

**MPO REGIONAL DATA AND
TRANSPORTATION ANALYTICS (MRDATA)
RFP No. 24-04**

TASK WORK ORDER NO. 1

BETWEEN

THE BROWARD METROPOLITAN PLANNING ORGANIZATION

And

DELOITTE CONSULTING LLP

For

**Metropolitan Transportation Plan (MTP)
Project Simulation**

**Task Work Order No. 1 Start Date: Upon Written Notice to Proceed
Task Work Order No. 1 End Date: June 14, 2024**

The Consultant shall perform the following tasks to complete the requested services and deliverables in adherence with the MPO Regional Data and Transportation Analytics (MRDATA) Agreement, RFP Number 24-04 and Scope of Services pursuant to this Task Work Order No. 1.

All Task Work Orders are subject to availability of funds and subject to services rendered by the Consultant along with a Written Notice to Proceed authorization by the Broward MPO's project manager or designee.

SCOPE OF SERVICES

Metropolitan Transportation Plan (MTP) Project Simulation

Total Firm Fixed Price Amount: \$519,674.68

Pursuant to and as provided in the attached Price Proposal Form

INTRODUCTION:

The Broward MPO (BMPO) has the need for a Task Work Order for design of a project simulation platform as documented within the current Unified Planning Work Program (UPWP) and related tasks. RFP No. 24-04 was issued for the purpose of selecting a Consultant to perform the type and scope of work listed below. The following background and work steps, organized by task, outline the scope of services.

Background:

Post-COVID travel patterns in the South Florida region have prompted the need for more recent and representative datasets, and flexible modeling tools that can ingest those datasets to inform current-state analysis and future projections on the transportation network. Additionally, as the BMPO and its partners prepare for accelerating climate stress and extreme weather risk, they require a tool that can integrate climate models and assess the vulnerability of the transportation network. Furthermore, policy mandates and investment decisions increasingly require an analysis of the burdens and benefits of potential infrastructure projects for different geographic and socioeconomic populations at high resolution and accuracy. The BMPO necessitates a demonstrated and innovative modeling platform for numerous rationales, encompassing but not restricted to the subsequent circumstances:

- Many existing traffic analysis and modeling tools analyze the performance of specific transportation facilities using a deterministic approach, focusing on vehicle capacity, speed, or delay. They are often limited in their ability to analyze multimodal networks or systemwide effects of transportation improvements. It can be challenging for this software to integrate new datasets, including post-COVID travel patterns. Broward's activity-based model provides long-range estimates of travel demand and traffic operations but requires significant time and effort to update the model and perform individual model runs. The BMPO needs proven macro-scale and micro-resolution models to better identify the network impacts of projects, programs, or policies in a way that identifies specific users and beneficiaries of each.
- Due to the increase in frequency and severity of extreme weather events, the BMPO requires more detailed analysis of the impact of climate change on the transportation network and built environment. Correspondingly, it needs to assess the efficacy of potential mitigation measures and capital projects to protect against climate risk. Today, it is time- and labor-intensive to overlay climate hazards on transportation assets to assess the vulnerability of the assets, the cost associated with risk avoidance, and the cascading effects of business disruption. The BMPO seeks new technology and services to quickly evaluate resiliency projects as a part of its capital planning and investment process.
- With USDOT's Justice40 Initiative, FTA Title VI requirements, and the BMPO's own longstanding commitment to equitable planning, the Broward region desires new and proven modeling approaches that can assess project benefits and burdens in areas of persistent poverty or with vulnerable populations. Since climate hazards disproportionately affect disadvantaged communities, climate risks must be incorporated into this analysis and modeling approach.

Modeling needs are evolving as technology developments are progressing, and one-off models based on average daily travel patterns no longer reflect the reality and diversity of transportation. The BMPO and region requires a holistic set of planning tools that assess transportation resilience and equity while allowing for

flexibility in data sources to accommodate the variety of regional needs and stakeholders. This approach will help to inform short-term and long-term planning, policy development, and project prioritization decisions by providing high-fidelity, high-resolution outputs. It will also allow the BMPO and its partners to prepare inputs and analysis for various USDOT grant applications, NOFOs, and post-award performance-based reporting requirements.

REQUIRED SERVICES:

The BMPO requires a novel approach to data management and modeling, while extending new capabilities to partner agencies in the region. This will require access to a suite of proven advanced, cloud-based modeling tools for rapid scenario analysis. The BMPO and its partners will utilize the shared data and solutions to inform regional, corridor, and project-specific planning and impact analyses. BMPO requires the following tasks performed by the Consultant for designing the future MTP Project Simulation platform. The Consultant will not develop or deliver any technology under this Task Work Order No 1.

TASK 1: NEXT-GENERATION REGIONAL MODELING DESIGN

The BMPO is seeking Consultant services to develop a platform design that will provide industry proven high-speed, high-fidelity sketch-planning and modeling tools to complement the BMPO's traditional activity-based model. These modeling tools to be developed by a Consultant in future Task Orders will be designed in this Task Order to simulate the Broward region's multimodal transportation network at both macroscopic and microscopic levels, while forecasting individual and aggregated travel behavior. The simulation model designed by the Consultant will operate at the highest resolution spatially, temporally, and individually without sacrificing scale and speed of analysis through each step of the demand modeling. These modeling tools designed by the Consultant will be flexible and extensible allowing users to:

- Analyze proposed project impacts, benefits, and externalities in areas of persistent poverty or with specific sociodemographic cohorts in Broward County.
- Estimate accumulation of project benefits (e.g., travel time savings, air quality improvements) to specific geographic and socioeconomic groups and the cost of inaction vs. action. This modeling will combine outputs from the existing authoritative South Florida Regional Climate model.
- Perform resilience-based complementary analytics, including GIS, and data visualization capabilities to identify at-risk assets. These analytics and visualizations will identify the key costs with action and the costs of inaction for specific projects, corridors, and / or programs. Furthermore, the analysis will include an assessment of the cascading operational and economic impacts of business disruption due to an extreme weather event.

The anticipated due date for Task 1 deliverable is no later than March 15, 2024.

Deliverable for Task 1: Next Gen Modeling solution design as described above.

TASK 2: REGIONAL DATA MANAGEMENT DESIGN:

As the amount of data relevant for decision-making, reporting, and analytics continues to grow, it becomes increasingly important to establish standards for generating, processing, and leveraging this data. The BMPO is seeking Consultant services in the design of an architecture that enables data management, analytics, artificial intelligence, and machine learning (AI / ML) capabilities. To ensure the security of the data platform, this task performed by the Consultant will establish the design for a security framework and access procedures that align with industry security guidelines. The Consultant will also define a metadata strategy

and establish the scope and ownership utilizing an effective metadata management tool. Instead of taking an agency-by-agency approach to data governance, the Consultant will develop the design for a regional data management program that goes beyond a standalone data platform. The Consultant will design a connected and supportive structure for the region to share data, improve outputs, and deliver prioritized projects faster to residents and visitors.

The anticipated due date for Task 2 deliverable is no later than April 12, 2024.

Deliverable for Task 2: Regional data management design as described above.

TASK 3: GEOSPATIAL DATA ANALYTICS & VISUALIZATION REQUIREMENTS:

To translate model outputs into insights and key metrics, the Consultant will develop and deliver the requirements for visualization tools that collate model outputs with geospatial data on sociodemographic attributes and long-term climate trends in Broward County and the South Florida region. The Consultant will develop the requirements for a publicly accessible dashboard comprising thematic index layers such as accessibility, mobility, and climate resiliency, with the intention of aiding stakeholder communications and outreach endeavors.

The anticipated due date for Task 3 deliverable is no later than May 31, 2024.

Deliverable for Task 3: Visualization tools requirements as described above.

TASK 4: STAKEHOLDER OUTREACH PLAN AND STRATEGIES

The Consultant will provide a public engagement and stakeholder plan and strategies around these topics identified in Tasks 1 through 3, including identifying technology-enabled approaches to gathering community feedback on project studies and plans.

The Consultant will develop a public participation plan that solicits and encourages public awareness and input to develop and launch the next-generation transportation and resiliency modeling, data infrastructure, and visualization. The Consultant will develop multimedia and other innovative engagement strategies to be used by the BMPO to promote and support the Regional Collaborative Planning Platform and the MTP Project Simulation platform.

The anticipated due date for Task 4 deliverable is no later than June 14, 2024.

Deliverable for Task 4: Community engagement plan and strategies as described above.

Detailed draft and final deliverables, including all files in their native format, shall be provided to the BMPO.

SCHEDULE

The total duration of this MTP Project Simulation Task Work Order Scope of Services will be completed no later than June 14, 2024.

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RFP No. 24-04 TASK WORK ORDER No. 1 Between The **BROWARD METROPOLITAN PLANNING ORGANIZATION and **DELOITTE CONSULTING LLP** for Metropolitan Transportation Plan (MTP) Project Simulation**

IN WITNESS WHEREOF, the parties hereto have made and executed this Task Work Order on the respective dates under each signature.

Deloitte Consulting LLP

**Broward Metropolitan Planning Organization
Chair**

BY: _____
PRINT: _____
Title: _____
DATE: _____

BY: _____
PRINT: Frank C. Ortis
DATE: _____

**Broward Metropolitan Planning Organization
Executive Director**

**Broward Metropolitan Planning Organization
General Counsel**

BY: _____
PRINT: Gregory Stuart
DATE: _____

BY: _____
PRINT: Alan L. Gabriel
DATE: _____

PRICE PROPOSAL FORM

(RFP No. 24-04)

Offerors are to include hourly rates for all classifications of employees that will be working on this contract. Examples of classifications may include descriptions such as Principal, Project Manager, Support Staff, Graphics/IT, etc.

Pursuant to Section 2-1, pricing for each Task Work Order will be negotiated based on the rates provided on this form in the Successful Offeror’s response.

The RFP total price evaluation will be based on the Offeror’s firm fixed price amount for providing all Work under Task Work Order (TWO) No. 1, utilizing the rates of proposed personnel provided on this form.

The Total Not to Exceed Amount for TWO No. 1 on the price proposal form shall be entered onto the “Total Not to Exceed Amount” on the TWO No. 1 Agreement above.

Prime Consultant: Name				
Classification				Task Hours
Hourly Rate	\$ _____			Total
Task 1 Hours	_____ h		hrs	_____ hrs
Task 2 Hours	_____ h		hrs	_____ hrs
Task 3 Hours	_____ h		hrs	_____ hrs
Task 4 Hours	_____ h		hrs	_____ hrs
TOTAL HOURS	_____ h		hrs	_____ hrs
SUBTOTAL FEE	\$ _____			\$ _____
TOTAL FEE				\$ _____
Classification				Task Hours
Hourly Rate	\$ _____			Total
Task 1 Hours	_____ h		hrs	_____ hrs
Task 2 Hours	_____ h		hrs	_____ hrs
Task 3 Hours	_____ h		hrs	_____ hrs
Task 4 Hours	_____ h		hrs	_____ hrs
TOTAL HOURS	_____ h		hrs	_____ hrs
SUBTOTAL FEE	\$ _____	\$ _____	\$ _____	\$ _____
TOTAL FEE				\$ _____

Per Amendment 1 to the RFP dated August 16, 2023, we have put proposal calculations and additional rates on additional pages that follow.

Subconsultant: Name							
Classification	_____	_____	_____	_____	_____	_____	Task Hours
Hourly Rate	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	Total
Task 1 Hours	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
Task 2 Hours	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
Task 3 Hours	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
Task 4 Hours	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
TOTAL HOURS	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
SUBTOTAL FEE	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	
TOTAL FEE							\$ _____

Subconsultant: Name							
Classification	_____	_____	_____	_____	_____	_____	Task Hours
Hourly Rate	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	Total
Task 1 Hours	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
Task 2 Hours	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
Task 3 Hours	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
Task 4 Hours	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
TOTAL HOURS	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs
SUBTOTAL FEE	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	
TOTAL FEE							\$ _____

Add additional sheets if necessary.

**TOTAL FIRM FIXED PRICE AMOUNT FOR TWO NO. 1
(PRIME CONSULTANT TOTAL FEE + ALL SUBCONSULTANTS TOTAL
FEES):**

\$519,674.68
Type/Write Dollar Amount Above

Prime Consultant : Deloitte									
Classification	Project Manager	Transportation Planner III	Travel Demand Modeler I	Data Scientist II	Technology Architect I	UI/UX Researcher I			Task Hours Total
Hourly Rate	\$ 325.00	\$ 225.00	\$ 285.00	\$ 245.00	\$ 275.00	\$ 185.00			
Task 1 Hours	90	200	180	32	112	0			614
Task 2 Hours	90	210	75	150	120	0			645
Task 3 Hours	50	87	0	12	14	210			373
Task 4 Hours	90	90	0	0	0	50			230
TOTAL HOURS	320	587	255	194	246	260			1862
SUBTOTAL FEE	\$ 104,000.00	\$ 132,075.00	\$ 72,675.00	\$ 47,530.00	\$ 67,650.00	\$ 48,100.00			\$ 472,030.00
TOTAL FEE									\$ 472,030.00
Subconsultant : ISG									
Classification	Principal	Project Manager	Global Project Lead	Senior System Engineer	Global System Engineer				Task Hours Total
Hourly Rate	\$ 358.95	\$ 381.35	\$ 257.57	\$ 284.77	\$ 213.66				
Task 1 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
Task 2 Hours	8	0 hrs	0 hrs	0 hrs	0 hrs				8
Task 3 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
Task 4 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
TOTAL HOURS	8	0 hrs	0 hrs	0 hrs	0 hrs				8
SUBTOTAL FEE	\$ 2,871.60	\$.....	\$.....	\$.....	\$.....				\$ 2,871.60
TOTAL FEE									\$ 2,871.60
Subconsultant : Alfred Benesch & Co									
Classification	Senior Planner	Chief planner	Project Planner	Planner	Senior Planner II				Task Hours Total
Hourly Rate	\$ 255.15	\$ 348.30	\$ 195.75	\$ 162.00	\$ 237.60				
Task 1 Hours	0 hrs	8	0 hrs	0 hrs	0 hrs				8
Task 2 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
Task 3 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
Task 4 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
TOTAL HOURS	0 hrs	8	0 hrs	0 hrs	0 hrs				8
SUBTOTAL FEE	\$.....	\$ 2,786.40	\$.....	\$.....	\$.....				\$ 2,786.40
TOTAL FEE									\$ 2,786.40
Subconsultant : UrbanSim									
Classification	CEO	Director of Product	Senior Modeler	Data Scientist	Software Engineer				Task Hours Total
Hourly Rate	402.5	371.25	337.5	303.75	303.75				
Task 1 Hours	8	0 hrs	0 hrs	0 hrs	0 hrs				8
Task 2 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
Task 3 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
Task 4 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
TOTAL HOURS	8	0 hrs	0 hrs	0 hrs	0 hrs				8
SUBTOTAL FEE	\$ 3,220.00	\$.....	\$.....	\$.....	\$.....				\$ 3,220.00
TOTAL FEE									\$ 3,220.00
Subconsultant : Delatares									
Classification	Climate Advisor								Task Hours Total
Hourly Rate	\$ 254.90	\$...	\$...	\$...	\$...				
Task 1 Hours	0 hrs	.....hrs	.....hrs	.....hrs	.....hrs				0hrs
Task 2 Hours	0 hrs	.....hrs	.....hrs	.....hrs	.....hrs				0hrs
Task 3 Hours	0 hrs	.....hrs	.....hrs	.....hrs	.....hrs				0hrs
Task 4 Hours	0 hrs	.....hrs	.....hrs	.....hrs	.....hrs				0hrs
TOTAL HOURS	0 hrs	.....hrs	.....hrs	.....hrs	.....hrs				0hrs
SUBTOTAL FEE	\$.....	\$.....	\$.....	\$.....	\$.....				
TOTAL FEE									\$0
Subconsultant : Insight Transportation Consulting									
Classification	Senior travel demand modeler	Senior modeling advisor	Travel demand modeler/Data scientist	GIS/Data analyst					Task Hours Total
Hourly Rate	\$ 309.02	\$ 380.07	\$ 237.98	\$ 170.49	\$...				
Task 1 Hours	0	102	0 hrs	0 hrs	0 hrs				102
Task 2 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
Task 3 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
Task 4 Hours	0 hrs	0 hrs	0 hrs	0 hrs	0 hrs				0
TOTAL HOURS	0	102	0 hrs	0 hrs	0 hrs				102
SUBTOTAL FEE	\$ -	\$ 38,766.68	\$.....	\$.....	\$.....				\$ 38,766.68
TOTAL FEE									\$ 38,766.68

Rate Card by Year Reflecting Escalation			
	Hourly Rate Year 1	Hourly Rate Year 2	Hourly Rate Year 3
Project Manager	\$ 325.00	\$ 334.75	\$ 344.79
Deputy Project Manager	\$ 285.00	\$ 293.55	\$ 302.36
Business Strategy Analyst I	\$ 185.00	\$ 190.55	\$ 196.27
Business Strategy Analyst II	\$ 215.00	\$ 221.45	\$ 228.09
Business Strategy Analyst III	\$ 255.00	\$ 262.65	\$ 270.53
Transportation Planner I	\$ 165.00	\$ 169.95	\$ 175.05
Transportation Planner II	\$ 190.00	\$ 195.70	\$ 201.57
Transportation Planner III	\$ 225.00	\$ 231.75	\$ 238.70
Technology Architect I	\$ 275.00	\$ 283.25	\$ 291.75
Technology Architect II	\$ 300.00	\$ 309.00	\$ 318.27
Technology Architect III	\$ 325.00	\$ 334.75	\$ 344.79
Technology Solution Specialist I	\$ 185.00	\$ 190.55	\$ 196.27
Technology Solution Specialist II	\$ 205.00	\$ 211.15	\$ 217.48
Technology Solution Specialist III	\$ 245.00	\$ 252.35	\$ 259.92
UI/UX Researcher I	\$ 185.00	\$ 190.55	\$ 196.27
UI/UX Researcher II	\$ 220.00	\$ 226.60	\$ 233.40
UI/UX Researcher III	\$ 280.00	\$ 288.40	\$ 297.05
UI/UX Developer I	\$ 125.00	\$ 128.75	\$ 132.61
UI/UX Developer II	\$ 155.00	\$ 159.65	\$ 164.44
UI/UX Developer III	\$ 185.00	\$ 190.55	\$ 196.27
Travel Demand Modeler I	\$ 285.00	\$ 293.55	\$ 302.36
Travel Demand Modeler II	\$ 335.00	\$ 345.05	\$ 355.40
Travel Demand Modeler III	\$ 355.00	\$ 365.65	\$ 376.62
Climate Specialist I	\$ 235.00	\$ 242.05	\$ 249.31
Climate Specialist II	\$ 275.00	\$ 283.25	\$ 291.75
Climate Specialist III	\$ 325.00	\$ 334.75	\$ 344.79
Marketing Analyst I	\$ 185.00	\$ 190.55	\$ 196.27
Marketing Analyst II	\$ 235.00	\$ 242.05	\$ 249.31
Marketing Analyst III	\$ 285.00	\$ 293.55	\$ 302.36
Software Developer I	\$ 75.00	\$ 77.25	\$ 79.57
Software Developer II	\$ 125.00	\$ 128.75	\$ 132.61
Software Developer III	\$ 155.00	\$ 159.65	\$ 164.44
Software Tester I	\$ 40.00	\$ 41.20	\$ 42.44
Software Tester II	\$ 85.00	\$ 87.55	\$ 90.18
Software Tester III	\$ 105.00	\$ 108.15	\$ 111.39
Data Scientist I	\$ 215.00	\$ 221.45	\$ 228.09
Data Scientist II	\$ 245.00	\$ 252.35	\$ 259.92
Data Scientist III	\$ 295.00	\$ 303.85	\$ 312.97
Geospatial Analyst I	\$ 185.00	\$ 190.55	\$ 196.27
Geospatial Analyst II	\$ 205.00	\$ 211.15	\$ 217.48
Geospatial Analyst III	\$ 235.00	\$ 242.05	\$ 249.31
Data Analyst I	\$ 50.00	\$ 51.50	\$ 53.05
Data Analyst II	\$ 75.00	\$ 77.25	\$ 79.57
Data Analyst III	\$ 125.00	\$ 128.75	\$ 132.61
Engagement Leader	\$ 400.00	\$ 412.00	\$ 424.36
UrbanSim CEO	\$ 402.50	\$ 414.58	\$ 427.01
UrbanSim Director of Product	\$ 371.25	\$ 382.39	\$ 393.86
UrbanSim Senior Modeler	\$ 337.50	\$ 347.63	\$ 358.05
UrbanSim Data Scientist	\$ 303.75	\$ 312.86	\$ 322.25
UrbanSim Software Engineer	\$ 303.75	\$ 312.86	\$ 322.25
Insight Transportation Consulting: (Senior)	\$ 309.02	\$ 318.29	\$ 327.83
Insight Transportation Consulting: (Senior)	\$ 380.07	\$ 391.47	\$ 403.21
Insight Transportation Consulting: (Travel)	\$ 237.98	\$ 245.12	\$ 252.47
Insight Transportation Consulting: (GIS/Urban)	\$ 170.49	\$ 175.61	\$ 180.87
Infosense Global Principal	\$ 358.95	\$ 369.72	\$ 380.81
Infosense Global Project Manager	\$ 381.35	\$ 392.79	\$ 404.57
Infosense Global Project Lead	\$ 257.57	\$ 265.29	\$ 273.25
Infosense Global Senior System Engineer	\$ 284.77	\$ 293.31	\$ 302.11
Infosense Global System Engineer	\$ 213.66	\$ 220.07	\$ 226.68
Benesch Senior Planner	\$ 255.15	\$ 262.80	\$ 270.69
Benesch Chief planner	\$ 348.30	\$ 358.75	\$ 369.51
Benesch Project Planner	\$ 195.75	\$ 201.62	\$ 207.67
Benesch Planner	\$ 162.00	\$ 166.86	\$ 171.87
Benesch Senior Planner II	\$ 237.60	\$ 244.73	\$ 252.07
Deltares Climate Advisor	\$ 254.90	\$ 262.55	\$ 270.42