Request for Research Funding for FY 2023-2024			
Project Number (Research Center Use Only): RDO-24-02			
Requesting Office	Roadway Design Office and State Construction Office	**Priority**	2 of 2
Proposed Title	In Service Performance of Pipe to Structure Connections		
Justification	In the mid-2000s, District 7 began requiring the use of resilient connectors on the majority of pipe-to-structure connections. This requirement was intended as a 'pilot project' so that FDOT could review the performance of the resilient connectors in-place and evaluate statewide implementation based on the results. To this date, the investigation into the performance has not been performed. To investigate the performance, this project proposes to examine installed resilient connectors as well as structures with typical brick and mortar connections.		
Impact	The results would provide valuable insight relating to the durability of established resilient connections and means and methods of installation practices to maximize the service life of drainage systems. Adjustments to current guidance and requirements for pipe connections to structures statewide may also be justified. If the research is not conducted, FDOT will have to continue with current requirements, specifications, and assumptions.		
Affected Offices	Roadway Design Office – Tim Holley and Jennifer Green, State Construction Office – Jason Russell, potentially State Materials Office – Andrew Pinkham		
Existing Work	No work found that closely resembles the proposed project.		
Keywords Used In Existing Work Search **(Cannot leave blank)**	Resilient connector, pipe connection, flexible pipe connection, drainage structure connection, buried structure connection.		
Related Contracts (Give contract numbers)			
Funding Request	~$250,000 for project and field review	**Anticipated Duration**	Approximately 1-2 years
Project Manager	Tim Holley	**Contracting Method**	Likely direct contract with a university.
Equipment	Estimated equipment cost (or N/A) $18,000	Main equipment would likely be some type of camera able to inspect structures. A "Quickview Air HD" pole-type camera or similar could be effective tool to visualize the pipe/structure connection, and more cost- feasible for this project than a standard pipe crawler type camera. The pole-type camera would minimize or eliminate manned entry of structures and would also eliminate the need for maintenance of traffic setup needed for standard pipe crawler type camera. Once the project is completed, the camera would be delivered to Central Office.	
Urgency	3	Would be beneficial to the Department to have the information and performance comparisons to develop additional informed guidance.	
Implementability	2	Should be able to implement guidance based on the research through the Drainage Manual/ Drainage Design Guide, and FDOT Specifications which are updated annually as needed.	

Project Benefits (Succinct, complete explanation)

The project would give Central Office a facts-driven approach to decision making regarding pipe to structure connections statewide. Currently, decision making relies primarily on anecdotal evidence and commentary from suppliers/ producers. The comparison of in-field performance between mortar and resilient connections could yield improved policy and streamline connection requirements.

Project Benefits **(Select all that apply and explain)**	**Quantifiable Benefits (units, dollars, etc…if applicable)**	**Methodology or Data Sources Used to Determine Quantifiable Benefits. If not applicable, please give justification of project benefits**
o Materials Enhancement		Could replace a significant number of mortar connections with a more predictable material, reduce the material variability of field mixed mortar properties, and the variability of individual workmanship. Could improve the overall quality and linear flow of FDOT Drainage systems.
o Materials Savings		
o Time Savings		It should help with installation time, from reduced hand work labor and less time for mortar to cure.
o Lives Saved/Injuries Prevented		Potential for safety improvements. Less time in the trench is less exposure to trench related accidents.
o Other (Explain)		

*Comments should explain and support urgency, financial benefit, and implementability scores