Genesee Fire Protecion District
Resident Survey Summary
December 2020

Survey purpose and need

The Genesee Fire Protection District (GFPD) and Forest Stewards Guild are updating the 2008 Genesee Community Wildfire Protection Plan (CWPP) with new information and state-of-the-art fire modeling. The CWPP will assess local hazards, identify strategic investments to mitigate risk and promote preparedness, and improve the ability of GFPD to respond to wildfires and direct evacuations.

Community engagement is a vital aspect of CWPP development and implementation. In August and September 2020, we surveyed Genesee residents to gauge their knowledge of wildfire and assess their concerns. Invaluable feedback from this community survey is informing the development of recommendations and priorities for the 2021 CWPP.

Survey respondents

We invited all residents to participate in the survey, and we received 306 completed surveys representing approximately 10% of residents in the GFPD. About 70% of respondents live in the Genesee Foundation and 15% in the Genesee Village Home Owner's Association (HOA). Several residents from Chimney Creek 1 and 2, 1st Ridge and 2nd Ridge Townhomes, Genesee Ridge, and Genesee Estates also responded, as well as one business owner from the business district in the northwestern corner of the GFPD.

Most survey respondents are full-time homeowners living in single-family homes, and 12% live in multi-family dwellings. Ninety percent of survey respondents have been in the community for greater than 2 years, with half of respondents living in the GFPD for over 10 years.

Resident knowledge and concerns about wildfire risk

A vast majority of residents feel they understand the level of wildfire risk in the GFPD and understand factors that impact fire behavior (Figure 1). Residents are primarily concerned about limited evacuation capacity, loss of insurance coverage, damage to property, and loss of life in the case of a wildfire (Figure 2).

About 70% of residents think there is at least a 50% chance that their home would be destroyed or severely damaged if a wildfire spreads to their property (Figure 3). Residents believe fire risk is high for several reasons (Figure 4):

- There are many trees and dried grasses and conifer litter near homes and in open spaces across the community.
- They or their neighbors have not mitigated hazards.
- Homes have combustible building materials.
- Homes are located at the top of ridges and along steep slopes.
- Driveways are narrow and inaccessible to fire engines.
- Climate change is increasing the occurrence of severe fire weather conditions.

Resident quote: *We are originally from Washington State (Central Washington) and experienced many wildfires from nearby dry-land wheat fields and sagebrush fired. We learned to be prepared for wildland fire during certain times of the years and to mitigate around house and outdoor areas. We keep trees trimmed, pinecones and needles picked up, and have gravel rip-rap around the house and garage.*

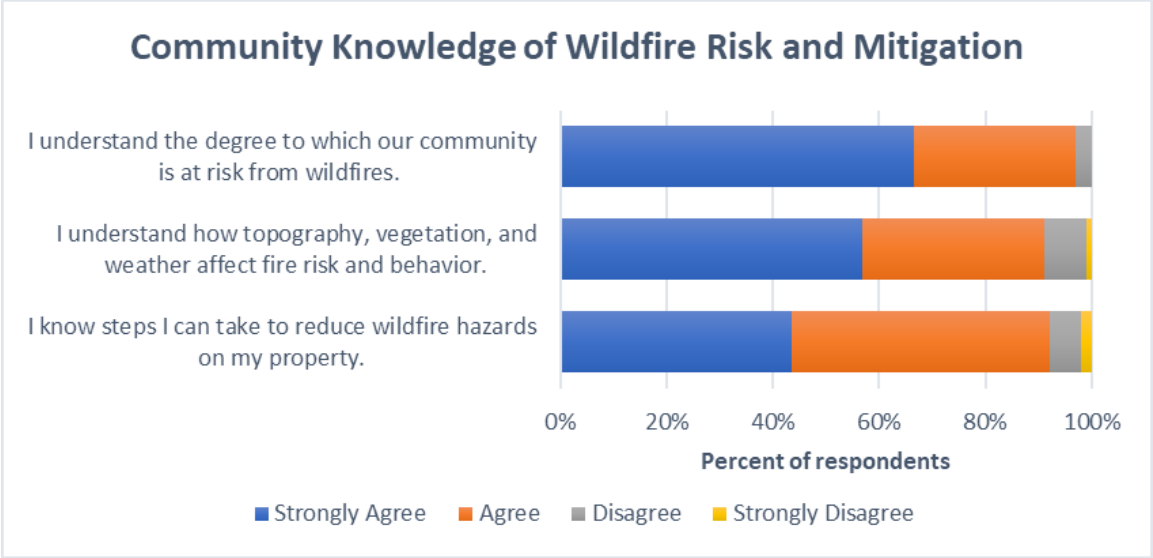

Figure 1. Residents in the Genesee Fire Protection District are generally familiar with the wildfire risk in their community and factors influencing fire behavior. They are less familiar with steps they can take to reduce wildfire hazards on their property.

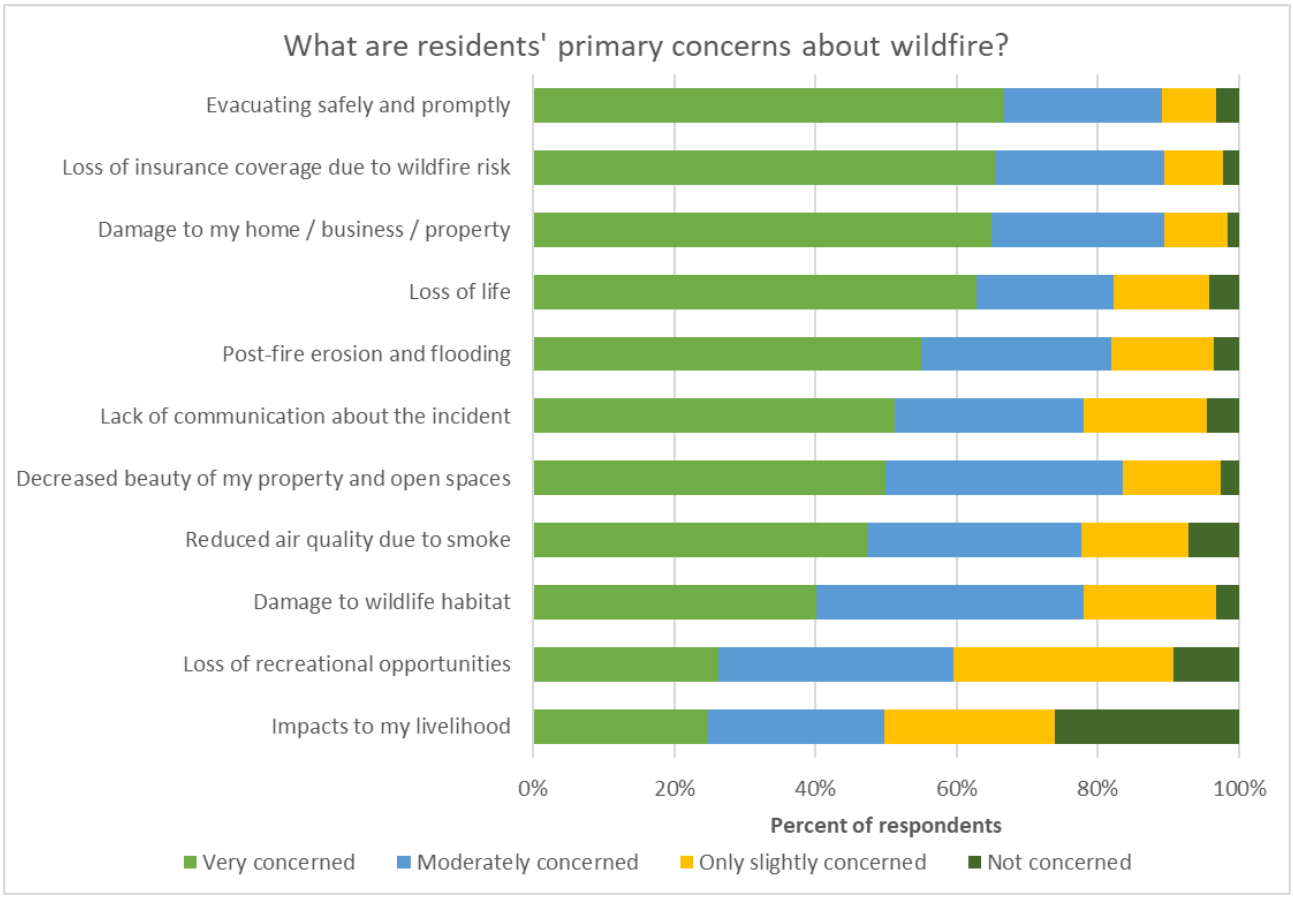

Figure 2. Residents are primarily concerned about safe evacuations, loss of insurance coverage, damage to property, and loss of life in the case of a wildfire in the Genesee Fire Protection District.

Figure 3. Many residents in the Genesee Fire Protection District think there is greater than a 50% chance that their home or business could be destroyed or severely damaged in a wildfire.

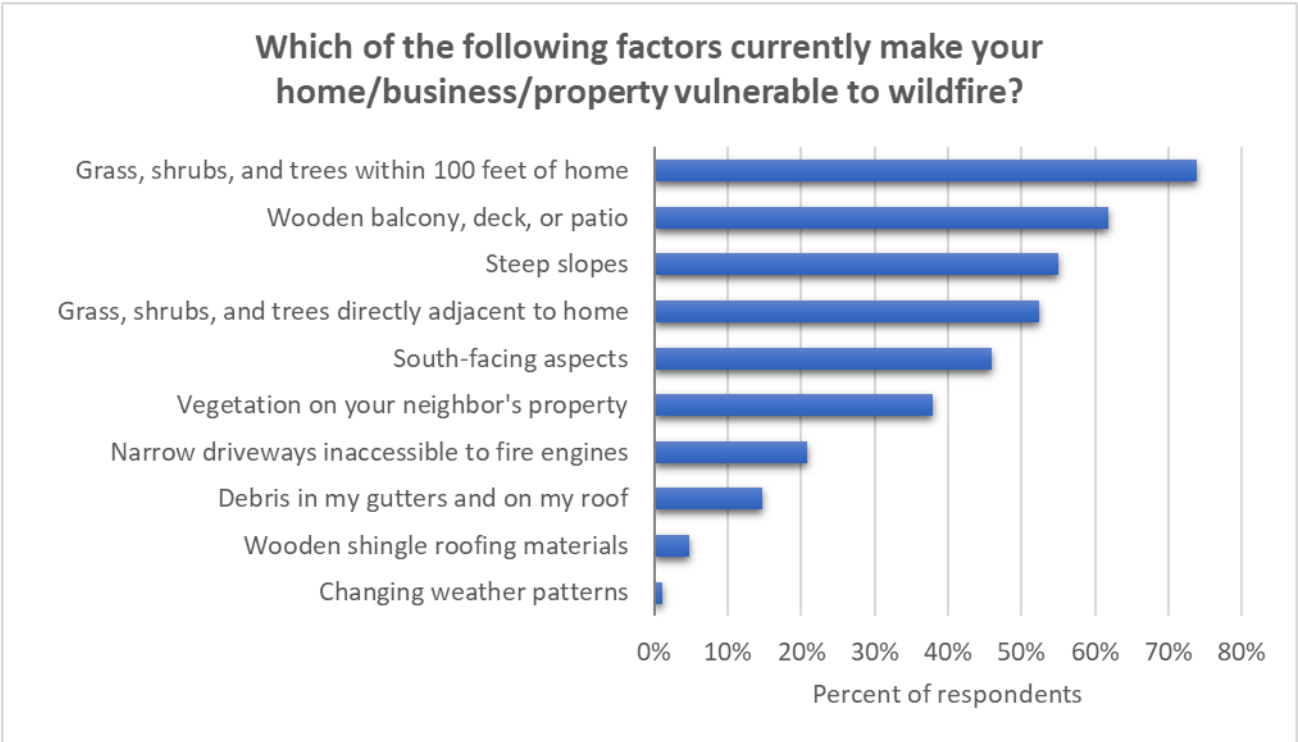

Figure 4. Residents are aware of numerous factors making their properties vulnerable to wildfire.

Residents report lack of defensible space and flammable housing materials as their highest risk factors. Wildfires cause greater rates of property loss when structures are surrounded by wildland vegetation (Syphard and others 2012). Removing trees, shrubs, and tall grasses near homes is an important mitigation action, especially in concert with hardening homes against wildfires (Hakes and others 2016). A particularly important home-hardening activity is covering eaves and vents to reduce ember exposure (Syphard and Keeley 2019).

About 20% of respondents recognize that narrow driveways make their properties inaccessible to engines for wildland firefighting. Roadway and driveway access are a significant component of firefighter safety and success in saving homes (Brown 2014).

Some respondents perceive a lower probability of home loss due to the abundance of fire hydrants in the GFPD and their proximity to the Genesee Fire Rescue station. Hydrants and firefighters can do a lot to save homes, but residents must also do their part to create defensible space and harden homes. These actions make it safer for firefighters to protect homes and save lives.

Some respondents believe that since their homes have not yet burned, it is unlikely they will burn in the future. Other respondents feel it would be hard for wildfire to reach the interior of the GFPD. Unfortunately, wildfire risk in this area is high. Wildfires that ignite outside the boundaries of the GFPD could easily travel into the community. According to the 2020 Wildfire Risk to Communities analysis by the U.S. Forest Service, populated areas in the GFPD have greater risk than 97% of communities in Colorado in terms of potential damage from wildfires (USFS 2020).

Lower-elevation ponderosa pine forests along the Colorado Front Range are naturally fire-adapted ecosystems that burned with frequent, low-severity fires before colonization in the mid-1800s (Addington and other 2018). Natural fire regimes have been suppressed and forests have become increasingly dense, making high-severity wildfire more likely. The risk that wildfires will threaten homes along the Colorado Front Range continues to increase due to climate change and expanding development in the wildland-urban interface (Radeloff and others 2018; Parks and others 2016).

The occurrence of wildfire in the GFPD is a matter of when, not if. Communities in the wildland-urban interface must work to decrease the risk of high-severity wildfire and adapt to living in these fire-prone ecosystems. Great work has been done by individual residents, HOAs, and Genesee Fire Rescue to mitigate wildfire hazards in the GFPD, but this work needs to continue across the community to increase the safety and preparedness of residents and firefighters.

Resident support for wildfire mitigation

Community support for mitigation is high in the GFPD (Figure 5). A vast majority of residents would support tree removal and prescribed burning to reduce wildfire risk along roadways and in open spaces. However, some residents express concern about these practices reducing aesthetic value and endangering homes.

> **Resident quote:** *I guess [wildfire] mitigation might be akin to what we see with Covid-19 and wearing masks—the impact on the community as a whole is dependent on ALL of us to do our part. Even one diligence lapse or non-compliant person can cause serious risk to others.*

Many residents have undertaken actions to lessen the risk of wildfire around their homes (Figure 6). Over 80% of survey respondents annually remove debris from their gutter and roof, clear debris from around their homes, and cut trees or remove low limbs near their homes. Almost 60% of residents have replaced their roofs with less flammable materials, but only 2% have replaced siding or decking. Only 1% of residents have created non-flammable barriers around their homes, such as bordering the base of their homes with crushed rock.

Only 17% of residents have installed screens to block embers. During many wildland fires, 50 to 90% of homes ignite due to embers rather than radiant heat (Babrauskas 2018; Gropp 2019). Residents can reduce their risk dramatically by making it harder for embers to ignite their homes, for example, by installing screens over vents and eaves, replacing flammable decking, and moving firewood away from structures (Syphard and Keeley 2019).

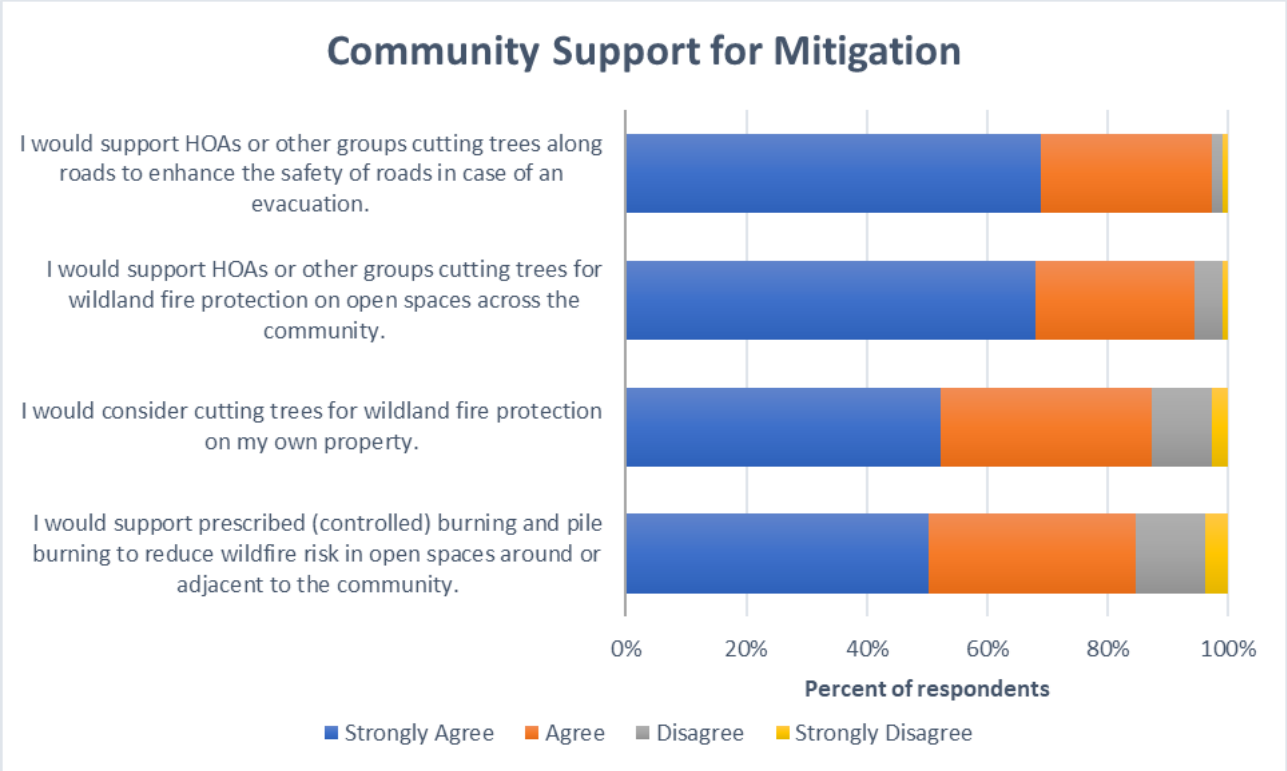

Figure 5. Many residents are supportive of mitigation measures to reduce wildfire hazards across their community.

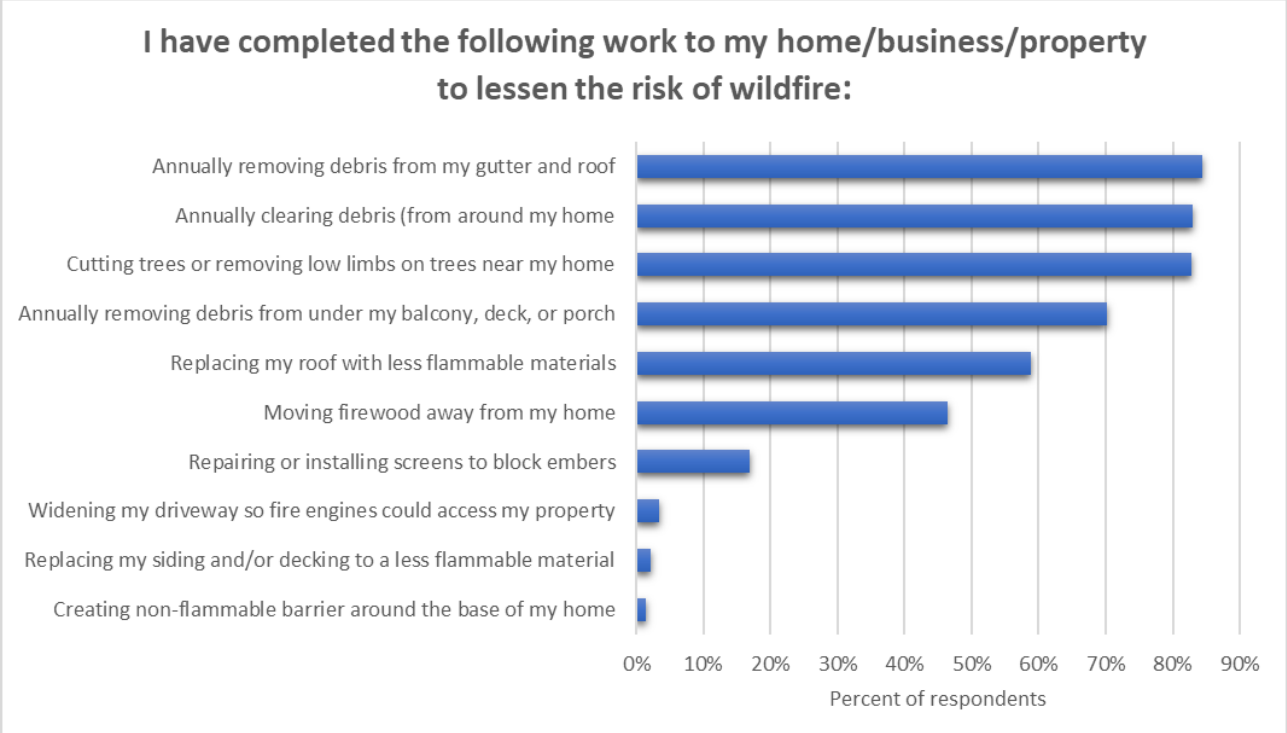

Figure 6. Many residents in the Genesee Fire Protection District have undertaken efforts to mitigate wildfire risk around their homes.

Barriers to wildfire mitigation and potential solutions

Several barriers prevent residents from undertaking actions to reduce wildfire risk on their property (Figure 7). Almost a half of residents identified the desire to keep trees near homes for aesthetic reasons, shading, or privacy screening as a barrier to the creation of defensible space. Community fieldtrips to homes with admirable defensible space might assuage the concerns of residents that mitigation work degrades the beauty of the community.

Lack of knowledge about effective mitigation measures was another top barrier in the GFPD (Figure 7). Newer residents feel particularly unfamiliar with practical steps they can take to reduce wildfire hazards.

Educational opportunities could enable additional mitigation actions by residents in the GFPD (Figure 8). Over 65% of respondents are interested in presentations on wildfire behavior and risk, trainings on ways to reduce wildfire hazards, and one-on-one consultations about wildfire hazards on individual properties (Figure 9). Most residents receive information on wildfire mitigation from their HOA and Genesee Fire Rescue, so it is important for these organizations to continue reaching out and educating residents.

Resident quote: *My largest concern is the beauty of the community. I feel that most of us moved here to be closer to and live within nature. We have factored fire risk into our lives. I am worried that most mitigation destroys what endears us to this community. Please teach me that there are ways to preserve the beauty of the neighborhood, while making it safer.*

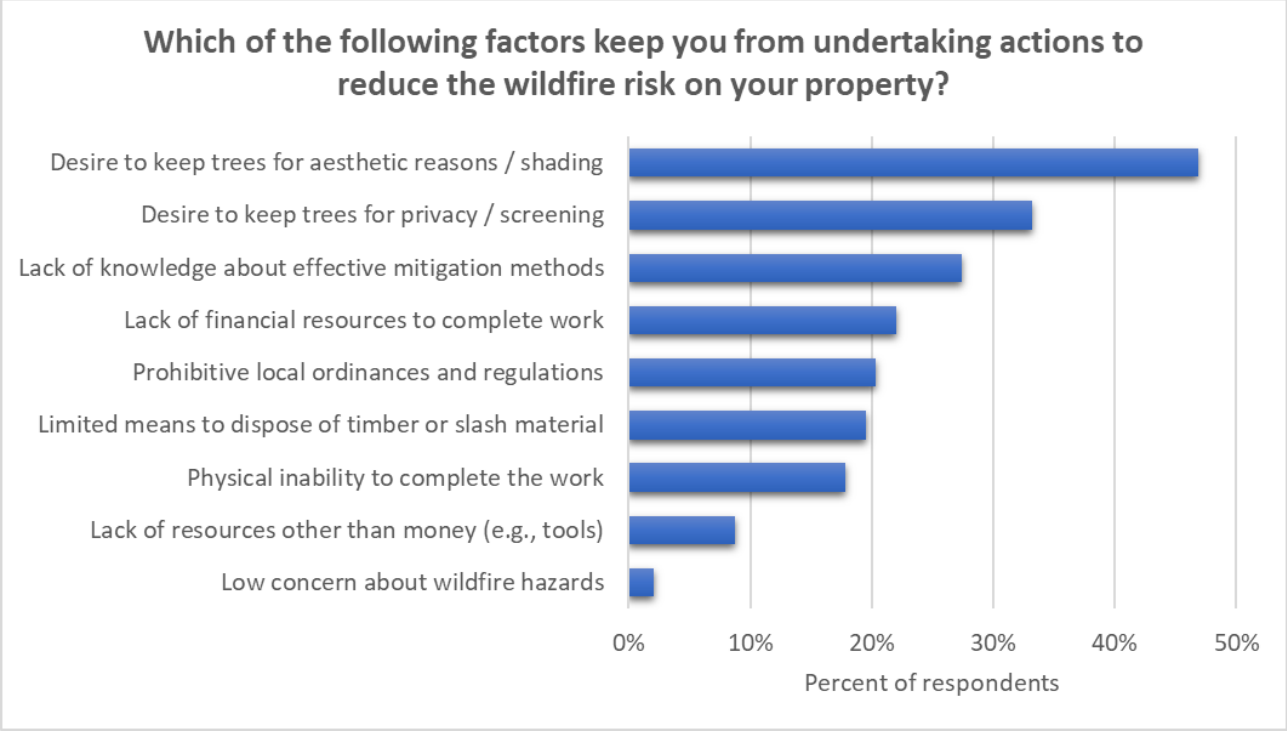

Figure 7. The desire to keep trees near homes for aesthetic reasons, shading, or privacy screening and lack of information are the top barriers to mitigation work by residents of the Genesee Fire Protection District.

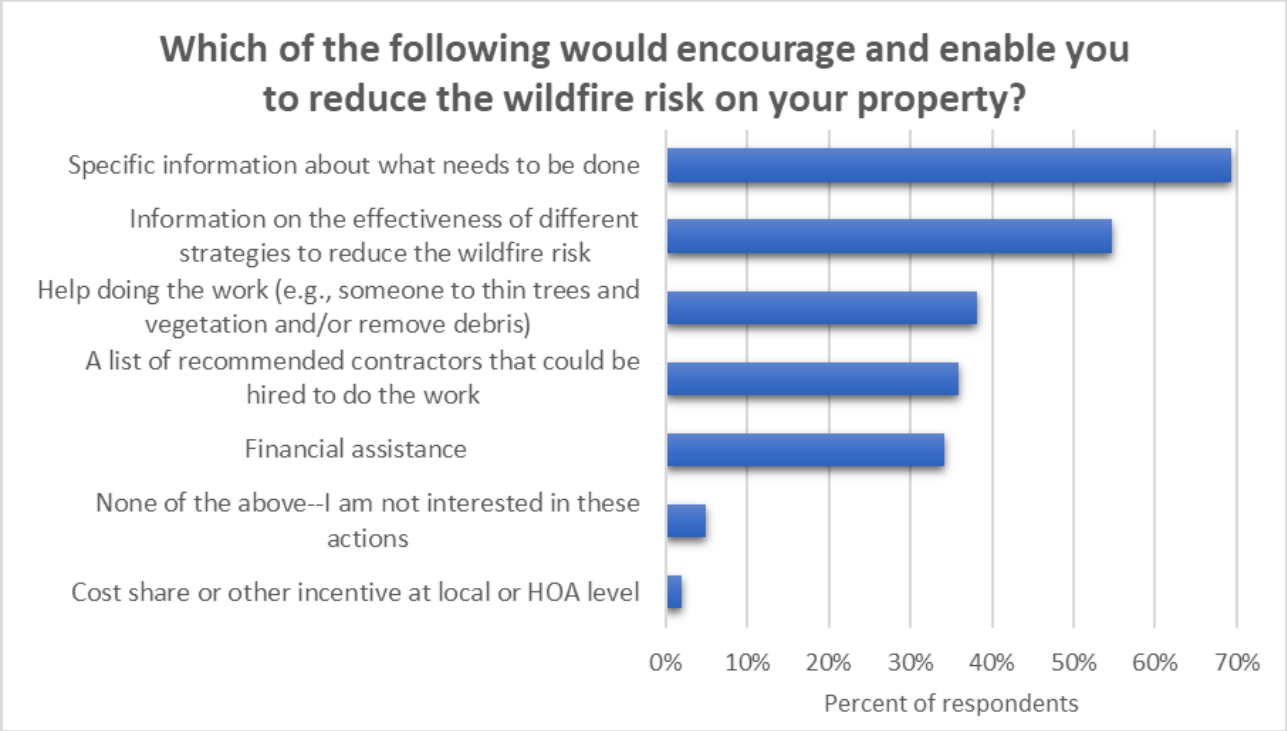

Figure 8. Training and education can inspire additional risk reduction measures across the Genesee Fire Protection District.

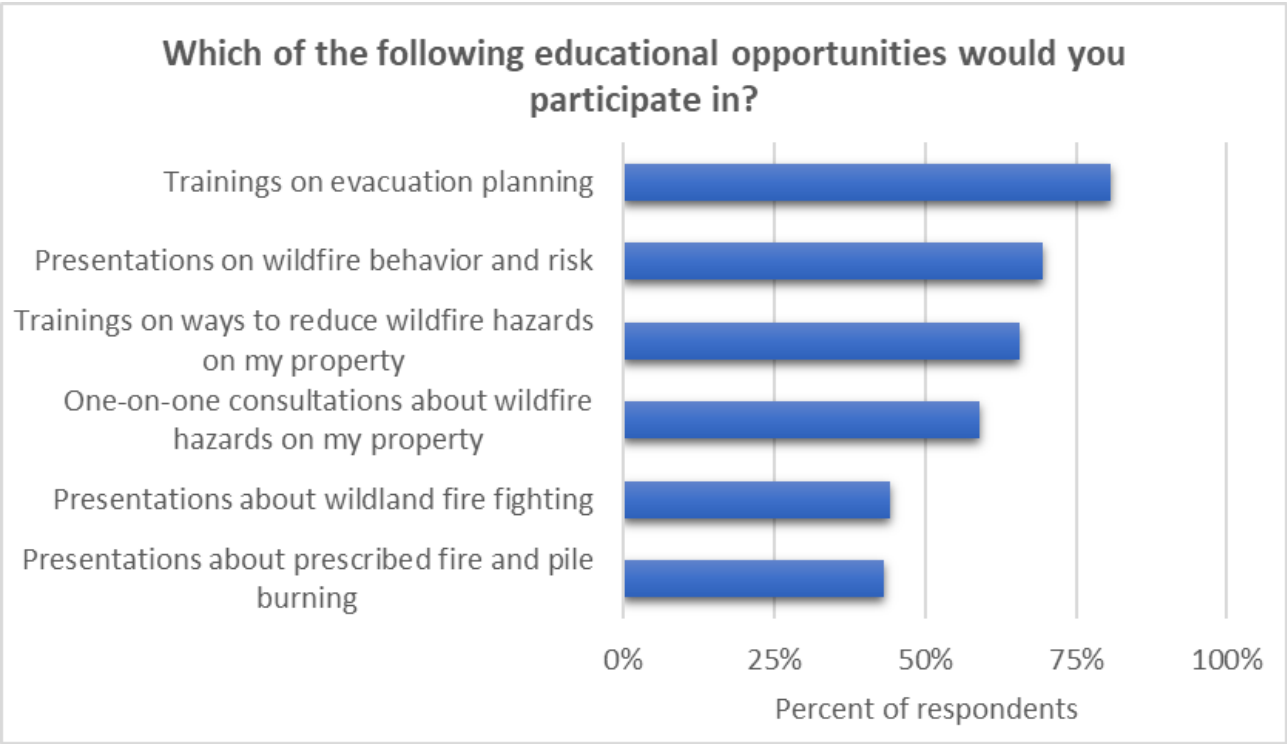

Figure 9. Residents are interested in a variety of educational and training opportunities about emergency response, wildfire behavior and risk, and wildfire mitigation.

Some survey respondents report they created defensible space and undertook home hardening, but they are concerned about high hazards on their neighbors' properties and HOA open space. It is imperative that residents across the GFPD reduce hazardous fuels and harden their homes. Neighbors committed to addressing wildfire concerns can work with Genesee Fire Rescue and their HOAs to educate their community about the benefits of defensible space and home hardening. Residents can inspire action through neighborhood ambassador programs (Wildfire Adapted Partnership 2018). About 50% of respondents are willing to encourage their neighbors to reduce hazards on and around their property (Figure 10).

A couple respondents shared they had completed mitigation projects but were not maintaining their defensible space. The lack of maintenance decreases the effectiveness of their mitigation work and increases their risk. Removing flammable debris from gutters, roofs, decks, and around homes, mowing tall grass near homes, and inspecting covers over vents should be annual activities. Pruning shrubs and low limbs from trees needs to occur as vegetation regrows after initial treatment. These are low-cost and relatively simple measures that can increase the likelihood of homes surviving wildfires. Information on contractors, support removing woody material from properties, and financial incentives could spur additional mitigation actions and maintenance across the GFPD (Figure 9).

About 20% of respondents feel like HOA regulations and other local ordinances limit their ability to address wildfire risks on and around their properties (Figure 7). Limitations include HOA regulations on siding types and an involved process to authorize tree removal. To help address these issues, residents can serve on HOA working teams and speak with HOA leadership to support community-wide action around wildfire mitigation. About 45% of respondents indicated willingness to influence community guidance on wildfire mitigation.

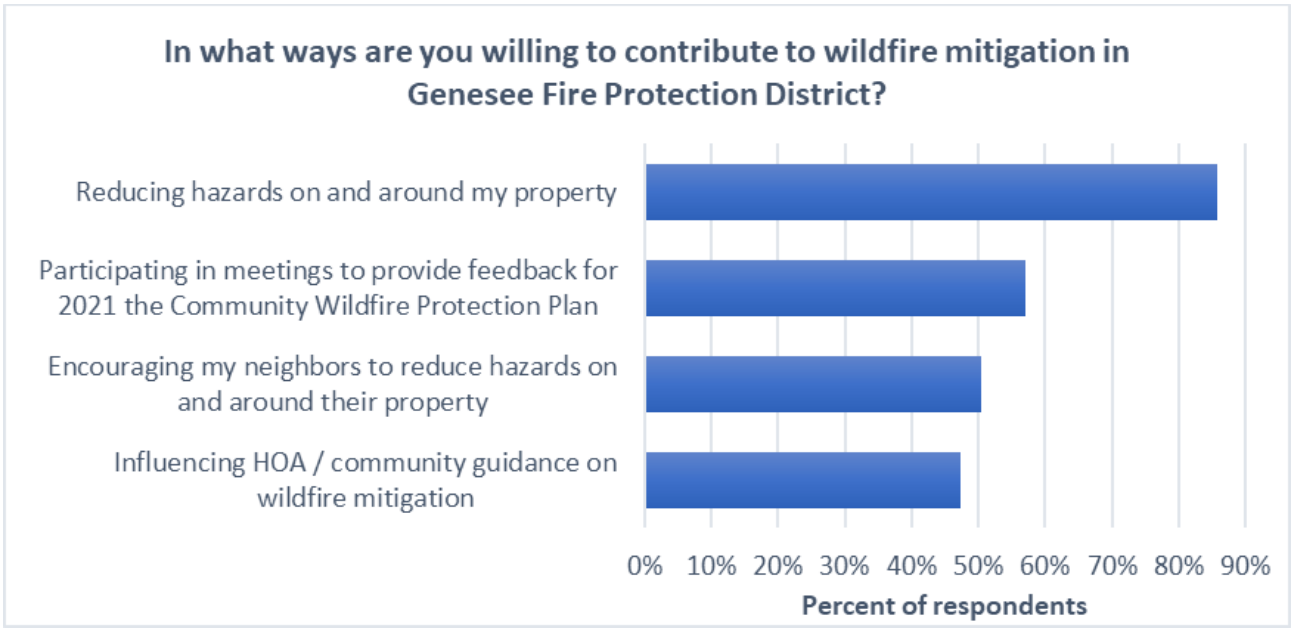

Figure 10. Many residents in the Genesee Fire Protection District are willing to contribute to wildfire mitigation by addressing hazards on their property and engaging in activities across the community.

Evacuation concerns and solutions

Residents' top concern about wildfires in the Genesee Fire Protection District is limited evacuation capacity (Figure 2). Residents expressed the greatest interest in training on evacuation planning (Figure 9). Residents are concerned about the lack of evacuation routes in the GFPD, not receiving timely notice of wildfire evacuations, and feeling unprepared to leave their home within 20 minutes (Figure 11). Some residents are concerned about family members or neighbors with physical limitations who might struggle to evacuate, and some residents are concerned about school-aged children that might be home alone during evacuations.

Resident quote: *The roads in and out in Genesee Village are 2 lanes only with limited access points to I-70. Would all residents attempt to leave the area, I can see a terrible mess—limited access for emergency vehicles and parents unable to enter the area to get their children either from home/babysitters or from school. The area contains many families where both parents work - and children are on their own or in the care of others - this area of the plan [CWPP] requires a great deal of work!*

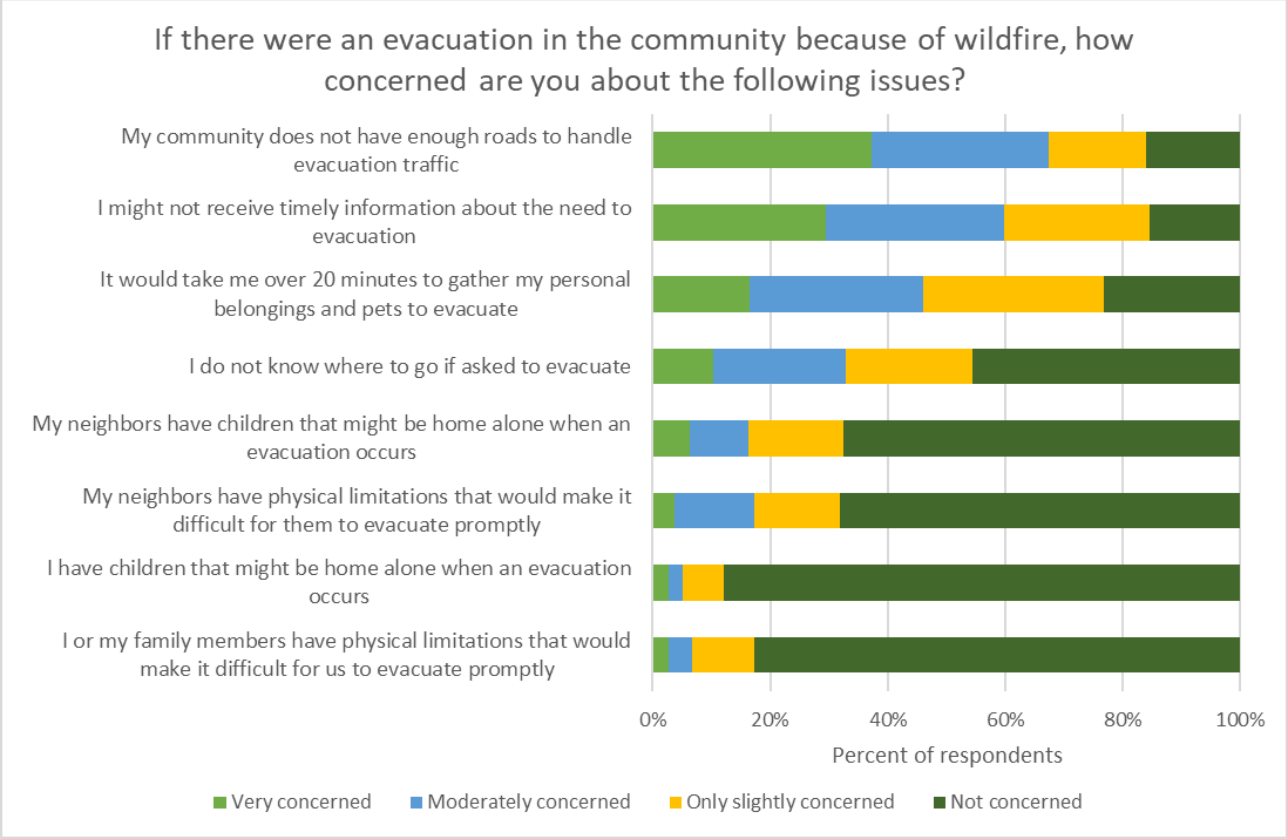

Figure 11. Residents in the Genesee Fire Protection District are most concerned about the lack of evacuation routes, not receiving timely notice of wildfire evacuations, and feeling unprepared to leave their home within 20 minutes.

Reliable technology to provide warnings and information about evacuations is the most important factor that would make residents feel confident in their ability to evacuate during a wildfire (Figure 12). Some residents expressed concerns about cellphone coverage in the area, so assessing coverage and addressing issues might be an important step. Educating residents about the purpose and reliability of CodeRed could also address concerns about timely updates during evacuations.

CodeRed is the reverse 911 system used by Genesee Fire Rescue to contact residents during emergencies, including during wildfire evacuations. Residents' landlines are automatically registered unless their phone uses VoIP (voice-over internet protocol). Residents can register their cell phones and email addresses on the CodeRed website.

CodeRed participation in the Genesee Fire Protection District is already high, with over 80% of residents opted into the program (Figure 13). Genesee Fire Rescue, HOAs, and neighbors should actively extend awareness about CodeRed to the 11% of residents that are unaware of the program. Residents of the Genesee Village HOA, Genesee Estates, and Chimney Creek 1 and 2 HOAs have lower participation and awareness rates than residents of the Genesee Foundation.

Over half of respondents expressed support for community sirens, signs to indicate evacuation routes, designated and maintained areas where people could potentially survive wildfires, and removal of vegetation along roadways. Over 40% of residents also support district-wide evacuation drills.

Residents in the Genesee Fire Protection District can make vast improvements in their own personal evacuation planning and readiness. About 65% of residents have evacuation plans, but only 25% have go-bags packed and ready in the case of an evacuation (Figure 14). Go-bags are an important aspect of evacuation preparedness. Visit the Rotary Wildfire Ready website to learn about preparing go-bags.

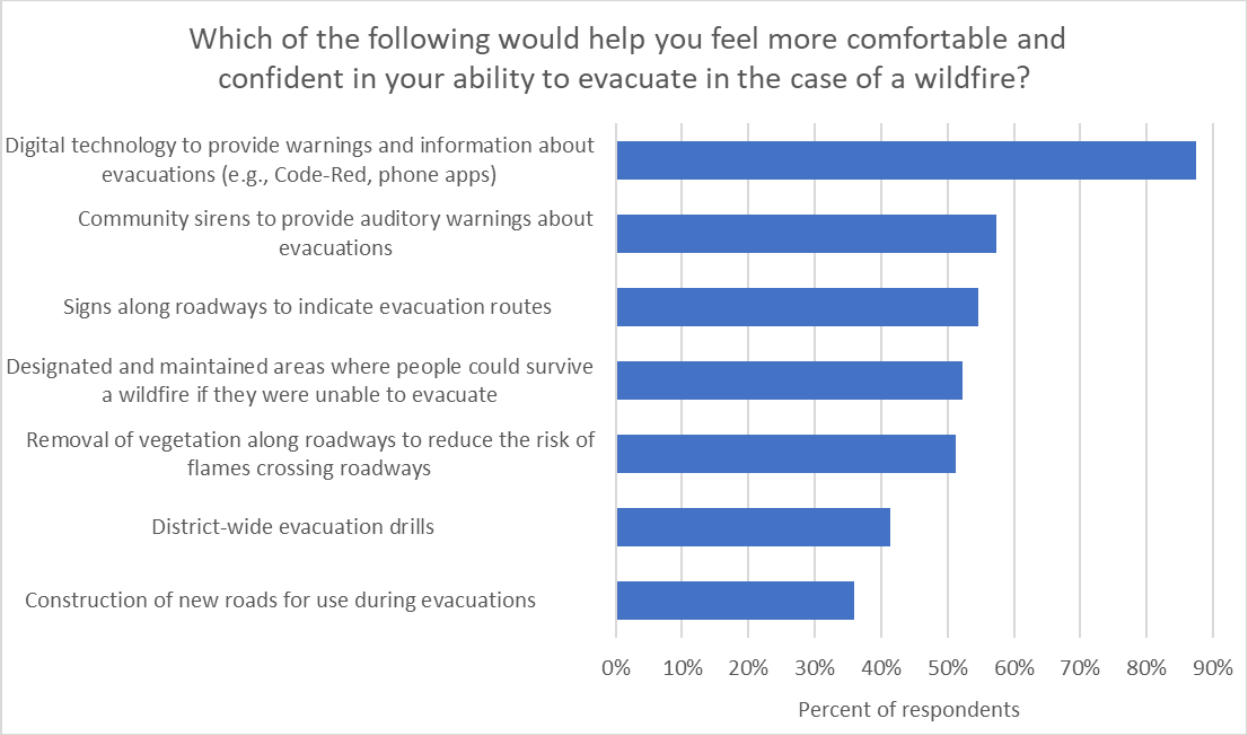

Figure 12. Digital technology to provide warnings and information about evacuations was the top factor that would make residents feel confident in their ability to evacuate during a wildfire.

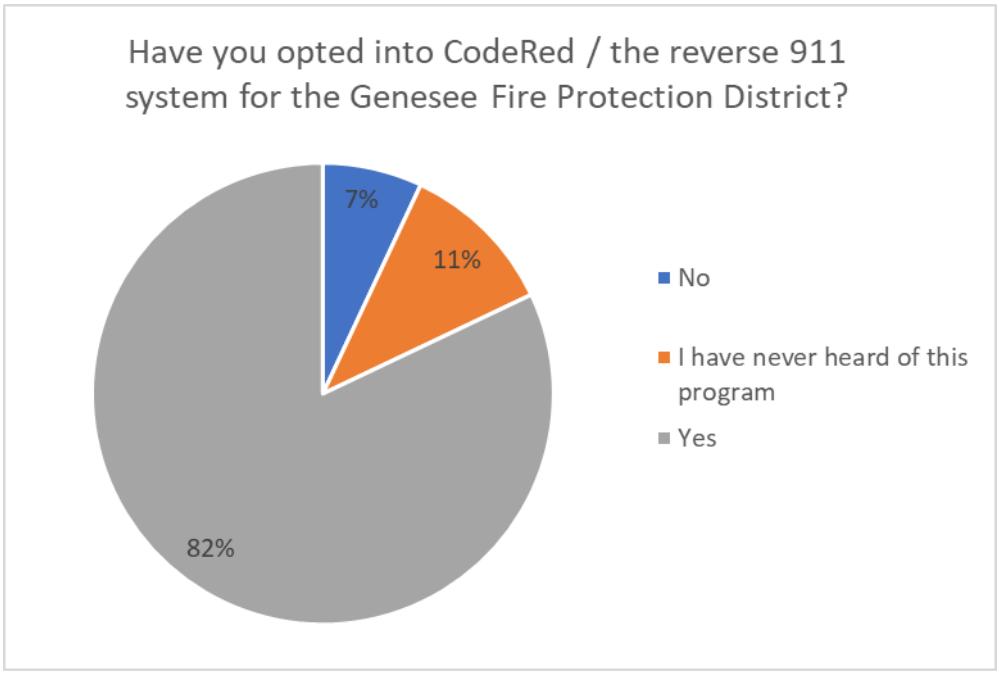

Figure 13. A vast majority of residents are enrolled in CodeRed to receive evacuation notices from Genesee Fire Rescue, but additional education can expand participation to residents unfamiliar with the program.

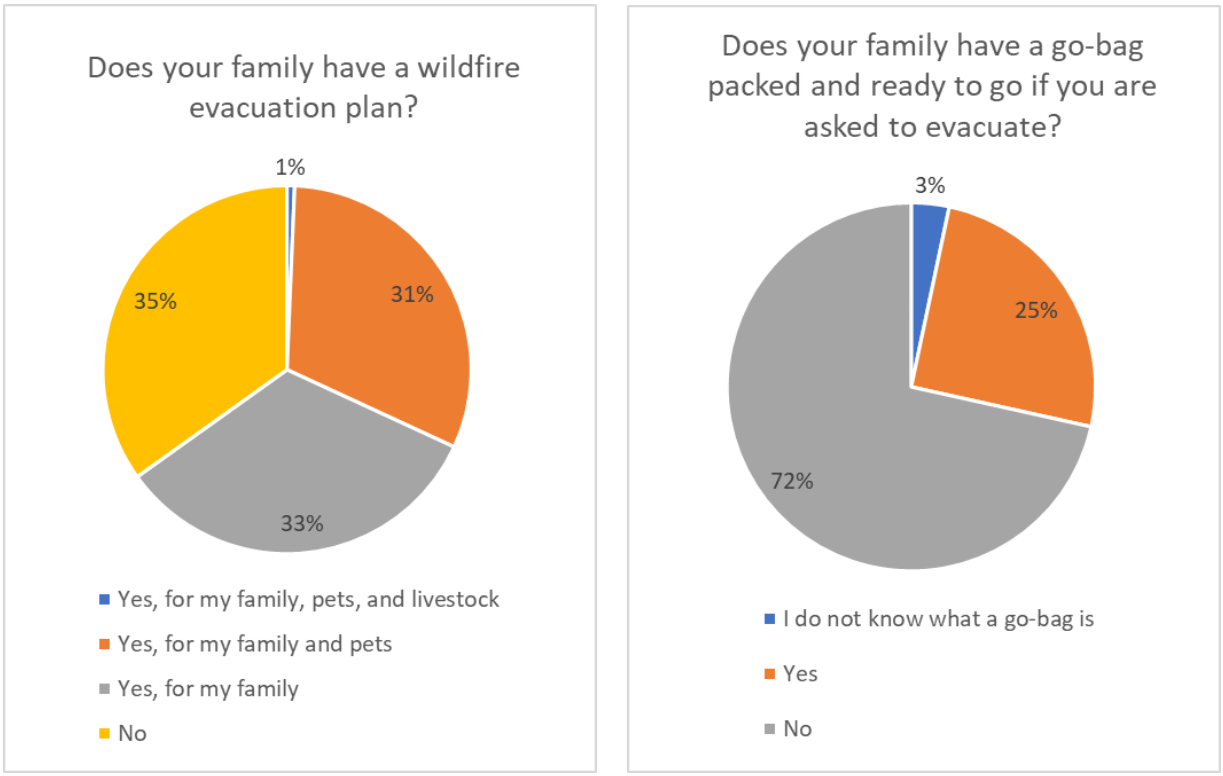

Figure 14. Many residents have wildfire evacuation plans (left), but fewer have go-bags packed and ready to go (right). Ideally all families would have evacuation plans and go-backs because of the high fire risk in the Genesee Fire Protection District.

Literature Cited

Addington, R.N., G.H. Aplet, M.A. Battaglia, J.S. Briggs, P.M. Brown, and others. 2018. Principles and practices for the restoration of ponderosa pine and dry mixed-conifer forests of the Colorado Front Range. General Technical Report RMRS-GTR-373. Fort Collins, CO: U.S. Department of Agriculture, U.S. Forest Service, Rocky Mountain Research Station. 121 pp. https://www.fs.fed.us/rm/pubs_series/rmrs/gtr/rmrs_gtr373.pdf

Babrauskas, V. 2018. Firebrands and embers. *In*: Manzello, S. (ed). Encyclopedia of Wildfires and Wildland-Urban Interface (WUI) Fires. Cham, Switzerland: Springer. Available online at https://doi.org/10.1007/978-3-319-51727-8_3-1.

Brown, K. 1994. Structure triage during wildland/urban interface/intermix fires: Strategic analysis of fire department operations. U.S. Fire Administration, National Fire Academy, Executive Fire Officer Program, Emmitsburg, MD. 19 pp. Available online at https://www.nwcg.gov/sites/default/files/training/docs/s-215-silverthorne-cwpp.pdf.

Gropp, C. 2019. Embers cause up to 90% of home & business ignitions during wildfire events. New Release, 12 March 2019. Insurance Institute for Business & Home Safety, Richburg, SC. Available online at https://ibhs.org/ibhs-news-releases/embers-cause-up-to-90-of-home-business-ignitions-during-wildfire-events/.

Hakes, R.S.P., S.E. Caton, and M.J. Gollner. 2017. A review of pathways for building spread in the wildland urban interface, part II: Response of components and systems and mitigation strategies in the United States. Fire Technology 53:475-515.

Radeloff, V.C., D.P. Helmers, H.A. Kramter, M.M. Mockrin, P.M. Alexandre, et al. 2018. Rapid growth of the U.S. wildland-urban interface raises wildfire risk. PNAS 115(13):3314-3319. Available online at https://www.pnas.org/content/pnas/115/13/3314.full.pdf.

Syphard, A.D., and J.E. Keeley. 2019. Factors associated with structure loss in the 2013-2018 California wildfires. Fire 2(49): doi.10.3390/fire2030049. Available online at https://www.mdpi.com/2571-6255/2/3/49.

Syphard, A.D., J.E. Keeley, A.B. Massada, T.J. Brennan, and V.C. Radeloff. 2012. Housing arrangement and location determine the likelihood of housing loss due to wildfire. PLOS One 7(3):e33954. Available online at https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0033954.

U.S. Forest Service (USFS). 2020. Wildfire risk to communities. U.S. Department of Agriculture, U.S. Forest Service, Washington, DC. Available online at https://wildfirerisk.org/.

Wildfire Adapted Partnership. 2018. Fire adapted communities neighborhood ambassador approach: Increasing preparedness through volunteers. Wildfire Adapted Partnership, Durango, CO. 16 pp. Available online at https://static1.squarespace.com/static/5b28059d266c074ffe39b9b9/t/5bd7648315fcc0d2d293febc/1540842637107/AmbassadorGuide_v2018-09-24.pdf.