Supplement

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S1. Survey Sampling and Administration

In this section, we describe the criteria for the CSTEPS research team to develop sample frame of the survey data and how the survey was administered.

The largest public transit agencies are target population of this survey, which are defined as all public transit agencies operating fixed-route bus or/and rail transit systems in metropolitan areas with an annual fare revenue of at least one million dollars in 2017. The research team defined the target population by applying the following criteria.

(1) A list of public transit agencies serving urbanized area was drawn from National Transit Database (NTD). Residents living in large urban areas account for 96% of the passenger trips nationally (APTA, 2017). Their experience with extreme weather events matters most for the security and travel of most passengers in the U.S.

(2) The agencies whose annual fare revenue of over one million dollars in 2017 were kept. These largest transit agencies serving urbanized areas must report their operating data to the Federal Transit Administration. The reporting requirement is waived for urban agencies that operate less than 30 vehicles as well as those that operate no services (e.g., transit planning agencies). Sampling the largest public transit agencies helps us to access their operating data from NTD for further analysis. Additionally, larger organizations have stronger capacity and more information, and, thus, are more likely to respond a survey than smaller agencies (Tomaskovic-Devey et al., 1994; Xiang and Chen, 2023). Targeting this group has the potential for increasing survey response

rate and data quality.

(3) University-run agencies without fixed-route transit systems were removed. Largest transit agencies with fixed-route transit system spend more effort on building infrastructure, maintaining complex transit system, and coping with complex management and operation problems. Complex transit systems make the agencies more vulnerable to the adverse impact of extreme weather events. The elements within their transit systems are tightly coupled with each other (Perrow, 1994). Even small weather-caused breakdowns on one element may have a domino effect on their whole transit system. These transit system characteristics require agency to have a larger management team, enhanced capacity, and sufficient resources to respond to the changing external environment (i.e., extreme weather events) (Zhang et al., 2018).

(4) Private companies were removed as this survey focuses on public agencies.

For each of the identified agencies filtered from the previous criteria, the research team surveyed department heads (i.e., top managers in this study) in five common departments in each agency: operations, maintenance, engineering, service planning, and strategic planning.

There are several rationales of selecting top managers from these departments. First, they have a wealth of experience and expertise in operating and planning transit infrastructure, and they are familiarized with the local situation relevant with complex transit systemin management and corresponding responses to extreme weather events. Second, facing the risk of extreme weather events, top managers are the critical decision-makers responsible for devising strategies to address and prevent adverse impacts from changing, external environment in the time of emergency (Tabesh and Vera, 2020). Third, the experience and perspectives of individuals within organizations vary and depend on their expertise and positions within the organization (Schwenk, 1990; Zhang et al., 2018). Top managers' insights and experiences provide a comprehensive representation of the prevailing conditions, activities, and future directions of public transit agencies (Huang and Villadsen, 2023). Last, surveying multiple managers from one agency also improves possibility of having one respondent to report the actions and experience of the agency and reduces bias in the representativeness of responding agency.

The research team identified top managers and collected their contact information through several ways: (1) searching agency web sites; (2) making phone calls with staffs at public transit agencies; (3) submitting Freedom of Information Act requests to the agencies. Not all the agencies have all five departments, and some agencies were not willing to disclose contact information and participate in the study. The final sample frame includes 1,039 respondents from 291 agencies (Zhang and Welch, 2023).

Survey administration experienced pre-testing and full administration. The finalized survey instrument was coded as an online survey in Sawtooth Software®. The research team pretested the survey instruments with seven purposively selected top managers who were known to the team and who were willing to provide detailed comments and feedback on specific questions to maximize clarity. The research team revised the survey instruments with pretest respondents' constructive feedback. After the pre-testing, the revised and finalized survey was administered online to the full sample frame. The full survey opened on April 9th, 2019 and ran until June 19th, 2019. The research team sent a hard-copy invitation letter to each of the respondents informing them of the survey, its aims and the reasons why they were invited. One week after sending the hard-copy letter, respondents were invited by email to participate in the study. Each email included an online survey link and a unique personal ID and password. Following the initial invitation, biweekly follow-up reminders were sent to each of the respondents who had not responded or had started but not completed the survey. Five reminders were sent from April 17th, 2019 to May 29th, 2019. At the end of the survey instrument, the research team provided an option for respondents to enter a lottery for a $50 Amazon gift card.

Of the initial 1,039 individuals in the sample, several were removed during survey administration because they were either not reachable (N=73), unwilling to participate (N=26), not qualified to respond, or no longer employed by the agency (N=87). During the survey, several individuals were identified to supplement those replaced and invited to participate in the study. The total final valid sample size was 853 from 278 agencies.

Finally, 313 managers representing 194 transit agencies responded to the survey. The manager-level response rate is 38% (Response Rate 4) and the agency-level response rate is 70%. The manager-level response rate 4 was calculated following criteria developed by American Association for Public Opinion Research (2023).

S2. Model Specification

$$\ln\frac{E\{ContractingIMR_i\}}{1-E\{ContractingIMR_i\}} = \beta_0 + \beta_1 Uncertainty_i + \beta_2 ContracingRatio_i + \beta_3 FinanceIMR_i + \gamma X_i + \varepsilon_i$$

$$\ln\frac{E\{ContractingLP_i\}}{1-E\{ContractingLP_i\}} = \beta_0 + \beta_1 Uncertainty_i + \beta_2 \text{Uncertainty}_i^2 + \beta_3 ContracingRatio_i + \beta_4 FinanceIMR_i + \gamma X_i + \varepsilon_i$$

In both equations, i refers to the individual managers. $ContractingIMR_i$ represents whether the agency (manager i representing the agency) have contracting other organizations for immediate emergency responses; $ContractingLP_i$ represent whether the agency have contracting external actors for long-term planning. $Uncertainty_i$ refers to the linear term of manager i's perception of extreme weather event impact, Uncertainty_i^2 refers to the quadratic term. $ContracingRatio_i$ refers to the reliance of manager i's agency on using contracting to provide daily transit services. $FinanceIMR_i$ refers to the agency have received dedicated financial resources for immediate emergency responses. $FinanceLP_i$ refers to the agency have received dedicated financial resources for immediate emergency responses. We include additional explanatory variables X_i as controls in the estimation. ε_i is the random error term.

S3. Common Method Variance Analysis

Table S3.1 shows the result of Harman's single-factor test. No single factor explains more than 20 percent of the covariance among all survey items. This indicates that common method variance (CMV) is not a significant concern for our analysis. Table S3.2 shows the test result of unmeasured latent method construct (ULMC) method. We construct models with ULMC and without ULMC by using confirmatory factor analysis (CFA) then compared the factor loading of all observed survey items. If the factor loading differences between models with ULMC and without ULMC is below 0.2, CMV is not a concern in the regression model with these measurement items (Afthanorhan et al., 2021; Fusi et al., 2023). The small differences of factor loading in our models are all below 0.2, which indicates that CMV is not an issue for our regression results.

Table S3.1. Harman’s single-Factor Test Results.

Principal Components	Eigenvalues		
	Proportion of Variance (%)	Cumulative Proportion of Variance (%)	Standard Deviation
1	16.49	16.49	1.82
2	13.78	30.27	1.66
3	10.30	40.57	1.44
4	9.10	49.67	1.35
5	5.99	55.66	1.09
6	5.83	61.49	1.08
7	5.11	66.60	1.01

Note: The Principal Component Analysis (PCA) method was utilized to extract principal components in the Harman’s single-Factor Test. A total of 21 principal components were extracted initially. We only reported the components whose proportions of variance are larger than 5%. None of the first seven principal components individually account for more than 20% of the overall variability of our measurement items. This result shows that the CMV is does not pose a significant concern for our analysis.

Table S3.2. Factor Loading Comparison for Measurement Items.

Latent Variable	Measurement Items	Factor Loading without ULMC	Factor Loading with ULMC	Difference
	Over the past two years, has your agency done or is it currently doing any of the following to address extreme weather? (1=Yes, 0=No, I don't know is coded a missing value)			
Contracting for Immediate Emergency Responses	Contracted other organizations to provide assistance during extreme weather	1	1	0
Contracting for Planning	Contracted experts to help your agency plan for extreme weather	1	1	0
Uncertainty about extreme weather events	*To what extent do the following factors limit your agency's ability to build capacity to respond effectively to extreme weather? (1=Not at all, 2=Low extent, 3=Moderate extent, 4=High extent, 5=Very high extent)* (1) Uncertainty about the likelihood of extreme weather events (2) Uncertainty about the impacts of extreme weather events (3) Uncertainty about best options available to address extreme weather events	.694	.636	.058
Dedicated financial resources	*During the last two years, did the following happen to your agency as a result of extreme weather events? (1=Yes, 0=No or I don't know)* My agency received funding to plan for future extreme weather My agency received funding to repair or replace assets damaged by extreme weather	.150	.262	.112
Extreme weather impacts	*During the last two years, did the following happen to your agency as a result of extreme weather events?". A list of survey items includes the potential negative result of extreme weather events (1=Yes, 0=No or I don't know)* (1) Excessive delays in transit services (2) Temporary shutdown of all transit services (3) Temporary partial shutdown of some transit services (4) Failure of portions of transit services or systems (5) Damage to infrastructure or facilities (6) Damage to vehicles or equipment (7) Passenger or operator injuries (8) Passenger or operator loss of life (9) Other injuries or loss of life (e.g., bystanders) (10) Lawsuits were filed against my agency (11) Political oversight of my agency has increased (12) Individuals in my agency were removed, terminated, forced to resign or voluntarily resigned (13) My agency was the target of negative publicity	.540	.589	.049

Note: We employed Confirmatory Factory Analysis (CFA) to construct models with ULMC and without ULMC for the latent variables that were included in our regression models. To maintain consistency with our measurement approach for the key constructs in the regression model, we constrained all the factor loadings of measurement items for their respective latent variables to be equal. The difference of factor loading estimate between models with ULMC and without ULMC are small. All the differences are below the threshold of 0.2, which is used to infer the presence of a common method variance influencing the association between constructs in the statistical models. Thus, evidence from table A2 indicates that the common method variance is not a significant concern for the result of our regression mode.

S4. Correlation Matrix

Table S4.1. Correlation Matrix.

Key variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Contracting for immediate emergency responses	1														
2. Contracting for long-term planning	.35***	1													
3. Uncertainty about extreme weather events	-.09	-.00	1												
4. Reliance on contracting	.02	.17**	-.01	1											
5. Dedicated financial resources for immediate emergency responses	.20***	.13*	.09	.00	1										
6. Dedicated financial resources for long-term planning	.20**	.40**	.17***	.04	.33***	1									
7. Extreme weather impacts	.22***	.09	.08	-.11	.34***	.17**	1								
8. Organizational size (log)	.30***	.21***	-.05*	.02	.21***	.28**	.12	1							
9. Service area size (log sq miles)	.19**	.04*	-.13	.11*	.18***	.08	.23***	.51***	1						
10. Service efficiency	.16	-.00	.10	.03	-.02	.12*	.11*	.23***	.09	1					
11. Service effectiveness	.11	-.11	.04	-.20***	.10	.03	.01	.15*	-.18***	.30***	1				
12. Local funding percentage	.04	-.00	.02	.03	.07	.02	-.08	-.05	-.04	-.18***	.06	1			
13. State funding percentage	-.08	-.07	.05	.01	-.09	.01	-.01	-.22***	-.14**	.07	.09	-.19***	1		
14. Federal funding percentage	-.04	.14	.05	.08	.00	.09	.09	-.50***	-.10	-.06	.02	-.03	-.00	1	
15. Operating expense of purchased services (per capital $)	.04	.13*	.05	.68***	.00	.03	-.05	.18***	.10	.02	-.02	-.06	.06	-.00	1
16. Political environment	.21***	.13*	.10	.16***	.09	.02***	.01	.45***	.11*	.15*	.09	.19***	-.09	-.34***	.26***

*Note: Contracting for assistance, contracting for planning, dedicated financial resources for immediate emergency responses, and dedicated financial resources for long-term planning are binary variables (1=Yes, 0=No). Responses on the latent variables of uncertainty about extreme weather event were provided on a five-point Likert scale (1=Not at all, 2=Low extent, 3=Moderate extent, 4=High extent, 5=Very high extent). *p <.05, **p <.01, ***p<.005.*

S5. Uncertainty about Extreme Weather Events across Extreme Weather Impacts Level

Figure S5.1 shows the uncertainty level of three survey items across the three groups. According to the mean and frequency distribution of the level of extreme weather impacts, we classified the respondents into three groups. As the mean is 3.25, we categorize the respondents who experienced more than 3 types of impacts as the "High" group, while respondents who experienced 1 to 3 types of extreme weather impacts are categorized as the "Medium" group. Respondents who reported no impact of extreme weather are categorized as the "Low" group. The percentage for these three groups is correspondingly 45.3%, 40.5%, and 14.2%.

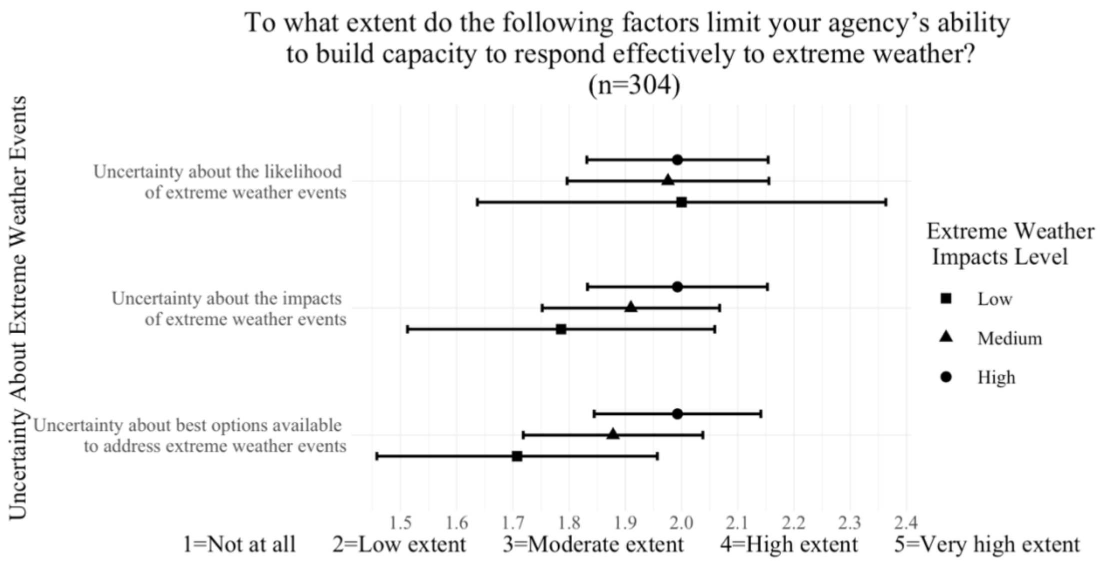

Figure S5.1. Uncertainty about Extreme Weather Events across Extreme Weather Impacts Level.

Note: As the mean of extreme weather impacts is 3.25, we categorize the respondents whose level is higher than 3 as the "High" group, the respondents whose level is from 1 to 3 as the "Medium" group, and respondents whose level is 0 as the "Low" group.

S6. Dedicated Financial Resources across Extreme Weather Impacts Level

Figure S6.1 shows the percentage of agencies that received dedicated financial resources for extreme weather across three groups with different extreme weather impacts level. ANOVA test indicates a statistically significant difference in manager responses concerning their agency receipt of funding for repairing transit assets damaged by extreme weather events, based on the level of extreme weather impacts experienced ($F=15.4$, $p<0.001$). Among the managers whose agencies have experienced a high level of extreme weather impacts, 12% reported their agencies received funding to plan for extreme weather events. In contrast, almost none of the other managers whose agencies encountered low and medium levels of extreme weather impacts reported receiving such funding (2% and 4%, respectively). This difference is statistically significant ($F=4.3$, $p<0.05$).

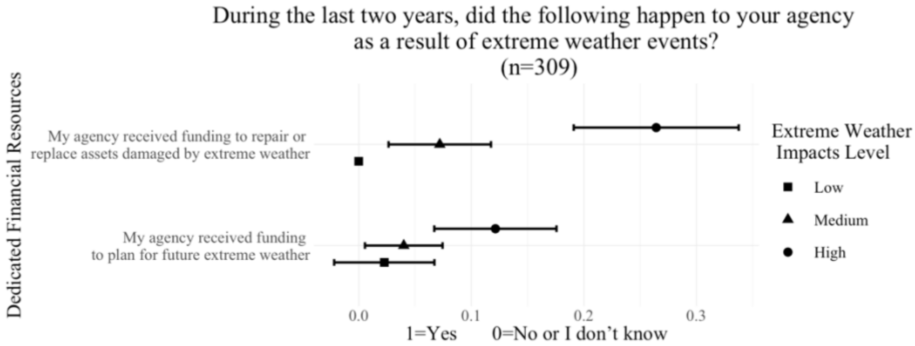

Figure S6.1. Dedicated Financial Resources across Extreme Weather Impacts Level.

Note: As the mean of extreme weather impacts is 3.25, we categorize the respondents whose level is higher than 3 as the "High" group, the respondents whose level is from 1 to 3 as the "Medium" group, and respondents whose level is 0 as the "Low" group.

S7. Observation Representativeness Analysis

We used a t-test to compare the observation analyzed in model 1 with the full set of survey respondents (table S7.1). The comparison of means show that the responses used in the survey are less likely to rely on contracting for daily transit services ($p<0.001$) and have higher operating expense for purchased services ($p<0.001$) than the full set of survey respondents. The observation also suffers from significantly greater extreme weather impacts than the survey respondents ($p<0.05$). There are no significance differences between analyzed observations and the full set of survey respondents regarding contracting decision, dedicated financial resources, organization size, service efficiency, service effectiveness, percentage of local, state, and federal funding, and political environment.

Table S7.1 T-Test Results Comparing Analyzed Observation and Survey Respondents

Variable	Mean of Respondents	Mean of Observations	Mean Difference	T Statistic	Degrees of Freedom	P Value
Contracting for immediate emergency responses	34.5	36.9	-2.4	0.5	414.3	0.598
Contracting for long-term planning	18.4	17.8	0.6	-0.2	412.2	0.864
Uncertainty about extreme weather events	2	2	-0.1	0.7	418.6	0.508
Reliance on contracting	0.4	0.2	0.2	-6	504.6	**<.001**
Dedicated financial resources on immediate emergency responses (%)	14.9	17.4	-2.5	0.8	392.7	0.453
Dedicated financial resources on long-term planning (%)	7.4	6.2	1.3	-0.6	439	0.573
Extreme weather impacts	3.3	3.7	-0.4	2.2	417.1	**0.029**
Organization Size (log)	5.9	5.8	0.1	-0.7	419.2	0.498
Service area size (log sq miles)	5.4	5.4	0	0.1	418.5	0.915
Service efficiency	0.2	0.2	0	-0.6	451.5	0.542
Service effectiveness	0.2	0.2	0	1.3	428.3	0.199
Local funding percentage (%)	26.3	26.7	0	0.2	413.6	0.834
State funding percentage (%)	21.4	20.5	0	-0.4	419.8	0.662
Federal funding percentage (%)	16.1	16.3	0	0.2	431.7	0.860
Operating expense of purchased services (per capital $)	13.7	9	4.7	-3.5	500.5	**<0.001**
Political environment	55.8	54.5	0	-1.1	407.7	0.287

S8. Robustness check

We conduct a robustness check by using perceived severity of extreme weather events as an alternative for the measurement of extreme weather impacts. Following Zhang et al., (2018), we measure perceived severity of extreme weather events using a scale calculated from the mean of responses for the following survey items. "Considering the extreme weather events that have happened in your area in the previous two years, has the level of adverse impact been catastrophic, major, moderate, minor, or none?" (1=minor, 5= catastrophic). Survey items include 12 types of extreme weather events: (1) Extreme cold temperatures, (2) Extreme heat wave, (3) Wildfires, (4) River floods, (5) Flash floods, (6) Hurricanes or tropical storms, (7) Severe rainstorms or thunderstorms, (8) Storm surges, (9) Extreme high winds, (10) Tornadoes touchdown, (11) Extreme snow storms, (12) Freezing rain/ice.

Table S8.1 shows the robustness check result and the comparison of models with alternative measurement and original models. Model 1a and 2a include the original measurement of extreme weather impacts. Model 1b and 2b include the alternative measurement of perceived severity of extreme weather events.

We also compare the models' goodness of fit indexes (i.e., Pseudo R-squared). The pseudo R-squared for model 1a is slightly higher than the model 1b. The pseudo R-squared for model 2a is slightly higher than the model 2b.

Additionally, the perceived severity of extreme weather events is not significantly associated with contracting decisions (See model 1b and model 2b). In model 1a, the extreme weather impacts have a significant association with contracting for immediate emergency responses. This implies that public organizations are more likely to respond to the adverse outcomes brought by tangible impacts from extreme weather than by general perceived extreme weather severity.

Table S8.1 Robustness Check Results for Extreme Weather Severity

	Contracting for immediate emergency responses		Contracting for long-term planning	
Explanatory variables	Model 1a	Model 1b	Model 2a	Model 2b
Uncertainty	-0.091*	-0.096*	-0.238**	-0.229*
	(0.190)	(0.193)	(1.231)	(0.251)
Uncertainty squared			0.046*	0.044*
			(0.257)	(1.197)
Reliance on contracting	0.069	0.055	0.230**	0.236**
	(0.901)	(0.956)	(1.046)	(1.039)
Dedicated financial resources for immediate emergency responses	0.172	0.203		
	(0.423)	(0.423)		
Dedicated financial resources for long-term planning			0.547***	0.541***
			(0.844)	(0.828)
Control variables				
Extreme weather impacts	0.036*		0.004	
	(0.089)		(0.114)	
Perceived extreme weather severity		0.108		-0.015
		(0.268)		(0.345)
Organizational size	0.102**	0.110**	-0.002	-0.002
	(0.177)	(0.184)	(0.224)	(0.217)
Service area size	-0.008	-0.021	0.007	0.012
	(0.179)	(0.186)	(0.225)	(0.219)
Service efficiency	0.424	0.281	-0.075	-0.068
	(1.904)	(2.028)	(1.809)	(1.802)
Service effectiveness	-0.670	-0.571	-0.544	-0.530
	(2.133)	(2.202)	(4.957)	(4.894)
Local funding percentage	0.014	0.002	-0.032	-0.033
	(0.790)	(0.841)	(0.993)	(1.018)
State funding percentage	0.093	0.107	-0.140	-0.138
	(0.917)	(0.952)	(1.151)	(1.137)
Federal funding percentage	0.917**	0.917**	-0.139	-0.153
	(1.902)	(1.899)	(2.768)	(2.756)
Operating expense of purchased services	0.001	0.002	0.001	0.001
	(0.018)	(0.020)	(0.018)	(0.018)
Political environment	0.962**	0.921**	0.311	0.305
	(1.597)	(1.713)	(1.897)	(1.951)
McFadden's Pseudo R-squared	0.173	0.172	0.208	0.207
Log Likelihood	-106.162	-105.251	-70.876	-70.776
AIC	240.324	236.502	171.751	171.552
Observations	195	193	191	190

*Note: Coefficients are AME. Standard errors in parentheses; Standard errors are clustered by agency; *p<0.1; **p<0.05; ***p<0.01.*

S9. Moderating Effect of Extreme Weather Impact

Table S9.1. Logistic Model Results: Moderating Effect of Extreme Weather Impacts on Contracting for Immediate Emergency Responses.

	Contracting for Immediate Emergency Responses		
Explanatory Variables	Model 1	Model 2	Model 3
Uncertainty	0.053	-0.094**	-0.093**
	(0.366)	(0.191)	(0.187)
Reliance on contracting	0.050	0.424	0.065
	(0.944)	(1.892)	(0.911)
Dedicated financial resources on Immediate Emergency Responses	0.184	0.187	0.437
	(0.439)	(0.424)	(1.482)
Uncertainty: Extreme weather impacts	-0.037*		
	(0.090)		
Reliance on contracting: Extreme weather impacts		0.088	
		(0.362)	
Dedicated financial resources on Immediate Emergency Responses : Extreme weather impacts			0.025
			(0.312)
Control variables			
Extreme weather impacts	0.118**	0.060**	0.326
	(0.224)	(0.150)	(0.094)
Organizational size	0.096**	0.096**	0.101**
	(0.175)	(0.179)	(0.178)
Service area size	-0.002	-0.009	-0.007
	(0.179)	(0.174)	(0.181)
Service efficiency	0.403	0.390	0.434
	(1.978)	(1.810)	(1.923)
Service effectiveness	-0.692	-0.617	-0.653
	(2.165)	(2.133)	(2.129)
Local funding percentage	0.011	-0.010	0.017
	(0.827)	(0.806)	(0.797)
State funding percentage	0.148	0.008	0.084
	(0.907)	(0.890)	(0.914)
Federal funding percentage	0.936**	0.838*	0.921**
	(1.881)	(1.944)	(1.911)
Operating expense of purchased services	0.000	-0.000	0.001
	(0.018)	(0.019)	(0.018)
Political environment	0.983***	0.989***	0.955**
	(1.664)	(1.644)	(1.611)
McFadden’s Pseudo R-squared	0.185	0.179	0.174
Log Likelihood	-104.669	-105.473	-106.070
AIC	239.338	240.946	242.141
Observations	195	195	195

*Note: Coefficients are AME. Standard errors in parentheses; Standard errors are clustered by agency; *p<0.1, **p<0.05; ***p<0.01.*

Table S9.2. Logistic Model Results: Moderating Effect of Extreme Weather Impacts on Contracting for Long-term Planning.

	Contracting for Long-term Planning		
Explanatory Variables	Model 1	Model 2	Model 3
Uncertainty	-0.056 (1.372)	-0.265** (1.306)	-0.236** (1.206)
Uncertainty squared	0.028 (0.242)	0.052** (0.275)	0.046* (0.251)
Reliance on contracting	0.213* (1.094)	0.478** (1.852)	0.235** (1.059)
Dedicated financial resources on Long-term Planning	0.557*** (0.840)	0.566*** (0.847)	0.466 (1.493)
Uncertainty: Extreme weather impacts	-0.029** (0.116)		
Reliance on contracting: Extreme weather impacts		-0.063 (0.382)	
Dedicated financial resources on Long-term Planning : Extreme weather impacts			0.010 (0.231)
Control variables			
Extreme weather impacts	0.065** (0.275)	0.025 (0.167)	0.003** (0.127)
Organizational size	-0.008 (0.207)	-0.006 (0.197)	-0.002 (0.224)
Service area size	0.012 (0.223)	0.007 (0.220)	0.007 (0.223)
Service efficiency	-0.094 (1.984)	-0.071 (1.829)	-0.068 (1.797)
Service effectiveness	-0.618 (5.886)	-0.457 (4.805)	-0.542 (4.926)
Local funding percentage	-0.035 (1.032)	-0.048 (1.001)	-0.033 (0.995)
State funding percentage	-0.083 (1.204)	-0.147 (1.098)	-0.146 (1.181)
Federal funding percentage	-0.144 (2.724)	-0.202 (2.500)	-0.150 (2.798)
Operating expense of purchased services	0.001 (0.018)	-0.000 (0.017)	0.001 (0.018)
Political environment	0.285* (1.950)	0.315* (1.871)	0.309** (1.908)
McFadden's Pseudo R-squared	0.234	0.218	0.208
Log Likelihood	-68.480	-69.950	-70.836
AIC	168.960	171.900	173.671
Observations	191	191	191

*Note: Coefficients are AME. Standard errors in parentheses; Standard errors are clustered by agency; *p<0.1, **p<0.05; ***p<0.01.*

References

Afthanorhan, Asyraf, Zainudin Awang, Norliana A. Majid, Hazimi Foziah, Izzat Ismail, Hussam A. Halbusi, and Shehnaz Tehseen. 2021. “Gain More Insight From Common Latent Factor in Structural Equation Modeling.” *Journal of Physics: Conference Series* 1793 (012030): 1-9. https://doi.org/10.1088/1742-6596/1793/1/012030.

American Association for Public Opinion Research. 2023. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*, 10th ed. American Association for Public Opinion Research. https://aapor.org/wp-content/uploads/2023/05/Standards-Definitions-10th-edition.pdf.

APTA (American Public Transportation Association). 2017. “Who Rides Public Transportation.” Accessed September 24, 2024. https://www.apta.com/wpcontent/uploads/Resources/resources/reportsandpublications/Documents/APTA-Who-Rides-Public-Transportation-2017.pdf.

Fusi, Federica, Fengxiu Zhang, and Eric W. Welch. 2023. “Intra-Organizational Communication in Public Agencies: The Effects of Contracting Out Core Services.” *The American Review of Public Administration* 53 (5-6): 224-242. https://doi.org/10.1177/02750740231162346.

Huang, Ting, and Anders R. Villadsen. 2023. "Top Managers in Public Organizations: A Systematic Literature Review and Future Research Directions." *Public Administration Review* 83 (6): 1618-1634. https://doi-org.ezproxy1.lib.asu.edu/10.1111/puar.13628.

Perrow, Charles. 1994. "The Limits of Safety: The Enhancements of a Theory of Accidents." *Journal of Contingencies & Crisis Management* 2 (4): 212-220. https://doi-org.ezproxy1.lib.asu.edu/10.1111/j.1468-5973.1994.tb00046.x.

Schwenk, Charles R. 1990. "Conflict in Organizational Decision Making: An Exploratory Study of Its Effects in For-Profit and Not-for-Profit Organizations." *Management Science* 36 (4): 436-448. https://www.jstor.org/stable/2632008.

Tabesh, Pooya, and Dusya M. Vera. 2020. "Top Managers' Improvisational Decision-Making in Crisis: A Paradox Perspective." *Management Decision* 58 (10): 2235-2256. https://doi.org/10.1108/MD-08-2020-1060.

Tomaskovic-Devey, Donald, Jeffrey Leiter, and Shealy Thompson. 1994. "Organizational Survey Nonresponse." *Administrative Science Quarterly* 39 (3): 439-457. https://www.jstor.org/stable/2393298.

Xiang, Tianyi, and Yifan Chen. 2023. "To Coordinate or Not? A Configurational Approach to Understand Public Organizations' Emergency Preparedness Coordination." *Public Administration Review* 84 (5): 817-832. https://doi-org.ezproxy1.lib.asu.edu/10.1111/puar.13752.

Zhang, Fengxiu, Eric W. Welch, and Qing Miao. 2018. “Public Organization Adaptation to Extreme Events: Mediating Role of Risk Perception.” *Journal of Public Administration Research and Theory* 28 (3): 371-387. https://doi.org/10.1093/jopart/muy004.

Zhang, Fengxiu, and Eric E. Welch. 2023. "Explaining Public Organization Adaptation to Climate Change: Configurations of Macro-and Meso-Level Institutional Logics." *Journal of Public Administration Research and Theory* 33 (2): 357-374. https://doi.org/10.1093/jopart/muac027.