Legislation Text

File #: 21-6212, **Version:** 1

Department: County Engineer

Department Head: Loyd Smith, P.E., Interim County Engineer

Regular or Supplemental RCA: **Regular RCA**

Type of Request: Investment Memo

Investment Memo Type: **Preliminary Investment Memo**

Project Name: Downtown Complex System Repairs - Caroline St. Tunnels Mitigation (Harvey) - 18035MFOX201

Project ID (if applicable): MF0X2

Vendor Legal Name (if applicable):

MWDBE Participation (if applicable):

Managing Entity: County Engineer

Incremental Expenditures Requested: $259,900

Total Estimated Project Cost: $4,234,307

Request Summary:

Request for approval of a Preliminary Investment Memo for the Downtown Complex System Repairs project, Caroline St. Tunnels Mitigation phase, for an additional $259,900 for a total authorization of $1,413,300 and commercial paper funding for an additional $260,000 for a total of $610,000, Precinct 1.

Project Description:

The Harris County Downtown Tunnel System (Tunnel System) connects and provides access to 15 County buildings in downtown Houston. This project aims to restore and mitigate flooding in the Tunnel System. This part of the project is to implement effective flood mitigation measures to significantly reduce the risk of flood damage to the Tunnel System and connecting facilities.

This part of the project would install a large lift station and several smaller sump pumps, powered by

an emergency generator in the most vulnerable part of the Tunnel System, the Caroline Street Tunnels, covering the area from the Criminal Justice Center to the Juvenile Justice Center and Civil Courthouse, to ensure proper flood water removal during extreme weather events.

Project Scope:

The overall project encompasses (1) studying flooding & flood prevention in the Tunnel System, (2) restoring the Tunnel System to its pre-Harvey state, and (3) mitigation measures to prevent future flooding & subsequent flood damage. This investment memo focuses on part 3, mitigation. This part of the project will install a large lift station and several smaller sump pumps which will be powered by an emergency generator in the Caroline Street Tunnel to remove water during flood events.

Upon funding approval and authorization to proceed, Johnston LLC, will provide professional architecture and engineering services and develop a detailed design and construction documentation package intended for bidding. The proposal for these professional services will be presented to Commissioner's Court as the Third Amendment to Johnston LLC contract. The detailed design and construction documentation phase will take approximately 180 days.

Upon selecting a general contractor, construction is expected to take no more than 365 calendar days. Completion of this project is required as soon as possible in order to be prepared for future severe weather and flooding events.

The major categories of construction work related to this project will be

- Demolition,
- Installation of flood mitigation utilities, including lift stations, pumps and emergency generators, and

Ancillary support equipment.

Justification:

The Tunnel System is important infrastructure, providing a secure pedestrian passage for County officials, employees, and jurors.

During Hurricane Harvey, the Tunnel System experienced subterranean flooding due to the discharge system of the tunnel not being equipped to withstand the influx of flood waters. This inundation resulted in: the loss of submersible pumps; the loss of electrical control panels; the loss of HVAC components; surface damage (i.e., drywall, wall paint, ceiling tile, wall cracking); the loss of fire detection systems (i.e., smoke detectors, alarms, sprinklers, and strobe lights); the loss of security components. All damages were estimated at about $1.17M, based on inspections and cost estimates from Johnston LLC and by FEMA.

Based on testimony from Facilities and Property Management personnel, the Tunnel System has suffered from flooding for at least ten times since Tropical Storm Allison in 2001. FEMA encourages

implementing hazard mitigation measures as part of the repair and restoration of a facility after being damaged during a disaster event, and these measures are strongly suggested at sites where damages are repetitive and where implementing these measures will significantly reduce the risk of damages from reocurring.

The portion of the Tunnel System most significantly damaged and most vulnerable to future flooding is the Caroline St. Tunnel, covering 1036 feet from the Criminal Justice Center to the Juvenile Justice Center and Civil Courthouse, adjacent to the Jury Assembly Building. Harvey brought up to 10 feet of flooding to this part of the Tunnel System for 3 days.

In addition to preventing future damages to the tunnel itself, these improvements to the Caroline Street Tunnel more importantly will provide the capacity to pump water out of the Tunnel System before it reaches water levels that could also increase the risk of flooding the adjacent Jury Assembly Building and Criminal Justice Center. The mitigation measures will also reduce downtime and recovery of the tunnel structure during future disaster events.

The success of the project can be measured through the following performance metrics:

- Design Completion within the planned timeline.
- Reduce damage restoration cost and time to restore the tunnel system after future severe weather events.
- Reduce the risk of damages from reoccurring during future flooding events.

Alternatives and Engagement:

Johnston LLC evaluated many scenarios and hazard mitigation measure to come up with a cost-effective solution. Based on thorough assessments, Johnston LLC determined and recommended rapid floodwater removal to be the most cost-effective means to prevent extensive damages to the tunnel and its connecting facilities, reducing recovery cost in potential future disaster events. Other alternatives have been considered, such as installing a series of flood barriers and gates through the tunnel system, but this was determined to be unfeasible due to excessive cost as well as the unlikely success of reducing the risks of potential damages, given unknown water penetrations of the tunnel systems. Instead, an adequate pump system that is able to pump flood water quick enough out of the tunnel system is a better mitigation plan.

Not implementing flood mitigation measures in the Tunnel System could negatively impact the connecting facilities and could potentially stress the flood mitigation measures implemented in the neighboring facilities due to the pressure build up from flooding.

The primary stakeholders for this project are FPM and citizens and County employees who utilize the Tunnel System. FPM has been directly involved in the planning and design of this project. The tunnel end users are engaged through consultant observation and monitoring of pedestrian traffic.

Anticipated Project Expenditures and Timeline:

Design for this part is expected to take 180 days. The subsequent project construction should take no more than a further 365 calendar days. Completion of this project is required as soon as possible to be prepared for future severe weather and flooding events, which can occur year-round.

Scope of Work	Estimated Cost*	Estimated Completion
Studies and assessments (Approved)	$544,000.00	Completed
Design & construction for Caroline Tunnel Restoration (Approved)	$609,500.00	June 2022
Total Mitigation Design Cost (for approval in this PIM)*	**$259,900.00**	**180 Days / May 2022**
*Design for Mitigation of the Caroline Tunnel**	*$226,000.00*	
*15% Design Contingency**	*$33,900.00*	
Total Construction Cost (to be approved later in FIM)**	$2,820,906.60	365 Days / July 2023
*Construction Cost Estimate***	*$2,350,756.00*	
*15% Owner Contingency***	*$352,613.40*	
*CoH Permitting/ CMT/ Surveys (5%)****	*$117,537.20*	
Total	**$4,234,306.60**	

*Design Cost estimates are based on a rough order of magnitude cost estimate of $226,000.00 as provided by Johnston LLC with an additional $33,900.00 in 15% design contingency funding. These costs include all required design disciplines such as civil, structural and MEP

**Construction Cost estimates are based on a professional consultant cost estimate of $2,350,756.00 as provided by CCS Inc with an additional $352,613.40 in 15% owner contingency funding.

***City of Houston Permitting and Construction Materials Testing and Survey Fees are estimated at 5% of the total construction cost at $117,537.80.

Project Schedule Risk: This project construction will be completed over a 12-month period. If during that time a severe weather or flood event occurs, it would have a significant effect on project completion.

Continued Operating Cost: As this is a refurbishment of an existing pedestrian tunnel, there are no expected changes in operating cost. All routine maintenance for the proposed equipment is expected to be performed by Facilities and Property Management (FPM).

Alignment with Goal(s):

_ Justice and Safety

_ Economic Opportunity

_ Housing

_ Public Health

_ Transportation

_ Flooding

_ Environment

X Governance and Customer Service

Previous Court Action:

Date	Agenda Item #	Action Taken
4/10/18	19.d.8.c	Approval for $394,500 for studying flooding in Tunnel System
12/17/19		Court Letter was presented to Commissioner's Court in the amount of $350K for design of Downtown Tunnel System Mitigation
1/7/20	1.p.3	Approval of CIP, including $350K for design of Downtown Tunnel System Mitigation
2/9/21	224	Approval of additional $149,500 for studying efforts
8/10/21	110	Approval of Final Investment Memo for $460K for construction of Restoration part of project in Caroline Street Tunnel

Address: N/A

Precinct(s): Precinct 1

Fiscal Summary:

Fiscal and Personnel Summary				
Service Name	-	**FY 21-22**	**Estimates**	
			FY 22	**Next 3 FYs**
Incremental Expenditures				
Labor Expenditures		-	-	-
Non-Labor Expenditures		260K	-	-
Total Incremental Expenditures		**$260K**	**-**	**-**
Funding Sources (General Fund, PIC Fund, Debt or CP, Grants, or Other - Please Specify)				
Existing Budget	Choose an item.	-	-	-
	Choose an item.	-	-	-
	Other:	-	-	-
Total Current Budget		-	-	-
Additional Budget Requested	Commercial Pap	260K	-	-
	Choose an item.	-	-	-

	Other:	-	-	-
Total Additional Budget Requested		$260K	-	-
Total Funding Sources		**$260K**	**-**	**-**
Personnel (Fill out section only if requesting new PCNs)				
Current Position Count for Service		-	-	-
Additional Positions Requested		-	-	-
Total Personnel		**-**	**-**	**-**

Department Approval by: Jacob Frazelle, Director, FPM, 10/28/2021

OMB CIP Team Approval by: William McGuinness, Manager - Capital Projects and Infrastructure, 10/28/2021

Commercial Paper Request *(For OMB use only)*:

This section will be completed only if requesting Commercial Paper. Otherwise the fields should be noted as N/A.

Receiving Department: County Engineer

Project PeopleSoft ID: MF0X2

Note: Commercial Paper is issued in increments of $5,000, and the excess is not available to be spent by the department.

CP Series Description: Commercial Paper Series D-2 can be used for (1) construction of public works, (2) the purchase of automobiles, equipment and machinery, including computers, materials and supplies for the operation of the County's precincts and departments (3) Professional services, including services provided by engineers, architects, attorneys, auditors, financial advisors, and fiscal agents, in connection with the contractual obligations described in (1) and (2).

Commercial Paper is being requested for Downtown Tunnel System project and is expected to be repaid within the next three fiscal years either through bonds, budgetary means or pay-as-you-go sources.

HB 1869 compliance confirmed by: Michael James, Assistant County Attorney, 9/16/21

OMB Financial Management contact: Amy Perez, Director, Financial Management, Office of Management and Budget