

Disaster Recovery Guidance: Quantitative Survey Report



American Planning Association

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**HAZARD REDUCTION
& RECOVERY CENTER**

Disaster Recovery Guidance: Qualitative Survey Report

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EXECUTIVE SUMMARY

This project sought to understand two broad questions:

- What are planners' perceptions of the disaster recovery process and their roles in community recovery?
- What do planners need to know about disaster recovery to better support their communities?

This research involved three interrelated phases: an annotated bibliography (completed in December 2018), qualitative telephone interviews with professionals experienced in recovery (April–July 2019), and an online survey of the general APA membership (June–August 2019). This report provides results from the online survey. The survey was conducted to learn how APA can better support community planners and other professionals in being prepared for disaster recovery efforts in their communities.

The survey involved a random sample of 1,000 APA members and garnered 196 individual responses. The results of the survey provide insight into what planners need in order to advance the Federal Emergency Management Agency's Risk Mapping, Assessment and Planning (Risk MAP) goals. This report identifies how existing guidance can be updated and advanced to address the issues planners face during recovery. It also helps to distinguish and clarify the range of community hazard and disaster recovery experiences—specifically, illuminating the various roles planners can play in the disaster recovery process—with the goal of improving guidance for communities with varying capacities to better recover from hazard events.

Key findings show that few participants have experience with making actual plans for recovery, and most existing resources for recovery are not being used by participants. This indicates that there is a lack of education and training for disaster recovery planning. However, the findings also suggest that there are many opportunities to establish these educational resources. Notably, there is a need for disaster-specific funding information and guidelines that identify which disaster and recovery specific data will be useful. While few participants had completed post- or pre-disaster recovery plans, those who had done pre-disaster recovery plans were more likely to incorporate existing community plans into the recovery plan than those who had only done post-disaster recovery plans.

Finally, results indicate that the training methods preferred by respondents are workshops, conferences, and symposia rather than more books or documents. Interactive training and educational tools are desired.

INTRODUCTION

The American Planning Association (APA) is building upon the seminal 2014 Planning Advisory Service Report 576, *Planning for Post-Disaster Recovery: Next Generation*, and the accompanying briefing papers, by designing a tactile post-disaster recovery guidebook for local planners recovering from catastrophic flooding and accompanying hazards. Hazard mitigation planning enables communities to effectively pursue actions that help reduce or eliminate risks to life and property from natural hazards. Planners can play a key role in guiding communities through the complexities of recovery management, post-disaster decision making, and long-term risk reduction by educating stakeholders and engaging them around holistic considerations of seemingly disparate variables, like land-use and development patterns, infrastructure, density, and vulnerability.

Yet, community planners continue to face significant challenges applying their strengths to disaster recovery. Because of this, the APA, along with researchers from the Hazard Reduction and Recovery Center and the Department of Landscape Architecture and Urban Planning at Texas A&M University, developed a research project that will provide the evidence base for future planning guidance and training materials around disaster recovery. This project sought to understand two broad questions:

- What are planners' (and allied professionals') perceptions of the disaster recovery process and their roles in community recovery?
- What do planners (and allied professionals) need to know about disaster recovery to better support their communities?

This research involved three interrelated phases: an annotated bibliography (completed in December 2018), qualitative telephone interviews with professionals experienced in recovery (April - July 2019), and an online survey of the general APA membership (June-August 2019). This report provides results from the online survey. The survey was conducted to learn how APA can better support community planners and other professionals in being prepared for disaster recovery efforts in their communities. The survey involved a random sample of 1,000 APA members. The results provide insight into what planners need in order to advance FEMA's Risk MAP goals. It identifies how existing guidance can be updated and

advanced to address the issues planners face during recovery. This report also helps to distinguish and clarify the range of community hazard and disaster recovery experiences—specifically, illuminating the various roles planners can play in the disaster recovery process—with the goal of improving guidance for communities with varying capacities to better recover from hazard events.

This report is divided into three major areas: Methods, Findings, and Recommendations. Each represents a different survey emphasis. **Methods** describes the procedure and justification for the online survey and summarizes participant demographics. This section is used to compare the sample to the whole population, as well as to compare among types of jurisdictions. **Findings** is divided into three sections: *Recovery Perspectives* assesses whether background education is needed to convince a target population of their role in recovery or other challenges; *Previous Disaster Experience and Recovery Activities* gathers information on recovery participation and tests if locations or personnel with more experience are more knowledgeable or more likely to have recovery planning; finally, *Post- and Pre-Disaster Recovery Planning* measures involvement in post- and pre-disaster recovery planning. The report concludes with **Recommendations**, a chapter that summarizes key takeaways for improving recovery planning in the future.

ACKNOWLEDGEMENTS

This report is based upon work funded through the Federal Emergency Management Agency (FEMA) to the American Planning Association (APA). This survey has been reviewed and approved by the Texas A&M Institutional Review Board. The lead investigators of this research project are Shannon Burke and Joe DeAngelis, AICP, with APA; and Michelle Meyer, PHD, and Shannon Van Zandt, AICP, PHD, with the Hazard Reduction and Recovery Center at Texas A&M University. Research support was provided by Texas A&M University graduate students Judanne Lennox-Morrison, Abrina Williams, and Joy Semien, as well as Carlee Purdum, PHD, and Siyu Yu, AICP, PHD, at Texas A&M University, and Rich Roths, Alexandra Gomez, and Troy Brundidge at APA.

METHODS

Following the completion of qualitative interviews with planners and allied professionals experienced in disaster recovery (see Qualitative Interview Report), an online survey was designed to understand current disaster recovery perspectives and experiences, as well as to assess the disaster recovery needs of the broader planning community. An online survey provided the best option to achieve this, as surveys allow for collection of opinions, experiences, and subjective feelings of a sample of the broader target population.¹ Furthermore, surveys are optimal for this research for three reasons. First, surveys fit well with probability-based sampling (e.g., random sampling), which can be used to make estimates of a target population. Without probability sampling, any estimates that the results represent the views of the target population are potentially biased (as is the case with convenience or purposive sampling). Probability sampling has a large advantage over other methods, such as informal polls or meetings, during which those with the strongest opinions (whether positive or negative) are most likely to participate. Next, surveys allow for standardized measurement of the concepts of interest—in our case, disaster recovery. Surveys provide participants with the same questions, in the same order, thus reducing bias, such as spontaneous changes of language, that may be introduced through more flexible data collection methods. Third, surveys may be the only available source of information on a particular topic.

Past experiences in the field of disaster recovery indicate that many planners get involved only after their community is affected. Pre-disaster recovery planning is a best practice that is woefully underutilized.² We recognized that understanding the perspectives of professionals with limited disaster experience was necessary to fill this gap. For this study, we wanted to collect not only the thoughts of those who were experienced with disaster recovery, but also the thoughts of those who had never experienced disaster in their careers as planners or allied professionals. Additionally, investigating which educational methods would most engage this target population will support any future development of guidance materials.

¹ Fowler Jr, F.J. 2013. *Survey Research Methods*. Sage publications.

² Smith, G. P., and D. Wenger. 2007. "Sustainable disaster recovery: Operationalizing an existing agenda." In *Handbook of Disaster Research* (pp. 234-257). New York: Springer.

SAMPLING

Our goal was to understand and estimate the perspectives of a broad group of planners and allied professionals. The APA membership was an appropriate target population. This target population would provide the first avenue for sharing any recovery guidance developed as a result of this study. APA membership includes 47,000 people, such as planning professionals, practicing community planners, consultants, and regional/state/federal officials. APA staff drew a random sample of 1,000 APA members. These members are only those who had consented to being contacted by APA. There were two duplicates in the file, which were replaced with new randomly drawn members.

QUESTION DEVELOPMENT

The final survey includes 51 questions. Appendix A provides the final survey instrument. Question numbers were not viewable by participants.³ Question numbers are referenced throughout the report for ease of cross-referencing results with questions.

The survey was developed iteratively. We began by drawing questions from other similar surveys, including some from APA about hazard mitigation and some from Texas A&M University about mitigation and recovery planning. We then incorporated questions that aligned with the results from the qualitative interviews, including level of collaboration, planning tools used, resources and sources of information, and learning methods. Texas A&M University team members generated the first draft of the survey, which was reviewed and revised with APA team members. The second draft of the survey was shared with several APA staff members outside the research team for additional feedback. This second draft was then uploaded into the Qualtrics online platform and pre-tested with Urban Planning graduate students at Texas A&M University to estimate length and timeliness of the survey instrument. The survey was revised again after this feedback. Each time the survey was reduced in length to be mindful of participants' time.

³ Qualtrics survey development maintains questions numbers not based on order in the survey, but in terms of when questions are added to a survey. This ensures that questions and data do not get mixed if question order is rearranged. We did not show question numbers to participants.

SURVEY DISSEMINATION

An online dissemination method was chosen because the target population was professionals who receive communication from APA via email. Qualtrics survey platform was used for dissemination. It allows for email addresses to be uploaded and contacted through the platform using pre-written standardized messages, along with scheduled reminders.

Survey dissemination began on July 1, 2019. We started with 100 randomly selected emails from the sample pool. We began with this small group in case there were errors in the survey, or if we received feedback saying that the survey was too time-consuming. An additional 200 randomly selected emails from the pool were sent participation requests on July 8, 2019. We received the expected response rates with these two groups and saw no major concerns in terms of the length of time participants spent in the survey (which was tracked within the online platform). The remaining 700 emails from the sample were sent the first request for participation on July 23, 2019.

Each participant received the initial email with the survey link, then three reminder emails with the survey link (see Appendix A). Participants who completed the survey and those who selected to opt out from the study either through the email link or by contacting the researchers did not receive email reminders. Initial-email-plus-reminder contacting is a best practice protocol for surveying.⁴ Respondents received an automated “Thank You” email upon completion of the survey.

A total of 27 participants opted out of the study by either clicking the link to opt-out or emailing the research team. Common reasons for not participating as expressed in the emails included being unfamiliar with disaster recovery or too busy. In addition, 33 emails bounced or were otherwise undeliverable. The final sampling frame for calculating response rates is 940.

The survey closed on September 3, 2019, approximately two weeks after the final survey reminder was sent. The survey had 196 participants. This equates to a response rate of 20.8%. Of those 196 participants, 140 fully completed the survey, for a completion rate of 71.4%. Analyses below include all responses

⁴ Dillman, D. A. 2011. *Mail and Internet Surveys: The Tailored Design Method--2007 Update With New Internet, Visual, and Mixed-Mode Guide*. John Wiley & Sons.

available. We kept respondents who provided partial surveys to maximize the amount of data available for each question. The total number of respondents answering each question will be indicated with those results.

PARTICIPANTS

The following information describes the study participants. The majority are either in city government or private consulting firms. Many respondents have worked across various jurisdictional scales. In fact, 69 of the 194 respondents (36%) selected more than one scale of jurisdiction. Across respondents, the majority have experience working at the municipal (65%) or county level (36%). About 9% did not have experience working directly with jurisdictions. Respondents could also select multiple specialization areas, and 79% of the respondents did select more than one area of specialization.

Table 1. Study Participant Information

Employer Type (Q3)	Percent (n=194)
City government	25%
County government	6%
Joint city/county agency	1%
Metropolitan or regional agency	3%
State government	4%
Federal government	2%
Economic development	0%
Other public entity	2%
Nonprofit organization	3%
Educational institution/university	8%
Private consulting firm	33%
Law firm	1%
Development firm	1%

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Other (describe)	10%
Retired (please indicate last type of employer)	3%
Specialization Area (Q4)	Percent (n=190)
Academia	14%
Code enforcement	13%
Community or neighbor development	35%
Communications and engagement	15%
Comprehensive or long-range planning	52%
Economic development and revitalization	36%
Environmental and natural resources planning (including water)	30%
Facilities planning	16%
Food systems or public health	4%
GIS, GeoDesign or urban informatics	6%
Hazards mitigation, disaster recovery, or resiliency	23%
Historic or cultural preservation	21%
Housing policy, design, or implementation)	24%
Land use and development regulation and zoning	58%
Parks, open space, and recreation planning	22%
Planning and land use law	27%
Planning management, budgeting, and finance	22%
Policy research or advocacy	12%
Site planning or construction management	24%
Sustainability or climate protection planning	14%
Transportation planning	28%
Urban design	27%
Other specialty (please describe)	14%

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Scale of Jurisdictional Experience (Q5)⁵	Percent (n=194)
Municipal/city	65%
County/parish	36%
Regional	24%
State/territory	21%
Tribal	4%
Special district (water, school, etc.)	8%
National	9%
International	6%
Other	3%
I do not work directly with jurisdictions	9%

Jurisdictional Size of Most Recent Experience (Q8)	Percent (n=162)
Less than 10,000	12%
10,000-24,999	9%
25,000-49,999	14%
50,000-99,999	14%
100,000-199,999	9%
200,000-299,999	9%
300,000-499,999	9%
500,000-999,999	6%
1,000,000 or more	20%

⁵ Those who selected “Other” and described that they had retired are left as “Other.” Some indicated where they worked before. These were recoded into their appropriate categories.

FINDINGS

The findings are divided into three sections that relate to community recovery perspectives, experience, and planning. *Recovery perspectives* assesses whether background education is needed to convince a target population of its role in recovery or other challenges. *Previous disaster experience and recovery activities* gathers information on recovery participation and tests if locations or personnel with more experience are more knowledgeable or more likely to have planning. *Post- and pre-disaster recovery planning* measures involvement in post- and pre-disaster recovery planning.

RECOVERY PERSPECTIVES

Recovery perspectives were assessed using 17 questions related to respondent opinions on involvement of planners in recovery, challenges to pre-disaster recovery planning, use of resources, level of knowledge, and access to data and technical support. Respondents could select all perspectives they have towards disaster recovery and could also offer their own information by selecting the “Other” response option.

This set of questions gathers participant perspectives on disaster recovery activities and educational opportunities. To understand interaction between the target population with disaster and recovery experts, we asked how often they interact with various types of experts, including: hazard mitigation experts, emergency management, flood experts, nonprofits and private sector employees involved in recovery, extension agents, scholars or academics who study disaster, and federal agency employees from the Federal Emergency Management Agency (FEMA) and the Department of Housing and Urban Development (HUD), which fund many recovery projects (Q271). Respondents could indicate whether they had no interaction (1), yearly or less (2), a few times a year (3), about once a month (4) or about once a week or more (5). **For all expert groups, the median amount of interaction was yearly or less or no interaction** (see Appendix B).⁶ “Yearly or less” was the median response for interaction with federal hazard mitigation experts, academics or university experts, local emergency managers, local hazard mitigation experts, FEMA and HUD employees, flood experts, private sector experts in hazard and

⁶ We use median as a measure of the central tendency in the data. Median identifies the 50% point in the response. In other words, half of respondents indicated the median or less and half of respondents indicated the median or above. Using a median reduces skew caused by a few respondents who may be extreme outliers in the data.

disaster, and state emergency management (Figure 3.1). **There exist some agencies that respondents generally never interact with, including extension agents, state hazard mitigation experts, and nonprofits or NGOs involved in disaster recovery.** Previous research indicates that pre-disaster relationships dramatically improve post-disaster coordination, as well as provide educational opportunities for both sides to learn from each other about how their work overlaps.^{7,8} Fostering better relationships between APA members and these groups and helping APA members understand why networking is important is needed.

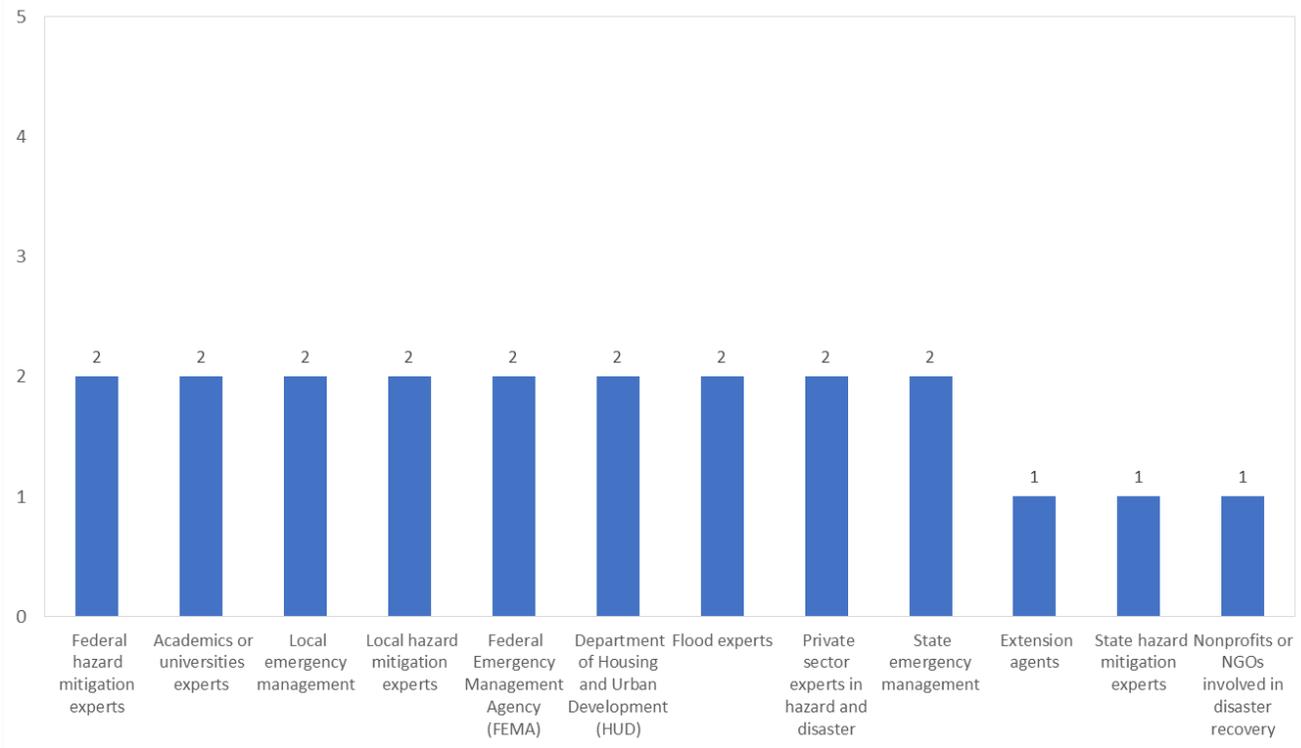


Figure 3.1. The frequency of respondent interaction with experts (Q271)

Note: 1 = No interaction at all; 2 = Yearly or less; 3 = A few times a year; 4 = About once a month or so; 5 = About once a week or more.

⁷ Kapucu, N. 2014. "Collaborative Governance and Disaster Recovery: The National Disaster Recovery Framework (NDRF) in the U.S." In R. Shaw (Ed.), *Disaster Recovery* (pp. 41-59). Tokyo: Springer Japan.

⁸ Kapucu, N., T. Arslan, and M.L. Collins. 2010. "Examining Intergovernmental and Interorganizational Response to Catastrophic Disasters: Toward a Network-Centered Approach." *Administration & Society*, 42(2), 222-247. doi:10.1177/0095399710362517

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Based on the results from the qualitative interviews with recovery experts in an earlier part of this research, we wanted to understand how APA members perceived planners' roles in recovery, as well as measure their perceptions on who should be responsible for leading recovery. We also asked about their perceptions of support for and challenges to recovery planning.

When asked who should lead recovery (Q269), the most common response (27%) was "local emergency management should lead disaster recovery" (Figure 3.2). The top four suggested leaders of disaster recovery, in the opinion of respondents, were local emergency management, state emergency management, local elected officials, and the local planning department. For this question, those who chose the "Other" option (9%) provided many nuanced opinions that were not otherwise captured in our pre-defined options. For example, suggested leaders described in the "Other" option include public entity, agency most related to each specific aspect of recovery, the state, and military base tenants. Under the "Other" option, some respondents stated that leadership depends on the type and size of the hazard event, or the situation and the size of the community. Some pointed out that capacity, commitment, and expertise are the critical factors, not the unit of government. Still, some felt leadership should change depending on the timeline. Finally, some wrote in that they did not know who should lead. Overall, these results indicate that APA members see emergency managers as central to disaster leadership, which may lead planners to be less involved in recovery activities.



Figure 3.2. Respondents' perception of who should lead recovery (Q269)

Respondents were also asked about the specific role of planners in various recovery activities (Q245). The activities that were given as options for this question were based on the professional experiences of the report authors and the results from the qualitative interviews with recovery experts. The question asked them to rate the level of involvement they felt planners should have, ranging from not involved (1) to extremely involved (4) in each of the following activities:

- Leading disaster recovery efforts
- Promoting a culture of prevention and preparedness
- Developing resilience goals
- Integrating resilience into various city plans
- Integrating disaster recovery planning with other city plans
- Providing guidance and focus for pre-disaster simulations
- Provide technical expertise on hazard management

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- Prepositioning, organizing, and coordinating teams specific to disaster response and recovery needs
- Bringing stakeholders from other agencies/departments/organizations together
- Building a local culture of disaster awareness
- Establish clear line of responsibility
- Identify sources of recovery funding, explore financial needs of recovery, plan for financial needs of recovery
- Developing early warning systems
- Paying close attention to the needs of vulnerable communities
- Developing pre-disaster recovery plans
- Other

The results indicate that respondents felt that planning professionals should be extremely involved in four things from the list: (1) integrating disaster recovery planning with other city plans, (2) integrating resilience into various city plans, (3) developing resilience goals, and (4) promoting a culture of prevention and preparedness (see Appendix B). The median response for each of these four activities was “Extremely Involved,” the highest possible response (Figure 3.3). Moreover, respondents expressed the belief that planning professionals should be moderately involved in many other activities including: developing pre-disaster recovery plans, paying close attention to the needs of vulnerable communities, identifying sources of recovery funding, establishing clear lines of responsibility, building a local culture of disaster awareness, bringing stakeholders from other agencies together, providing technical expertise on hazard management, providing guidance and focus for pre-disaster simulation, and leading disaster recovery efforts. The two items respondents generally felt were least important for planners’ involvement related more to other stages of emergency management (i.e., preparedness or response) rather than recovery. The median response for each of the following activities was “Slightly Involved”: developing early warning systems and prepositioning, organizing, and coordinating teams specific to disaster response and recovery needs. It is a positive finding that respondents felt planners should be involved in all these activities.

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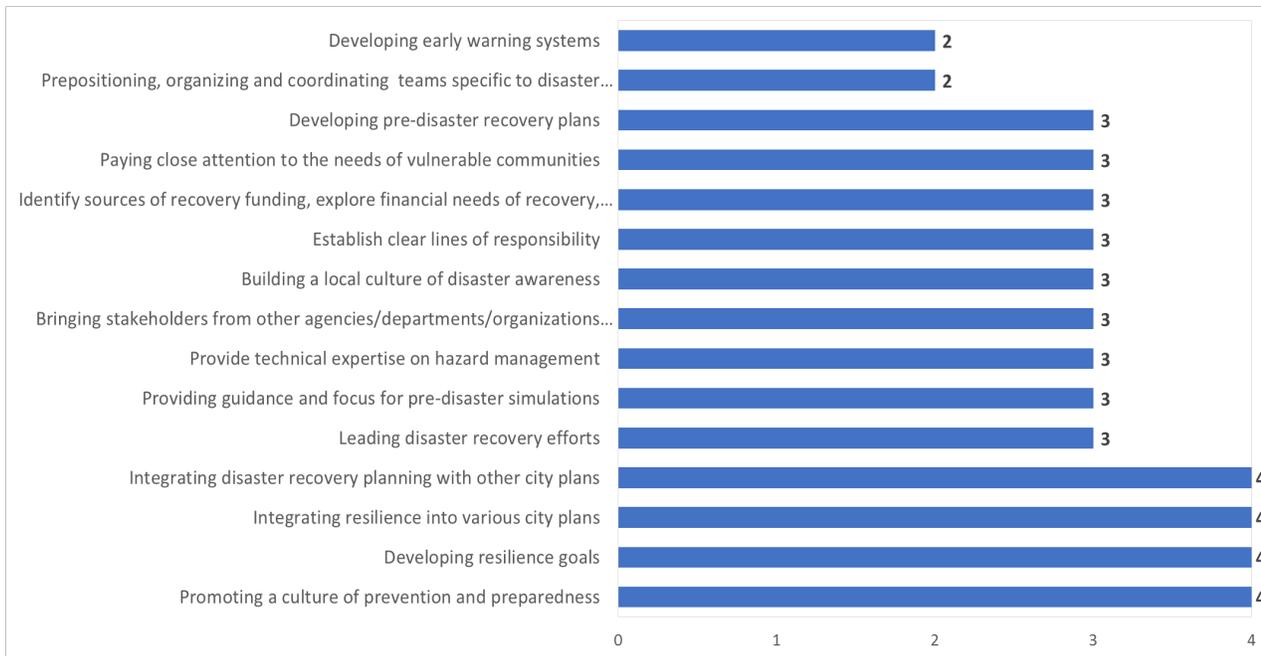


Figure 3.3. The level of involvement planning professionals should have in the activities (Q245)
 Note: 1 = Not Involved; 2 = Slightly Involved; 3 = Moderately Involved; 4 = Extremely Involved.

We asked respondents how much they agreed or disagreed with the notion that certain perceptions or attitudes about disasters affect the willingness for their community to engage in recovery planning (Q246). Figure 3.4 shows that most respondents do not see these issues as a problem in their communities. Only two of the five barriers were perceived by the respondents. **About 52% of respondents agreed or strongly agreed that there is not enough support from state or national entities for preparing for disaster recovery.** Additionally, 43% of respondents agreed or strongly agreed that there was not enough political will for disaster planning. The majority of respondents recognize that lack of pre-disaster planning is an issue for their community, do not believe that conflict between sectors makes it impossible to address planning for disaster recovery, and felt the public was concerned about disasters.

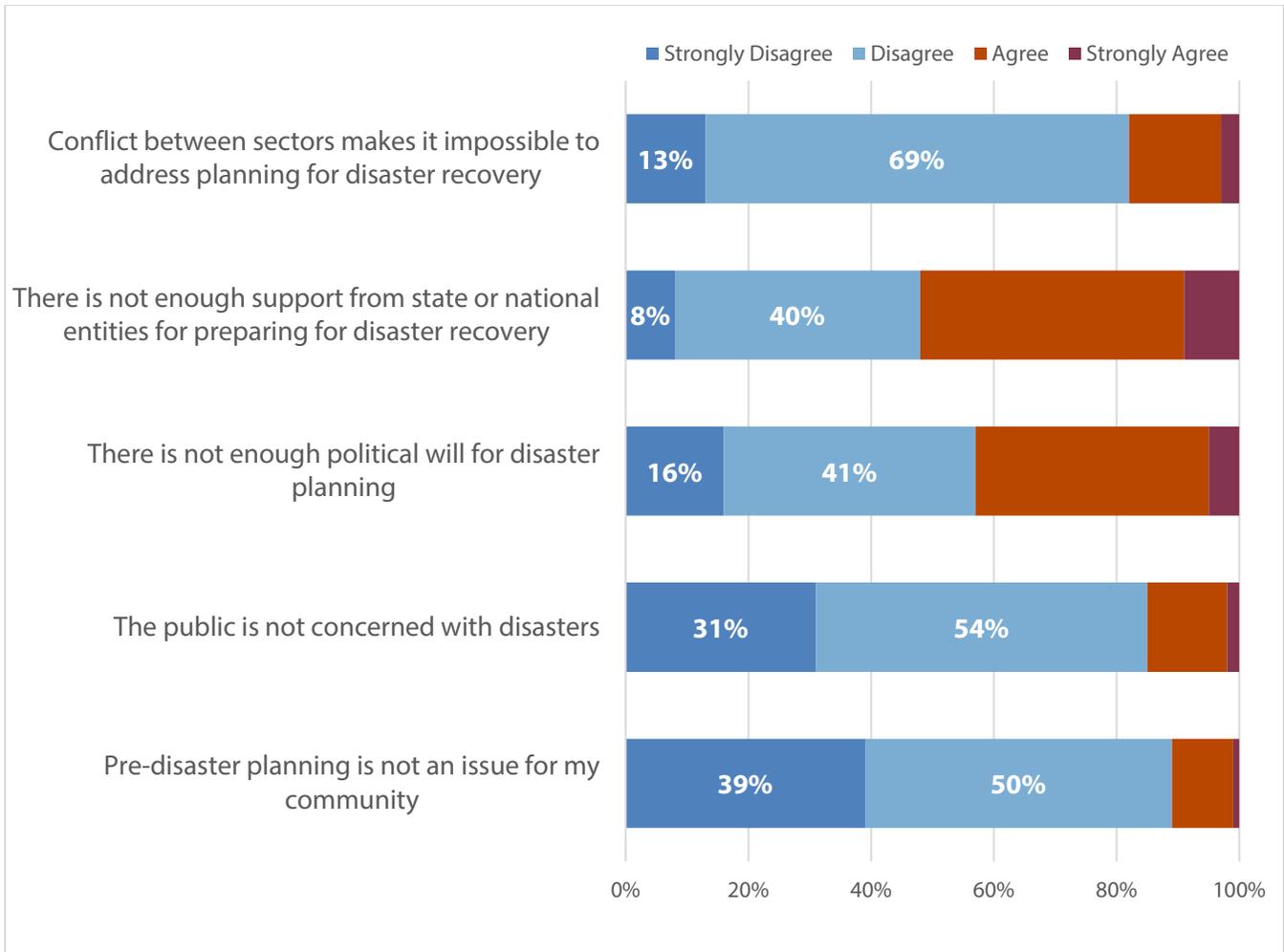


Figure 3.4. Level of agreement addressing pre-disaster recovery in the community (Q246)

At the community-level, when asked about the general support offered for disaster recovery planning by different officials and stakeholders, the options were: elected officials, municipal staff complement, municipal planning staff, emergency management, business communities, special districts, nonprofits, and citizens (Q247). Response options were poor (1), adequate (2), or excellent (3). Most of the respondents believed emergency management staff and first responders provided excellent support for disaster recovery planning in their communities (Figure 3.5). All other stakeholders were rated in general as providing adequate support. “Other” responses included county staff, and “this varies too much to state a generalization”.

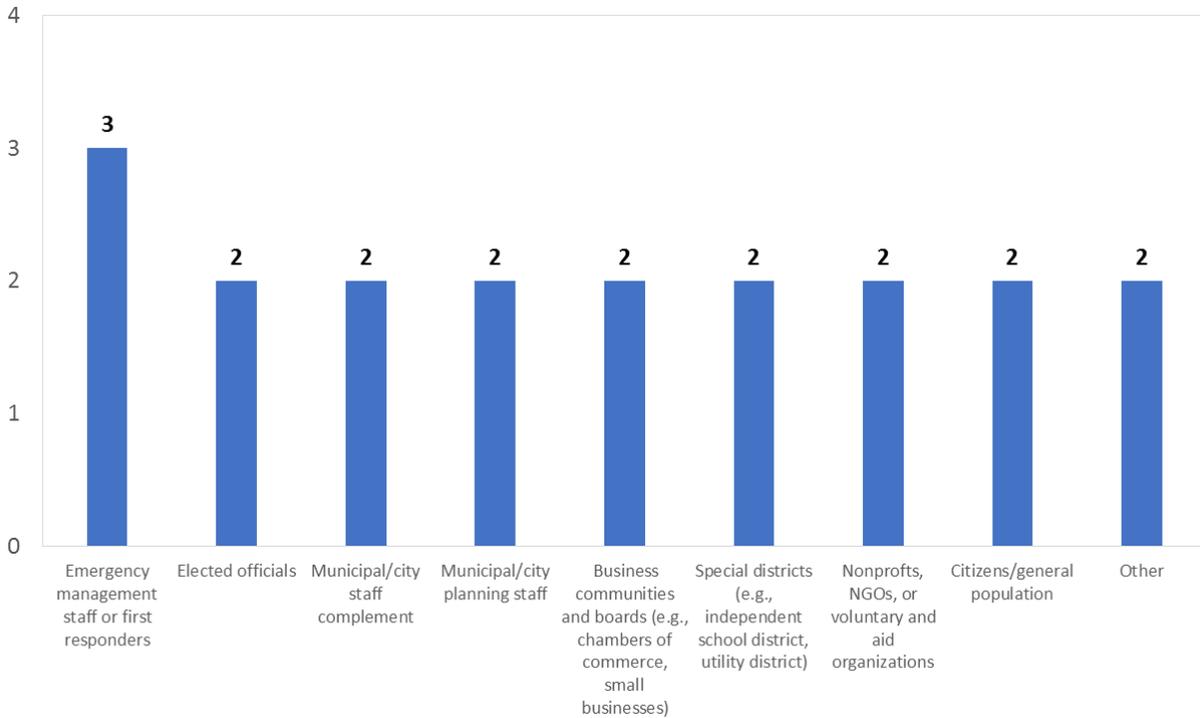


Figure 3.5. General support for disaster recovery planning in the community (Q247)

Note: 1 = Poor; 2 = Adequate; 3 = Excellent

Respondents were also asked about their experience with disaster recovery training (Q273). Specifically, they were asked if they had received such training, and those who responded affirmatively were asked from whom (Q248) and how (Q274). **As shown in the Figure 3.6, almost half of respondents (n=80, 47%) reported to have previously received disaster recovery training.** For those that had received training, the most common source of training was FEMA (68%) or the state (39%) (Figure 3.7). **As for the training method, nearly all of respondents (94%) received training in classroom or in person,** and about half received

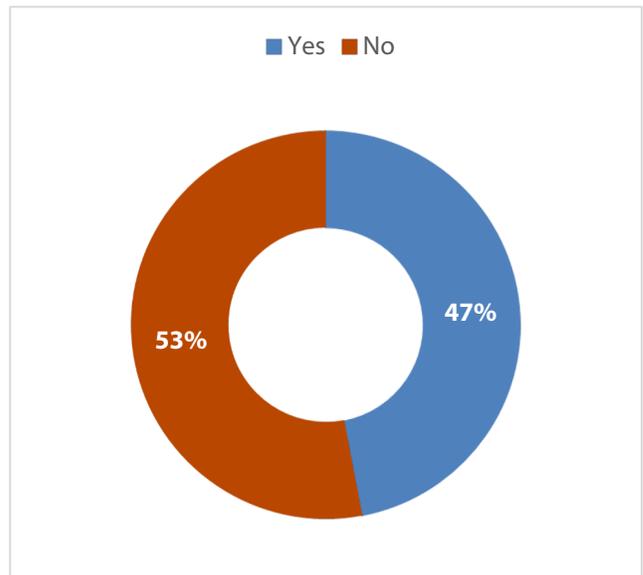


Figure 3.6. Disaster recovery training experience (Q273)

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training through webinars (53%) and some through conferences (24%) (Figure 3.8). “Other” responses included online graduate coursework, at disaster recovery sites, local emergency management staff, simulation of a disaster, internet testing, and by a mentor.

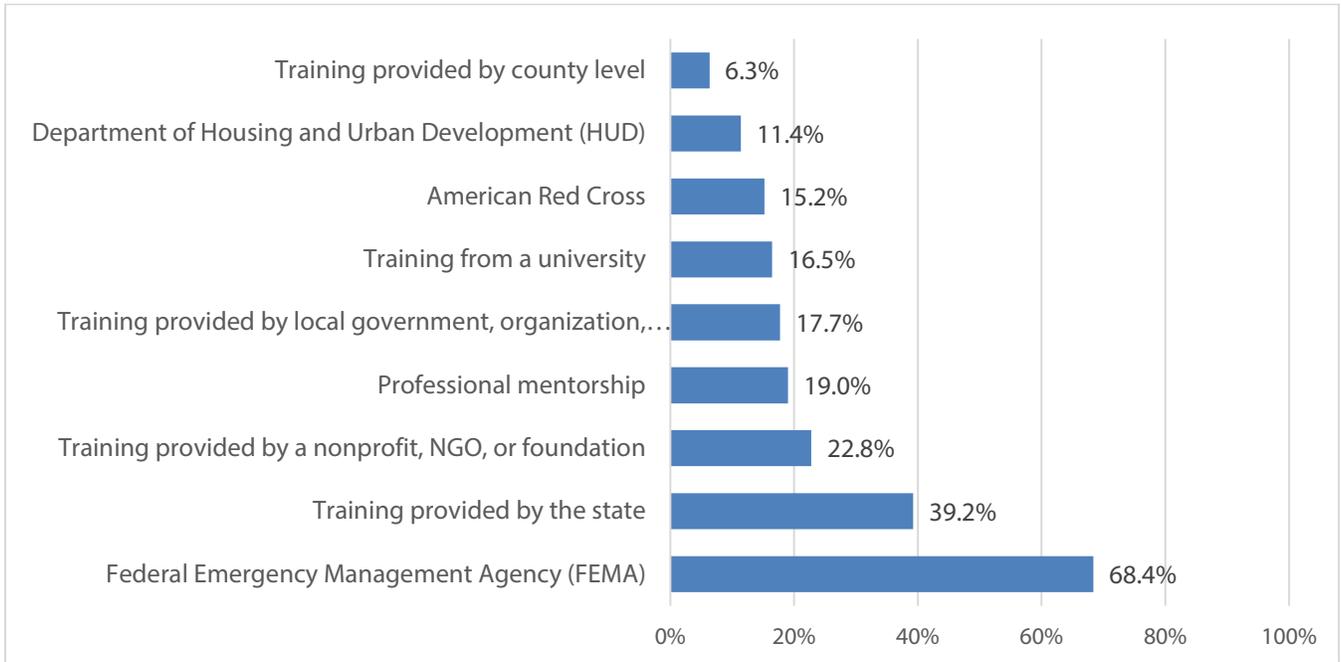


Figure 3.7. From whom have you received disaster recovery training? (Q248)

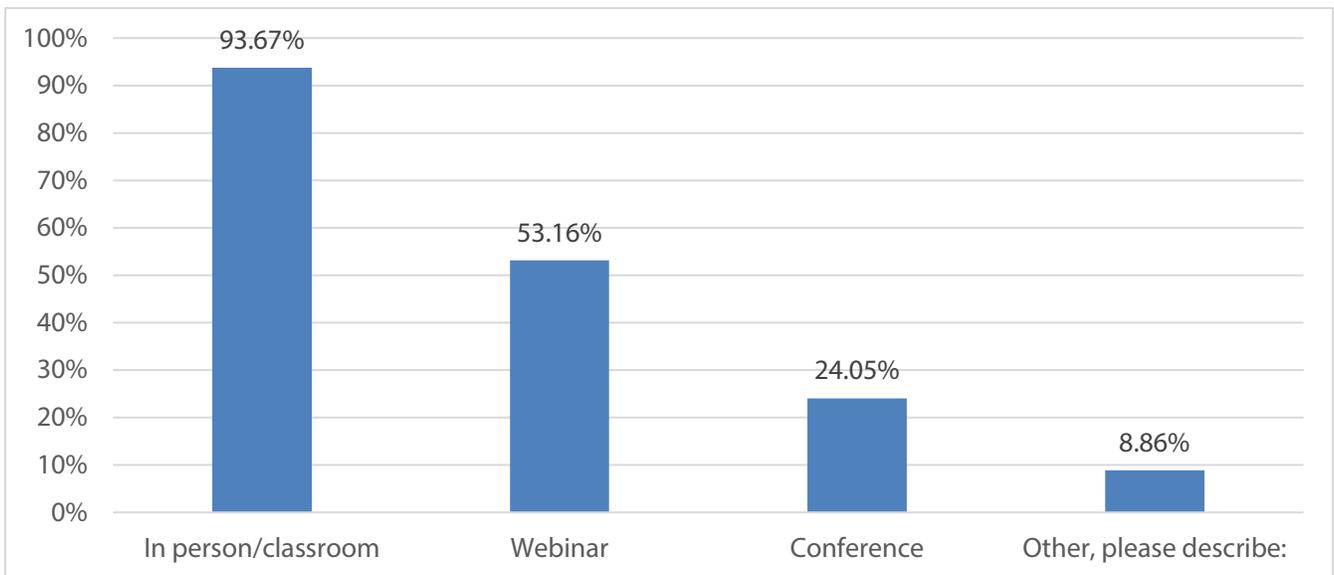


Figure 3.8. How have you received disaster recovery training? (Q274)

Figure 3.9 shows common sources of information for disaster recovery (Q256). As expected, most of the respondents (n=141, 82%) indicate that they referenced resources about disaster recovery from FEMA. The top five referenced resources are from FEMA, APA (n=109, 63%), HUD (n=60, 35%), the American Red Cross (n=42, 24%), and the National Historic Trust for Preservation (n=30, 17%). There were several other responses indicating that there are many agencies at federal, state, and local levels that are providing some sort of recovery education. It also could be that these other agencies provide some sort of *disaster education*. It is unclear to us whether these suggested agencies' materials focus on *disaster recovery* specifically.

"Other" responses included generic resources (county hazard mitigation plan, local emergency planning committee, local emergency management system, planning policy organizations, and state emergency management agency), specific state resources (Florida Division of Emergency Management, Florida State Statute, Texas General Land Office, and Vermont Emergency Management), federal resources (Federal Transit Administration, National Oceanic and Atmospheric Administration, U.S. Army Corps of Engineers, U.S. Department of Transportation, U.S. Economic Development Administration, U.S. Small Business Administration), and resources from private organizations (AIA Regional/Urban Design Assistance Teams, Appraisal Institute, and North American Rescue).

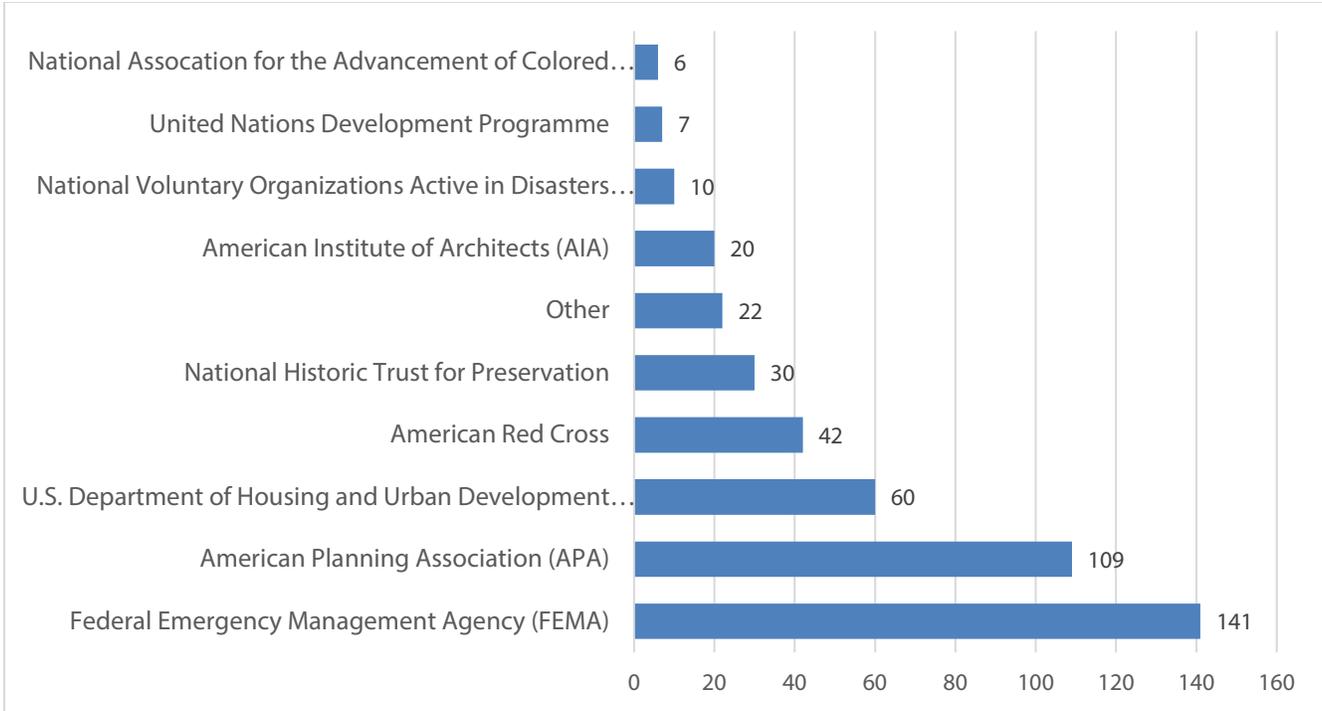


Figure 3.9. Referenced resources or information about disaster recovery (Q256)

From the experience of research team members and the results of the aforementioned qualitative interviews, we developed a list of 17 resources that have disaster recovery information (Q249). Respondents first indicated if they had used a particular resource, and then expressed how useful they felt it was (see Appendix B). **Only one resource —APA’s Planning Advisory Service (PAS) Reports— had been used by more than half of the respondents (Figure 3.10).** These PAS reports, as well as the *APA’s Planning for Post-Disaster Recovery* and the FEMA training institute, were those viewed as most useful. “Other” resources that respondents added to the list included local Community Emergency Response Teams (CERT) and their local contacts and resources; local and state programs; Forum on Building Resilient Infrastructure’s resilience conference; U.S. Department of Energy’s Local Energy Assurance Plans; and APA chapter conference sessions.

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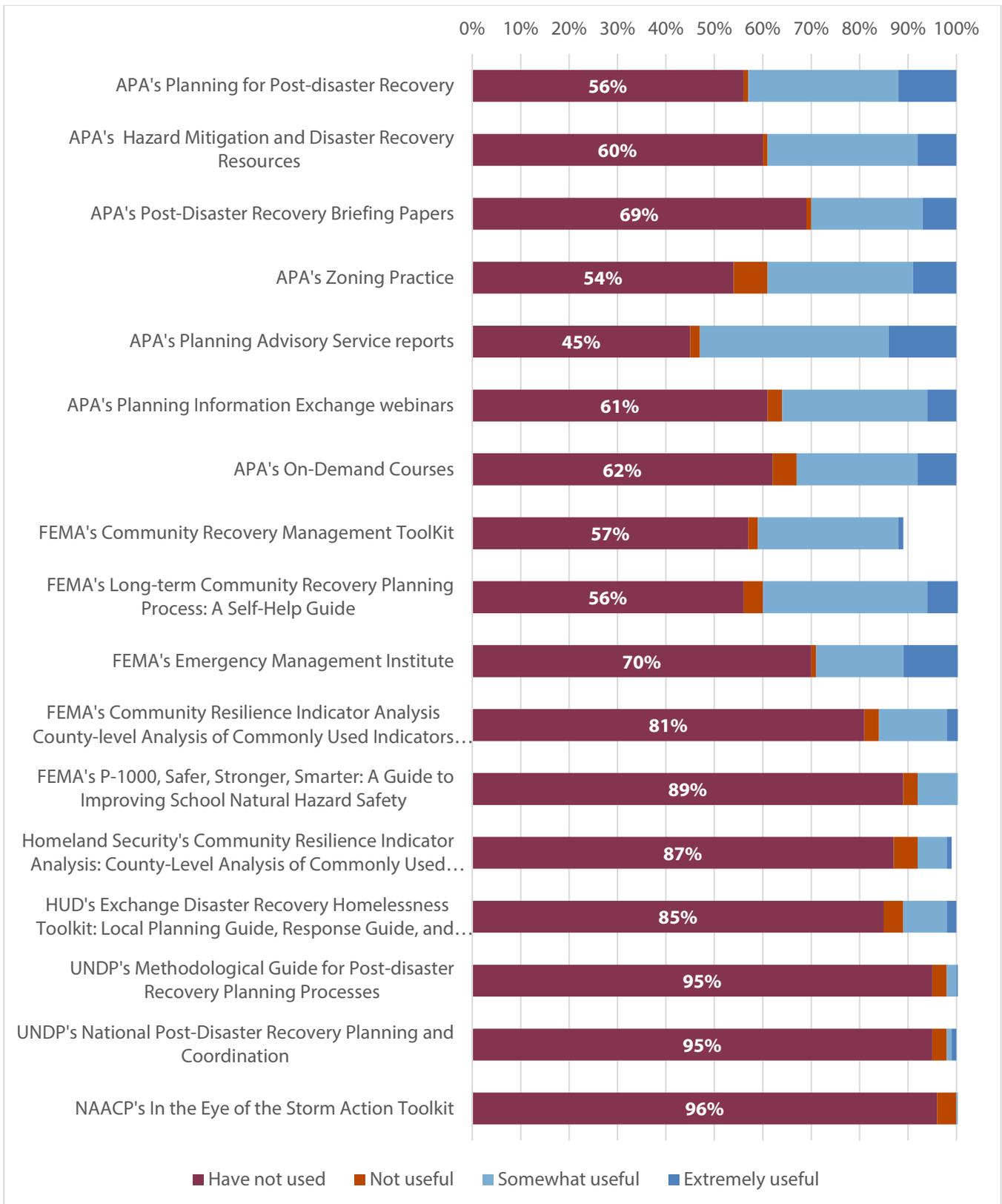


Figure 3.10. Resources and their level of usefulness (Q249)

In terms of the federal incentive program, **most of the respondents (78%) use the National Flood**

Insurance Program (NFIP),

while others (36%) use the Community Rating System (CRS). Still, 22% of the respondents report not being aware of federal incentive programs (Q250, Figure 3.11).

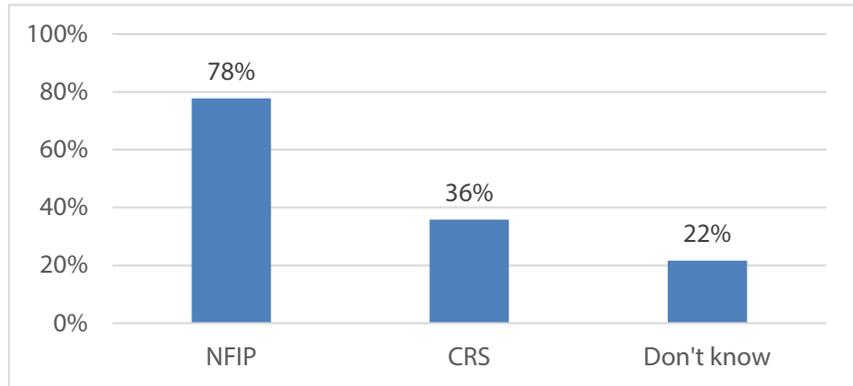


Figure 3.11. Federal incentive program use (Q250)

In order to generate guidance resources that fill the needs of the target population, we asked respondents to rate their level of knowledge about recovery topics and recovery funding mechanisms, their access to technical support and data, and the ways in which they would like to learn and/or train. All of these are crucial for building planning capacity and recovery perspectives in the target population.

We asked respondents to rate their level of knowledge from “no knowledge at all” (1) to “most knowledgeable/technical knowledge” (4) on 16 different topics that relate to recovery planning (Q251):

- economic recovery
- recovery management
- communication
- short-term housing
- medium-term housing
- long-term housing
- social capital
- coastal zone management
- reconstruction of buildings

- reconstruction of infrastructure
- mitigation
- historic preservation
- climate change adaptation
- land use/development/zoning
- plan development process
- resilience

Figure 3.12 indicates that **the respondents felt most knowledgeable about land use, development and zoning.** The median response to this item was “most knowledgeable/technical knowledge,” the highest option given for level of knowledge. Mitigation, resilience, historic presentation, and plan development process each had a median response of “fairly knowledgeable/working knowledge.” The rest of the topics each had a median response of “barely knowledgeable.” That means that half of the respondents felt “barely knowledgeable” or less. **Respondents were least confident in their knowledge of economic recovery, social capital, all timescales for housing recovery, communication, recovery management, coastal zone management, reconstruction of either buildings or infrastructure, and climate change adaptation.** These results indicate that respondents have the most confidence in topics that are more central to the urban planning tradition (i.e., land use, zoning, plan development) rather than disaster recovery specific topics. **Thus, educational materials should focus on these lesser known recovery-specific topics.**

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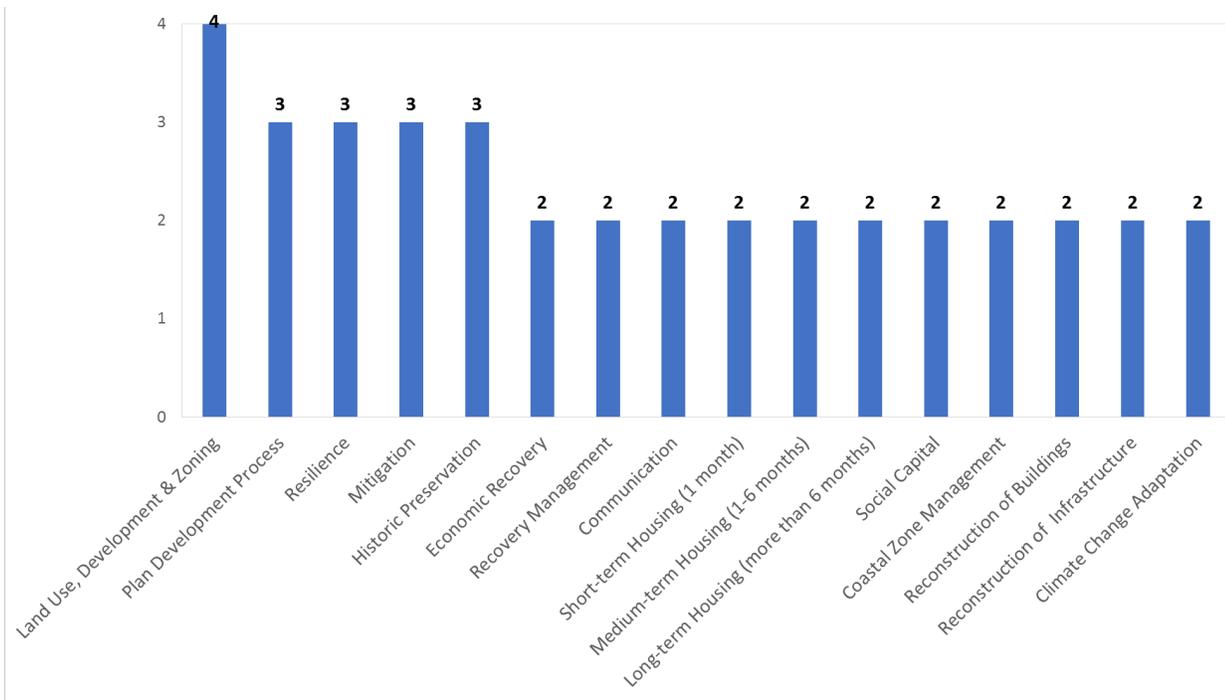


Figure 3.12.a. Level of knowledge about recovery topics (Q251)

Note: 1 = No knowledge at all; 2 = Barely knowledgeable; 3 = Fairly knowledgeable/Working knowledge; 4 = Most knowledgeable/Technical knowledge.

Figure 3.12.b. Level of knowledge about recovery topics (Q251)

Barely Knowledgeable (2)		Fairly knowledgeable (3)		Most knowledgeable (4)	
	Economic recovery		Plan development process		Land Use, Development and Zoning
	Recovery management		Resilience		
	Communication		Mitigation		
	Short-term housing		Historic Preservation		
	Medium-term housing				
	Long-term housing				
	Social Capital				
	Coastal Zone Management				
	Reconstruction of buildings				
	Reconstruction of infrastructure				
	Climate Change Adaptation				

When asked about the funding mechanisms for post-disaster recovery, respondents felt “fairly knowledgeable” about impact fees, but “**barely knowledgeable**” or **less about the funding that is specific for post-disaster recovery**, like FEMA Mitigation Grants, FEMA Individual or Public Assistance, HUD Community Development Block Grants for Disaster Recovery (CDBG-DR), nonprofit funding, state-level funding, public-private partnerships, special bonds, loans, local disaster funds, grants, or taxes (Q252, Figure 3.13).

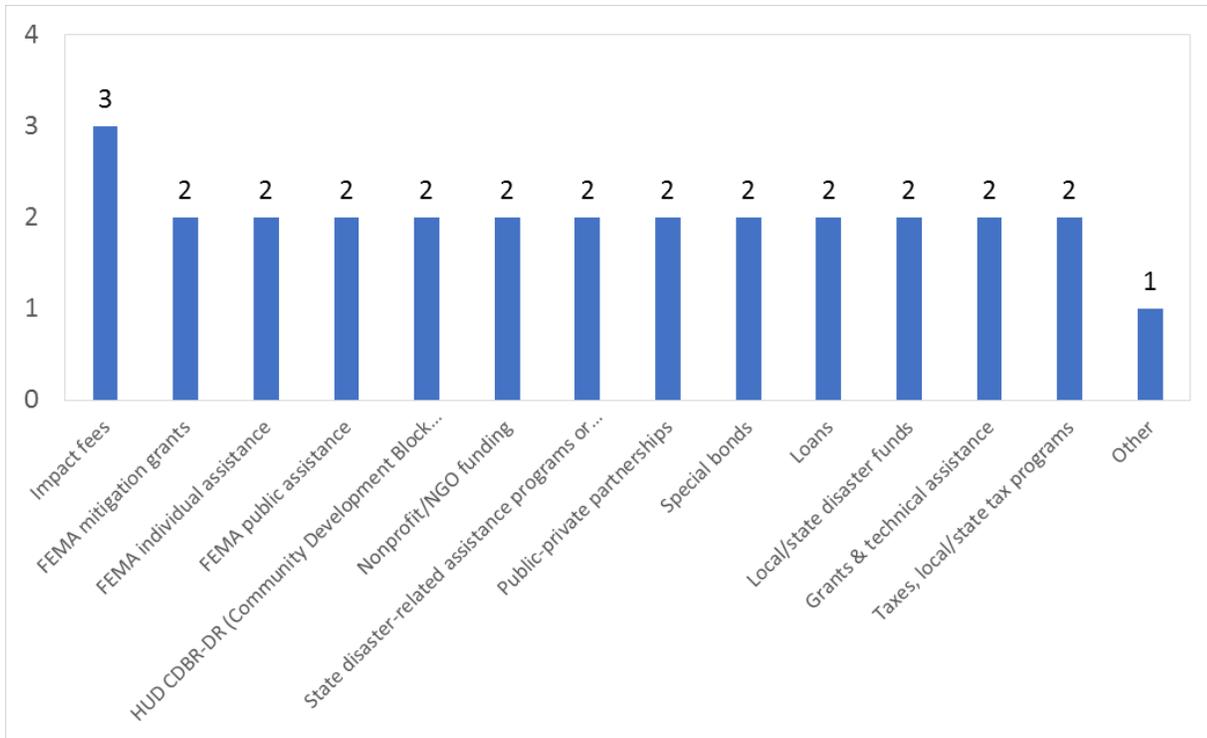


Figure 3.13. Level of knowledge about funding mechanisms for post-disaster recovery (Q252)

Note: 1 = No knowledge at all; 2 = Barely knowledgeable; 3 = Fairly knowledgeable/working knowledge; 4 = Most knowledgeable/technical knowledge.

We then asked respondents about their access to technical support that is often important for disaster recovery (Q253). Respondents rated their access on a scale of 1–5, ranging from “no technical support” to “excellent technical support.” **Overall, respondents lacked these types of technical support.** In fact, no program received a median response of “good technical support” or “excellent technical support.” Geographic Information Systems (GIS) had the highest median response of “adequate technical support.” Water modeling software had a median response of “limited technical support.” For each of the following, the median response was “no technical support”: HAZUS, Urban Footprint, or any type of statistical software. “Other” responses described these technical programs: Regional Economic Model, Inc. (REMI), Economic Impact Analysis for Planning (ImPlan), Trans CAD Transportation Planning Software, and PTV VISSIM, a multi-modal traffic flow simulation, and other transit operations and scheduling software.

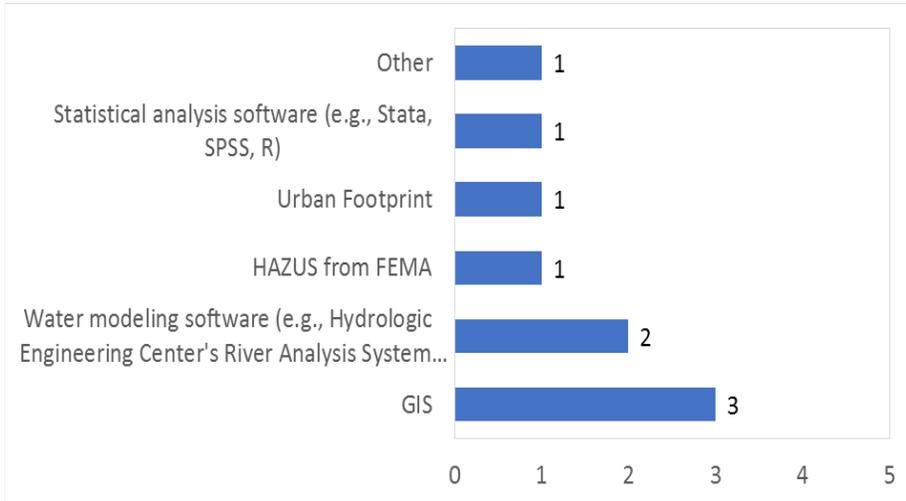


Figure 3.14. Level of access to technical support (Q253)

Note: 1 = No technical support; 2 = Limited technical support; 3 = Adequate technical support; 4 = Good technical support; 5 = Excellent technical support.

Data needs identified by respondents, shown in red in Figure 3.15 include: economic gains and losses associated with disaster (55% need this), disaster response options/costs/benefits (51% need this), disaster mitigation options/costs/benefits (48% need this), the likelihood of disaster impacts (46% need this), prioritized list of important impacts that occurred during past disasters (42% need this), HAZUS program outputs (41% need this), extensive list of all impacts from past disaster (40% need this), and social vulnerability data (38% need this). Respondents have the most access to census data, topographical maps, aerial photos/satellite images, parcel data, population projects, economic data, and risk area or hazard areas.

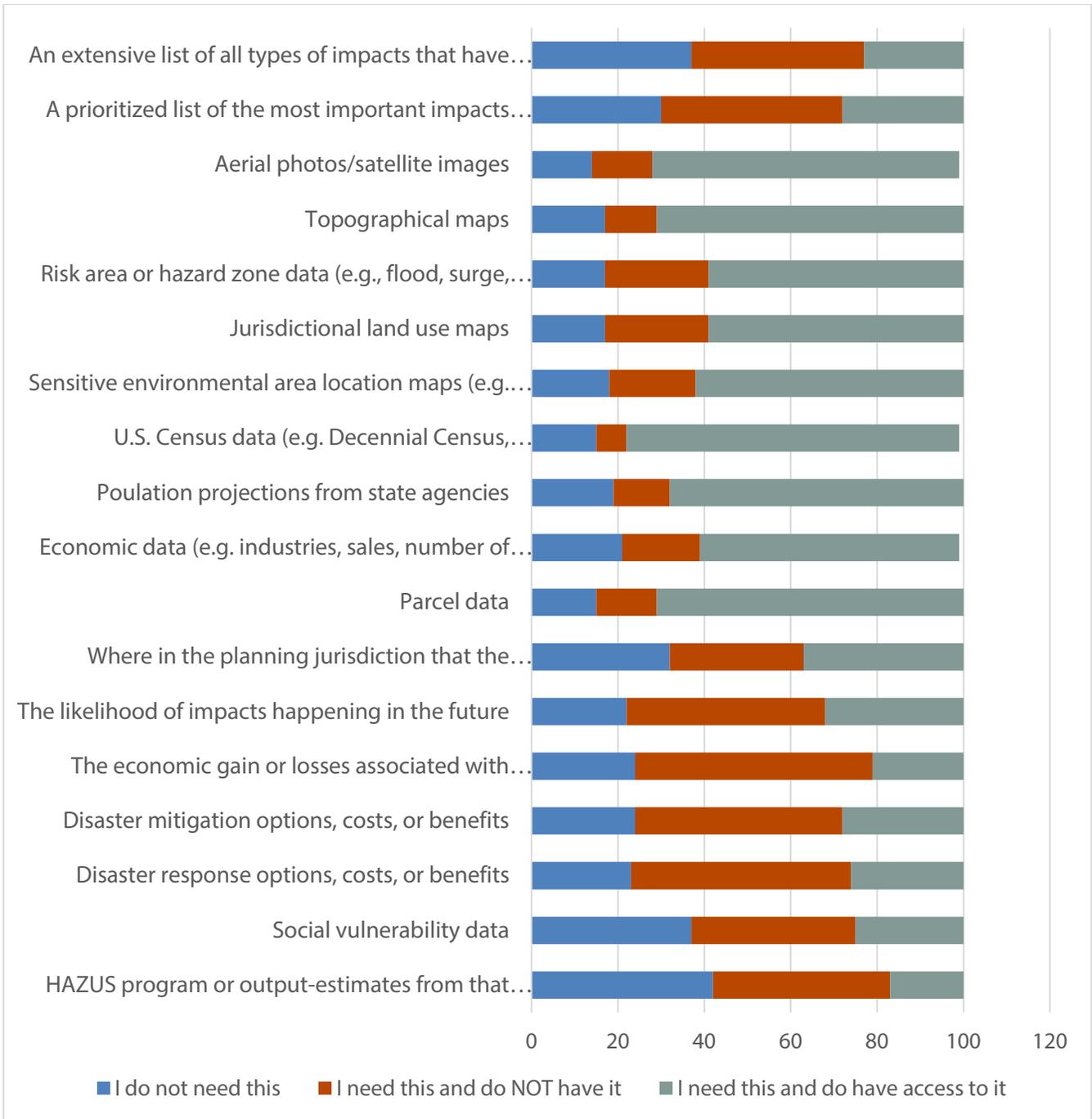


Figure 3.15. Level of access to data (Q254)

Figure 3.16 shows that the majority of all respondents (76%) would like to learn disaster recovery planning through a workshop, seminar, or conference. The top five ways they prefer to learn are workshop, seminar, or conference (76%); example guidance documents (56%); webinar (56%); web-based platform (51%); and mentoring from another practitioner (41%) (Q255). "Other" ideas included on-site

training, case studies of post-disaster housing and business recovery, and best practice recovery plans from impacted communities. These results suggest that generating another training manual for recovery may not be the best method for reaching the target population. Instead, the focus should be on more interactive learning methods (workshops, webinars, interactive online platforms, mentoring) and example documents. It should be noted that these results slightly differ from the qualitative interviews with recovery professionals, who overwhelmingly emphasized the importance of mentoring and peer-to-peer learning. This difference can be attributed to the fact that many of the survey respondents have not had to find recovery information during a disaster and thus have yet to experience the time-compressed, high-pressure environment.

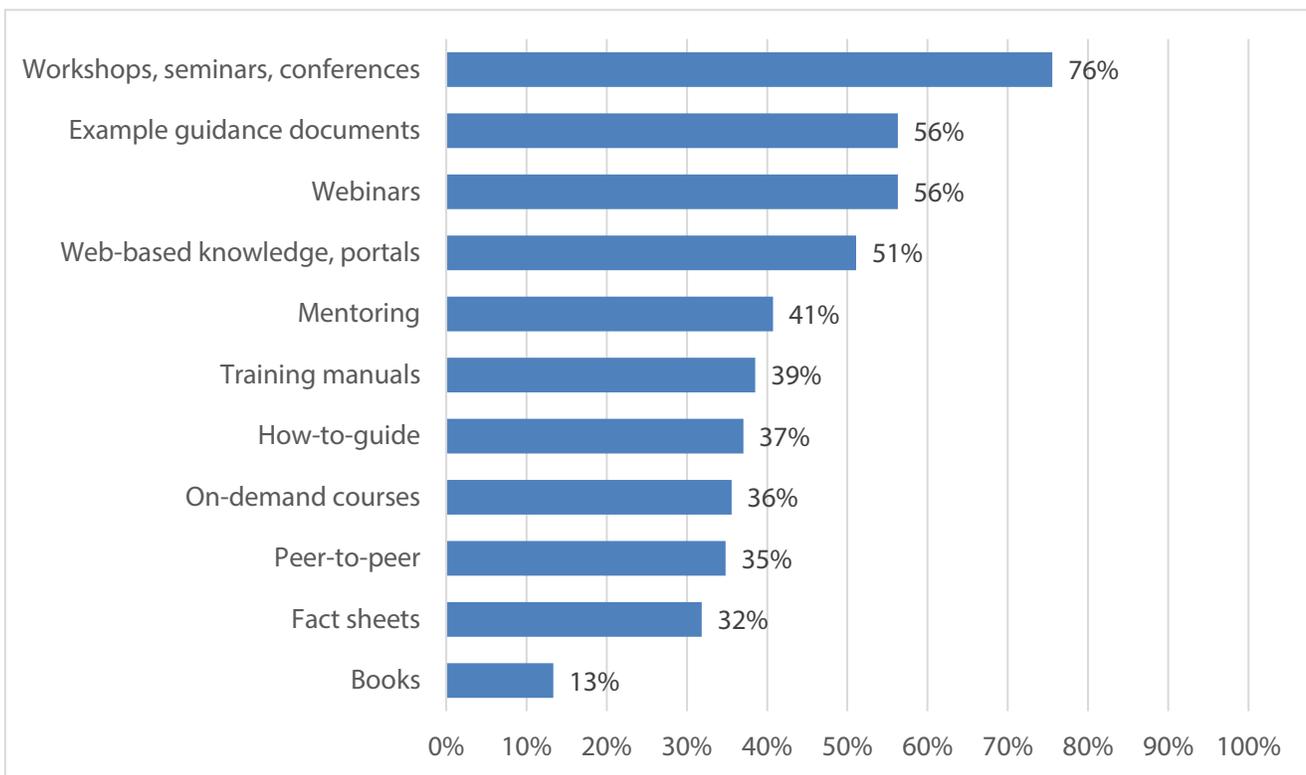


Figure 3.16. Preferred ways to learn about disaster recovery planning (Q255)

PREVIOUS DISASTER EXPERIENCE AND RECOVERY ACTIVITIES

Previous disaster experience and recovery activities were assessed using 12 questions related to the respondents' previous hazard experience and participation in recovery activities and committees. This information is useful to understand the broader experience of APA membership with different types of disasters and recovery activities.

We asked respondents to indicate what hazards have caused damages in the jurisdiction with which they work in the past 10 years (Q82). Respondents could mark all the hazards applicable to them. Respondents who work with multiple jurisdictions were directed to respond across their professional experiences, not just one jurisdiction. **By far, respondents had the most experience with floods** (Figure 3.17). The top five hazards were floods, winter storms, thunderstorms, drought, and wildfires. Other responses provided by participants included wind, airplane crash, dust storms, civil disorder, downtown fire, and microbursts.

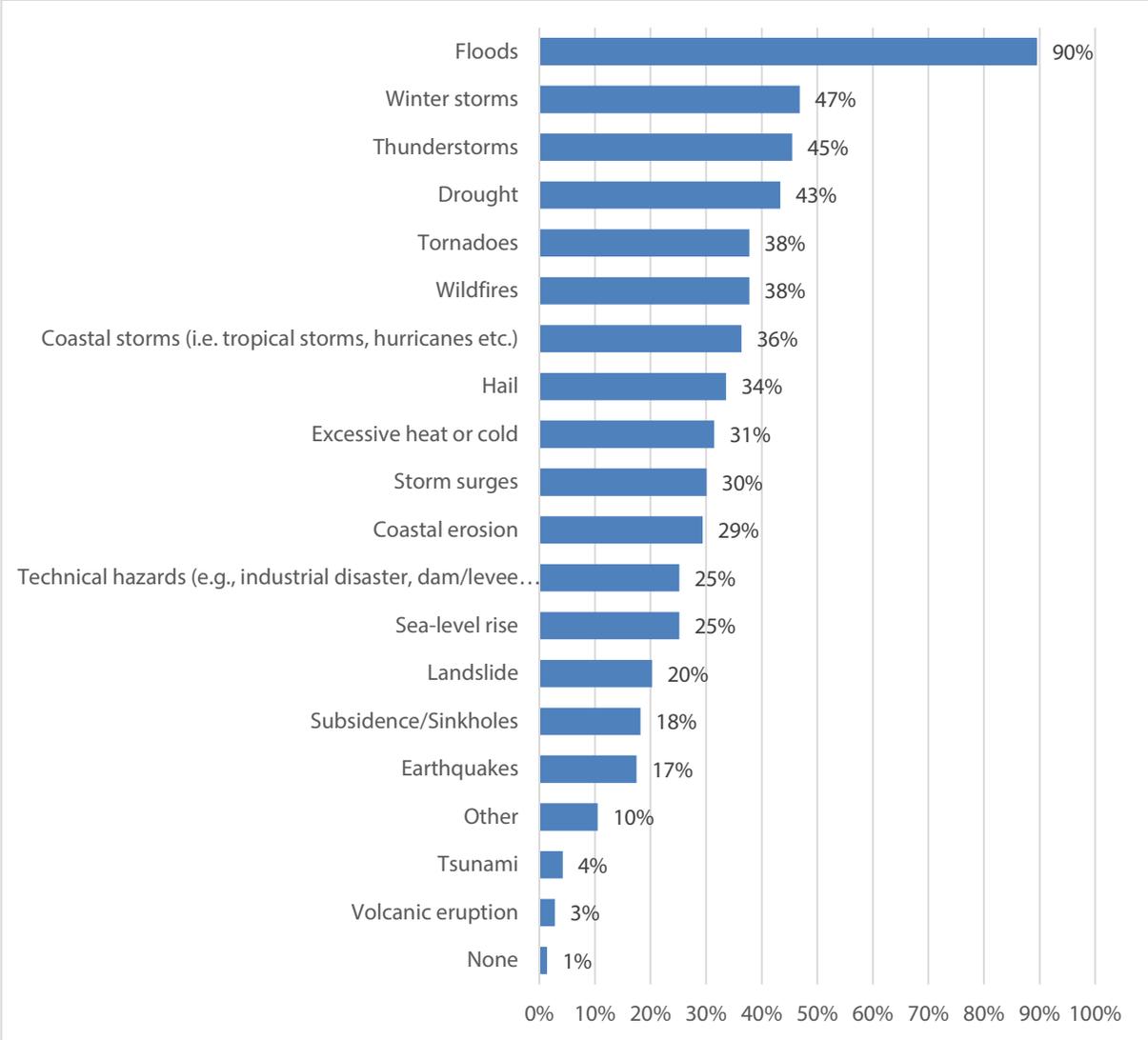


Figure 3.17. Hazards that have caused damages in the past 10 years (Q82)

The next set of questions focuses on disaster recovery activities and disaster recovery planning. Because our experience indicates that disaster recovery often gets confused with disaster response, we opted to include a specific description of disaster recovery in the survey to orient respondents (see highlighted box below). We followed that with two questions for all participants to establish their experience in recovery (Q84-Q85). Those who answered affirmatively to either question then received seven additional questions about their experience. Those who said “no” advanced ahead to the next section of the survey.

The next set of questions focuses on disaster recovery activities and disaster recovery planning. Disaster recovery includes repair of damaged structures, and the “continuation and restoration of services critical to supporting the physical, emotional, and financial well-being of impacted community members.” (National Disaster Recovery Framework, FEMA 2016).

These questions focus on your participation in disaster recovery activities and planning. This does NOT include response activities such as life-saving efforts, search and rescue, and emergency sheltering.

Q84 Have you ever been a part of recovery activities following a disaster? These activities focus on the rebuilding and restoration of services important to the well-being of community members.

Q85 Have you ever been a member of a recovery committee? This includes both governmental and nongovernment groups of residents or organizations that collaborate to develop recovery goals, activities, needs, and plans.

About 60% of the respondents have been a part of recovery activities (Figure 3.18). On the other hand, only **36% of the respondents say they have been a member of a recovery committee** (Q85, Figure 3.19).

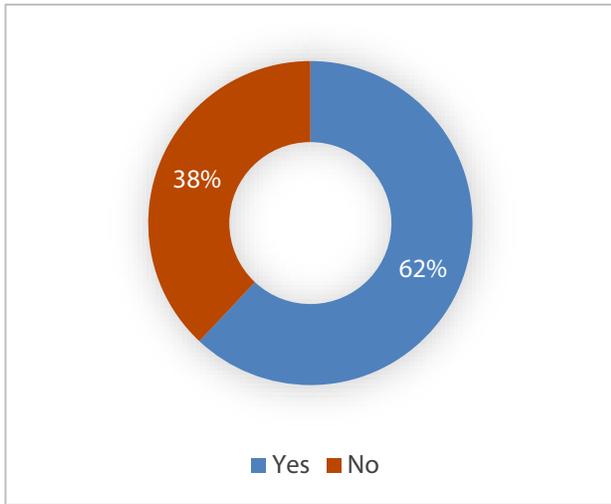


Figure 3.18. Experience of part of recovery activities following a disaster (Q84)

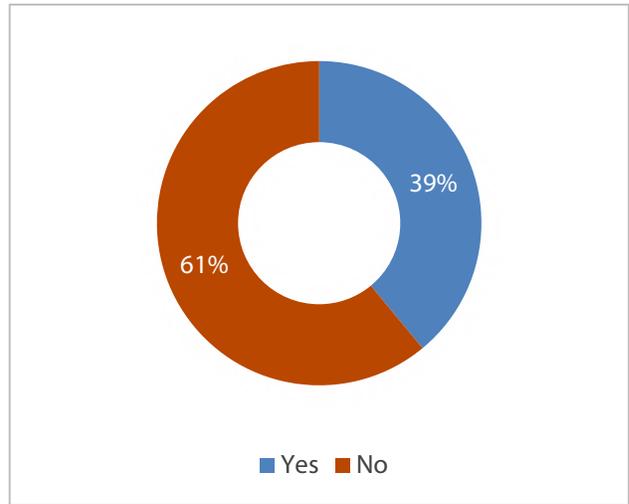


Figure 3.19. Experience of being a member of a recovery committee (Q85)

Those who answered affirmatively to either of these above questions (90 respondents) were asked seven more questions as indicated in the box below.

Q86 In your opinion, how much do you agree with the following statement:

I felt that I played a key role in the recovery efforts.

Q87 Please indicate whether you used any of the following planning tools during post-disaster recovery. Select all that apply.

Q88 What participation mechanisms were used to get the public's input during the recovery period? Please select all that apply.

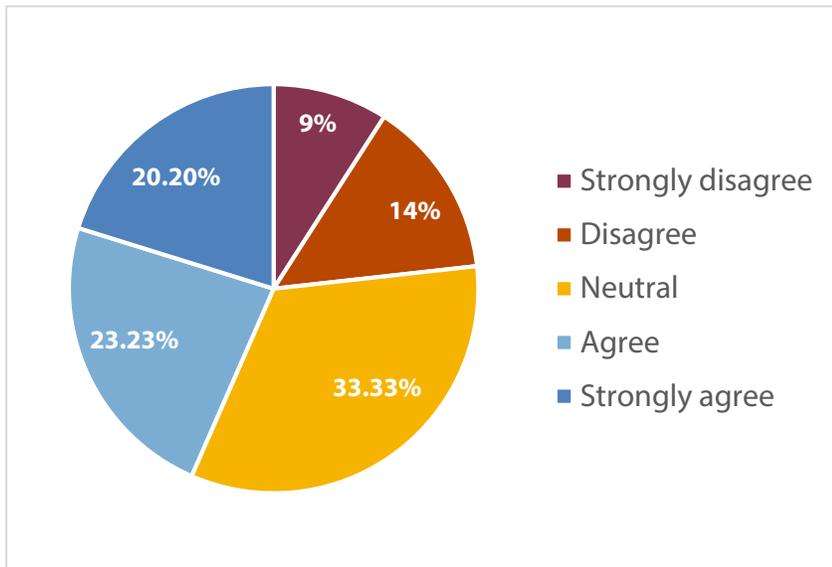
Q89 What were the key funding mechanisms used to address recovery needs? (Please select all that apply.)

Q90 Thinking about your role and professional position, list 3 needs you had during the first 30 days POST-disaster that would have helped you contribute to the recovery activities.

Q91 Now, please list 3 needs you had during short-term recovery (1 month to 6 months POST-disaster) that would have helped you contribute to recovery activities.

Q92 And please list 3 needs you had during long-term recovery (6 months to 5 years) that would have helped you contribute to recovery activities.

In terms of playing a key role in the recovery efforts, 33.33% reported feeling neutral, while 23.23% of respondents agreed that that they played a key role, and 20.20% strongly agreed (Q86). In other words, most (43.43%) of the respondents felt they did play a key role (Figure 3.20).



Respondents selected from a list of nine options to indicate what planning tools they used during post-disaster recovery. Eighty-six people responded to this question.

The most common tool used was (n=33, 38%) changing and/or modifying zoning ordinances

(Figure 3.21). The top five planning tools reported by respondents were changing/modifying zoning ordinances, financial incentives

Figure 3.20. Played a key role in the recovery efforts? (Q86)

(n=24, 30%), revising building codes (n=22, 26%), temporary use allowances (n=18, 21%), and building moratoria (n=11, 13%). "Other" responses included damage assessment of buildings and infrastructure, providing grants to NGOs, managed transportation, reconstruction scheduling, post-disaster planning, expedited building permit process, infrastructure rebuild in a war zone, and land use planning. It is important to notice that "none" was also the most common response (n=34, 40%) showing a gap in the use of planning tools during recovery.

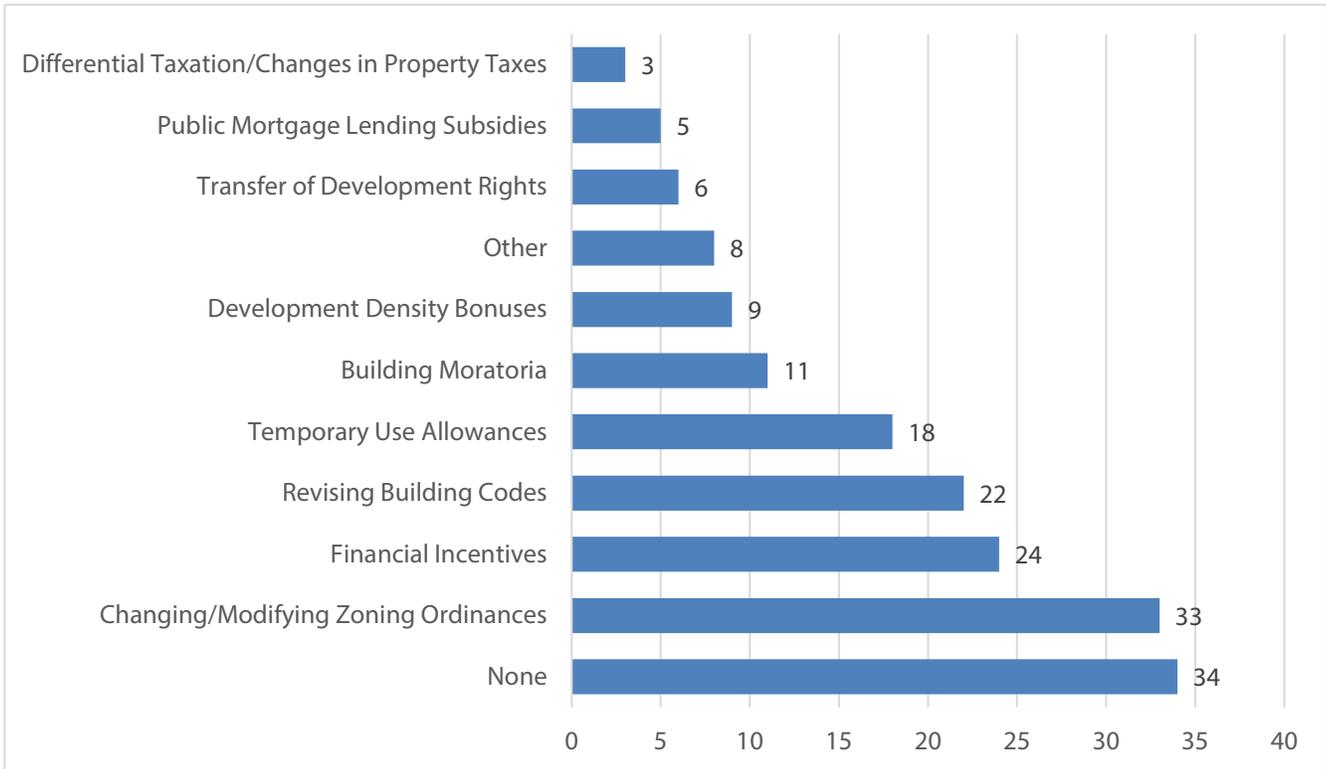


Figure 3.21. Planning tools during post-disaster recovery (Q87), N=86

Of the 88 people who answered question Q88, the most common participation method was public meetings (n=73, 83%), which were utilized to get the public’s input during the recovery period. Methods like local television and radio (n=38, 43%), social media (n=36, 41%), email (n=34, 39%), website (n=33, 38%), public workshops and/or charrettes (n=32, 36%) were the next most common (Figure 3.22). Seven respondents (1.68 %) indicated that there were no mechanisms used for public input. “Other” responses listed by participants included newspapers, recovery committees, church efforts, and AIA Regional/Urban Design Assistance Teams.

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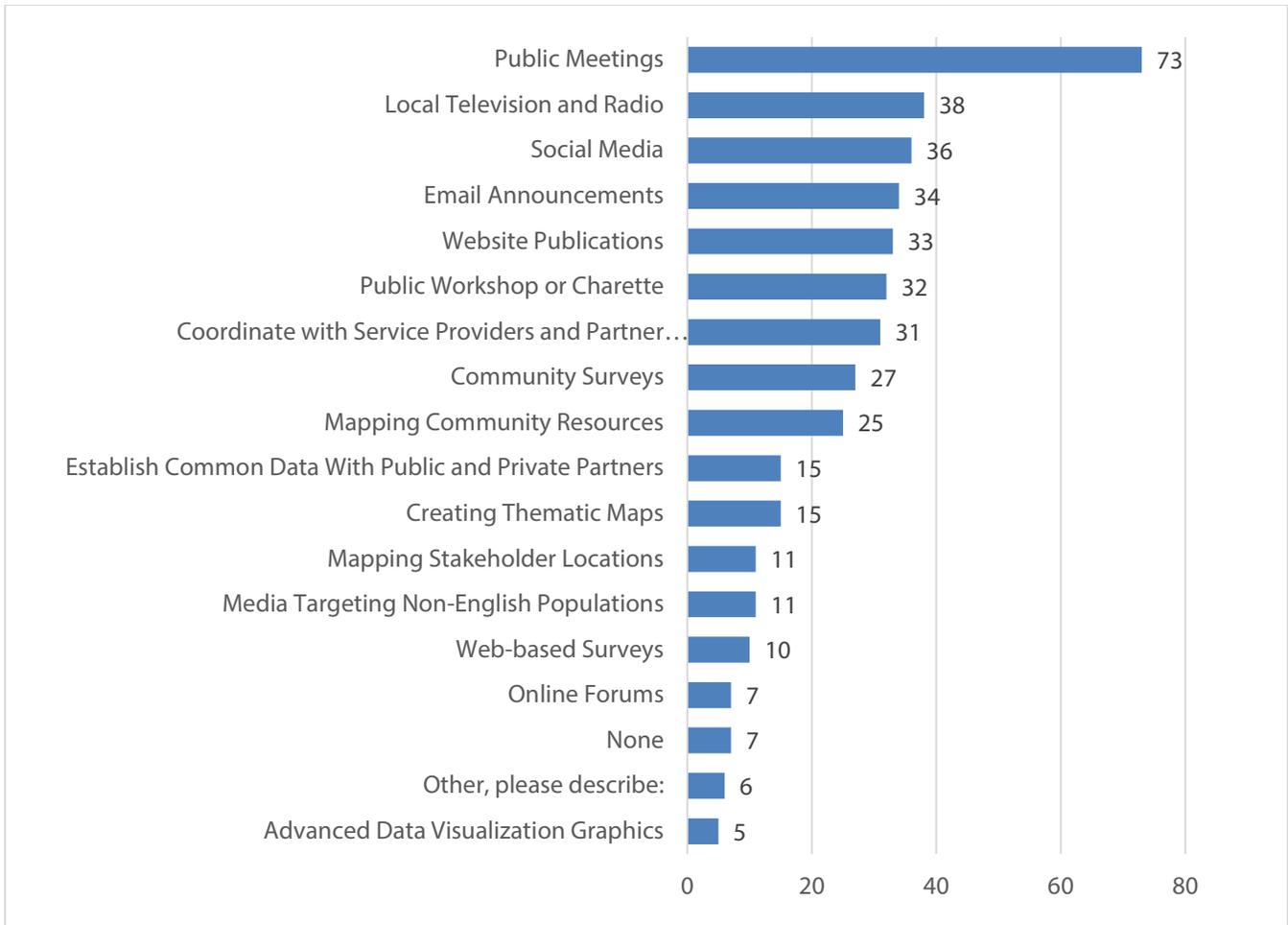


Figure 3.22. Participation mechanisms used during recovery period (Q88), N=88

In terms of key funding mechanisms, **FEMA Hazard Mitigation Grants (62%) were the most common used to address recovery needs** (Figure 3.23). FEMA Individual Assistance, state assistance, FEMA Public Assistance, and HUD Community Development Block Grant-Disaster Recovery were the next most common. Special bonds (5%), impact fees (5%), and loans (7%) were the least commonly used. “Other” responses included business interruption insurance, U.S. Economic Development Administration Disaster Funding, GR Reserves, federal military, and USDA Rural Development.

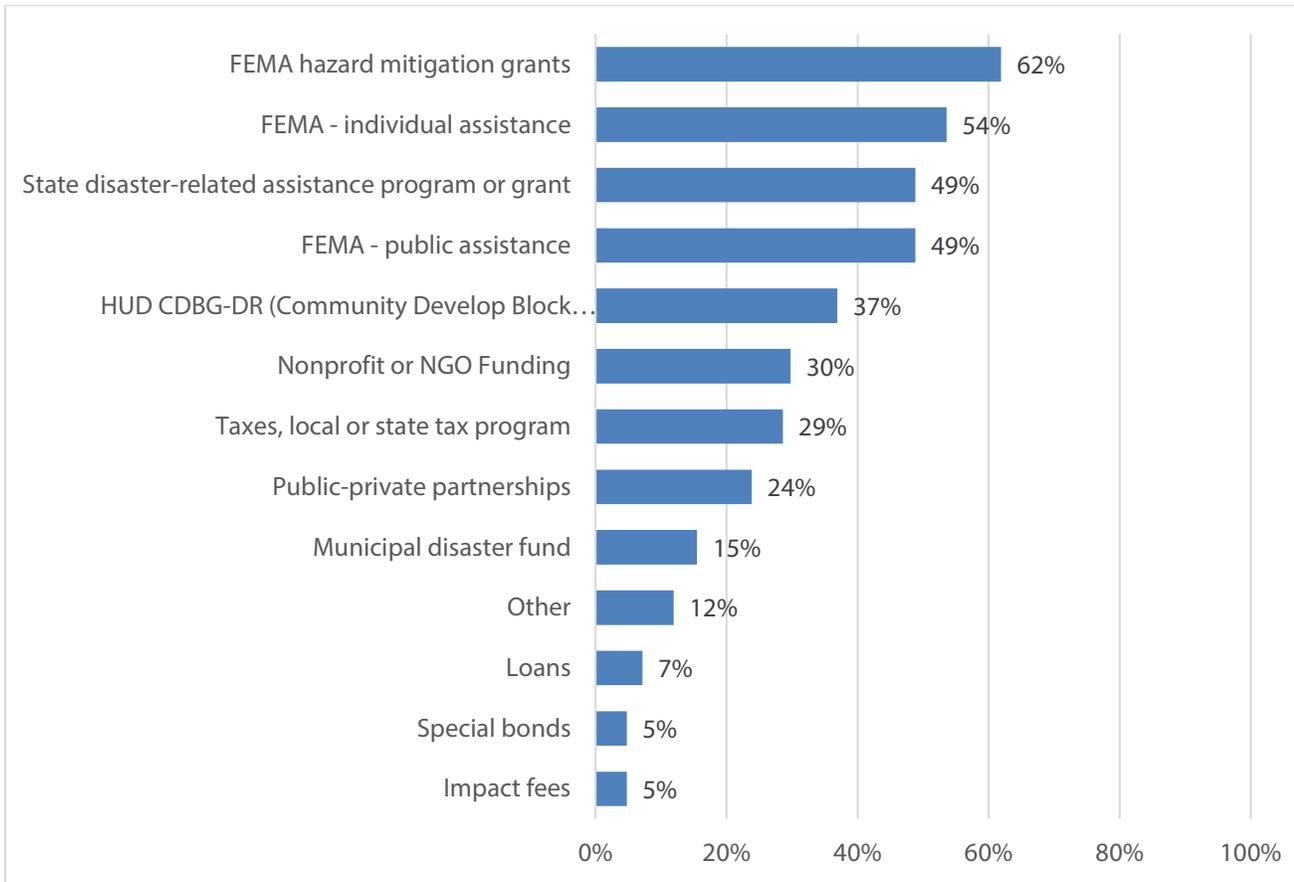


Figure 3.23. Key funding mechanisms used to address recovery needs (Q89)

POST- AND PRE-DISASTER PLANNING

Post- and pre-disaster recovery planning efforts were assessed using 20 questions related to participation in post- or pre-disaster recovery plan development. The questions are similar for both pre- and post-disaster plan development. They assess the components of the plan, leadership, agency involvement, challenges, types of plans used, use of the hazard mitigation plan, and updating of plans due to disaster. In addition to those, questions related to pre-disaster recovery planning also asked about planning tools used and funding identified.

This section opened by asking participants about their participation in either pre- or post-disaster plan development. Those who had not done either were finished with the survey. The rest received the questions that corresponded to their experience.

When asked about participation in the development or update of a post- or pre-disaster recovery plan, only 8% of the respondents said they had done a post-disaster plan, 16% had done a pre-disaster recovery plan, and 16% had completed both. **Over half of the respondents (60%) have not participated in the development or update of either plan.**

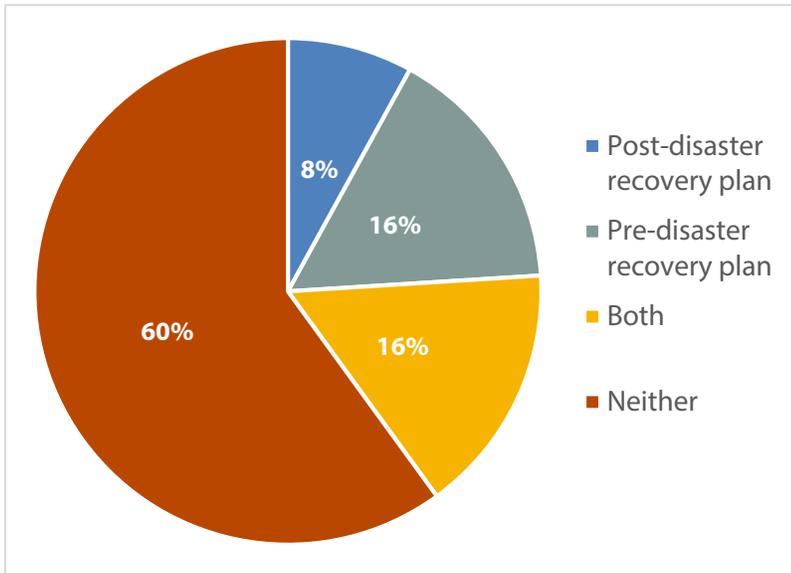


Figure 3.24. Participation in the development of post/pre-disaster plan (Q139).

Using their response to this question, participants were directed through either the post-disaster recovery plan questions, the pre-disaster recovery plan questions, both, or neither.

The following set of questions, highlighted in the box below, asked about the POST-disaster recovery plan and planning process. These are plans developed after a disaster occurs to address its damages and support the community reestablish itself.

Q140 What components were included in this POST-disaster recovery plan? Please select all that apply. If you have been through multiple post-disaster planning processes, please answer based on the most recent experience.

Q141 What agencies/sectors were involved in the POST-disaster recovery planning process?

Q143 What were the key challenges to the POST-disaster recovery planning process? Select the five (5) most prominent challenges.

Q144 Indicate the plans that were used to inform the POST-disaster recovery plan.

Q145 [If selected they used the hazard mitigation plan above] Which elements of the hazard mitigation plan did you use? Select all that apply.

Q146 Select any plans that were updated based on the experience during the disaster.

Thirty-three respondents who had participated in post-disaster recovery indicated what components were included in their plan. As shown in Figure 3.25, **the five most frequently included components are community participation (79%), infrastructure/transportation reconstruction (79%), housing recovery (73%), economic redevelopment (70%), and disaster recovery funding (67%)**. The least common components included in post-disaster recovery plans were health needs, health and social recovery, equity, relief, and historic preservation. Other responses included flood study, list of recovery projects and potential funding sources to address, and dealing with the solid waste like building debris after tornados and ice storms.

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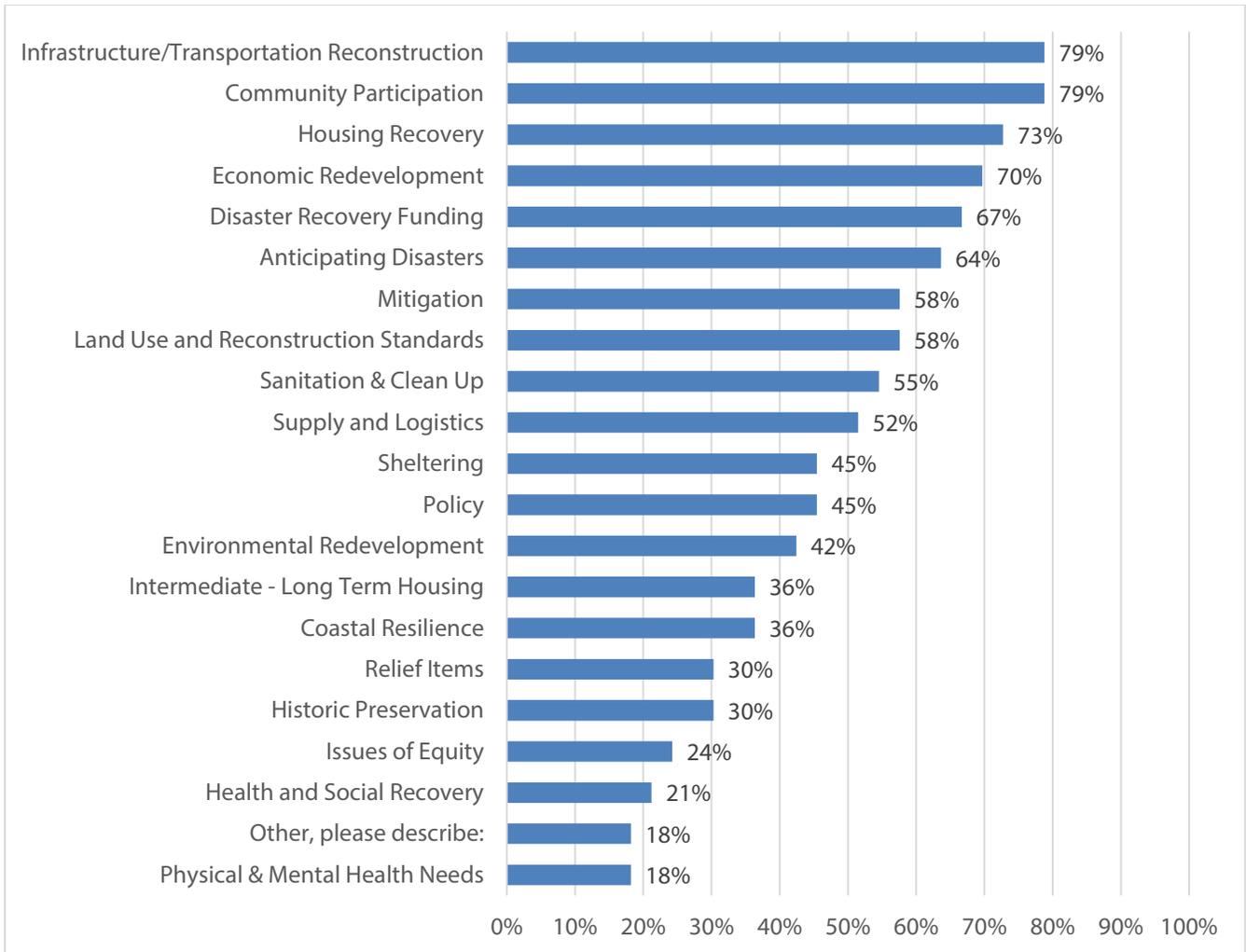


Figure 3.25. Components in the post-disaster recovery plan (Q140), N=33

When asked about agencies involved in the post-disaster recovery planning process (Q141), most respondents reported planning agencies (79%), state or federal partners (76%), public works (73%), first responders (67%), federal agencies (64%) and faith-based organizations (64%). The least involved agencies in the post-disaster recovery planning process were agricultural extensions (18%), university partnerships (18%), environment (24%), and volunteer management agencies (24%). “Other” responses included AIA and municipalities.

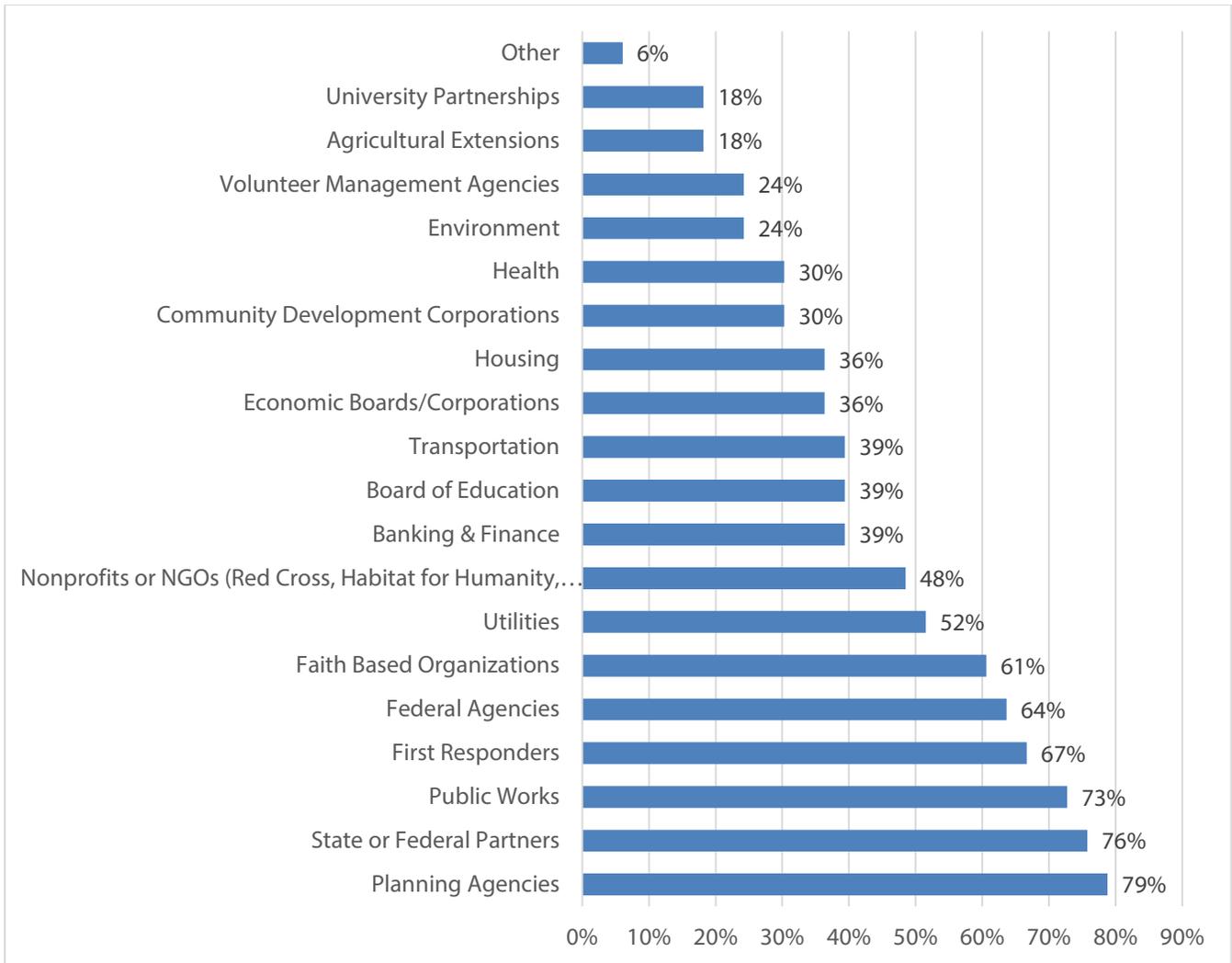


Figure 3.26. Agencies involved in the post-disaster recovery planning process (Q141), N=33

Figure 3.27 shows that the five most prominent challenges to the post-disaster recovery planning process (Q143) were limited funding (n=17), access to localized data on affect area (n=15), different timelines for rebuilding versus funding (n=15), community participation (n=13), and grant procurement processes (n=13). “Other” responses included capability to manage recovery; lack of a pre-disaster plan; failure of insurance companies to pay quickly, nonprofits cannot spend the released dollars fast enough especially if they do not have a target project or area already underway; building subcontractors destroy structures that had withstood a direct hurricane hit; and changing policies of local and state agencies.

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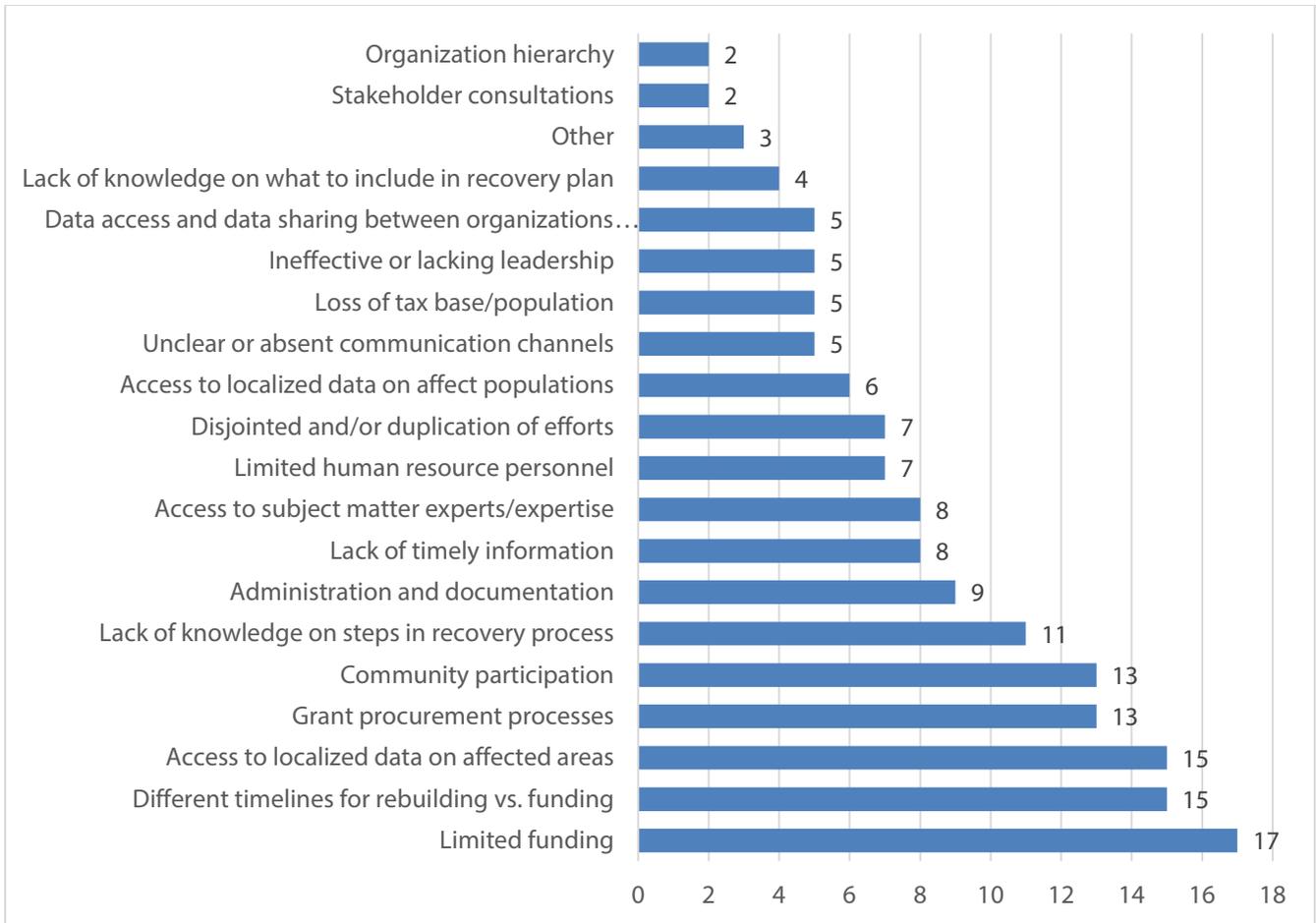


Figure 3.27. Key challenges to the POST-disaster recovery planning process (Q143), N=32

Plans that were most often used to inform the post-disaster recovery plan, based on respondent reporting, were hazard mitigation plans (n=26, 79%), comprehensive plans (n=21, 64%), capital improvement plans (n=19, 58%), and debris management plans (n=18, 55%) (Figure 3.28).

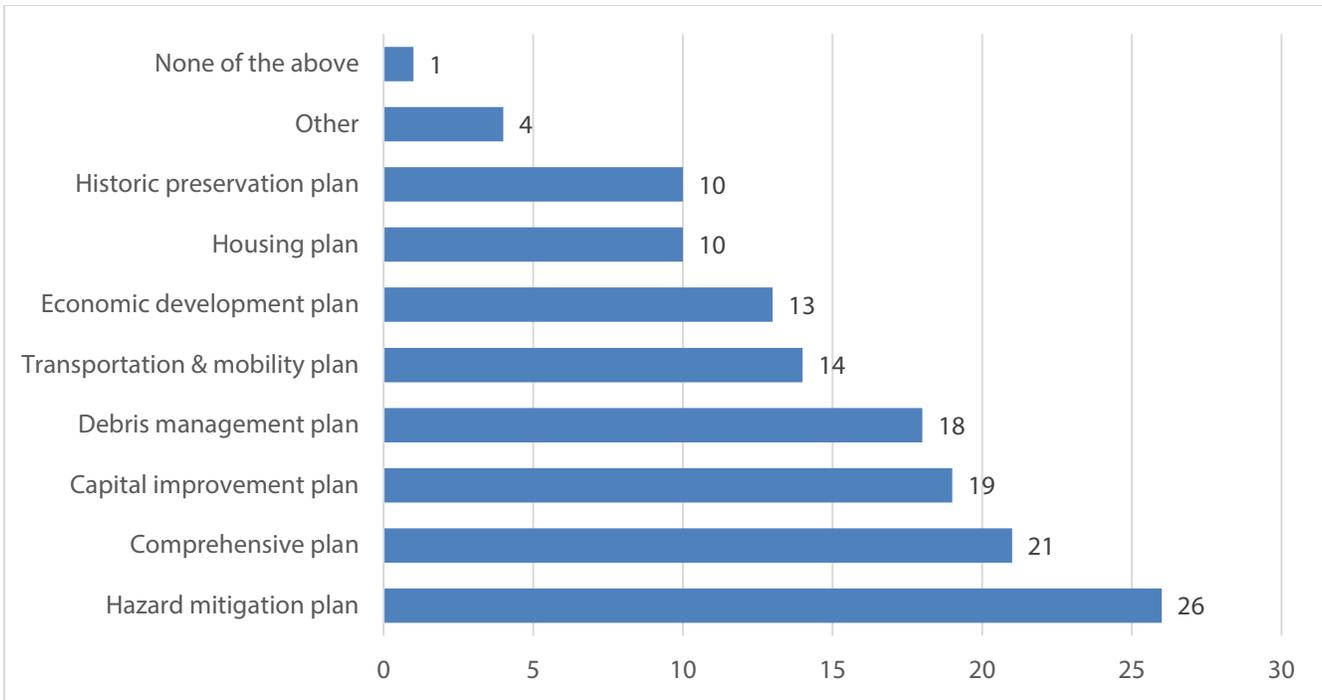


Figure 3.28. Plans that were used to inform the POST-disaster recovery plan (Q144), N=33

Only 18 of the 26 respondents who selected hazard mitigation plan in Q144, responded to specifics in Q145. Respondents who said they used the hazard mitigation plan most commonly used the following elements from it: mitigation strategies and actions and hazards (94%) and hazards (78%). Plan maintenance, risks, and vulnerabilities were less used (Figure 3.29).

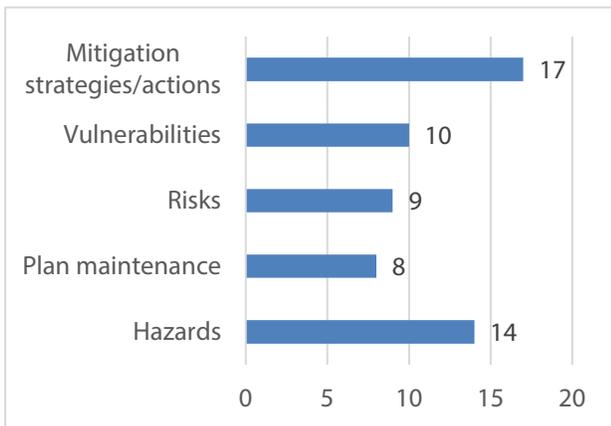


Figure 3.29. Elements of the hazard mitigation plan (Q145), N=18

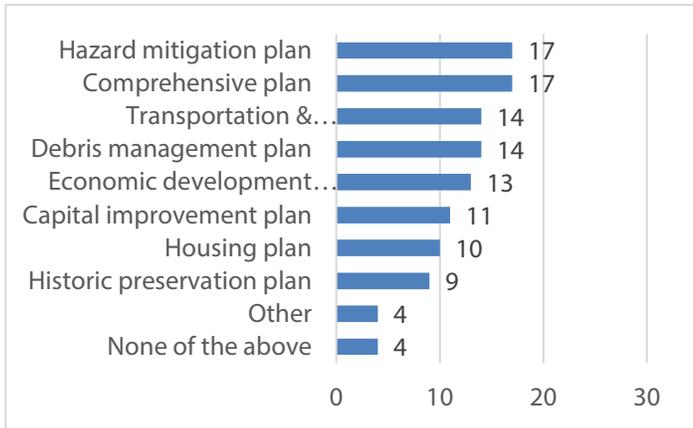


Figure 3.30. Plans that were updated based on the experience during the disaster (Q146), N=31

Respondents most frequently reported that the comprehensive plan (n=17, 55%), hazard mitigation plan (n=17, 55%), debris management plan (n=14, 45%), transportation and mobility plan (n=14, 45%), and economic development plan (n=13, 42%) would be updated based on the experience during the disaster (Figure 3.30). Historic preservation plan (n=9, 29%) and housing plan (n=10, 32%) were the least likely to be updated. “Other” responses included emergency operations center and emergency management plans.

This next set of questions focused on the PRE-disaster recovery planning process. This includes plan development and implementation before a disaster has occurred. Nine questions were asked of those respondents who said that they had participated in pre-disaster recovery plan development (45 participants).

Q268 Indicate if you used any of the following planning tools in the PRE-disaster recovery plan. Select all that apply.

Q267 What participation mechanisms were used to gather the public's input for the PRE-disaster recovery planning? Select all that apply.

Q266 During the PRE-disaster recovery planning process, what funding mechanisms were identified that could be used to fund future recovery actions? Select all that apply.

Q258 What components were included in this PRE-disaster recovery plan? Please select all that apply. If you have been through multiple pre-disaster planning processes, please answer based on the most recent experience.

Q259 What agencies/sectors were involved in the PRE-disaster recovery planning process?

Q260 What agencies or position led the PRE-disaster recovery planning? For example, mayor, planning department, emergency management, city manager, elected official, etc.) We understand many agencies or people will be involved in planning, we would like to know which agency or which official was the most central leader or champion of the pre-disaster recovery plan development.

Q261 What were the key challenges to the PRE-recovery planning process? Select the five (5) most prominent challenges.

Q262 Indicate the plans that were used to inform the PRE-disaster recovery plan. Select all that apply.

Q263 Which elements of the hazard mitigation plan did you use for the PRE-disaster recovery planning? Select all that apply.

Q264 Select any plans that were updated based on the experience of doing a PRE-disaster recovery plan. Select all that apply.

Several planning tools are known to be useful during disaster recovery to help foster resilient reconstruction, including: building moratoria, changing/modifying zoning ordinance, development density bonuses, financial incentives, public mortgage lending subsidies, revising building codes, temporary use allowances, and transfer of development rights. Respondents who had participated in pre-disaster plan development indicated which of these they had used. The most common planning tool used in pre-disaster recovery plans was **changing/modifying zoning ordinances** (Figure 3.31). Revising building codes was the second most common planning tool used. Other responses included business interruption loss mitigation, and enforcement of comprehensive plan. **A large number of respondents indicated that they used no planning tools in the pre-disaster recovery plan. This result highlights a prime opportunity for increased guidance and training.**

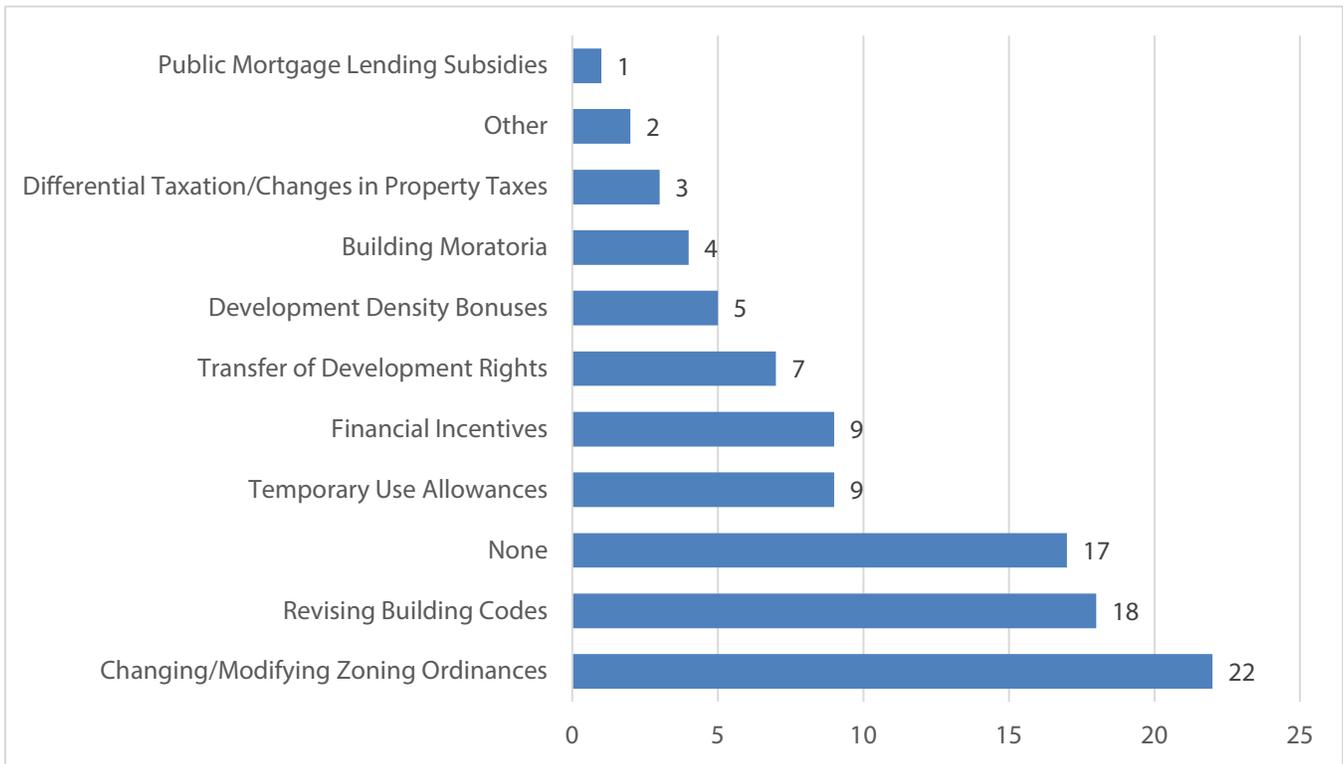


Figure 3.31. Planning tools in the PRE-disaster recovery plan (Q268), N=41

We asked respondents how public input was gathered during the pre-disaster recovery planning processes. **The overwhelmingly most common method of public input was traditional public meetings (n=37).** Methods like public workshops (n=20), mapping community resources (n=20), local television and radio (n=17), email (n=15), and social media (n=15) were the next most common. (Figure 3.32). Five of the respondents reported that no public participation methods were used. “Other” responses included outreach to disability populations, workforce training programs, press releases and newspaper articles on the potential impacts on coasts, waterfront housing, construction quality, coordinating response agencies.

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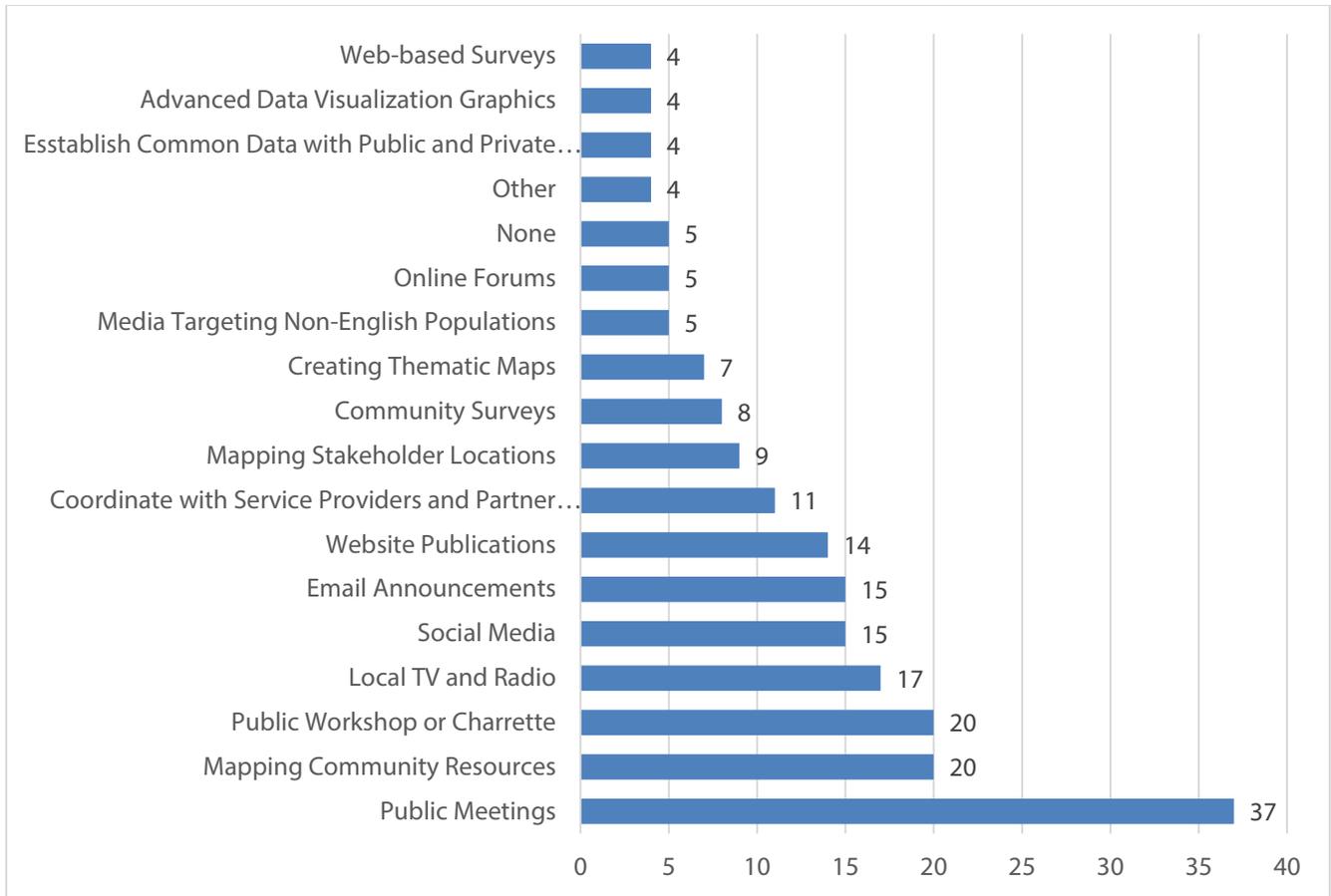


Figure 3.32. Participation mechanisms used to gather the public's input (Q267), N=44

The most common funding mechanism identified in pre-disaster recovery plans was FEMA Hazard Mitigation Grants (n=30) (Figure 3.33). State disaster assistance (n=24) was the second most commonly identified funding mechanism. Five respondents indicated that no funding mechanisms were identified. "Other" responses included USDA Rural Development, Business Interruption Insurance, Small Business Administration, general lack of awareness of grants, Federal Commitments, and seeking Federal Highway Administration funding and FEMA funding for a road/flood protection project.

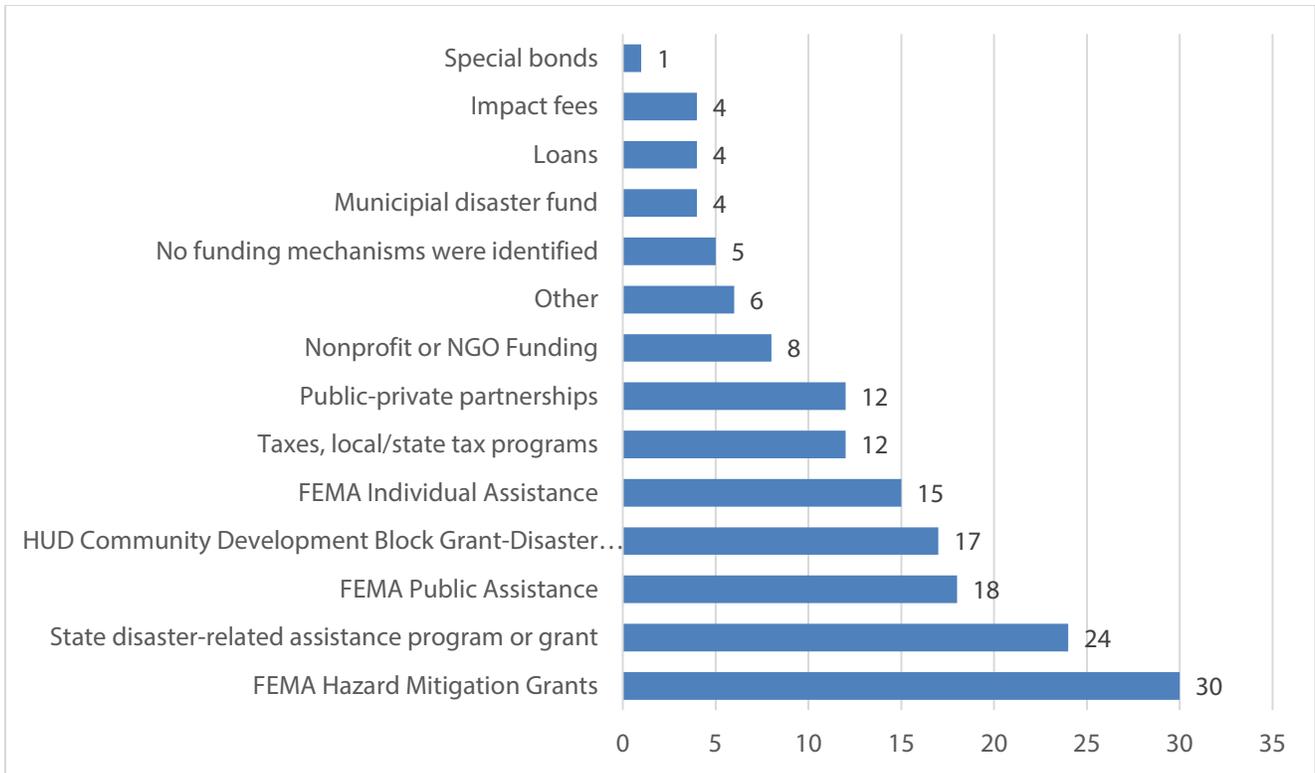


Figure 3.33. Funding mechanisms to fund future recovery actions (Q266), N=43

As shown in Figure 3.34, respondents reported the five most frequently included elements of the pre-disaster recovery plan as supply and logistics (n=28), community participation (n=26), anticipating disasters (n=24), mitigation (n=24), and sheltering (n=23). The least commonly included components were equity (n=6), health needs (n=10), historic preservation (n=10), intermediate to long-term housing (n=11), and relief items (n=12). “Other” responses included transit issues.

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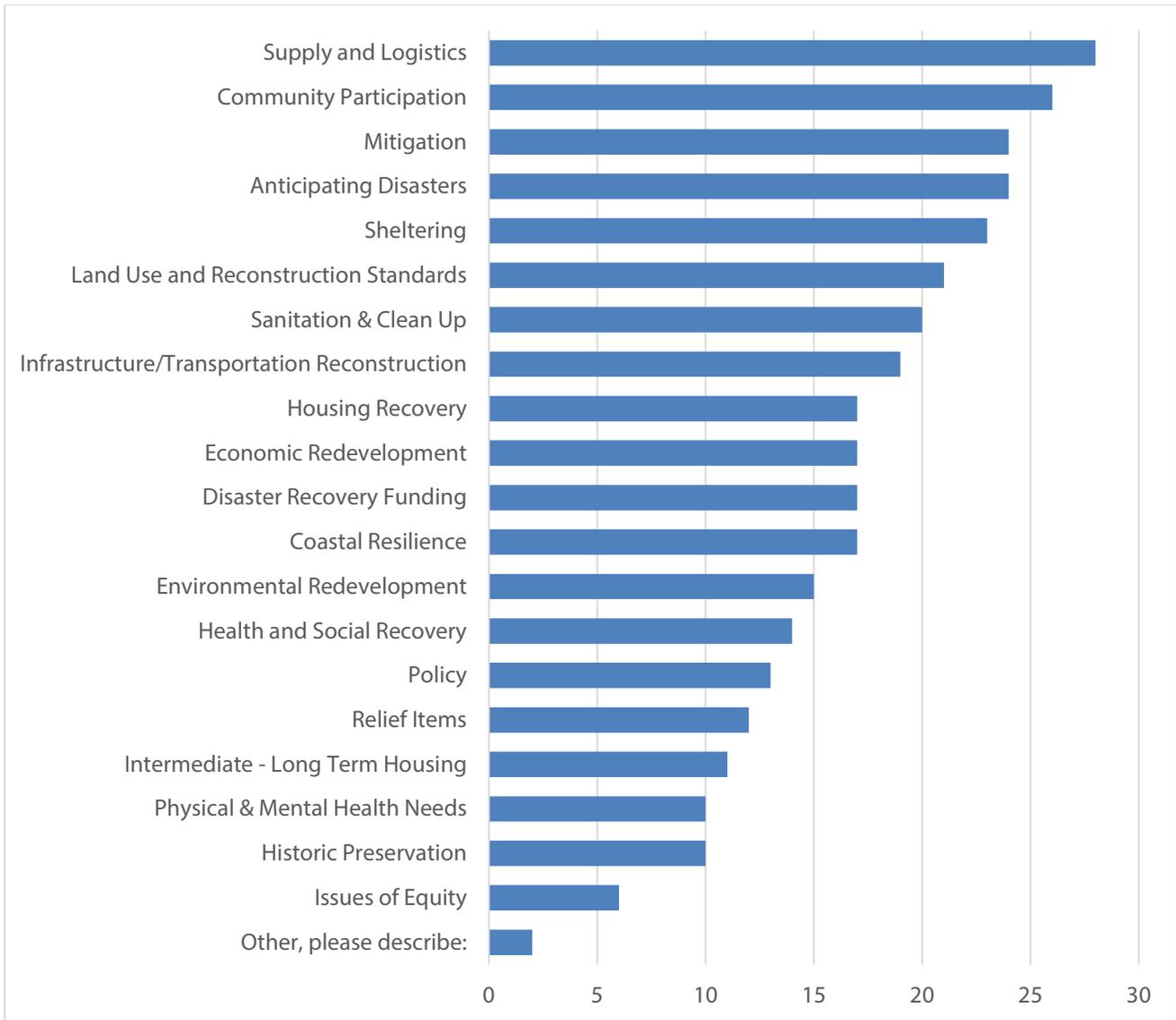


Figure 3.34. Components in the pre-disaster recovery plan (Q258), N=43

When asked about agencies involved in the pre-disaster recovery planning process (Q259), the most common agencies were planning agencies (n=29), first responders (n=28), public works (n=27), state or federal partner (n=26), and utilities (n=25). Banking/finance and agriculture extension were by far the least common agencies to be involved in pre-disaster recovery planning.

Disaster Recovery Guidance: Qualitative Survey Report

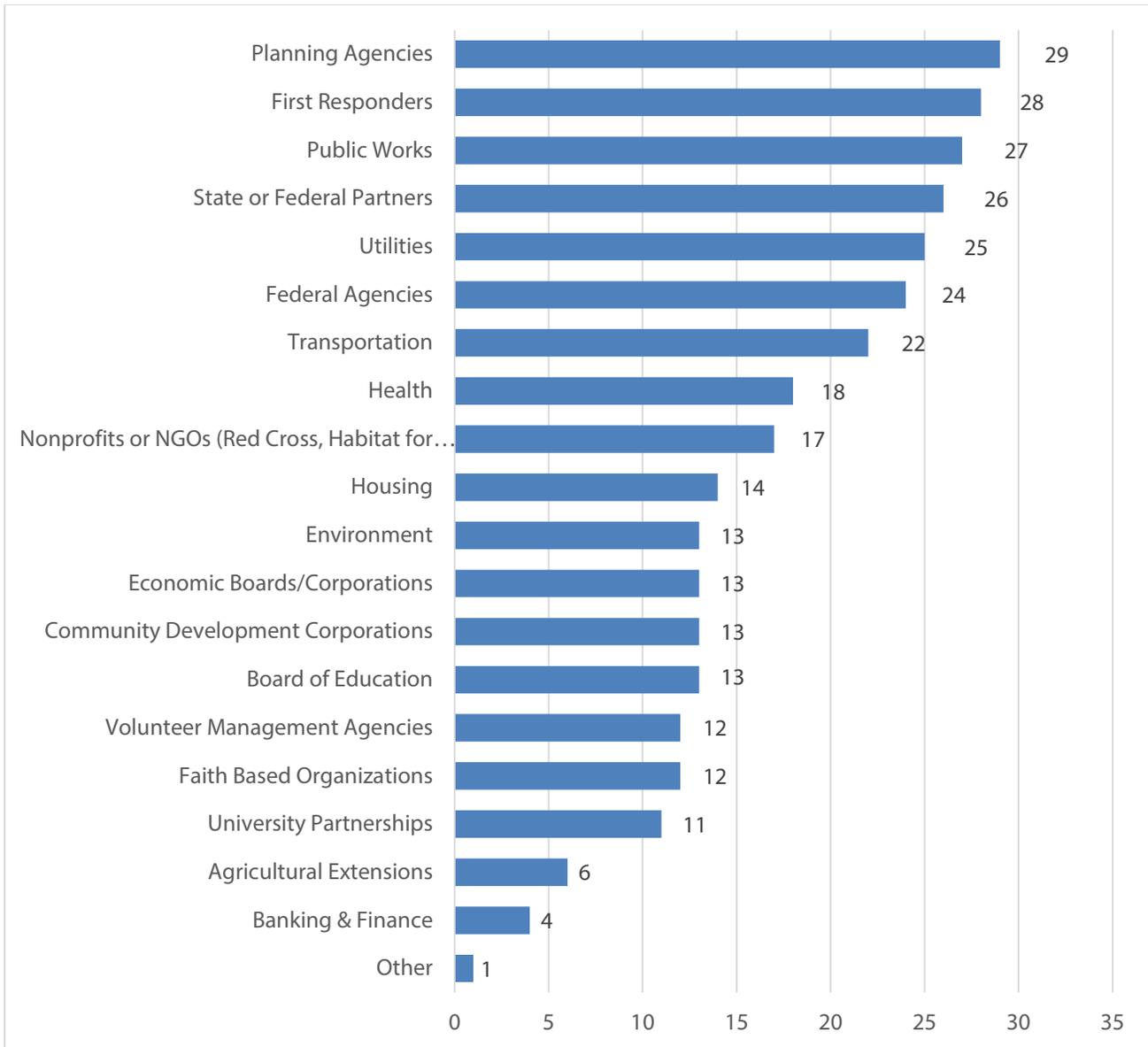


Figure 3.35. Agencies involved in the pre-disaster recovery planning process (Q259), N=42

When asked who led the recovery process (Q260), 41% responded emergency management, 24% responded local elected officials, 17% responded local government manager or administration, and 15% responded the planning department.

Figure 3.36 indicates that the five most prominent challenges to the pre-disaster recovery planning process are estimates of predicted damage impacts (n=23), data access and data sharing (n=23), limited

funding (n=20), lack of knowledge on steps in the recovery process (n=16), and identifying disjointed and duplication of efforts (n=15). “Other” responses included complacency.

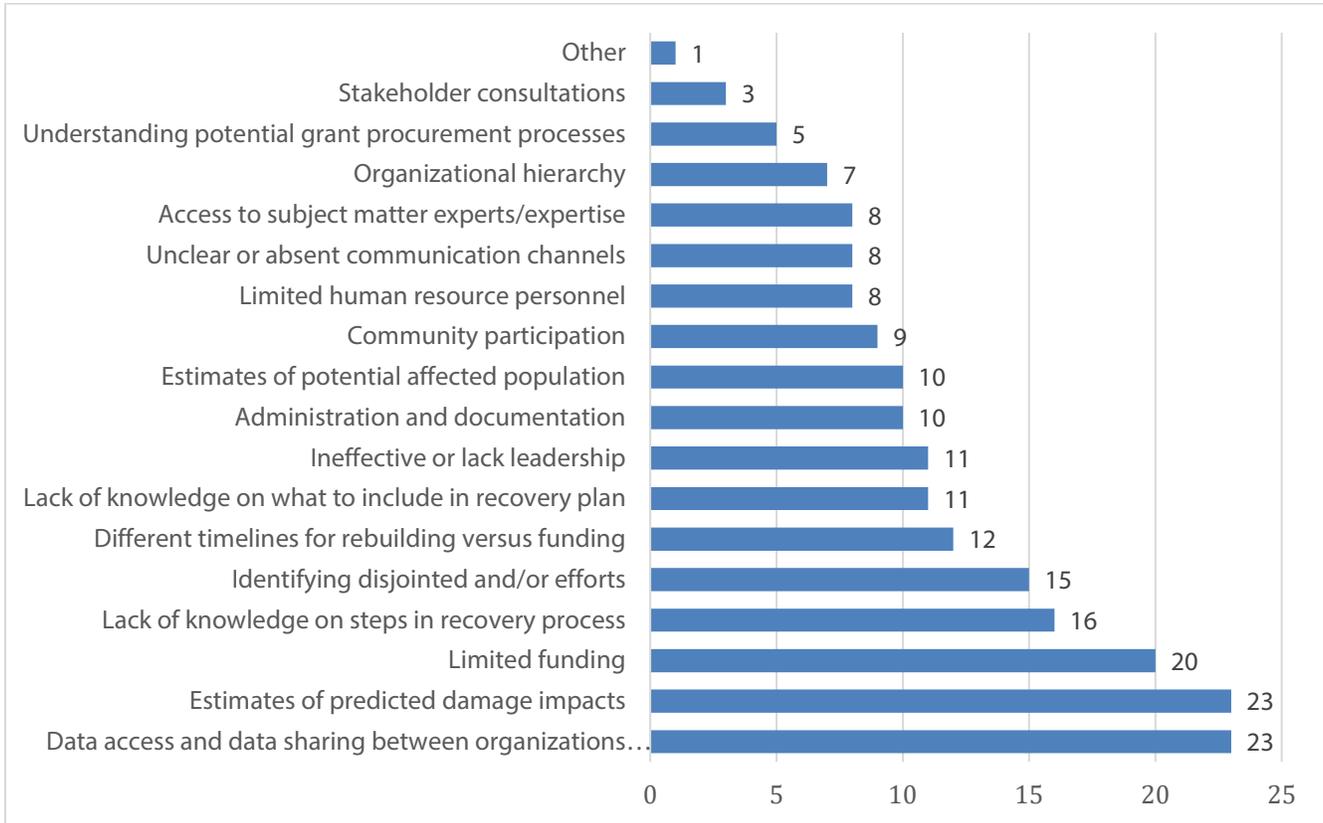


Figure 3.36. The key challenges to the pre-disaster recovery planning process (Q261), N=40

Plans that were used most often to inform the pre-disaster recovery plan, based on respondents’ reporting, were hazard mitigation plans (n=32), comprehensive plans (n=31), capital improvement plans (n=28), transportation and mobility plans (n=28), and debris management plans (n=23) (Q262, Figure 3.37). A positive result is that all respondents who had completed pre-disaster recovery planning stated using some existing plan during that process. This contrasts with those who did post-disaster recovery planning, where some indicated that no existing plans helped guide the process. “Other” responses included critical infrastructure and info management systems.

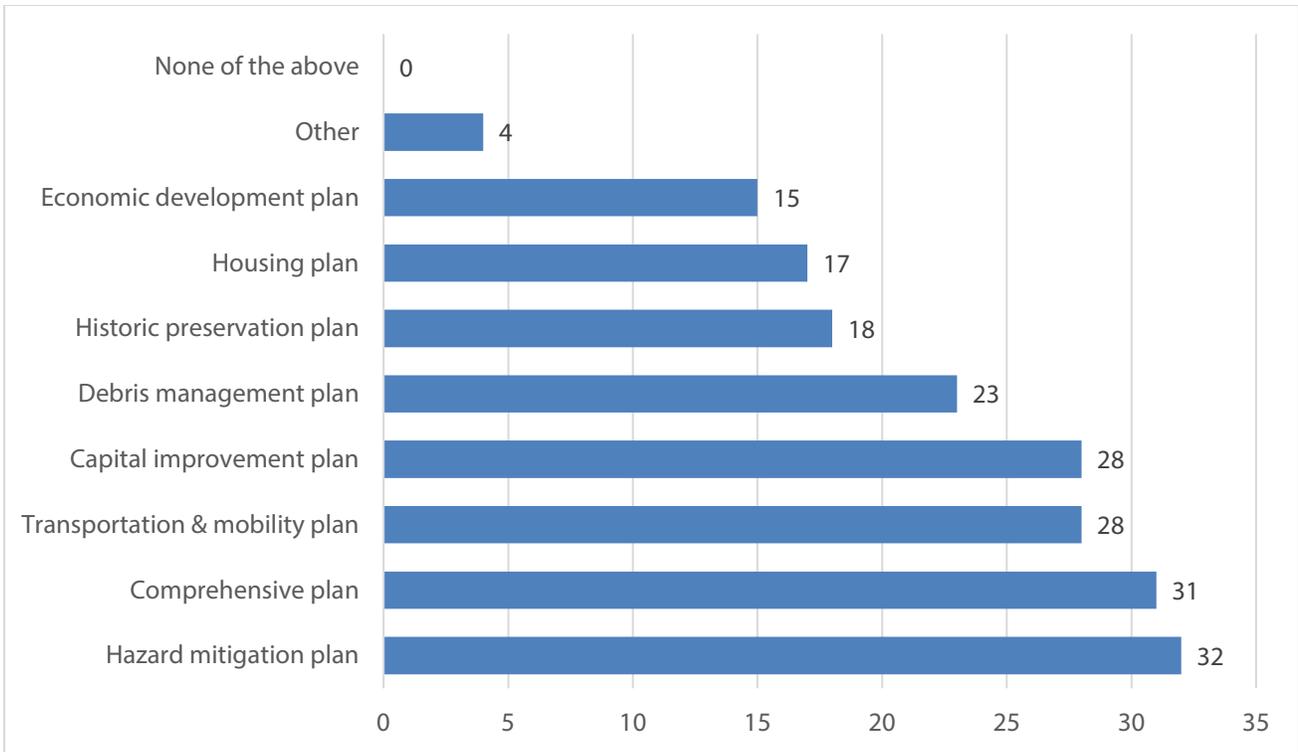


Figure 3.37. Plans that were used to inform the pre-disaster recovery plan (Q262), N=42

Those who said the hazard mitigation plan was used during pre-disaster recovery planning were asked what elements of the mitigation plan provided guidance (Q263). Hazards, risks, vulnerabilities, and mitigation actions were all commonly used (Figure 3.38). “Other” responses included HQ and subsidiaries.

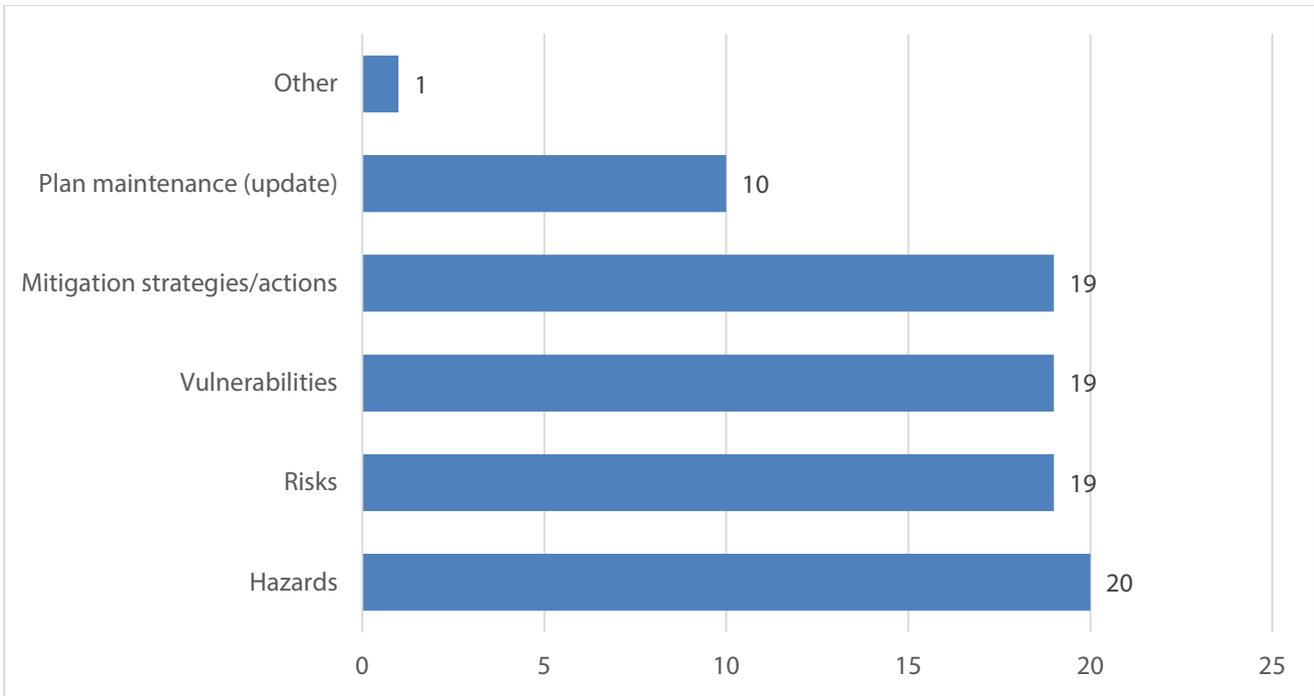


Figure 3.38. Elements of the hazard mitigation plan used for the pre-disaster recovery planning (Q263), N=20

We asked respondents what existing plans were revised based on the pre-disaster recovery planning process (Q264). Respondents reported that hazard mitigation plans, comprehensive plans, debris management plans, transportation and mobility plans, and capital improvement plans likely to be updated based on the experience of doing a pre-disaster recovery plan (Figure 3.39). Several respondents indicated no plans were revised. The least likely plan to be revised was the historic preservation plan. “Other” responses included emergency management.

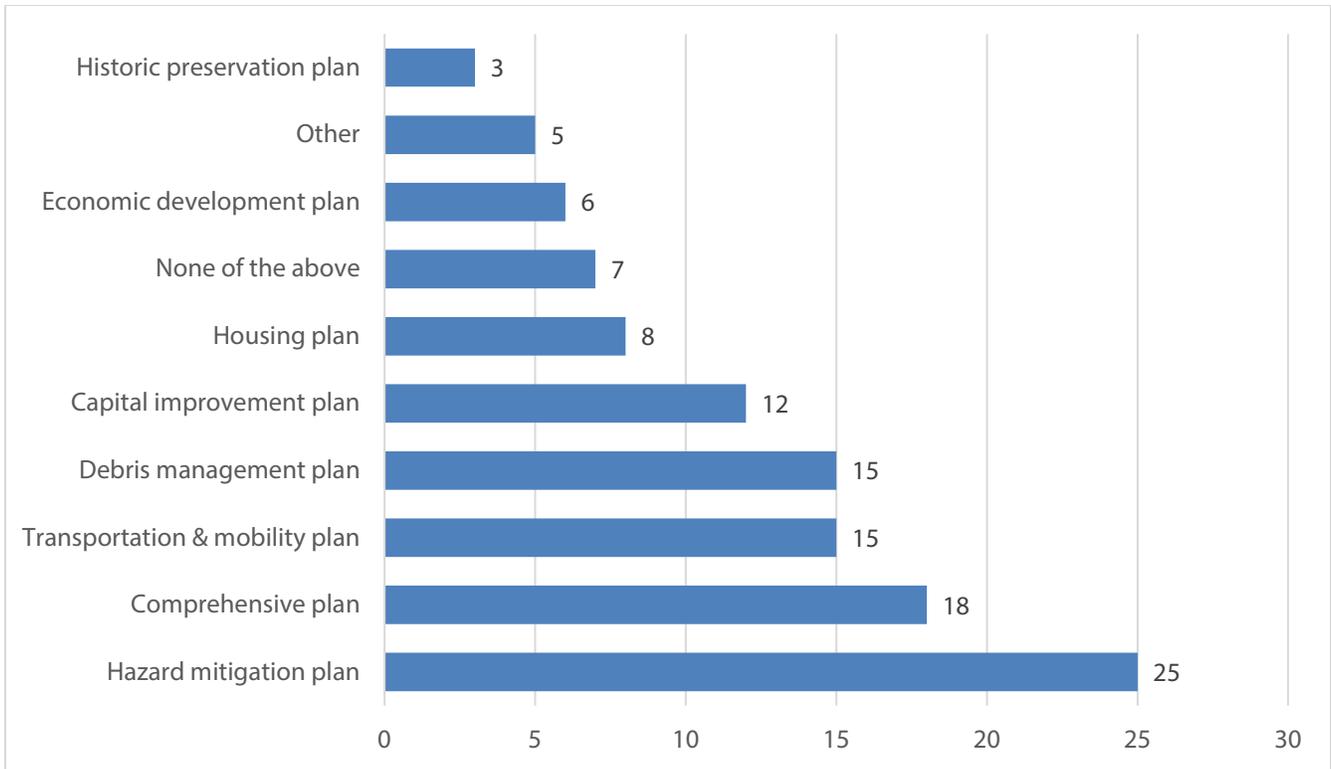


Figure 3.39. Plans that were updated based on the experience of doing a pre-disaster recovery planning (Q264), N=42

RECOMMENDATIONS

The survey findings provide insight into what planners need in order to participate more effectively in disaster recovery. Several recommendations are clear from the results.

The majority of respondents would like to learn disaster recovery planning through a workshop, seminar, or conference. We recommend conducting training that best fits with this strong respondent preference.

Respondents are “barely knowledgeable” about the funding that is specifically available for post-disaster recovery (e.g., FEMA mitigation grants, FEMA Individual Assistance, HUD CDBG-DR). Additional marketing and outreach are needed to enhance awareness.

As for technical support, most of the respondents have adequate technical support in GIS and limited technical support in water modeling software. They are unlikely to have technical support in recovery-related analysis software, such as HAZUS from FEMA, Urban Footprint, or statistical analysis software. Stronger connections with and training of technical staff within the planning team is advised, particularly regarding training in HAZUS and statistical analysis.

Respondents also frequently report having access to parcel data, population projections, sensitive environmental area data, and hazard zone data, but not to disaster-focused data such as social vulnerability data or disaster mitigation options. These data should be made more widely available and this type of analysis should be built into the training and guidebook.

Very few respondents have participated in pre- or post-disaster recovery planning. There is a large need for increased planning efforts in these areas.

Many respondents indicated that they used no planning tools in the pre-disaster recovery plan. This result highlights a prime opportunity for increased guidance and training.

- When asked about the likelihood of revising plans based on the experience during the disaster, the least likely plan type to be revised was the historic preservation plan. This type of plan was generally ignored by respondents, throughout, suggesting that they currently see little connection between disasters and historic preservation.
- APA should encourage more opportunities for networking between APA membership and recovery/disaster professionals, thereby improving coordination and enhancing social capital in the communities they serve. This may be accomplished by advertising ways for local professionals to collaborate and promoting social networking with these groups.
- The least commonly included components in pre-disaster recovery plans were equity, health needs, historic preservation, intermediate-to-long-term housing, and relief items. These absences—particularly equity, health, and housing—represent potentially important omissions that may have lasting and compounding consequences, especially for marginalized communities. Communities should address them more effectively in their pre-disaster planning.
- Planning agencies, public works, state/federal partners, and utilities are the groups most commonly involved in pre-disaster recovery planning. Yet, when asked who should lead recovery, respondents most frequently said emergency management. There is substantial disconnect between those few who have completed recovery plans and what the majority of respondents think about recovery. APA could provide guidance on the role that all these other players can have during recovery, potentially creating quick “cheat sheet” reference guides for planners looking for collaborators, expertise, social networking, and/or partnership activities.
- A positive finding is that all respondents who had done some form of pre-disaster recovery planning stated that they used some existing plan during that process. This contrasts with those who participated in post-disaster recovery planning, where some respondents indicated that no existing plans helped guide their process. This finding speaks both to the value of pre-disaster recovery planning as an important process for enhancing plan integration, and to the need for post-disaster recovery planning efforts to better reflect this by including plan review in the process.

APPENDIX A: SURVEY

Invitation Email:

Dear \${m://FirstName},

You have been randomly selected as an APA member to participate in a survey designed to assess planners' education and resource needs with respect to community disaster recovery planning. Your responses will help APA develop guidance materials for local planners and allied professionals.

Follow this link to the Survey:

[\\${l://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${l://SurveyURL}](#)

We estimate this survey will take 15 to 20 minutes to complete. All participants must be 18 years of age or older. Your email address will be stored separately from your survey data, and is only being used to determine response rates and provide follow-up information about the study results.

Thank you for your participation!

Shannon Burke

American Planning Association

Manager | [Hazards Planning Center](#)

APA has partnered with the Hazard Reduction and Recovery Center at Texas A&M University on this effort. If you have any questions about this effort please contact sburke@planning.org or Texas A&M University researchers Shannon Van Zandt (svanzandt@tamu.edu) or Michelle Meyer (michelle.meyer@tamu.edu).

If you do not wish to receive future emails about this survey, please opt out here:

[\\${l://OptOutLink?d=Click here to unsubscribe}](#)

Your APA Communication Preferences

APA has multiple email subscription options you can choose from. Log in and update your preferences so you only hear from us when you want to. [Update Preferences](#)

Reminder #1

Hi \${m://FirstName},

We recently emailed you about participating in a survey designed to assess planners' and allied professionals' education and resource needs with respect to community disaster recovery planning. We haven't received your survey yet and hope that you will help us identify these needs and improve our educational materials.

Follow this link to the Survey:

\${!://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:

\${!://SurveyURL}

We estimate this survey will take 15 to 20 minutes to complete. All participants must be 18 years of age or older. Your email address will be stored separately from your survey data, and is only being used to determine response rates and provide follow-up information about the study results.

Thank you for your participation!

Shannon Burke

American Planning Association

Manager | [Hazards Planning Center](#)

If you do not wish to receive future emails about this survey, please opt out here:

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Reminder #2

Hi \${m://FirstName},

We recently emailed you about participating in a survey designed to assess planners' and allied professionals' education and resource needs with respect to community disaster recovery planning. We haven't received your survey yet and hope that you will help us identify these needs and improve our educational materials.

Follow this link to the Survey:

\${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:

\${l://SurveyURL}

We estimate this survey will take 15 to 20 minutes to complete. All participants must be 18 years of age or older. Your email address will be stored separately from your survey data, and is only being used to determine response rates and provide follow-up information about the study results.

Thank you for your participation!

Shannon Burke

American Planning Association

Manager | [Hazards Planning Center](#)

If you do not wish to receive future emails about this survey, please opt out here:

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Reminder #3

Hi \${m://FirstName},

We wanted to follow up one last time about this important project. This project, funded by FEMA, is about understanding what professions who work on community planning-related activities may want and need to know about disaster recovery. We completed in-depth interviews with professionals and disaster-experienced planners as the first phase of this project. That information informed this survey. To develop appropriate guidance for any person whose community may have the unfortunate task of doing disaster recovery, we want to hear from you! This survey has been sent to only 1,000 randomly selected APA members. We are looking for respondents who have any level of experience with disaster. We also encourage anyone who retired to complete the survey based on their career experience. We hope that you will share you thoughts with us.

Follow the link below to take the survey. We greatly appreciate your time!

Follow this link to the Survey:

\${!://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:

\${!://SurveyURL}

Sincerely,

Shannon Burke

American Planning Association

Manager | [Hazards Planning Center](#)

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\${!://OptOutLink?d=Click here to unsubscribe}

Email Consent Page

This research project involves an online survey with professionals like yourself. We are surveying 1,000 APA members to learn how the APA can support community planners and other professionals to be prepared for disaster recovery efforts in their communities. The lead investigators are Shannon Burke, AICP and Joe De Angelis, AICP with the APA and Michelle Meyer, PhD and Shannon Van Zandt, AICP, PhD with Texas A&M University. This research is funded by a grant through the Federal Emergency Management Agency (FEMA) to the APA. You must be 18 years of age or older to participate.

Participation will take approximately 15-20 minutes. If you have had many disaster recovery experiences, then the survey may take a little longer.

Your participation is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participation at any time without penalty. There are no sensitive questions in this survey that should cause discomfort. However, you can skip any question you do not wish to answer, or exit the survey at any point.

If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team at 979-845-7813, hrrc@arch.tamu.edu. This research has been reviewed and approved by the Texas A&M Institutional Review Board (IRB). You may talk to them at 1-979-458-4067, toll free at 1-855-795-8636, or by email at irb@tamu.edu, if:

- You cannot reach the research team.
- Your questions, concerns, or complaints are not being answered by the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

Finally, there are no personally identifying questions in the survey. The survey focuses on your experience as a planner or allied professional. Your identity and that of your organization will be kept confidential.

Disaster Recovery Guidance: Qualitative Survey Report

Data is collected through the link below using the Qualtrics survey company. You may view the survey host's confidentiality policy at: <https://www.qualtrics.com/security-statement/>

All results of the survey will be presented in aggregate form with no identifying information. Efforts will be made to limit the use and disclosure of your personal information, including research study and other records, to people who have a need to review this information. We cannot promise complete privacy. Organizations that may inspect and copy your information include the TAMU HRPP/IRB and other representatives of this institution.

If you consent to participate, please press the button below to begin the survey. You can pause and return to the survey, picking up where you left off, as needed.

Survey

Q70 First, we would like to begin with a few questions about your professional role.

Q2 Please enter the zip code in which you work.

Q3 Which of the following best describes your employer?

City government (1)

County government (2)

Joint city/county agency (3)

Metropolitan or regional agency (4)

State government (5)

Federal government (6)

Economic development (7)

Other public entity (8)

Nonprofit organization (9)

Educational institution / university (10)

Private consulting firm (11)

Law firm (12)

Development firm (13)

Retired, please indicate last type of employer (15)

Other, please describe: (14) _____

Q5 Which of the following best describes the scale of the jurisdiction(s) with which you commonly work?

Please select all that apply.

I do not work directly with jurisdictions (1)

Municipal/city (10)

County or parish (2)

Regional (3)

State or territory (4)

Tribal (5)

Special district (i.e. water district, school district, etc.) (6)

National (9)

International (7)

Other (please specify) (8) _____

Skip To: End of Block If Q5 = I do not work directly with jurisdictions

Q8 What is the population size of the jurisdiction with which you currently work? If you work with multiple jurisdictions, select the size of the jurisdiction you most recently worked with.

▼ less than 1,000 (1) ... 1 million or more (12)

Q31 Does the jurisdiction in which you work (or most recently worked with) have any of the following planning instruments? If you have worked with many jurisdictions, respond based on the jurisdiction you worked with most recently. If you are retired, think about your last position. Hover over the options for examples.

	Yes (1)	No (2)	Not sure (3)
Community, subarea, corridor, and neighborhood plans (1)			
Comprehensive and sectoral plans (2)			
Current plans (3)			
Economic development plans (4)			

- Emergency or disaster response, preparedness, and operational plans (5)
- Environmental and natural resources plans (6)
- Flood mitigation plans (7)
- Hazards, mitigation, and resiliency plans (8)
- Health plans (9)
- Historic and cultural resources plans (10)
- Housing plans (11)
- Infrastructure plans (12)
- Institutional plans and siting (13)
- Parks, recreation, and open space (14)
- Rural and small-town plans (15)

Disaster Recovery Guidance: Qualitative Survey Report

Sustainability plans

(16)

Transportation plans

(17)

Urban design (18)

Other, please specify:

(19)

Q272 This set of questions gathers your perspectives on disaster recovery activities and educational opportunities. Please provide your opinion.

Q271 How often do you interact with the following experts?

	No interaction at all (1)	Yearly or less (2)	A few times a year (3)	About once a month or so (4)	About once a week or more (5)
Federal hazard mitigation experts (1)					
Academics or universities experts (2)					
Extension agents (3)					

Local emergency
management (4)

Local hazard
mitigation experts
(5)

Federal Emergency
Management
Agency (FEMA) (6)

Department of
Housing and
Urban
Development
(HUD) (7)

Flood experts (8)

Private sector
experts in hazard
and disaster (9)

State emergency
management (10)

State hazard
mitigation experts
(11)

Nonprofits or
NGOs involved in
disaster recovery
(12)

Disaster Recovery Guidance: Qualitative Survey Report

Q269 In your opinion, who should lead recovery?

- Community development corporations (1)
- Local emergency management (2)
- Local elected officials (6)
- Local planning department (7)
- Local community development agency (8)
- Local community manager (9)
- Regional planning organization (12)
- State emergency management (3)
- State land, housing, or community development agency (10)
- FEMA (4)
- Nonprofit / NGO (5)
- Other (11) _____

Q245 In your opinion, what level of involvement should planning professionals have in the following activities?

	Not Involved (1)	Slightly Involved (2)	Moderately Involved (3)	Extremely Involved (4)
Leading disaster recovery efforts (1)				
Promoting a culture of prevention and preparedness (2)				
Developing resilience goals (3)				
Integrating resilience into various city plans (4)				
Integrating disaster recovery planning with other city plans (15)				

Providing guidance and focus for pre-disaster simulations (5)

Provide technical expertise on hazard management (6)

Prepositioning, organizing and coordinating teams specific to disaster response and recovery needs (7)

Bringing stakeholders from other agencies/departments/organizations together (8)

Building a local culture of disaster awareness (9)

Establish clear lines of responsibility (10)

Identify sources of recovery funding, explore financial needs of recovery, plan for financial needs of recovery (11)

Developing early warning systems (12)

Paying close attention to the needs of vulnerable communities (13)

Developing pre-disaster recovery plans (14)

Other (16)

Other (17)

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Q255 How would you like to learn about disaster recovery planning? (Please drag the top 5 ways you would prefer to learn. Put the way your most prefer at the top, followed by your second choice, third choice, and so on.)

Top 5 ways you prefer to learn about disaster recovery

_____ Books (1)

_____ Training manuals (2)

_____ Mentoring from other practitioners (3)

_____ Peer-to-peer learning (4)

_____ Workshops, seminars, or conferences (5)

_____ Web based knowledge platforms/ Learning portals (6)

_____ How-to-guide (7)

_____ Webinars (8)

_____ On demand courses (9)

_____ Fact sheets (10)

_____ Example guidance documents (11)

_____ Other (12)

Q246 Please indicate your level of agreement with the following statements about addressing **PRE**-disaster recovery planning in the community you work. If you work in several communities, provide an aggregate estimate based on your experience.

	Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
--	-----------------------------	--------------	-----------	-----------------------

Disaster Recovery Guidance: Qualitative Survey Report

Pre-disaster planning is not an issue for my community (1)

The public is not concerned with disasters (2)

There is not enough political will for disaster planning (3)

There is not enough support from state or national entities for preparing for disaster recovery (4)

Conflict between sectors makes it impossible to address planning for disaster recovery (5)

Q247 Please indicate the general support the following individuals offer for disaster recovery planning in the community in which you work. Again, if you work with several communities, give your aggregate estimate based on those experiences.

	Poor (1)	Adequate (2)	Excellent (3)	Not applicable (4)
Elected officials (1)				
Municipal/city staff complement (2)				
Municipal/city planning staff (3)				
Emergency management staff or first responders (4)				

Business communities and boards (e.g., chambers of commerce, small businesses) (5)

Special districts (e.g., independent school district, utility district) (6)

Nonprofits, NGOs, or voluntary and aid organizations (9)

Citizens/general population (7)

Other (8)

Q273 Have you received disaster recovery training?

Yes (1)

No (2)

Skip To: Q256 If Q273 = No

Q248 From whom have you received disaster recovery training? Select all that apply.

American Red Cross (1)

Federal Emergency Management Agency (FEMA) (2)

Department of Housing and Urban Development (HUD) (3)

Professional mentorship (4)

Training provided by the state (5)

Training from a university (6)

Training provided by a nonprofit, NGO, or foundation (7)

Other organization/group, please indicate (8)

Q274 How have you received disaster recovery training? Select all that apply.

In person/classroom (1)

Webinar (2)

Conference call (3)

Other, please describe: (4) _____

Q256 Have you referenced resources or information about disaster recovery from any of the following organizations? Select all that apply.

Federal Emergency Management Agency (FEMA) (1)

American Planning Association (APA) (2)

American Institute of Architects (AIA) (3)

American Red Cross (4)

United Nations Development Programme (5)

National Association for the Advancement of Colored People (NAACP) (6)

U.S. Department of Housing and Urban Development (HUD) (7)

National VOAD (Voluntary Organizations Active in Disaster) (8)

National Historic Trust for Preservation (10)

Other (please provide name): (9) _____

Q249 Indicate the resources you have used and their level of usefulness:

	I have not used this resource (4)	Not useful (1)	Somewhat useful (2)	Extremely useful (3)
--	-----------------------------------	----------------	---------------------	----------------------

APA's Planning for Post-disaster Recovery (21)	
APA's Hazard Mitigation and Disaster Recovery Resources (5)	
APA's Post-Disaster Recovery Briefing Papers (13)	
APA's Zoning Practice (14)	
APA's Planning Advisory Service reports (15)	
APA's Planning Information Exchange webinars (12)	
APA's On-Demand Courses (16)	
FEMA's Community Recovery Management ToolKit (1)	
FEMA's Long-term Community Recovery Planning Process: A Self-Help Guide (18)	
FEMA's Emergency Management Institute (2)	
FEMA's Community Resilience Indicator Analysis County-level Analysis of Commonly Used Indicators to Inform FEMA Technical Assistance (3)	

FEMA's P-1000, Safer, Stronger, Smarter:

A Guide to Improving School Natural
Hazard Safety (4)

Homeland Security's Community
Resilience Indicator Analysis: County-
Level Analysis of Commonly Used
Indicators From Peer-Reviewed
Research (11)

HUD's Exchange Disaster Recovery
Homelessness Toolkit: Local Planning
Guide, Response Guide, and Recovery
Guide (10)

UNDP's Methodological Guide for Post-
disaster Recovery Planning Processes (7)

UNDP's National Post-Disaster Recovery
Planning and Coordination (8)

NAACP's In the Eye of the Storm Action
Toolkit (9)

Other (17)

Q250 Has your jurisdiction, or the one you work/partner with, used the following federal incentive programs?

National Flood Insurance Program (NFIP) (1)

Community Rating System (2)

I don't know (3)

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None of the above (4)

Q251 How knowledgeable are you with the following topics related to disaster recovery?

	No knowledge at all (1)	Barely knowledgeable (2)	Fairly knowledgeable/ Working knowledge (3)	Most knowledgeable/ Technical knowledge (4)
Economic Recovery (1)				
Recovery Management (2)				
Communication (3)				
Short-term Housing (1 month) (4)				
Medium-term Housing (1-6 months) (5)				
Long-term Housing (more than 6 months) (6)				
Social Capital (7)				
Coastal Zone Management (8)				
Reconstruction of Buildings (9)				
Reconstruction of Infrastructure (10)				
Mitigation (11)				

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Historic Preservation (12)
 Climate Change Adaptation
 (13)
 Land Use, Development &
 Zoning (14)
 Plan Development Process
 (15)
 Resilience (16)

Q252 Please indicate how knowledgeable you are about the following funding mechanisms for POST-disaster recovery.

	No knowledge at all (1)	Barely knowledgeable (2)	Fairly knowledgeable/ Working knowledge (3)	Most knowledgeable/ Technical knowledge (4)
FEMA mitigation grants (1)				
FEMA individual assistance (2)				
FEMA public assistance (3)				
HUD CDBR-DR (Community Development Block Grants for Disaster Recovery) (4)				
Nonprofit/NGO funding (5)				

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- State disaster-related assistance programs or grants (6)
- Public-private partnerships (7)
- Impact fees (8)
- Special bonds (9)
- Loans (10)
- Local/state disaster funds (11)
- Grants & technical assistance (12)
- Taxes, local/state tax programs (13)
- Other (14)

Q253 How much access do you have to technical support in the following tools? Please use a check mark to indicate the level of support in the specific areas.

	No technical support (1)	Limited technical support (2)	Adequate technical support (3)	Good technical support (4)	Excellent technical support (5)
GIS (1)					
Water modeling software (e.g., Hydrologic Engineering Center's River					

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Analysis System (HEC-RAS
or HydroCAD) (2)

HAZUS from FEMA (3)

Urban Footprint (4)

Statistical analysis
software (e.g., Stata, SPSS,
R) (5)

Other (6)

Other (7)

Other (8)

Q254 Data is often important to planning and recovery. In the table below, please indicate which data you would like to have, and if you have access to it:

	I do not need this data/information (1)	I need this data and DO NOT have access to it (2)	I need this data and DO have adequate access to it (3)
An extensive list of all types of impacts that have occurred during past disasters (1)			
A prioritized list of the most important impacts that have occurred during past disasters (2)			
Where in the planning jurisdiction that the impacts occurred (3)			

The likelihood of impacts
happening in the future (4)

The economic gains or losses
associated with disaster impacts
(5)

Disaster mitigation options, costs,
or benefits (6)

Disaster response options, costs,
or benefits (7)

Aerial photos/satellite images (8)

Topographical maps (9)

Risk area or hazard zone data
(e.g., flood, surge, wind-field) (10)

Jurisdictional land use maps (11)

Social vulnerability data (12)

Sensitive environmental area
location maps (e.g., habitat areas,
estuaries, wetlands) (13)

U.S. Census data (e.g., Decennial
Census, American Community
Survey) (14)

Population projections from state
agencies (15)

Economic data (e.g., industries,
sales, number of employees) (16)

HAZUS program or output-
estimates from that program (17)

Parcel data (18)

Other (19)

Q81 The following questions ask about the disaster experiences of the jurisdiction(s) that you work with. If you work for more than one jurisdiction, respond based on your experiences across the jurisdictions with which you work.

Q82 Thinking about the jurisdiction in which you work, please indicate which hazards have caused damages in the past 10 years. Select all that apply.

Floods (20)

Hail (1)

Drought (2)

Wildfires (3)

Landslide (4)

Tornadoes (5)

Earthquakes (6)

Sea-level rise (7)

Winter storms (8)

Coastal erosion (9)

Thunderstorms (10)

Volcanic eruption (11)

Tsunami (12)

Storm surges (13)

Excessive heat or cold (14)

Subsidence/Sinkholes (15)

Coastal storms (i.e. tropical storms, hurricanes etc.) (16)

Technical hazards (e.g., industrial disaster, dam/levee failure, explosion, oil spill, etc.) (17)

None (19)

Other (18) _____

Q83 The next set of questions focuses on disaster recovery activities and disaster recovery planning.

Disaster recovery includes repair of damaged structures, and the “continuation and restoration of services critical to supporting the physical, emotional, and financial well-being of impacted community members.” (National Disaster Recovery Framework, FEMA 2016).

These questions focus on your participation in disaster recovery activities and planning. This does NOT include response activities such as life-saving efforts, search and rescue, and emergency sheltering.

Q84 Have you ever been a part of recovery activities following a disaster? These activities focus on the rebuilding and restoration of services important to the well-being of community members.

Yes (1)

No (2)

Q85 Have you ever been a member of a recovery committee? This includes both governmental and nongovernment groups of residents or organizations that collaborate to develop recovery goals, activities, needs, and plans.

Yes (1)

No (2)

Display This Question:

If Q84 = Yes

Or Q85 = Yes

Q86 In your opinion, how much do you agree with the following statement:

I felt that I played a key role in the recovery efforts.

Strongly disagree (1)

- Disagree (2)
- Neutral (3)
- Agree (4)
- Strongly agree (5)

Display This Question:

If Q84 = Yes

Or Q85 = Yes

Q87 Please indicate whether you used any of the following planning tools during post-disaster recovery. Select all that apply.

- Building Moratoria (1)
- Changing/Modifying Zoning Ordinances (2)
- Development Density Bonuses (3)
- Differential Taxation/Changes in Property Taxes (4)
- Financial Incentives (5)
- Public Mortgage Lending Subsidies (6)
- Revising Building Codes (7)
- Temporary Use Allowances (8)
- Transfer of Development Rights (9)
- None (10)
- Other (11) _____

Display This Question:

If Q84 = Yes

Or Q85 = Yes

Q88 What participation mechanisms were used to get the public's input during the recovery period?

Please select all that apply.

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- None (1)
- Public Meetings (2)
- Public Workshop or Charette (3)
- Local Television and Radio (4)
- Email Announcements (5)
- Website Publications (6)
- Social Media (7)
- Community Surveys (8)
- Web-based Surveys (9)
- Online Forums (10)
- Coordinate with Service Providers and Partner Organizations to Target Relevant Populations (11)
- Media Targeting Non-English Populations (12)
- Mapping Community Resources (13)
- Mapping Stakeholder Locations (14)
- Creating Thematic Maps (15)
- Advanced Data Visualization Graphics (16)
- Establish Common Data With Public and Private Partners (17)
- Other, please describe: (18) _____

Display This Question:

If Q84 = Yes

Or Q85 = Yes

Q89 What were the key funding mechanisms used to address recovery needs? (Please select all that apply.)

- FEMA hazard mitigation grants (1)
- FEMA - individual assistance (2)
- FEMA - public assistance (3)

HUD CDBG-DR (Community Develop Block Grant for Disaster Recovery) (4)

Nonprofit or NGO Funding (5)

State disaster-related assistance program or grant (6)

Public-private partnerships (7)

Impact fees (8)

Special bonds (9)

Loans (10)

Municipal disaster fund (11)

Taxes, local or state tax program (12)

Other (13) _____

Display This Question:

If Q84 = Yes

Or Q85 = Yes

Q90 Thinking about your role and professional position, list 3 needs you had during the first 30 days POST-disaster that would have helped you contribute to the recovery activities.

1. (1) _____

2. (2) _____

3. (3) _____

Display This Question:

If Q84 = Yes

Or Q85 = Yes

Q91 Now, please list 3 needs you had during short-term recovery (1 month to 6 months POST-disaster) that would have helped you contribute to recovery activities.

1. (4) _____

2. (5) _____

3. (6) _____

Display This Question:

If Q84 = Yes

Or Q85 = Yes

Q92 And please list 3 needs you had during long-term recovery (6 months to 5 years) that would have helped you contribute to recovery activities.

1. (4) _____

2. (5) _____

3. (6) _____

Q139 Have you participated in the development or update of either of the following plans? Select all that apply.

A POST-disaster recovery plan (which are prepared following a disaster that occurred) (1)

A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred) (2)

Neither (3)

Skip To: End of Block If Q139 = Neither

Q278 The following set of questions ask about the POST-disaster recovery plan and planning process. These are plans developed after a disaster occurs to address its damages.

Display This Question:

If Q139 = A POST-disaster recovery plan (which are prepared following a disaster that occurred)

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Q140 What components were included in this POST-disaster recovery plan? Please select all that apply. If you have been through multiple post-disaster planning processes, please answer based on the most recent experience.

Anticipating Disasters (1)

Community Participation (2)

Coastal Resilience (3)

Disaster Recovery Funding (4)

Economic Redevelopment (5)

Environmental Redevelopment (6)

Health and Social Recovery (7)

Historic Preservation (8)

Housing Recovery (9)

Intermediate - Long Term Housing (10)

Infrastructure/Transportation Reconstruction (11)

Issues of Equity (12)

Land Use and Reconstruction Standards (13)

Mitigation (14)

Physical & Mental Health Needs (15)

Policy (16)

Relief Items (17)

Sanitation & Clean Up (18)

Sheltering (19)

Supply and Logistics (20)

Other, please describe: (21) _____

Display This Question:

If Q139 = A POST-disaster recovery plan (which are prepared following a disaster that occurred)

Q141 What agencies/sectors were involved in the POST-disaster recovery planning process?

Agricultural Extensions (1)

Banking & Finance (2)

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- Board of Education (3)
- Community Development Corporations (4)
- Economic Boards/Corporations (5)
- Environment (6)
- Faith Based Organizations (7)
- Federal Agencies (8)
- First Responders (9)
- Health (10)
- Housing (11)
- Nonprofits or NGOs (Red Cross, Habitat for Humanity, etc) (12)
- Planning Agencies (19)
- Public Works (13)
- Transportation (14)
- University Partnerships (15)
- Utilities (16)
- Volunteer Management Agencies (17)
- State or Federal Partners (20)
- Other (18) _____

Display This Question:

If Q139 = A POST-disaster recovery plan (which are prepared following a disaster that occurred)

Q142 What agencies or position led the POST-disaster recovery planning? (For example, mayor, planning department, emergency management department, city manager, elected official, etc.)

We understand many agencies or people will be involved in recovery, we would like to know which agency or which official was the most central leader or champion of the post-disaster recovery plan development.

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Display This Question:

If Q139 = A POST-disaster recovery plan (which are prepared following a disaster that occurred)

Q143 What were the key challenges to the POST-disaster recovery planning process? Select the **five (5)** **most** prominent challenges.

Drag and drop the top 5 challenges with the most challenging one at the top.

- _____ Access to localized data on affected area (1)
- _____ Access to subject matter experts/expertise (2)
- _____ Access to localized data on affected population (3)
- _____ Administration and documentation (4)
- _____ Community participation (5)
- _____ Data access and data sharing between organizations and agencies (6)
- _____ Different timelines for rebuilding versus funding (7)
- _____ Disjointed and/or duplication of efforts (8)
- _____ Ineffective or lacking leadership (9)
- _____ Grant procurement processes (11)
- _____ Lack of knowledge on steps in recovery process (12)
- _____ Lack of knowledge on what to include in recovery plan (13)
- _____ Lack of timely information (14)
- _____ Limited funding (15)
- _____ Limited human resource personnel (16)
- _____ Loss of tax base/population (17)

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- _____ Organizational hierarchy (18)
- _____ Stakeholder consultations (19)
- _____ Unclear or absent communication channels (20)
- _____ Other, please explain: (21)

Display This Question:

If Q139 = A POST-disaster recovery plan (which are prepared following a disaster that occurred)

Q144 Indicate the plans that were used to inform the POST-disaster recovery plan.

- Comprehensive plan (1)
- Capital improvement plan (2)
- Debris management plan (3)
- Economic development plan (4)
- Hazard mitigation plan (5)
- Historic preservation plan (6)
- Housing plan (7)
- Transportation & mobility plan (8)
- All of the above (9)
- None of the above (10)
- Other (11) _____

Display This Question:

If Q144 = Hazard mitigation plan

Q145 Which elements of the hazard mitigation plan did you use? Select all that apply.

Hazards (1)

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Plan maintenance (update) (2)

Risks (3)

Vulnerabilities (4)

Mitigation strategies/actions (5)

Other (6) _____

Display This Question:

If Q139 = A POST-disaster recovery plan (which are prepared following a disaster that occurred)

Q146 Select any plans that were updated based on the experience during the disaster.

Comprehensive plan (1)

Capital improvement plan (2)

Debris management plan (3)

Economic development plan (4)

Hazard mitigation plan (5)

Historic preservation plan (6)

Housing plan (7)

Transportation & mobility plan (8)

All of the above (10)

None of the above (11)

Other (12) _____

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q265 This next set of questions focuses on the PRE-disaster recovery planning process. This includes plan development and implementation before a disaster has occurred.

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q268 Indicate if you used any of the following planning tools in the **PRE**-disaster recovery plan. Select all that apply.

Building Moratoria (1)

Changing/Modifying Zoning Ordinances (2)

Development Density Bonuses (3)

Differential Taxation/Changes in Property Taxes (4)

Financial Incentives (5)

Public Mortgage Lending Subsidies (6)

Revising Building Codes (7)

Temporary Use Allowances (8)

Transfer of Development Rights (9)

None (10)

Other (11) _____

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q267 What participation mechanisms were used to gather the public's input for the **PRE**-disaster recovery planning? Select all that apply.

None (1)

Public Meetings (2)

Public Workshop or Charette (3)

Local Television and Radio (4)

Email Announcements (5)

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- Website Publications (6)
- Social Media (7)
- Community Surveys (8)
- Web-based Surveys (9)
- Online Forums (10)
- Coordinate with Service Providers and Partner Organizations to Target Relevant Populations (11)
- Media Targeting Non-English Populations (12)
- Mapping Community Resources (13)
- Mapping Stakeholder Locations (14)
- Creating Thematic Maps (15)
- Advanced Data Visualization Graphics (16)
- Establish Common Data With Public and Private Partners (17)
- Other, please describe: (18) _____

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q266 During the PRE-disaster recovery planning process, what funding mechanisms were identified that could be used to fund future recovery actions? Select all that apply.

- FEMA hazard mitigation grants (1)
- FEMA individual assistance (2)
- FEMA public assistance (3)
- HUD CDBG-DR (Community Develop Block Grant for Disaster Recovery) (4)
- Nonprofit or NGO Funding (5)
- State disaster-related assistance program or grant (6)
- Public-private partnerships (7)
- Impact fees (8)
- Special bonds (9)
- Loans (10)

Municipal disaster fund (11)

Taxes, local/state tax programs (12)

No funding mechanisms were identified (14)

Other (13) _____

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q258 What components were included in this **PRE**-disaster recovery plan? Please select all that apply. If you have been through multiple pre-disaster planning processes, please answer based on the most recent experience.

Anticipating Disasters (1)

Community Participation (2)

Coastal Resilience (3)

Disaster Recovery Funding (4)

Economic Redevelopment (5)

Environmental Redevelopment (6)

Health and Social Recovery (7)

Historic Preservation (8)

Housing Recovery (9)

Intermediate - Long Term Housing (10)

Infrastructure/Transportation Reconstruction (11)

Issues of Equity (12)

Land Use and Reconstruction Standards (13)

Mitigation (14)

Physical & Mental Health Needs (15)

Policy (16)

Relief Items (17)

Sanitation & Clean Up (18)

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Sheltering (19)

Supply and Logistics (20)

Other, please describe: (21) _____

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q259 What agencies/sectors were involved in the PRE-disaster recovery planning process?

Agricultural Extensions (1)

Banking & Finance (2)

Board of Education (3)

Community Development Corporations (4)

Economic Boards/Corporations (5)

Environment (6)

Faith Based Organizations (7)

Federal Agencies (8)

First Responders (9)

Health (10)

Housing (11)

Nonprofits or NGOs (Red Cross, Habitat for Humanity, etc) (12)

Planning Agencies (19)

Public Works (13)

Transportation (14)

University Partnerships (15)

Utilities (16)

Volunteer Management Agencies (17)

State or Federal Partners (20)

Other (18) _____

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q260 What agencies or position led the **PRE**-disaster recovery planning? For example, mayor, planning department, emergency management, city manager, elected official, etc.)

We understand many agencies or people will be involved in planning, we would like to know which agency or which official was the most central leader or champion of the pre-disaster recovery plan development.

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q261 What were the key challenges to the **PRE**-recovery planning process? Select the **five (5) most** prominent challenges.

Drag and drop the top 5 challenges with the most challenging one at the top.

- _____ Estimates of predicted damage impacts (1)
- _____ Access to subject matter experts/expertise (2)
- _____ Estimates of potential affected population (3)
- _____ Administration and documentation (4)
- _____ Community participation (5)
- _____ Data access and data sharing between organizations and agencies (6)
- _____ Different timelines for rebuilding versus funding (7)
- _____ Identifying disjointed and/or duplication of efforts (8)
- _____ Ineffective or lacking leadership (9)

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- _____ Understanding potential grant procurement processes (11)
- _____ Lack of knowledge on steps in recovery process (12)
- _____ Lack of knowledge on what to include in recovery plan (13)
- _____ Limited funding (15)
- _____ Limited human resource personnel (16)
- _____ Organizational hierarchy (18)
- _____ Stakeholder consultations (19)
- _____ Unclear or absent communication channels (20)
- _____ Other, please explain: (21)

Display This Question:

If Q139 = A PRE-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q262 Indicate the plans that were used to inform the PRE-disaster recovery plan. Select all that apply.

- Comprehensive plan (1)
- Capital improvement plan (2)
- Debris management plan (3)
- Economic development plan (4)
- Hazard mitigation plan (5)
- Historic preservation plan (6)
- Housing plan (7)
- Transportation & mobility plan (8)
- All of the above (9)
- None of the above (10)
- Other (11) _____

Display This Question:

If Q262 = Hazard mitigation plan

Q263 Which elements of the hazard mitigation plan did you use for the **PRE**-disaster recovery planning?
Select all that apply.

Hazards (1)

Plan maintenance (update) (2)

Risks (3)

Vulnerabilities (4)

Mitigation strategies/actions (5)

Other (6) _____

Display This Question:

If Q139 = A **PRE**-disaster recovery plan (which are prepared before a specific disaster has occurred)

Q264 Select any plans that were updated based on the experience of doing a **PRE**-disaster recovery plan.
Select all that apply.

Comprehensive plan (1)

Capital improvement plan (2)

Debris management plan (3)

Economic development plan (4)

Hazard mitigation plan (5)

Historic preservation plan (6)

Housing plan (7)

Transportation & mobility plan (8)

All of the above (10)

None of the above (11)

Other (12) _____

Q279 Finally, a few questions about you. Remember your responses are completely confidential.

Q1 What is your professional title?

Q4 Which of the following describe your area(s) of specialization? (Check all that apply).

Academia (1)

Code Enforcement (2)

Community or Neighborhood Development (3)

Communications and Engagement (4)

Comprehensive or Long-Range Planning (5)

Economic Development and Revitalization (6)

Environmental and Natural Resources Planning (including water) (7)

Facilities Planning Management (8)

Food Systems or Public Health (9)

GIS, Geodesign, or Urban Informatics (10)

Hazards Mitigation, Disaster Recovery, or Resiliency (11)

Historic or Cultural Resources Preservation (12)

Housing Policy, Design, or Implementation (13)

Land Use and Development Regulation and Zoning (14)

Parks, Open Space, and Recreation Planning (15)

Planning and Land Use Law (16)

Planning Management, Budgeting, and Finance (17)

Policy Research or Advocacy (18)

Site Planning or Construction Management (19)

Sustainability or Climate Protection Planning (20)

Transportation Planning (21)

Urban Design (22)

Other Specialty, please describe: (23) _____

APPENDIX B: ADDITIONAL DATA TABLES

Table B.1. The frequency of respondent interaction with experts (Q271)

Experts	No interaction at all	Yearly or less	A few times a year	About once a month or so	About once a week or more
Federal hazard mitigation experts	45.13%	33.33%	15.38%	4.10%	2.05%
Academics or universities experts	26.56%	27.08%	27.08%	10.42%	8.85%
Extension agents	58.51%	21.81%	14.89%	3.19%	1.60%
Local emergency management	30.21%	22.40%	32.81%	10.94%	3.65%
Local hazard mitigation experts	36.51%	26.46%	26.98%	7.94%	2.12%
Federal Emergency Management Agency (FEMA)	40.41%	34.72%	15.54%	5.18%	4.15%
Department of Housing and Urban Development (HUD)	46.07%	23.56%	21.99%	6.28%	2.09%
Flood experts	36.98%	28.65%	23.44%	8.33%	2.60%
Private sector experts in hazard and disaster	49.48%	25.77%	15.46%	7.73%	1.55%
State emergency management	45.03%	34.55%	13.61%	4.19%	2.62%
State hazard mitigation experts	50.00%	31.05%	12.63%	4.74%	1.58%
Nonprofits or NGOs involved in disaster recovery	54.21%	24.74%	12.11%	6.84%	2.11%

Table B.2. The level of involvement planning professionals should have in the activities (Q245)

Activities	Not Involved	Slightly Involved	Moderately Involved	Extremely Involved
Leading disaster recovery efforts	8.42%	18.95%	46.32%	26.32%
Promoting a culture of prevention and preparedness	2.62%	5.24%	34.03%	58.12%
Developing resilience goals	2.59%	8.81%	30.57%	58.03%
Integrating resilience into various city plans	2.63%	5.79%	24.74%	66.84%
Integrating disaster recovery planning with other city plans	3.17%	5.29%	31.75%	59.79%
Providing guidance and focus for pre-disaster simulations	5.26%	24.21%	48.95%	21.58%
Provide technical expertise on hazard management	5.82%	30.16%	45.50%	18.52%
Prepositioning, organizing, and coordinating teams specific to disaster response and recovery needs	15.79%	40.53%	35.26%	8.42%
Bringing stakeholders from other agencies/departments/organizations together	8.38%	25.65%	39.27%	26.70%
Building a local culture of disaster awareness	4.26%	19.15%	47.34%	29.26%
Establish clear lines of responsibility	12.63%	30.00%	38.42%	18.95%
Identify sources of recovery funding, explore financial needs of recovery, plan for financial needs of recovery	9.47%	25.26%	43.16%	22.11%
Developing early warning systems	18.95%	38.95%	31.05%	11.05%
Paying close attention to the needs of vulnerable communities	4.23%	12.17%	37.57%	46.03%
Developing pre-disaster recovery plans	5.88%	16.58%	36.36%	41.18%

Table B.3. Detailed information on perceived usefulness of various recovery resources

Resources	Have not used	Not useful	Somewhat useful	Extremely useful
APA Planning for Post-Disaster Recovery	56%	1%	31%	12%
APA Hazard Mitigation and Disaster Recovery Resources	60%	1%	31%	8%
APA Post-Disaster Recovery Briefing Papers	69%	1%	23%	7%
APA Zoning Practice	54%	7%	30%	9%
APA Planning Advisory Service Reports	45%	2%	39%	14%
APA Planning Information Exchange Webinars	61%	3%	30%	6%
APA On-Demand Courses	62%	5%	25%	8%
FEMA Community Recovery Management Toolkit	57%	2%	29%	1%
FEMA Long-Term Community Recovery Planning Process: A Self-Help Guide	56%	4%	34%	7%
FEMA Emergency Management Institute	70%	1%	18%	12%
FEMA Community Resilience Indicator Analysis County-Level Analysis of Commonly Used Indicators to Inform FEMA Technical Assistance	81%	3%	14%	3%
FEMA P-1000, Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety	89%	3%	9%	0%
Homeland Security's Community Resilience Indicator Analysis: County-Level Analysis of Commonly Used Indicators from Peer-Reviewed Research	87%	5%	6%	1%
HUD Exchange Disaster Recovery Homelessness Toolkit: Local Planning Guide, Response Guide, And Recovery Guide	85%	4%	9%	2%
UNDP Methodological Guide for Post-Disaster Recovery Planning Processes	95%	3%	2%	1%
UNDP National Post-Disaster Recovery Planning and Coordination	95%	3%	1%	1%
NAACP In the Eye of The Storm Action Toolkit	96%	4%	1%	0%

APPENDIX C: TEAM BIOS

Shannon Burke APA's Hazards Planning Manager, has more than 20 years of experience in local land use and comprehensive planning. Shannon specializes in hazard mitigation and long-term disaster recovery planning. She has been a leader and contributor on numerous local initiatives, including land use, multi-hazard mitigation, transportation, parks and recreation, and environmental plans. In her tenure with the Federal Emergency Management Agency, Shannon developed national level policy in hazard mitigation planning and worked side by side with local and state stakeholders developing disaster recovery strategies and plans in eight states.

Joseph DeAngelis, AICP, is a planner and researcher with the American Planning Association. His primary area of research is in the realm of climate adaptation and community resilience. He is currently working on two NOAA-funded projects related to local climate science integration. Previously, he was a resiliency planner for the New York City Department of City Planning, where he worked on long-term planning and zoning solutions for communities impacted by Hurricane Sandy. Joseph is also the co-editor of APA's *Zoning Practice*.

Judanne Lennox-Morrison is currently a second-year graduate student in the Urban Planning program at Texas A&M University. Before starting her graduate studies, she was employed with the Office of Disaster Preparedness and Emergency Management in Jamaica, the country's agency in charge of disaster management and emergency response. She has extensive experience in hazard vulnerability assessments, disaster risk management, geographic Information systems, and training and module development. She is interested in the use of community emergency response teams as an entry point for building resilience and spurring economic revitalization in underserved and disenfranchised communities.

Michelle Meyer, PHD, is Director of the Hazard Reduction and Recovery Center and Assistant Professor in the Department of Landscape Architecture and Urban Planning at Texas A&M University. Her research focuses on community disaster resilience and recovery, especially social capital and organizational collaboration to address needs of vulnerable populations.

J. Carlee Purdum, PHD, is a Research Assistant Professor for the Hazard Reduction and Recovery Center at Texas A&M University. She is working on projects with the HRRC examining civilian rescue organizations as well as long-term recovery after both natural and technological disasters, including most recently, Hurricane Harvey. Other projects have examined public health on the Gulf Coast after the BP oil spill of 2010, social media in disasters, disaster risk perception, and hurricane evacuation behavior.

Joy Semien, MA, is an Urban and Regional Science doctoral student in the Department of Landscape Architecture and Urban Planning at Texas A&M University. She is currently studying both the impacts and the recovery process of organizations in Southeast Texas following Hurricane Harvey.

Shannon Van Zandt, AICP, PHD, is Professor and Head of the Department of Landscape Architecture & Urban Planning at Texas A&M University and a Senior Fellow with the Hazard Reduction and Recovery Center. She is one of the co-authors of *Planning for Community Resilience: A Handbook for Reducing Vulnerability to Disaster*. Her area of expertise lies at the intersection of low-income housing and disaster mitigation and recovery, emphasizing social vulnerability.

Abrina Williams is a Graduate Research Assistant at the Hazard Reduction and Recovery Center at Texas A&M University and is pursuing a Master of Urban Planning (2020) with a focus in planning for natural hazards. She also works as a Research Associate at the Institute for Social and Environmental Transition–International. Her research interests are centered on risk communication.

Siyu Yu, AICP, PHD, is currently a Research Associate at the Hazard Reduction and Recovery Center and the interdisciplinary Institute for Sustainable Communities, studying the effects of plans and policies on vulnerability to flooding hazards in coastal communities. Policy analysis has been central to her academic and professional career; her experience spans land use, urbanization, and resilience issues in China, the United States, and the Netherlands. Prior to arrival at Texas A&M, she was employed as senior urban planner at the Urban Planning and Design Institute of Shenzhen, China.