TO: **Mayor via City Secretary** **REQUEST FOR COUNCIL ACTION**

SUBJECT: Agreement between the City of Houston and the University of Houston (UH) for services associated with cooperative research addressing the effectiveness of polymer in stabilizing high plasticity pavement subgrade cohesive soils for Broadway Paving between Galveston Road and IH 45.	**Page 1 of 2**	**Agenda Item #**

From: (Department or other point of origin): Department of Public Works and Engineering	**Origination Date**	**Agenda Date**
Director's Signature: Dale A. Rudick Dale A. Rudick, P.E.	**Council District affected:** I MP	
For additional information contact: MP Mike Pezeshki, P.E. **Phone:** (832) 395-2262 Managing Engineer	**Date and identification of prior authorizing Council action:**	

Recommendation:
Adopt an Ordinance approving and authorizing an Agreement for Research Services with the University of Houston and allocate the funds.

Amount and Source of Funding: PLR 8/27/15
$100,000.00 from Fund No. 2310 – Dedicated Drainage & Street Renewal Fund
(FY16 $20,000.00 – Out Years $80,000.00)

PROJECT NOTICE/JUSTIFICATION: The project addresses the suitability of a polymer as a stabilizing agent as compared to the traditional stabilizing agent (lime) on cohesive subgrade soils of the City of Houston.

Pavement subgrades in the City of Houston generally consist of high plasticity cohesive soils that have the potential for undergoing large amount of heave and shrinkage due to seasonal moisture changes. Heave and shrinkage can lead to buckling and cracking of the roadways that can result in poor long-term performance and high maintenance cost.

To avoid excessive damage to the City of Houston roadways, the subgrade cohesive soils are generally stabilized with lime during construction. However, numerous roadways with lime stabilized subgrade have shown heave and shrinkage related distresses due to inadequate lime stabilization with depth (as deeper lime stabilization with depths are not economically feasible) and there is a possibility of leaching of lime from the subgrade and also formation of ettringite in the soils over the period of time. Furthermore, lime stabilization subgrade needs a longer curing time to harden even for construction traffic to operate on it. Dust during lime application is also a nuisance.

This research project in cooperation with UH will evaluate a single polymer product and will conduct a systematic and extensive series of engineering property tests to obtain comparable data on the performance of polymer modified Houston cohesive soils across the range of conditions typically encountered in the City of Houston. This research could lead to improved performance and longer life of our future roadways.

LTS No. 13607 **CUIC ID #20MP52A**

Finance Department:	**Other Authorization:**	**Other Authorization:**
		Daniel R. Menendez, P.E., Deputy Director Engineering and Construction Division

REV 11/06

UH's previous research studies have found no adverse impact on pavement life and its components. We believe this product should perform as good or better than other stabilizing agent that is currently used.

Our goal is in providing the citizens of Houston the best pavement system which requires that we are knowledgeable of current research and new technological developments. Our local universities provide excellent readily available research capabilities for answers to questions concerning our pavement systems and new technologies to assure the quality and efficiency of our programs. Such institutions provide an essential service by collecting empirical data and analyzing research results in an objective and cost effective manner. They serve not only as a source for confirming information given to us by outside entities about their products and technologies, but also as a reservoir of research from which we may keep up-to-date on the latest developments in a number of fields.

Local organizations such as Houston Contractors Association (HCA), American Council of Engineering Companies (ACEC – Houston) and Texas Council of Engineering Laboratories (TCEL – Houston Chapter) are in support of this research program (see endorsement letters).

LOCATION: This project is located along Broadway Paving between Galveston Road and IH 45 in Key Map Grids 535 F, K and P.

SCOPE OF CONTRACT AND FEE: Under the scope of the Contract, the University of Houston will perform professional services, which includes investigative study, analyses, and providing findings, conclusions, and recommendations in a report. The investigative study will include a review of industry stabilization standards and evaluation of design/construction of Broadway Paving project and recommendations for consideration of changes to pavement subgrade stabilization standards for the City's Infrastructure Design Manual.

Under this Agreement, the City of Houston shall pay an amount not to exceed $100,000.00 to the University of Houston in accordance with the budget set forth in Exhibit "A".

ACTION RECOMMENDED: It is recommended that City Council adopt an ordinance approving and authorizing an Agreement for Research Services with the University of Houston and allocate the funds.

HP HJ kd

DAR:DRM:MP:HJ:kd

Funding Information

Dept.	FY16	Out Years	Total
Public Works & Engineering	$20,000.00	$80,000.00	$100,000.00