CITY OF HIGH POINT
AGENDA ITEM

Title: Catalyst Traffic Study

From: Matthew Carpenter, PE

Meeting Date: November 5, 2018

Advertising Date /
Advertised By:

Public Hearing: N/A

Attachments: Formal Bid Recommendation
Contract

PURPOSE:
Award a contract to aid the City in identifying potential transportation improvements necessary to mitigate traffic related impacts from the development of the Downtown Catalyst project.

BACKGROUND:
The City of High Point Transportation is requesting the award of a contract to Aecom, Inc. in the amount of $108,796.00 to study the traffic related impacts of the new baseball stadium and associated development around the project. The study will look at intersections around the new stadium along English Road, Elm Street, Drive Martin Luther King Jr Drive, and Lindsay Street.

BUDGET IMPACT:
Funds are available in the 2018-2019 Annual Budget.

RECOMMENDATION / ACTION REQUESTED:
The Transportation Department is requesting City Council award the contract with Aecom, Inc. in the amount of $108,796.00 for this traffic study and authorize the appropriate City Official to execute the necessary documents.

RFQ RECOMMENDATION
REQUEST FOR COUNCIL APPROVAL

DEPARTMENT: Transportation

COUNCIL AGENDA DATE: 11/5/2018

RFQ NO.: RFQ 60-071218 DATE OPENED:

DESCRIPTION:

Traffic study for the new baseball stadium and associated development.

PURPOSE:

To determine traffic impacts and potential traffic improvements necessary to mitigate those impacts.

COMMENTS:

This project will use High Point Metropolitan Planning Organization funds that require a 20% match. Eighty percent of the contract total will be reimbursed. The city's portion of the contract amount will be funded from the Catalyst project capital account.

RECOMMEND AWARD TO: Aecom, Inc. AMOUNT: $108,796.00

JUSTIFICATION:

ACCOUNTING UNIT	ACCOUNT	ACTIVITY	CATEGORY	BUDGETED AMOUNT
301610	527101			$108,769.00
TOTAL BUDGETED AMOUNT				

DEPARTMENT HEAD: Mark V. McDonald, P.E. Digitally signed by Mark V. McDonald, P.E. DN: cn=Mark V. McDonald, P.E., o=City of High Point, ou=Transportation, email=mark.mcdonald@highpointnc.gov, c=US Date: 2018.10.30 08:38:28 -04'00' DATE: 10/30/2018

The Purchasing Division concurs with recommendation submitted by the Transportation **and recommends award to** AECOM, Inc. **in the amount of $** 108,796 .

PURCHASING MANAGER: Erik Conti Digitally signed by Erik Conti DN: cn=Erik Conti, o, ou, email=erik.conti@highpointnc.gov, c=US Date: 2018.10.30 09:37:32 -04'00' DATE:

Approved for Submission to Council
FINANCIAL SERVICES DIRECTOR: Kelly Latham Digitally signed by Kelly Latham DN: cn=Kelly Latham, o, ou, email=kelly.latham@highpointnc.gov, c=US Date: 2018.10.30 17:56:04 -04'00' DATE:

CITY MANAGER: Greg Demko Digitally signed by Greg Demko DN: cn=Greg Demko, o=High Point, ou=High Point, email=greg.demko@highpointnc.gov, c=US Date: 2018.10.31 08:18:28 -04'00' DATE:

SCOPE OF WORK-DRAFT

CITY OF HIGH POINT CATALYST PROJECT TRAFFIC STUDY

Prepared for:
City of High Point

Prepared by:
AECOM Technical Services of North Carolina, Inc.

Date: 10/02/18
Finalized: X/X/X

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GENERAL INFORMATION

As part of revitalization efforts in downtown High Point, the City of High Point (City) has proposed to construct a 3,000 seat multi-purpose stadium in the blocks bounded by Gatewood Avenue to the north, English Road to the south, Lindsay Street to the west and N. Elm Street to the east as shown in Figure 1. The revitalization plan not only includes the stadium development, but also an additional nine-block area development in the downtown. This broader nine-block area is planned to include residential units, retail, restaurants, a convention center and a children's museum.

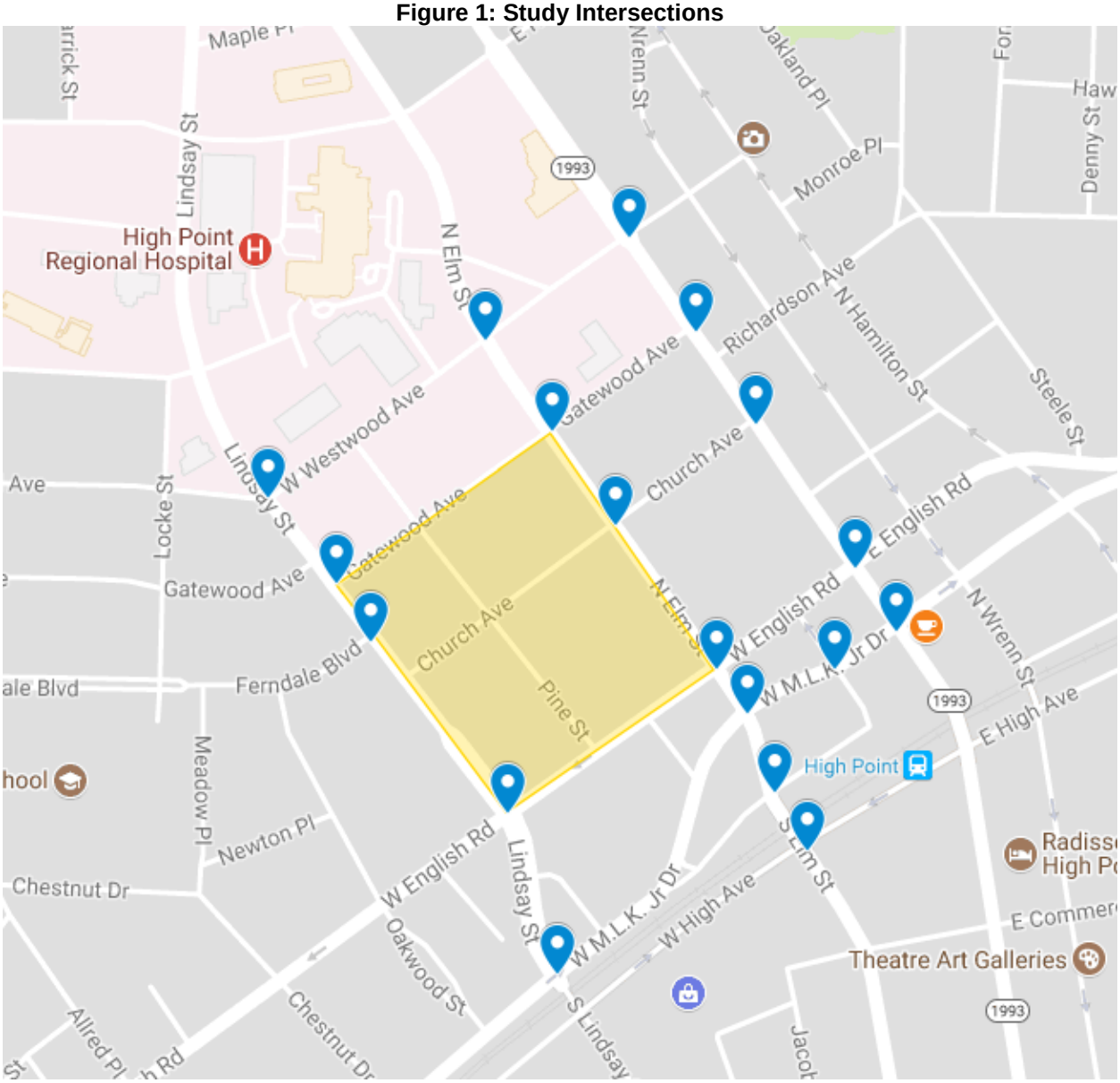
The City of High Point has requested AECOM Technical Services of North Carolina (CONSULTANT) to provide transportation engineering and planning services related to the construction of this stadium and the surrounding land use changes using the City's existing Public Services On-Call contract (attached).

STUDY AREA

The City is currently working on finalizing the Downtown Mixed-Use Area Plan and the boundaries from that study will be used for this analysis. The study includes the following 18 intersections plus two additional intersections to be identified by the City (with (S) meaning the intersection is signalized and (U) meaning the intersection is unsignalized) as shown in **Figure 1**:

- Westwood Avenue at N. Main St (S)
- W. Westwood Avenue at N. Elm St (S)
- W. Westwood Avenue at Lindsay St (S)
- Lindsay St at Gatewood Ave (U)
- Gatewood Ave at N. Elm St (U)
- Gatewood Ave at N. Main St (U)
- Church Ave at N. Main St (S)
- Church Ave at N. Elm St (S)
- Lindsay St at W. English Rd (S)
- Lindsay St at Ferndale Blvd (U)
- W. English Rd at N. Elm St (S)
- English Rd at N. Main St (S)
- MLK Dr at N. Main St (S)
- W. MLK Dr at Hayden Pl (S)
- W. MLK Dr at N. Elm St (S)
- W. MLK Dr at Lindsay St (S)
- W. High Ave at S. Elm St (S)
- N. Elm St at W. Broad Ave (S)

Figure 1: Study Intersections



1. PROJECT MANAGEMENT, COORDINATION AND ADMINISTRATION

1.1 PROJECT MANAGEMENT AND ADMINISTRATION

The CONSULTANT will manage and administer this contract with City throughout the duration of this assignment, including coordination, as needed. The study is anticipated to have 4-month duration. The CONSULTANT will prepare a monthly progress report and submit an invoice to the City's Project Manager each month throughout the duration of the study.

1.2 PROJECT COORDINATION

The CONSULTANT will coordinate with the City and other stakeholders like Forward High Point and the High Point Urban Area Metropolitan Planning Organization (HPMPO), as needed, relating to the technical aspects of the assignment throughout the duration of this study. The study is anticipated to have 4-month duration. The CONSULTANT will attend up to two coordination meetings with City, bringing up to three

staff members for each meeting. Project coordination will also include two conference calls with the City staff attended by three CONSULTANT staff.

2. GATHERING OF DATA, FIELD VISIT AND TRAFFIC COUNTS

2.1 GATHERING OF DATA

The CONSULTANT will utilize the traffic data collected in April 2018 at the 18 intersections shown previously in **Figure 1** for Phase 1 of this project. As noted in the RFQ, the study area contains 20 study intersections; therefore, the CONSULTANT will either obtain the intersection count data from the City or will use its subcontractor to collect the data.

2.2 FIELD VISIT

The CONSULTANT will visit the project site during the critical peak period to observe traffic and parking patterns, note any congestion and develop a basis for visually validating the base year Synchro model. The CONSULTANT will also verify that the provided data is consistent with the actual operations (example: signal phasing, geometry, and so forth). The CONSULTANT will provide two (2) staff members to participate in the field visit.

2.3 TRAFFIC COUNTS (BY SUBCONTRACTOR)

Morton & Morton Design Services, PLLC (DBE firm) will collect turning movement as needed for the project. These counts would use the same collection time periods as the counts previously collected, from 7:00 am to 10:00 pm. All counts will include classification of vehicles and pedestrian/bicycle counts on all legs of each approach

3. LAND USE INVENTORY AND ASSESSMENT

The CONSULTANT will conduct a land use inventory of the study area including an assessment of current land use using tax parcel data, aerial photography, and current zoning to create current land use at a parcel level. Areas designated as right of way, utility easements, floodplains and wetlands will be assumed to be less suitable for development. Future land use will be assessed through a review of land use policies and zoning, a review of recent development permits within the study area vicinity, and interviews with Planning Staff. Residential and nonresidential development projections and assumptions will be verified by the High Point Planning Department. A brief report on current and future land use will be included in the deliverable report.

4. DEVELOPMENT OF THE BASE YEAR MODEL (2018)

The CONSULTANT will develop 2018 base year Synchro models for the project. The CONSULTANT will use the traffic data collected during the 2018 Spring Furniture Market to develop volume profiles for the AM, midday, and PM peak hours. The two (2) most critical profiles, as applicable to the entire study area, will be evaluated the 2018 Base Year scenario. The 2018 Base Year Analyses will be prepared for conditions when the Furniture Market was active in April 2018.

5. BACKGROUND TRAFFIC FORECAST FOR THE DESIGN YEAR (2028)

The CONSULTANT will develop traffic volumes for the 2028 No-Build scenarios representative of the base year volumes with an ambient growth rate applied. This growth rate will be determined in consultation from the City.

6. TRIP GENERATION AND NETWORK DISTRIBUTION

The latest version of the ITE Trip Generation Manual will be used to determine the new trips that will be produced by the downtown area redevelopment. These trips will be added to the network according to land use, parking, existing trip patterns and engineering judgment.

Engineering judgment may be applied to make minor adjustments to count data to ensure continuity in the analyses. This will be done by analyzing adjacent land uses (as assigned by the City) with the ITE Trip Generation Manual and adjacent intersections for balancing purposes. Trips will be assigned to the roadway network based on each land use change and addition to the study area as the result of the proposed developments. Each land use will be inserted into a matrix and assigned as a particular type of trip generator based on the ITE Trip Generation Manual. The time of day used from the ITE Trip Generation Manual (AM, PM, Noon, etc.) will match the critical peak periods determined during the review of the traffic count data.

The number and distribution of redevelopment trips will be calculated based on the type and the size of each land use. Once all of the generated trips are calculated, the CONSULTANT will develop a process to break down the total trips based on mode of transportation used, where the vehicular trips will terminate (parking), how many trips will be from within the project study area (internal capture), and how many trips will be from pass-by traffic. Non-vehicular trips will also be factored in to the trips generated by each land use, based on the type of land use, as well as the transportation characteristics observed and determined in and around the project area.

7. TRAFFIC ANALYSES

The CONSULTANT will use the latest available build of Synchro 9 (or Synchro 10 if preferred by the City) signal software developed by Trafficware to complete an analysis of operations for unsignalized and signalized intersections.

Analysis will include developing the networks in Synchro and reviewing the operations in SimTraffic (10 runs). To facilitate review, the analysis shall include assigning each intersection a unique ID that will be used throughout the entire study and shall be included on all figures, tables and output sheets. The results shall include the following:

- Delay and LOS for each lane group and for the overall intersection
- SimTraffic maximum queue length
- Synchro 95% percentile queue length

The results of the analysis will be summarized in tabular format and with a figure that includes the existing lane configurations. The output reports for all analyses (Synchro – Lanes, Volume and Timing Report, SimTraffic – Queueing and Blocking Report) shall be included in the appendices and labeled with the proper analysis ID.

In addition to vehicular traffic analysis, the CONSULTANT will provide a planning-level capacity analysis for pedestrians, transit and bicycles. This analysis will also be performed in Synchro and will use the HCM 2010 module. This module uses methodologies and standards found in HCM 2010 to produce LOS results for pedestrians and bicycles at signalized and unsignalized intersections. The CONSULTANT will use default values in Synchro unless otherwise specified by the data collected and will provide LOS and delay. If needed, the CONSULTANT will use other software like “ARTPLAN” to make a “qualitative analysis” of the pedestrians and current transit operations in the study area.

7.1 2028 NO-BUILD ANALYSIS

The CONSULTANT will develop analyses of the 2028 No-Build scenarios representative of the base year models with an ambient growth rate applied. The analyses will be completed in the same manner as described in Section 7.

Two (2) distinct No-Build scenarios will be evaluated for each critical period:

- With no significant changes to existing roadway/intersection geometries or traffic patterns (i.e., retention of the English-MLK, Jr. one-way pair)
- With conversion of the one-way pair to two-way operations, implementing the best suitable alternative from the 2009 WSA study, with appropriate modifications to address the projected horizon year Market-level volumes.

7.2 2028 BUILD ANALYSIS

The CONSULTANT will develop analyses of following 2028 Build scenarios that will include all known projects within the study area, supporting development, and any closures or restrictions created by the redevelopment:

- 2028 Build without improvements
- 2028 Build with the recommended one-way street conversion alternative
- 2028 Build without one-way conversion and with Elm Street road diet (from W. High to W. Westwood)
- 2028 Build with one-way conversion and with Elm Street road diet (from W. High to W. Westwood)
- Others as directed by the City (up to four scenarios)

These operational analyses will match the development scenarios for the 2028 horizon year based on background growth and land use/build-out information supplied by the City. This information will be used to determine the appropriate traffic volumes for the downtown study area.

Analyses will be completed in the same manner as described in Section 7. The results of the analysis will be summarized in tabular format with a figure depicting levels-of-service and proposed lane configurations.

7.3 DESIGN ITERATIONS

The CONSULTANT will review the Measures of Effectiveness (MOEs) for the critical peak periods and determine if design modifications are required to achieve desirable operations. The CONSULTANT will then make changes to the analysis to improve operations or attain a prescribed MOE for the project and will re-run the required steps. These design iterations could include, but are not limited to, analyses that consider and compensate for:

- Additional lanes and other enhancements;
- Road dieting;
- Road closures or access restrictions, including any recommended turn prohibitions;
- The impacts of pedestrian and transit operations;
- Addition or removal of on-street parking; and
- Signal upgrades and signal timing adjustments.

If individual intersections are found to experience extraordinary traffic conditions during the third non-critical period of the day (for example, an unusually heavy left turn movement at midday that does not occur at other times), then further local analysis may be warranted. When such are identified, the CONSULTANT shall perform specific “off-peak” scenario analyses, as appropriate, for up to six (6) locations to determine what improvements may be necessary to remedy the problem.

7.4 REVIEW AND VALIDATION OF ONE-WAY CONVERSION STUDY

The CONSULTANT will provide a review of the One-Way Conversion Study, completed in 2009 by Wilbur Smith Associates (WSA). Upon completion of the review, the CONSULTANT will update this study with traffic volumes obtained for 2018 Market conditions, as well as with any geometric/signal changes that have occurred in the study area since 2009 (such changes are limited and will be provide by the City). The CONSULTANT will perform a capacity analysis to determine if the findings of the 2009 study are still applicable. If necessary, additional recommendations will be made by the CONSULANT based on the updated traffic volume information for 2018.

7.5 TRAFFIC CAPACITY ANALYSIS TECHNICAL MEMORANDUM

The CONSULTANT will prepare a traffic capacity analysis technical memorandum including the results of analyses. The memorandum will include all pertinent information relating to the analysis, the volume development/breakout, the results of the analysis and figures depicting the information included in each previous section of this scope. The HCS/Synchro/Sidra output reports will be included as appendices to the report. A digital copy of the Draft Technical Memorandum will be prepared for the City review and revised based on comments received. The comments provided by the City on the Draft Technical Memorandum will be addressed and the Final Technical Memorandum will be prepared with 2 hard copies being provided to the City. A digital copy of the Final Technical Memorandum in Adobe Acrobat format will also be developed.

At the conclusion of the study, the CONSULTANT will also provide the City with all digital files used in the development of the analysis.

8. TRAFFIC SAFETY ASSESSMENT

The CONSULTANT will perform a crash analysis for the subject project. The CONSULTANT is prequalified with the NCDOT's Traffic Safety Unit to perform crash analysis and will obtain approval from the NCDOT's Traffic Safety Unit to perform the crash analysis for this project. The CONSULTANT will perform the crash analysis following the procedures set forth by NCDOT. As necessary, NCDOT records may be supplemented by crash reports on file with the High Point Police Department.

The CONSULTANT will perform the analysis using NCDOT's Traffic Engineering Accident Analysis system (TEAAS) software. The analysis provided will include the fiche report, maps, reports and all calculations necessary to complete the analysis. Once the analysis has been completed, crash location hot spots will be identified and potential remedies will be discussed. A brief report based on this safety analysis will be included as an Appendix of the traffic report.

9. PARKING ASSESSMENT

The CONSULTANT will perform a parking study to determine the need for additional parking facilities based on the proposed land use improvements. The CONSULTANT will assess the existing parking facilities and take inventory of the existing parking spaces – both separate facilities and on-street parking. The inventory will include a count of all available spots organized by type of spot (marked/ unmarked, handicapped, truck/ loading zone, motorcycle, general use, reserved, time-limited, time-based, and cost-based).

The CONSULTANT will next conduct a parking survey to assess parking area utilization and turnover. The CONSULTANT will plan the parking survey with input from the City as to key locations of interest.

The CONSULTANT will estimate the number of required parking spaces for the project area based on the proposed land uses, and will estimate the number of additional spaces required, if any, using ITE's Parking Generation Manual. If additional parking spaces are required, the CONSULTANT will assist in siting potential locations for the parking facilities, as well as on-street parking. The CONSULTANT will also take inventory of perimeter streets and residential areas (between the blocks consisting of Westwood on the North, W. English on the South, Lindsay on the West, and N. Main Street on the East) where on-street parking is allowed to determine if any measures should be considered to limit and/or prohibit development traffic from parking in these areas.

10. TRANSIT AND PEDESTRIAN IMPROVEMENT RECOMMENDATIONS

Based on the findings of the efforts described in the previous sections, the CONSULTANT will make general recommendations for multi-modal (transit, bike, and pedestrian) enhancements that would benefit the study area and the proposed re-development, consistent with current policies, practices, standards, and existing local area plans. These recommendations will be developed according to NCDOT and City guidelines and standards, as appropriate.

11. RECOMMENDATIONS FOR IMPROVEMENTS

The CONSULTANT will develop concept drawings (plans views and/or typical sections) for any proposed improvements, including one-way street conversions, road diets, streetscaping, and recommended traffic control changes (signals, signs and markings) and any similar improvements of the North Elm Street Corridor.

The CONSILTANT will also develop cost estimates for proposed improvements and updated cost estimates for previously recommended improvements. These cost estimates will be based on the costs of similar recent projects, as well as any guidance provided by NCDOT and the City.

12. PRESENTATION TO CITY COUNCIL AND PUBLIC INFORMATION MEETING

The CONSULTANT will present the findings of this study, including recommendations deemed necessary to achieve operational and safety standards, to the City Council and senior management in a committee session (up to two) and at one City Council MEETING. Following Council's endorsement of the study's findings, the CONSULTANT can host an informational meeting to share and discuss the results with the public. The CONSULTANT will provide adequate staff and resources to prepare for and attend these meetings.

13. DELIVERABLES

At the conclusion of the study, the CONSULTANT will provide the following deliverables to the City:

- Synchro files for 2018 Base Year Model
- Synchro files for 2028 No-Build Model
- Synchro files for 2028 Build Models
- Traffic Capacity Analysis Technical Memorandum
- Crash and Safety Analysis Report
- Pertinent information used in developing the analysis (included in the memorandum) including but not limited to, design concepts, etc.
- Recommendations for Future Year improvements
- Supporting maps and figures
- Cost estimates for design and construction of best feasible alternative

14. PROJECT SCHEDULE

Following is a list of milestones for the project as part of the project schedule:

- Contract Commences – November 5, 2018
- Kickoff meeting between City and CONSULTANT – Week of November 12, 2018
- CONSULTANT building base Synchro model – November 19 to December 19, 2018
- CONSULTANT performing crash and safety analysis – November 19 to December 19, 2018
- CONSULTANT design iterations and build Synchro analysis – December 20, 2018 to February 20, 2019
- Draft Synchro analysis, parking analysis, and safety analysis – February 20, 2019
- Final report, cost estimates (after 3 week review by the City) – March 13, 2019
- Presentation to the City Council – March to April, 2019