

Meeting Date
January 10, 2017



AGENDA	
Section	Consent
Item No.	#, A.2,

**AGENDA REPORT**  
**BREVARD COUNTY BOARD OF COUNTY COMMISSIONERS**

<b>SUBJECT:</b>	Approval RE: Work Order No. 2014-2680-A-010 for Design of the Wickham Road and Interlachen Road Intersection Improvements – District 4 (Fiscal Impact: \$143,000)
<b>DEPT/OFFICE:</b>	Public Works Department / Finance & Contracts Administration

**Requested Action:**

It is requested that the Board of County Commissioners approve Work Order No. 2014-2680-A-010 in the amount of \$143,000 for design of the Wickham Road and Interlachen Road Intersection Improvements; authorize staff to issue a Notice to Proceed to Atkins; and approve any necessary Budget Change Requests associated with this request.

**Summary Explanation & Background:**

On October 21, 2014, the Board of County Commissioners adopted Resolution No. 14-197, amending Resolution No. 12-245, pertaining to the County's Local Option Fuel Tax Revenue Bonds. This Board action allocated funds toward intersection improvements along Wickham Road.

After the required competitive selection process for professional services, on September 15, 2014, the Board entered into Professional Services Agreements with five (5) consultants, including Atkins (Contract #2680), to perform continuing consultant engineering services. The acquisition of the consultant professional services was obtained in conformance with Board Policy BCC-26 as well as statutory requirements. According to the statute, if the construction project exceeds \$2,000,000 the consultant contract cannot exceed \$200,000. The cost of this project is not expected to exceed \$2,000,000.

On November 15, 2016 Atkins submitted their proposal for engineering design services to address the overall functionality of the intersection of Wickham Road and Interlachen Road located in Suntree.

**Design elements will include the following:**

- Upgrade the existing single northbound left-turn lane to a dual northbound left-turn lane from Interlachen Road onto Wickham Road.
- Construct a new southbound left-turn lane from Interlachen into the Suntree Square Shopping Center to replace the existing single shared left-through-right-lane.
- Provide an eastbound left-turn protected-permissive movement from Wickham Road onto Interlachen Road using a 4 section Flashing Yellow Arrow.
- Replace the existing traffic signal strain poles with four new mast arms.
- Coordinate the traffic signal timing with the existing Wickham Road Corridor Intelligent Transportation Systems (ITS).
- Update pedestrian crossings to current standards.
- Prepare and submit permit applications with the St. Johns River Water Management District

In accordance with AO-29, Contract Administration, Section VI, Item A.1. (a), work orders initiated and approved under original contract shall be processed by Board authority when the work order amount is \$100,000 and greater.

Fiscal Impact: FY 2016/2017/2018 \$143,000 from the Local Option Gas Tax Fund 1163/265160

**Clerk to the Board Instructions:**

Exhibits Attached: Work Order No. 2014-2680-A-010

Contract / Agreement (If attached): Reviewed by County Attorney Yes  No  PR

County Manager	Assistant County Manager	Department Director / Extension
Stockton Whitten	Assistant County Manager	John P. Denninghoff / 57202



Tammy Rowe, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

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January 11, 2017

MEMORANDUM

TO: John Denninghoff, Public Works Director

RE: Item II.A.2., Approval for Work Order No. 2014-2680-A-010 for Design of the Wickham Road and Interlachen Road Intersection Improvements

The Board of County Commissioners, in regular session on January 10, 2017, granted approval of Work Order No. 2014-2680-A-010 in the amount of \$143,000 for the design of the Wickham Road and Interlachen Road intersection Improvements; authorized you to issue a Notice to Proceed to Atkins; and approved any necessary Budget Change Requests associated with this request.

Your continued cooperation is greatly appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS  
SCOTT ELLIS, CLERK

Tammy Rowe, Deputy Clerk

/kp

cc: Finance  
Budget

**Proposal to Provide  
Professional Engineering Services  
for  
Wickham Road and Interlachen Road  
Intersection Improvements  
Brevard County, Florida**

Brevard County (County) is proposing to improve the safety and operation of the N. Wickham Road and Interlachen Road intersection. These improvements are proposed to address County concerns regarding the overall functionality of the intersection and the observed queue lengths of vehicles at the intersection. The proposed improvements are based on the recommendations within the Technical Memorandum completed by Kittelson & Associates dated April 9th, 2016 and consist of the following:

- Upgrade the existing single northbound left-turn lane to a dual northbound left-turn lane from Interlachen onto Wickham. Currently, the northbound left turn vehicle queue length impacts vehicles attempting to make southbound left-turn movements into the Suntree Square Shopping Center (Publix) driveway, located approximately 400 feet south of the intersection.
- Construct a new southbound left turn-turn lane from Interlachen into the Suntree Square Shopping Center (Publix) to replace the existing single shared left-through-right lane.
- Provide an eastbound left-turn protected-permissive movement from Wickham onto Interlachen using a 4 section Flashing Yellow Arrow (FYA).
- Replace the existing traffic signal strain poles with four new mast arms.
- Coordinate the traffic signal timing with the existing Wickham Road corridor ITS system.
- Upgrade pedestrian crossings to current standards.

ATKINS (Consultant) will prepare construction documents for the proposed roadway and signalization improvements as specified in the following scope of services.

## **SECTION 1 SCOPE OF SERVICES**

### **TASK 1: GEOTECHNICAL SERVICES**

Consultant will retain the services of a qualified geotechnical engineer to:

1. Conduct a subsurface field exploration for structural analysis and design of traffic signal poles. Four (4) SPT borings will be drilled at a depth of 35 feet below ground surface using a procedure similar to the Standard Penetration Test outlined in ASTM D-1586. One soil boring will be drilled on each corner of the intersection where a pole is proposed, if accessible to our truck-mounted drilling equipment. The borings will be drilled as close to the proposed pole foundation locations as access and existing structures/utilities dictate. The SPT borings will be drilled using a procedure similar to the Standard Penetration Test outlined in ASTM D-1586. The borings will be sampled at 18-inch intervals to 10 feet deep and at 5-foot intervals below 10 feet.
2. Four (4) auger borings will be drilled near the proposed turn lanes using a 3-inch diameter, hand-held bucket auger and sampled at each change in stratification. Each sample will be removed from the sampler or auger in the field and then examined and visually classified by our field personnel. Representative portions will be sealed and packaged for transportation to our laboratory for further

analysis as required. Water level observations will be made in the boreholes during the drilling operation.

3. Perform routine laboratory visual classification of the recovered soil samples in general accordance with the Unified Soil Classification System outlined in ASTM D-2488. Laboratory tests to aid in the visual classification (i.e., sieve analysis, Atterberg limits, organic content, etc.) may be conducted.
4. Provide geotechnical engineering analysis and report to evaluate general subsurface conditions and to develop engineering recommendations to guide pole foundation design.
5. Engineering analysis of all data obtained will be made to evaluate general subsurface conditions and to develop engineering recommendations to guide site preparation for the turn lane area and foundation support for the mast arm signal poles. In addition, a typical pavement section in general accordance with Brevard County Road and Bridge Specifications for the turn lane areas will be provided.
6. Soil parameters to be used in the design of the drilled shaft foundations and estimated from the results of the borings will be provided. An estimate of the normal seasonal high groundwater table level at the boring locations will also be provided.
7. Recommendations for the turn lanes and signal pole foundations, together with all data developed during the exploration, will be submitted in a written report upon conclusion of the study.

## **TASK 2: REVIEW CONCEPT DEVELOPMENT PLAN**

1. ATKINS will review and provide direction to County Staff on the 30% Concept Development Plan for the proposed improvements at Wickham Road and Interlachen Road.
2. The 30% Concept Development Plan will be drafted by County Staff and will be based on the survey provided by the County (including a terrain model in 3-D DTM format), the Concept Sketch provided by the County and existing utility information obtained by Sunshine One-call Design Ticket ( Task 7, provided by ATKINS). The Concept Development Plan will be drawn to scale and will show the necessary components required to construct the intersection improvements, including pavement, sidewalks, signage, pavement markings, drainage improvements, proposed mast arm locations and preliminary right of way and/or easements required.
3. The geometry and length of the turn lanes will be based on the Traffic Memorandum provided by the County. Design lane widths will be coordinated with the County if necessary to minimize and/or avoid right-of-way impacts to adjacent property. The ability to make simultaneous left turns through the intersection will also be verified.
4. ATKINS will review the available roadway plans of the project intersection provided by the County and information provided by utility owners to identify overhead and underground utilities (including sanitary sewer and storm sewer) that may be affected by the construction of the proposed improvements. The consultant will also conduct a site visit to identify other features that may be affected such as drainage, signage and traffic signals, etc. Potential right of way impacts will be identified, including the need for construction easements.
5. Based on the 30% Concept Development Plan provided by the County, a cost estimate for the construction of the intersection improvements will be developed. FDOT unit construction costs will

be used to determine prices on all items. An estimated allowance will be assumed for the proposed mast arms. The estimate will not include land acquisition costs.

6. The 30% Concept Development Plan will be incorporated into the development of the Roadway Plans in Task 3.

### **TASK 3: ROADWAY PLANS**

1. Based on the Survey and 30% Concept Development Plan provided by the County the Consultant will prepare design and construction documents for the selected intersection improvements to support the proposed intersection improvements. The construction drawings will follow FDOT Plans Preparation Manual format, the following drawing sheets (11" x 17" format) are anticipated:
  - Key Sheet,
  - Typical Section,
  - Quantities Summary,
  - Roadway Plan-Profile,
  - Cross Sections,
  - Utility Adjustments,
  - Stormwater Pollution Prevention Plan,
  - Selective Clearing and Grubbing,
  - Signing and Pavement Marking Plan,
  - Construction Details
  - Signalization Plans (Task 3)
  - Applicable MOT details (Design Index 600 series).
2. The 90% Construction Drawings plan set will be submitted to the County for review. Based on County review the plans will be revised and resubmitted as 100% Construction Documents for approval by the County.
3. The plans will identify right of way and/or easements required for the proposed improvements.
4. Prepare two (2) estimates of probable construction costs based on 90% and 100% Construction Documents (CD's). The estimate will not include land acquisition costs.
5. This task also includes the design of inlets and stormsewer within the project area to provide drainage to the existing and proposed roadway improvements. Drainage structure information will be included in the plan sheets listed above.
6. The plan set will include applicable MOT detail sheets from the FDOT Design index 600 series.
7. Provide technical specification for the project based on latest Brevard County specifications (provided by County) and State design criteria. Specifications shall be submitted to Brevard County for review with the 90% and 100% design submittal.

#### **TASK 4: SIGNALIZATION PLANS**

1. Upon completion of the survey, SUE and County's review of the mast arm concept, Atkins will prepare signalization plans in accordance with the Brevard County standards and preferences, the Florida Department of Transportation (FDOT) standards and the Manual on Uniform Traffic Control Devices (MUTCD). The traffic signal design will incorporate a mast arm pole design layout in accordance with FDOT mast arm standards and Brevard County's preferred signal configuration. The signalization plans will be prepared in 11 inch x 17 inch format and will include the following sheets as a minimum:
  - (a) Key sheet,
  - (b) Quantity sheet,
  - (c) General note sheet,
  - (d) Signalization plan sheet,
  - (e) Utility location plan sheet,
  - (f) Mast arm dimension sheet
  - (g) Mast arm assemblies design table sheet,
  - (h) ITS network diagram connection sheet,
  - (i) Fiber optic cable splicing diagram sheet.

The signalization modification plans will be developed in coordination with the roadway improvement plans and will be submitted to the County for review with the 90% Construction Documents submittal. Based on County review the plans will be revised and resubmitted as 100% Signalization Plans for approval by the County.

2. The design will feature LED signal heads, video detection, and overhead street name signs in accordance with FDOT approved materials. Connection to the existing Wickham Road traffic responsive signal system is included in this scope of work.
3. The new signal will be tied to an existing ITS system along Wickham Road that operates a traffic responsive system to control the traffic signals along Wickham Road.
4. Atkins will provide Brevard County with cost estimates for the construction of the traffic signals at the 90% and 100% submittals.
5. Mast Arm Structural Design: Based on County approval of the 100% Signalization plans Atkins will develop the structural design of the proposed mast arms, including a structural design evaluation of the signal poles and foundations. If the geotechnical information is found to be consistent with what was used to develop the FDOT standard signal poles and arms then FDOT standard design details will be used. However, if the geotechnical information is found to be different from the standard assumptions then a full structural design will be performed.

#### **TASK 5: PERMITTING**

The Consultant will prepare and submit permit applications with accompanying Construction Plans, and other documentation as required and defined in this scope for agency review, coordinating each submittal with the Client as necessary. The following permit(s) are anticipated:

Brevard County Public Works / Right of Way:

The Consultant shall prepare and submit plans, specifications and cost estimates for review by the County Public Works Department. The consultant will incorporate the County's comments in the construction documents. The following review submittals are anticipated:

- 90% Construction Drawings
- 100% Construction Drawings (For Approval).

SJRWMD:

St. Johns River Water Management District (SJRWMD) Administrative Permit Modification: The Consultant shall prepare and submit a request for an administrative change to the existing SJRWMD permits for Wickham Rd and Interlachen Rd. If there is not an existing permit, the Consultant will prepare and submit a request for permit exemption for the proposed improvements. It is assumed that this project will qualify for an Administrative Permit Modification or Exemption under F.A.C. Chapter 62-330.05 Exempt Activities (c) Minor roadway safety construction, alteration, or maintenance and operation.

**TASK 6: COORDINATION AND MEETINGS**

The Consultant anticipates attending a total of up to four (4) meetings with the County during the concept development and plan review process as follows:

- Utility Provider Coordination Meeting
  - 30% Concept Design – coordination and review meeting.
  - 90% Construction Drawings – County comment review meeting.
  - 100% Construction Drawings – Atkins response review meeting.
1. The Consultant will file a Sunshine One-Call Design Ticket to obtain listed utility providers with facilities within the project area, including FP&L, AT&T, Bright House Networks, NUI City Gas Company, Brevard County Utilities, and City of Melbourne Utilities Department to obtain available information regarding existing utilities within the proposed project limits. Based on the utilities listed on the design ticket the Consultant will provide a Notice to Utility Owner Providers (NTUP) of the proposed improvements. A record of notification to each utility provider will be provided to the County. This record will either consist of an email confirming electronic delivery, certified mail, or fedx/ups delivery record.
  2. The Notice to Utility Owners will also include a draft Concept Plan provided by the County.
  3. The Utility Coordination Meeting will be conducted after completion of the survey and prior to completion of the 30% Concept Development Plans.

**TASK 7: UNDERGROUND UTILITY LOCATION SERVICES (SUE)**

Atkins will retain the services of a qualified professional to provide SUE at the four (4) proposed mast arm locations. This task also includes up to 4 test holes to verify the location, size and depth of any underground utilities that may be in conflict with the proposed roadway improvements. The test hole locations will be provided by Atkins based on the 30% Concept Design plans prepared in Task 3 after review by the County. A maximum of 20 test holes will be performed.

## **PROJECT SURVEY REQUIREMENTS – PROVIDED BY COUNTY**

The County shall provide the project survey as noted in the following requirements:

Road route survey, including right-of-way and topographic survey, of the intersection of Wickham Road and Interlachen Road. Survey shall begin at the intersection of Wickham Road and Interlachen and run northerly 400 ft, southerly 1,000ft, easterly 600 ft, and westerly 600 ft, and shall include the following tasks:

1. Establish right-of-ways and vertical control for topographic collection along Wickham Road and Interlachen Road within the project limits.
2. Locate all existing improvements including traffic signal poles, pavement marking, pavement, walks, trees, storm structures, visible utilities, and other above ground features within the project limits.
3. Locate existing power poles and record the elevation of existing power, communication and cable lines within the intersection.
4. Provide a Topography/Digital Terrain Model (DTM)(3D); Locate all above ground features and improvements for the limits of the project by collecting the required data for the purpose of creating a DTM with sufficient density. Shoot all break lines, high and low points. Effort includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.
5. Locate underground utility improvements based on information provided by utility providers and Sunshine One-Call field locates.
6. Locate the alignments, inverts and pipe diameters of storm and gravity sewers.
7. Coordinate with Subsurface Utility Exploration (SUE) contractor to record the locations and depths of subsurface utilities located by the SUE contractor at the four proposed mast arm locations and update the project survey.
8. Prepare a detailed drawing of recovered information under the guidelines and requirements set forth by Brevard County accompanied with checklist.
9. A survey base line will be established and monumented.
10. Follow Brevard County standards checklist for topographic and right-of-way mapping.
11. Cadd drafting and mapping of the project area.
12. Survey will be referenced to the state plane coordinate system.

All surveys shall meet minimum technical standards adopted by the Florida Board of Professional Surveyors and Mappers as set forth in Chapter 61G-17 F.A.C.

## **SECTION 2 ASSUMPTIONS AND EXCLUSIONS**

1. Application fees, impact fees and any other fees required by regulatory agencies are considered a direct expense to the County.
2. It is assumed that the site does not contain hazardous materials.
3. The project scope is based upon the proposed improvements depicted in the Technical Memorandum by Kittelson & Associates Dated April 9, 2016.
4. Design and permitting of any offsite improvements, other than those identified herein, are not included in this proposal.
5. The design pavement section is assumed to match the existing pavement structure for Wickham Rd and Interlachen Rd.
6. Stormwater and stormsewer design is limited to the proposed roadway improvements and adjacent right of way. Offsite drainage studies and/or modifications to offsite drainage facilities is not included in this proposal.
7. Structural design scope is as noted in Task 4. FDOT standard structures will be specified for all proposed drainage structures. The structural design of special structures that may be required to address special design conditions or conflicts is not included in this scope.
8. SJRWMD permitting is limited to administrative modification or exemption, ACOE and FEMA permitting are considered an additional service.
9. It is assumed that the proposed facilities will not require relocation of major utility facilities. Design and permitting of major utility relocation is not included in this proposal.
10. It is assumed the survey data file provided by the County will include a terrain model in 3-D DTM format.
11. It is assumed the Maintenance of Traffic Plan (MOT) will be the responsibility of the Contractor and that the contractor will submit the MOT plan to the County for approval prior to the commencement of construction. MOT plans and construction phasing is not included in this proposal.
12. The Contractor shall provide record drawings, prepared by a land surveyor registered in the State of Florida, to the County and Atkins.
13. It is assumed that the Contractor will be responsible for preparation and submittal of the FDEP NOI for the project prior to construction and N.O.T upon completion of construction.
14. Submittal of the Issue for Bid package is limited to updating the Cover Sheet, Title Pages and Title Blocks of the Drawings, Specifications and Cost Estimates to "Issue for Bid", and adding the county bid number and bid date to the bid documents. Other revisions or changes to the construction documents are considered an additional service.
15. Easements, Legal Descriptions, Land Acquisition, Bid Phase and Construction Phase Services are not included in this scope of work.

### **SECTION 3 SCHEDULE & DELIVERABLES**

The following schedule is anticipated:

- A. Draft 30% Concept Plan provided by County: Twenty-one (21) days from receipt of the County Survey.
- B. Notice to Utility Providers (NTUP): Fourteen (14) days from receipt of the Draft 30% Concept Plan.
- C. Utility Coordination Meeting: Twenty-eight (28) days from NTUP.
- D. 30% Concept Development Plan completion by County: Twenty-eight (28) days from the Utility Coordination Meeting.
- E. 90% Construction Documents submittal to Brevard County: Sixty (60) days from receipt of 30% Concept Development Plans.
- F. Review by County Staff: The review time is assumed to be approximately twenty-one (21) days.
- G. 100% Construction Documents submittal to Brevard County for approval: Twenty-eight (28) days from receipt 90% County Review Comments.

The following will be provided by the County to ATKINS:

- A. Project Survey,
- B. Draft 30% Concept Development Plans,
- C. 30% Concept Development Plans (Roadway Plans, Mast Arm Locations) ,

The following deliverables will be provided to the County:

- D. Copy of NTUP,
- E. 30% Concept Development Cost Estimate for County review ,
- F. Results of SUE work,
- G. 90% Construction Documents (Roadway Plans, Traffic Signal Plans, Specifications and Cost Estimate; for County Review,
- H. 100% Construction Documents (Roadway Plans, Traffic Signal Plans, Specifications, and Cost Estimate; for County Approval,
- I. 100% Traffic Signal Mast Arm Structural Design; for County Approval,

## SECTION 4 COMPENSATION

The proposed scope of services will be provided on a lump sum basis administered pursuant to the provisions of our master contract dated September 15, 2014, and invoiced monthly based on the percentage of completion of the overall project.

<b>Task 1: Geotechnical Services</b>	\$	7,000
<b>Task 2: Concept Design</b>	\$	12,000
<b>Task 3: Roadway Plans</b>	\$	70,000
<b>Task 4: Signalization Plans</b>	\$	29,000
<b>Task 5: Permitting</b>	\$	10,000
<b>Task 6: Coordination and Meetings</b>	\$	7,000
<b>Task 7: Subsurface Utility Exploration (SUE) Services</b>	\$	8,000
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<b>TOTAL</b>	\$	143,000