# Workforce Challenges and Innovative Contracting

#### **Results from an AASHTO Bridge Preservation Management Survey**

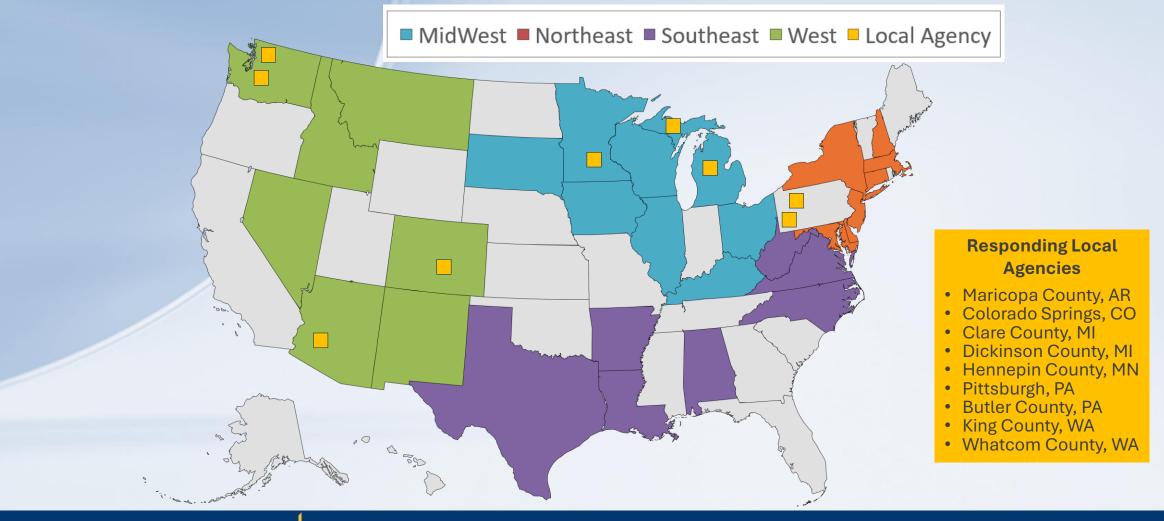
Presented by Richard Dunne, P.E. National Director of Bridge Preservation Greenman-Pedersen, Inc. (GPI) September 12, 2024







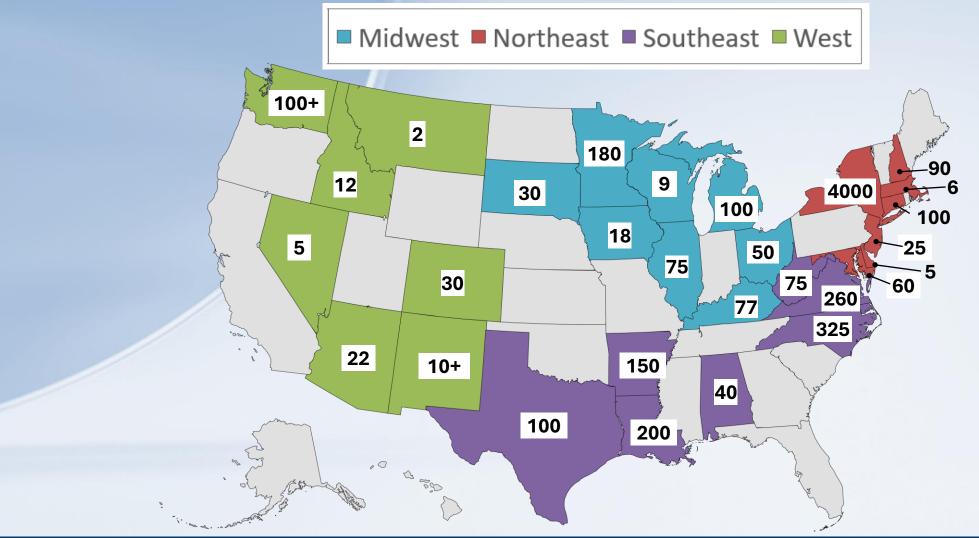
#### Nine Local Agencies from Six States Responded to the Survey



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### # Bridge Maintenance Staff Varies Between States

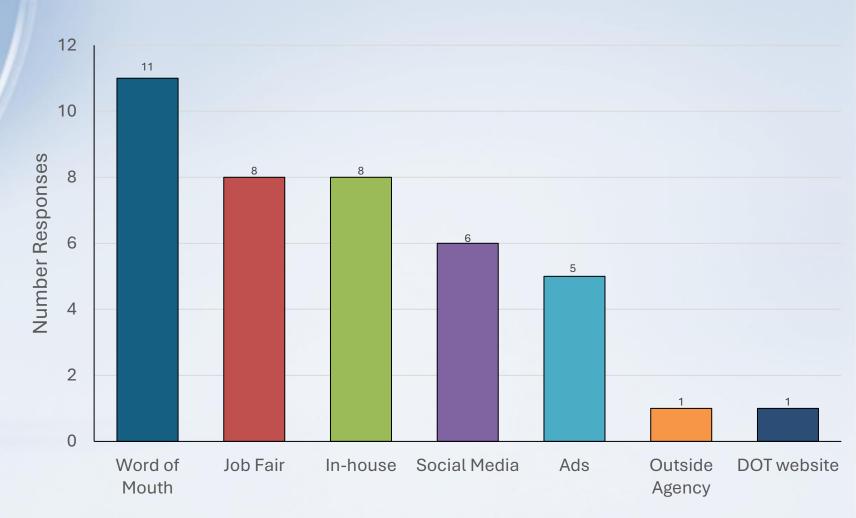


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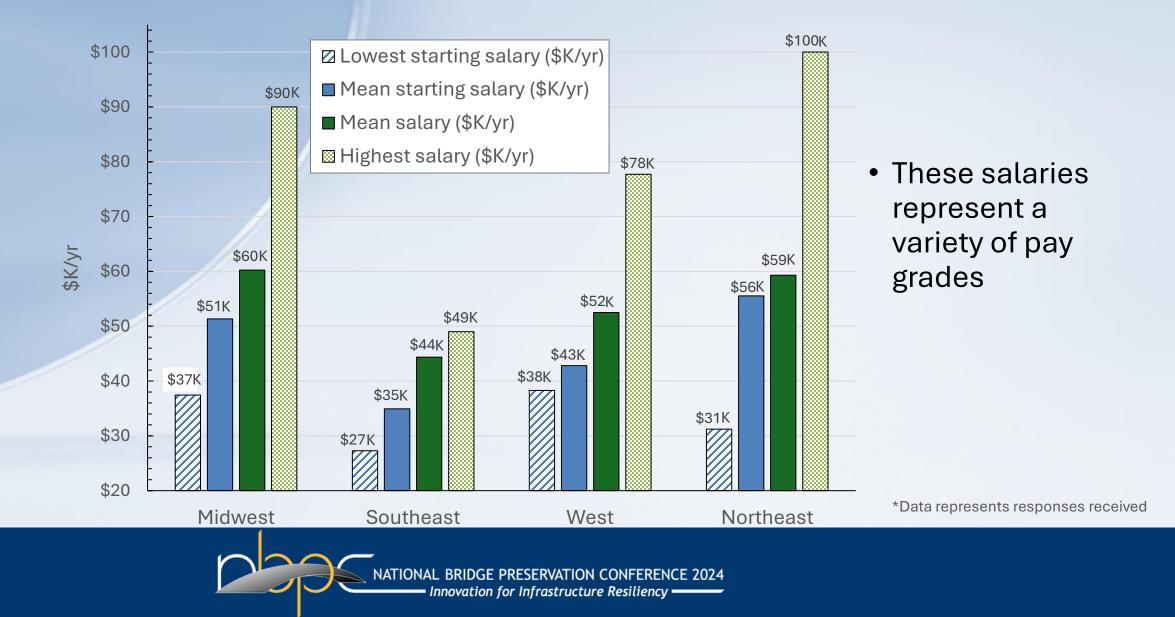
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#### **Method of Recruitment Varies**

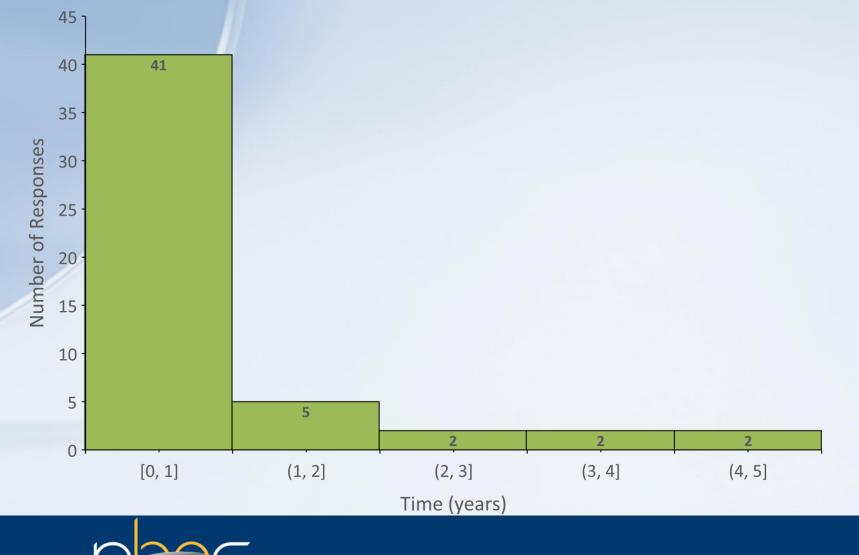
- Word-of-mouth was the most commonly reported recruitment method
- Others:
  - Job fairs, "Inhouse"
  - Social media, Ads
  - Outside agency, DOT website



#### Average Starting Salary vs. Average Salary (\$K/yr)



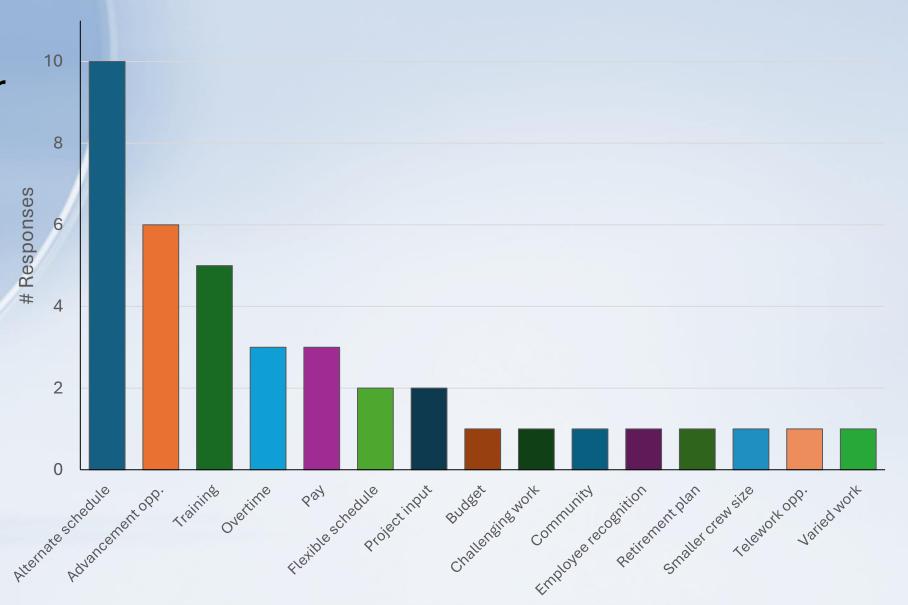
#### Average time to move out of starting position is 12-18 months



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#### Effective Strategies for Staff Retainment

Offering an alternate schedule was the most common method reported for retaining staff



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#### Activities Performed In-House

Activities Performed Responding State and Region Midwest	Bridge Washing	Bridge Sweeping	Deck Patching	Deck Sealing	Deck Overlays	Joint/Header Repair	Joint Replacement	Concrete Bridge Barrier Repair	Steel Bridge Barrier Repair	Steel Bridge Spot/Zone Painting	Steel Bridge Full Painting	Structural Steel Repair	Concrete Beam Patching	Concrete Beam Sealing	Concrete Beam Crack Injection	Bearing Cleaning	Bearing Lubrication	Bearing Painting	Reset bearings	Replace Bearings	Concrete Substructure Patching	Concrete Substructure Sealing/Crack Injection	Steel Substructure Spot/Zone Painting	Steel Substructure Blast Clean & Paint	Steel Substructure Strengthening	Scour Repair	Timber Deck Repair	Timber Railing Repair	Timber Fender System Repair	None of the Above
Illinois		х	х			х	х	х								х	х		х		х									
lowa			х	х		х		х								х											<u> </u>	<u> </u>	<u> </u>	
Kentucky	x	х	х					х		х			х		х				х		х	х				х	<u> </u>			<u> </u>
Michigan	x	Х	х	х		х	Х	х	х				х	х	х						х	х				Х	х	х	х	<u> </u>
Minnesota	x	Х	х	х	х	х	х	х	x	х		х	х	х	х	х	х	х	Х	х	Х	х	х	Х	х	Х	<u> </u>	<u> </u>	<u> </u>	──┦
Ohio	x	Х	х	х								Х				х					Х						<u> </u>		<u> </u>	──┦
South Dakota	x	Х	Х	Х		Х	Х	Х		Х						Х		Х			Х	Х	Х							
Southeast																														<b>-</b>
Alabama			х	х		х		х	x	Х		х	Х		х	х	х	х	х		Х		Х			<u> </u>	<u> </u>	<u> </u>	<u> </u>	──┦
Arkansas			Х	X		Х		х	х			X				X		х	X	X	Х		X	X	Х	<u> </u>	X	X	X	──┦
Louisiana	x		Х	X		Х	Х			Х		X	X		X	X	х		X	х	х	X	X	х	Х	X	X	X	X	
North Carolina		X	Х	X		Х	Х	х	х	Х		X	Х		х	X		X	х		Х	X	Х		Х	X	х	х	х	──┦
Texas Virginia	x x	X X	x x	X X	x	x x	x x	x x	x	Х		X X	X X	x	x x	x x		х	x	X X	X X	X			x x	x x	x	x	x	
West Virginia	x	x	x	x	^	x	x	x	x	х		x	x	x	x	x		x	x	^	x	x	x		x	x	x	x	x	┼──┦
Western	^	^	~	^		~	~	~	^	~		~	~	~	~	~		~	~		~	~	~		~					
Arizona			х		х	х	х	х	х				х	х	х	х										х	х	х		
Colorado	x	х	x	x	x	x	x	x	x	х	х	х	x	x	x	x	х	x	х	х	х	x	х	х	х	x	x	x	x	
Idaho			х			х		х	х																					
Montana						х		х	х			х	х						х							х	х	х		
Nevada			х																											
New Mexico	x	х	х	х	х	х	х	х	х	х		х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	
Washington	x	х	х	х	х	х	х	х	х	х		х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	
Northeast																														
Connecticut	x		х	х	х	х	х	х		х		х				х	х	х	х	х	х		х		х	х	х	х	х	
Delaware		х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	
Maryland	x	х	х			х										х														
Massachusetts																														х
New Hampshire	х	х	х	х	х	х	х	х		х		х	х	х	х	х	х	х	х	х	х	х	х		х	х	х	х	х	
New Jersey	х	х	х	х	х	х	х	х	х	х	х	х	х	х		х	х	х	х	х	х	х	х	х		х	х	х	х	
New York	х	х	х	х		х	х			х		х	х	х		х	х	х			х		х	х	х	х				
Pennsylvania	x	х	х	х		х	х	х		х		х		х		х	х	х	х		х	х	х		х	х	х	х	х	

#### Work Activities Performed In-House the Most Often

- Deck Patching (28)
- Joint/Header Repair (26)
- Concrete Substructure Patching (23)
- Bearing Cleaning (23)
- Concrete Bridge Barrier Repair (23)





#### Work Activities Performed In-House the Least Often?

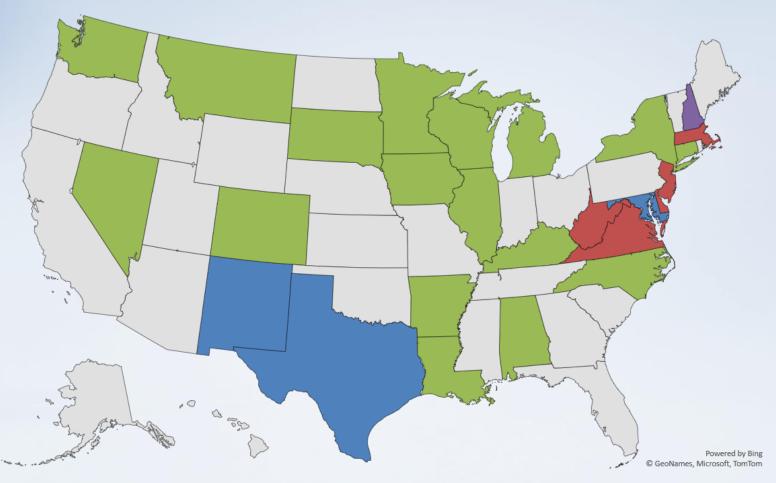
- Steel Bridge Full Painting (3)
- Steel Substructure Blast Clean & Paint (10)
- Deck Overlays (10)
- Bearing Replacement (13)
- Concrete Beam Sealing (13)



#### Percent State Funding Used for Bridge Maintenance

0-25% 26-50% 51-75% 76-100%

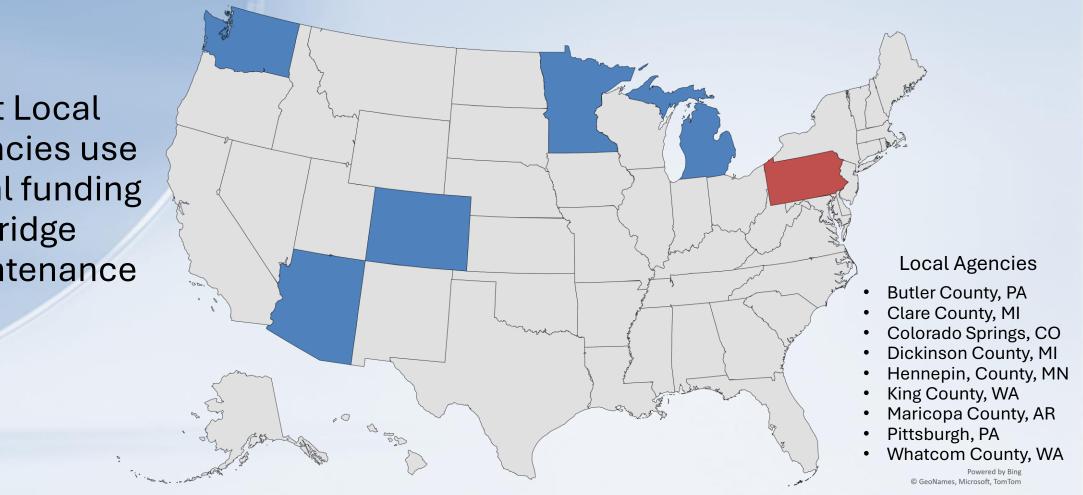
 Most bridge maintenance work is performed using State funding





#### Local Agencies Use of Local Funding

 Most Local Agencies use Local funding for bridge maintenance



76-100% 0-25% (Butler County)



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### % Bridge Maintenance Work Performed by Contract (Average)



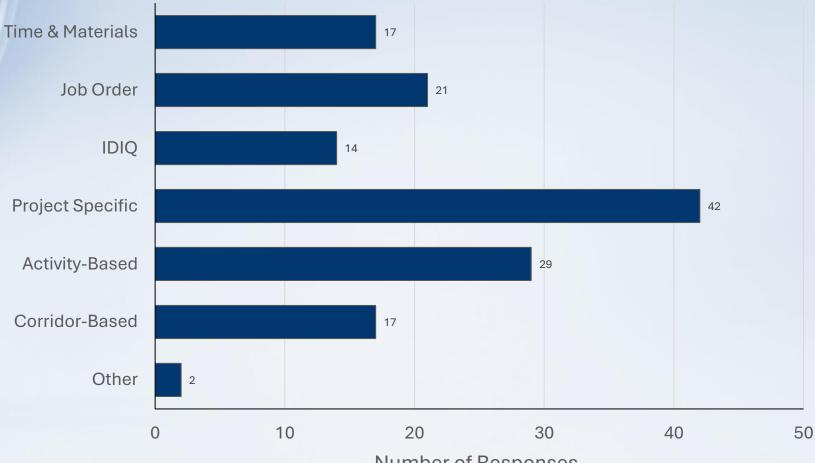
Average % Bridge Maintenance Work Performed by Contract



## **Contracting Methods Used (All Responses)**

 Project Specific Contracting is the most common contracting method overall

**Contracting Method** 



Number of Responses

\*This chart represents responding Agencies

\*\*This chart includes multiple responses per State and Local Agencies

## Contracting Methods Used (by Region)

 Project Specific and Activity-Based are the most common contract methods used in all regions

 The least common contract method varies

Region	Most Common Method	2nd Most Common Method	Least Common Method				
Midwest	Project Specific	Activity-Based	Time & Materials; Job Order				
Southeast	Project Specific	Activity-Based	Corridor-Based				
West	Project Specific	Job Order; Activity- Based	Time & Materials				
Northeast	Project Specific; Activity-Based	Time & Materials	IDIQ				

\*This chart represents responding Agencies

\*\*This chart includes multiple responses per State and Local Agencies

#### Jobs Typically Performed by In-House Maintenance Crews

- Sweeping
- Cleaning
- Deck patching
- Epoxy injection of decks
- Deck sealing
- Bearing cleaning
- Various other activities within the crew's capabilities





#### Factors that Determine Whether to Contract Out

- Work contracted out depends on:
  - Availability of the crew
  - Complexity of the work
  - Cost exceeding a threshold
  - Experience / capabilities of local bridge crew
  - Materials needed for the job
  - Resources
  - Size and scope of job (repair duration)
  - Combinations of the above





#### Activities Which Are Typically Contracted Out

- Activities requiring complex traffic control
  - e.g., joint replacements on heavy volume/high traffic corridors
- High-risk activities
  - e.g., abrasive blasting of steel bridges and painting lead exposure, bridge washing due to environmental exposures
- Activities requiring skilled personnel & specialized or larger equipment
  - e.g., welding and painting, hydro-scarification equipment (deck overlays), heat straightening, large painting projects with containment

