



March 22, 2021

**To: John Walsh, P.E.**  
**Utility Director City of Cocoa**

**RE: WRA Scope and Budget Proposal**  
**City of Cocoa CUP Renewal**

As requested, please find the attached scope of work and budget for completing the City of Cocoa CUP Renewal. The subconsultant, Water Sciences' services are included in the proposal. Water Sciences work will be performed by Michael Alfieri, PG. Project management and application preparation and negotiation will be performed by Mark Farrell, P.E.

**Assumption:**

**The currently permitted withdrawal from the Taylor Creek Reservoir will not require further modeling or environmental evaluation based on existing permit. This was the condition for the 2015 Cocoa CUP review by the SJRWMD.**

**Task 1a. – Impact Evaluation I – End of Permit Demand Scenario**

With the proposed rule changes for the CFWI, a revision of the existing planning model, the East Central Florida Transient model (2014), was completed in 2019. The new planning model, the East Central Florida Transient Expanded (ECFTX) model (2019), expands the model grid westward to the coast. This planning model takes approximately 31 hours to converge and was not intended for regulatory use in consumptive use permit evaluations. As such, WRA proposes the following three withdrawal scenarios to be initially evaluated using the East Central Florida Transient-Steady State (ECFT-SS; 2015) groundwater model. Only the City of Cocoa's withdrawals will be adjusted within the model and evaluated over three model scenarios below. No hydrogeologic parameters will be adjusted.

1. Run 1 – Base model scenario representing end-of-permit (EOP) allocations for all permit holders including City of Cocoa.
2. Run 2 - Cocoa Off and EOP allocations for all non-Cocoa permit holders.
3. Run 3 - All withdrawals from permitted users will be turned off in this scenario.

These simulations are designed to estimate the drawdown impacts owing to project and cumulative withdrawals.

**Approximate Time to Complete: 1 week**

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### **Task 1b. – Population Demand Estimate**

WRA previously completed population demand estimates for the City of Cocoa. Using prior population demand estimates generated by WRA, WRA will update the demand estimate using the most recent population estimates generated by the Bureau of Economic and Business Research (BEBR; <https://www.bibr.ufl.edu/population/data>). It is expected that the City will provide the last ten years' worth of water use, as it will be used along with the BEBR population estimate to determine the City's per capita over that timeframe. This will be projected out over the proposed thirty-year permit timeframe request and be compared to the CFWI proposed 100 gpcd rule. The population estimate and per capita will then be provided to the team for review and comment. This work item is the crux for the additional work items below, and the team will need to agree with the population, demand, and per capita estimates, prior to moving forward with additional modeling.

Approximate Time to Complete: 2-3 weeks

### **Task 1c. – Impact Evaluation II – End of Permit Demand Scenario**

Four withdrawal scenarios will be evaluated using the ECFT-SS groundwater model in a fashion similar to Work Item No. 1, but for the projected demand for 2025 and 2051 utilizing the per capita rate per person agreed upon in Task 2. As before, no hydrogeologic parameters will be adjusted within the model and only the City of Cocoa's withdrawals will be adjusted within the model. The four model evaluations are presented below.

1. Run 1 – Base model scenario representing EOP allocations for all permit holders. In this scenario, Cocoa wells will be pumping at the 2025 EOP allocation.
2. Run 2 – Base model scenario representing EOP allocations for all permit holders. In this scenario, Cocoa wells will be pumping at the 2051 EOP allocation.
3. Run 3 - Cocoa Off; EOP allocations for all non-Cocoa permit holders.
4. Run 4 - All withdrawals from permitted users will be turned off in this scenario.

Like before, the model results will be compiled in ArcMap. Post processing of model results will be carried out to determine the contribution of the City of Cocoa 2025 and 2051 EOP allocations to the cumulative drawdown. DRAFT model drawdown figures will be provided to at the completion of Work Item No. 3.

**Approximate Time to Complete :2 weeks**

### **Task 1d. - Impact Evaluation III - End of Permit Impact Assessment**

Based on the approval of the DRAFT model results from Tasks 1 and 3, WRA will evaluate impacts to existing legal uses and natural systems. Focus will be placed on evaluating existing legal uses and natural systems for Task 3. A list of minimum flow and levels (MFLs) of interest to the District will be provided to the City prior to commencement of this work item. This task may require site visit for natural system evaluations.

**Approximate Time to Complete: 2-3 weeks**

### **Task 1e. – Technical Memorandum**

On approval of the DRAFT model results from Tasks 1 through 4, WRA will provide a technical memorandum documenting the work completed, which then could be used as an attachment to the CUP early renewal application.

**Approximate Time to Complete: 2 weeks**

**Task 1f. – Meetings and Coordination**

We estimate up to 18 meetings during the course of this project. Meetings will be completed via video conferencing and conference calls.

**SUMMARY SCOPE  
AND FEE**

**With written authorization, complete the following work items as documented in the cover letter:**

- **Tasks 1a-f .....\$84,300**
- **Expenses for copies and mileage.....(Estimated budget \$250)**

**Any additional charges to be pre-authorized by Client.**

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Farrell', with a long horizontal flourish extending to the right.

**Mark D. Farrell, P.E.  
Principal**



TASK	Position	Principal	Sr. Hydrogeologist	Hydrologist	Environmental Scientist	GIS Technician	Admin Support	TOTAL
	Rate/Hr	\$220	\$185	\$150	\$125	\$85	\$60	
Task 1		20	40	30	8	6	6	\$18,170
Task 2		30					10	\$7,200
Task 3		20	40	40	20	10	5	\$21,450
Task 4		15	18	10	24	14	5	\$12,620
Task 5		15	30	8	8	4	14	\$12,230
Task 6		40	12		12		6	\$12,880
<b>Subtotal</b>								<b>\$84,300</b>
<b>Expenses</b>								<b>\$250</b>
<b>Total</b>								<b>\$84,550</b>
<b>DURATION OF WORK SCHEDULE</b>								
	NTP	Week 1			Week 18	SJRWMD Board Mtg		
Task 1 a-f						CUP Issuance		

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