

SOUTH JERSEY TRANSPORTATION PLANNING ORGANIZATION

RESOLUTION 1301-08: Approving the Selection of Taylor, Wiseman & Taylor as the Consultant for the Airport Circle Safety and Operational Analysis Project

WHEREAS, the South Jersey Transportation Planning Organization (SJTPO) is the Metropolitan Planning Organization (MPO) designated under Federal law for the southern region of New Jersey including Atlantic, Cape May, Cumberland, and Salem Counties; and

WHEREAS, the Fiscal Years 2013-2014 SJTPO Unified Planning Work Program includes Federal Highway Administration and Federal Transit Administration planning funds for data collection and analysis; and

WHEREAS, the SJTPO Technical Advisory Committee vested consultant selection authority in a committee consisting of SJTPO, Atlantic County, and the South Jersey Transportation Authority; and

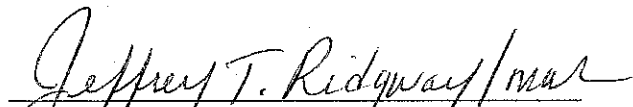
WHEREAS, the Selection Committee recommends Taylor, Wiseman & Taylor, in association with MBO Engineering (an NJDOT Certified Disadvantaged Business Enterprise), Burton-Lawson Engineering, and Signal Control Products, Inc.

NOW THEREFORE BE IT RESOLVED, that the Policy Board of the South Jersey Transportation Planning Organization hereby approves the above selection for the Airport Circle Safety and Operational project for a maximum fee of \$59,942.64; and

BE IT FURTHER RESOLVED, that the Policy Board requests that the South Jersey Transportation Authority execute the appropriate contractual arrangements with the consultant on behalf of the SJTPO.

Certification

I hereby certify that the foregoing is a correct and true copy of a resolution adopted by the Policy Board of the South Jersey Transportation Planning Organization at its meeting of January 28, 2013.

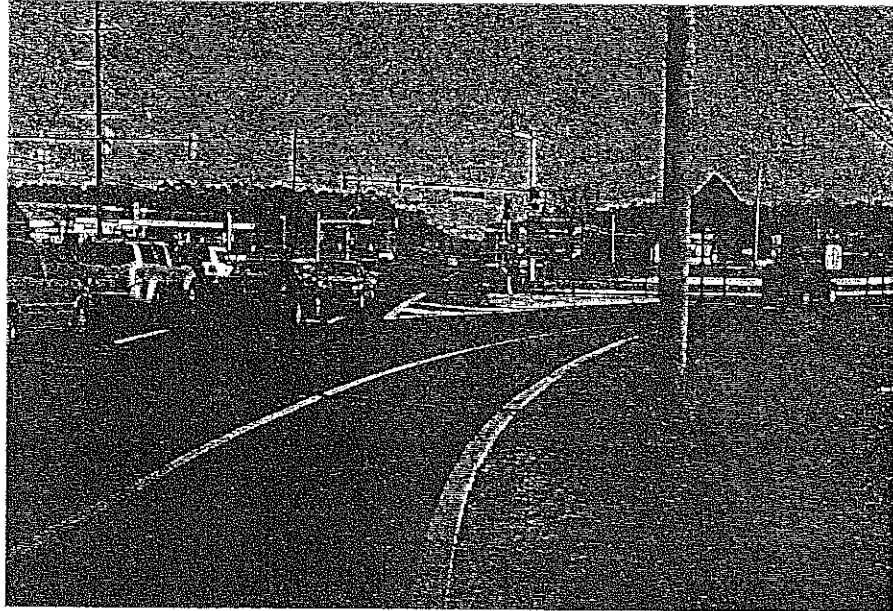

Jeffrey T. Ridgway, Secretary/Treasurer



OUR UNDERSTANDING OF THE PROBLEM:

The intersection of Delilah Road (Atlantic County Route 646), Tilton Road (Atlantic County Route 563), and Amelia Earhart Boulevard, locally known as "Airport Circle", in Egg Harbor Township, Atlantic County was reconstructed and opened in November, 2011 as a hybrid traffic circle. The improved intersection can be described as a hybrid circle, with Delilah Road bisecting the circle, and Tilton Road/Amelia Earhardt movements accommodated in the circle. Improvements to the circle have been a major priority for Atlantic County, Egg Harbor Township, and the South Jersey Transportation Authority due to significant growth in the area associated with Atlantic City International Airport and the William J. Hughes FAA Technical Center. The

intersection is located in an environmentally sensitive area (NJ Pinelands), which further complicates improvements in the area. Improvements evolved since project inception in 1989, and several prominent civil engineering firms have been involved, including Urbitran, Greenhorne & O'mara and most recently, Dewberry. The improved circle with a state of the art traffic signal system was completed in November, 2011 at a cost of approximately 4 million dollars. In developing this proposal, the TWT team understands that this project



improvement was subject to intense development pressure during the process, as well as environmental and funding constraints limiting options. We also understand that long-term solutions, including SJTA's \$50 million "Direct Connector" providing direct access to the Airport, FAA Technical Center and Next Gen Aviation Research & Technology Park will further improve intersection operations at this circle. This project is currently under design, and is expected to advance into construction in 2014 or 2015.

The improvement project has been subject to public scrutiny due to a series of articles published in the Press of Atlantic City in late 2012 indicating that crash rates had increased post construction at the intersection. This information was refuted by the Atlantic County Executive/Engineering Department as incorrect, with the County providing updated data. Much discussion continues in the press indicating that the community is concerned, regardless of crash statistics.

IMPROVEMENT OPPORTUNITIES: The TWT team has fully engaged during the proposal phase of this project. Although we have not reviewed available crash data, it is clear to our professionals that there may be opportunities to tweak this intersection, as well as adjacent intersections, to provide short-term relief for motorists utilizing these important Atlantic County roadways. Some observations, which we fully intend to investigate during this short process include:

1. Signing for primary destinations (Atlantic City International Airport, FAA Technical Center, Next Gen Aviation Park) is limited. Additional guidance would allow motorists to choose lanes based on their destination, reducing confusion at the intersection.



2. There may be a possibility of using Next Gen Boulevard as a conduit for Airport/FAA Center traffic. If this movement makes sense, Airport/FAA Center traffic could travel straight through the intersection.
3. Delays at the intersection have resulted in motorists learning traffic signal phasing at this location. We observed WB Delilah Road traffic for example, leaving the thru queue on Delilah Road, pulling into the northern half of the circle, utilizing the phase time for Amelia Earhardt Boulevard and/or NB Tilton Road, rather than waiting safely in queue on Delilah Road.
4. There may be opportunities for NB/SB Tilton Road traffic to turn directly on Delilah Road EB/WB respectfully safely, rather than forcing them to use the circle as well.
5. The traffic signal at the Airport Circle represents state of the art technology. The signal system incorporates eight (8) Econolite Autoscope Terra cameras, spread spectrum radio, battery back up systems, LED signals and positive feedback pedestrian signals. We have added Signal Control Products as a team mate, as we believe the existing Autoscope cameras can be reconfigured to provide traffic volumes for this project. This reconfiguration will not impact intersection operations, and will allow for data collection at any time on the project.
6. Provision of a coordinated system with existing signals at Next Gen Boulevard and the AC EB/WB off ramps may provide for better mobility in the area.
7. Commercial access within the project limits may influence traffic operations more than believed. The TWT team will look at how existing commercial driveways influence traffic operations.
8. Clearance, change and pedestrian intervals are very important relative to the safe operation of a signalized intersection. We note that provision of radar based dilemma zone detection on Delilah Road approaches may reduce some conflicts. The TWT team will carefully review clearance interval times at the intersection to insure they are safe while not excessive.
9. Our team is comprised of experts in their respective fields. We will utilize current state of the practice procedures and policies, including new NHCRP data on clearance intervals, the AASHTO Safety Manual and the 2010 Highway Capacity Manual.

Why Choose Taylor Wiseman & Taylor? SJTPO has an opportunity to capitalize on an experienced TWT Team to complete this important operational review of ten intersections. The TWT Team has the specialized staff to conduct this project, with every possible project need provided by the combined resources of the team. The TWT Team includes over 100 years of local experience, as well as a documented success record in both traffic/highway engineering and public involvement initiatives. Our commitment is not only to complete this project, but to work actively with project stakeholders to complete it on-time and on-budget.

OTHER FACTORS: TWT understands that as your consultant, our job is much more than providing transportation engineering services. As your partner, we answer to you by making your projects successful. To that end, our responsibility is to work with you, not just for you. We will continually strive to provide you with innovative approaches that minimize costs and maximize benefits. We want to further our relationship with Cumberland County, and we will strive to be your firm of choice.

We are excited about this project and the opportunity to work on it. We look forward to your favorable response to our Technical Proposal.



Our proposed scope of work is as follows:

1. Pre-Construction Safety Analysis: The TWT team will review available crash data provided by SJTPO as outlined in the RFP. We expect that we will receive crash data from the time period January 1, 2003 through December, 31, 2011. We will:

- a. Review crash data pre-construction (2003-2011) to understand crash types, contributing circumstances, roadway conditions relating to the geometry of the intersection and other factors, such as weather/light conditions. In addition the TWT team will access Plan4 Safety (P4S) to complement the Atlantic County provided data. The team will request from the NJDOT Safety Programs available crash analyses completed to supplement the supplied data.
- b. Review the Dewberry Report, dated August, 1997. We believe there is an opportunity to enhance this project by understanding the recommendations and decisions made in this report. We will review all provided reports in developing our recommendations in this study.
- c. We will review available traffic data to determine what stress congestion has placed on the intersection.
- d. We will determine the crash rate pre-construction, per million miles traveled.

2. Post Construction Safety Analysis: The TWT team will provide a similar analysis for January 1, 2012 through January 1, 2013. Our analysis will parallel that completed pre-construction and will include the following:

- a. Review of post-construction crash records.
- b. Review of traffic volume data
- c. We will determine the crash rate post construction, per million miles traveled.
- d. We will evaluate pedestrian and bicycle safety at the intersection. We will collect pedestrian and cyclist counts (2013) as we complete traffic data collection. We will provide a detailed review of pedestrian/cyclist safety in the Airport Circle.
- e. The TWT team will review the potential application of the AASHTO Highway Safety Manual (HSM) within this study. The Highway Safety Manual (HSM) is a ground-breaking tool that is just beginning to be used within the profession. The manual is the synthesis of more than thirty years of traffic safety research and data. It may be used by the practice to augment traditional study and preliminary engineering efforts by actually predicting the potential number of crashes for various geometric and operational conditions at intersections and along roadway segments. These methods are based on vetted national research and can truly help to advance the state of the practice by quantifying safety impacts, while removing some of the subjectivity that many safety studies see. The use of the manual may provide a strong defense against torts and other legal claims. This project may present an excellent opportunity to showcase some of the HSM methods; however, there are notable limitations that must be understood. The safety performance functions for a facility such as Airport Circle are not provided within the HSM; however, some of the crash modification factors available on the FHWA clearinghouse website may be applied to quantify the safety impacts for some remedial actions. Not only has that, but the safety performance of roundabouts/circles been documented in research. We expect to explore the applicability of the latest research and trends and apply that knowledge to the review of the previous Dewberry study and other improvement scenarios. As such, we propose to use a combination of the available CMF's along with any meaningful application of the latest trends in safety performance to help identify the most effective improvements (if any) from a safety



perspective. And while it may not be possible to cite the predictive methods of the HSM for this project, there is ample opportunity to refer to much research that can be expected to become part of the HSM in the future.

3. Post Construction Level of Service Analysis and Operational Analysis: The TWT team will complete the following:

- a. Review available traffic count data.
- b. Conduct peak hour and ADT traffic volumes.

i. Manual Turning Movement Counts: The TWT team will conduct manual turning movement counts on a typical weekday, approved by the SJTPO, at the following intersections:

- Delilah Road and AC Expressway EB off ramp
- Delilah Road and AC Expressway WB off ramp
- Delilah Road and Southwest Quadrant of Airport Circle
- Southeast Quadrant of Airport Circle and NB Tilton Road
- Delilah Road and Eastern Side of Airport Circle
- Northeast Quadrant of Airport Circle and Amelia Earhart Boulevard
- Northwest Quadrant of Airport Circle and SB Tilton Road
- Delilah Road and Next Gen Boulevard
- Delilah Road and Wawa Driveway (by video camera)
- Delilah Road and Sunoco Minimart driveway (by video camera)
- Wawa Driveway and Amelia Earhart Boulevard (by video camera)

These counts will be taken on a typical weekday (Tuesday, Wednesday, Thursday) on a date pre approved by SJTPO. Counts will not be taken during foul weather, and appropriate police agencies will be notified 48 hours prior to the commencement of traffic counts. Counts will be taken from 7 AM to 9 AM, 11 AM—1 PM and 3 PM to 6 PM. Counts will be taken with JAMAR electronic count boards and accompanying computer software.

ii. Automatic Traffic Recorder Counts: The TWT team will conduct ATR counts for a period of one week (7 consecutive days on the following roadways:

- Tilton Road, North of Airport Circle: 2 way volume, classification, speed
- Delilah Road, West of Airport Circle: 2 way volume; classification; speed
- Delilah Road; East of Airport Circle: 2 way volume; classification; speed
- Tilton Road; South of Airport Circle; 2 way volume; classification; speed.
- Amelia Earhart Boulevard, North of Airport Circle; 2 way volume, classification, speed.

Counts will be taken utilizing JAMAR electronic ATR machines and rubber hose. Counters will be installed prior to the commencement of manual counts as a quality check for the manual counts. Counts will not be taken during a period of inclement weather. ATR counters are subject to failure, as they depend on rubber hose secured to the pavement as a count mechanism. The TWT team will monitor all installations, but will not guarantee constant counts. We will monitor count installations and repair them during the count period

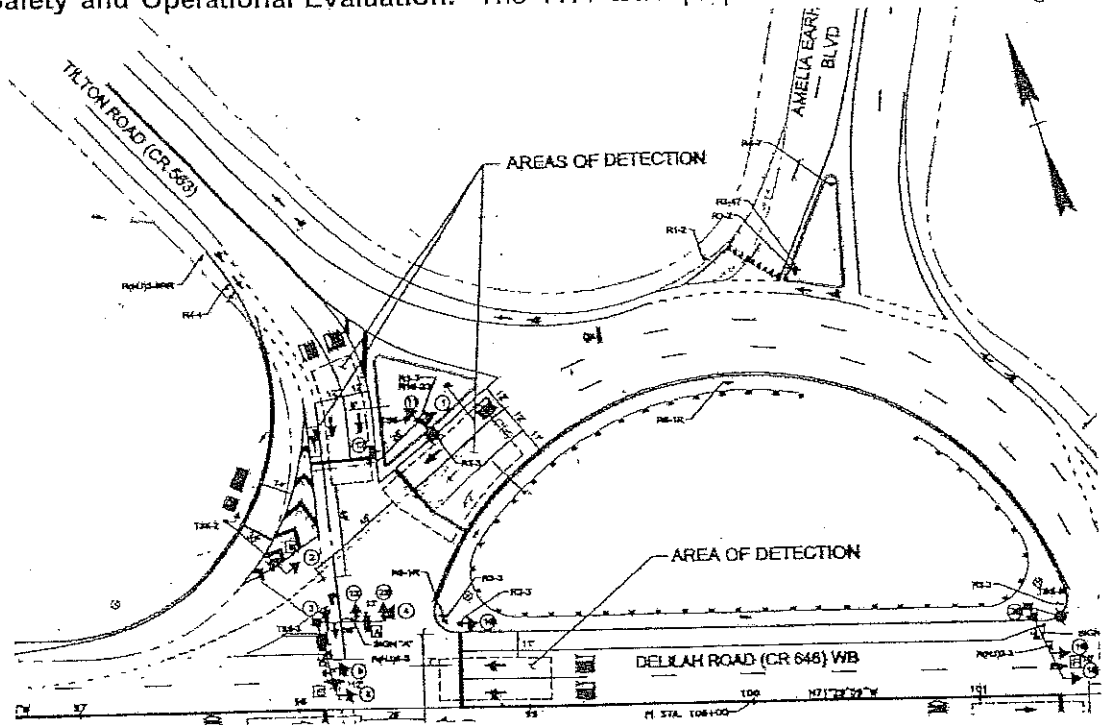
iii. Autoscope Cameras: The TWT team will reconfigure, with the permission of Atlantic County, the 8 Autoscope Cameras to provide additional volumes and data on the Airport Road approaches. Autoscope will provide speed and volume data. The detection scheme will be saved and provided to the County for future use.

iv. Provide Operational Analysis: Utilizing HCM 2010 and Synchro 8.0, the TWT team will provide detailed operational analyses of the Airport Circle and adjacent



signalized intersections. We will document weekday AM/PM levels of service, as well as weaving/lane transition analysis, geometric improvements and access points within the study area.

4. **Safety and Operational Evaluation:** The TWT team proposes to conduct a design charrette



with involved stakeholders at the conclusion of the analysis process. Involved stakeholders at this time include the SJTPO, Atlantic County, Egg Harbor Township, South Jersey Transportation Authority, Atlantic City International Airport, FAA—William J. Hughes Technical Center, NJ Air National Guard, Next Gen Aviation Research & Technology Park, and the Richard Stockton College of New Jersey. The purpose of this meeting, which is expected to last ½ day, would be present preliminary results of the study, and to discuss possible proposed improvements. The secondary purpose of this meeting would be to insure that all viewpoints are understood by the TWT team prior to the finalization of the report. Prior to this meeting,

6. TWT will have completed a detailed safety and operational review of the corridor, and will present the results to involved stakeholders at this meeting.

5. **Technical Report:** The TWT team will provide five paper copies and one electronic copy (PDF) of the final report and technical appendixes. The report will include:

- a. a chronology of the Airport Circle Design Process
- b. Report on the Safety Analysis conducted, both pre and post construction
- c. Existing LOS for all intersection approaches
- d. Discussion of Possible Short-Term Improvements
- e. Discussion of Long-Term Improvements