

HATEM A. ABOU-SENNA, Ph.D., P.E.
4000 Central Florida Blvd.
Orlando, FL-32816, USA
(407)-823 0808 (O) (407)-970 7271 (C)
Hatem.Abou-Senna@ucf.edu

BACKGROUND SUMMARY

Twenty years of experience in roadway design, transportation planning and traffic engineering for public and private corporations with extensive knowledge in transportation-related softwares. Broad experience in microscopic traffic simulation, transportation modeling, design traffic for Project Development and Environment (PD&E) Studies, as well as transportation impacts and capacity analyses. Ability to work effectively in a multi-disciplined team with an understanding of most problems related to civil works. Clear and confident communication skills with the ability to meet deadlines and prioritize actions.

EDUCATION

Professional Engineer (FL P.E. # 64658)	6/2006
Engineering Intern (E.I. # 1100009631)	2/2005
University of Central Florida (UCF)	Orlando, Florida
PhD in Transportation Engineering	9/2008 – 12/2012
Masters of Science in Transportation Engineering	5/2001 – 12/2003
GPA: 3.96/4.0	
Cairo University	Cairo – Egypt
Masters of Engineering in Highways, Traffic & Airports	10/1998 – 5/2000
GPA: 3.6/4.0	
American University in Cairo (AUC)	Cairo-Egypt
Professional Program in Project Management	8/1995 – 12/1995
Cairo University	Cairo – Egypt
Bachelor of Science in Civil Engineering	10/1988 – 5/1993

COMPUTER SKILLS

- Traffic Simulation: CORSIM, PARAMICS, VISSIM5.3, and SIMTRAFFIC8
 - Timing Traffic signals: Synchro8, HCS+T7F (ver 5.3), Signal 2000 (TEAPAC).
 - Transportation Modeling / Trip Generation: FSUTMS, CUBE6 / TIPS, OTISS
 - Mobile Source Emissions: Environmental Protection Agency (EPA) – MOVES2010
 - Roadway design: AutoCAD, Land Development 2005
 - Geographic Information Systems (GIS): ArcGIS 10
 - Planning & follow up of projects: Primavera P3 ver.3.0 and MS project
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AWARDS

University of Central Florida (UCF)	Orlando - Florida
• Frank M. Hubbard Engineering Scholarship (Spring 2003)	
• Won the Best Student Paper Competition in Transpo 2002/Presented in Transpo 2008: “Investigating the potential of route diversion through ITS application in Orlando using PARAMICS ”	
• Center for Advanced Transportation Systems and Simulation (CATSS) Scholarship (Fall 2001)	

PROFESSIONAL AFFILIATION

- Vice President of the UCF-ITE student chapter 2001-2002.
 - Associate Member of the Institute of Transportation Engineers (ITE) – Since 2002.
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WORK EXPERIENCE

University of Central Florida (UCF)
Post Doctoral Research Associate

Orlando - Florida
9/2009 – Present

Serving as a Visiting Faculty and Research Associate for the Center for Advanced Transportation Systems Simulations (CATSS) in the College of Engineering and assisting UCF research team in research projects including “**Experiments on Driving under Uncertain Congestion Conditions with Congestion Pricing Incentives**”. This research examines price incentives focused on congestion and road pricing of highway services by examining participants risk attitudes when faced with road pricing and congestion. In the long term this innovative research will expand evidence-based methods for setting user-based highway fees.

Studied the effect of transportation related factors on Carbon Dioxide (CO₂) Greenhouse Gas (GHG) emissions through experimental design techniques using the state-of-the-art EPA’s emissions model MOVES2010 and microscopic traffic simulation model VISSIM 5.3 as part of my PhD program. Applications involving congestion mitigation strategies are investigated in order to provide policymakers with more accurate information when deciding on environmental transport policies.

Currently working with FDOT District 5 on developing an interactive and efficient framework to serve as a **decision support system (DSS)** for the evaluation of left turn **Flashing Yellow Arrow (FYA)** phasing alternative based on intersection conditions. This framework will ultimately recommend phasing mode by time-of-day and assist the Traffic Management Centers (TMC) to flag intersections requiring attention/modification of left turn mode.

Orange County Transportation Planning Division
Growth Management Department (Contract Employee)

Orlando - Florida
10/2011 – 12/2012

Engaged in traffic studies reviews, Developments of Regional Impact (DRI) reviews, traffic support for Roadway Conceptual Analysis (RCA) at intersections and roundabouts, proportionate share calculations, evaluating new policies for Multi-Modal Transportation Districts (MMTD), developing an implementation strategy for a local Travel Demand Model (TDM) as well as new strategies for analysis concerning mixed use developments (MXDs).

- Orange Avenue and Holden/Gatlin Ave improvements FDOT/City of Edgewood
- Roberson Road/Windermere Road Roundabout City of Winter Garden
- Alternative Mobility Areas (AMA) Assessment Orange County
- Impact Fee Assessment Orange County
- Transportation, Community and System Preservation (TCSP) FDOT/FHWA

Tetra Tech
Traffic and Roadway Sub-Consultant

Orlando - Florida
7/2009 – 10/2011

King Abdullah Civic Center (KACC), Municipality of Dammam, Kingdom of Saudi Arabia (KSA): Principal Traffic/Roadway Design Engineer for the (\$2 billion) cultural center project spearheaded by the Eastern Province of Saudi Arabia involving an innovative mix of public, private, civic, and cultural institutions circumscribed within an iconic waterfront environment. Responsible for all the transportation related components of the project including traffic impact analyses, concept designs for geometric elements of approximately 3 km including at-grade intersections and grade-separated interchanges, internal roads as well as roundabouts. Frequent travel for presentations and meetings with Municipality.

GMB Engineers & Planners, Inc.
Project Manager

Orlando - Florida
4/2004 – 1/2009

Served as a project manager and managed a group of young analysts to perform several Design Traffic reports for PD&E studies, Traffic Operations and Traffic Impact Studies including signal warrant analysis, capacity analysis, traffic simulation and signal timings. Tasks typically included analyzing existing conditions turning movement counts, crash data, signal operations, field observations and qualitative assessments as well as developing future capacity improvement projects for No-Build & Build scenarios using FSUTMS, SYNCHRO, HCS+ and CORSIM. Relevant projects include:

- Lake Mary Boulevard Traffic Operations Study Seminole County
- I-75, US 41 & SR 82 Design Traffic Reports FDOT District One
- David Walker Drive at Old Hwy US 441-SWA Lake County
- John Young parkway Engineering Study Orange County
- Lake Nona General Transportation Support City of Orlando

Conducted numerous traffic impact studies, Development of Regional Impact (DRI) studies/reviews, Comprehensive Plan Amendments (CPA), Traffic Circulation Elements, shared parking analysis, and due diligence reports for a range of jurisdictions. Tasks typically included calculation of trip generation, trip distribution, assignment of project traffic, analysis of project impacts on roadway infrastructure, intersection operational analysis, parking analysis and cost estimates for mitigation plans. Relevant Studies included:

- Villages of Sorrento Springs Lake County
- Voorhis Avenue Parking & Speed Study Volusia County
- GOAA Due Diligence GOAA
- The Villages DRI FDOT D5
- Cumulative Transportation Impacts City of Alachua

University of Central Florida (UCF)
Graduate Research Assistant

Orlando - Florida
5/2001 – 3/2004

Joined the Intelligent Transportation Systems (ITS) laboratory and worked with UCF research team on:

- Developing the long term prediction model of travel time on Interstate Road 4 (I-4)
- Preparing spatial roadway data for Web-based travel information GIS applications
- Investigating the potential of route diversion through ITS applications using PARAMICS
- Evaluating the construction of Express Lanes on SR-417 University Plaza

Gulf of Suez Development Company (GSDC)
Planning Engineer

Cairo - Egypt
5/1999 – 3/2001

Revised tender documents of the project, Planned and assessed the infrastructure of the "Suez Special Economic Zone" including Highways, water and wastewater projects, attended site meetings (Ain Sukhna). Monitored the contractor's resources, cost control and performance using Primavera 3 Ver 2.0. Responsibilities included:

- Preparation of base line schedule
- Construction of daily program, weekly and monthly progress reports.
- Resources, manpower and cash flow update.
- Preparing recovery plans, revising programs if required.
- Monitoring & supervision of sub-contractors' progress

Dar-AL Handasah (Shair & Partners)
Transportation Engineer

Cairo - Egypt
9/1997 - 4/1999

Joined the Transportation Department and worked in liaison with a team to design highway projects using Autocad and Softdesk for horizontal and vertical alignments for various projects among which were :

- EL-ASHGAR district roads in 6th of October City Cairo-Egypt
- Widening of ALEXANDRIA courniche Alex-Egypt
- Pilgrims accomodation in Mina Saudi Arabia
- Ras-Gas Housing Project in Doha Doha-Qatar

Transportation Engineering Consultants (TEC)
Roadway Design Engineer

Cairo - Egypt
6/1996 - 9/1997

Engaged in roadway design projects for the New-Cairo City, using Autocad R12, and its applications in highway design, as well as Softdesk (sds) program for road profiles and cross-sections.

Misr Consulting Engineers Co. (MCE)
Highway & Traffic Engineer

Cairo - Egypt
9/1993 - 12/1996

Worked in the Highway Department and participated in the design and preparation of detailed execution drawings of several highway projects using AutoCAD R12 and Softdesk program for road profiles and cross sections, among which are:

- Al Markhania Road in Al Ain city United Arab of Emirates
- Wadi Crossings United Arab of Emirates
- Mazoura Village in Benisuef (surveys) Egypt

Worked with the Technical Department and participated in the preparation of technical and financial proposals, as well as tender documents and consultancy services provided during the design and supervision phases of these projects. The majority of these projects were overseas.

PUBLICATIONS AND PRESENTATIONS

- Abou-Senna, Hatem. **“Investigating the Potential of Route Diversion Through ITS Applications on an Orlando Transportation Network Using PARAMICS Simulation Model”**. Presented at the Annual ITS Conference TRANSP02008, 22-25 September 2008, Orlando, FL.
 - Abou-Senna, Hatem and Radwan, Essam. **“Analytical Methods to Quantify and Mitigate the Impacts of Transportation Carbon Dioxide (CO₂) Emissions at Signalized Intersections”**. Presented at the 9th Annual Showcase of Diverse Student Research, April 2012 Graduate Research Forum (GRF), UCF Orlando, FL.
 - Abou-Senna, Hatem and Klodzinski, Jack . **“Congestion Pricing Alternatives to Investigate Potential of Route Diversion on Toll Facilities Using En-Route Guidance”**. Presented at the 92nd Annual Meeting of the Transportation Research Board (TRB), Washington D.C., 13-17 January 2013.
 - Abou-Senna, Hatem and Radwan, Essam. **“VISSIM/MOVES Integration To Investigate the Effect of Major Key Parameters on Carbon Dioxide (CO₂) Emissions”**. Published in the Journal of Transportation Research-Part D: Transport and Environment. Vol 21, June 2013, PP 39-46.
 - Abou-Senna, Hatem and Radwan, Essam. **“Microscopic Assessment of Vehicular Emissions for Managed Lanes and General Use Lanes”**. Accepted for publication and presentation at the 3rd International Conference on Environmental Pollution and Remediation (ICEPR), Toronto, Canada July 15-17, 2013.
 - Abou-Senna, Hatem, Radwan, Essam, Westerlund, Kurt and Cooper, David. **“Using a Traffic Simulation Model (VISSIM) with an Emissions Model (MOVES) to Predict Emissions from Vehicles on a Limited Access Highway”**. Published in the Journal of the Air and Waste Management Association (AWMA). 63(7):819-831, 2013.
 - Abou-Senna, Hatem, Radwan, Essam, Harb, Rami, Navarro, Alex and Chalise, Sandesh. **“An Interactive Decision Support System for Predicting Flashing Yellow Arrow Left-Turn Mode by Time of Day”**. Presented at the 93rd Annual Meeting of the Transportation Research Board (TRB), Washington D.C., 12-16 January 2014. (Awaiting publication in the TRR)
 - Abou-Senna, Hatem and Radwan, Essam. **“Developing a Microscopic Transportation Emissions Model to Estimate Carbon Dioxide Emissions on Limited Access Highways”**. Presented at the 93rd Annual Meeting of the Transportation Research Board (TRB), Washington D.C., 12-16 January 2014. (Awaiting publication in the TRR)
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JOURNALS AND COMMITTEES ACTIVITIES

- Transportation Research Board (TRB)
 - Transportation and Air Quality Committee (ADC20)
 - Congestion Pricing Committee (ABE25)
 - Journal of the Air and Waste Management Association (AWMA)
 - Transportation Research Part D: Transport and Environment (TR-D)
 - International Journal of Injury Control and Safety Promotion (ICS)
 - Journal of Transportation Safety and Security (TSS)
 - Journal of Accident Analysis and Prevention (AAP)
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PERSONAL INFORMATION

- Married, have two Children
 - Hobbies: Racquetball, swimming, biking, cars and traveling
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