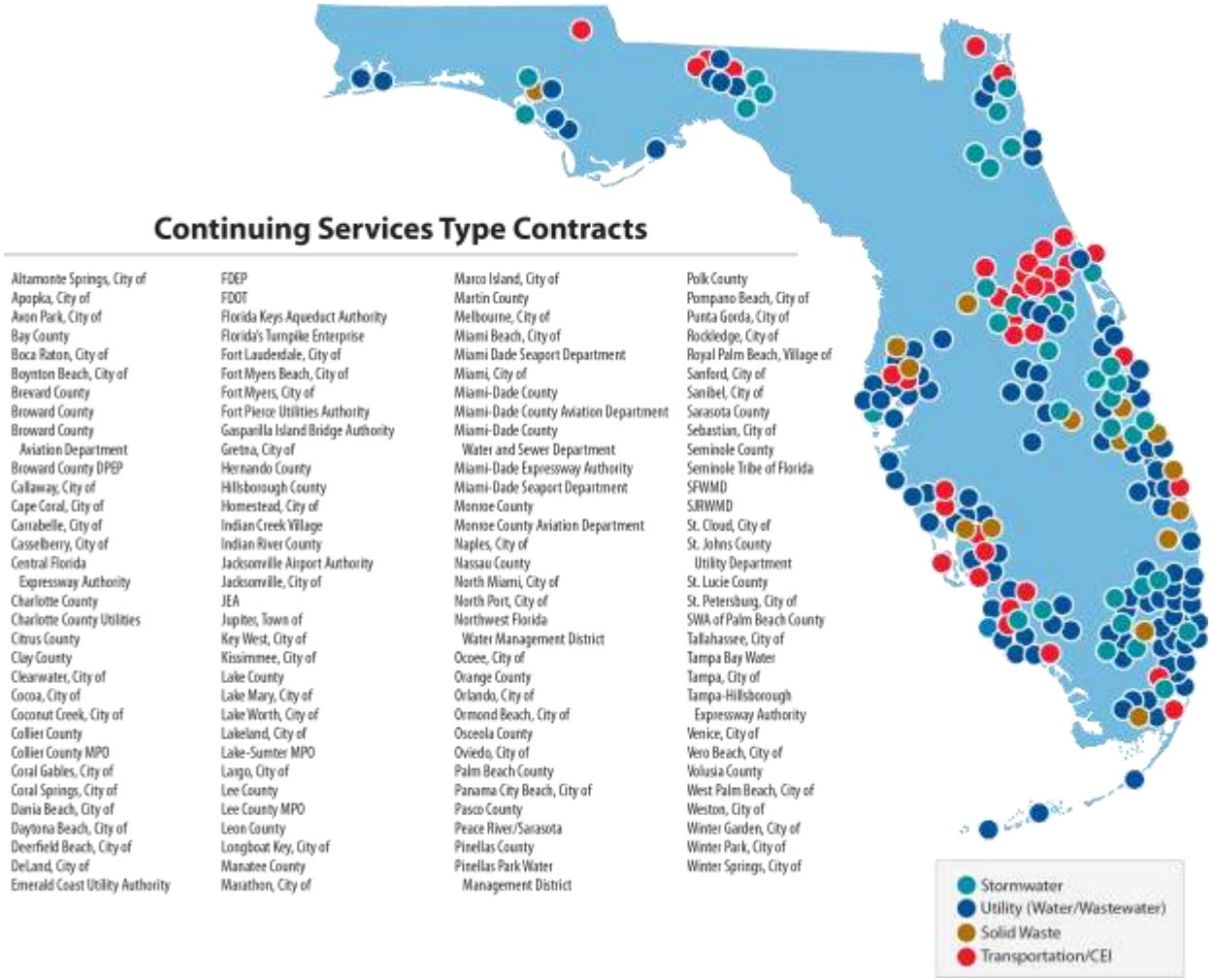


CDM Smith assisted PAAC in the development of the FTA grant that received a high rating from FTA including use of multiple funding sources.

EVALUATION CRITERIA 4 – WORKLOAD OF THE FIRM

Completed and Active Projects

CDM Smith commits to providing the County with a project team dedicated to uncompromising service and quality during the length of this contract. We recognize the importance of balancing workload and staffing commitments to meeting the service expectations of our clients. With the majority of our work coming in the form of repeat business from clients for whom we have long-term working relationships, we recognize the value of maintaining the highest level of performance on work that we receive. Many of these repeat clients have enlisted CDM Smith's services for continuing service contracts, such as the County's general planning consultant (GPC) contract, because they trust our team will efficiently handle their tasks. The graphic below shows our continuing service contracts—including GPCs—within Florida. ***We have proven that we are responsive and dedicated to our client's projects and will continue to do so with your projects under this GPC.***



With approximately 54 people in South Florida and more than 400 in the state, we have the resources with the appropriate expertise to staff projects under this contract. We can confidently state at this time that our current workload will not affect your project timeline, we are very enthusiastic about this contract, and the personnel presented in this proposal are the CDM Smith team members who will work with County on this project. We effectively manage our workload and staff, applying their expertise to multiple projects based on current requirements, and offer the County the reassurance that CDM Smith has the bench strength to contribute in the event we need to exert extra efforts to complete assigned project work. ***Our Plantation office will serve as the center for all project work and is the location of our dedicated project manager, Mark R. Pistiner, PE, which will ensure prompt, cost-effective service.***

To date, CDM Smith has worked on 9,000+ projects; as such, we limited our response in the following table to include continuing service contracts over the last five years. ***Knowledge gained through these projects, including knowledge of managing multiple concurrent tasks, can be directly applied to your projects, which will further reduce costs and shorten schedules.***

CDM SMITH'S COMPLETED AND ACTIVE CONTRACTS WITHIN THE PAST FIVE YEARS

Client Name	Project Name	Completion Date	Status
Alamo Regional Mobility Authority	2014-19 Combined GEC	2019	Completed
Allegheny County Airport Authority, PA	Terminal Modernization Program - Program Management	2018	Completed
Arizona DOT	**On-Call Transit Planning & Engineering Services**	**Ongoing**	**Active**
Bay Area Rapid Transit (BART)	BART General Engineering Services On-Call	Ongoing	Active
Berkeley Charleston Dorchester COG	**BCDCOG On-Call Engineering & Planning**	**Ongoing**	**Active**
Birmingham-Jefferson County Transit	East & West Stop Facilities Design & Engineering Services	2019	Completed
Bradenton Beach, FL, City of	Utility Undergrounding Program	2018	Completed
Cambridge, MA, City of	General Engineering Consultant Services	Ongoing	Active
Central Florida Expressway Authority	Traffic and Earnings General Consultant	Ongoing	Active
Chicago Transit Agency	General Engineering Consultant MSA	Ongoing	Active
	Red Line Extension Program Management	Ongoing	Active
	General Planning Consultant	**2016**	**Completed**
	Environmental Engineering Consultant MSA	Ongoing	Active
	General Engineering MSA	2018	Completed
Columbia, SC, City of	City of Columbia Clean Water Program Management	Ongoing	Active
Columbus, OH, City of	Smart Cities Program Management Services	Ongoing	Active
Clayton County, GA	Architectural, Engineering & Design Services for SPLOST Program	2017	Completed
	Construction Management and Inspection Services (as part of SPLOST Program)	2018	Completed
Colleton County	Colleton County Engineering Services	Ongoing	Active
Connecticut DOT	**Intermodal Planning Services**	**Ongoing**	**Active**
District of Columbia DOT	Architectural & Engineering Services	Ongoing	Active
Farragut	On-Call Engineering & Surveying	2018	Completed
FDOT Central Office – Aviation and Spaceports, FL	FDOT Aviation Program Management Services	2019	Completed
FDOT Central Office – Freight, FL	Freight Mobility Consultant	2019	Completed
FDOT Central Office – Planning, FL	**FDOT Central Planning Program Management**	**2019**	**Completed**
	Forecasting Trends Mobility Performance Measures Program Management Services	Ongoing	Active
	Florida Planning Policy Program Management Services	2019	Completed

CDM SMITH'S COMPLETED AND ACTIVE CONTRACTS WITHIN THE PAST FIVE YEARS

Client Name	Project Name	Completion Date	Status
FDOT Central Office – Transportation Technology, FL	Freight Data Program Consultant	2018	Completed
	Transportation Statistics Performance Management Program Management Services	2017	Completed
	Transportation Model Application for Systems Transportation Modeling	Ongoing	Active
FDOT District 1	District EMO General Consulting Services	Ongoing	Active
FDOT District 3	**Modal Planning Services**	**2019**	**Completed**
FDOT District 4	**D4 SFRTA GPC**	**2016**	**Completed**
FDOT District 6	**Intermodal SIS General Planning**	**Ongoing**	**Active**
Georgia DOT, GA	Statewide Utility Coordination Contract	2018	Completed
	Programmatic Construction Engineering & Inspection Services for P3 Strategic Advisor	Ongoing	Active
Greater Orlando Aviation Authority, FL	Program Management Services at Orlando International Airport	2015	Completed
Hartford, CT, City of	On-Call Engineering Services	Ongoing	Active
Hillsborough, City of	General Engineering Services	Ongoing	Active
Hobeken, NJ, City of	**Engineering, Environmental, Planning & Landscaping Services**	**2018**	**Completed**
Houston, TX, City of	HCTRA ATMS/ITS Toll System Upgrade Project	2019	Completed
Illinois Tollway Authority, IL	Illinois State Tollway Authority - General Engineering & Program Manager	Ongoing	Active
Indianapolis Airport Authority	On-Call Engineering Services	2018	Completed
Jefferson Parish, LA	General Engineering Services	2017	Completed
Kentucky Transportation Cabinet, KY	Kentucky Statewide Traffic Engineering	2018	Completed
Killeen-Temple MPO, TX	**MPO General Planning Services**	**2018**	**Completed**
Kissimmee, FL, City of	Continuing Transportation Engineering Services	Ongoing	Active
Lee County, FL	Program Manager/General Engineering Services	Ongoing	Active
Leon County, FL	Leon County General Traffic Services	2017	Completed
Liberty County	City Engineering Services	Ongoing	Active
Los Angeles Metro Transportation Authority, CA	General Engineering & Toll Services	Ongoing	Active
Los Angeles World Airports	Program Management Support	Ongoing	Active
	On-Call Environmental Technical Expert Services	2019	Completed
	Environmental Consulting and Entitlement Support Services	2016	Completed
	On-Call General Environmental Services	Ongoing	Active
Louisville and Southern Indiana Bridges Authority (LASIBA)	Louisville Bridges GEC Amendment through 2015	2015	Completed
Malden, MA, City of	General Engineering Consultant	2019	Completed

CDM SMITH'S COMPLETED AND ACTIVE CONTRACTS WITHIN THE PAST FIVE YEARS

Client Name	Project Name	Completion Date	Status
Maryland Transportation Authority, MD	General Engineering Consultant	2018	Completed
	Comprehensive Engineering Services	2019	Completed
Maryville	Maryville On-Call Engineering Services	2019	Completed
Massachusetts Port Authority	On-Call Stormwater Engineering Services	2019	Completed
Massachusetts DOT, MA	Statewide Engineering Design and Review Services	2016	Completed
Metroplan Orlando, FL (MPO)	**General Planning Consultant**	**2019**	**Completed**
Michigan DOT	Road Safety Audit On-Call Services	Ongoing	Active
Minot, ND, City of	Program Management	Ongoing	Active
	Minot Resiliency Program Manager	2019	Completed
Missouri DOT	**On-Call Planning Consultant**	**Ongoing**	**Active**
Nevada DOT, NV	Pioneer Program Management Services	2019	Completed
New Bedford, MA, City of	New Bedford General Engineering Services	2019	Completed
New Britain	On-Call Engineering and Architectural Services	Ongoing	Active
New Jersey Turnpike Authority	A3622 General Engineering and Traffic Engineering Consultant Services	2018	Completed
New Orleans, LA, City of	2016 General Engineering Services- Roadway GEC	2018	Completed
New Orleans Regional Transit Authority	General Architectural & Engineering Services 2017-19	Ongoing	Active
New York, NY, City of	CBDG-DR House Rehabilitation/Elevation Construction Services	2019	Completed
New York State Governor's Office	Construction Program Management Services	2018	Completed
	Storm Recovery GEC	Ongoing	Active
North Carolina DOT	Division 6, GEC	2018	Completed
	Division 5 GEC 2016/17 Plan Reviews	2018	Completed
	Division 6 General Engineering Services for Planning, Roadway and Structure Design	**2018**	**Completed**
	GEC Divisions Statewide	2019	Completed
	General Engineering Contracts Statewide - North Carolina	Ongoing	Active
	2018 Division 11 GESC	Ongoing	Active
NCDOT, D12	**General Engineering Services, Planning, Engineering, Roadway, Structures**	**Ongoing**	**Active**
North Charleston, SC, City of	Navy Base Intermodal Facility (NBIF) Surface Road and Bridges Design & Construction Management	Ongoing	Active
North County Transit District, CA	Program Management Consulting Services	2019	Completed
Oklahoma Turnpike Authority	Oklahoma GEC	Ongoing	Active
Palmetto Railways, SC	Camp Hall Industrial Program Management	2018	Completed
	Palmetto Railways General Engineering Consultant	2018	Completed

CDM SMITH'S COMPLETED AND ACTIVE CONTRACTS WITHIN THE PAST FIVE YEARS

Client Name	Project Name	Completion Date	Status
Peninsula Corridor Joint Powers Board, CA	Caltrain PTC Program Management	2019	Completed
PennDOT Bureau of Local and Area Transportation, PA	Open Ended Construction Management Services	2018	Completed
PennDOT, PA	District 1 Open Ended General Engineering Services	2019	Completed
	District 3 Open Ended General Engineering Services	2018	Completed
Plymouth, MA, Town of	Plymouth 400 Program Manager	2015	Completed
Port Authority of Allegheny County	On-Call Architectural Design	Ongoing	Active
Puerto Rico Aqueduct and Sewer Authority	Program Management Services for Capital Improvement Projects	Ongoing	Active
Qatar Public Works Authority	Lusail Expressway Program Management Services	2018	Completed
	GEC for RPD	Ongoing	Active
Ramos/TxDOT Project Finance, Debt and Strategic Contracts Division	Texas DOT Program Management Services - General Program Support JV	Ongoing	Active
Revere, MA, City of	Design & Engineering Program Manager	2017	Completed
	Consent Decree Program Management Services	Ongoing	Active
Rhode Island DOT	Safe Route to School General Engineering Services	Ongoing	Active
Rhode Island Turnpike Authority	Program Manager, Bridges & Assets	2019	Completed
	On-Call Toll Services	2019	Completed
RTC of Southern Nevada, NV	Boulder City Bypass Program Management	Ongoing	Active
San Antonio, TX, City of	Construction Management and Inspection Services Master Program Services	2019	Completed
Santa Clara Valley Transportation Authority, CA	VTA Program Management & Construction Services	2019	Completed
Shreveport, LA, City of	Design & Engineering Program Manager	Ongoing	Active
South Carolina DOT	SCDOT Roadway and Intersection Engineering Improvements	Ongoing	Active
	Roadway Design/Engineering and Intersection Improvements	Ongoing	Active
	Carolina Crossroads Program	Ongoing	Active
	Statewide Construction Program (CEI) for Districts 1, 3, 4, & 7	Ongoing	Active
South Jersey Transportation Authority, NJ	South Jersey Traffic Engineering Consultant	Ongoing	Active
St. Bernard Parish, LA	Construction Program Management Services	2016	Completed
Taneytown	General Engineering Services	Ongoing	Active
The Walt Disney Co., FL	Golden Oaks Construction Management Program	2018	Completed
TxDOT	Texas 2018 Tolling GEC	Ongoing	Active
TxDOT Austin District, TX	US 183 North DB GEC	2017	Completed
TxDOT Houston District, TX	IH 610/IH 69 Construction Management Program	Ongoing	Active

CDM SMITH'S COMPLETED AND ACTIVE CONTRACTS WITHIN THE PAST FIVE YEARS

Client Name	Project Name	Completion Date	Status
TxDOT Project Finance, Debt and Strategic Contracts Division, TX	2015 GEC Program Management	2015	Completed
	2013 Procurement/Program Management Services	2018	Completed
	Procurement Engineering Services (Ramos JV) - 2015	Ongoing	Active
Union Pacific Railroad	Union Pacific Railroad Environmental Program Management	2019	Completed
USDOT FHWA	FHWA Program Support for Financing Data Program	2019	Completed
	Market Demand Risk Advisory Services: Build America Program	Ongoing	Active
USDOT Volpe Center	USDOT Ballast Environment Program Management Services	Ongoing	Active
Virginia DOT	I-395 GEC Support	Ongoing	Active
	Intelligent Transportation Services Program Development	Ongoing	Active
	Virginia P3 (VAP3) Staff Augmentation/Program Management Services	Ongoing	Active
WeGo Transit	**Program Management, WeGo Transit Services**	**Ongoing**	**Active**
West Palm Beach, FL, City of	General Engineering Services	2017	Completed
	City of West Palm Beach Owner's Rep & Program Management Services	Ongoing	Active
West Virginia DOT	**2016 Statewide Planning General Consultant**	**2018**	**Completed**
	West Virginia Traffic Engineering Consultant	Ongoing	Active
	Statewide Engineering Services	Ongoing	Active
	ID/IQ Engineering Assistance Services (2017-2020)	Ongoing	Active
	Statewide Engineering & Planning Services	Ongoing	Active
	Engineering Assistance Services	Ongoing	Active
York County, SC	Pennies 4 Engineering On-Call Services	Ongoing	Active
	Pennies 4 General Engineering Services	Ongoing	Active

Projected Projects

The CDM Smith local office does not have projected projects that are awarded a contract but the Notice to Proceed has not been issued.

Identify any Projects that Vendor Worked on Concurrently

The majority of CDM Smith's proposed staff for this project are working concurrently on the projects listed in the table above. We have assembled a strong project team, who have experience managing several projects or tasks at the same time, to successfully deliver tasks to the County. Although we effectively manage our workload and staff, the County has the additional reassurance that CDM Smith has extensive resources throughout our additional 10 Florida offices that could contribute in the event we need to exert extra effort.

Approach to Managing Projects

As further detailed in **Evaluation Criteria 6**, the County will benefit from our proven history of and approach to delivering projects on schedule and budget at no sacrifice to quality and responsiveness. We will apply the same approach to this project that successfully delivered numerous general planning contracts throughout the country. Our effective project control systems are scalable, consistent, and integrated, providing a routine method of producing and controlling information for progress reporting, scheduling, budgeting, accounting, and all other project functions the County requires.

Challenges

Like with any task-based contract for agencies responsible for an array of planning activities, there are always challenges encountered. At CDM Smith, our Listen. Think. Deliver. approach is more than a tag line. It is incorporated into our project management and execution processes so that we can deliver a legendary client experience. We will **LISTEN** to your needs, **THINK** about the right solution for the unique situation, and **DELIVER** high-quality results, as we have done on similar contracts.

IndyGo's Red Line (Indianapolis, IN)

The agency's major goals were to increase system capacity and stimulate economic development along the Red Line's routes, while maintaining the capacity to support future growth. The community, meanwhile, was looking for a creative solution to reinvigorate transit, increase mobility and connectivity, and provide more frequent, reliable service, while keeping parking lanes. In addition, IndyGo was looking to build upon existing initiatives and efforts in environmental stewardship and sustainability.

To help IndyGo reach its goals, including obtaining the funds to build this $96.3M innovative system, the CDM Smith team had to hit the ground running. In the first 30 days from Notice to Proceed, the team embarked on critical path tasks, including helping the agency obtain $75M in federal funds, as well as conducting a comprehensive public and stakeholder outreach process to identify and address key challenges within the corridor and surrounding communities.

Key to the overall delivery and lasting success of this project was finding ways to increase frequency and reliability of service, enhancing overall mobility, and ensuring top environmental standards. The team achieved this through:

- Designing dedicated lanes that separate buses from traffic to eliminate mixed-traffic congestion.
- Fast and efficient service: 10 min headways with increased bus travel speeds between nine and 192 percent.
- Implementing a bi-directional bus lane, where buses share a single lane. To do this, the team employed traffic signal prioritization technology which detects lane availability, signaling the bus when it is safe to proceed and stop them when the lane is in use.
- All-electric bus service, in alignment with the agency's plan to operate a fully electric bus fleet by 2035.
- Installing 28 walkable, convenient stations: With these strategically placed stations, the walkable-built environment along the Red line fulfills the multi-faceted essential needs of its riders, connecting them in more livable ways.
- Designed mostly within existing curb limits, with minimal right-of-way (ROW) takes.

EVALUATION CRITERIA 5 – LOCATION

*Our team is **LOCAL** and has the **AVAILABILITY** and **COMMITMENT** to the County to ensure your projects meet your quality, schedule and budget goals.*

Having a local team to interact with County staff on a daily basis will enhance communication and developments quickly and efficiently. CDM Smith will manage projects under this contract from our Plantation office as noted on the **Location Attestation Form**. Our office is less than a mile from the County's transit office, providing the County with a responsive and easy-to-access point of contact for all matters. All assignments will flow through our local office, including review, management, and oversight of project tasks. Additionally, we have an office in Boca Raton, which is only 45 minutes from the County's facilities, as well as staff from our nine other Florida offices who can travel to the County to provide specialty services or handle sudden fluctuations in workload. Our Florida offices routinely work together as a team in this manner, assuring the County of our ability to remain responsive as a single, seamless team.



CDM SMITH ATTACHMENT DOCUMENTS

Required Forms

CDM Smith has viewed and accepted all documents listed on BidSync as listed below. For ease of review, we have indicated which documents include attachments herein. We also acknowledge Addendum #1 made on February 3, 2020.

- Scope of Work, PNC2117097P1.pdf – **Viewed on BidSync**
- RFP-RFQ-RLI Standard Instructions to Vendors – **Accepted on BidSync**
- Special Instructions to Vendors.pdf – **Viewed on BidSync**
- Evaluation Criteria.pdf – **Viewed on BidSync**
- RFP-RLI-RFQ Vendor Questionnaire and Std. Certifications – **Accepted on BidSync and additional information attached regarding response to question #14**
- Vendor Reference Verification Fillable Form.pdf – **Viewed on BidSync and three completed reference forms attached**
- Lobbyist Registration Requirement Certification Form – **Accepted on BidSync**
- RLI - RFP - RFQ Domestic Partnership Act Certification Form – **Accepted on BidSync**
- RLI - RFP - RFQ Litigation History – **Accepted on BidSync and additional information attached detailing CDM Smith's litigation history**
- RLI - RFP - RFQ Affiliated Entities of the Principal Form – **Accepted on BidSync**
- Office of Economic and Small Business Development CBE Goals – **Accepted on BidSync and completed CBE Form attached on following pages**
- RFP-RLI-RFQ Subcontractors-Subconsultants-Suppliers Requirement Form – **Accepted on BidSync**
- RLI - RFP - RFQ Agreement Exception Form – **Accepted on BidSync**
- RFP-RFI-RFQ Local Preference - Tiebreaker Certification – **Accepted on BidSync**
- RFP-RFQ-RLI Location Attestation Form (Evaluation Criteria) – **Accepted on BidSync**
- RLI - RFP - RFQ Volume of Previous Work Attestation Form (Evaluation Criteria) – **Accepted on BidSync**
- Insurance Requirements, PNC2117097P1.pdf – **Viewed on BidSync and a copy of CDM Smith's general insurance certificate attached**
- Summary of Vendor Rights Regarding Broward County Competitive Solicitations– **Accepted on BidSync**

Additional Attachments

We have also attached the following items as requested within the County's Solicitation.

1. CDM Smith State Certification – **Attached**
2. CDM Smith Professional Engineering License – **Attached**
3. Broward County Local Business Tax Receipt – **Attached**
4. CDM Smith Most Recent Two Years of Financial Statements – **(2017/2018 Financials – Confidential information – three hard copies delivered to Broward County Purchasing Division)**

RFP-RLI-RFQ Vendor Questionnaire and Std. Certifications

14. Has your firm, its principals, officers or predecessor organization(s) ever been debarred or suspended by any government entity? If yes, specify details in an attached written response, including the reinstatement date, if granted.

Response: Yes. On May 13, 2015, CDM Smith Inc. and its subsidiary, CDM Smith India Private Ltd., were debarred by the National Highways Authority of India (NHAI) for a period of three months in 2015 for allegedly failing to identify the errors and omissions of another design engineer during the review of a bridge design by another NHAI consultant.

Vendor Reference Verification Forms

In the following pages we have included completed Vendor Reference Verification Forms.

Vendor Reference Verification Form

Broward County Solicitation No. and Title:

PNC2119955P1 - General Planning Consultant Services for the Transportation Department

Reference for: CDM Smith Inc.

Organization/Firm Name providing reference:

Florida Department of Transportation (FDOT) Public Transit Office

Contact Name: Gabrielle Matthews Title: Transit Planning/Commuter Assistance Administrator Reference date: 02/06/2020

Contact Email: gabrielle.matthews@dot.state.fl.us Contact Phone: 850.414.4803

Name of Referenced Project: Transit Planning and Engineering Support Services, Modal Support Consultant

Contract No.	Date Services Provided:			Project Amount:
C9861, C9N85	01/16/2013	to	09/30/2019	$ 2,500,000.00

Vendor's role in Project: ☐ Prime Vendor ☑ Subconsultant/Subcontractor

Would you use this vendor again? ☑ Yes ☐ No If No, please specify in Additional Comments (below).

Description of services provided by Vendor:

They provided in-house staff and remote planning support on transit and traffic engineering, planning and technology initiatives, grant administration and support, policy level consulting services, and best practice research reviews and recommendations as well as supported FDOT to meet state and federal compliance for transit planning regulations and activities.

Please rate your experience with the referenced Vendor:	Needs Improvement	Satisfactory	Excellent	Not Applicable
1. Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
2. Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Turnover	☐	☐	☑	☐
3. Timeliness of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐
4. Project completed within budget	☐	☐	☑	☐
5. Cooperation with:				
a. Your Firm	☐	☐	☑	☐
b. Subcontractor(s)/Subconsultant(s)	☐	☐	☐	☑
c. Regulatory Agency(ies)	☐	☐	☐	☑

Additional Comments: (provide on additional sheet if needed)

CDM Smith has a strong relationship with the FDOT Public Transit Office and has consistently provided superior work products and in-house staffing for our office.

THIS SECTION FOR COUNTY USE ONLY

Verified via: ____EMAIL ____VERBAL Verified by: _____ Division: _____ Date: _____

All information provided to Broward County is subject to verification. Vendor acknowledges that inaccurate, untruthful, or incorrect statements made in support of this response may be used by the County as a basis for rejection, rescission of the award, or termination of the contract and may also serve as the basis for debarment of Vendor pursuant to Section 21.119 of the Broward County Procurement Code.

Vendor Reference Verification Form

Broward County Solicitation No. and Title:

PNC2119955P1 - General Planning Consultant Services for the Transportation Department

Reference for: CDM Smith

Organization/Firm Name providing reference:

Chicago Transit Authority

Contact Name: Leah Mooney Title: Director of Strategic Planning & Policy Reference date: 02/06/2020

Contact Email: lmooney@transitchicago.com Contact Phone: 312-681-4250

Name of Referenced Project: On-Call Transit Planning/Engineering Services

Contract No.	Date Services Provided:			Project Amount:
N/A	10/15/2012	to	12/31/2019	$ 3,000,000.00

Vendor's role in Project: ☑ Prime Vendor ☐ Subconsultant/Subcontractor

Would you use this vendor again? ☑ Yes ☐ No If No, please specify in Additional Comments (below).

Description of services provided by Vendor:

Under a General Planning Consultant (GPC), CDM Smith has completed a variety of transit planning and environmental services to CTA.

Please rate your experience with the referenced Vendor:	**Needs Improvement**	**Satisfactory**	**Excellent**	**Not Applicable**
1. Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
2. Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Turnover	☐	☐	☑	☐
3. Timeliness of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐
4. Project completed within budget	☐	☐	☑	☐
5. Cooperation with:				
a. Your Firm	☐	☐	☑	☐
b. Subcontractor(s)/Subconsultant(s)	☐	☐	☑	☐
c. Regulatory Agency(ies)	☐	☐	☑	☐

Additional Comments: (provide on additional sheet if needed)

THIS SECTION FOR COUNTY USE ONLY

Verified via: ____EMAIL ____VERBAL Verified by: _____ Division: _____ Date: _____

All information provided to Broward County is subject to verification. Vendor acknowledges that inaccurate, untruthful, or incorrect statements made in support of this response may be used by the County as a basis for rejection, rescission of the award, or termination of the contract and may also serve as the basis for debarment of Vendor pursuant to Section 21.119 of the Broward County Procurement Code.

Vendor Reference Verification Form

Broward County Solicitation No. and Title:

PNC2119955P1 - General Planning Consultant Services for the Transportation Department

Reference for: CDM Smith

Organization/Firm Name providing reference:

Port Authority of Allegheny County

Contact Name: David Wohlwill Title: Program Manager, Long-Range Planning Reference date: 02/06/2020

Contact Email: dwohlwill@portauthority.org Contact Phone: 412.566.5110

Name of Referenced Project: Bus Rapid Transit Project Management and Engineering Services

Contract No.	Date Services Provided:			Project Amount:
16-12	11/18/2016	to	06/01/2019	$ 1,900,000.00

Vendor's role in Project: ☑ Prime Vendor ☐ Subconsultant/Subcontractor

Would you use this vendor again? ☑ Yes ☐ No If No, please specify in Additional Comments (below).

Description of services provided by Vendor:

CDM Smith provided oversight and review of the NEPA documentation, developed the 30 percent preliminary engineering plans, assisted with entering the project into the FTA Project Development (PD) process, and assisted with the submission of an updated Small Starts grant application.

Please rate your experience with the referenced Vendor:	**Needs Improvement**	**Satisfactory**	**Excellent**	**Not Applicable**
1. Vendor's Quality of Service				
a. Responsive	☐	☐	☑	☐
b. Accuracy	☐	☐	☑	☐
c. Deliverables	☐	☐	☑	☐
2. Vendor's Organization:				
a. Staff expertise	☐	☐	☑	☐
b. Professionalism	☐	☐	☑	☐
c. Turnover	☐	☑	☐	☐
3. Timeliness of:				
a. Project	☐	☐	☑	☐
b. Deliverables	☐	☐	☑	☐
4. Project completed within budget	☐	☐	☑	☐
5. Cooperation with:				
a. Your Firm	☐	☐	☑	☐
b. Subcontractor(s)/Subconsultant(s)	☐	☐	☐	☑
c. Regulatory Agency(ies)	☐	☐	☐	☑

Additional Comments: (provide on additional sheet if needed)

THIS SECTION FOR COUNTY USE ONLY

Verified via: ____EMAIL ____VERBAL Verified by: _____ Division: _____ Date: _____

All information provided to Broward County is subject to verification. Vendor acknowledges that inaccurate, untruthful, or incorrect statements made in support of this response may be used by the County as a basis for rejection, rescission of the award, or termination of the contract and may also serve as the basis for debarment of Vendor pursuant to Section 21.119 of the Broward County Procurement Code.

RLI - RFP - RFQ Litigation History

In the following pages we have attached CDM Smith's litigation history.

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (1)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - 1982CV01202
  - Thayer Academy v. R.A.D. Corp. d.b.a R.A.D. Sports v. CDM Smith Inc.
  - 11/4/2019
- **Name of Court or other tribunal:**
  - Norfolk County Superior Court
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Contribution and Indemnification
- **Brief Description of Subject Matter and Project Involved:**
  - Third party plaintiff brought contribution and indemnification action alleging negligence against CDM Smith.
  - South Athletic Campus Field I in Braintree, MA
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Mark Freel (mark.freel@lockelord.com),
  - Douglas Sweeney (douglas.sweeney@lockelord.com)
  - Locke Lord LLP, 111 Huntington Ave., Boston, MA 02199
  - TEL: (617) 239-0100

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (2)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - 19C357874
  - Santa Clara Valley Water District v. CH2M Hill, Inc., CDM Smith, Inc., DOES 1 – 60
  - 11/1/2019
- **Name of Court or other tribunal:**
  - Superior Court of the State of California, County of Santa Clara
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges engineering errors in water treatment plant residuals management project
  - Rinconda Water Treatment Plant Residuals Management Project
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Eric Firstman (efirstman@meyersnave.com)
  - Ian Johnson (ijohnson@meyersnave.com)
  - Meyers, Nave, Ribank, Silver & Wilson
  - 555 12th Street, Suite 1500, Oakland CA 94607
  - TEL: 510-808-2000

LITIGATION HISTORY FORM

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☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☑ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: CDM International Inc. Or No ☐
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (3)

- **Parent, Subsidiary, Predecessor?**
  - Subsidary (CDM International Inc.)
- **Case Number, Name, and Date Filed:**
  - Civil Action No. 1:18-CV-12348-PBS
  - Arco Ingenieros S.A. DE C.V. v. CDM International Inc.
  - 11/9/2018
- **Name of Court or other tribunal:**
  - US District Court for the District of Massachusetts
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Breach of Contract, Tortious Interference with Contractual Relations, Misrepresentation, Civil Conspiracy
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges that CDM International breached its contract with USAID in the performance of providing preliminary designs and construction supervision for the Tropical Storm IDA reconstruction project. ARCO filed a “companion” lawsuit against USAID.
  - Hurricane Ida Reconstruction Project, El Salvador
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**

  Anthony D. Mirenda (amirenda@foleyhoag.com)
  Nicholas C. Theodorou (ntheodorou@foleyhoag.com)
  Michael J. Licker (mlicker@foleyhoag.com)
  155 Seaport Boulevard
  Boston, MA 02210
  Tel: (617) 832-1000

  Kenneth J. Figueroa (kfigueroa@foleyhoag.com)
  1717 K Street, N.W.
  Washington, D.C. 20006
  Tel: (202) 232-1200

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (4)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Case No. 18-3360-CK
  - Spence Brothers v. Board of County Road Commissioners of the County of Bay, and Board of County Road Commissioners of the County of Bay, Counter-Plaintiff, v. Spence Brothers, Counter-Defendant/Third-Party Plaintiff, v. CDM Smith Inc., Third-Party Defendant.
  - 10/25/2018
- **Name of Court or other tribunal:**
  - Circuit Court for the County of Bay, State of Michigan
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Third Party Complaint alleging Negligent Misrepresentation
- **Brief Description of Subject Matter and Project Involved:**
  - Third Party Plaintiff alleges CDM Smith was negligent in preparation of contract documents
  - Bay Area Water Treatment Plant
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - James Case (jcase@kerr-russell.com)
    Jacquelyn A. Klima (jklima@kerr-russell.com)
    500 Woodward Ave., Suite 2500, Detroit, MI 48226-3427
    Tel: (313) 961-0200

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (5)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Index No. 1140/17
  - Vladimir Nazarov and James Nazarov v. Consolidated Edison Company of New York (D, TPP) v. CDM Smith Inc. (TPD)
  - 10/24/2018
- **Name of Court or other tribunal:**
  - Supreme Court of the State of New York
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Third Party Complaint for Property Damage - Contractual Indemnity/Breach of Contract
- **Brief Description of Subject Matter and Project Involved:**
  - Third Party Complaint alleging contractual indemnity and breach of contract.
  - Con Edison Remedial Investigations
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Nadine Rivellese (email unavailable)
    4 Irving Place, Borough of Manhattan, New York. NY 10003-3598
    Tel: Unavailable

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (6)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Case No. 18CVP-0318
  - Cambria Community Services District, a California Independent Special Services District v. CDM Smith Inc., a Massachusetts Corporation, and DOES 1 through 25, inclusive
  - 9/21/2018
- **Name of Court or other tribunal:**
  - Superior Court of the State of California for the County of San Luis Obispo
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Breach of Contract, Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges CDM Smith breached its contract and was negligent in the performance of engineering services in water treatment facility design project
  - Design-build project for design and construction of water treatment facility
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Peter Howell (phowell@rutan.com)
  - Rutan & Tucker LLP
  - Costa Mesa, CA
  - Tel: 714-641-5100

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (7)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Case # 2018CP32002246
  - Morange Lake Association, Inc. v. South Carolina Department of Transportation, South Carolina Department of Health and Environmental Control, CDM Smith, Inc., Phillips & Jordan, Inc.
  - 6/29/2018
- **Name of Court or other tribunal:**
  - State of SC Court of Common Pleas, County of Lexington
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Negligence, Trespass, Conversion, Strict Liability, Nuisance, Civil Conspiracy
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges defendants negligently damaged their dam by wrongfully destroying spillway
  - Program Support for Dams and Reservoirs Safety Act
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - William H. Edwards (email address unavailable, inquiries made online at https://www.mooretaylorlaw.com/attorneys/william-h-edwards/ through the link at the bottom of the page)
  - West Columbia, SC
  - Tel: 803-796-9160

LITIGATION HISTORY FORM

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Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (8)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Cause No. 2018CI05898
  - Daniel Nishihara, et al. v. CDM Smith Inc., f/k/a/ Camp Dresser & McKee Inc., Damien Herrera, P.E., S.J. Louis Construction of Texas Ltd., S.J. Louis, LLC, and City of San Antonio, acting by and through its San Antonio Water System Board of Trustees
  - 4/2/2018
- **Name of Court or other tribunal:**
  - 285th Judicial District in Bexar, Texas
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Wrongful Death, Survival Action, Personal Injury
- **Brief Description of Subject Matter and Project Involved:**
  - Wrongful death action allegedly arising from damage to roadway due to wastewater pump failure.
  - Replacement of 7 miles of sewer line as part of SAWS Wastern Watershed Sewer Relief Line Project
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - Daniel Sciano (dsciano@tsslawyers.com)
    Grant McFarland (gmcfarland@tsslawyers.com)
    Aaron Valadez (avaladez@tsslawyers.com)
    Tinsman & Sciano, Inc.
    Tel: 210-225-3121
  - George Salinas (george@salinastriallaw.com)
    Law Offices of George Salinas, PLLC
    Tel: 210-225-0909
  - Jerry Hernandez (jerryh@jeffdavislawfirm.com)
    Davis Law Firm
    Tel: 210-444-4444

LITIGATION HISTORY FORM

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Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☐ Dismissed ☑ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (9)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - 6519272016
  - Skyline Engineering, LLC v. RCDolner LLC, Lakhani & Jordan Engineers, P.C., CDM Smith Inc. and Turner & Townsend Ferzan Robbins LLC
  - 3/29/2018
- **Name of Court or other tribunal:**
  - Supreme Court of the State of New York, County of New York
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Contribution, Indemnification
- **Brief Description of Subject Matter and Project Involved:**
  - Third party plaintiff (Skyline) alleges negligence against CDM Smith Inc.
  - Mutual Redevelopment Houses HVAC Replacement Project
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Closed. CDM Smith dismissed.
- **Opposing Counsel**
  - Kenneth McLellan (mclellan.k@wssllp.com)
    Keith Roussel (roussel.k@wssllp.com)
    Winget, Spadafora & Schwartzberg LLP
    Tel: 212-221-6900

LITIGATION HISTORY FORM

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Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (10)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Index No. 707851/2017
  - Merrimack Mutual Fire Insurance Company a/s/o Mirela Travalja Family Trust v. City of New York, Simco Engineering PC, and Camp Dresser & McKee Inc. a/k/a CDM Smith Inc.
  - 1/31/2018
- **Name of Court or other tribunal:**
  - Supreme Court of the State of NY, County of Queens
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Claim for property damage alleged to be caused by construction work inspected by defendants.
  - Construction management for Travalja Premises sewer project
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Jeffrey Rubinstein
    jrubenstein@fgsb.com
    Tel: 212-363-6900

LITIGATION HISTORY FORM

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Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (11)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - No. 18-0328-C
  - CDM Smith, Inc. v. Margulies Perruzzi Architects, Inc. and Structure Tone, LLC
  - 1/29/2018
- **Name of Court or other tribunal:**
  - Suffolk County Superior Court, MA
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Negligence, Breach of Contract, Misrepresentation, and Indemnification
  - Interior build-out of CDM Smith World HQ
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Brian Newbury (bnewbury@donovanhatem.com)
    Tel: 617-406-4619
  - John Reidy (jreidy@brlegalpc.com)
    Tel: 617-786-7575

LITIGATION HISTORY FORM

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Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (12)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - NNH-CV-18-6076539-S
  - Suleymar Ramos-Castro, et al v. Wilbur Smith Associates, Inc. and CDM Smith Inc.
  - 12/28/2017
- **Name of Court or other tribunal:**
  - Superior Court J.D. of New Haven
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges defective signal design at intersection caused auto accident.
  - Traffic control signal at Farren Avenue, Ferry Street, East Ferry Street, Fairmont Avenue
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - Isabelle L. Koch (email address unavailable)
    Kennedy, Johnson, Schwab & Roberge
    Tel: 203-865-8430

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Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (13)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - 71582422017
  - Ruffus v. CDM Smith
  - 11/13/2017
- **Name of Court or other tribunal:**
  - Supreme Court of the State of New York, County of Queens
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges damage to sidewalk caused fall.
  - Sidewalk at 21-22 146th Street Whitestone, NY
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Peter Maimone (email unavailable, URL: www.maimonepc.com)
    Maimone & Associates
    Tel: 718-357-1216

LITIGATION HISTORY FORM

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Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (14)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - GD-17-010695
  - John Haughey & Sons, Inc. v. CDM Smith Inc.
  - 9/29/2017
- **Name of Court or other tribunal:**
  - Court of Common Pleas of Allegheny County, Pennsylvania Civil Division
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges deficient design relating to the fire protection system
  - Bus Storage Improvements Phase 2
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Thomas E. Weiers, Jr. (Tom.WeiersEsq@Gmail.com)
    Tel: 724 719-6360

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Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (15)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - CV NO: 1713-CV-000675
  - Danielle Tosto Personal Rep. for the Estate of John D. Gilbert v. Town of Saugus, J. Tropeano Inc., and CDM Smith Inc.
  - 8/16/2017
- **Name of Court or other tribunal:**
  - Essex County, Lynn District Court, Lynn, MA
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Personal Injury
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges fall from his bicycle was related to sections of pavement torn up during repairs on roadway
  - Clifton Square and Lincoln Avenue roadway and sidewalk improvements
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - Marc E. Chapdelaine (marc@chapdelainelaw.com)
    Chapdelaine Law Office, P.C.
    Tel: 781-233-1988

LITIGATION HISTORY FORM

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Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (16)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - CN: 17-CV-050(c)
  - The City of Meridian vs. Hemphill Construction Company, Inc.
  - 4/28/2017
- **Name of Court or other tribunal:**
  - Circuit Court of Lauderdale County, MS
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Breach of Contract, Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges damages related to pump failures.
  - South Wastewater Treatment Plant Headworks Rehabilitation Project
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - William Simmons (Will@gloveryoung.com)
    Tel: 601-693-1301

LITIGATION HISTORY FORM

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Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☑ If Judgment Against, is Judgment Satisfied? ☑ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (17)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Case #17CV01847
  - City of Santa Barbara, etc., vs. CDM Smith Inc., etc., et al
  - 4/28/2017
- **Name of Court or other tribunal:**
  - Santa Barbara County, Superior Court - Santa Barbara, CA
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Breach of contract
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges Defendant breached its contract and was negligent in water treatment plant improvement project.
  - El Estero Wastewater Treatment Plant Tertiary Treatment Improvement Project
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Judgment and Settled (see attached)
- **Opposing Counsel**
  - Eric Firstman (efirstman@meyersnave.com)
    Tel: 510-808-2000
  - Aaron D. Gest (agest@meyersnave.com)
    Tel: 510-808-2000

CIV-130

ATTORNEY OR PARTY WITHOUT ATTORNEY *(Name, State Bar number, and address)*:
Eric J. Firstman (SBN 111534); Ian Johnson (SBN 208713);
Aaron Gest (SBN294408)
Meyers, Nave, Riback Silver & Wilson
555 12th Street, Suite 1500, Oakland CA 94607
TELEPHONE NO.: 510-808-2000 FAX NO. *(Optional)*:
E-MAIL ADDRESS *(Optional)*: efirstman@meyersnave.com; ijohnson@meyersnave.
ATTORNEY FOR *(Name)*: City of Santa Barbara

FOR COURT USE ONLY

SUPERIOR COURT OF CALIFORNIA, COUNTY OF SANTA BARBARA
STREET ADDRESS: 1100 Anacapa Street
MAILING ADDRESS:
CITY AND ZIP CODE: Santa Barbara CA 93101
BRANCH NAME: Anacapa Building

PLAINTIFF/PETITIONER: City of Santa Barbara, a municipal corporation
DEFENDANT/RESPONDENT: CDM Smith Inc., a California corporation

NOTICE OF ENTRY OF JUDGMENT OR ORDER

CASE NUMBER: 17CV01847

(Check one): ☑ **UNLIMITED CASE** (Amount demanded exceeded $25,000) ☐ **LIMITED CASE** (Amount demanded was $25,000 or less)

TO ALL PARTIES :

1. A judgment, decree, or order was entered in this action on *(date)*: August 27, 2019

2. A copy of the judgment, decree, or order is attached to this notice.

Date: August 27, 2019

Aaron Gest
(TYPE OR PRINT NAME OF ☑ ATTORNEY ☐ PARTY WITHOUT ATTORNEY)

▶ _____
(SIGNATURE)

CIV-130

PLAINTIFF/PETITIONER: City of Santa Barbara, a municipal corporation DEFENDANT/RESPONDENT: CDM Smith, Inc., a California corporation	CASE NUMBER: 17CV01847

PROOF OF SERVICE BY FIRST-CLASS MAIL
NOTICE OF ENTRY OF JUDGMENT OR ORDER

(NOTE: You cannot serve the* Notice of Entry of Judgment or Order *if you are a party in the action. The person who served the notice must complete this proof of service.)

1. I am at least 18 years old and **not a party to this action.** I am a resident of or employed in the county where the mailing took place, and my residence or business address is *(specify):*

SEE ATTACHED PROOF OF ELECTRONIC SERVICE

2. I served a copy of the *Notice of Entry of Judgment or Order* by enclosing it in a sealed envelope with postage fully prepaid and *(check one):*
   a. ☐ deposited the sealed envelope with the United States Postal Service.
   b. ☐ placed the sealed envelope for collection and processing for mailing, following this business's usual practices, with which I am readily familiar. On the same day correspondence is placed for collection and mailing, it is deposited in the ordinary course of business with the United States Postal Service.
3. The *Notice of Entry of Judgment or Order* was mailed:
   a. on *(date):*
   b. from *(city and state):*
4. The envelope was addressed and mailed as follows:
   a. Name of person served:
      Street address:
      City:
      State and zip code:
   b. Name of person served:
      Street address:
      City:
      State and zip code:
   c. Name of person served:
      Street address:
      City:
      State and zip code:
   d. Name of person served:
      Street address:
      City:
      State and zip code:

   ☐ Names and addresses of additional persons served are attached. *(You may use form POS-030(P).)*
5. Number of pages attached _____.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date:

(TYPE OR PRINT NAME OF DECLARANT)

(SIGNATURE OF DECLARANT)

SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF SANTA BARBARA

CITY OF SANTA BARBARA
Plaintiff

vs

CDM SMITH, INC.
Defendant

#17CV01847

JUDGMENT

The above-entitled and numbered matter came on regularly for trial on May 22, 2019, in Department 3, of the above entitled court, at which time Plaintiff City of Santa Barbara ("City") and Defendant CDM Smith, Inc. ("CDM"), appeared personally and by their attorneys, and all parties announced ready for trial.

A jury of twelve (12) persons was then duly impaneled and sworn, and the cause was tried. At the close of all the evidence, and after the arguments of counsel, the cause was submitted to the jury on special issues, and the jury retired to consider its verdict.

On June 28, 2019, the jury returned into open court with its verdict, which was received by the court and filed. The special issues submitted to the jury on the City's claim against CDM for negligence, and the answers given by, the jury, which issues and answers constituted the verdict of the jury, were as follows:

Negligence Verdict Form

We answer the questions submitted to us as follows:

1. Was CDM Smith negligent?

Yes _X___ No ____

If your answer to question 1 is yes, then answer question 2. If you answered no, stop here, answer no further questions, and have the presiding juror sign and date this form.

2. Was CDM Smith's negligence a substantial factor in causing harm to City of Santa Barbara?

Yes _X___ No ____

If your answer to question 2 is yes, then answer question 3. If you answered no, stop here, answer no further questions, and have the presiding juror sign and date this form.

3. What are City of Santa Barbara's damages?

a. Past Economic Damages

Phase 1 Additional Costs – Costs incurred in connection with replacing the Dow IntegraFlo Modules with the Dow 2880 modules $840,308

Phase 2 Costs – Costs incurred in connection with efforts to increase recycled water production after commissioning of the tertiary filtration system . . $0

Lost Profits – Revenues lost to City of Santa Barbara due to its inability to enter into a contract with La Cumbre Water Company **$0**

Chemical Costs – Expense incurred in purchasing additional chemicals for "clean in place" cleaning of membrane filters. . . **$0**

Pipe Breaks – Costs incurred in repairing ruptured pipes. **$48,702**

Water Costs – Costs incurred in connection with purchasing replacement water during construction delays and plant closures due to pipe breaks. **$1,325,609**

Tank Fire – Costs incurred in repairing fire damage to acid "clean in place" tank. **$0**

Total Past Economic Damages **$2,214,619**

b. Future Economic Damages

Lost Profits – Future revenues lost to City of Santa Barbara due to its inability to enter into a contract with La Cumbre Water Company . . . **$0**

Total Future Economic Damages . . . . . . **$_____**

Total Damages $2,214,619

If City of Santa Barbara has proved any damages, then answer question 4. It City of Santa Barbara has not proved any damages, then stop here, answer no further questions, and have the presiding juror sign and date this form.

4. Should prejudgment interest be awarded on the sums above?

Yes ____ No X

If your answer to question 4 is yes then answer question 5. If your answer to question 4 is no, skip to question 6.

5. What amount of prejudgment interest do you award to City of Santa Barbara in this case? The interest rate applied shall not exceed 7%.

$_____

Answer question 6

6. Was Schock Contracting Corporation negligent?

Yes X No ____

If your answer to question 6 is yes, then answer question 7. If you answered no, skip to question 8.

7. Was Schock Contracting Corporation's negligence a substantial factor in causing harm to City of Santa Barbara?

Yes X No ____

Answer question 8.

8. Was Dow Chemical Company negligent?

Yes X No ____

If your answer to question 8 is yes, then answer question 9. If you answered no, skip to question 10.

9. Was Dow Chemical Company's negligence a substantial factor in causing harm to City of Santa Barbara?

Yes X No ____

If you answered yes for Schock or Dow then answer question 10. If you answered no for either or both Schock and Dow then insert the number zero next to that name in question 10 and answer question 10.

10. What percentage of responsibility for City of Santa Barbara's harm do you assign to the following? Insert a percentage for only those who received "yes" answers in questions 7 or 9:

CDM Smith	**40 %**
Schock Contracting Corporation	**20 %**
Dow Chemical Company	**40 %**
TOTAL	**100%**

Date and sign the verdict form.

Dated: 6/28/19

Signed: **(Signature)**
Presiding Juror

Breach of Contract Verdict Form

We answer the questions submitted to us as follows:

1. Did City of Santa Barbara and CDM Smith enter into three contracts?

Yes __X___ No __

If your answer to question 1 is yes, then answer question 2. If you answered no, stop here, answer no further questions, and have the presiding juror sign and date this form.

2. Did City of Santa Barbara do all, or substantively all, of the significant things that the contracts required it to do?

Yes __X___ No _____

If your answer to question 2 is yes, then answer question 4. If your answer to questions 2 is no, answer question 3.

4. Did CDM Smith fail to do something that the contracts required it to do?
Yes _____ No __X

If your answer to question 4 is yes, then answer question 5. If you answered no, stop here, answer no further questions, and have the presiding juror sign and date this form.

Date and Sign the verdict form.

Dated: 6/28/19

Signed: __(signature)
Presiding Juror

Breach of Implied Covenant of Good Faith and Fair Dealing Verdict Form

We answer the questions submitted to us as follows:

1. Did City of Santa Barbara and CDM Smith enter into three contracts?
Yes X No ____

If your answer to question 1 is yes, then answer question 2. If you answered no, stop here, answer no further questions, and have the presiding juror sign and date this form.

2. Did City of Santa Barbara do all, or substantially all, of the significant things that the contracts required it to do?

Yes X No ____

If your answer to question 2 is yes, then answer question 4. If your answer to questions 2 is no, answer question 3.

4. Did CDM Smith fail to do something that the contracts required it to do?

Yes ____ No X

If your answer to question 4 is yes, then answer question 5. (f you answered no, stop here, answer no further questions, and have the presiding juror sign and date this form.

Date and sign the verdict form.

Dated: 6/28/19

Signed: (Signature)
Presiding Juror

City is entitled by reason of the jury's special verdict on the City's negligence claim to judgment against CDM in the amount of $2,214,619 in economic damages, less credits for pre-verdict good faith settlements in an amount to be determined by the court. CDM is entitled to judgment in its

favor on the breach of contract and breach of the implied covenant of good faith and fair dealing claims.

On August 20, 2019, the parties appeared and the Court heard argument on post-trial motions, including application and amount of pre-verdict settlement credits. Having considered the papers submitted and after argument of Counsel, the Court finds Judgment for City of $2,034,619 calculated as follows: $2,214,619 less settlement credits of $130,000 from Schock Contracting Corporation and $50,000 from MNS Engineers, Inc. No provision is made for any "settlement" with Dow or Wigen.

Now, therefore, in accordance with the verdict of the jury:

IT IS ORDERED, ADJUDGED, AND DECREED that:

1. City shall have judgment for economic damages in the amount of $2,034,619 against CDM, with interest on that amount at the rate of 10% per annum from the date of the entry of judgment (to wit: August 27, 2019); and

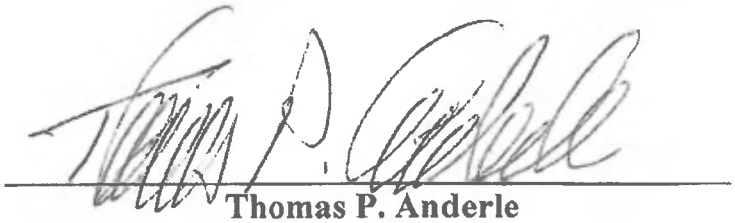
2. Costs of suit (after the Court has considered any opposition) in the amount of $_____

3. Attorney fees (after the Court has considered any opposition) in the amount of $_____

4. Statutory damages (after the Court has considered any opposition) assessed as costs $_____

5. Enforcement of this judgment against CDM and in favor of City entered August 27, 2019, in this action is hereby stayed, such stay to remain in effect until the close of business on the tenth day after the last day on which a timely notice of appeal could be filed.

DATED: 8/27/19



Thomas P. Anderle
Judge of the Superior Court

Email addresses: efirstman@meyersnave.com; agest@meyersnave.com; eric@berglawgroup.com; TShapiro@SantaBarbaraCA.gov; dhentschke@santabarbaraCA.gov; ijohnson@meyersnave.com;

PROOF OF SERVICE

I declare as follows:

At the time of service, I was over 18 years of age, and I am employed in the County of Alameda, state of California. My business address is Meyers Nave, 555 12th Street, Suite 1500, Oakland, CA 94607; and my business email address is rhunt@meyersnave.com

On August 27, 2019, I served true and correct copies of the below-named document(s) on the interested parties in this action:

NOTICE OF ENTRY OF JUDGMENT OR ORDER

√ BY ELECTRONIC FILING SERVICE PROVIDER: On August 27, 2019, I instituted service of the above-listed documents by submitting an electronic version of the documents via file transfer protocol (FTP) through the upload feature at www.odysseyefileca.com, to the parties who have registered to receive notifications of service of documents in this case, as required by the Court. Upon completion of the transmission of said document, a confirmation of receipt is issued to the filing/serving party confirming receipt from efilingmail@tylerhost.net for OdysseyeFileCA. See attached Service List.

I declare under penalty of perjury under the laws of the state of California that the foregoing is true and correct. Executed on August 27, 2019 at Oakland, California.

Robyn L. Hunt

SERVICE LIST
City of Santa Barbara v. CDM Smith, Inc., et al.
17CV01847

Eric Berg Berg Law Group 3905 State St Suite 7-104 Santa Barbara CA 93105	*Attorney for Defendant and Cross-Complainant, CDM Smith, Inc.* Email: eric@berglawgroup.com Telephone: (805) 708-0748 Facsimile: (805) 994-0110
Ariel Pierre Calonne, City Attorney Tom R. Shapiro, Assistant City Attorney Daniel S. Hentschke, Assistant City Attorney Office of the City Attorney 740 State St., Suite 201 P.O. Box 1990 Santa Barbara CA 93102	Courtesy Copy to Santa Barbara City Attorney's Office Email: TShapiro@SantaBarbaraCA.gov; DHentschke@SantaBarbaraCA.gov Telephone: (805) 564-5326 Facsimile: (805) 564-5426

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (18)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - No. 17-0454
  - St. Bernard Parish Government v. CDM Smith Inc., et al
  - 3/31/2017
- **Name of Court or other tribunal:**
  - 34th Judicial District Court for the Parish of St. Bernard
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff alleges damages related to blowers that operate the wastewater treatment plant's aeration basin.
  - Munster Wastewater Treatment Plant Expansion Project
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - Jason Cavignac (jcavignac@couhigpartners.com)
    Tel: 504.599.5775

LITIGATION HISTORY FORM

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☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☑ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: CDM Constructors Inc., CDM Smith Inc. Or No ☐
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (19)

- **Parent, Subsidiary, Predecessor?**
  - Subsidary (CDM Constructors Inc., CDM Smith Inc.)
- **Case Number, Name, and Date Filed:**
  - Index No. 655193/2016
  - Hagen International Engineering Inc. v. J. Blanco Associates, Inc., Spectraserv, Inc. et al.
  - 2/23/2017
- **Name of Court or other tribunal:**
  - Supreme Court of the State of New York County of New York
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Foreclosure on Lien, Professional Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff brought lien foreclosure action and indemnity claim. Case settled with no contribution from CDM Constructors.
  - 26th Ward Digester Domes
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - Harris Katz (SAdamczyk@gadclaw.com)
    Tel: 561-368-9200
  - Gabrielle Venito (venito.g@wssllp.com)
    Tel: 212-221-6900

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☑ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (20)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - 6:17-cv-00018-NKM-RSB
  - W.C. English Inc. v. Rummel, Klepper & Kahl, LLP, and CDM Smith Inc.
  - 1/12/2017
- **Name of Court or other tribunal:**
  - US District Court, Western District of Virginia
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Professional Negligence
- **Brief Description of Subject Matter and Project Involved:**
  - Alleges negligent inspection services during freeway bridge construction.
  - Interstate 81 Corridor Safety and Operational Improvements
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Pending
- **Opposing Counsel**
  - Patrick Genzler (pgenzler@vanblacklaw.com)
    James Harvey (jharvey@vanblacklaw.com)
    Vandeventer Black LLP
    Tel: 757-446-8600

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (21)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Cause No. 15-0033-C277
  - Pepper-Lawson Construction, LP v. March Construction, Inc.; RLI Insurance Company, Desert Steel Co., Inc., Skyline Forming South Texas, Inc., Jack Claflin, Plan C Contracting, L.P., The Redland Group, LLC, Brushy Creek Regional Utility Authority; Safeco Insurance Company of America; CDM Smith, Inc.; and Jose I. Guerra, Inc.
  - 8/12/2016
- **Name of Court or other tribunal:**
  - 277th Judicial District Court of Williamson County, TX
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Contribution, Indemnification
- **Brief Description of Subject Matter and Project Involved:**
  - Contractor claimed defects in design of water plant. CDM Smith was added as a defendant in August 2016 pursuant to the indemnity obligation in our contract. Because the claims involve design of reinforced concrete structures which was done by our subconsultant, CDM Smith filed a third-party claim to join Jose I. Guerra, Inc.
  - Brushy Creek Regional Water Treatment Plant - Phase 1A Project
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - Donald Holcomb (dwh@khkclaw.com)
    Rob Holcomb (rdh@khkclaw.com)
    Knolle, Holcomb, Kothmann, & Callahan
    Tel: 512-476-1121

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (22)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - Case No: 2016-CA-005858-O
  - Laura Sanchious vs. Loraine Soplinski and CDM Smith Inc.
  - 7/29/2016
- **Name of Court or other tribunal:**
  - Orange County Circuit Court
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Personal Injury
- **Brief Description of Subject Matter and Project Involved:**
  - Plaintiff brought personal injury action following vehicle collision
  - N/A
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - Mike Mandeville (info@themdjd.com)
    Tel: 407-843-6353

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☑
Party	
Case Number, Name, and Date Filed	See attached
Name of Court or other tribunal	See attached
Type of Case	Bankruptcy ☐ Civil ☑ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	See attached
Brief description of the Subject Matter and Project Involved	See attached
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☑ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: See attached Email: See attached Telephone Number: See attached

Vendor Name: CDM Smith Inc.

Litigation History Form (23)

- **Parent, Subsidiary, Predecessor?**
  - No
- **Case Number, Name, and Date Filed:**
  - 16-1282E
  - Commonwealth of Massachusetts v. Veolia Water North America North-East LLC, et al. including CDM Smith and Town of Plymouth
  - 6/17/2016
- **Name of Court or other tribunal:**
  - Superior Court Department, Suffolk County
- **Type of Case:**
  - Civil
- **Claim or Cause of Action and Brief Description of each Count:**
  - Breach of Warranty, Breach of Contract
- **Brief Description of Subject Matter and Project Involved:**
  - Third party complaint alleging damages resulting from sewage main failure alleged to result from negligent preliminary design.
  - Design, Build, Operate and Maintain a Wastewater Treatment Facility Including Sludge Processing and Disposal with an Option to Operate and Maintain an Existing Wastewater Collection and Conveyance System
- **Disposition of Case (select one) (Attach copy of any applicable judgement, settlement agreement and satisfaction of judgment)**
  - Settled
- **Opposing Counsel**
  - Richard Holland (rholland@k-plaw.com)
    Tel: 617-556-0007

Office of Economic and Small Business Development CBE Goals

On the following page we have included our the completed CBE Letter of Intent Forms from our subconsultants.

LETTER OF INTENT

BETWEEN BIDDER/OFFEROR AND COUNTY BUSINESS ENTERPRISE (CBE) FIRM/SUPPLIER

This form is to be completed and signed for each CBE firm. If the PRIME is a CBE firm, please indicate the percentage performing with your own forces.

Solicitation No.: PNC2119955P1

Project Title: General Planning Consultant Services for the Transportation Department

Bidder/Offeror Name: CDM Smith Inc.

Address: 150 S Pine Island Rd., Suite 300 City: Plantation State: FL Zip: 33324

Authorized Representative: Mark R. Pistiner, P E Phone: 561.571.3768

CBE Firm/Supplier Name: Cyriacks Environmental Consulting Services, Inc.

Address: 3001 Southwest 15th Street, Suite B City: Deerfield Beach State: FL Zip: 33442

Authorized Representative: Wendy Cyriacks Phone: 954.571.0290

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform work on this project.

B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.

C. By signing below, the above-named CBE is committing to perform the work described below.

D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm

Description	NAICS[1]	CBE Contract Amount[2]	CBE Percentage of Total Project Value
Environmental Planning	541620		3.00 %
			%
			%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Firm/Supplier Authorized Representative

Signature: _____ Title: President Date: 2/3/2020

Bidder/Offeror Authorized Representative

Signature: _____ Title: Associate Date: 02/06/2020

[1] Visit Census.gov and select NAICS to search and identify the correct codes. Match type of work with NAICS code as closely as possible.

[2] To be provided only when the solicitation requires that bidder/offeror include a dollar amount in its bid/offer.

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

Rev.: June 2018 **Compliance Form No. 004**

LETTER OF INTENT

BETWEEN BIDDER/OFFEROR AND
COUNTY BUSINESS ENTERPRISE (CBE) FIRM/SUPPLIER

This form is to be completed and signed for each CBE firm. If the PRIME is a CBE firm, please indicate the percentage performing with your own forces.

Solicitation No.: PNC2119955P1

Project Title: General Planning Consultant Services for the Transportation Department

Bidder/Offeror Name: CDM Smith Inc.

Address: 150 S Pine Island Rd., Suite 300 City: Plantation State: FL Zip: 33324

Authorized Representative: Mark R. Pistiner, PE Phone: 561.571.3768

CBE Firm/Supplier Name: HBC Engineering

Address: 8935 NW 35th Lane, Suite 201 City: Doral State: FL Zip: 33172

Authorized Representative: Adebayo Coker Phone: 305.232.7932

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform work on this project.

B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.

C. By signing below, the above-named CBE is committing to perform the work described below.

D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm

Description	NAICS[1]	CBE Contract Amount[2]	CBE Percentage of Total Project Value
Traffic Engineering	541330		17.00 %
			%
			%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Firm/Supplier Authorized Representative

Signature: _____ Title: President Date: 01/29/2020

Bidder/Offeror Authorized Representative

Signature: _____ Title: Associate Date: 02/06/2020

[1] Visit Census.gov and select NAICS to search and identify the correct codes. Match type of work with NAICS code as closely as possible.

[2] To be provided only when the solicitation requires that bidder/offeror include a dollar amount in its bid/offer.

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

Rev.: June 2018 **Compliance Form No. 004**

LETTER OF INTENT

BETWEEN BIDDER/OFFEROR AND COUNTY BUSINESS ENTERPRISE (CBE) FIRM/SUPPLIER

This form is to be completed and signed for each CBE firm. If the PRIME is a CBE firm, please indicate the percentage performing with your own forces.

Solicitation No.: PNC2119955P1

Project Title: General Planning Consultant Services for the Transportation Department

Bidder/Offeror Name: CDM Smith Inc.

Address: 150 S Pine Island Rd., Suite 300 City: Plantation State: FL Zip: 33324

Authorized Representative: Mark R. Pistiner, PE Phone: 561.571.3768

CBE Firm/Supplier Name: Holt Communications, Inc.

Address: 5074 SW 161 Avenue City: Miramar State: FL Zip: 33027

Authorized Representative: Yvette Holt Phone: 305-335-0924

A. This is a letter of intent between the bidder/offeror on this project and a CBE firm for the CBE to perform work on this project.

B. By signing below, the bidder/offeror is committing to utilize the above-named CBE to perform the work described below.

C. By signing below, the above-named CBE is committing to perform the work described below.

D. By signing below, the bidder/offeror and CBE affirm that if the CBE subcontracts any of the work described below, it may only subcontract that work to another CBE.

Work to be performed by CBE Firm

Description	NAICS[1]	CBE Contract Amount[2]	CBE Percentage of Total Project Value
Public Involvement and Outreach	541820		5.00 %
			%
			%

AFFIRMATION: I hereby affirm that the information above is true and correct.

CBE Firm/Supplier Authorized Representative

Signature: _____ Title: President Date: 1/28/2020

Bidder/Offeror Authorized Representative

Signature: _____ Title: Associate Date: 02/06/2020

[1] Visit Census.gov and select NAICS to search and identify the correct codes. Match type of work with NAICS code as closely as possible.

[2] To be provided only when the solicitation requires that bidder/offeror include a dollar amount in its bid/offer.

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

Rev.: June 2018 **Compliance Form No. 004**

Insurance Requirements Form

CDM Smith has viewed the County's insurance requirement form and included a copy of our insurance certificate below.

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
12/27/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Aon Risk Services Northeast, Inc.
Boston MA Office
53 State Street
Suite 2201
Boston MA 02109 USA

CONTACT NAME:
PHONE (A/C. No. Ext): (866) 283-7122 **FAX (A/C. No.):** 800-363-0105
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	LM Insurance Corporation	33600
INSURER B:	Liberty Insurance Corporation	42404
INSURER C:	Liberty Mutual Fire Ins Co	23035
INSURER D:	ACE Property & Casualty Insurance Co.	20699
INSURER E:	Lloyd's Syndicate No. 2623	AA1128623
INSURER F:	Commerce & Industry Ins Co	19410

INSURED
CDM Smith Inc.
75 State Street, Suite 701
Boston MA 02109 USA

COVERAGES **CERTIFICATE NUMBER:** 570079833915 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
B	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT X LOC OTHER:			TB7611B8T8Z6040	01/01/2020	01/01/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$2,000,000 $1,000,000 $10,000 $2,000,000 $4,000,000 $4,000,000
C	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			AS2-611-B8T8Z6-060	01/01/2020	01/01/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$2,000,000
D	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION			XEUG28194687004	01/01/2020	01/01/2021	EACH OCCURRENCE AGGREGATE	$5,000,000 $5,000,000
A A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WA561DB8T8Z6010 AOS WC5611B8T8Z6020 WI	01/01/2020 01/01/2020	01/01/2021 01/01/2021	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000
F	Env Contr Poll			CPO1213030 Pollution Liab.	01/01/2020	01/01/2022	Each Loss Aggregate	$30,000,000 $30,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Re: Proposal Use Only.

CERTIFICATE HOLDER

CDM Smith Inc.
75 State Street, Suite 701
Boston MA 02109 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services Northeast, Inc.

Holder Identifier :

Certificate No : 570079833915

ACORD 25 (2016/03) **The ACORD name and logo are registered marks of ACORD**

1. CDM Smith State Certification

State of Florida
Department of State

I certify from the records of this office that CDM SMITH INC. is a Massachusetts corporation authorized to transact business in the State of Florida, qualified on April 23, 1974.

The document number of this corporation is 832235.

I further certify that said corporation has paid all fees due this office through December 31, 2019, that its most recent annual report/uniform business report was filed on February 21, 2019, and that its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Twenty-first day of February, 2019

Secretary of State

Tracking Number: 1869067149CC

To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

2. CDM Smith Professional Engineering License

Ron DeSantis, Governor

FBPE
FLORIDA BOARD OF PROFESSIONAL ENGINEERS

STATE OF FLORIDA

BOARD OF PROFESSIONAL ENGINEERS

THE ENGINEERING BUSINESS HEREIN IS AUTHORIZED UNDER THE
PROVISIONS OF CHAPTER 471, FLORIDA STATUTES

CDM SMITH INC.

621 N.W. 53RD STREET, SUITE 265
BOCA RATON FL 33487

LICENSE NUMBER: CA20

EXPIRATION DATE: FEBRUARY 28, 2021

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

3. Broward County Local Business Tax Receipt

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2019 THROUGH SEPTEMBER 30, 2020

DBA:
Business Name: MARK ROBERT PISTINER

Receipt #: 315-303652
Business Type: ENGINEER

Owner Name: CDM SMITH INC
Business Location: 150 S PINE ISLAND RD #358
PLANTATION
Business Phone: 561-571-3768

Business Opened: 01/09/2020
State/County/Cert/Reg: 43391
Exemption Code:

Rooms	Seats	Employees	Machines	Professionals
		1		

For Vending Business Only
Number of Machines: **Vending Type:**

Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
30.00	0.00	0.00	0.00	0.00	0.00	30.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

CDM SMITH INC
150 S PINE ISLAND RD #358
PLANTATION, FL 33324

Receipt #20C-19-00001101
Paid 01/09/2020 30.00

2019 - 2020

Supplier: **CDM Smith**

Standard Instructions to Vendors
Request for Proposals, Request for Qualifications, or Request for Letters of Interest

Vendors are instructed to read and follow the instructions carefully, as any misinterpretation or failure to comply with instructions may lead to a Vendor's submittal being rejected.

Vendor MUST submit its solicitation response electronically and MUST confirm its submittal in order for the County to receive a valid response through BidSync. Refer to the Purchasing Division website or contact BidSync for submittal instructions.

A. Responsiveness Criteria:

In accordance with Broward County Procurement Code Section 21.8.b.65, a Responsive Bidder [Vendor] means a person who has submitted a proposal which conforms in all material respects to a solicitation. The solicitation submittal of a responsive Vendor must be submitted on the required forms, which contain all required information, signatures, notarizations, insurance, bonding, security, or other mandated requirements required by the solicitation documents to be submitted at the time of proposal opening.

Failure to provide the information required below at the time of submittal opening may result in a recommendation Vendor is non-responsive by the Director of Purchasing. The Selection or Evaluation Committee will determine whether the firm is responsive to the requirements specified herein. The County reserves the right to waive minor technicalities or irregularities as is in the best interest of the County in accordance with Section 21.30.f.1(c) of the Broward County Procurement Code.

Below are standard responsiveness criteria; refer to **Special Instructions to Vendors**, for Additional Responsiveness Criteria requirement(s).

1. **Lobbyist Registration Requirement Certification**
   Refer to **Lobbyist Registration Requirement Certification**. The completed form should be submitted with the solicitation response but must be submitted within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

2. **Addenda**
   The County reserves the right to amend this solicitation prior to the due date. Any change(s) to this solicitation will be conveyed through the written addenda process. Only written addenda will be binding. If a "must" addendum is issued, Vendor must follow instructions and submit required information, forms, or acknowledge addendum, as instructed therein. It is the responsibility of all potential Vendors to monitor the solicitation for any changing information, prior to submitting their response.

B. Responsibility Criteria:

Definition of a Responsible Vendor: In accordance with Section 21.8.b.64 of the Broward County Procurement Code, a Responsible Vendor means a Vendor who has the capability in all respects to perform the contract requirements, and the integrity and reliability which will assure good faith performance.

The Selection or Evaluation Committee will recommend to the awarding authority a determination of

a Vendor's responsibility. At any time prior to award, the awarding authority may find that a Vendor is not responsible to receive a particular award.

Failure to provide any of this required information and in the manner required may result in a recommendation by the Director of Purchasing that the Vendor is non-responsive.

Below are standard responsibility criteria; refer to **Special Instructions to Vendors**, for Additional Responsibility Criteria requirement(s).

1. **Litigation History**

   a. All Vendors are required to disclose to the County all "material" cases filed, pending, or resolved during the last three (3) years prior to the solicitation response due date, whether such cases were brought by or against the Vendor, any parent or subsidiary of the Vendor, or any predecessor organization. Additionally, all Vendors are required to disclose to the County all "material" cases filed, pending, or resolved against any principal of Vendor, regardless of whether the principal was associated with Vendor at the time of the "material" cases against the principal, during the last three (3) years prior to the solicitation response. A case is considered to be "material" if it relates, in whole or in part, to any of the following:

      i. A similar type of work that the vendor is seeking to perform for the County under the current solicitation;
      ii. An allegation of fraud, negligence, error or omissions, or malpractice against the vendor or any of its principals or agents who would be performing work under the current solicitation;
      iii. A vendor's default, termination, suspension, failure to perform, or improper performance in connection with any contract;
      iv. The financial condition of the vendor, including any bankruptcy petition (voluntary and involuntary) or receivership; or
      v. A criminal proceeding or hearing concerning business-related offenses in which the vendor or its principals (including officers) were/are defendants.

   b. For each material case, the Vendor is required to provide all information identified in the **Litigation History Form**. Additionally, the Vendor shall provide a copy of any judgment or settlement of any material case during the last three (3) years prior to the solicitation response. Redactions of any confidential portions of the settlement agreement are only permitted upon a certification by Vendor that all redactions are required under the express terms of a pre-existing confidentiality agreement or provision.

   c. The County will consider a Vendor's litigation history information in its review and determination of responsibility.

   d. If the Vendor is a joint venture, the information provided should encompass the joint venture and each of the entities forming the joint venture.

   e. A vendor is required to disclose to the County any and all cases(s) that exist between the County and any of the Vendor's subcontractors/subconsultants proposed to work on this project during the last five (5) years prior to the solicitation response.

   f. Failure to disclose any material case, including all requested information in connection with each such case, as well as failure to disclose the Vendor's subcontractors/subconsultants litigation history against the County, may result in the Vendor being deemed non-responsive.

2. **Financial Information**

   a. All Vendors are required to provide the Vendor's financial statements at the time of submittal

in order to demonstrate the Vendor's financial capabilities.

b. Each Vendor shall submit its most recent two years of financial statements for review. The financial statements are not required to be audited financial statements. The annual financial statements will be in the form of:

i. Balance sheets, income statements and annual reports; or
ii. Tax returns; or
iii. SEC filings.

If tax returns are submitted, ensure it does not include any personal information (as defined under Florida Statutes Section 501.171, Florida Statutes), such as social security numbers, bank account or credit card numbers, or any personal pin numbers. If any personal information data is part of financial statements, redact information prior to submitting a response the County.

c. If a Vendor has been in business for less than the number of years of required financial statements, then the Vendor must disclose all years that the Vendor has been in business, including any partial year-to-date financial statements.

d. The County may consider the unavailability of the most recent year's financial statements and whether the Vendor acted in good faith in disclosing the financial documents in its evaluation.

e. Any claim of confidentiality on financial statements should be asserted at the time of submittal. Refer to **Standard Instructions to Vendors**, Confidential Material/ Public Records and Exemptions for instructions on submitting confidential financial statements. The Vendor's failure to provide the information as instructed may lead to the information becoming public.

f. Although the review of a Vendor's financial information is an issue of responsibility, the failure to either provide the financial documentation or correctly assert a confidentiality claim pursuant the Florida Public Records Law and the solicitation requirements (Confidential Material/ Public Records and Exemptions section) may result in a recommendation of non-responsiveness by the Director of Purchasing.

3. **Authority to Conduct Business in Florida**

a. A Vendor must have the authority to transact business in the State of Florida and be in good standing with the Florida Secretary of State. For further information, contact the Florida Department of State, Division of Corporations.

b. The County will review the Vendor's business status based on the information provided in response to this solicitation.

c. It is the Vendor's responsibility to comply with all state and local business requirements.

d. Vendor should list its active Florida Department of State Division of Corporations Document Number (or Registration No. for fictitious names) in the **Vendor Questionnaire**, Question No. 10.

e. If a Vendor is an out-of-state or foreign corporation or partnership, the Vendor must obtain the authority to transact business in the State of Florida or show evidence of application for the authority to transact business in the State of Florida, upon request of the County.

f. A Vendor that is not in good standing with the Florida Secretary of State at the time of a

submission to this solicitation may be deemed non-responsible.

g. If successful in obtaining a contract award under this solicitation, the Vendor must remain in good standing throughout the contractual period of performance.

4. Affiliated Entities of the Principal(s)

a. All Vendors are required to disclose the names and addresses of "affiliated entities" of the Vendor's principal(s) over the last five (5) years (from the solicitation opening deadline) that have acted as a prime Vendor with the County. The Vendor is required to provide all information required on the **Affiliated Entities of the Principal(s) Certification Form**.

b. The County will review all affiliated entities of the Vendor's principal(s) for contract performance evaluations and the compliance history with the County's Small Business Program, including CBE, DBE and SBE goal attainment requirements. "Affiliated entities" of the principal(s) are those entities related to the Vendor by the sharing of stock or other means of control, including but not limited to a subsidiary, parent or sibling entity.

c. The County will consider the contract performance evaluations and the compliance history of the affiliated entities of the Vendor's principals in its review and determination of responsibility.

5. Insurance Requirements

The **Insurance Requirement Form** reflects the insurance requirements deemed necessary for this project. It is not necessary to have this level of insurance in effect at the time of submittal, but it is necessary to submit certificates indicating that the Vendor currently carries the insurance or to submit a letter from the carrier indicating it can provide insurance coverages.

C. Additional Information and Certifications

The following forms and supporting information (if applicable) should be returned with Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit may affect Vendor's evaluation.

1. Vendor Questionnaire

Vendor is required to submit detailed information on their firm. Refer to the **Vendor Questionnaire** and submit as instructed.

2. Standard Certifications

Vendor is required to certify to the below requirements. Refer to the **Standard Certifications** and submit as instructed.

a. **Cone of Silence Requirement Certification**
b. **Drug-Free Workplace Certification**
c. **Non-Collusion Certification**
d. **Public Entities Crimes Certification**
e. **Scrutinized Companies List Certification**

3. Subcontractors/Subconsultants/Suppliers Requirement

The Vendor shall submit a listing of all subcontractors, subconsultants, and major material suppliers, if any, and the portion of the contract they will perform. Vendors must follow the instructions included on the **Subcontractors/Subconsultants/Suppliers Information Form** and submit as instructed.

D. Standard Agreement Language Requirements

1. The acceptance of or any exceptions taken to the terms and conditions of the County's Agreement shall be considered a part of a Vendor's submittal and will be considered by the Selection or Evaluation Committee.

2. The applicable Agreement terms and conditions for this solicitation are indicated in the **Special Instructions to Vendors.**

3. Vendors are required to review the applicable terms and conditions and submit the **Agreement Exception Form**. If the **Agreement Exception Form** is not provided with the submittal, it shall be deemed an affirmation by the Vendor that it accepts the Agreement terms and conditions as disclosed in the solicitation.

4. If exceptions are taken, the Vendor must specifically identify each term and condition with which it is taking an exception. Any exception not specifically listed is deemed waived. Simply identifying a section or article number is not sufficient to state an exception. Provide either a redlined version of the specific change(s) or specific proposed alternative language. Additionally, a brief justification specifically addressing each provision to which an exception is taken should be provided.

5. Submission of any exceptions to the Agreement does not denote acceptance by the County. Furthermore, taking exceptions to the County's terms and conditions may be viewed unfavorably by the Selection or Evaluation Committee and ultimately may impact the overall evaluation of a Vendor's submittal.

E. Evaluation Criteria

1. The Selection or Evaluation Committee will evaluate Vendors as per the **Evaluation Criteria.** The County reserves the right to obtain additional information from a Vendor.

2. Vendor has a continuing obligation to inform the County in writing of any material changes to the information it has previously submitted. The County reserves the right to request additional information from Vendor at any time.

3. For Request for Proposals, the following shall apply:

   a. The Director of Purchasing may recommend to the Evaluation Committee to short list the most qualified firms prior to the Final Evaluation.

   b. The Evaluation Criteria identifies points available; a total of 100 points is available.

   c. If the Evaluation Criteria includes a request for pricing, the total points awarded for price is determined by applying the following formula:

      (Lowest Proposed Price/Vendor's Price) x (Maximum Number of Points for Price) = Price Score

   d. After completion of scoring, the County may negotiate pricing as in its best interest.

4. For Requests for Letters of Interest or Request for Qualifications, the following shall apply:

   a. The Selection or Evaluation Committee will create a short list of the most qualified firms.

   b. The Selection or Evaluation Committee will either:

i. Rank shortlisted firms; or
ii. If the solicitation is part of a two-step procurement, shortlisted firms will be requested to submit a response to the Step Two procurement.

F. Demonstrations

If applicable, as indicated in Special Instructions to Vendors, Vendors will be required to demonstrate the nature of their offered solution. After receipt of submittals, all Vendors will receive a description of, and arrangements for, the desired demonstration. In accordance with Section 286.0113 of the Florida Statutes and pursuant to the direction of the Broward County Board of Commissioners, demonstrations are closed to only the vendor team and County staff.

G. Presentations

Vendors that are found to be both responsive and responsible to the requirements of the solicitation and/or shortlisted (if applicable) will have an opportunity to make an oral presentation to the Selection or Evaluation Committee on the Vendor's approach to this project and the Vendor's ability to perform. The committee may provide a list of subject matter for the discussion. All Vendor's will have equal time to present but the question-and-answer time may vary. In accordance with Section 286.0113 of the Florida Statutes and the direction of the Broward County Board of Commissioners, presentations during Selection or Evaluation Committee Meetings are closed. Only the Selection or Evaluation Committee members, County staff and the vendor and their team scheduled for that presentation will be present in the Meeting Room during the presentation and subsequent question and answer period.

H. Public Art and Design Program

If indicated in **Special Instructions to Vendors,** Public Art and Design Program, Section 1-88, Broward County Code of Ordinances, applies to this project. It is the intent of the County to functionally integrate art, when applicable, into capital projects and integrate artists' design concepts into this improvement project. The Vendor may be required to collaborate with the artist(s) on design development within the scope of this request. Artist(s) shall be selected by Broward County through an independent process. For additional information, contact the Broward County Cultural Division.

I. Committee Appointment

The Cone of Silence shall be in effect for County staff at the time of the Selection or Evaluation Committee appointment and for County Commissioners and Commission staff at the time of the Shortlist Meeting of the Selection Committee or the Initial Evaluation Meeting of the Evaluation Committee. The committee members appointed for this solicitation are available on the Purchasing Division's website under Committee Appointment.

J. Committee Questions, Request for Clarifications, Additional Information

At any committee meeting, the Selection or Evaluation Committee members may ask questions, request clarification, or require additional information of any Vendor's submittal or proposal. It is highly recommended Vendors attend to answer any committee questions (if requested), including a Vendor representative that has the authority to bind.

Vendor's answers may impact evaluation (and scoring, if applicable). Upon written request to the Purchasing Agent prior to the meeting, a conference call number will be made available for Vendor participation via teleconference. Only Vendors that are found to be both responsive and responsible to the requirements of the solicitation and/or shortlisted (if applicable) are requested to participate in a final (or presentation) Selection or Evaluation committee meeting.

K. Vendor Questions

The County provides a specified time for Vendors to ask questions and seek clarification regarding solicitation requirements. All questions or clarification inquiries must be submitted through BidSync by the date and time referenced in the solicitation document (including any addenda). The County will respond to questions via Bid Sync.

L. Confidential Material/ Public Records and Exemptions

1. Broward County is a public agency subject to Chapter 119, Florida Statutes. Upon receipt, all submittals become "public records" and shall be subject to public disclosure consistent with Chapter 119, Florida Statutes. Submittals may be posted on the County's public website or included in a public records request response, unless there is a declaration of "confidentiality" pursuant to the public records law and in accordance with the procedures in this section.

2. Any confidential material(s) the Vendor asserts is exempt from public disclosure under Florida Statutes must be labeled as "Confidential", and marked with the specific statute and subsection asserting exemption from Public Records.

3. To submit confidential material, three hardcopies must be submitted in a sealed envelope, labeled with the solicitation number, title, date and the time of solicitation opening to:

   Broward County Purchasing Division
   115 South Andrews Avenue, Room 212
   Fort Lauderdale, FL 33301

4. Material will not be treated as confidential if the Vendor does not cite the applicable Florida Statute(s) allowing the document to be treated as confidential.

5. Any materials that the Vendor claims to be confidential and exempt from public records must be marked and separated from the submittal. If the Vendor does not comply with these instructions, the Vendor's claim for confidentiality will be deemed as waived.

6. Submitting confidential material may impact full discussion of your submittal by the Selection or Evaluation Committee because the Committee will be unable to discuss the details contained in the documents cloaked as confidential at the publicly noticed Committee meeting.

M. Copyrighted Materials

Copyrighted material is not exempt from the Public Records Law, Chapter 119, Florida Statutes. Submission of copyrighted material in response to any solicitation will constitute a license and permission for the County to make copies (including electronic copies) as reasonably necessary for the use by County staff and agents, as well as to make the materials available for inspection or production pursuant to Public Records Law, Chapter 119, Florida Statutes.

N. State and Local Preferences

If the solicitation involves a federally funded project where the fund requirements prohibit the use of state and/or local preferences, such preferences contained in the Local Preference Ordinance and Broward County Procurement Code will not be applied in the procurement process.

O. Local Preference

Except where otherwise prohibited by federal or state law or other funding source restrictions, a local Vendor whose submittal is within 5% of the highest total ranked Vendor outside of the preference area will become the Vendor with whom the County will proceed with negotiations for a

final contract. Refer to **Local Vendor Certification Form (Preference and Tiebreaker)** for further information.

P. Tiebreaker Criteria

In accordance with Section 21.31.d of the Broward County Procurement Code, the tiebreaker criteria shall be applied based upon the information provided in the Vendor's response to the solicitation. In order to receive credit for any tiebreaker criterion, complete and accurate information must be contained in the Vendor's submittal.

1. **Local Vendor Certification Form (Preference and Tiebreaker);**
2. **Domestic Partnership Act Certification (Requirement and Tiebreaker);**
3. **Tiebreaker Criteria Form: Volume of Work Over Five Years**

Q. Posting of Solicitation Results and Recommendations

The Broward County Purchasing Division's website is the location for the County's posting of all solicitations and contract award results. It is the obligation of each Vendor to monitor the website in order to obtain complete and timely information.

R. Review and Evaluation of Responses

A Selection or Evaluation Committee is responsible for recommending the most qualified Vendor(s). The process for this procurement may proceed in the following manner:

1. The Purchasing Division delivers the solicitation submittals to agency staff for summarization for the committee members. Agency staff prepares a report, including a matrix of responses submitted by the Vendors. This may include a technical review, if applicable.

2. Staff identifies any incomplete responses. The Director of Purchasing reviews the information and makes a recommendation to the Selection or Evaluation Committee as to each Vendor's responsiveness to the requirements of the solicitation. The final determination of responsiveness rests solely on the decision of the committee.

3. At any time prior to award, the awarding authority may find that a Vendor is not responsible to receive a particular award. The awarding authority may consider the following factors, without limitation: debarment or removal from the authorized Vendors list or a final decree, declaration or order by a court or administrative hearing officer or tribunal of competent jurisdiction that the Vendor has breached or failed to perform a contract, claims history of the Vendor, performance history on a County contract(s), an unresolved concern, or any other cause under this code and Florida law for evaluating the responsibility of a Vendor.

S. Vendor Protest

Sections 21.118 and 21.120 of the Broward County Procurement Code set forth procedural requirements that apply if a Vendor intends to protest a solicitation or proposed award of a contract and state in part the following:

1. Any protest concerning the solicitation or other solicitation specifications or requirements must be made and received by the County within seven business days from the posting of the solicitation or addendum on the Purchasing Division's website. Such protest must be made in writing to the Director of Purchasing. Failure to timely protest solicitation specifications or requirements is a waiver of the ability to protest the specifications or requirements.

2. Any protest concerning a solicitation or proposed award above the award authority of the Director of Purchasing, after the RLI or RFP opening, shall be submitted in writing and received by the Director of Purchasing within five business days from the posting of the recommendation of award for Invitation to Bids or the final recommendation of ranking for Request for Letters of Interest and Request for Proposals on the Purchasing Division's website.

3. Any actual or prospective Vendor who has a substantial interest in and is aggrieved in connection with the proposed award of a contract that does not exceed the amount of the award authority of the Director of Purchasing, may protest to the Director of Purchasing. The protest shall be submitted in writing and received within three (3) business days from the posting of the recommendation of award for Invitation to Bids or the final recommendation of ranking for Request for Letters of Interest and Request for Proposals on the Purchasing Division's website.

4. For purposes of this section, a business day is defined as Monday through Friday between 8:30 a.m. and 5:00 p.m. Failure to timely file a protest within the time prescribed for a proposed contract award shall be a waiver of the Vendor's right to protest.

5. As a condition of initiating any protest, the protestor shall present the Director of Purchasing a nonrefundable filing fee in accordance with the table below.

Estimated Contract Amount	Filing Fee
$30,000 - $250,000	$ 500
$250,001 - $500,000	$1,000
$500,001 - $5 million	$3,000
Over $5 million	5,000

If no contract proposal amount was submitted, the estimated contract amount shall be the County's estimated contract price for the project. The County may accept cash, money order, certified check, or cashier's check, payable to Broward County Board of Commissioners.

T. Right of Appeal

Pursuant to Section 21.83.d of the Broward County Procurement Code, any Vendor that has a substantial interest in the matter and is dissatisfied or aggrieved in connection with the Selection or Evaluation Committee's determination of responsiveness may appeal the determination pursuant to Section 21.120 of the Broward County Procurement Code.

1. The appeal must be in writing and sent to the Director of Purchasing within ten (10) calendar days of the determination by the Selection or Evaluation Committee to be deemed timely.

2. As required by Section 21.120, the appeal must be accompanied by an appeal bond by a Vendor having standing to protest and must comply with all other requirements of this section.

3. The institution and filing of an appeal is an administrative remedy to be employed prior to the institution and filing of any civil action against the County concerning the subject matter of the appeal.

U. Rejection of Responses

The Selection or Evaluation Committee may recommend rejecting all submittals as in the best interests of the County. The rejection shall be made by the Director of Purchasing, except when a solicitation was approved by the Board, in which case the rejection shall be made by the Board.

V. Negotiations

The County intends to conduct the first negotiation meeting no later than two weeks after approval of the final ranking as recommended by the Selection or Evaluation Committee. At least one of the representatives for the Vendor participating in negotiations with the County must be authorized to bind the Vendor. In the event that the negotiations are not successful within a reasonable timeframe (notification will be provided to the Vendor) an impasse will be declared and negotiations with the first-ranked Vendor will cease. Negotiations will begin with the next ranked Vendor, etc. until such time that all requirements of Broward County Procurement Code have been met. In accordance with Section 286.0113 of the Florida Statutes and the direction of the Broward County Board of Commissioners, negotiations resulting from Selection or Evaluation Committee Meetings are closed. Only County staff and the selected vendor and their team will be present during negotiations.

W. Submittal Instructions:

1. Broward County does not require any personal information (as defined under Section 501.171, Florida Statutes), such as social security numbers, driver license numbers, passport, military ID, bank account or credit card numbers, or any personal pin numbers, in order to submit a response for ANY Broward County solicitation. DO NOT INCLUDE any personal information data in any document submitted to the County. If any personal information data is part of a submittal, this information must be redacted prior to submitting a response to the County.

2. **Vendor MUST submit its solicitation response electronically and MUST confirm its submittal in order for the County to receive a valid response through BidSync.** It is the Vendor's sole responsibility to assure its response is submitted and received through BidSync by the date and time specified in the solicitation.

3. The County will not consider solicitation responses received by other means. Vendors are encouraged to submit their responses in advance of the due date and time specified in the solicitation document. In the event that the Vendor is having difficulty submitting the solicitation document through Bid Sync, immediately notify the Purchasing Agent and then contact BidSync for technical assistance.

4. Vendor must view, submit, and/or accept each of the documents in BidSync. Web-fillable forms can be filled out and submitted through BidSync.

5. After all documents are viewed, submitted, and/or accepted in BidSync, the Vendor must upload additional information requested by the solicitation (i.e. Evaluation Criteria and Financials Statements) in the Item Response Form in BidSync, under line one (regardless if pricing requested).

6. Vendor should upload responses to Evaluation Criteria in Microsoft Word or Excel format.

7. If the Vendor is declaring any material confidential and exempt from Public Records, refer to Confidential Material/ Public Records and Exemptions for instructions on submitting confidential material.

8. After all files are uploaded, Vendor must submit and **CONFIRM** its offer (by entering password) for offer to be received through BidSync.

9. If a solicitation requires an original Proposal Bond (per Special Instructions to Vendors), Vendor must submit in a sealed envelope, labeled with the solicitation number, title, date and the time of solicitation opening to:

    Broward County Purchasing Division
    115 South Andrews Avenue, Room 212
    Fort Lauderdale, FL 33301

    A copy of the Proposal Bond should also be uploaded into Bid Sync; this does not replace the requirement to have an original proposal bond. Vendors must submit the original Proposal Bond, by the solicitation due date and time.

6

Supplier: **CDM Smith**

VENDOR QUESTIONNAIRE AND STANDARD CERTIFICATIONS
Request for Proposals, Request for Qualifications, or Request for Letters of Interest

Vendor should complete questionnaire and complete and acknowledge the standard certifications and submit with the solicitation response. If not submitted with solicitation response, it must be submitted within three business days of County's request. Failure to timely submit may affect Vendor's evaluation.

If a response requires additional information, the Vendor should upload a written detailed response with submittal; each response should be numbered to match the question number. The completed questionnaire and attached responses will become part of the procurement record. It is imperative that the person completing the Vendor Questionnaire be knowledgeable about the proposing Vendor's business and operations.

1. Legal business name:**CDM Smith Inc.**
2. Doing Business As/ Fictitious Name (if applicable):
3. Federal Employer I.D. no. (FEIN):**04-2473650**
4. Dun and Bradstreet No.:**05-599-0261**
5. Website address (if applicable): **https://www.cdmsmith.com/**
6. Principal place of business address: **75 State Street, Suite 701**
   Boston, MA 02109
7. Office location responsible for this project: **150 S Pine Island Road, Suite 300 Plantation, FL 33324**
8. Telephone no.:**561.571.3768** Fax no.:
9. Type of business (check appropriate box):
   - ☑ Corporation (specify the state of incorporation):**Massachusetts**
   - ☐ Sole Proprietor
   - ☐ Limited Liability Company (LLC)
   - ☐ Limited Partnership
   - ☐ General Partnership (State and County Filed In)
   - ☐ Other - Specify
10. List Florida Department of State, Division of Corporations document number (or registration number if fictitious name): **832235**
11. List name and title of each principal, owner, officer, and major shareholder:
    a) **Timothy B. Wall; Chairman and CEO**
    b) **Anthony B. Bouchard, PE; President and Chief Operating Officer**
    c) **Thierry Desmaris; Executive Vice President, Finance and Mergers & Acquisitions**
    d) **Mario J. Marcaccio; Senior Vice President**
12. AUTHORIZED CONTACT(S) FOR YOUR FIRM:

    Name: **Mark R. Pistiner, PE**

Title: **Associate**

E-mail: **pistinermr@cdmsmith.com**

Telephone No.: **954-235-0618**

Name:

Title:

E-mail:

Telephone No.:

13.	Has your firm, its principals, officers or predecessor organization(s) been debarred or suspended by any government entity within the last three years? If yes, specify details in an attached written response.	☐ Yes ☑ No
14.	Has your firm, its principals, officers or predecessor organization(s) ever been debarred or suspended by any government entity? If yes, specify details in an attached written response, including the reinstatement date, if granted.	☑ Yes ☐ No
15.	Has your firm ever failed to complete any services and/or delivery of products during the last three (3) years? If yes, specify details in an attached written response.	☐ Yes ☑ No
16.	Is your firm or any of its principals or officers currently principals or officers of another organization? If yes, specify details in an attached written response.	☐ Yes ☑ No
17.	Have any voluntary or involuntary bankruptcy petitions been filed by or against your firm, its parent or subsidiaries or predecessor organizations during the last three years? If yes, specify details in an attached written response.	☐ Yes ☑ No
18.	Has your firm's surety ever intervened to assist in the completion of a contract or have Performance and/or Payment Bond claims been made to your firm or its predecessor's sureties during the last three years? If yes, specify details in an attached written response, including contact information for owner and surety.	☐ Yes ☑ No
19.	Has your firm ever failed to complete any work awarded to you, services and/or delivery of products during the last three (3) years? If yes, specify details in an attached written response.	☐ Yes ☑ No
20.	Has your firm ever been terminated from a contract within the last three years? If yes, specify details in an attached written response.	☐ Yes ☑ No
21.	Living Wage solicitations only: In determining what, if any, fiscal impacts(s) are a result of the Ordinance for this solicitation, provide the following for informational purposes only. Response is not considered in determining the award of this contract. Living Wage had an effect on the pricing. If yes, Living Wage increased the pricing by% or decreased the pricing by%.	☐ Yes ☑ No ☐ N/A

Cone of Silence Requirement Certification:

The Cone of Silence Ordinance, Section 1-266, Broward County Code of Ordinances prohibits certain communications among Vendors, Commissioners, County staff, and Selection or Evaluation Committee members. Identify on a separate sheet any violations of this Ordinance by any members of the responding firm or its joint ventures. After the application of the Cone of Silence, inquiries regarding this solicitation should be directed to the Director of Purchasing or designee. The Cone of Silence terminates when the County Commission or other awarding authority takes action which ends the solicitation.

The Vendor hereby certifies that: (check each box)

☑ The Vendor has read Cone of Silence Ordinance, Section 1-266, Broward County Code of Ordinances; and

☑ The Vendor understands that the Cone of Silence for this competitive solicitation shall be in effect beginning upon the appointment of the Selection or Evaluation Committee, for communication regarding this

solicitation with the County Administrator, Deputy County Administrator, Assistant County Administrators, and Assistants to the County Administrator and their respective support staff or any person, including Evaluation or Selection Committee members, appointed to evaluate or recommend selection in this RFP/RLI process. For Communication with County Commissioners and Commission staff, the Cone of Silence allows communication until the initial Evaluation or Selection Committee Meeting.

☑ The vendor understands that they may communicate with a representative of the Office of Economic and Small Business Development ("OESBD") at any time regarding a solicitation or regarding participation of Small Business Enterprises or County Business Enterprises in a solicitation. OESBD may be contacted at (954) 357-6400. The Cone of Silence also permits communication with certain other County employees (refer to the Cone of Silence Ordinance).

☑ The Vendor agrees to comply with the requirements of the Cone of Silence Ordinance.

Drug-Free Workplace Requirements Certification:
Section 21.31.a. of the Broward County Procurement Code requires awards of all competitive solicitations requiring Board award be made only to firms certifying the establishment of a drug free workplace program. The program must consist of:

1. Publishing a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the offeror's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;

2. Establishing a continuing drug-free awareness program to inform its employees about:
   a. The dangers of drug abuse in the workplace;
   b. The offeror's policy of maintaining a drug-free workplace;
   c. Any available drug counseling, rehabilitation, and employee assistance programs; and
   d. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

3. Giving all employees engaged in performance of the contract a copy of the statement required by subparagraph 1;

4. Notifying all employees, in writing, of the statement required by subparagraph 1, that as a condition of employment on a covered contract, the employee shall:
   a. Abide by the terms of the statement; and
   b. Notify the employer in writing of the employee's conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or of any state, for a violation occurring in the workplace NO later than five days after such conviction.

5. Notifying Broward County government in writing within 10 calendar days after receiving notice under subdivision 4.b above, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

6. Within 30 calendar days after receiving notice under subparagraph 4 of a conviction, taking one of the following actions with respect to an employee who is convicted of a drug abuse violation occurring in the workplace:
   a. Taking appropriate personnel action against such employee, up to and including termination; or
   b. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency; and

7. Making a good faith effort to maintain a drug-free workplace program through implementation of subparagraphs 1 through 6.

The Vendor hereby certifies that: (check box)

☑ The Vendor certifies that it has established a drug free workplace program in accordance with the above requirements.

Non-Collusion Certification:
Vendor shall disclose, to their best knowledge, any Broward County officer or employee, or any relative of any such officer or employee as defined in Section 112.3135 (1) (c), Florida Statutes, who is an officer or director of, or has a material interest in, the Vendor's business, who is in a position to influence this procurement. Any Broward County officer or employee who has any input into the writing of specifications or requirements, solicitation of offers, decision to award, evaluation of offers, or any other activity pertinent to this procurement is presumed, for purposes hereof, to be in a position to influence this procurement. Failure of a Vendor to disclose any relationship described herein shall be reason for debarment in accordance with the provisions of the Broward County Procurement Code.

The Vendor hereby certifies that: (select one)

☑ The Vendor certifies that this offer is made independently and free from collusion; or

☐ The Vendor is disclosing names of officers or employees who have a material interest in this procurement and is in a position to influence this procurement. Vendor must include a list of name(s), and relationship(s) with its submittal.

Public Entities Crimes Certification:
In accordance with Public Entity Crimes, Section 287.133, Florida Statutes, a person or affiliate placed on the convicted vendor list following a conviction for a public entity crime may not submit on a contract: to provide any goods or services; for construction or repair of a public building or public work; for leases of real property to a public entity; and may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s. 287.017 for Category Two for a period of 36 months following the date of being placed on the convicted vendor list.

The Vendor hereby certifies that: (check box)

☑ The Vendor certifies that no person or affiliates of the Vendor are currently on the convicted vendor list and/or has not been found to commit a public entity crime, as described in the statutes.

Scrutinized Companies List Certification:
Any company, principals, or owners on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List is prohibited from submitting a response to a solicitation for goods or services in an amount equal to or greater than $1 million.

The Vendor hereby certifies that: (check each box)

☑ The Vendor, owners, or principals are aware of the requirements of Sections 287.135, 215.473, and 215.4275, Florida Statutes, regarding Companies on the Scrutinized Companies with Activities in Sudan List the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List; and

☑ The Vendor, owners, or principals, are eligible to participate in this solicitation and are not listed on either the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List; and

☑ If awarded the Contract, the Vendor, owners, or principals will immediately notify the County in writing if any of its principals are placed on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List.

I hereby certify the information provided in the Vendor Questionnaire and Standard Certifications:

Mark R. Pistiner, PE	**Associate**	**2/6/2020**
*AUTHORIZED SIGNATURE/NAME	TITLE	DATE

Vendor Name: **CDM Smith Inc.**

* I certify that I am authorized to sign this solicitation response on behalf of the Vendor as indicated in Certificate as to Corporate Principal, designation letter by Director/Corporate Officer, or other business authorization to bind on behalf of the Vendor. As the Vendor's authorized representative, I attest that any and all statements, oral, written or otherwise, made in support of the Vendor's response, are accurate, true and correct. I also acknowledge that inaccurate, untruthful, or incorrect statements made in support of the Vendor's response may be used by the County as a basis for rejection, rescission of the award, or termination of the contract and may also serve as the basis for debarment of Vendor pursuant to Section 21.119 of the Broward County Procurement Code. I certify that the Vendor's response is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a response for the same items/services, and is in all respects fair and without collusion or fraud. I also certify that the Vendor agrees to abide by all terms and conditions of this solicitation, acknowledge and accept all of the solicitation pages as well as any special instructions sheet(s).

Supplier: **CDM Smith**

LOBBYIST REGISTRATION REQUIREMENT CERTIFICATION FORM

The completed form should be submitted with the solicitation response but must be submitted within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

The Vendor certifies that it understands if it has retained a lobbyist(s) to lobby in connection with a competitive solicitation, it shall be deemed non-responsive unless the firm, in responding to the competitive solicitation, certifies that each lobbyist retained has timely filed the registration or amended registration required under Broward County Lobbyist Registration Act, Section 1-262, Broward County Code of Ordinances; and it understands that if, after awarding a contract in connection with the solicitation, the County learns that the certification was erroneous, and upon investigation determines that the error was willful or intentional on the part of the Vendor, the County may, on that basis, exercise any contractual right to terminate the contract for convenience.

The Vendor hereby certifies that: (select one)

☑ It has not retained a lobbyist(s) to lobby in connection with this competitive solicitation; however, if retained after the solicitation, the County will be notified.

☐ It has retained a lobbyist(s) to lobby in connection with this competitive solicitation and certified that each lobbyist retained has timely filed the registration or amended registration required under Broward County Lobbyist Registration Act, Section 1-262, Broward County Code of Ordinances.

It is a requirement of this solicitation that the names of any and all lobbyists retained to lobby in connection with this solicitation be listed below:

Name of Lobbyist:
Lobbyist's Firm:
Phone:
E-mail:

Name of Lobbyist:
Lobbyist's Firm:
Phone:
E-mail:

Authorized Signature/Name: Mark R. Pistiner, PE Date: 2/6/2020

Title: Associate

Vendor Name: CDM Smith Inc.

Supplier: **CDM Smith**

DOMESTIC PARTNERSHIP ACT CERTIFICATION FORM (REQUIREMENT AND TIEBREAKER)

Refer to Special Instructions to identify if Domestic Partnership Act is a requirement of the solicitation or acts only as a tiebreaker. If Domestic Partnership is a requirement of the solicitation, the completed and signed form should be returned with the Vendor's submittal. If the form is not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes. To qualify for the Domestic Partnership tiebreaker criterion, the Vendor must currently offer the Domestic Partnership benefit and the completed and signed form must be returned at time of solicitation submittal.

The Domestic Partnership Act, Section 16 ½ -157, Broward County Code of Ordinances, requires all Vendors contracting with the County, in an amount over $100,000 provide benefits to Domestic Partners of its employees, on the same basis as it provides benefits to employees' spouses, with certain exceptions as provided by the Ordinance.

For all submittals over $100,000.00, the Vendor, by virtue of the signature below, certifies that it is aware of the requirements of Broward County's Domestic Partnership Act, Section 16-½ -157, Broward County Code of Ordinances; and certifies the following: (check only one below).

☑ 1. The Vendor currently complies with the requirements of the County's Domestic Partnership Act and provides benefits to Domestic Partners of its employees on the same basis as it provides benefits to employees' spouses

☐ 2. The Vendor will comply with the requirements of the County's Domestic Partnership Act at time of contract award and provide benefits to Domestic Partners of its employees on the same basis as it provides benefits to employees' spouses.

☐ 3. The Vendor will not comply with the requirements of the County's Domestic Partnership Act at time of award.

☐ 4. The Vendor does not need to comply with the requirements of the County's Domestic Partnership Act at time of award because the following exception(s) applies: **(check only one below)**.

- ☐ The Vendor is a governmental entity, not-for-profit corporation, or charitable organization.
- ☐ The Vendor is a religious organization, association, society, or non-profit charitable or educational institution.
- ☐ The Vendor provides an employee the cash equivalent of benefits. (Attach an affidavit in compliance with the Act stating the efforts taken to provide such benefits and the amount of the cash equivalent).
- ☐ The Vendor cannot comply with the provisions of the Domestic Partnership Act because it would violate the laws, rules or regulations of federal or state law or would violate or be inconsistent with the terms or conditions of a grant or contract with the United States or State of Florida. Indicate the law, statute or regulation (State the law, statute or regulation and attach explanation of its applicability).

Mark R. Pistiner, PE	**Associate**	**CDM Smith Inc.**	**2/6/2020**
Authorized Signature/Name	**Title**	**Vendor Name**	**Date**

Supplier: **CDM Smith**

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☐ There are no material cases for this Vendor; or

☑ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☐
Party	
Case Number, Name, and Date Filed	
Name of Court or other tribunal	
Type of Case	Bankruptcy ☐ Civil ☐ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	
Brief description of the Subject Matter and Project Involved	
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: **See attached** Email: Telephone Number:

Vendor Name: CDM Smith Inc.

Supplier: **CDM Smith**

AFFILIATED ENTITIES OF THE PRINCIPAL(S) CERTIFICATION FORM

The completed form should be submitted with the solicitation response but must be submitted within three business days of County's request. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

a. All Vendors are required to disclose the names and addresses of "affiliated entities" of the Vendor's principal(s) over the last five (5) years (from the solicitation opening deadline) that have acted as a prime Vendor with the County.

b. The County will review all affiliated entities of the Vendor's principal(s) for contract performance evaluations and the compliance history with the County's Small Business Program, including CBE, DBE and SBE goal attainment requirements. "Affiliated entities" of the principal(s) are those entities related to the Vendor by the sharing of stock or other means of control, including but not limited to a subsidiary, parent or sibling entity.

c. The County will consider the contract performance evaluations and the compliance history of the affiliated entities of the Vendor's principals in its review and determination of responsibility.

The Vendor hereby certifies that: (select one)

☑ No principal of the proposing Vendor has prior affiliations that meet the criteria defined as "Affiliated entities"

☐ Principal(s) listed below have prior affiliations that meet the criteria defined as "Affiliated entities"

Principal's Name:

Names of Affiliated Entities:

Principal's Name:

Names of Affiliated Entities:

Principal's Name:

Names of Affiliated Entities:

Authorized Signature Name: **Mark R. Pistiner, PE**

Title: **Associate**

Vendor Name: **CDM Smith Inc.**

Date: **2/6/2020**

Supplier: **CDM Smith**

Office of Economic and Small Business Requirements: CBE Goal Participation

A. In accordance with the Broward County Business Opportunity Act of 2012, Section 1-81, Code of Ordinances, as amended (the "Business Opportunity Act"), the County Business Enterprise (CBE) Program is applicable to this contract. All Vendors responding to this solicitation are required to utilize CBE firms to perform the assigned participation goal for this contract.

B. The CBE participation goal will be established based on the expected expenditure amount for the proposed scope of services for the project. The Office of Economic and Small Business Development (OESBD) will not include alternate items, optional services or allowances when establishing the CBE participation goal. If the County subsequently chooses to award any alternate items, optional services or allowances as determined by OESBD and the Contract Administrator to be related to the scope of services, OESBD may apply the established CBE participation goal. In such an instance, the County will issue a written notice to the successful Vendor that the CBE participation goal will also apply to the alternate items, optional services or allowances. Vendor shall submit all required forms pertaining to its compliance with the CBE participation goal, as applicable. Failure by Vendor to submit the required forms may result in the rejection of Vendor's solicitation submittal prior to the award or failure to comply with the contract requirements may have an impact on the vendor performance evaluation post award, as applicable.

C. CBE Program Requirements: Compliance with CBE participation goal requirements is a matter of responsibility; Vendor should submit all required forms and information with its solicitation submittal. If the required forms and information are not provided with the Vendor's solicitation submittal, then Vendor must supply the required forms and information no later than three (3) business days after request by OESBD. Vendor may be deemed non-responsible for failure to fully comply with CBE Program Requirements within these stated timeframes.

   1. Vendor should include in its solicitation submittal a **Letter Of Intent Between Bidder/Offeror and County Business Enterprise (CBE) Subcontractor/Supplier** for each CBE firm the Vendor intends to use to achieve the assigned CBE participation goal. The form is available at the following link: http://www.broward.org/EconDev/Documents/CBELetterOfIntent.pdf

   2. If Vendor is unable to attain the CBE participation goal, Vendor should include in its solicitation submittal an **Application for Evaluation of Good Faith Efforts** and all of the required supporting information. The form is available at the following link: http://www.broward.org/EconDev/WhatWeDo/Documents/GoodFaithEffortEval.pdf

D. OESBD maintains an online directory of CBE firms. The online directory is available for use by Vendors at https://webapps4.broward.org/smallbusiness/sbdirectory.aspx.

E. For detailed information regarding the CBE Program contact the OESBD at (954) 357-6400 or visit the website at: http://www.broward.org/EconDev/SmallBusiness/

F. If awarded the contract, Vendor agrees to and shall comply with all applicable requirements of the Business Opportunity Act and the CBE Program in the award and administration of the contract.

   1. No party to this contract may discriminate on the basis of race, color, sex, religion,

national origin, disability, age, marital status, political affiliation, sexual orientation, pregnancy, or gender identity and expression in the performance of this contract.

2. All entities that seek to conduct business with the County, including Vendor or any Prime Contractors, Subcontractors, and Bidders, shall conduct such business activities in a fair and reasonable manner, free from fraud, coercion, collusion, intimidation, or bad faith. Failure to do so may result in the cancellation of this solicitation, cessation of contract negotiations, revocation of CBE certification, and suspension or debarment from future contracts.

3. If Vendor fails to meet or make Good Faith Efforts (as defined in the Business Opportunity Act) to meet the CBE participation commitment (the "Commitment"), then Vendor shall pay the County liquidated damages in an amount equal to fifty percent (50%) of the actual dollar amount by which Vendor failed to achieve the Commitment, up to a maximum amount of ten percent (10%) of the total contract amount, excluding costs and reimbursable expenses. An example of this calculation is stated in Section 1-81.7, Broward County Code of Ordinances.

4. Vendor shall comply with all applicable requirements of the Business Opportunity Act in the award of this contract. Failure by Vendor to carry out any of these requirements shall constitute a material breach of the contract, which shall permit the County to terminate this contract or to exercise any other remedy provided under this contract, the Broward County Code of Ordinances, the Broward County Administrative Code, or other applicable laws, with all such remedies being cumulative.

5. Vendor shall pay its CBE subcontractors and suppliers, within fifteen (15) days following receipt of payment from the County, for all completed subcontracted work and supplies. If Vendor withholds an amount from CBE subcontractors or suppliers as retainage, such retainage shall be released and paid within fifteen (15) days following receipt of payment of retained amounts from the County.

6. Vendor understands that the County will monitor Vendor's compliance with the CBE Program requirements. Vendor must provide OESBD with a Monthly Utilization Report (MUR) to confirm its compliance with the Commitment agreed to in the contract; timely submission of the MUR every month throughout the term of the contract, including amendment and extension terms, is a condition precedent to the County's payment of Vendor under the contract.

Supplier: **CDM Smith**

SUBCONTRACTORS/SUBCONSULTANTS/SUPPLIERS REQUIREMENT FORM
Request for Proposals, Request for Qualifications, or Request for Letters of Interest

The following forms and supporting information (if applicable) should be returned with Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit may affect Vendor's evaluation.

A. The Vendor shall submit a listing of all subcontractors, subconsultants and major material suppliers (firms), if any, and the portion of the contract they will perform. A major material supplier is considered any firm that provides construction material for construction contracts, or commodities for service contracts in excess of $50,000, to the Vendor.

B. If participation goals apply to the contract, only non-certified firms shall be identified on the form. A non-certified firm is a firm that is not listed as a firm for attainment of participation goals (ex. County Business Enterprise or Disadvantaged Business Enterprise), if applicable to the solicitation.

C. This list shall be kept up-to-date for the duration of the contract. If subcontractors, subconsultants or suppliers are stated, this does not relieve the Vendor from the prime responsibility of full and complete satisfactory performance under any awarded contract.

D. After completion of the contract/final payment, the Vendor shall certify the final list of non-certified subcontractors, subconsultants, and suppliers that performed or provided services to the County for the referenced contract.

E. The Vendor has confirmed that none of the recommended subcontractors, subconsultants, or suppliers' principal(s), officer(s), affiliate(s) or any other related companies have been debarred from doing business with Broward County or any other governmental agency.

If none, state "none" on this form. Use additional sheets as needed. Vendor should scan and upload any additional form(s) in BidSync.

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1. Subcontracted Firm's Name: **Holt Communications, Inc.**

   Subcontracted Firm's Address: **3105 NW 107th Ave, Doral, FL 33172**

   Subcontracted Firm's Telephone Number: **305.335.0924**

   Contact Person's Name and Position: **Yvette Holt, President**
   Contact Person's E-Mail Address: **yvette@holtcommunications.net**

   Estimated Subcontract/Supplies Contract Amount: **TBD**

   Type of Work/Supplies Provided: **Public Involvement and Outreach**

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2. Subcontracted Firm's Name: **HBC Engineering**

   Subcontracted Firm's Address: **8935 NW 35th Lane, Suite 201, Doral, FL 33172**

   Subcontracted Firm's Telephone Number: **305.232.7932**

   Contact Person's Name and Position: **Gregory Prytyka, Traffic Engineering Director**

   Contact Person's E-Mail Address: **gprytyka@hbcengineeringco.com**

   Estimated Subcontract/Supplies Contract Amount: **TBD**

Supplier: **CDM Smith**

AGREEMENT EXCEPTION FORM

The completed form(s) should be returned with the Vendor's submittal. If not provided with submittal, it shall be deemed an affirmation by the Vendor that it accepts the terms and conditions of the County's Agreement as disclosed in the solicitation.

The Vendor must either provide specific proposed alternative language on the form below. Additionally, a brief justification specifically addressing each provision to which an exception is taken should be provided.

☑ There are no exceptions to the terms and conditions of the County Agreement as referenced in the solicitation; or

☐ The following exceptions are disclosed below: (use additional forms as needed; separate each Article/ Section number)

Term or Condition Article / Section	Insert version of exception or specific proposed alternative language	Provide brief justification for change

Vendor Name: **CDM Smith Inc.**

Supplier: **CDM Smith**

RFP-RLI-RFQ LOCAL PREFERENCE AND TIE BREAKER CERTIFICATION FORM

The completed and signed form should be returned with the Vendor's submittal to determine Local Preference eligibility, however it must be returned at time of solicitation submittal to qualify for the Tie Break criteria. If not provided with submittal, the Vendor must submit within three business days of County's request for evaluation of Local Preference. Proof of a local business tax should be submitted with this form. Failure to timely submit this form or local business tax receipt may render the business ineligible for application of the Local Preference or Tie Break Criteria.

In accordance with Section 21.31.d. of the Broward County Procurement Code, to qualify for the Tie Break Criteria, the undersigned Vendor hereby certifies that (check box if applicable):

☑ The Vendor is a local Vendor in Broward County and:

a. has a valid Broward County local business tax receipt;
b. has been in existence for at least six-months prior to the solicitation opening;
c. at a business address physically located within Broward County;
d. in an area zoned for such business;
e. provides services from this location on a day-to-day basis, and
f. services provided from this location are a substantial component of the services offered in the Vendor's proposal.

In accordance with Local Preference, Section 1-74, et. seq., Broward County Code of Ordinances, a local business meeting the below requirements is eligible for Local Preference. To qualify for the Local Preference, the undersigned Vendor hereby certifies that (check box if applicable):

☐ The Vendor is a local Vendor in Broward and:

a. has a valid Broward County local business tax receipt issued at least one year prior to solicitation opening;
b. has been in existence for at least one-year prior to the solicitation opening;
c. provides services on a day-to-day basis, at a business address physically located within the Broward County limits in an area zoned for such business; and
d. the services provided from this location are a substantial component of the services offered in the Vendor's proposal.

Local Business Address: **150 S Pine Island Rd., Suite 300, Plantation, FL 33324**

Vendor does not qualify for Tie Break Criteria or Local Preference, in accordance with the above requirements. The undersigned Vendor hereby certifies that (check box if applicable): ☐ The Vendor is not a local Vendor in Broward County.

Mark R. Pistiner, PE	**Associate**	**CDM Smith Inc.**	**2/6/2020**
AUTHORIZED SIGNATURE/NAME	**TITLE**	**COMPANY**	**DATE**

Supplier: **CDM Smith**

RFP-RFQ-RLI LOCATION ATTESTATION FORM (EVALUATION CRITERIA)

The completed and signed form and supporting information (if applicable, for Joint Ventures) should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit this form and supporting information may affect the Vendor's evaluation. Provided information is subject to verification by the County.

A Vendor's principal place of business location (also known as the nerve center) within Broward County is considered in accordance with Evaluation Criteria. The County's definition of a principal place of business is:

1. As defined by the Broward County Local Preference Ordinance, "Principal place of business means the nerve center or center of overall direction, control and coordination of the activities of the bidder [Vendor]. If the bidder has only one (1) business location, such business location shall be considered its principal place of business."

2. A principal place of business refers to the place where a corporation's officers direct, control, and coordinate the corporation's day-to-day activities. It is the corporation's 'nerve center' and in practice it should normally be the place where the corporation maintains its headquarters; provided that the headquarters is the actual center of direction, control, and coordination, i.e., the 'nerve center', and not simply an office where the corporation holds its board meetings (for example, attended by directors and officers who have traveled there for the occasion).

The Vendor's principal place of business in Broward County shall be the Vendor's "Principal Address" as indicated with the Florida Department of State Division of Corporations, for at least six months prior to the solicitation's due date.

Check one of the following:

☑ The Vendor certifies that it has a principal place of business location (also known as the nerve center) within Broward County, as documented in Florida Department of State Division of Corporations (Sunbiz), and attests to the following statements:

1. Vendor's address listed in its submittal is its principal place of business as defined by Broward County;

2. Vendor's "Principal Address" listed with the Florida Department of State Division of Corporations is the same as the address listed in its submittal and the address was listed for at least six months prior to the solicitation's opening date. A copy of Florida Department of State Division of Corporations (Sunbiz) is attached as verification.

3. Vendor must be located at the listed "nerve center" address ("Principal Address") for at least six (6) months prior to the solicitation's opening date;

4. Vendor has not merged with another firm within the last six months that is not headquartered in Broward County and is not a wholly owned subsidiary or a holding company of another firm that is not headquartered in Broward County;

5. If awarded a contract, it is the intent of the Vendor to remain at the referenced address for the duration of the contract term, including any renewals, extensions or any approved

interim contracts for the services provided under this contract; and

6. The Vendor understands that if after contract award, the County learns that the attestation was erroneous, and upon investigation determines that the error was willful or intentional on the part of the Vendor, the County may, on that basis exercise any contractual right to terminate the contract. Further any misleading, inaccurate, false information or documentation submitted by any party affiliated with this procurement may lead to suspension and/or debarment from doing business with Broward County as outlined in the Procurement Code, Section 21.119.

If the Vendor is submitting a response as a Joint Venture, the following information is required to be submitted:

a. Name of the Joint Venture Partnership
b. Percentage of Equity for all Joint Venture Partners
c. A copy of the executed Agreement(s) between the Joint Venture Partners

☐ Vendor does not have a principal place of business location (also known as the nerve center) within Broward County.

Vendor Information:

Vendor Name: **CDM Smith Inc.**

Vendor's address listed in its submittal is:

150 S Pine Island Rd., Suite 300, Plantation, FL 33324

The signature below must be by an individual authorized to bind the Vendor. The signature below is an attestation that all information listed above and provided to Broward County is true and accurate.

Mark R. Pistiner, PE	**Associate**	**CDM Smith Inc.**	**2/6/2020**
Authorized Signature/Name	Title	Vendor Name	Date

Supplier: **CDM Smith**

VOLUME OF PREVIOUS WORK ATTESTATION FORM

The completed and signed form should be returned with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to provide timely may affect the Vendor's evaluation.

This completed form MUST be included with the Vendor's submittal at the time of the opening deadline to be considered for a Tie Breaker criterion (if applicable).

Points assigned for Volume of Previous Work will be based on the amount paid-to-date by the County to a prime Vendor **MINUS** the Vendor's confirmed payments paid-to-date to approved certified County Business Enterprise (CBE) firms performing services as Vendor's subcontractor/subconsultant to obtain the CBE goal commitment as confirmed by County's Office of Economic and Small Business Development. Reporting must be within five (5) years of the current solicitation's opening date.

Vendor must list all received payments paid-to-date by contract as a prime vendor from Broward County Board of County Commissioners. Reporting must be within five (5) years of the current solicitation's opening date.

Vendor must also list all total confirmed payments paid-to-date by contract, to approved certified CBE firms utilized to obtain the contract's CBE goal commitment. Reporting must be within five (5) years of the current solicitation's opening date.

In accordance with Section 21.31.d. of the Broward County Procurement Code, the Vendor with the lowest dollar volume of work previously paid by the County over a five-year period from the date of the submittal opening will receive the Tie Breaker.

The Vendor attests to the following:

Item No.	Project Title	Contract No.	Department/ Division	Date Awarded	Prime: Paid to Date	CBE: Paid to Date
1.	**Water Treatment**	**R1025211R1**	**Public Works/WWS**	**01/14/2014**	**$2,789,392**	**$705,469**
2.	**Electrical Load Center**	**R1151105P1**	**Public Works/WWS**	**01/15/2015**	**$1,138,894**	**$268,349**
3.	**Septage Receiving**	**Y1099512R1**	**Public Works/WWS**	**01/07/2014**	**$3,902,899**	**$857,938**
4.	**Retail Potable Water**	**R1090025P1**	**Public Works/WWS**	**06/03/2014**	**$959,369**	**$250,112**
5.						
6.						
7.						
				Grand Total	**$8,790,554**	**$2,081,868**

Has the Vendor been a member/partner of a Joint Venture firm that was awarded a contract by the County?

Yes ☐ No ☑

If Yes, Vendor must submit a **Joint Vendor Volume of Work Attestation Form**.

Vendor Name: CDM Smith Inc.

Mark R. Pistiner, PE	Associate	02/06/2020
Authorized Signature/Name	Title	Date

VOLUME OF PREVIOUS WORK ATTESTATION JOINT VENTURE FORM

If applicable, this form and additional required documentation should be submitted with the Vendor's submittal. If not provided with submittal, the Vendor must submit within three business days of County's request. Failure to timely submit this form and supporting documentation may affect the Vendor's evaluation.

If a Joint Venture, the payments paid-to-date by contract provided must encompass the Joint Venture and each of the entities forming the Joint Venture. Points assigned for Volume of Previous Work will be based on the amount paid-to-date by contract to the Joint Venture firm **MINUS** all confirmed payments paid-to-date to approved certified CBE firms utilized to obtain the CBE goal commitment. Reporting must be within five (5) years of the current solicitation's opening date. Amount will then be multiplied by the member firm's equity percentage.

In accordance with Section 21.31.d. of the Broward County Procurement Code, the Vendor with the lowest dollar volume of work previously paid by the County over a five-year period from the date of the submittal opening will receive the Tie Breaker.

The Vendor attests to the following:

Item No.	Project Title	Contract No.	Department/ Division	Date Awarded	JV Equity Percent	Prime: Paid to Date	CBE: Paid to Date
1.	**N/A**						
2.							
3.							
4.							
5.							
6.							
7.							
8.							
					Grand Total		

Vendor is required to submit an executed Joint Venture agreement(s) and any amendments for each project listed above. Each agreement must be executed prior to the opening date of this solicitation.

Vendor Name:

Authorized Signature/Name **Title** **Date**

Supplier: **CDM Smith**

Finance and Administrative Services Department
PURCHASING DIVISION
115 S. Andrews Avenue, Room 212 • Fort Lauderdale, Florida 33301 • 954-357-6066 • FAX 954-357-8535

Summary of Vendor Rights Regarding Broward County Competitive Solicitations

The purpose of this document is to provide vendors with a summary of their rights to object to or protest a proposed award or recommended ranking of vendors in connection with Broward County competitive solicitations. These rights are fully set forth in the Broward County Procurement Code, which is available here: https://www.broward.org/purchasing.

1. Right to Object

The right to object is available for solicitations conducted through Requests for Proposals ("RFPs") or Requests for Letters of Interest ("RLIs"). In such solicitations, vendors may object in writing to a proposed recommendation of ranking made by a Selection or Evaluation Committee. Objections must be filed within three (3) business days after the proposed recommendation is posted on the Purchasing Division's website. The contents of an objection must comply with the requirements set forth in Section 21.84 of the Procurement Code. Failure to timely and fully meet any requirement will result in a loss of the right to object.

2. Right to Protest

The right to protest is available for RFPs and RLIs and in solicitations conducted through Invitations to Bid ("ITBs"). In RFPs and RLIs, vendors may protest a final recommendation of ranking made by a Selection or Evaluation Committee. In ITBs, vendors may protest a final recommendation for award made by the Broward County Purchasing Division.

In all cases, protests must be filed in writing within three (3) or five (5) business days after a recommended ranking or recommendation for award is posted on Purchasing Division's website. The timeframe for filing (*i.e.,* 3 or 5 business days) depends on the monetary value of the procurement. Additional requirements for a protest are set forth in Section 21.118 of the Procurement Code. Failure to timely and fully meet any requirement will result in a loss of protest rights.

Vendors may appeal the denial of a protest. Appeals may require payment of an appeal bond. Additional requirements for an appeal are set forth in Section 21.120 of the Procurement Code. Failure to timely and fully meet any requirement will result in a loss of appeal rights.

3. Cone of Silence; Right to Contact OESBD

Please be aware that a Cone of Silence remains in effect for competitive solicitations until a solicitation is completed or a contract is awarded. During that time period, vendors may not contact certain County officials and employees regarding a solicitation. Substantial penalties may result from even an unintentional violation. For further information, please contact the Purchasing Division at 954-357-6066 or refer to the Cone of Silence Ordinance which is available here: https://www.broward.org/Purchasing/Documents/ConeOfSilence.pdf.

However, vendors may communicate with a representative of the Office of Economic and Small Business Development ("OESBD") at any time regarding a solicitation or regarding participation of Small Business Enterprises or County Business Enterprises in a solicitation. OESBD may be contacted at (954) 357-6400. The Cone of Silence also permits communication with certain other County employees (please see the Cone of Silence Ordinance at the above link for further details).

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