




Interoffice Memorandum

October 23, 2018

TO: Mayor Teresa Jacobs
and the Board of County Commissioners

FROM: Mark V. Massaro, P.E., Director, Public Works Department

CONTACT PERSON: Renzo Nastasi, AICP, Manager 
Transportation Planning Division
Community, Environmental and Development
Services Department

PHONE NUMBER: (407) 836-8072

SUBJ: **Traffic Study Agreement for the Central Florida Research Park
between the Orange County Research and Development Authority
and Orange County**

The Traffic Study Agreement between Orange County and the Orange County Research and Development Authority ("Research Authority"), subject to the Board's approval, will authorize the County and the Research Authority to undertake and jointly fund a traffic study to focus on identifying trip origins and destinations relating to the Research Park area. The study is also intended to analyze what effects changes to the roads within the area would have on the overall road network by implementing potential mitigating/reducing cut through traffic strategies.

The Scope of Services describes the traffic analysis to be performed.

The estimated cost of the study is \$59,698, as reflected. The County and the Research Authority have further agreed to equally share the cost of the study and final report. Each party will be responsible for 50% of the cost, not to exceed \$35,000, each.

The Risk Management Division, Transportation Planning Division and the Public Works Engineering Division have reviewed the Agreement and found it acceptable. Also, the County Attorney's Office has reviewed the Agreement and found it acceptable as to form.

Action Requested: Approval and execution of Traffic Study Agreement for the Central Florida Research Park between the Orange County Research and Development Authority and Orange County, Florida in an estimated amount not to exceed \$35,000, each. District 5.

TRAFFIC STUDY AGREEMENT
for the
CENTRAL FLORIDA RESEARCH PARK
between the
ORANGE COUNTY RESEARCH AND DEVELOPMENT AUTHORITY and
ORANGE COUNTY, FLORIDA

This Agreement is made and entered into by and between the **Orange County Research and Development Authority**, a public instrumentality created and existing under the laws of the State of Florida in Orange County ("OCRDA"), and **Orange County, Florida**, a Charter County and political subdivision of the State of Florida ("County").

WITNESSETH:

WHEREAS, the County has the authority pursuant to Section 125.01, Florida Statutes, to enter into agreements with other governmental agencies for the performance of governmental functions;

WHEREAS, the OCRDA has the authority pursuant to Section 159.705 and Section 163.01, Florida Statutes, to enter into agreements with state and local political subdivisions to implement the public purposes of the OCRDA;

WHEREAS, the County requires professional traffic engineering services to study the existing traffic flow and effects of potential changes to the road network for the Central Florida Research Park;

WHEREAS, the OCRDA developed the Central Florida Research Park, located generally north of East State Road 50 and east of Alafaya Trail in unincorporated Orange County;

WHEREAS, certain segments of the road network in the Central Florida Research Park are owned and maintained by the OCRDA and by the County;

WHEREAS, the County intends to undertake a traffic study to focus on identifying trip origins and destinations relating to the Central Florida Research Park, and analyzing what effects changes to roads within the area would have on the overall road network;

WHEREAS, the study area will include the geographical area bounded by Chuluota Road to the east, SR 417 to the west, Mitchell Hammock Drive to the north, and Lake Underhill Road to the south;

WHEREAS, pursuant to a continuing contract for professional transportation planning engineering services (Contract #Y15-906-B), the County's consultant, HDR Engineering, Inc., will perform the traffic study and then prepare a final report by undertaking several tasks, including collecting data (traffic counts at specified locations, and origin/destination data), gathering employment and land use information, conducting modeling, determining levels of service, and conducting toll analyses, all as more specifically described in the Scope of Services dated July 18, 2018, attached hereto and incorporated herein as **Appendix "A"**;

WHEREAS, the parties estimate that the costs of the traffic study will be approximately \$59,698.03, as reflected in the estimate attached hereto and incorporated herein as **Appendix "B"**; and

WHEREAS, the OCRDA and the County agree to share in the costs of this traffic study as more fully set forth below.

NOW, THEREFORE, in consideration of the mutual covenants and promises herein contained, and other valuable consideration, the receipt and sufficiency of which are hereby

acknowledged and agreed, the OCRDA and the County agree as follows:

Section 1. Recitals.

The foregoing recitals are true and correct, and form a material part of this Agreement.

Section 2. Traffic Study and Final Report; Costs; Parties' Shares of Costs.

(a) *Traffic Study and Final Report.* The County shall direct its consultant to conduct a traffic study for the geographical area described in **Appendix "A"** (Scope of Services), and to perform the tasks outlined in **Appendix "A."** The County shall be primarily responsible for managing and overseeing the consultant with input from OCRDA. The County shall issue a notice to proceed for such study by not later than October 31, 2018, and the preliminary study shall be completed, and copies delivered to the County and OCRDA, not later than six (6) months after issuance of the notice to proceed. The consultant shall complete and deliver to the County and OCRDA a final report not later than four (4) weeks after receiving comments about the study from the County and OCRDA. Upon completion of the consultant's final report, the County shall provide a copy to the OCRDA.

(b) *Costs.* The parties' good faith estimate of the costs of the traffic study and ensuing final report is \$59,698.03. The County shall pay the consultant for its services in a lump sum or by several installments. Upon making the lump sum payment or paying the last installment, whichever is applicable, the County shall produce proof or receipt of such total payment to the OCRDA. Within thirty (30) days after receiving such proof or receipt, the OCRDA shall pay the County its share, as described in subsection 2(c).

(c) *Parties' Shares of Costs.* The OCRDA shall be responsible for fifty percent (50%) of the costs of the traffic study and final report, not to exceed \$35,000.00. The County shall be

responsible for fifty percent (50%) of the costs of the study and final report, plus any other amount that the OCRDA is not responsible for. However, if the OCRDA and the County agree to change the Scope of Services after the effective date of this Agreement, thereby resulting in higher costs, the OCRDA shall be responsible for fifty percent (50%) of those additional costs, notwithstanding its \$35,000.00 maximum contribution set forth above.

Section 3. Effective date.

This Agreement shall become effective on the date of approval and execution by the OCRDA, or on the date of approval and execution by the County, whichever date is later.

IN WITNESS WHEREOF, the OCRDA and the County have approved and executed this Agreement on the respective dates written below.

**ORANGE COUNTY RESEARCH AND
DEVELOPMENT AUTHORITY**

By: Joe Wallace
Joe Wallace, executive director

Date: 9/24, 2018

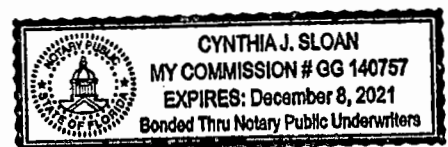
STATE OF FLORIDA
COUNTY OF ORANGE

The foregoing instrument was acknowledged before me this 24th day of September, 2018, by JOE WALLACE, who is personally known to me, or produced to me _____ as identification, as executive director of the Orange County Research and Development Authority, on behalf thereof.

NOTARY PUBLIC

Cynthia J. Sloan
Signature of notary public

(AFFIX SEAL)





ORANGE COUNTY, FLORIDA
By: Board of County Commissioners

By: *Teresa Jacobs*
Teresa Jacobs, Mayor

Date: *November 13*, 2018

ATTEST: Phil Diamond, CPA, County Comptroller
as Clerk of the Board of County Commissioners

By: *Katie Smith*
Deputy Clerk

Print Name: **Katie Smith**

Appendix "A"

July 18, 2018

Renzo Nastasi, AICP
Division Manager, Orange County Transportation Planning
4200 South John Young Parkway
Orlando, Florida 32839

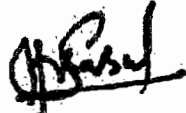
Re: Contract #Y15-906-B
Task Order #9: Research Parkway Study

Dear Mr. Nastasi:

Enclosed for your review and processing is the Scope of Services and Total Lump Sum Fee Calculation for Task Order #9. The rates are consistent with the master contract #Y15-906-B.

Should you have any questions or require further information, please do not hesitate to contact Hari Salkapuram, at (407) 420-4063 or hari.salkapuram@hdrinc.com.

Sincerely,
HDR ENGINEERING, INC.



Hari Salkapuram, PE
Project Manager

HDR ENGINEERING, INC.



Christine S. Kefauver, AICP
Vice President

C: Jeffrey Arms (HDR)
HDR Accounting Department

Scope of Services

This study shall focus on identifying trip origin and destinations with the Research Park and daily FDOT Generalized Level of Service (LOS) and analyzing what effects any changes made to this area, including widening or tolling of these interior roads, would have on the overall network. The study area shall include the sub-area model limits of Chuluota Road to the east, SR 417 to the west, Mitchell Hammock Drive to the north and Lake Underhill Road to the south as depicted in Figure 1.

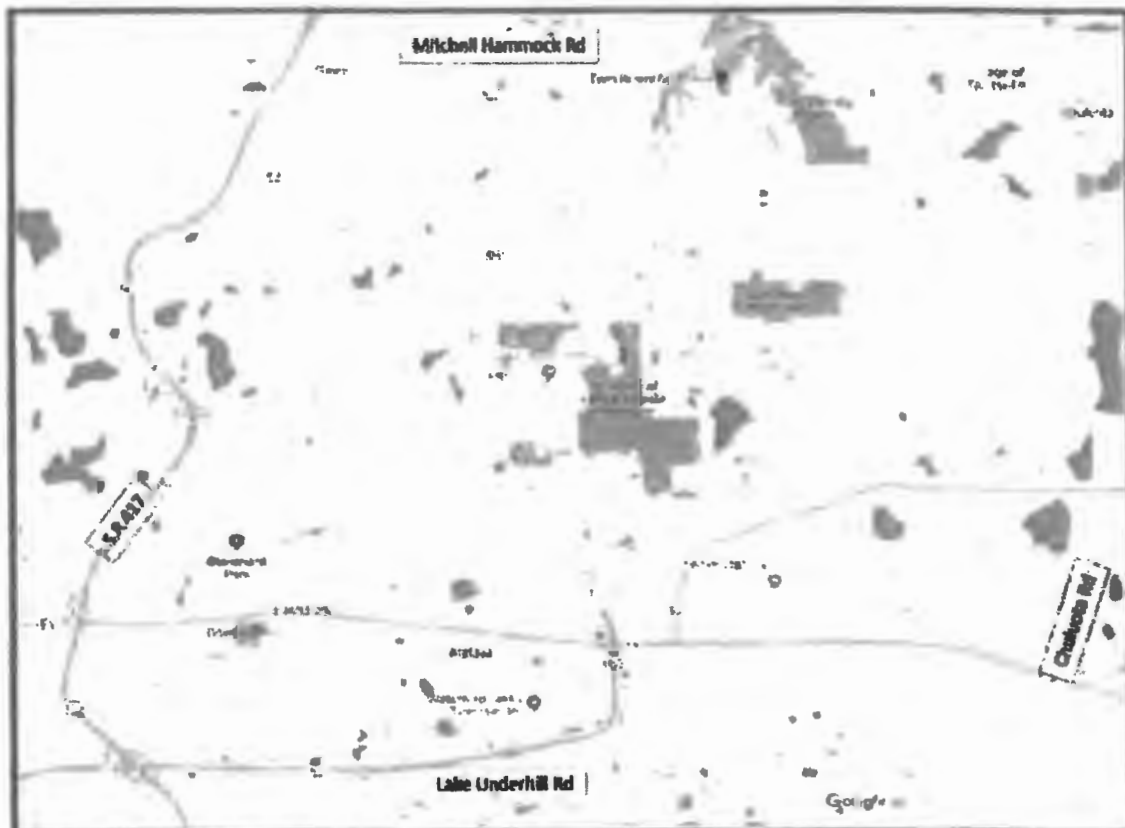


Figure 1: Study Roadways

The study shall include the collection of 72-hour volume counts, origin-destination data, travel demand modeling analysis utilizing the Orlando Urban Area Transportation Study (OUATS) for 2020 and 2040 analysis years for widening and tolling of needs on the overall network. The study shall utilize FDOT Generalized LOS tables to determine LOS for all internal roadways within the Research Park and all functionally classified roads external to both the Research Park and UCF for each scenario. The following tasks will be performed as part of this scope of work:

TASK 1: ADMINISTRATION AND COORDINATION ON THE STUDY

The Consultant will prepare progress reports, assemble and maintain project documentation, coordinate with the project team, and coordinate with County staff.

TASK 2: DATA GATHERING

Subtasks

2.1 Volume Counts

Collect traffic volume counts necessary to assess the need for widening or tolling on the overall network. 72-hour volume counts shall be collected on Tuesday, Wednesday and Thursday within the University of Central Florida (UCF) and the Research Park in pertinent roadway segments as indicated on the map shown in Figure 2 and listed in Table 1 during the scheduled Fall UCF semester.

Table 1: Volume Count Locations

| Location ID | Location |
|-------------|--|
| 1 | Centaurus Blvd - Alafaya Trl to Gemini Blvd |
| 2 | Central Florida Blvd- Alafaya Trl to Gemini Blvd |
| 3 | Discovery Dr - Ingenuity Dr to Research Pkwy |
| 4 | Gemini Blvd - N Alafaya Trl to Greek Park Dr |
| 5 | Gemini Blvd - Libra Dr to N Orion Blvd |
| 6 | Ingenuity Dr - Science Dr to Challenger Pkwy |
| 7 | Libra Dr - Research Pkwy to ARA Dr |
| 8 | North Orion Blvd - McCulloch Rd to Gemini Blvd |
| 9 | Research Pkwy - Alafaya Trl to Technology Pkwy |
| 10 | Science Dr - Alafaya Trl to Technology Pkwy |
| 11 | Science Dr - Technology Pkwy to Ingenuity Dr |
| 12 | Technology Pkwy - Research Pkwy to Science Dr |
| 13 | University Blvd - Alafaya Trl to Gemini Blvd |
| 14 | Research Pkwy - Technology Pkwy to Discovery Dr |
| 15 | Greek Park Dr – Gemini Blvd to Centaurus Blvd |
| 16 | North Orion Blvd - Home Run Ct to Gemini Blvd |



Figure 2: Volume Count Locations

Most recent traffic counts from the Orange County Annual Traffic Count Program will be used to supplement traffic count data.

2.2 Origin Destination (O-D) Data

Collect Streetlight O-D data to determine origins and destinations between entry/exit points to both the Research Park and UCF for pertinent roadway segments as indicated on the map shown in Figure 3 during the scheduled Fall UCF semester.



Figure 3: O/D Locations

2.3 Recent and Planned Roadway Improvements

The Orange County Transportation Improvement Plan, FDOT Work Program and future transit plans from the transit provider's Transit Development Plan will be reviewed to identify future plans for surrounding transportation network.

2.4 Research Parkway & UCF Land Use Data

Collect existing UCF and Central Florida Research Park (CFRP) employment and land use data. Review the University of Central Florida 2015-2025 Campus Master Plan Update, Central Florida Research Park (CFRP) Master Plan to identify future plans for UCF and CFRP and compare OUATS model land use data.

Deliverable – Data collection summary will be documented in the final report (electronic copies).

TASK 3: ANALYSIS OF DATA

Subtasks

3.1 Existing Conditions Analysis

The Consultant will obtain seasonal factors from the latest FDOT Traffic Online Web Application. Seasonal adjustments will be made to daily volume counts to obtain existing AADT. The Consultant will utilize county's Concurrency Management System LOS and capacity thresholds to conduct existing FDOT Generalized Level of Service (LOS) analysis for all internal roadways within the Research Park and all functionally classified roads external to both the Research Park and UCF.

Based on the O-D data collected in Task 2.2, the Consultant will develop a trip matrix and provide following trip information;

- Percentage and numbers of trips traveling through the Research Park and UCF (external-external to both).
- Percentage and number of trips traveling between the Research Park and UCF.
- Percentage and number of trips traveling to UCF through the Research Park.
- Percentage and number of trips traveling to the Research Park or UCF only.

Deliverable – Existing roadway analysis summary will be documented in the final report (electronic copies).

3.2 2020 and 2040 No-Build Conditions Analysis

The latest adopted OUATS model roadway network will be reviewed and compared with planned and programmed improvements as summarized in the Task 2.3. The OUATS model will also be reviewed for current and planned UCF and CFRP employment and land use collected in the Task 2.3 and OUATS. All modeling assumptions will be documented and necessary OUATS model roadway network and land use changes will be documented.

Historical roadway segment growth rates will be calculated for the data collection locations. OUATS model runs will be performed for Base Year (2010) and 2020 Cost Feasible model year and model annual growth rates will be calculated. A recommended annual growth rate will be developed after reviewing historical and model growth rates. The recommended growth rate will be applied to existing AADT from Task 2.1 to calculate 2020 and 2040 No-Build AADTs. FDOT Generalized LOS analysis will be calculated for 2020 and 2040 No-Build analysis years for the study roadway segments.

Deliverable – 2020 and 2040 No-Build scenario roadway analysis summary will be documented in the final report (electronic copies).

3.3 2020 and 2040 Toll Scenario Analysis

The "Toll" scenario is the effects of the future tolling of Discovery Drive/Libra Drive at the boundary of the Central Florida Research Park and UCF (just north of Research Parkway). Two Toll scenarios (\$ 0.5 and \$ 1.0) will be coded for 2020 and 2040 No-Build models developed in Task 3.2 and model runs will be performed.

Annual OUATS model growth rates will be calculated for Base Year (2010) and toll scenarios for 2020 and 2040 for both \$0.5 and \$ 1.0 model runs. A recommended growth rate will be developed for each scenario (four scenarios in total). The recommended growth rate will be applied to existing AADT from Task 2.1 to calculate 2020 and 2040 AADTs for \$0.5 and \$ 1.0 toll scenarios. FDOT Generalized LOS analysis will be calculated for the study roadway segments for 2020 and 2040 toll scenarios.

Deliverable – 2020 and 2040 toll scenario roadway analysis summary will be documented in the final report (electronic copies).

3.4 2040 Build Scenario Analysis

The "Build" scenario is the widening of both Ingenuity Drive and Discovery Drive to four lanes. The widening of both Ingenuity Drive and Discovery Drive to four lanes will be modeled in the 2040 OUATS toll models (No Toll, \$0.5 Toll and \$ 1.0 Toll scenarios) developed in Task 3.3 and model runs will be performed.

Annual OUATS model growth rates will be calculated between Base Year (2010) and Build scenarios for 2040 for No Toll, \$0.5 Toll and \$ 1.0 Toll scenarios. A recommended growth rate will be developed for each scenario. The recommended growth rate will be applied to existing AADT from Task 2.1 to calculate 2040 AADTs for, No Toll, \$0.5 Toll and \$ 1.0 Toll Build scenarios. FDOT Generalized LOS analysis will be calculated for the study roadway segments for 2040 Build scenario analysis.

Deliverable – 2040 Build scenario roadway analysis summary will be documented in the final report (electronic copies).

3.5 Sensitivity Analysis

The Consultant will compare and summarize results from tasks 3.1 through 3.4 for all study roadway segments. The Consultant will summarize potential revenue projections under each toll scenario and draw conclusions related to the effect of each scenario on the roadway network. A sensitivity analysis will be performed to estimate the year that roadway widening would be needed on Science Drive, Ingenuity Drive and Discovery Drive under each scenario. Sensitivity analysis will include the effect of each scenario on the roadway network, including functionally classified roads inside of the study area.

Deliverable – Sensitivity analysis summary will be documented in the final report (electronic copies).

TASK 4: RECOMMENDATION

Subtasks

4.1 Draft Report

A draft report summarizing the aforementioned tasks will be prepared and provided to Orange County for comments. An independent peer review of task products will be performed throughout the course of the study.

4.2 Final Report

After comments are received, the Consultant will update and finalize the report.

Deliverable – A draft and a final report of Research Park Study (electronic copies).

Schedule

The study will begin once written notice to proceed has been received from Orange County.

The Consultant will complete the draft research park study report within four months (16 weeks) of receiving the written notice to proceed for review by the Client. The final report will be completed and submitted within two (2) weeks of receipt of comments from the Client. It is expected that the scope of services for this study will be completed within five (5) months of receiving Notice to Proceed.

Fee

Work associated with Study Tasks 1-4 will be completed for a lump sum of \$59,698.03, including reimbursable expenses. This fee is detailed in the attached staff hours sheet. Any additional work or meetings beyond that specified above will be considered additional work, and will be billed on an hourly basis, plus reimbursable expenses, according to the contracted hourly rate schedule dated 8/15/2016.

**Orange County - Transportation Planning Division
Research Parkway Study
Staff-hour and Fee Estimate**

| Task/Description | Hourly Rates | | | | | | | | Hours | Rate/Cost | Remarks |
|---|--------------|-----------------|---------------------------|----------|------------------|------------------|----------------|------------|-------|--------------|--|
| | Principal | Project Manager | Assistant Project Manager | Engineer | Engineer Planner | Designer/Analyst | Administrative | Technician | | | |
| | \$165.00 | \$102.00 | \$77.00 | \$121.00 | \$121.00 | \$60.50 | \$40.30 | \$20.10 | | | |
| 1 Administration and Coordination on the Study | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | \$ 2,970.00 | 1) Kick-off Meeting (2 staff, 1 hr) 2) Progress meetings (24/Week, 6 meetings and notes, 1 staff, 6 hrs) 3) Recommendations Discussion Meeting (2 staff, 1 hr) 4) Accounting (8 hrs) |
| 2 Data Gathering | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | \$ 2,638.40 | |
| 2.1 Volume Counts | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | | \$ 264.10 | 1) Volume Counts GC |
| 2.2 Origin Destination (O-D) Data | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | | \$ 499.80 | 1) OD Counts GC |
| 2.3 Present and Planned Roadway Improvements | 0.0 | 0.0 | 0.0 | 1.5 | 1.5 | 0.0 | 0.0 | 0.0 | | \$ 428.25 | 1) Review FDOT Work Program. (0.5hr) 2) Review Metrolink LRP. (0.5hr) 3) Review Orange County TIF. (0.5hr) 4) Transit improvement plans review (0.5hr) 5) Summarize in a spreadsheet. (1hr) |
| 2.4 Research Parkway & UCF Land Use Data | 0.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | | \$ 655.30 | 1) Review OUARTS Land use for Base Year (2010), 2020 and 2040. (1 hr) 2) Review Orange County Property Appraiser for Land use data. (1 hr) 3) Review USF and Research Park Master Plans (1hr) 4) Coordinate with UCF & Research Park for employment details. (2hr) 5) Develop a comparison spreadsheet between OUARTS and existing data. (1hr) |
| 3 Analysis of Data | 0.0 | 0.0 | 0.0 | 86.0 | 70.0 | 0.0 | 0.0 | 0.0 | 288.0 | \$ 19,896.18 | |
| 3.1 Existing Conditions Analysis | 0.0 | 0.0 | 0.0 | 28.0 | 28.0 | 0.0 | 0.0 | 0.0 | | \$ 7,658.64 | 1) Develop a roadway segment spreadsheet (24hrs). 2) Collect segment features and apply to volume counts to obtain existing AADT (4hrs) 3) Conduct FDOT Generalized (L.OB) (4 hrs) 4) Develop existing OD trip matrices (24hrs). |
| 3.2 2020 and 2040 No-Build Conditions Analysis | 0.0 | 0.0 | 0.0 | 10.0 | 10.0 | 0.0 | 0.0 | 0.0 | | \$ 4,781.42 | 1) Review adopted OUARTS roadway network for 2020 and 2040 and make any adjustments (4hrs) 2) Review adopted OUARTS land use data for 2020 and 2040 and make any adjustments (4hrs) 3) Calculate historical growth rates (8hrs) 4) Perform OUARTS model runs and extract model volumes for 2020 and 2040 (4 hrs) 5) Calculate OUARTS growth rates for 2020 and 2040 (6 hrs) 6) Develop recommended growth rates for 2020 and 2040 (4 hrs) 7) Conduct FDOT Generalized (L.OB) for 2020 and 2040 (4 hrs) |
| 3.3 2020 and 2040 Toll Scenario Analysis | 0.0 | 0.0 | 0.0 | 10.0 | 10.0 | 0.0 | 0.0 | 0.0 | | \$ 2,641.30 | 1) Code two toll scenarios (\$ 0.5 and \$ 1.0) for 2020 and 2040 (2hr). 2) Perform OUARTS model runs and extract model volumes for 2020 and 2040 (4 hrs) 3) Calculate OUARTS growth rates for 2020 and 2040 (6 hrs) 4) Develop recommended growth rates for 2020 and 2040 (4 hrs) 5) Conduct FDOT Generalized (L.OB) for 2020 and 2040 (4 hrs) |
| 3.4 2020 and 2040 Build Scenario Analysis | 0.0 | 0.0 | 0.0 | 10.0 | 10.0 | 0.0 | 0.0 | 0.0 | | \$ 2,641.30 | 1) Code four toll scenarios of both Ingressivity Choke and Discovery Choke for 2020 and 2040 (2hr). 2) Perform OUARTS model runs and extract model volumes for 2020 and 2040 (4 hrs) 3) Calculate OUARTS growth rates for 2020 and 2040 (6 hrs) 4) Develop recommended growth rates for 2020 and 2040 (4 hrs) 5) Conduct FDOT Generalized (L.OB) for 2020 and 2040 (4 hrs) |
| 3.5 Sensitivity Analysis | 0.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | | \$ 1,168.82 | 1) Develop a comparison spreadsheet between No-Build, Toll Scenario and Build Scenario for 2020 & 2040 (4hrs). 2) Sensitivity analysis to estimate the roadway widening need year (1hr). |
| 4 Recommendations | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 40.0 | 0.0 | 0.0 | 60.0 | \$ 6,634.70 | |
| Draft Report | 0.0 | 0.0 | 0.0 | 12.0 | 20.0 | 40.0 | 0.0 | 0.0 | | \$ 6,493.72 | 1) Draft Report (24 hrs). 2) Figures (40hrs). 3) Appendices (8 hrs). |
| Final Report | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | | \$ 2,450.98 | 1) Comments and Responses (8 hrs). 2) Update Report (8 hrs). 3) Update Figures (4 hrs). 4) Update Appendices (2 hrs). |
| Grand Total | 2.0 | 0.0 | 0.0 | 127.0 | 117.0 | 44.0 | 0.0 | 0.0 | 366.0 | \$ 23,559.38 | |

[illegible]

| | |
|-----------------------|--------------------|
| Reproduction/Printing | \$200.00 |
| StreetLight CD Data | \$14,500.00 |
| Other | - |
| Total | \$14,700.00 |

| | | |
|--------------------|----|-----------|
| Leased Labor Costs | \$ | 42,000.00 |
| Direct Costs | \$ | 14,788.00 |
| Subcontractors | | 4,542.87 |

Accurate Traffic Counts. - Manhour and Fee Estimate

LOCATION:

Orange County's Research Park Study

WPI NO.:

N/A

FINANCIAL ID NO.:

Orange County Data Collection

TYPE PROJECT:

Y15-006-B

CONTRACT NO.:

ACCURATE TRAFFIC COUNTS, INC.

CONSULTANT NAME:

407-678-0605

CONSULTANT PHONE NO.:

ATC PROJECT NO.:

PROJECT NAME: Continuing Professional Transportation Planning Engineering Services

Limit - From:

Limit - To:

County: Orange

Project Mgr: Santiago S. Franceschini

Fax No.: 407.678.3299

| Task No. | Task Description | Project Manager \$100.17 | Project Analyst \$64.29 | Senior Technician \$35.88 | Traffic Count Technician \$31.40 | Traffic Technician \$43.36 | Total Hours by Task | Salary Cost by Task | Average Rate per Task |
|---------------|--|-----------------------------|----------------------------|------------------------------|-------------------------------------|-------------------------------|---------------------|---------------------|-----------------------|
| 1.1 | 24 Hours Approach Count Intersection Three Approaches | 0 | 0 | 0 | 0 | 0 | 0 | \$0.00 | #DIV/0! |
| 1.2 | 24 Hours Approach Count Intersection Four Approaches | 0 | | 0 | 0 | 0 | 0 | \$0.00 | #DIV/0! |
| 2.1 | 8 Hours Turning Movement Counts One Intersection | 0 | | 0 | | 0 | 0 | \$0.00 | #DIV/0! |
| 3.1 | Delay Study One Location | | | 0 | | 0 | 0 | \$0.00 | #DIV/0! |
| 4.1 | 72 Hours Volume Bi Directional Counts 14 Locations | 7 | | 45 | 45 | 28 | 125 | \$4,942.87 | 39.54 |
| TOTALS | | 7 | 0 | 45 | 45 | 28 | 0 | \$4,942.87 | 39.54 |

StreetLight InSight® Proposal: HDR-Central Florida Research Parkway Study

Project Description

HDR is working to understand driving behavior in Research Park and UCF on behalf of Orange County

This proposal explains which *StreetLight InSight* Metrics are available and pricing for various tiers that could contribute to accurate understanding of travel patterns.

About StreetLight InSight

StreetLight Data is the first company that makes it easy, affordable, and efficient to collect real-world transportation data. We bring mobility patterns to light for planners, modelers, and engineers by giving them on-demand access to the best Big Data resources and processing software for transportation. Our online platform, StreetLight InSight®, is the only web application that lets you turn anonymous location data from millions of mobile devices into customized, actionable analytics. We make it easy to put Big Data to work for infrastructure and policy planning.

StreetLight InSight users can access customized analytics like origin-destination, select link, travel time, routing, and more in just a few mouse clicks –without downloading any software. This is what sets *StreetLight InSight* apart:

- **The Best Big Data Sources:**
 - Access to multiple types of real-world, empirical geospatial data created by mobile devices. We add new, up-to-date location data sets to our repositories monthly.
 - Large sample of comprehensive, representative data sets that cover nearly 25% of the combined US and Canadian populations as a whole.
 - Data are scalable and appropriate for micro, meso, and macro studies thanks to their high spatial precision.
- **On-Demand Processing Software:**
 - Easy-to-use software platform allows users to independently run their own analytics on demand with specific, customized parameters (i.e.: type of day, time of data, commercial or personal vehicle trips, etc.).

STREETLIGHT[®]DATA

- Quick and efficient processing times mean that most analytics ready in minutes and more complex studies available in hours, enabling staff to focus more time and energy on planning and problem-solving than data-crunching.
- Software-as-a-service subscription model allows agencies to run an unlimited number of analyses within their geography without incremental costs, making it affordable to collect data regularly and to study behavior changes over time.
- **Actionable Analytics:**
 - Analytics are purpose-built for transportation planning and engineering projects and designed to facilitate project performance measurement.
 - Analytics are downloadable as .CSV files, so it is easy to use them with other modeling and analysis tools and combine them with existing data resources.

StreetLight InSight uses StreetLight's proprietary analytic processing engine, *Route Science*[®], to derive the analytics the user needs from Big Data. *Route Science* algorithmically integrates trillions of spatial data points from millions of devices—smart phones, connected cars, fleet management systems, and more—into travel patterns. It also incorporates dozens of additional spatial and statistical data sets like census and land use information, which enhances these *StreetLight InSight Metrics*' contextual richness.

Key processing steps include:

- **Anonymization:** All data is anonymous. All Metrics describe groups, never individuals, to protect privacy.
- **Data Cleaning:** False signals from inbound data are removed.
- **Patternization:** Data is organized into trips and series of activities, including the identification of trip origins and destinations, and the route taken along the road network.
- **Contextualization:** Information like speed limits, road network presence, and census data adds rich, critical insights to Metrics.
- **Metric Creation:** Users specify queries (i.e.: geographic regions, or Zones, time parameters, and more), then *StreetLight InSight* quickly delivers Metrics as CSVs and visualizations as described below.

Nearly 2,000 users across Canada and the US have regularly used *StreetLight InSight* to create analytics that support their key projects.

Summary of Product Offering

StreetLight InSight Metrics and Subscription Tiers

The subscription will provide access to StreetLight InSight to obtain specific Metrics. Detailed descriptions of each Metric are found in the appendix. Users may use get the Bronze, Silver, Gold or Platinum Tier.

| Bronze Tier Subscription: Included Metrics <i>Available as .shp files CSV files, and visualizations</i> | |
|--|--|
| Origin-Destination Matrix | Relative volume and average travel time of commercial and personal trips between Origin and Destination Zones. Users may enter both origins and destinations of their choice, or use a standard geography such as "all ZIP Codes." |
| Origin-Destination + Middle Filter (combine with O-D for Routing) | Relative volume and average travel time of trips that pass through Middle Filter Zones, or links, when traveling between Origin & Destination Zones |
| Zone Activity Analysis | Relative volume, average travel time, and average length of trips that originate in, have destinations in, or pass through each Zone analyzed |
| <i>All Metrics are available as normalized StreetLight Index values and estimated vehicle counts. Estimated vehicle counts can be automatically scaled from Index values in StreetLight InSight when users upload their local ADT, AADT, or similar data using the StreetLight InSight Calibration Feature. For estimated Volumes, use the StreetLight Volume: 2016 AADT in Gold Tier package.</i> | |

| Silver Tier Subscription: Included Metrics <i>All Bronze Tier Metrics, Plus</i> | |
|---|--|
| Trip Attributes | <ul style="list-style-type: none"> • Trip duration, • Trip length, • Trip speed, • Trip circuitry, <p>Trip Attributes Metrics are provided as an average and as a distribution of values into customizable bins.</p> |
| Traveler Attributes | <ul style="list-style-type: none"> • Trip purpose (Home-, Work-, or Other-based combinations), • Demographics of Travelers (Household income, Race, Education level of head of household, and family status, <p>Distribution of Home places and Work places for people who visit a Zone, including the share of visitors who are from out of town and the state or metropolitan statistical area they are from</p> |

STREETLIGHTDATA

| | |
|--|--|
| Commercial Weight Classes | Heavy Duty (>26,000 lbs) vs. Medium Duty (14,000 – 26,000 lbs) for commercial vehicles |
| Visitor Home-Work Analysis | Home and Work Locations of Visitors to Zones by ZIP Code, blockgroup, or grid. This includes the home ZIP code for domestic tourists. |
| Segment Analysis | Provides the relative volume, average speed, duration of trips, and “Free Flow Factor” of trips through corridors. The Free Flow factor represents a ratio of the average trip speed for the Day Part to the maximum average trip speed for the segment in any hour during the entire Data Period. |
| <i>Trip Attributes Metrics are provided as both an average value and as a distribution of values into customizable bins.</i> | |

| Gold Tier: <i>All Metrics in the Bronze and Silver Tiers, Plus</i> | |
|--|--|
| Origin-Destination to Pre-Set Geography | Origin-Destination by ZIP Code, Census Block Group or Census TAZs, to a corresponding set of Zones. This project type is ideal if you do not know your full Zone matrix, and instead want to see how a set of Zones relates to standard geographies. |
| StreetLight Volume: 2016 AADT (BETA) | Average annual daily traffic in 2016. (Note: This Metric is provided as an estimated count. It is derived from multiple data sources, including both navigation-GPS and Location-Based Services data.) |
| Trends Over Time | “Trends Over Time” enables rerunning any Project up to 12 times for different Data Periods (e.g. Jan 2017 vs. Feb 2017, Summer vs Winter). This enables analysis of trends over time. Each Data Period can be between 1 and 24 months long. |

| Platinum Tier: <i>All Metrics in the Bronze, Silver and Gold Tiers, Plus</i> | |
|--|---|
| Traffic Diagnostics | Speed, duration, O-D pairs by TAZ, AADT, demographics, purpose and congestion of trips through corridors. Includes interactive visualizations and ranked congestion mitigation tactics. |

All Subscriptions allow customization of the following Project Options:

| Project Options <i>Ways to Customize Every Set of Metrics Processed In StreetLight InSight</i> | |
|--|--|
| Custom Day Types | Define Weekends and Weekdays |
| Custom Day Parts | Up to 25 Day Parts; customize with bins as small as one hour |
| Data Period | Choose the months to analyze, from January 2014 to 1-2 months ago; data periods must be at least one month long |
| Specific Date | <p>The ability to use specific calendar days as a Data Period or different "collections" of days as a new Day Type. This feature will allow you to also exclude certain days from a Data Period.</p> <p><i>Note: Specific Date is Included only in Silver, Gold, and Platinum subscriptions. It is not Included in Bronze subscriptions.</i></p> |
| Trip Type | Commercial trips vs. Personal trips |
| Data Source | Navigation-GPS (GPS) and/or Location Based Services (LBS). The system recommends or requires certain data sources for certain types of Zones and analyses. However, the user may select which data source to use for several Metrics. |

Delivery of the Metrics will be via Client use of *StreetLight InSight*.

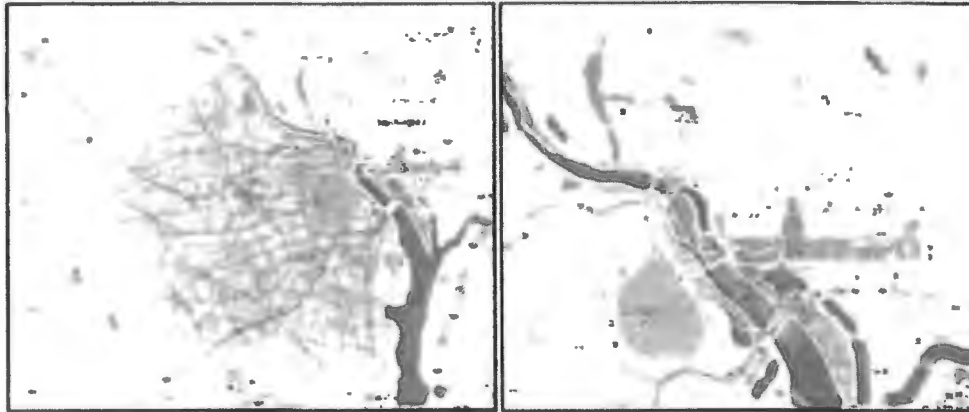
Data Period

The Data Period covers the time studied in the project analysis. The Client will select the desired Data Periods using *StreetLight InSight*. This proposal assumes a single aggregate Data Period such as "all 2015" or "Q1 2016" unless the Gold or Platinum Tier is selected. Data Period(s) must be at least one calendar month long and can be up to 24 months long.

Using StreetLight InSight

Step 1: Create Zones

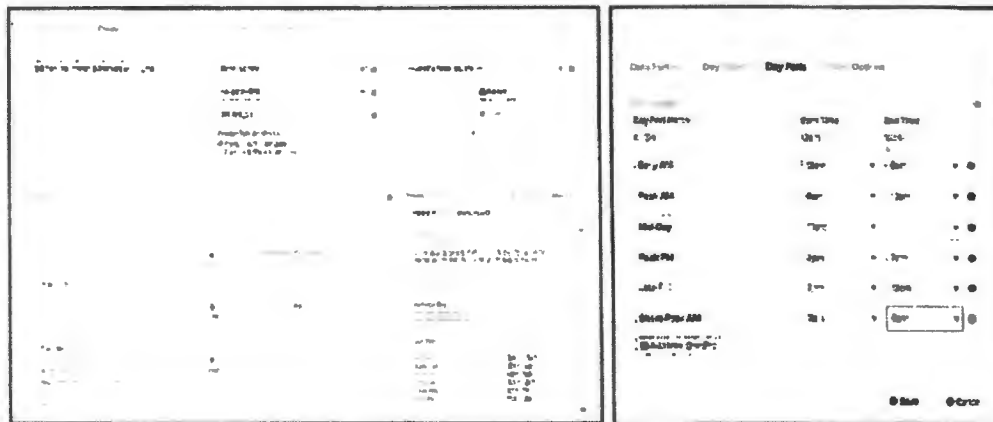
Users can designate “Zones” in *StreetLight InSight* in two ways: By uploading a standard shapefile, or by drawing Zones in our interactive “Add Zone Set” module (see figure below). Zones can be any standard geography (e.g. ZIP postal codes, neighborhood boundaries) or they can be unique, customized shapes.



Above: *StreetLight InSight* screenshots of area Zones and road segment Zones

Step 2: Define a Project

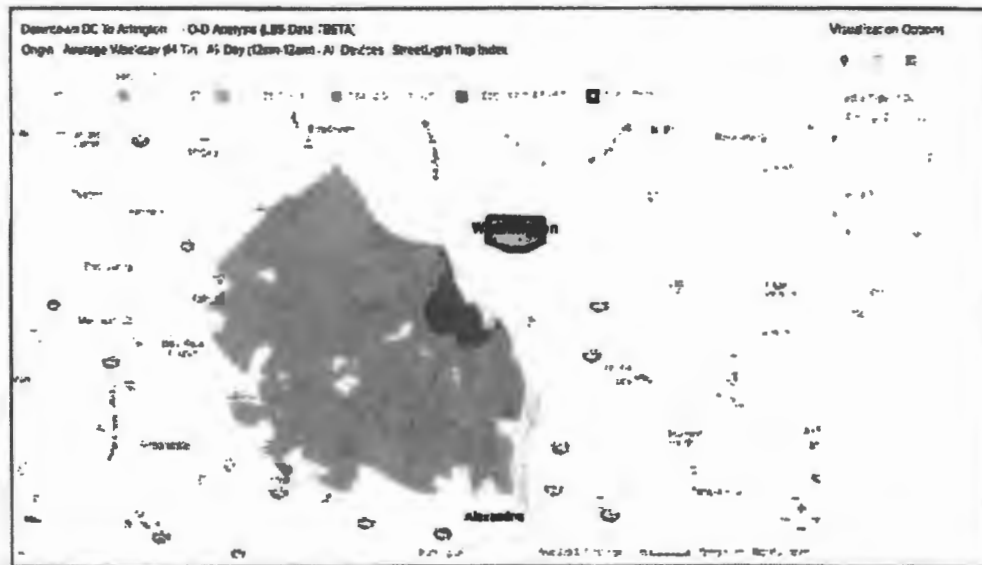
After uploading or drawing Zones in *StreetLight InSight*, users create their projects. This step includes defining Zones as origins or destinations, and setting key parameters such as time periods to study, day part definitions, trip types, and other specifications (see figures below).



Above: Setting up an Origin-Destination analysis and customizing day parts in *StreetLight InSight*

Step 3: Visualize Maps and Charts of the Results

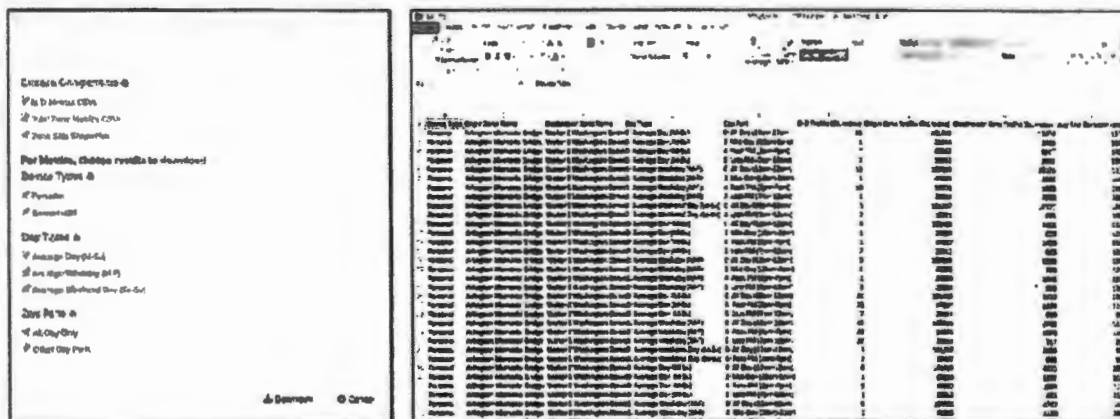
Users can visualize travel patterns within *StreetLight InSight* (see figure below). There are simple toggles so that travel patterns can be visualized as maps or as charts at specific day parts, times of day, and more.



Above: Visualizing Origin-Destination patterns at different times and types of day in *StreetLight InSight*

Step 4: Download Results

All *StreetLight InSight* Metrics can be downloaded for further analysis and manipulation in Microsoft Excel or other analysis tools (see figure below).



Above: Selecting Metrics to download and analyzing O-D Metrics in a CSV file using Microsoft Excel

Authorized Users

Staff members who work on transportation and attend a basic training session will be allowed access to the web application.

Geographic Limit

HDR will be limited to running analyses for trips that start, end, or pass through the study area.

Support

The StreetLight Data team will provide access to an on-demand "Introduction to StreetLight InSight" training that are open to all StreetLight customers, support by phone, email and through the StreetLight Online Support Center for the duration of the subscription.

Subscription Fee

StreetLight Data provides subscription-based licenses to our products, for use by transportation engineering firms and others to support their clients. StreetLight Data is not a professional services firm and does not participate directly in project teams as a sub-consultant. The standard way to include StreetLight Data in the process is to consider us a vendor. StreetLight InSight subscriptions include basic training, access to the support portal, and limited phone and email-based support for this project.

STREETLIGHTDATA

Subscription fees are dependent upon the **Tier of Subscription** and on the **Number of Zones** in the geographic region where projects are served by the consultant.

| Annual Subscription Fee – Option 1 | |
|------------------------------------|--|
| | <ul style="list-style-type: none">• Bronze Tier• 1-50 Zones |
| \$5,000 | |

Note – If the same Zone is used as an origin and a destination, it counts as two Zones.

OR

| Annual Subscription Fee – Option 2 | |
|------------------------------------|--|
| | <ul style="list-style-type: none">• Gold Tier• 1-50 Zones |
| \$14,500 | |

Note – If the same Zone is used as an origin and a destination, it counts as two Zones.

This quote is valid until August 2nd, 2018

Contact Information

| | |
|----------------|--|
| Organization | StreetLight Data |
| Contact Person | Kim Harrison, Eastern Region Territory Manager |
| Phone Number | 415.504.1960 |
| Email Address | Kimberly.harrison@streetlightdata.com |

Appendix: Glossary of *StreetLight InSight* Terms

Basic Metrics: Metrics included in all subscriptions. They include Origin/Destination, Origin Destination with Middle Filter, and Zone Analysis.

Circuity: The average and distribution of circuity for trips between Zones, or at a Zone. Circuity is defined as (length of trip) / (crow's flight distance between start and end point).

Day Part: Grouping of hours-of-the-day for an analysis. If defaults are not appropriate, users can customize these values.

Day Type: Grouping of days-of-the-week for an analysis. If defaults are not appropriate, users can customize these values.

Device Type: Type of vehicle analyzed.

Heavy-Duty and Medium-Duty Trucks: When we receive the raw data from our partner INRIX, data that is coming from a Commercial Fleet Management System is tagged as such. The Commercial data is also tagged by Weight Class by our provider. The weight ranges in the classes are: Medium = 14000-26000 lbs, Heavy > 26000 lbs. We do not provide Metrics on Light Duty commercial vehicles at this time.

Home-Work Trip Purpose: Estimates the share of trips in an analysis that are Home-Based Work, (travel between home and work in either direction), Home-Based Other (Travel to and from the home, to anywhere other than work), and

Origin-Destination with Middle Filter (combine with O-D for Routing): Relative volume and average travel time of trips that pass through Middle Filter Zones, or links, when traveling between Origin & Destination Zones.

Origin-Destination to Pre-Set Geography Analysis: Origin-Destination by ZIP Code, Census Block Group or Census TAZs, to a corresponding set of Zones. This project type is ideal if you do not know your full Zone matrix, and instead want to see how a set of Zones relates to standard geographies.

Project Options: Available for most project types – these allow the user to configure options such as day parts, day types, data source, etc before running an analysis.

Project: A “run” or “query” within StreetLight InSight. The user selects zones, project type, and project options for each project, then runs the project by clicking “confirm.”

StreetLight Volume: 2016 AADT (BETA): Average annual daily traffic in 2016. (Note: This Metric is provided as an estimated count. It is derived from multiple data sources, including both navigation-GPS and Location-Based Services data.)

Segment Analysis: Provides the relative volume, average speed, duration of trips, and “Free Flow Factor” of trips through corridors. The Free Flow factor represents a ratio of the average

STREETLIGHTDATA

trip speed for the Day Part to the maximum average trip speed for the segment in any hour during the entire Data Period.

Trip Duration (sec): The average and distribution trip time in seconds for trips between Zones, or at a Zone.

Trip Length (mi): The average and distribution of trip length in miles for trips between Zones, or at a Zone.

Trip Speed (mph): The average trip and distribution of speed in miles per hour for trips between Zones, or at a Zone.

Visitor Home-Work Analysis Project: Distribution of Home places and Work places for people who visit a Zone, including the share of visitors who are from out of town and the state or metro area they are from.

Zone Activity Analysis: Relative volume of trips that originate in, have destinations in, or pass through each Zone analyzed.

Zone Traffic (StL Index): StreetLight Trip Index value representing the relative volume of all trips at a Zone. Depending on whether the Zone is pass-through or not, this will represent trips that pass through the Zone, or trips that start or end in the Zone.

Appendix "B"

Orange County - Transportation Planning Division Research Parkway Study Staff-hour and Fee Estimate

| Task Description | Hours / Rates | | | | | | | | | Totals | Remarks |
|--|---------------|-----------------|---------------------------|---------------------------|--------------------|--------------------|----------------|------------|---------|--------------|---|
| | Principal | Project Manager | Assistant Project Manager | Senior Engineer / Planner | Engineer / Planner | Designer / Analyst | Administrative | Technician | | | |
| | \$206.48 | \$195.34 | \$172.47 | \$185.45 | \$127.17 | \$111.32 | \$77.91 | \$57.48 | Project | Labor Cost | |
| Traffic Signal Warrant Studies | | | | | | | | | | | |
| 1 Administration and Coordination on the Study | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | \$ 2,273.94 | 1) Kick-off Meeting (2 staff, 1 hr) 2) Program meetings (5th Weekly, 6 meetings and notes, 1 staff, 6 hrs) 3) Recommendations Discussion Meeting (2 staff, 1 hr) 4) Accounting (8 hrs) |
| 2 Data Gathering | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.0 | \$ 2,035.40 | |
| 2.1 Volume Counts | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | | \$ 284.13 | 1) Volume Counts OC |
| 2.2 Origin Destination (O-D) Data | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | | \$ 470.69 | 1) OD Counts OC |
| 2.3 Recent and Planned Roadway Improvements | 0.0 | 0.0 | 0.0 | 1.5 | 1.5 | 0.0 | 0.0 | 0.0 | | \$ 426.30 | 1) Review FDOT Work Program. (0.5hr) 2) Review MetroPlan LRTF. (0.5hr) 3) Review Orange County TIF. (0.5hr) 4) Transit/Improvement plans review (0.5hr) 5) Summarize in a spreadsheet. (1hr) |
| 2.4 Research Parkway & UCF Land Use Data | 0.0 | 0.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 0.0 | | \$ 852.39 | 1) Review OUATS Land use for Base Year (2010), 2020 and 2040. (1 hr) 2) Review Orange County Property Appraiser for Land use data. (1 hr) 3) Review USF and Research Park Master Plans (1hr) 4) Coordinate with UCF & Research Park for employment details. (2hrs) 5) Develop a comparison spreadsheet between OUATS and existing data. (1hr) |
| 3 Analysis of Data | 0.0 | 0.0 | 0.0 | 66.0 | 70.0 | 0.0 | 0.0 | 0.0 | 138.0 | \$ 10,596.18 | |
| 3.1 Existing Conditions Analysis | 0.0 | 0.0 | 0.0 | 28.0 | 28.0 | 0.0 | 0.0 | 0.0 | | \$ 7,605.94 | 1) Develop a roadway segment spreadsheet (24hrs) 2) Collect seasonal factors and apply to volumes counts to obtain existing AADT (4hrs) 3) Conduct FDOT Generalized (LOS) (4 hrs) 4) Develop existing OD by direction (24hrs) |
| 3.2 2020 and 2040 No-Build Conditions Analysis | 0.0 | 0.0 | 0.0 | 18.0 | 18.0 | 0.0 | 0.0 | 0.0 | | \$ 4,781.42 | 1) Review adopted OUATS roadway network for 2020 and 2040 and make any adjustments (4hrs) 2) Review adopted OUATS land use data for 2020 and 2040 and make any adjustments (4hrs) 3) Calculate historical growth rates (8hrs) 4) Perform OUATS model runs and extract model volumes for 2020 and 2040 (4 hrs) 5) Calculate OUATS growth rates for 2020 and 2040 (8 hrs) 6) Develop recommended growth rates for 2020 and 2040 (4 hrs) 7) Conduct FDOT Generalized (LOS) for 2020 and 2040 (4 hrs) |
| 3.3 2020 and 2040 Toll Scenario Analysis | 0.0 | 0.0 | 0.0 | 10.0 | 10.0 | 0.0 | 0.0 | 0.0 | | \$ 2,641.30 | 1) Code two toll scenarios (\$ 0.5 and \$ 1.0) for 2020 and 2040 (2hr) 2) Perform OUATS model runs and extract model volumes for 2020 and 2040 (4 hrs) 3) Calculate OUATS growth rates for 2020 and 2040 (8 hrs) 4) Develop recommended growth rates for 2020 and 2040 (4 hrs) 5) Conduct FDOT Generalized (LOS) for 2020 and 2040 (4 hrs) |
| 3.4 2020 and 2040 Build Scenario Analysis | 0.0 | 0.0 | 0.0 | 10.0 | 10.0 | 0.0 | 0.0 | 0.0 | | \$ 2,641.30 | 1) Code four lane widening of both Irongate Drive and Discovery Drive for 2020 and 2040 (2hr) 2) Perform OUATS model runs and extract model volumes for 2020 and 2040 (4 hrs) 3) Calculate OUATS growth rates for 2020 and 2040 (8 hrs) 4) Develop recommended growth rates for 2020 and 2040 (4 hrs) 5) Conduct FDOT Generalized (LOS) for 2020 and 2040 (4 hrs) |
| 3.5 Sensitivity Analysis | 0.0 | 0.0 | 0.0 | 4.0 | 4.0 | 0.0 | 0.0 | 0.0 | | \$ 1,136.52 | 1) Develop a comparison spreadsheet between No-Build Toll Scenario and Build Scenarios for 2020 & 2040 (4hrs) 2) Sensitivity analysis to estimate the roadway widening need year (4hrs). |

**Orange County - Transportation Planning Division
Research Parkway Study
Staff-hour and Fee Estimate**

| Task Description | Hours / Rates | | | | | | | | Hours | Labor Cost | Fringe |
|-----------------------------------|---------------|-----------------|---------------------------|------------------------|--------------------|--------------------|----------------|------------|-------|--------------|--|
| | Principal | Project Manager | Assistant Project Manager | Sr. Engineer / Planner | Engineer / Planner | Designer / Analyst | Administrative | Technician | | | |
| 4 Recommendations | 0.0 | 0.0 | 0.0 | 20.0 | 20.0 | 40.0 | 0.0 | 0.0 | 80.0 | \$ 10,080.00 | |
| Draft Report | 0.0 | 0.0 | 0.0 | 72.0 | 20.0 | 40.0 | 0.0 | 0.0 | | \$ 8,483.72 | 1) Draft Report (24 hrs). 2) Figures (40hrs). 3) Appendices (8 hrs). |
| Final Report | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.0 | 0.0 | | \$ 2,450.06 | 1) Comments and Responses (8 hrs). 2) Update Report (6 hrs). 3) Update Figures (4 hrs). 3) Update Appendices (2 hrs). |
| Study Subtotal: | 0.0 | 0.0 | 0.0 | 161.5 | 100.5 | 44.0 | 0.0 | 0.0 | 201.5 | \$ 14,797.32 | |
| Supervision | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | \$ 2,628.82 | 5% |
| Quality Assurance/Quality Control | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | \$ 2,628.82 | 5% |
| Study Total | 0.0 | 0.0 | 0.0 | 161.5 | 100.5 | 44.0 | 0.0 | 0.0 | 201.5 | \$ 17,426.14 | |

| Subconsultant Costs | |
|----------------------|-------------|
| ATC | \$ 4,942.87 |
| Total Subconsultants | 4,942.87 |

| Estimated Direct Costs | |
|------------------------|-------------|
| Reproduction/Printing | \$200.00 |
| Streetlight OD Data | \$14,000.00 |
| Other | - |
| Total Direct Costs | \$14,200.00 |

| Reproduction | | | | |
|------------------|--------|-----|--------|-----------------|
| B&W - 8.5x11 | sheets | 0 | \$0.05 | \$0.00 |
| B&W - 8.5x14 | sheets | 0 | \$0.05 | \$0.00 |
| B&W - 11x17 | sheets | 0 | \$0.12 | \$0.00 |
| BLU/BL - 24x36 | sheets | 0 | \$0.48 | \$0.00 |
| BLU/BL - 30x42 | sheets | 0 | \$0.70 | \$0.00 |
| Color - 8.5x11 | sheets | 0 | \$1.00 | \$0.00 |
| Color - 11x17 | sheets | 100 | \$2.00 | \$200.00 |
| Folding | SF | 0 | \$1.00 | \$0.00 |
| Sub-Total | | | | \$200.00 |

| Labor Costs | | | |
|---------------------------|------------|------------|--------------------|
| Staff Category | Hours | Labor Rate | Dollars |
| Principal | 16 | 236.94 | 3,791.04 |
| Project Manager | 10 | 195.16 | 1,951.60 |
| Assistant Project Manager | 0 | 172.20 | - |
| Sr. Engineer / Planner | 101.5 | 166.46 | 16,896.73 |
| Engineer / Planner | 100.5 | 117.87 | 11,846.99 |
| Designer / Analyst | 44 | 103.32 | 4,546.08 |
| Administrative | 0 | 88.01 | - |
| Technician | 0 | 51.65 | - |
| Total Staff | 262 | | \$40,982.44 |

| Fee Estimate | |
|--------------------|---------------------|
| Loaded Labor Costs | \$ 40,982.44 |
| Direct Costs | \$ 14,200.00 |
| Subconsultants | 4,942.87 |
| Total | \$ 59,998.03 |