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CTR SYMPOSIUM



# NCHRP 12-122

# PROPOSED AASHTO GUIDELINES FOR APPLICATIONS OF UNMANNED AERIAL SYSTEMS TECHNOLOGIES FOR ELEMENT-LEVEL BRIDGE INSPECTION

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# Project Team

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**TEXAS**

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# Research Objectives

- Develop a selection process for UAS technologies





# Research Objectives

- Develop operator and team qualifications



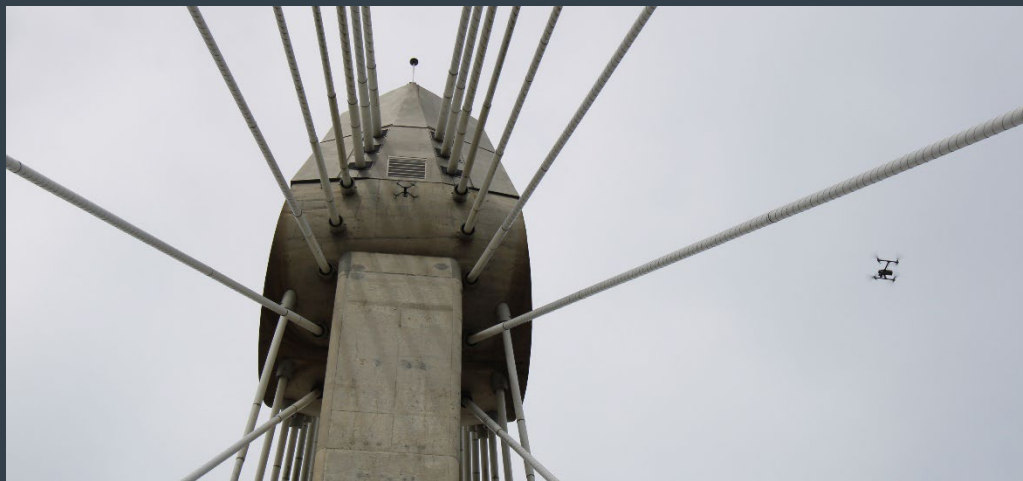
# Research Objectives

- Compare UAS and conventional element-level inspection methods



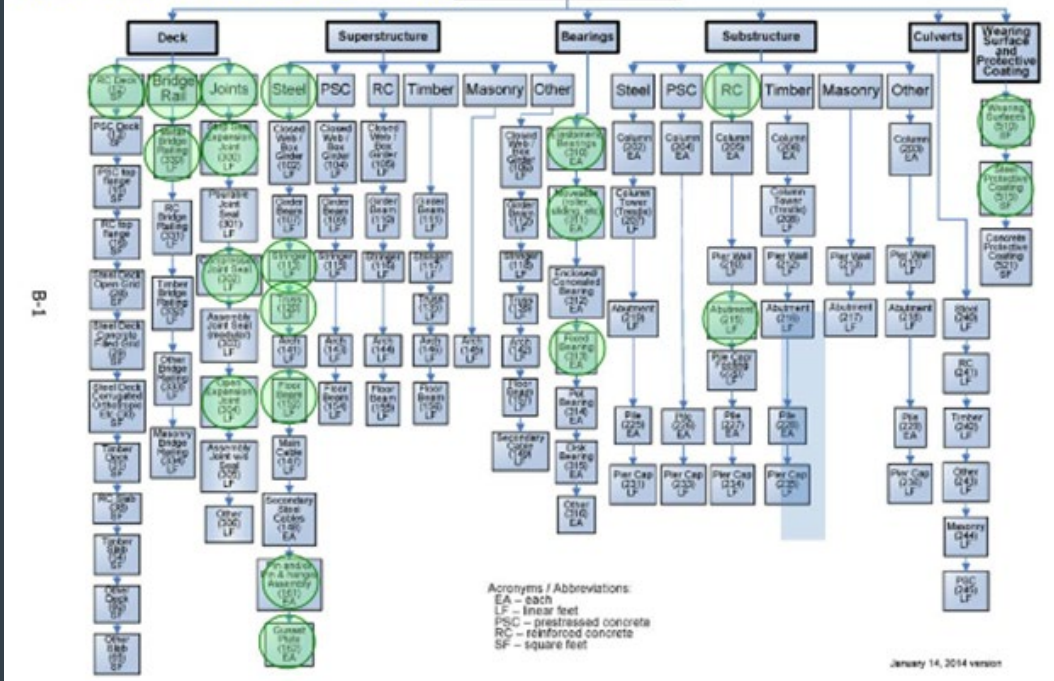
# Research Objectives

- Develop guidelines and a roadmap for holistic UAS implementation



# Methodology

## 2014 Element-Level Coding Chart 16 of 100 Elements Identified



Defects for Reinforced Concrete				
Defects	CS 1	CS 2	CS 3	CS 4
	GOOD	FAIR	POOR	SEVERE
Delamination/Spall/Patched Area (1080)	None.	Delaminated. Spall 1 in. or less deep or 6 in. or less in diameter. Patched area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area that is unsound or showing distress. Does not warrant structural review.	
Exposed Rebar (1090)	None.	Present without measurable section loss.	Present with measurable section loss but does not warrant structural review.	
Efflorescence/Rust Staining (1120)	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Cracking (RC) (1130)	Insignificant cracks or moderate-width cracks that have been sealed.	Unsealed moderate-width cracks, or unsealed moderate pattern (map) cracking.	Wide cracks or heavy pattern (map) cracking.	
Abrasion/Wear (PSC/RC) (1190)	No abrasion or wearing.	Abrasion or wearing has exposed coarse aggregate but the aggregate remains secure in the concrete.	Coarse aggregate is loose or has popped out of the concrete matrix due to abrasion or wear.	
Settlement (4000)	None.	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	
Scour	None.	Exists within tolerable	Exceeds tolerable limits but is	

The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.



# Questions?

