Advancing Wildfire Preparedness and Planning in Anchorage

Wildfire Exposure and Egress Study

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Executive Summary

Advancing Wildfire Preparedness and Planning takes an in-depth look at the dynamic factors that are impacting wildfire occurrence for the most populated geographic area in the 49th State of Alaska, the Municipality of Anchorage (MOA). The length and severity of recent fire seasons pose a threat to those who have chosen a niche in the Wildland Urban Interface (WUI) area to call "home." This report is a "call to action" in many ways, delving into some of the swings in weather patterns caused by climatic change. These subtle changes are at the root of the evolving wildfire danger and its effect on the 291,247 residents (2020 census) of the MOA.

The objective of this report is to combine the knowledge of local wildfire managers with some unique geographic information system tools to help analyze and bring a better understanding of what residents can do to mitigate wildfire risk. The lengthening fire seasons, increase in fuel (vegetation) loadings, the upswing in wildfire occurrence statistics and diminishing budgets to provide for mitigation measures pose an increasingly higher risk for the potential loss of life, homes, and infrastructure. Hopefully, the recommendations found in the conclusion of this report will offer residents some clarity as to what should be in the cross hairs of their efforts as they navigate the potentially cataclysmic danger of a major wildfire within the WUI of the MOA.

Geographic Information System (GIS) tools and analysis methods used for this report include:

- Network analysis modeling tools in ArcGIS.
- Weather and Fire Danger Indices data to depict fire season trends/history.
- GIS Mapping to reproduce MOA area maps with roads, vegetation, fire risk and structure data layers.
- Data entry on maps to show participants' neighborhood locations, egress routes and destinations for hypothetical wildfire evacuations.
- Maps depicting major evacuation routes (roads with speed limits of 45 mph or more, highways, expressways, major arterials, or snow plow routes) and hazards along the designated routes.
- A final area map for MOA community council areas that depicts detailed egress route concerns and a list of prioritized mitigation measures.
- An independent GIS tool developed to locate wildfire safety zones using available vegetation (fuels), bare earth elevation data and other data layers.

Keep in mind that this project is focused on the use of some specific tools and analysis methods. It is not a complete review of all the challenges faced within the MOA WUI. This work is also not an evacuation model or a community wildfire protection plan. Those models and plans cover many topics outside the scope of this work. However, the information presented here is useful

for those plans and can be integrated. We are hopeful that this new approach will help residents reach a better understanding for answering recurring questions like:

- What is the wildfire risk level where I live?
- What are some things I should be concerned about for my family's safety if we need to evacuate?
- What can I do to improve the chances of my home surviving a wildfire?
- Is there any help available to assess my property's risk of a wildfire?
- Can working with my neighbors help to identify or improve egress routes in my subdivision?
- Is my wildfire risk greater if I live in an area that is not part of a MOA fire service area?
- Is it important to look for a home with fire hydrants or water sources close by?

One of the motivating factors for this report was based upon the tragic events that occurred during the Camp Fire that burned over Paradise, California on November 8th, 2018, in which at least 85 people died (Alexander *et al.* 2021). Many of these victims were attempting to evacuate the area to safety. A similar scenario could evolve near milepost 3 of Eagle River Road (or dozens of other locations within the MOA) if first responders are prevented from reaching the incident due to road blockage from active fire behavior. The time to focus on this problem is now, before the embers rain down upon the WUI landscapes of the Chugach Mountain Foothills.

Solutions include developing alternate egress routes; preparing homes through Firewise inspections (AWFCG 2009) and treatments; practicing evacuation drills in neighborhoods; improving public notification systems; and working within your community with neighbors and community councils to help each other prepare. Roll up your sleeves and get involved before an emergency happens. Everyone's help is needed!

We would like to thank those who attended the meetings during this project. Without your help the efforts and valuable ideas gathered in this document would not be possible. Thank you for your time and energy. In addition,, thank you, Senator Joshua Revak, for funding this project.

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Background

The Anchorage Hazard Mitigation Plan and the Anchorage Climate Action Plan 2019 identify wildfire as one of the main hazards facing the Municipality of Anchorage (MOA). Anchorage abuts the Chugach State Park and National Forest (Figure 1) creating a large wildland urban interface (WUI).

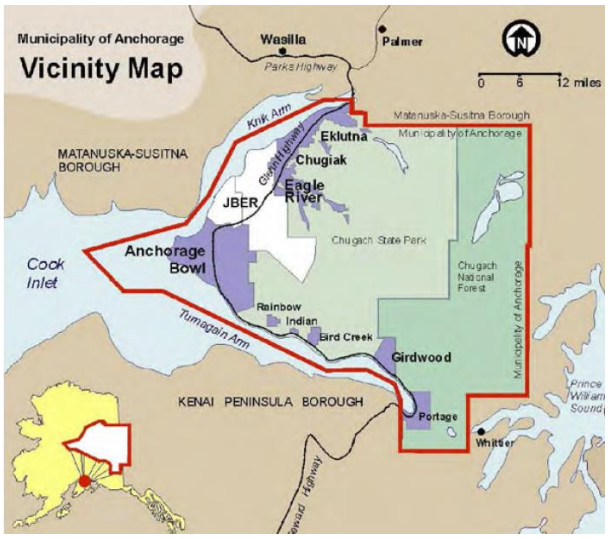

Figure 1. Anchorage with purple representing areas occupied by residents.

The average number of wildfires in Southcentral Alaska has increased over the past 50 years (Figure 2). Additionally, wildfire hazard and risk will increase as Anchorage continues to grow, people build out into forested areas and temperatures increase creating drier forests (Cheyette et al. 2008; Flannigan et al. 2009). Thus, there is the need to increase preparedness and resilience towards wildfire in the Anchorage area.

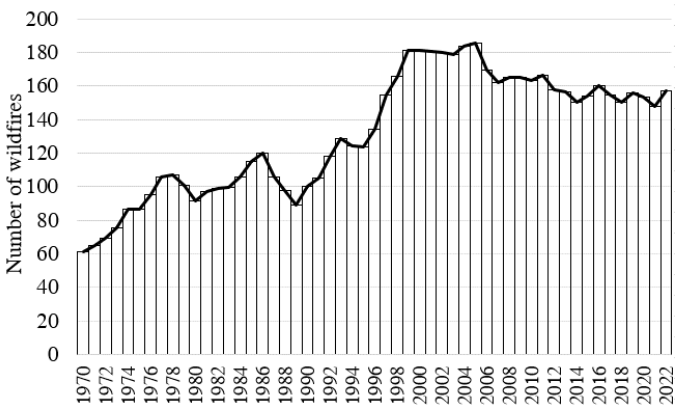

Figure 2. Ten year rolling average number of wildfires in Southcentral, Alaska. Southcentral includes the Kenai Peninsula Borough, Municipality of Anchorage, and Matanuska-Susitna Borough. Source: https://fire.ak.blm.gov/predsvcs/maps.php

One effort to increase resilience towards wildfire has been the mapping of wildfire hazards through a project called the Arctic Urban Risks and Adaptations (AURA) led by Dr. Schmidt. In 2021, wildfire hazard maps of the MOA were created (Figure 3), which have provided a new opportunity to better understand, spatially, where hazardous fuels have accumulated. This tool can be used to identify areas with hazardous fuels buildup and opportunities for uniform fuels reduction actions.

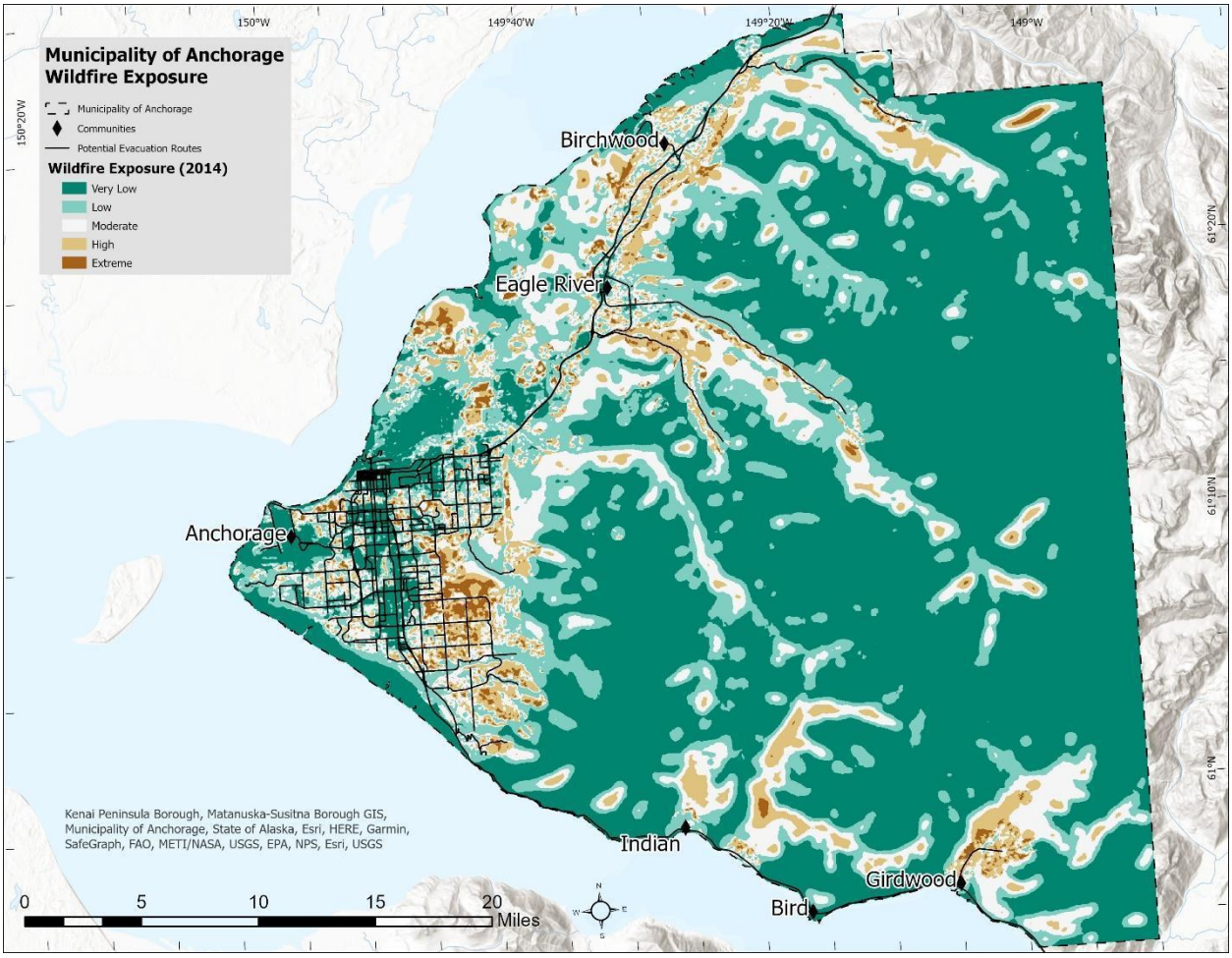

Figure 3. Wildfire Exposure (i.e., hazard) in 2014, based upon NASA ABoVE vegetation data (30m) for the MOA. https://daac.ornl.gov/ABOVE/guides/Annual_Landcover_ABoVE.html

Anchorage Fire Department's Wildfire Mitigation Program

The Anchorage Fire Department's Wildfire Mitigation Program (AFD-WMP) has been the focal point for wildfire mitigation efforts funded by appropriations and grants (approximately $17 million total) over the past two decades (AFD 2010). AFD-WMP program goals included:

- Providing public education on how to "Firewise" homes through community workshops and Firewise Alaska booklets.
- Offering cost share funding upon request to help offset the high cost of fuels reduction to homeowners as well as no-cost, no obligation Firewise home inspections.
- Providing woodlots for the cost-effective disposal of woody debris.
- Using wildfire science to study the effects of the rapidly increasing spruce bark beetle infestation and changes over time in the fuels (vegetation) within the MOA.

- Maintaining a GIS database which spatially depicts wildfire mitigation assessments and treatments as well as the status of the prescribed mitigation actions.

MOA Community Wildfire Protection Plan

A portion of the mitigation grant funding was dependent on the MOA development (and periodic updating) of a Community Wildfire Protection Plan (CWPP)(Goodrich *et al.* 2008). It was completed and adopted in January of 2008. The CWPP identified goals for wildfire mitigation which included community level fuels treatment (reduction) projects and shaded fuel breaks in addition to improving fire protection capabilities and enhanced public safety.

CWPP fuels reduction objectives included:

- Implementing Firewise practices by creating survivable space around structures.
- Developing shaded fuel breaks in strategic locations that benefited the entire WUI project area(s).
- Providing adequate safety zones in high use areas.
- Completing fuels treatments along right-of-ways (ROWs), including evacuation routes to enhance survivability.
- Providing for safe ingress/egress during fires on public and private access roads, especially in areas with complex topography, to improve visibility during wildland fires.

The initial CWPP addressed the need for ongoing education and outreach activities by distributing "Alaskanized" literature on Firewise principles (AFD 20210); conducting homeowner fire assessments; distributing media releases for radio, television and newspapers; and holding annual workshops and events to educate homeowners about wildland fire mitigation techniques. These activities helped the MOA meet the primary goals of a cohesive strategy. This strategy included restoring and maintaining landscapes, developing fire adaptive communities, and enhancing wildfire response.

The current CWPP plan has recently been designated for review and updating because it is out-of-date. As such, it no longer meets the stringent requirements for requesting/receiving funding for wildfire mitigation projects. Identifying projects related to the current community egress and mitigation concerns, which is the focus of this report, in addition to developing the CWPP update process is a win-win for assisting in kick-starting the CWPP updating effort.

Previous MOA wildfire mitigation projects met CWPP objectives (and WUI grant matching requirements) through the landowner cost share treatments, ROW fuels treatments and fuels reduction/shaded fuel break construction around at-risk subdivisions. Amendments to these projects will continue to enhance their overall effectiveness. In fact, contributing to the

sustainability of a larger area plan by enhancing the original projects through interconnection and reinforcement is essential to ongoing wildfire mitigation efforts.

Wildfire Egress Project List & Relationship to Existing Projects and Goals

A public participatory mapping process identified egress issues (Appendix A, Egress Issues). The resulting map along with potential solutions can be found online: https://bit.ly/moawildfireppgis. New projects have the potential to enhance previously completed MOA WUI efforts. These efforts include an Eagle River Corridor shaded fuel break next to subdivisions; hand-thinned and pruned hazardous fuels on MOA park lands; shaded fuel breaks, constructed on Chugach State Park lands adjacent to MOA lands; and fuel treatments on both MOA Parks and Recreation lands and adjacent residential areas, which have connected subdivision green belts. Landowners in at-risk MOA communities have created over 800 acres of survivable space (around 2000 plus homes) with outreach to several additional MOA communities in the form of annual Firewise workshops. These past projects have been mapped on the MOA GIS site.

The list of proposed (additional) treatments will occur on private and public forested land, some adjacent to past treatments. These treatments will increase the amount of survivable space in the WUI as well as the protection levels for residents. To turn the potential solutions into projects, the egress ideas presented here need a wider vetting by the public and experts (i.e., engineers, transportation modelers, wildfire practitioners, etc.). All projects (when completed) will be added to the GIS database for MOA lands and the evacuation planning maps. The updated maps will be provided to cooperators who routinely augment the Anchorage Fire Department (AFD) Wildfire Suppression Response Force.

Treatments may include pre-commercial thinning and a limited amount of prescribed fire (hand pile burning) to create fuel breaks. Fuel breaks reduce aerial fuels, ground fuels, and stand densities to promote historic vegetation characteristics. The Wildfire Egress Project is located on a moderate to highly hazardous priority landscape, identified in the Alaska Forest Action Plan as forestlands in a “moderate condition departure.” Private forest lands in this area are at an elevated risk of severe fire and need fuel treatments.

Wildfire Egress Fuel Treatment Prescriptions

Fuels treatment prescriptions are intended to aid in developing more resilient fire adapted landscapes that favor low intensity fires and simulate the natural fire interval in the boreal forest. Prescriptions are site specific and were outside of the goals of this project. Fuel characteristics

vary significantly throughout the boreal WUI. Mature white spruce sites that have experienced spruce bark beetle damage need shorter maintenance intervals. Invasive brush, invasive tree species, deadfall and rapidly accumulating ladder fuels may need to be addressed as a priority. Site specific prescriptions will be developed for each approved fuels mitigation project.

In order to maintain the effectiveness of fuel treatments, AFD requires private landowners to perform annual maintenance for 5 years (AFD 2023). In return, AFD agrees to provide ongoing assistance in the form of additional assessments, particularly after significant events (i.e., insect infestations, wind storms, ice storms and other natural events). Landowners are provided an opportunity to reassess areas based upon the dynamic factors impacting their lands. Slash disposal sites (woodlots) need to re-open, following events that create a substantial increase in fuel loadings. Wind thrown debris could adversely impact previously completed fuels treatments on projects in adjacent areas.

MOA Fuels (Vegetation) and Demographics

Fuel types (vegetation) within the MOA area consist of overstocked (dense) conifer forests of white and black spruce with areas of varying mortality, progressing into highly hazardous fuel types (condition classes of II and III)(Alaska Fuel Model Guide Task Group 2018). Some areas are a mixed spruce-hardwood type with a volatile understory of blue joint reed grass (*Calamagrostis canadensis).* The human population within the targeted WUI area totals close to 84,800 people with population densities around 130 residents per square mile. Nearly all homes are full time residences within the WUI. The median home value is $294,900 with a prominent section of the area averaging $592,667 (Personal Communication with Arlene Weber Sword, 2018, August). We must note there is no agreed upon WUI boundary for the MOA which is desperately needed. There are methods for WUI identification for the lower 48 (Radeloff *et al.* 2018), but they need to be evaluated for use in Alaska.

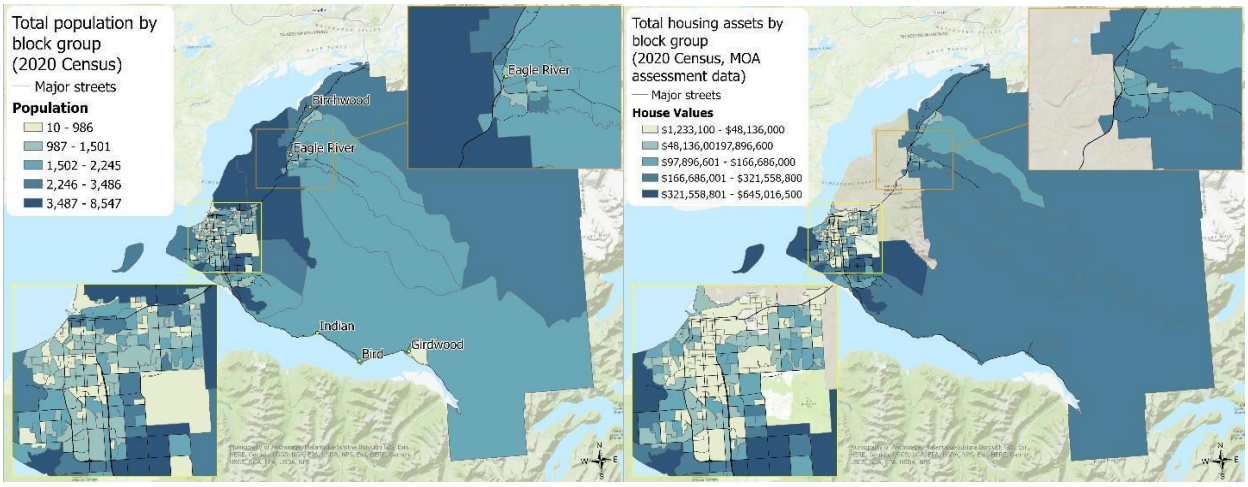

Figure 4. Total population (left) and assessed building values (right) by US 2020 census block group.

Prospective property owners within the MOA WUI are specifically looking for secluded properties tucked into the forest environment of the Chugach Mountain Foothills. The unsuspecting home buyers are unaware that steep grades, "one way in" limited access roads and oftentimes undependable water sources (wells) are a significant challenge to first responders. Most residents lack survivable space around their homes and ingress/egress routes. Many are unaware of the benefits of fuels reduction and the inevitability of wildfire affecting their homes. John See, former lead of the wildfire mitigation program, noted that a common response observed from homeowners who asked about participating in wildfire mitigation efforts is “Isn’t that what fire insurance is for?” This response is reversed after homeowners complete the participative home inspection. They often respond with “I would have done the wrong things when it comes to wildfire mitigation and home preparation.” It’s a learning process to prepare for wildfires!

MOA Wildfire History

Anecdotally, the area has a history of large fires, including the 2016 McHugh Fire, which threatened hundreds of residents (DOF and BLM 2023). At a cost of over $6 million to suppress, the wildfire, on the south end of the Anchorage bowl, was a wakeup call for many residents (Figure 5). If the wind direction had shifted, and the fire had spread over the Potter Creek Ridge, many lives and structures could have been jeopardized. During the weeklong wildfire, many residents in the nearby Potter Creek subdivision made haphazard efforts to complete Firewise treatments on homes and outbuildings. Many of the last-minute treatments fell far short of the Firewise standards and did not measure up to well planned, neighborhood addressed mitigation projects.

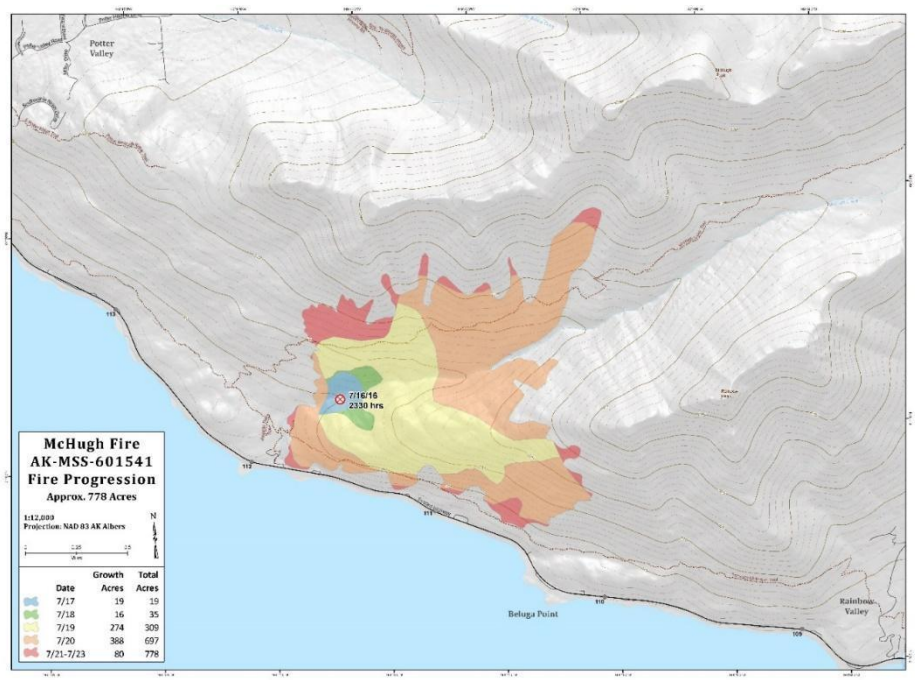

Figure 5. McHugh Fire Progression Map (July 23, 2016).

Nearly a dozen significant wildfires have occurred in the MOA during the past two decades. They include:

- The 10-acre Piper Fire in 2008.
- A 1300-acre fire near Eklutna in 2010.
- A 25-acre fire on the south fork of Eagle River in May 2016.
- The 2-acre Bicentennial Park Fire in May 2016.
- The 25-acre Martin Luther King Fire (south of the MOA permit building, west of Elmore Road) during July 2019.
- In August of 2019 (the same month and year of the McKinley Fire that occurred near Willow, Alaska), a fire started just east of Service High School that was quickly extinguished by AFD. A homeless person was indicted in December 2019 for starting this blaze and an additional fire that occurred two weeks later in Ruth Arcand Park.
- The 13-acre Elmore Fire in June 2022.
- Numerous additional fires have occurred over the years that have been aggressively and successfully attacked.

Preparing for Weather Extremes

A challenge that must be considered when assessing the need for fuels treatments in Southcentral Alaska is resilience to weather extremes. The highest number of acres burned happens on extreme wildfire weather days. Fire managers are increasingly interested in guiding homeowners towards preparing for the extremes that have emerged during the past two decades.

Since 2004, when the highest number of acres burned statewide, additional periods of extreme fire danger have challenged fire managers and residents. The following graph depicts the Buildup Index (BUI) from the Canadian Forest Fire Danger Rating System for Southcentral Alaska from 1994 to 2022 (Figure 6). It is noteworthy that two of the most extreme BUI indices occurred in 2019 and 2022. It was atypical to see the BUI levels climb after a season ending event (weather) occurred in mid-July and to observe the BUI recover to peak fire season levels in mid to late August. This unseasonably warm and dry period, which occurred after the fire season ended, had never been observed in prior recorded weather history for the Anchorage area.

Typically, fire season ending events in Alaska are a dependable marker for all major fire activity(WFDSS 2009). A season ending event is defined as multiple days of ample precipitation that occur over an extended period and provide a significant drop in fire danger indices. The fact that a major wildfire, the McKinley Fire, burned in the second half of August, following a season ending event was historic. The Alaska Division of Forestry typically allows vital firefighting resources (e.g., air tankers and wildfire fighting crews) to head south after a season ending event. The return to extreme fire danger conditions following a season ending event is a game changer for fire managers!

In addition, to the more extreme wildfire weather, the fire season is getting longer. See Figure 7. Now, the chance of a wildfire happening earlier in the spring and later in the fall requires more vigilance. Fire season in Alaska is usually in full swing by April 1st, marking the date when burning permits are required each spring(AKDOF 2022).

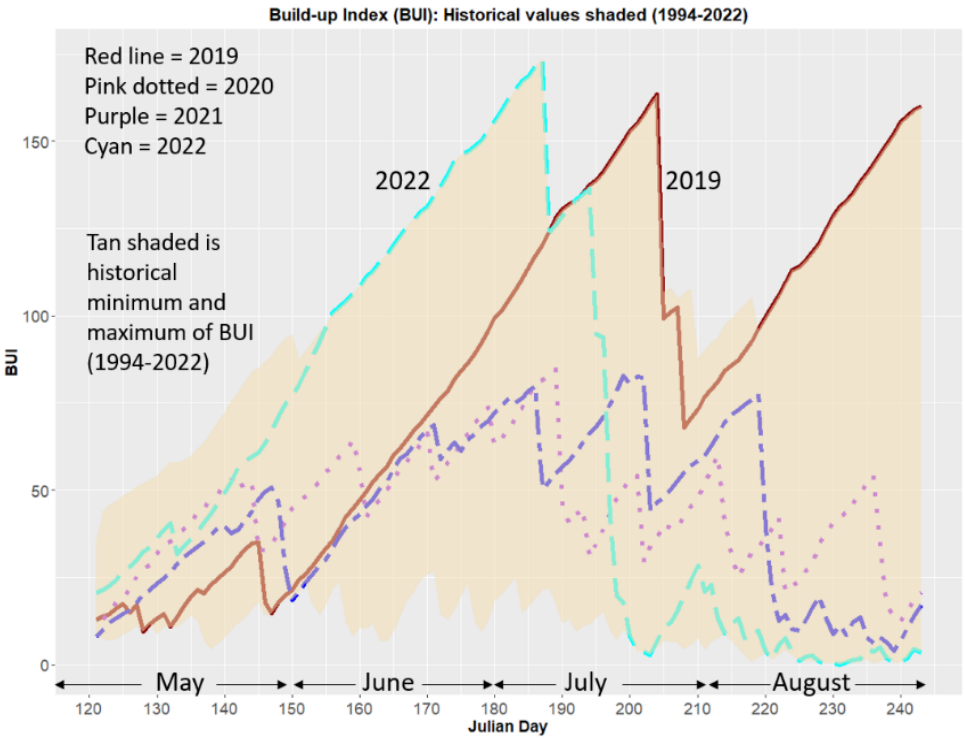

Figure 6. Canadian Fire Danger Rating System Buildup Index 1994-2022.

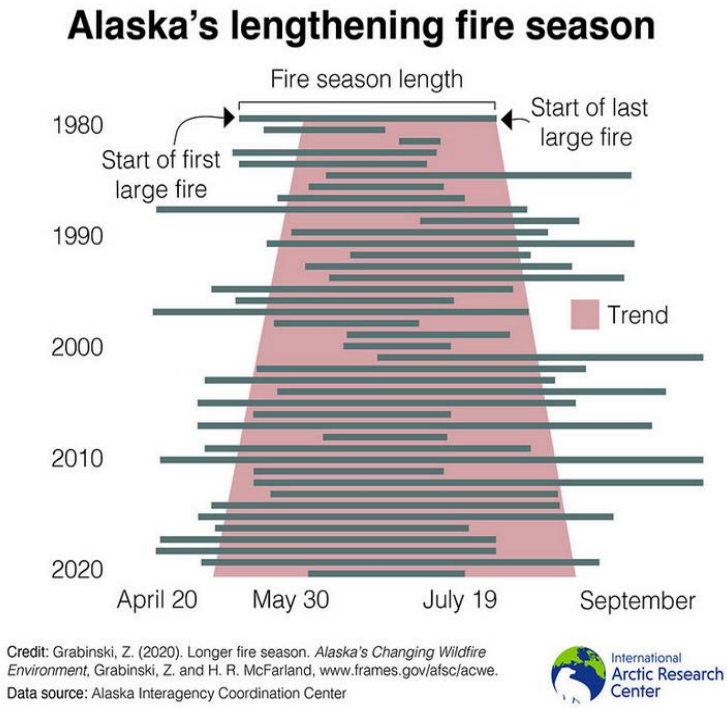

Figure 7. Alaska wildfire season length from 1980 through 2022. Source: (Grabinski and McFarland 2020) https://uaf-iarc.org/alaskas-changing-wildfire-environment/

Methods and Results

Methods Overview

A total of 54 individuals from 9 community councils (Abbott Loop, Basher, Bear Valley, Eagle River Valley, East Fork, Eklutna Valley, Glen Alps, Hillside, and Rabbit Creek) (MOA 2023) participated in the Wildfire Egress Project work sessions (Figure 8). In addition, participating organizations included MOA, State, and Federal agencies as well as Eklutna, Inc. Work sessions were planned to maximize attendance. They were initially planned for Tuesday evenings, but later changed to Monday evenings, due to conflicts with other meetings, especially Tuesday evening MOA Assembly meetings. Work sessions were "hybridized" with Zoom meetings and concurrent in-person sessions. More information about the work sessions can be found in Appendix B.

Participants were surveyed to determine their interest in participating in the CWPP update, slated to begin in mid-2023. Participant knowledge of the process, the proposed projects for their community council area and egress routes will allow the CWPP update to begin in a much faster, more productive manner, than if starting with community members unfamiliar with the issues.

Work Session 1: September 13, 2022 6-8 p.m.

Work Session 2: September 27, 2022 6-8 p.m.

Work Session 3: October 11, 2022 6-8 p.m.

Work Session 4: November 7, 2022 6-8 p.m.

Work Session 5: December 19, 2022 6-8 p.m.

Work Session 6: January 23, 2022 6-8 p.m.

All work sessions were held at the Institute for Social and Economic Research.

Figure 8. Wildfire Egress Mapping Project Work Session Schedule for the MOA.

Participants also were surveyed and asked if they would serve as Firewise "delegates" for their respective council area (NFPA 2018). Delegates will work with AFD to track annual progress of Firewise home inspections, insect and disease outbreaks, community Firewise projects and by communicating the need to provide maintenance for previously completed wildfire mitigation treatments. Delegates would also form the backbone of the MOA CWPP update team and help coordinate public meetings in their respective community council areas. They would have a good understanding of the proposed Wildfire Egress Project list and the importance of each of the projects.

A participatory mapping approach was utilized, working collaboratively with residents at community council work sessions. At the first meeting on September 13, 2022, we introduced the project and showed maps/posters of the current roads and those identified as dead ends which have one way in and out (i.e., dead ends). In addition, participants were asked to think about where they would go if they were forced to evacuate from their community council for the evening. This exercise highlighted the importance of developing advanced plans for family,

pets, meeting up locations and evacuation routes. The groundwork was laid to identify major egress routes (i.e., used by multiple neighborhoods) and evacuation destinations. The participants also became familiar with the vernacular of the Wildfire Mitigation Program and Firewise fundamentals.

At the next two community council work sessions on September 27th and October 11th, we presented updated maps for participants to identify neighborhoods or areas with multiple structures that have access restricted to one way in and out (Figure 9). Using suggestions from the participants, we identified major evacuation routes. These were defined as roads with speed limits of 45 mph or more, highways, expressways, major arterials, or snow plow routes. We also used the updated roads and parcel layers to visually inspect the areas for dead-end roads. We worked back through road intersections to identify bottleneck points.

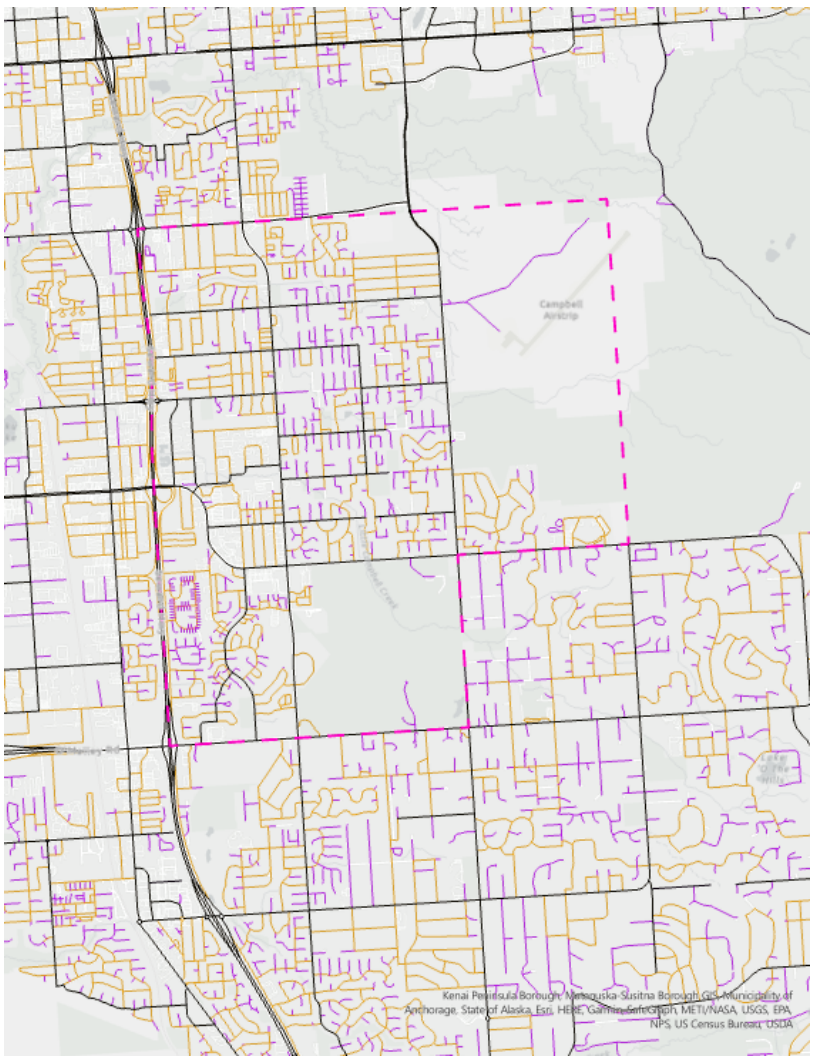

Figure 9. Map of roads with dead ends (purple) and major evacuation routes (black) in the Abbott Loop Community Council. More maps in Appendix D.

<u>The final product is a map for each council area that identifies dead-end roads that are egress concerns.</u>

Updated maps/posters were created to show the results and validated at a community council work session on November 7th. The final GIS layers that depicted major egress routes and residential areas with limited access were coupled with exposure maps to identify areas for fuels reduction work. The group suggested other factors for inclusion in the identification (i.e., process, slope, distance to fire stations, etc.). The additional parameters were utilized to examine what effect they had on egress/fire behavior impact.

Participatory Mapping

Evacuating from an event, such as a wildfire, is very situational and hard to predict. However, this does not mean residents and communities should not strategize and plan for the event. The MOA Office of Emergency Management (OEM) has various potential emergency shelters identified that can be activated depending on the situation. Residents can follow OEM's guidance. One big step towards preparedness is identifying multiple ways out from a person's residence and potential overnight locations. To encourage planning, we proposed the following scenario: a wildfire is approaching, and you have been asked to leave your community council boundary and spend a night away from home. Where would you go and how would you get there? Figure 10 shows the results from the mapping exercise and the utility of providing residents the opportunity to map out their plans.

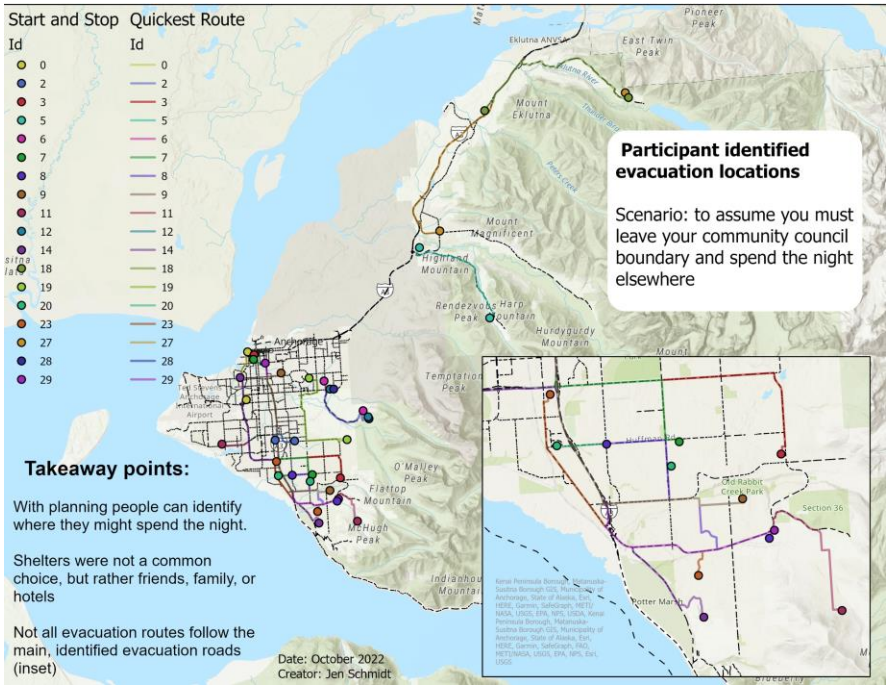

Figure 10. Mapping exercise where residents were asked to identify evacuation routes leading out of their community council to a place where they could spend one night away from home.

After the maps of dead ends were updated, residents had the opportunity to review them again and view them overlaid with wildfire exposure maps. Using this information residents identified areas of egress concerns with suggested improvements, vulnerable areas, and potential evacuation zone options (Figure 11). Evacuation zones are difficult because they are dependent on the situation. Thus, estimating the number of people needing to evacuate is challenging, but the goal was to start thinking about this issue in the hopes of working towards a more informed plan. This plan could identify potential evacuation populations, potential evacuation locations, and the feasibility of safely sheltering in place or finding a safety zone to ride out a passing wildfire. One lesson learned from this project highlights the need to define

these terms more clearly (i.e., shelter in place, evacuation zone, safety zone) in order to not provide false confidence and preclude residents from evacuating when they should evacuate.

An exercise used during the 4th meeting asked participants to take a "Should I Stay or Should I Go" quiz (Appendix C, https://www.rsf-fire.org/shelter-in-place/). This was a very useful exercise because, initially, most people raised their hands to indicate they would shelter in place. However, as we worked our way through the questions several hands started to go down. At the end, we discussed how sheltering in place takes a lot of planning, not just for the homeowner, but also includes consideration of other household members and pets.

Wildfire Egress Hazard Maps

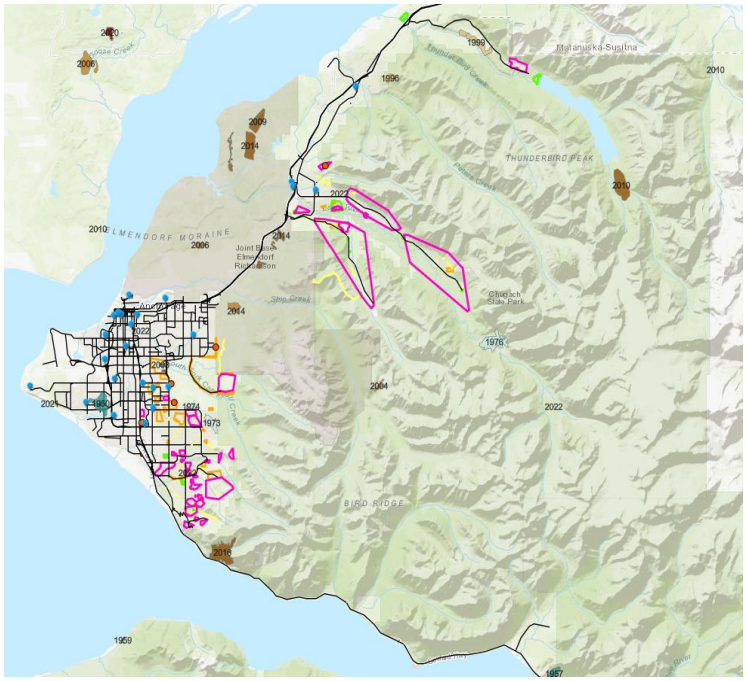

Figure 11. Areas identified by residents as having egress issues and potential solutions along with areas vulnerable wildfire and entrapment and evacuation zones. This map along with potential solutions can be found online: https://bit.ly/moawildfireppgis

Participants created and analyzed egress routes on wildfire hazard maps for the participating community councils to identify fire hazard areas and identify which roads might be high priority for action due to fire load or restricted/isolated homes.

Participants worked with one (or more) of the previously mentioned community councils to conduct egress modeling to determine which egress routes residents will use and potential impacts on evacuation from road closures. Agency and indigenous group representatives floated between many of the groups to offer ideas and perspectives.

Wildfire hazard maps were created and customized for the participating community councils, similar to the Rabbit Creek area map in Figure 12. See Appendix D for more wildfire hazard maps. Prior to this project several community councils in Anchorage requested presentations showcasing these maps at their monthly meetings. Presenting the maps was important because feedback was needed and acceptance of the maps was one of the first steps to help identify and reduce wildfire hazards.

A PDF map for each community council area was developed and is included in the appendices to be used as a poster (if desired) for community council information purposes.

The next step was to use the hazard maps to identify areas to target for fuels reduction. This was accomplished by identifying areas where the exposure value was over 80% (near egress routes and near residents where egress is limited by one way out) as shown for the Abbott Loop Community Council Area (Figure 13). Exposure maps were previously created by the AURA project (Figure 3). Building and road GIS layers were also gathered by the AURA project but needed to be validated using aerial imagery and feedback from community councils.

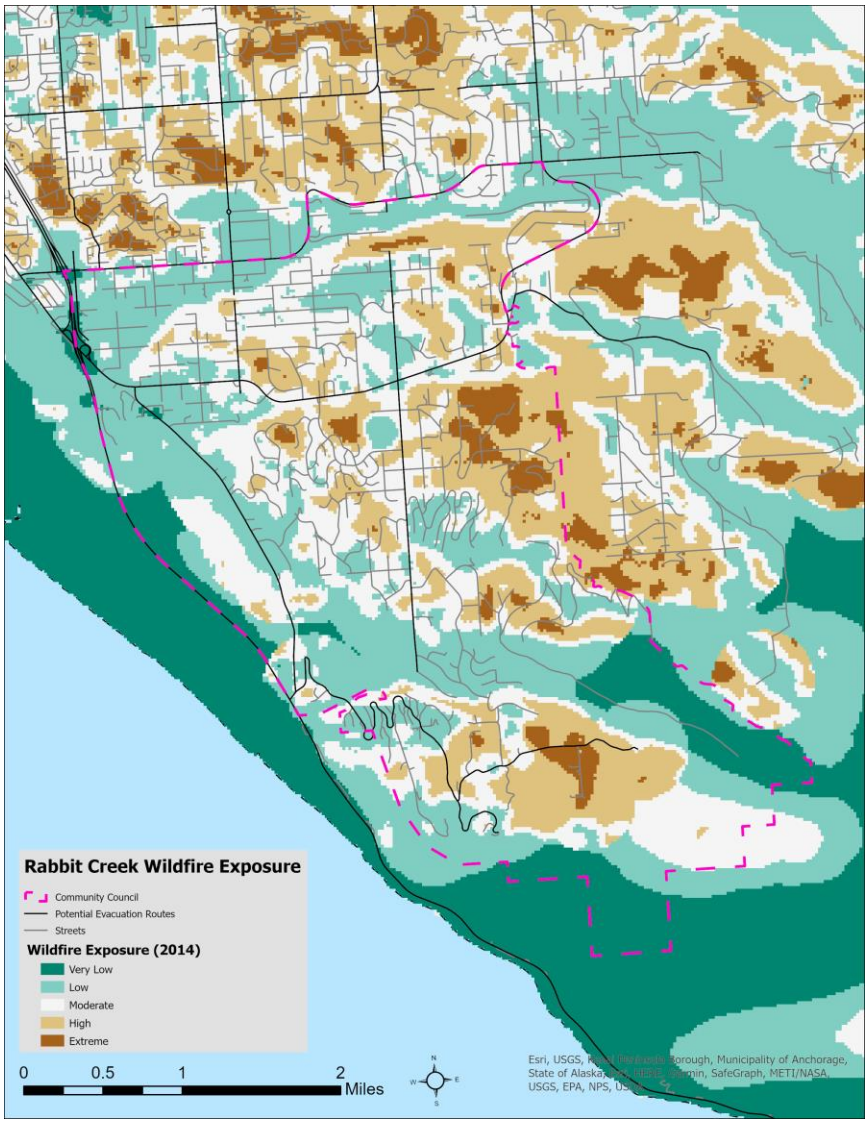

Figure 12. Wildfire exposure (i.e., hazard) in 2014 for the Rabbit Creek Community Council within the MOA.

The final product is a map for each participating council that highlights areas to target for fuels reduction actions (Appendix E).

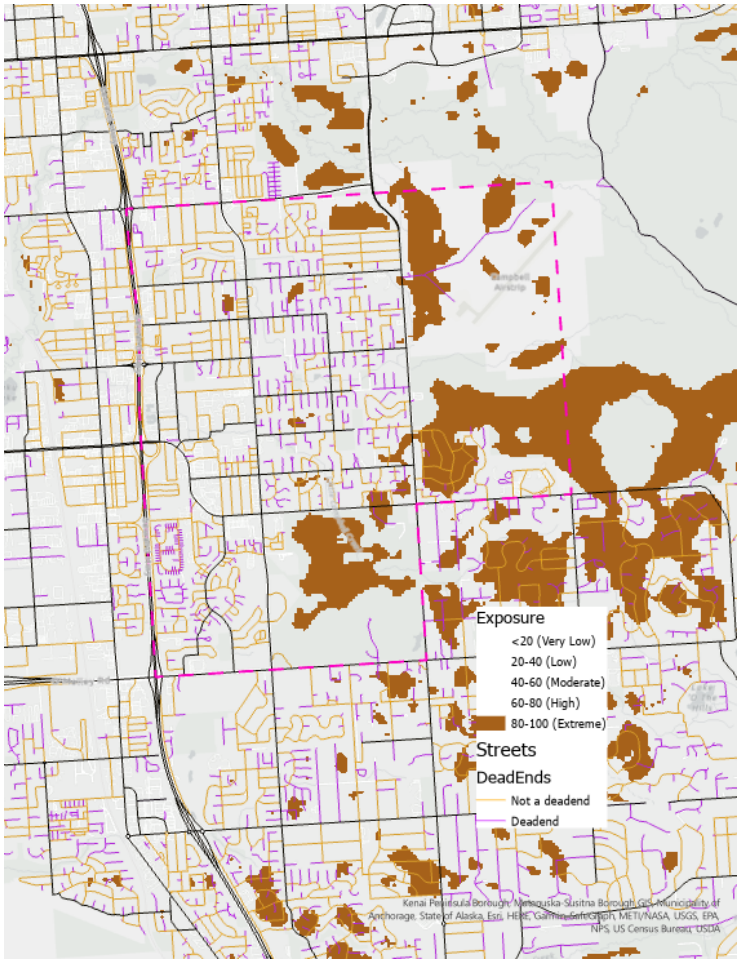

Figure 13. Areas with extreme wildfire exposure values (80 or more) and roads with access issues in the Abbott Loop Community council.

Wildfire Egress Modeling

Networks Analysis modeling is a tool in ArcGIS that is used to map and model evacuation routes as well as connect residents with identified egress routes and evacuation shelters. This type of modeling requires accurate, current, complete street datasets that are properly designed and prepared. This GIS roads layer is crucial for a number of reasons. It identifies evacuation routes in addition to understanding who and how many people will use evacuation routes. It also identifies how future roads might affect and improve evacuation during an emergency. These layers need to include information on speed limits, directionality, surface type, elevation, and width. Given the complexity of building a road network database and time constraints, Dr. Schmidt rented a road network database from American Digital Cartography, Inc. (ADCI) which cost $7,000 for one year. However, Dr. Schmidt later learned that the MOA Geographic Data & Information Center (GDIC) updated a road network database for the MOA in November 2022. Upon request they also provided an intersection database which was useful for looking at intensity use during an evacuation.

Wildfire Egress Network Analysis Model

Parcels

The closest features option within the network analysis tool was used to assign parcels to the nearest school (based on drive time). All MOA schools were used, but we acknowledge that some are more feasible than others, and schools might not be the best choice. To understand

why, one can drive by some of the local schools during the time when parents pick up their children to experience extreme traffic congestion. However, we wanted to start quantifying how many people might be trying to use the roadways and intersections. To perform this analysis, we used the recent MOA parcel assessment database which illustrates parcels as a polygon (i.e., circle). See Figure 14. https://muniorg.maps.arcgis.com/apps/webappviewer/index.html?id=493d6c82574c43d981bd2aaa384b3d60) However, to run the analysis the parcels were turned into points in the center of the parcel. For future work it is recommended that these points be moved to the exit location on a parcel, so that when evacuation routes are drawn the route follows the driveway a resident would

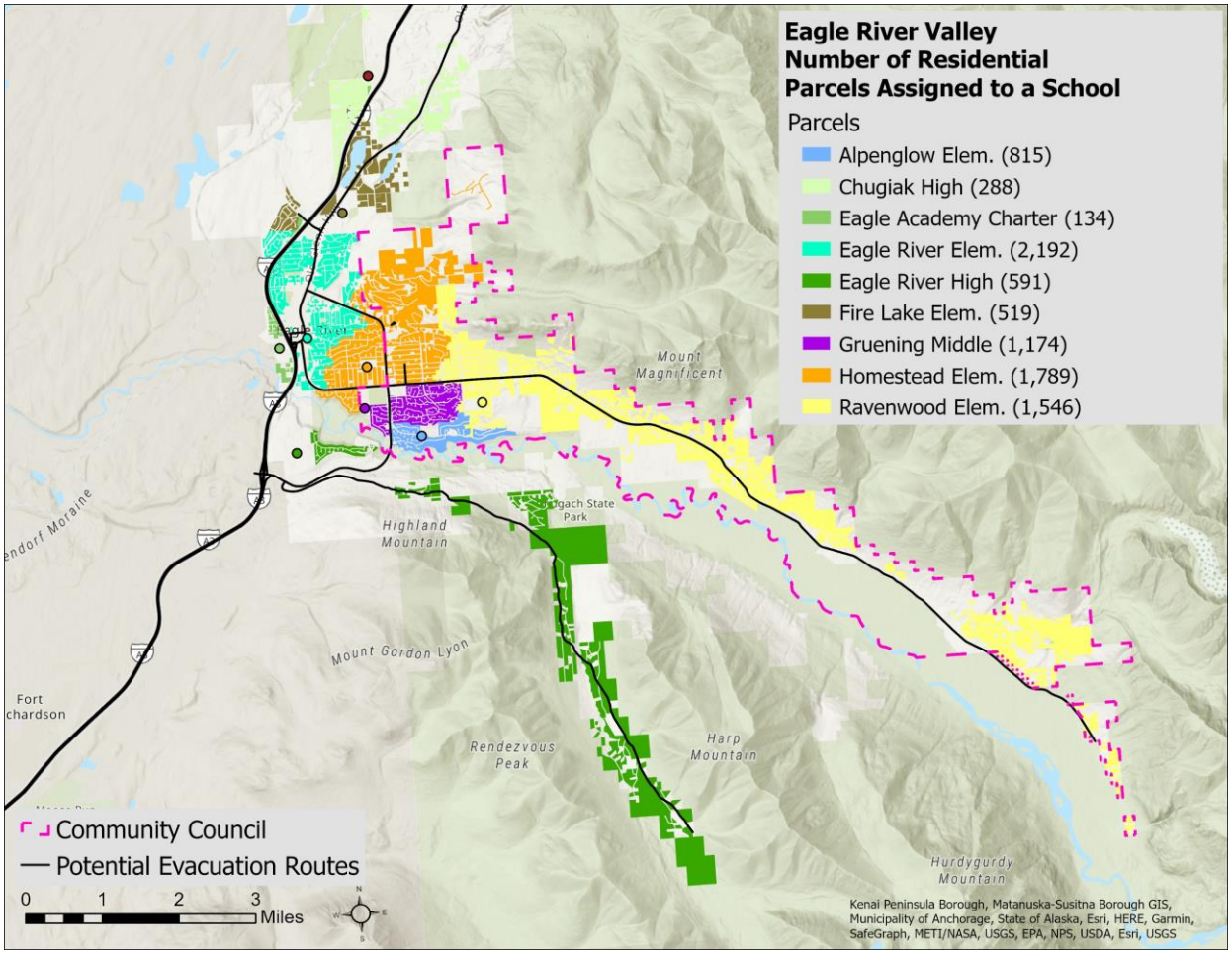

Figure 14. Parcels assigned to the nearest MOA school based on drive time. Numbers in parenthesis indicate the number of parcels assigned to a school.

take rather than an exit out the back or side of the parcel.

A PDF map of parcels assigned to schools for evacuation was created for each participating community council to be used as a poster (if desired) for information purposes (Appendix F).

Intersections

Roads are not the only transportation feature that can become congested during evacuations. Intersections and traffic control can be problematic. The network analysis tool provides information on routes that residents within each parcel would take based on the fastest driving time. Using this, we calculated the total number of parcels and evaluated intersections to derive intensity use. This intensity use can provide insights for the strategic placement of police officers and traffic controllers (Figure 15).

A PDF map of intersection intensity was created for each participating community council to be used as a poster (if desired) for information purposes (Appendix G).

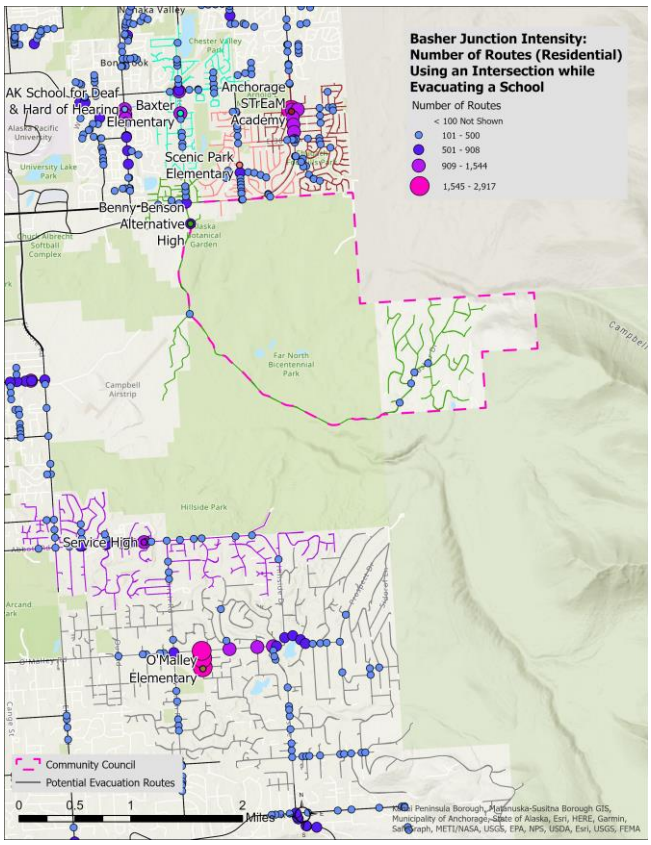

Figure 15. Intersection intensity use (# of parcels traversing through an intersection to get to their assigned evacuation school).

Roads and Wildfire

Using the major evacuation roads identified earlier, we overlaid this data with our wildfire exposure and hazardous fuels maps. The goal was to identify evacuation routes that go through areas of high wildfire exposure or flammable vegetation and prioritize them for treatment (i.e., vegetation thinning or removal). See Figure 16. Our ranking system was four tiered. Tiers included areas in most need of treatment as 1) very high hazardous vegetation and extreme wildfire exposure (80 or above); 2) very high hazardous vegetation; 3) high hazardous vegetation and extreme wildfire exposure (60-79); or 4) high hazardous vegetation. Roads were buffered by 30 m and then regions within the four criteria mentioned above were identified.

A PDF map of roads and areas of treatment was created for each participating community council to be used as a poster (if desired) for information purposes (Appendix H).

There was a request to add an 8% or greater slope criteria when identifying roads in need of vegetation work, which we also did (Appendix I). The 8% mask helps to remove treatment areas from within the bowl of Anchorage, but on the outer areas if funds are available, we recommend using the results without the slope mask.

Intersection and Wildfire

Similar to the roads and wildfire analysis, we identified high use intersections that occurred in areas with either high or extreme wildfire exposure (60% or more) or flammable vegetation (high or very high flammability). These maps can be used to prioritize vegetation clearing or thinning around potential high use intersections.

A PDF map of intersections and areas of treatment was created for each participating community council to be used as a poster (if desired) for information purposes (Appendix J).

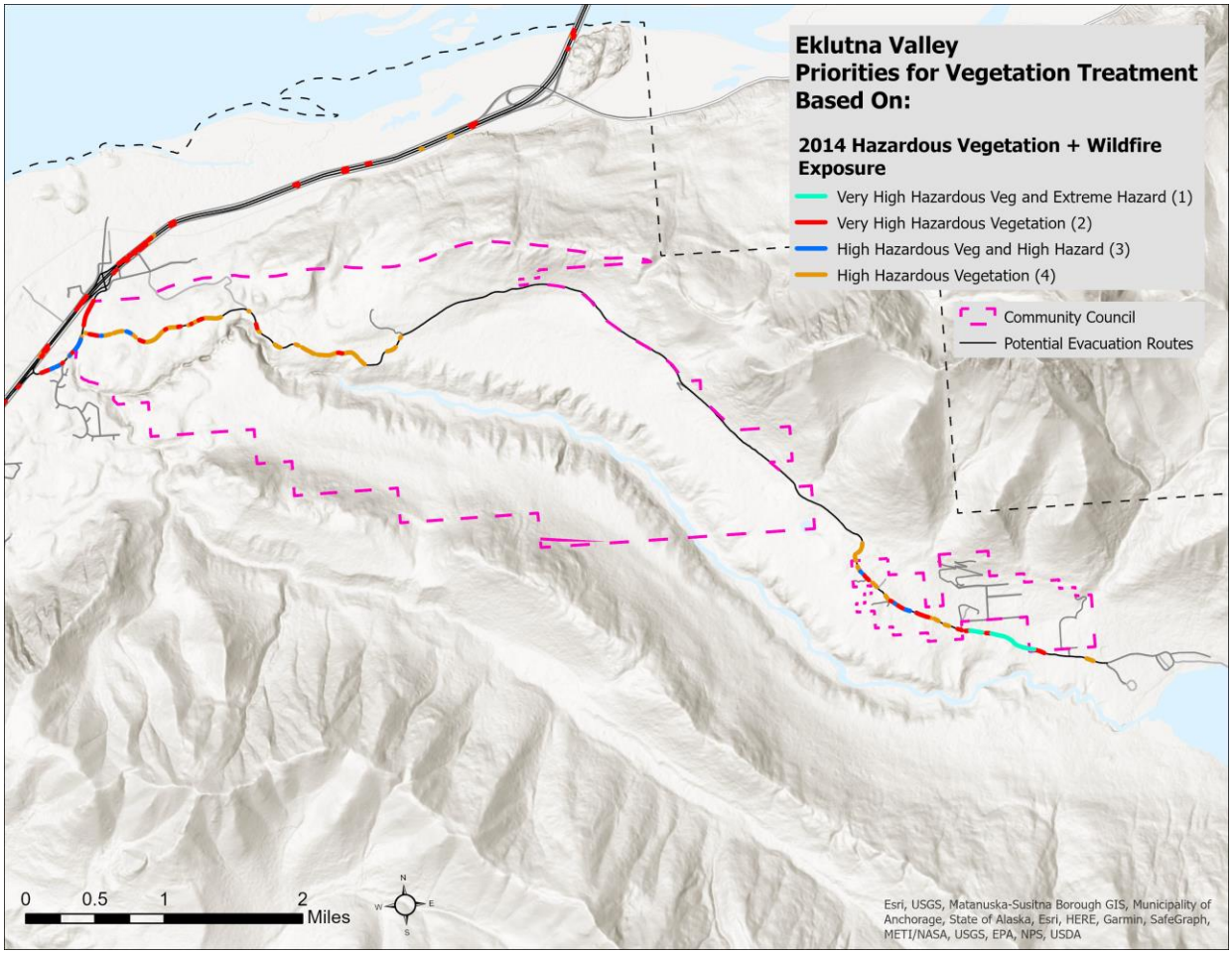

Figure 16. Prioritization of fuel thinning or removal to reduce flammable vegetation or high wildfire hazards (exposure) along major evacuation routes in Eklutna Valley.

Wildfire Egress Map Input from AFD Personnel

An important step in the data/comment collection was to reach out to the AFD WUI Fire Station Captains for concurrence and comments on the Wildfire Egress routes and data collected during the project. Anchorage Fire Marshal Brian Dean directed the AFD station captains, at the 5 most impacted wildfire stations, to provide input on the data and comments collected during the wildfire egress study. The list was forwarded to John See and meetings were scheduled to collect AFD's input. The email sent by Brian Dean is shown below.

November 3, 2021

Gentlemen,

Earlier this fall, UAA/ISER researcher Dr. Jen Schmidt embarked on a community wildfire hazard and evacuation study. Along with gathering community input, another important input is information AFD personnel tasked with responding to incidents in certain areas of town may have regarding difficult road access or problematic dead ends or questionable connections. This information is similar to the information Captain Albrecht compiled for the Station 10 response area. Ultimately the goal is to identify and map these areas.

Retired AFD Forester John See has been contracted by UAA to assist in gathering information. He will be reaching out to you for any insights you or your crews may have. We have some time so please give some thought to problem areas you or your crews have encountered or contingencies you may have formulated regarding viable ingress and egress routes to difficult areas. Thanks in advance for any assistance you can offer.

Senior Captain	Station/Shift	Email	Phone	Area
Casey Johnson	8A	Casey.johnson@anchorageak.gov	(907)267-5008	O'Malley/ Mid Hillside / Prospect
Sean Fredenhagen	9B	Sean.Fredenhagen@anchorageak.gov	(907)267-5009	DeArmoun / Potter Valley / Seward Hwy
Nick Davis	10C	Nichalas.Davis@anchorageak.gov	(907)267-5010	Bear Valley / Rabbit Creek
Ryan Staten	11A	Ryan.Staten@anchorageak.gov	(907)267-5011	Eagle River
Eric Lawson	14C	Eric.Lawson@anchorageak.gov	(907)267-5014	Stuckagain Heights

Dr. Schmidt and John See then reached out to AFD captains to schedule meetings (Appendix K). Meetings were held with each captain to solicit input on the wildfire egress maps and projects. The input provided was used to append (and verify) input from the community council

participants. Generally, there was good correlation and agreement between AFD input and the council residents in the AFD station areas. The input from fire stations was included in the list of recommended actions and on the maps that identified egress issues and vulnerabilities.

Wildfire Egress & Safety Zone Tool

Personal communications with Jack Cohen from the USFS Fire Lab in Missoula, Montana informed a crucial work session on December 19. Cohen discussed the often-overlooked value of safety zones associated with recent major wildfires. The significant loss of lives that occurred during egress efforts for the Camp Fire, near Paradise, California, was a specific example mentioned where the loss of lives might have been reduced if readily available areas that met safety zone criteria had been recognized by first responders and the residents. A sports field (football stadium) was discussed as an example.

Safety zones are critical tools that can be used by wildland firefighters to avoid injury or fatality when engaging a fire. Effective safety zones provide a safe separation distance from surrounding flames, ensuring that a fire's heat cannot cause burn injury to firefighters within the zone. Evaluating safe separation distance on the ground can be challenging, and underestimating safe separation distance can be fatal [refer to the following video] https://www.youtube.com/watch?v=FOxPyvBSewA.

"In researching this alternative, a recently introduced online tool for mapping safe separation distance was discovered. The tool utilizes vegetation height, terrain slope, wind speed, and burning conditions to estimate the required safe separation distance. The Safe Separation Distance Evaluator (SSDE) https://firesafetygis.users.earthengine.app/view/ssde-en allows users to draw a potential safety zone polygon and estimate the safe separation distance as well as the extent to which the safety zone polygon may be suitable, given the local landscape, weather, and fire conditions (Campbell and Dennison 2022; Campbell *et al.* 2022).

The tool depends on vegetation height for assessing safe separation distance. Campbell and Dennison describe an analysis that compares LANDFIRE Existing Vegetation Height and a recent Global Ecosystem Dynamics Investigation (GEDI) and Landsat 8 Operational Land Imager (OLI) satellite image-driven forest height dataset to vegetation heights derived from airborne lidar data in three areas of the Western US. Their analysis revealed that both LANDFIRE and GEDI/Landsat tended to underestimate vegetation heights, which translates into an underestimation of safe separation distance".

To rectify this underestimation, we selected the bias-correction procedure in the tool that adjusted vegetation heights to more closely resemble those of the lidar data. SSDE is a tool that can provide valuable safety information to wildland fire personnel who are charged with the critical responsibility of protecting the public and landscapes from increasingly intense and frequent fires in a changing climate. However, as it is based on data that possess inherent uncertainty, it is essential that all safety zone polygons evaluated using SSDE are validated on the ground prior to use.

Dr. Jen Schmidt discussed the SSDE tool with Dr. Campbell and a test application revealed some missing components of the digital elevation model (DEM) for Alaska. After some adaptation, the model was updated for use in Alaska. Test runs show some promise in applying the tool in Alaska. However, its complexity indicates that additional evaluation is needed before adoption. John See spent 25 years with the Alaska T1 Incident Management Team, during which time he was assigned to dozens of major wildfires throughout Alaska and the lower 48 states as the team's primary Fire Behavior Analyst (FBAN). One of his critical duties was to watch out for entrapment situations and developing fire behavior conditions that could compromise crew (and team member's) safety while performing fire suppression duties. Fire behavior is very complex, and miscalculations can lead to the loss of lives. Experts are specifically trained to monitor fire behavior or "knowing what your fire is doing at all times." (NWCG 2022) Standard Fire Orders is critical information for selecting safety zones. This assessment should be made by seasoned wildland firefighters or preferably by an FBAN. Preplanning to establish escape routes and potential safety zones is a great idea for a neighborhood, providing that limitations are established, and residents understand the criteria for which the designated safety zones can provide survivable space.

For these reasons, the tool developed by Dr. Campbell should be used by fire managers, FBANs and seasoned firefighters in a pre-planning mode to help residents inventory potential safety zones. The SSDE tool shows great promise to eventually offer an on-the-fly safety zone locating tool that could reliably help fire crews (and residents) escaping from a wildfire. It offers a life-saving solution. We hope that a quick reliable tool will emerge very soon for use by all first responders.

Wildfire Egress Proposed Solutions and Budget

See Appendix A for egress proposed solutions and Appendix L for the budget.

Wildfire Egress Project Discussion and Recommendations

Recommendations for actions to reduce wildfire vulnerability and improve egress

[Agencies responsible in brackets]

Actions

1. Suggest AK Division of Forestry [DOF], Urban and Community Forestry Council work with the tree service industry to remove spruce beetle killed trees and conduct associated road maintenance [*AK DOF, Tree service, AFD*].(AKDOF 2023)

2. A wildland urban interface (WUI) needs to be spatially identified for the Municipality of Anchorage. This is important because of resource availability for firefighting efforts [*AFD, AK DOF*].
3. Identify a person within each community council to work with AFD to [*CC, AFD*]
    - Monitor actions taken on CWPP projects.
    - Report on Firewise activities within each area, such as "chipper days", wood lot passes issued, community Firewise events, etc. Include the amount of funds donated for Firewise projects.(NFPA 2018)
    - Coordinate this information with the Alaska DOF and AFD.
4. Fund a wildfire mitigation position at AFD in addition to the public information officer [PIO] to oversee and accomplish the following activities and where appropriate, in collaboration with the PIO [*Anchorage Assembly*]
    - Survey all roads for access and recommend improvements to CBERRSA and the community councils to use for project requests to the MOA Capital Improvement Projects.
    - Work to identify areas that need safety zones.
    - Ground truth and review roads/vegetation.
    - Manage woodlot projects.
    - Garner funding for mitigation efforts.
    - Conduct Firewise inspections.
    - Work with PIO to take people out to view problematic areas.
    - Advertise Firewise and chipping programs.
    - Get the word out about what it means to live inside and outside of a fire protection area.
    - Track Firewise inspections and show progress by community council, make recommendations to community councils for making progress with a goal of reaching 50% of homes.
    - Get people signed up for Rave Pulsepoint, the MOA's new emergency notification system.
    - Figure out a communication strategy for people outside of cell service range.
5. Work with wildfire experts and residents to identify safety zones and re-run egress modeling. Eventually this should be linked to an app to help people navigate out especially in smoky conditions. [*AFD, local fire departments, residents*]
6. Assess the feasibility of adopting the International Wildland Urban Interface Code [IWUIC]. For things that are not feasible, identify alternatives. [*AK DOF, MOA, CCs, Anchorage Assembly and Homeowners*]
7. Determine if there are adequate water resources for areas where fire trucks have limited access and, if not, viable solutions (e.g., dry hydrants, water storage tanks, etc.). [AFD, OEM]
8. Set up rotating annual fire drills, so residents know what to do in case of an actual emergency. This would include using pilot cars to get people safely through a fire zone. [*AFD, APD, OEM, JBER, CCs*]

9. Work with the property tax assessor's office to provide a discount on taxes if a home is determined to be Firewise. [*Anchorage Assembly, MOA assessment, AFD*]
10. Revisit traffic mapping/egress mapping once evacuation or safety zones have been vetted by experts to identify choke points and capacity issues. [*UAA, AFD, OEM, MOA Traffic Engineering, MOA GIS*]
11. Expand woodlots and increase use by reducing cost and expanding access (3-5 around town). [*AFD*]
12. Hold annual pruning events for residents and road sections with a chipper pick up program.
13. Fund signage to advertise egress and boundaries of fire service protection areas. Increase awareness about fire service area boundaries for those looking to buy property and homes. [*MOA, AFD*]
14. Strengthen the relationship between AFD, JBER, Chugiak, and Girdwood fire protection areas. [*AFD, JBER, local fire departments*]
15. Establish CERTs at the community council level. [*Michelle Torres, Outreach Branch Chief, State CERT Administrator, Division of Homeland Security & Emergency Management, Community Councils*]
16. More cross training of AFD with Alaska DOF, JBER, and local fire agencies (especially with DOF) to learn more about fighting wildland fires, communication with multiple agencies, air attack personnel, etc. [*AFD, AK DOF, JBER, local fire departments*]
17. Increased funding for more AFD personnel. [*MOA office of management and budget, Anchorage Assembly, residents of Anchorage*]
18. Increased funding for equipment needed by AFD to fight wildland fires. [*MOA office of management and budget, Anchorage Assembly, residents of Anchorage*]
19. Look into the use of fire easements that would allow fire roads to be built to connect roads with limited access (could have a gate to address issues about increased crime and traffic from added road connections). [*MOA Planning, MOA Private Development & AFD*]
20. Encourage the use of water tanks on people's property with fire hose connections, so the fire department can easily connect. [*CCs, AFD*]
21. On the ground assessment of easements for access since some are blocked. [*CCs, AFD, MOA ROW*].
22. Establish stronger wildfire easement/land management regulations that can be used to establish egress/access areas. [*CCs, MOA Planning, MOA Private Development*]
23. Known areas with no cell reception are out towards the end of Eklutna Valley Road and Eagle River Road. Windrunners, a service provider to Vertical Bridge, presented at the Eagle River Valley Community Council in November of 2021, regarding the expansion of a cellular network at the P&M Garden Center location on Eagle River Road. Both this location (Eagle River) and Eklutna need additional cell phone towers for the new RAVE system, so that the reporting of new wildfires and communications for first responders will be enabled. [*Cell service providers, OEM, AFD*].
24. Hazard identification work (identified within this document) should reference the 4/2022 FEMA approved, MOA All-Hazard Mitigation Plan, in more detail. This is part of an

ongoing effort (commencing 20 years ago) to "crosswalk" all-hazard emergency management and wildfire planning efforts. The All Hazard Mitigation Plan is authorized by the Disaster Mitigation Act of 2000, amending the Stafford Act, specifically Title 44 CFR Part 201, entitled Mitigation Planning. This is one effort that should not be overlooked in local studies. The plan includes projects and priorities for wildfire mitigation as well. [*AFD, OEM*]

Analysis

1. Census and population modeling "need work" to be useful to determine the number of people/parcels evacuating from areas.
2. Move parcel centroids closer to the actual egress (i.e., driveways) used by residents to improve accuracy of the evacuation modeling.
3. Compare egress modeling from the purchased road network database to the MOAs database.
4. UAA will work with OEM/AFD/Police/JBER/Eklutna, Chugiak and Girdwood Fire Departments to determine the most useful analysis/database.
5. Build a spatial database where you can select road/road segments and get a quick tally of the number of people who would need to evacuate from an area.
6. Create a non-spatial database where you can select roads and identify feeder roads with the number of people linked to each road segment.

Advancing Wildfire Preparedness and Planning Takeaways

The **Wildfire Egress Project** was a community project that helped the participants engage in the challenge of identifying serious wildfire problems, occurring within the landscape areas of private residences, neighborhoods, subdivisions and ultimately entire community council areas within the WUI areas of the MOA. During the project, participants were encouraged to ask questions about the preparedness level of MOA neighborhoods located within the MOA WUI. The hands-on mapping exercises invoked meaningful discussion and concern over the upcoming CWPP update. More importantly, the number of one-way egress routes throughout the MOA were recognized as a formidable challenge, especially in specific areas (i.e., Eagle River).

Some of the limiting factors of the project methodology included:

- Support from all involved agencies was somewhat limited. Agencies with overlying responsibility for wildfire suppression attended sporadically and did not make time available to provide meaningful input.
- The project could have benefitted from additional experts on wildland suppression techniques, evacuation practices, shelter in place options and more.
- Public involvement was limited to homeowners with widely varying levels of wildfire experience and abilities.

- Mapping exercises were based upon "available" GIS data. Up-to-date data is always a tremendous benefit when making decisions on public safety practices, such as egress from communities during an emergency.
- Suggestions were made about attaching cost estimates to project items. This was not possible due to the funding, time constraints and scope of the project. It will be recommended as a follow-up action.
- Very few of the participants completed the requested input, especially the prioritization of recommended projects.

Major benefits were also observed throughout the five-month project period:

- The Updated Community Council Wildfire Risk Maps, dead end road verification and map updates as well as the neighborhood evacuation routes and destinations will undoubtedly aid in community planning for evacuation.
- Fuel treatments, one-way egress route improvements and other mitigation measures discussed and listed during the Wildfire Egress Project could become a to-do project list for MOA Administrations and Fire Agencies.
- Similarly, the project list developed (Appendix A) during this effort will benefit the team (or contractor) assigned to update the existing MOA CWPP. It can also serve as a prioritized list of wildfire mitigation projects that could be advanced for further evaluation and fast-tracked for approval. (Goodrich *et al.* 2008)
- The node (intersection) study could end up being a great tool for law enforcement during major evacuations for wildfires as well as other disasters like hazmat spills.
- The Wildfire Egress Project participants who have agreed to continue by representing their community council areas will be an invaluable resource towards completion of the MOA CWPP Template update. If they choose to continue as community council Firewise representatives, their increased understanding of wildfire mitigation challenges facing the MOA, gained through the project, could also be a major benefit.
- The importance of designating safety zones could be a game-changing benefit from the project. Using the SSDE tool (developed by the University of Utah) to locate, evaluate and mark safety zones throughout the MOA could change the outcome significantly during a major wildfire event.
- The Wildfire Egress Project seemed to "spark" further interest in learning more about wildfire behavior, suppression strategies and techniques as well as mitigation measures. One of the classes that could be offered is the Wildland Fire Behavior Class offered as a part of the FEMA Fire Certification Program.
- A questionnaire that was filled out during the project identified individuals who are interested in working on the CWPP update project or for their community council areas as Firewise committee members. Because of the knowledge that the participants gained during the mapping exercises and other presentations, they could be valuable assets in the near future.
- Another questionnaire that delved into sheltering in place offered some great insight into issues that need to be addressed, such as the evacuee's physical suitability for sheltering in place. Video clips of the burn over from cameras placed in a fire give some great

insight into what it could be like to get caught in a life-threatening situation. Another alternative has recently emerged for homeowners who reside in complex topographic areas (i.e., box canyons, steep V canyons, etc.). Underground fire shelters are currently available for sheltering in place. Refer to: New California Fire Shelter Built Into The House: https://www.youtube.com/watch?v=tdAlcdOy6E0.

- A tool that has undoubtedly prevented countless major wildfires is the Canadian Forest Fire Danger Rating System (CFFDRS). This tool has allowed for precise implementation of burning restrictions, statewide bans on the sale of fireworks and all-out burn bans within the MOA. Up-to-date weather data is acquired from a series of fire weather stations that provide for the calculation and tracking of the CFFDRS indices. Maintenance of this system is critical.
- Coordination with road/highway maintenance, regarding right-of-way standards, was discussed. There is a great opportunity to significantly increase the survivability of egress routes by meeting the necessary vegetation [fuel] clearances for safety along neighborhood roads [*LRSA*], egress corridors [*MOA Maintenance*], as well as major roads and highways. [*AK DOT-PF*]
- Chugach Electric attended the workshops to discuss utility corridor maintenance. This important topic will undoubtedly resurface during the CWPP update process. The continuing spruce bark beetle epidemic makes this another high priority for the CWPP.
- There are other issues that arose during the five-month project. Public input during the CWPP update process should allow for many of those other issues, such as where to evacuate large animals (i.e., horses, llamas, etc.) during a wildfire.

Answers to Questions in the Executive Summary

✓ What is the wildfire risk level where I live? Answer: Refer to **Appendix D** for participating community councils' wildfire exposure maps. Find your street and refer to the color code for your property. Some home insurance companies also have rating systems. Discuss your rating with the nearest fire station captain and your insurance company.

✓ What are some things I should be concerned about for my family's safety if we evacuate? Answer: Refer to **Firewise Alaska booklet**, pages 21-22, Prepare to Evacuate.

✓ What can I do to improve the chances of my home surviving a wildfire? Refer to the **Firewise Alaska booklet**, page 4, Self-Assessment Checklist, My Firewise Home.

✓ Is there any help available to assess my property's risk of a wildfire? Yes, contact **AFD Wildfire Mitigation** to schedule an inspection, Schedule a Firewise Home Assessment.

✓ Can working with my neighbors help to identify or improve egress routes in my subdivision? Yes, refer to **Community Fire Planning**, Community Fire Planning Link.

✓ If I live in an area that is not part of a MOA fire service area, then is my wildfire risk greater? This may not be an easy question to answer, but, generally, your risk is greater if

you live outside of a fire service area. Visit your **nearest fire station** and discuss the issue with the captain on duty.

- ✓ Is it important to look for a home to have fire hydrants or water sources close by? Refer to the **Firewise Alaska booklet**, page 14, Tips on Creating Your Own Water Supply, Create Your Own Water Supply.

Remember to pick up your own copy of the Firewise Alaska booklet at your nearest AFD, Chugiak or Girdwood Fire Station or go online to Firewise Alaska Booklet Part 1 and Firewise Alaska Booklet Part 2 .

Future wildfire and egress modeling

The roads network layer will be used to build a network analysis model using ArcGIS. This model was used in California to assess how residents would evacuate given the threat of a wildfire and how new egress routes would change which roads are used, how many residents use the roads, and the potential for trapped residents during emergency egress. Figures 17 and 18 show how the model can be used to identify routes used by residents, number of residents on each evacuation route, effects when a route is blocked, and the opening of a new egress route. Such a tool has not been co-produced with residents of Anchorage, so this will need to be tested and added in the near future. We have worked with participants to complete the first 4 steps of building a network analysis model as shown below.

1) Find a roads network GIS layer.
2) Identify main evacuation routes and evacuation shelters.
3) Validate and update the resident database gathered by the AURA project.
4) Build the network analysis model.
5) Identify a potential wildfire perimeter or road closure.
6) Re-run the model.

The AURA project has used a fire modeling program called FLAMMAP to simulate burn probabilities and fire scars on the landscape based on ignitions, fuels, weather, and topography. We chose one of the simulated wildfire scars to run steps four and five. However, we ran out of time to present the results that will identify evacuation routes used by residents, how many residents will use those routes, and the potential for trapped residents to the community council for validation and discussion.

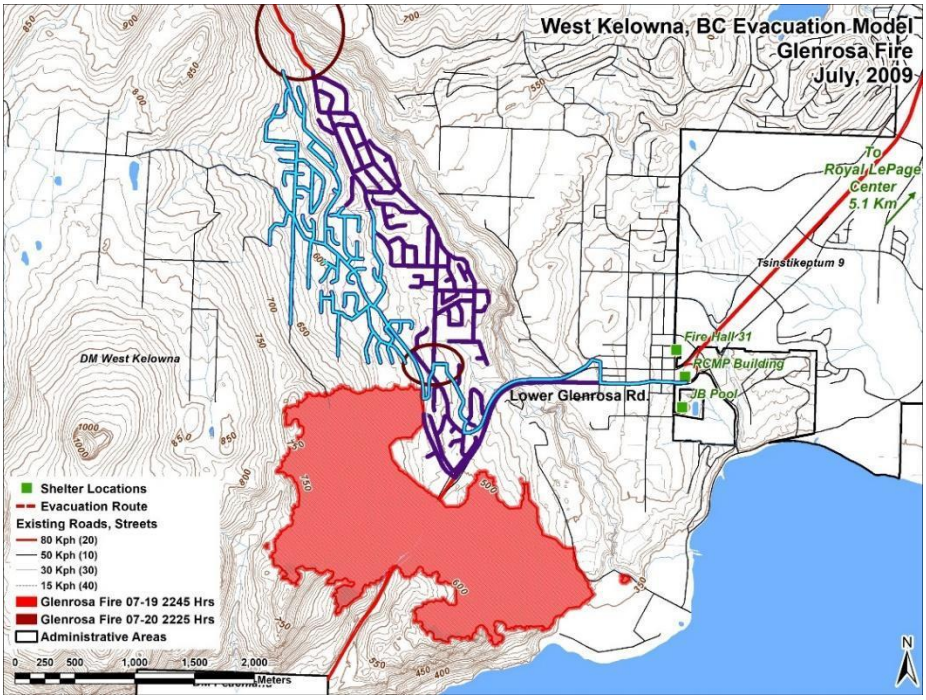

Figure 17. Example of an evacuation route after road is blocked by wildfire. Residents are re-routed north to get to lower Glenrosa Road. Many residents are routed close to the wildfire.

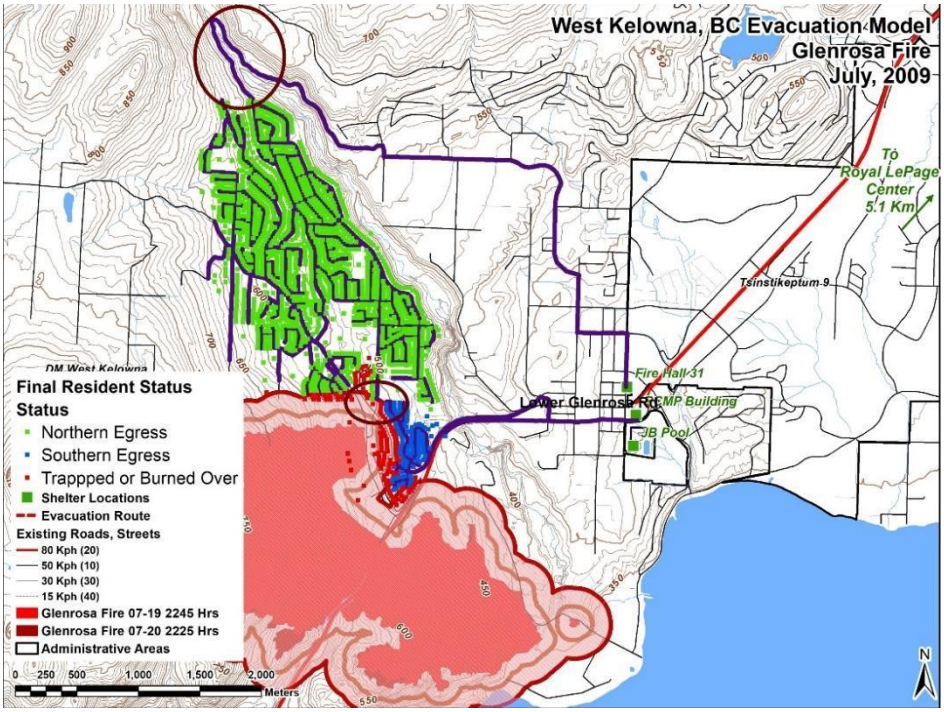

Figure 18. The fire has grown and without a new northern evacuation route many would be trapped.

Final Comments

Advancing Wildfire Preparedness and Planning takes a new approach to assessing wildfire risk using some unique, state of the art geographic information system tools to prepare neighborhoods for wildfire. It would not have been possible without participating MOA Community Councils' support and cooperation.

I would like to borrow a friend's description of the community council. "They are the essence, the epitome of participatory democracy, each representing neighbors and neighborhoods and proffering the special opportunity to interact with our elected representatives (Used with permission from Peter Mjos, Rogers Park Community Council President). This includes municipal and state levels of government, as well as guests (subject matter experts) who are knowledgeable about issues of concern. Councils are advisory only and have no lawmaking or enforcement authority."

The MOA is fortunate to have the powerful system of community councils to take on difficult issues. The power to reach out and create a plan to resolve some of the toughest problems--like wildfire prevention, mitigation, preparedness and awareness-- far surpasses the power of elected officials that only serve for a handful of years.

In working with these powerful local groups of citizens, we would like to thank all of you for helping to make this effort a success. Your participation, comments and willingness to persevere when brainstorming the evacuation issues and other facets of preparing for the "not if but when", inevitable major wildfire event were refreshing and determined.

Thank you!

Dr. Jen Schmidt &

John W. See

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Appendix C. A quiz to help residents decide whether they should stay in place during a wildfire or evacuate (Source: Rancho Santa Fe fire department; https://www.rsf-fire.org/shelter-in-place/).

- Are you physically fit to fight spot fires in and around your home for up to 10 hours or more?
- Are you and your family members mentally, physically and emotionally able to cope with the intense smoke, heat, stress and noise of a wildfire while defending your home?
- Can you protect your home while also caring for members of your family, pets, etc.?
- Do you have the necessary resources, training, and properly maintained equipment to effectively fight a fire?
- Does your home have defensible space of at least 100 feet and is it cleared of flammable materials and vegetation?
- Is your home constructed of ignition resistant materials?

Appendix A. Egress issues identified through participatory mapping. L = Low support, M = Medium support, H = High support. This map along with potential solutions can be found online: https://bit.ly/moawildfireppgis

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Abbott Loop	Connections (to be made or improved)																			
		Connect Elmore by golf course	0	0	1	0	0	1	0	0	0	0	0	50	0	0	50	0	0	0
	Gates (education/awareness of their use during a wildfire evacuation)																			
		Meridian Ave and Egret Rock	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		South of Thuja Ave and Brayton Dr (no labeled street)	0	0	0	0	1	1	0	0	0	0	0	0	0	50	50	0	0	0
		Resurfacing/Upgrade/Widening	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0
		Lore Rd	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0
		Rancho Dr and Rio Grande Ave	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0
	Vulnerable Areas to focus efforts to improve egress or reduce wildfire hazards																			
		Academy Dr and Brayton Dr	1	0	0	1	0	0	2	0	0	25	0	0	25	0	0	50	0	0
	Wildfire Hot (target for vegetation thinning or firewise)																			
		King David and Chapelle	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Jupiter Dr and Mars Dr	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Abbott Rd and Nickell Cir	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		E 80th Ave and E 84th Ave	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Stella and E 72nd Ave	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		E 68th Ave and Shane Pl	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		E 68th Ave and O'Brien St	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		E 64th Ave and Elmore Rd	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		E Dowling Rd and Elmore Rd (Campbell Park)	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
Basher	Gates (education/awareness of their use during a wildfire evacuation)																			

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Basher		Gate at BLM and Science Center Dr	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Gate at Williwa and Shamrock	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Resurfacing/Upgrade/Widening																			
		Emergency only Egress from Atelier to Bulldog trail onto JBER	1	0	2	1	0	0	2	0	0	17	0	33	17	0	0	33	0	0
	Evaluation or creation of safety zone																			
		Anchorage Baptist would be a good shelter in place area (temporary, away from the fire)	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Parking/Access																			
		Campbell Airstrip Road pullout/fire truck fill area needs gates/parking management. This gets blocked by cars. Gate?	Not voted on, but mentioned as an issue after the meetings ended.																	
	Vegetation Management (Vegetation thinning)																			
		Maintain /Retreat Fuel treatments on the north and south side of Stuckagain Heights (2)	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Tudor and Campbell Airstrip - Shaded Fuel Break (2)	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Thin vegetation along the houses to the east of Muldoon to the south (MOA Park)	0	0	1	1	0	0	1	0	0	0	0	33	33	0	0	33	0	0
		Thin vegetation along the houses to the east of Muldoon to the east (JBER)	1	0	1	2	0	0	2	0	0	17	0	17	33	0	0	33	0	0
		Fuel Treatment at end of Shivalik	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Vulnerable Areas to focus efforts to improve egress or reduce wildfire hazards																			

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Basher		Neighborhood south of Campbell Creek Canyon added to vulnerable population list in ArcGIS	0	1	1	0	0	0	0	0	0	0	50	50	0	0	0	0	0	0
Bear Valley	Easements (maintain or re-establish)																			
		King's Way Dr and Brewster's Dr – private road, need easements	0	0	0	1	0	1	0	0	0	0	0	0	50	0	50	0	0	0
		Major One Way in-One Way Out	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Clark's Rd and King's Way Dr	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Vegetation Management (Vegetation thinning)																			
		Clark's Rd – remove widow maker trees	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Clark's Rd and Heights Hill – maintain fuel break	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Vulnerable Areas to focus efforts to improve egress or reduce wildfire hazards																			
		King's Way Dr neighborhood is vulnerable due to the lack of outlets along King's Way Dr, Paine Rd, Jamie, Brewster's and Honey Bear Lane	0	0	1	0	0	1	0	0	0	0	0	50	0	0	50	0	0	0
	OTHER – MISC Comments																			
		Expand fire hydrants	0	0	1	0	1	0	0	0	0	0	0	50	0	50	0	0	0	0
Campbell Park	Wildfire Hot																			
		Elmore Rd and E Dowling Rd	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
Eagle River Valley	Change Gradient/Steep/Oneway/Soften curves																			
		Steeple Dr	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Harmony Ranch, one way in/out	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Eagle River Valley		Soften first curve on Glacier View Dr	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften curves on Mount Magnificent	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften curves on Steeple Dr	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften curves on Lower Canyon Dr	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften curves on Wilson Way	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften curves on Upper Canyon Dr	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften curves at intersection of Sheppard Dr and Lynx Way	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften curves at intersection of Lynx Way and Brownie Dr	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften curves on at intersection of Brownie Dr and Barclay Dr	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
	Easements (maintain or re-establish)																			
		Dolores Dr-Easement not accessible	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
		Harca/Beechy point – road is drawn as visible but isn't there	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
	Major One Way in-One Way Out (focus efforts to improve egress or reduce wildfire hazards)																			
		Price Dr (Dead End)	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Golden Eagle	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Eagle River Rd	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
	Resurfacing/Upgrade/Widening																			
		Prudhoe Bay Ave and Bear Ridge Cir - check airstrip	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
		Eagle River Rd near Mile 10 – expand school bus turnaround	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
		Harca St and Beechey Point Ct - Provide Turnaround at top	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
ER Valley	Evaluation or creation of safety zone																			
		Eagle River Road Campground and Boat Launch	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Clear out area off of Golden Eagle for people	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Clear out and expand area around Eagle River Nature Center for staging area	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Private air strip near Bear Ridge for landing/staging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Wildfire Hot (target for vegetation thinning or firewise)																			
		Driftwood Bay Dr (behind Alpenglow Elementary School)	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0
		Ptarmigan Blvd and Wren Ln (behind Ravenwood Elementary School)	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
Eklutna Valley	Evaluation or creation of safety zone																			
		Gravel pit/Powwow grounds	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Western point of Lake Eklutna off Eklutna Lake Rd	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
Glen Alps	Vulnerable Areas to focus efforts to improve egress or reduce wildfire hazards																			
		Powerline (Canyon Rd)	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Meadow Road	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
Hillside	Change Gradient/Steep/Oneway/Soften curves																			
		Soften the curve on Stroganof	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
		Soften the curve on Kasilof	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
		Soften the curve on Toilsome Hill up to Glen Alps	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
	Connections (to be made or improved)																			

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Hillside		Huffman Rd and Huffman Rd (near Audubon Dr)	0	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0
		Connect through Elmore (punch through)	0	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0
		Connect Birch by golf course (punch through)	0	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0
	Resurfacing/Upgrade/Widening																			
		Birch (Beverly to Kalgin)	Not voted on but, engineering studies almost to the 65% design stage																	
		Upper Huffman Rd and Jeanne Rd-upgrade ROW, narrow, rough road	0	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0
		Huffman Rd and Audubon Dr-upgrade, not maintained in winter or driveable in Spring	0	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0
		Evaluate streets without sideways for widening	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
	Vegetation Management (Vegetation thinning)																			
		North end of Nordic St	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Nelva J Wilmoth Park to E 104th Ave	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Alatna Ave and Graiff St	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Hideaway Lake Dr and Hideaway Lake Cir	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Upper Huffman Rd and Hillside Dr-upgrade ROW clear	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Vulnerable Areas to focus efforts to improve egress or reduce wildfire hazards																			
		North Main Tree Dr	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Middle Main Tree Dr	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		South Main Tree Dr	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	OTHER – MISC Comments																			

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Hillside		Expand fire hydrants	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
Huffman-O'Malley	Change Gradient/Steep/One-way/Soften curves																			
		Potter Valley Rd	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
Huffman-O'Malley		Beacon Hill Dr and Hillside Dr	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Lake O'The Hills Circ and Mountain Lake Dr (steep and oneway)	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Gamache Dr and E 112th Ave	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		New Route - north of Elmore Rd and Passage Way	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
	Connections (to be made or improved)																			
		Connect Birch by Naknek and DeArmoun	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
		Connect Ridgeview Drive from Badger Lane to Birch Road	Not voted on but, design plans show it will provide alternative egress to approximately 40 homes																	
		Connect Bainbridge (right now only ATV/pedestrian)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
	Evaluation or creation of safety zone																			
		Steamboat Dr and Switzerland Drive	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Goldenview Middle School	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		South High School	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Resurfacing/Upgrade/Widening																			
		Birch (Beverly to Kalgin)	Not voted on but, engineering studies almost to the 65% design stage																	
	Wildfire Hot (target for vegetation thinning or firewise)																			
		E 140th Ave and Hosken Street	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Huffman-O'Malley		Huffman Park (Huffman Rd and Elmore Rd)	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Ruth Arcand Park (Abbott Rd and Lake Otis Parkway)	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Red Ct and Nordic St	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
Rabbit Creek	Connections (to be made or improved)																			
		Northfield Dr and Pickett St-connection	0	0	1	0	0	1	0	0	0	0	0	50	0	0	50	0	0	0
		Snowshoe Ln and Twilight Ln – connection	0	0	1	0	0	1	0	0	0	0	0	50	0	0	50	0	0	0
		South Windsor Cir and Buffalo – connection	0	0	1	0	0	1	0	0	0	0	0	50	0	0	50	0	0	0
		Bainbridge Rd and Bainbridge Rd – emergency connection for pedestrians and ATVs (near De Armoun Rd)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
		Connect Birch (punch through)	0	0	1	0	0	1	0	0	0	0	0	50	0	0	50	0	0	0
		Jamie to Mountain Air (additional access to Bear Valley)	0	0	1	0	0	1	0	0	0	0	0	50	0	0	50	0	0	0
		Marino Dr to Mountain Breeze Dr (additional access to Bear Valley)	0	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0
		Bryon Dr to Henson Dr E (additional access to Bear Valley)	0	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0
		Connect Elmore between Riverton Ave and Natrona Ave (punch through)	0	0	1	0	0	1	0	0	0	0	0	50	0	0	50	0	0	0
	Change Gradient/Steep/Oneway/Soften curves																			
		Elizabeth St and E 156th Ave- Change Gradient, Steep	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Bluebell Dr and Golden View Dr – Change Gradient, Steep	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Rabbit Creek		Improve road, bridge, and connection between Finland and Romania	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Soften the curve at Kittiwake and King Eider	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften the curves on Potter Valley (especially first curve)	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften the curve on Sandpiper	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
		Soften the curve on Prominence Pointe	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0
	Easements (maintain or re-establish)																			
		Steamboat Dr – public trail pending final legal decision	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Potter Heights – missing public easement	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		End of Villages Scenic – Non-motorized easements exist but not shown on map. Need pedestrian escape routes from ends of long cul-de-sac	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Resurfacing/Upgrade																			
		Finland to Portugal	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
	Evaluation or creation of safety zone																			
		Golden View Middle School	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Gravel pits at England Ave and Finland St	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Rugby field between Portugal Pl and Potter Heights Dr	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Fuels reduction/ROW (maintain)																			
		E 142nd Ave and Golden View Dr	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Golden View Dr and E 142nd Ave	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Rabbit Creek		Rabbit Creek Rd and Elmore Rd	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Rabbit Creek Rd and Bridgeview Dr	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		England Ave and Finland St	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Southpark Bluff Dr and Old Seward Hwy	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Bulgaria Dr	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Connect fuel treatment east to Rabbit Creek Rd and Chawa	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Vegetation Management (Vegetation thinning)																			
		Clear/thin vegetation along Rabbit Creek Rd between Elmore and Golden View Dr	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	Vulnerable Areas to focus efforts to improve egress or reduce wildfire hazards																			
		Houses along the Rabbit Creek drainage (funnel effect)	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
	OTHER – MISC Comments																			
		Traffic management should start north of RC Road interchange	0	0	0	0	0	0	0	0	0									
		Long cul-de-sac at Ridgewood Rd	0	0	0	0	0	0	0	0	0									
		Long cul-de-sac at Shelburne Rd	0	0	0	0	0	0	0	0	0									
		Long cul-de-sac at Naknek and Badger Ln	0	0	0	0	0	0	0	0	0									
		Potter Highlands – Leave this is an open space track	0	0	0	0	0	0	0	0	0									

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Rabbit Creek		Marino and Mountain Breeze - Better connection to Bear Valley due to lack of wetlands	0	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0
		Romania Dr – not preferred for road due to high water tables, shallow bedrock and critical hydrology for Potter Marsh	0	0	0	0	0	0	0	0	0									
		Virgo and Essex Park – fire only, gasline connection?	0	0	0	0	0	0	0	0	0									
		Potter Valley Rd – concern about dumping more traffic	0	0	0	0	0	0	0	0	0									
		Possible future watershed conservation between Potter Bluff and Goldenview Dr	0	0	0	0	0	0	0	0	0									
		In an emergency, need traffic management along both old and new Seward starting north of Rabbit Creek Road off ramp	0	0	0	0	0	0	0	0	0									
		Rabbit Creek park could be thinned out	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
		Expand fire hydrants	0	0	1	0	1	0	0	0	0	0	0	50	0	50	0	0	0	0
South Fork	Connections (to be made or improved)																			
		Possible Access - road between Birdsong Dr and West River	0	1	0	0	1	1	0	1	0	0	25	0	0	25	25	0	25	0
		Possible evacuation route between River Park Dr and lower Stonehill Drive	0	0	1	0	0	2	0	0	1	0	0	25	0	0	50	0	0	25
	Evaluation or creation of safety zone																			
		Chugach State Park S Fork Trailhead Parking Lot	0	1	1	0	1	0	0	1	0	0	25	25	0	25	0	0	25	0
		South Creek Rd (southern end)	0	0	2	0	0	1	0	0	1	0	0	50	0	0	25	0	0	25

Com. Council	Type of issue	Description	Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)			Short term (1-2 years)			Medium term (3-9 years)			Long term (10 years or more)		
			Count									Percent (%)								
			L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
South Fork		South Fork Fire Station #13 (Hiland Rd and Wild Mountain Dr)	0	0	0	0	0	0	0	0	0									
		Eagle River High School	0	1	0	0	0	2	0	0	1	0	25	0	0	0	50	0	0	25
		Trail used for avalanche access between W River and Birdsong	0	0	0	0	0	0	0	0	0									
	Major One Way in-One Way Out (focus efforts to improve egress or reduce wildfire hazards)																			
		Wolf Den Rd	1	0	1	1	0	0	1	0	0	25	0	25	25	0	0	25	0	0
		Hiland Rd	1	0	1	1	0	0	1	0	0	25%	0	25	25	0	0	25	0	0
	SFB/ROW (maintain)																			
		Hiland Rd (clear ROW)	0	1	1	0	1	0	0	1	0	0	25	25	0	25	0	0	25	0
	Vulnerable Areas to focus efforts to improve egress or reduce wildfire hazards																			
		River View Dr and Waterfall Dr area	0	1	1	0	0	1	0	0	1	0	25	25	0	0	25	0	0	25
Entire MOA	Connections (to be made or improved)																			
		Enforce parking rules near trailheads (i.e. reduce illegal parking along roads that impedes emergency vehicle access)	0	0	0	0	0	0	0	0	0									
	Evaluation or creation of safety zone																			
		Expand parking lots at trail heads for potential safety zones	0	0	0	0	0	2	0	0	0	0	0	0	0	0	100	0	0	0
		Improve green spaces to allow landing of helicopters for supplies	0	0	0	0	1	0	0	0	0	0	0	0	0	100	0	0	0	0

Appendix B. Advancing Wildfire Preparedness and Planning Meeting Agendas

Meeting 1: September 13, 2022

- Overview of CWPP Update Process and where we are right now
- Overview of the Project & Feedback; Objectives; Products
- Showcase Current Maps & Data
- Project Workload Flow; Next Steps
- Plan Future Meetings

Meeting 2: September 27, 2022

- Recap from 1st Meeting, Introductions
- Instructions for Mapping Exercises; Overall Goal w/ Example
- Mapping Exercises; Where would you evacuate to? Don't worry about being exact. Which roads would you take to get there? Mark on map with provided markers.
- Mapping Exercises (continued); Examine dead ends and cul-de sac neighborhoods that have a higher chance of sheltering in-place. Mark areas on map with provided markers.

Meeting 3: October 11, 2022

- Update from Brian Dean, AFD Fire Marshal, on NFPA WUI Code Adoption & Community Wildfire Protection Plan (CWPP) Update
- Preparation and Planning for Evacuation: John See
- How to Evacuate Safely & Effectively (McKinley Fire Video) John See & Jen Schmidt
- Evacuation Locations (timing & selection process) and Data Driven Site
- Vulnerability; What Does it Mean? How to Identify?

Meeting 4: November 7, 2022

Continue working on Maps

Meeting 5: December 19, 2022

- CERT: a way communities can increase preparedness (Guest presentation)
- Summary of identified egress issues
- Prioritize actions (top 3 recommendations)
- Review of safety zone tool
- Results from evacuation to schools
- Outline of final report – Discussion

- Anonymous public comment and feedback
- Questions:
    1. What would you like to see happen in the upcoming Community Wildfire Protection Plan?
    2. What should be done to help Anchorage become more prepared and less vulnerable to wildfires?

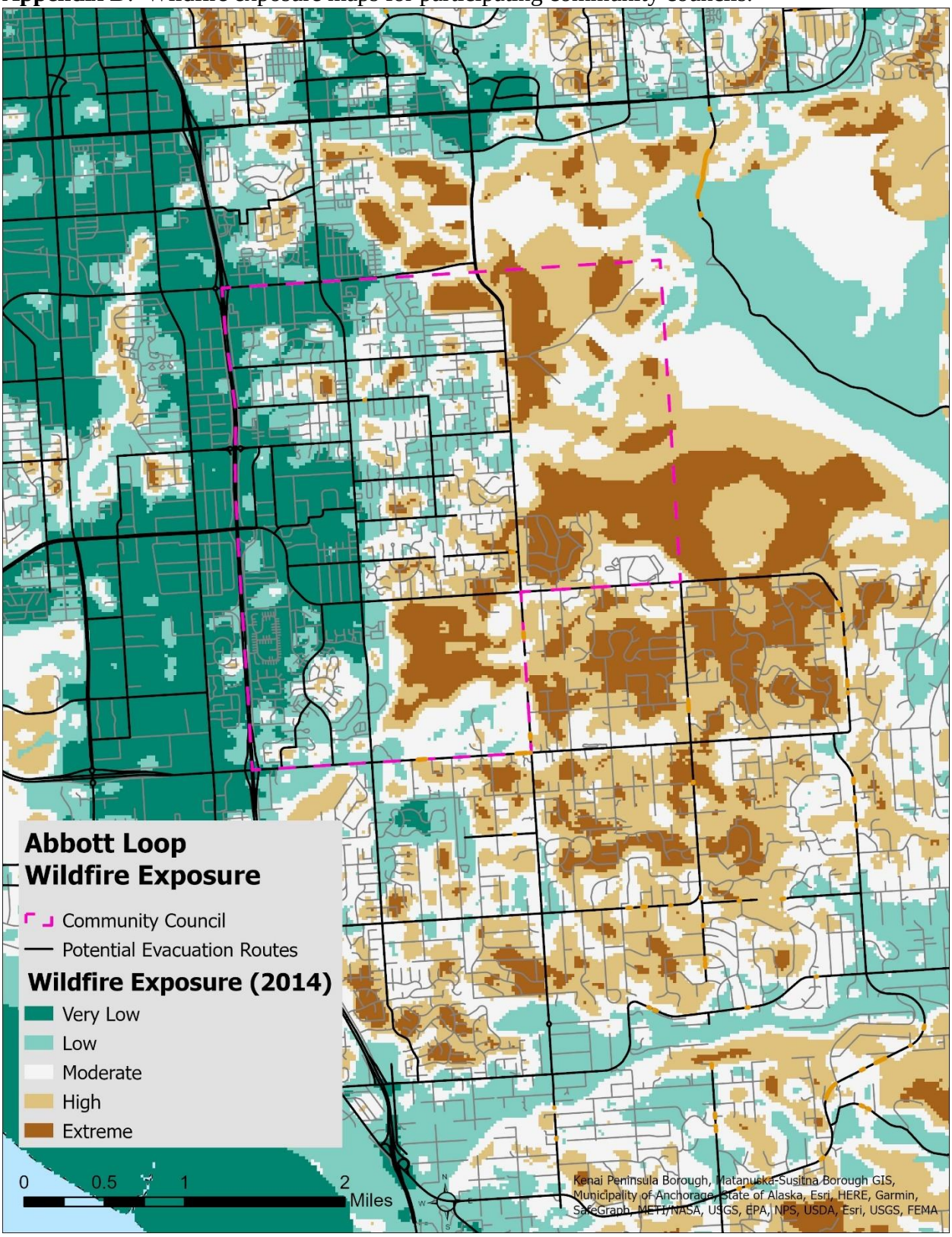
Meeting 6: January 23, 2023

- Welcome and wildfire history presentation (Jen Schmidt)
- Captain Albrecht: Background of what he did regarding wildfire and egress; Lessons learned from the previous egress report (data gathering, public engagement)
- Suggestions for making progress/influential (Make copies of his report)
- Review of maps created and online app
- Summary of online survey and priorities
- Go over action items and comments
- How the CWPP process is likely to unfold and questions (Sue Rodman)
- Where is the money? (past funds and future ideas)

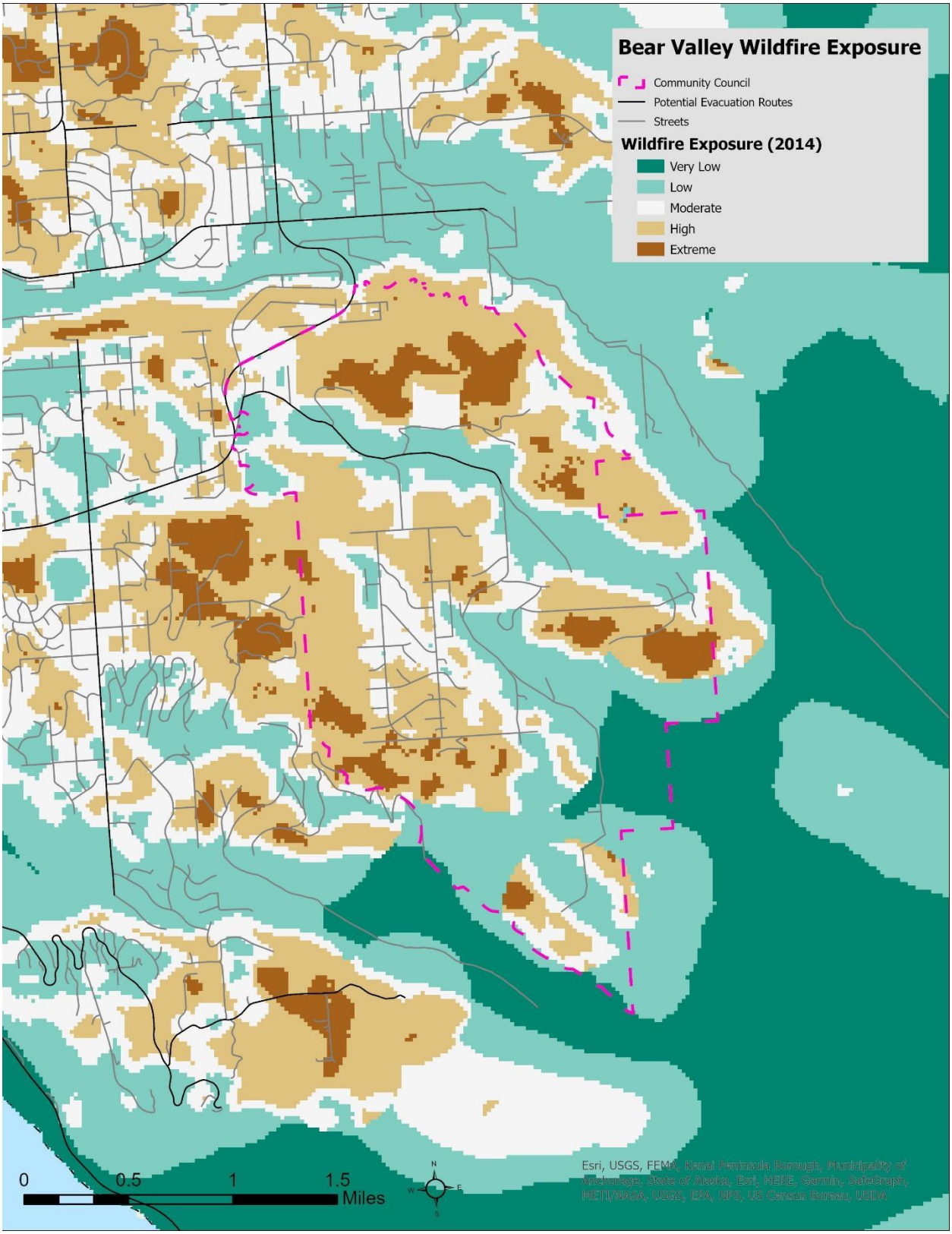
Appendix C. A quiz to help residents decide whether they should stay in place during a wildfire or evacuate (Source: Rancho Santa Fe fire department; https://www.rsf-fire.org/shelter-in-place/).

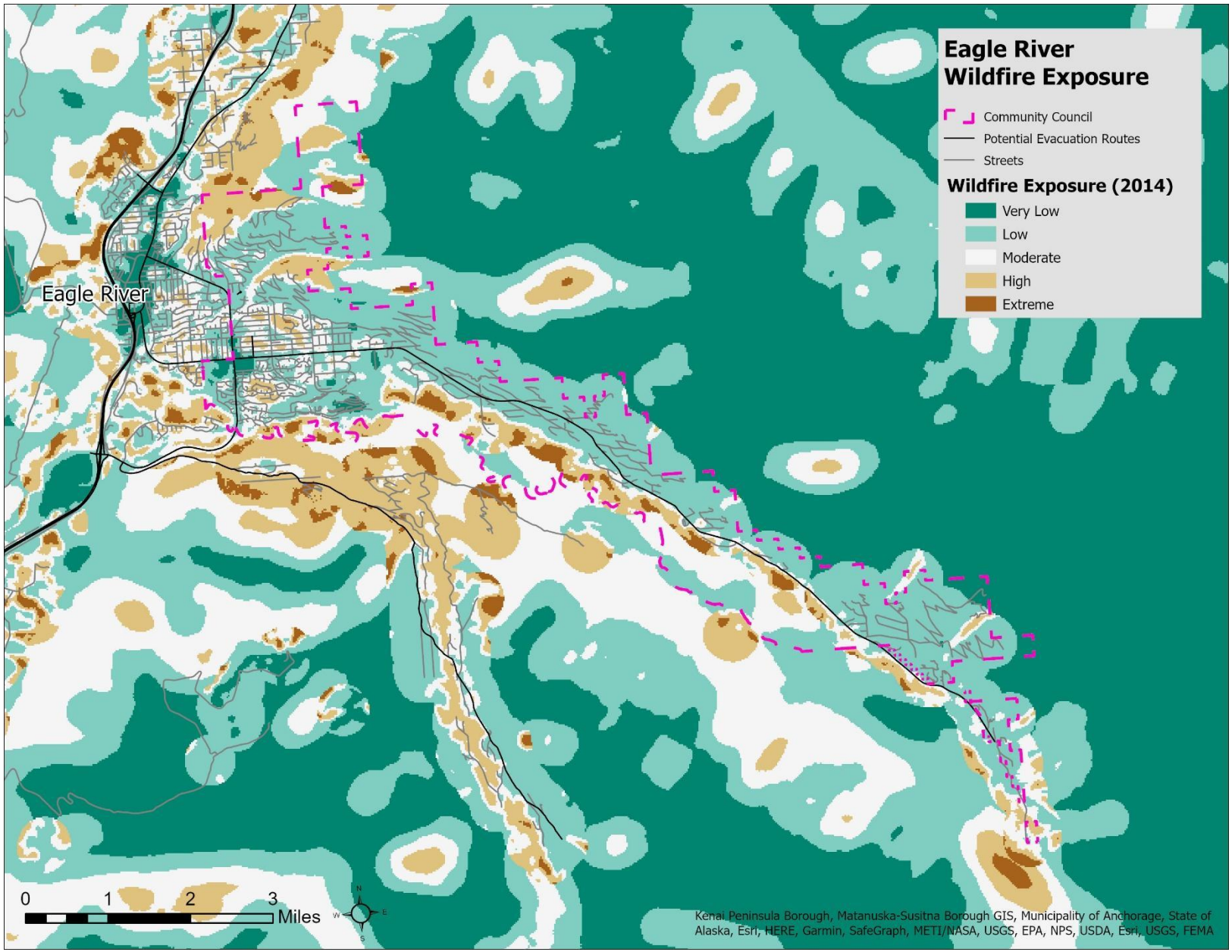
- Are you physically fit to fight spot fires in and around your home for up to 10 hours or more?
- Are you and your family members mentally, physically and emotionally able to cope with the intense smoke, heat, stress and noise of a wildfire while defending your home?
- Can you protect your home while also caring for members of your family, pets, etc.?
- Do you have the necessary resources, training, and properly maintained equipment to effectively fight a fire?
- Does your home have defensible space of at least 100 feet and is it cleared of flammable materials and vegetation?
- Is your home constructed of ignition resistant materials?

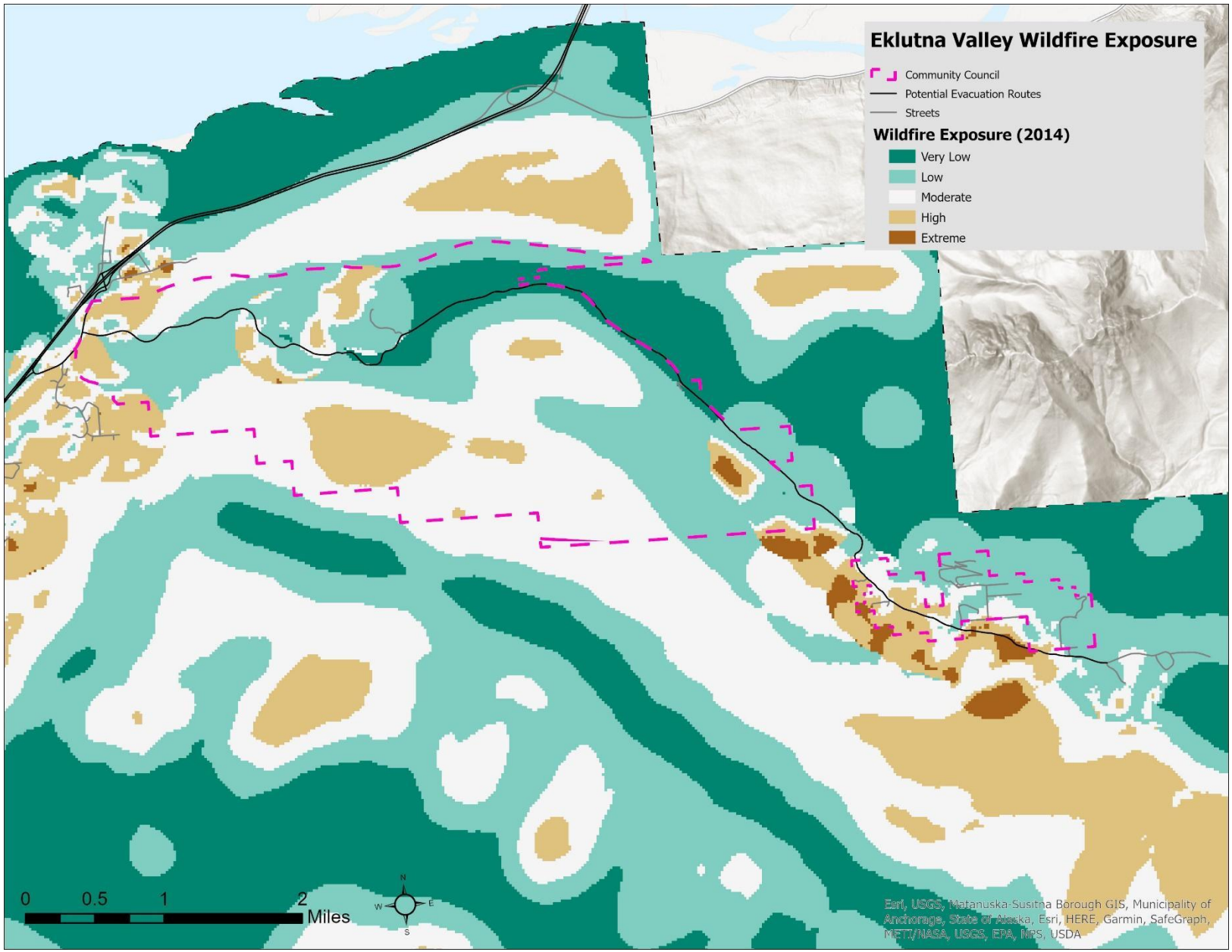
Appendix D. Wildfire exposure maps for participating community councils.

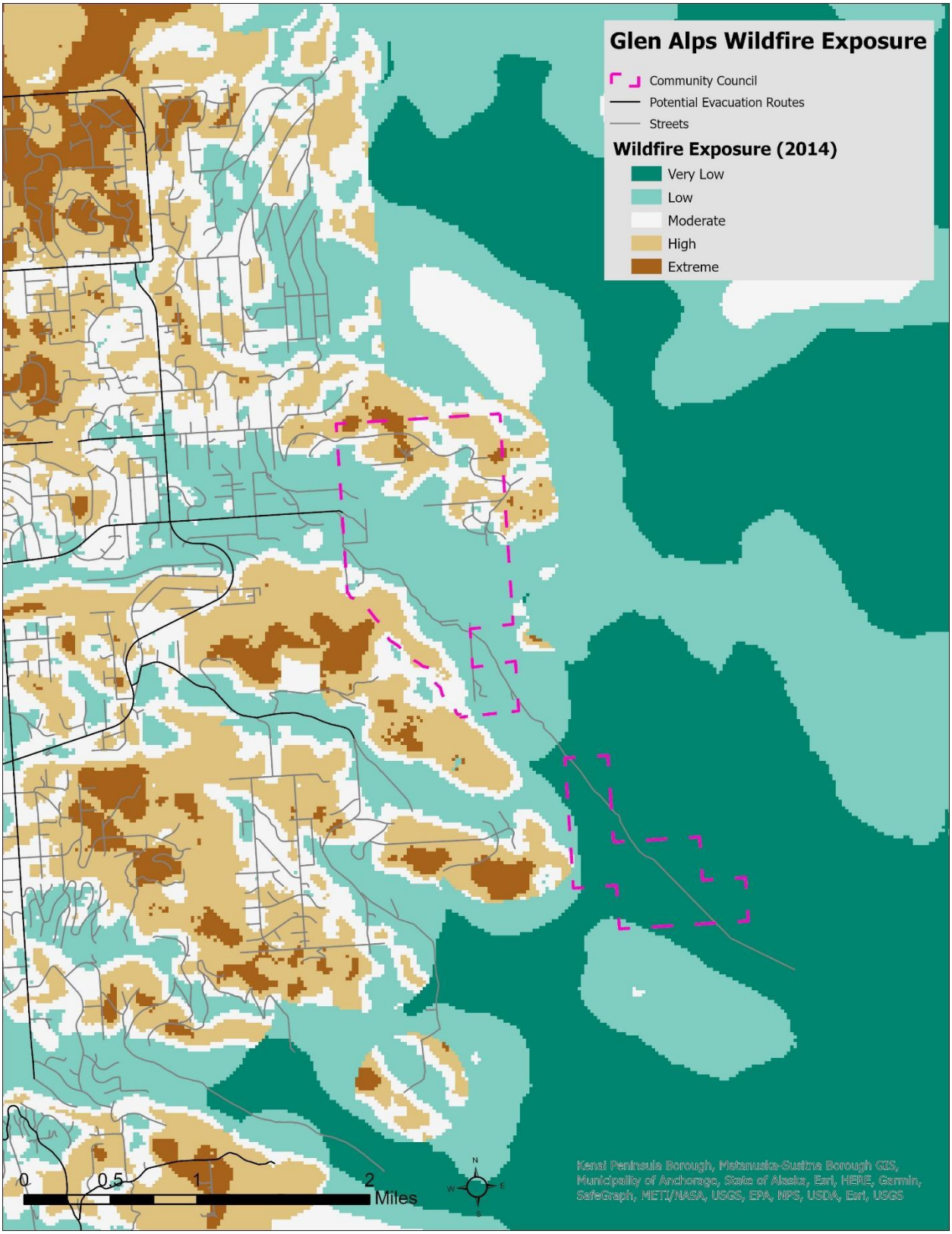


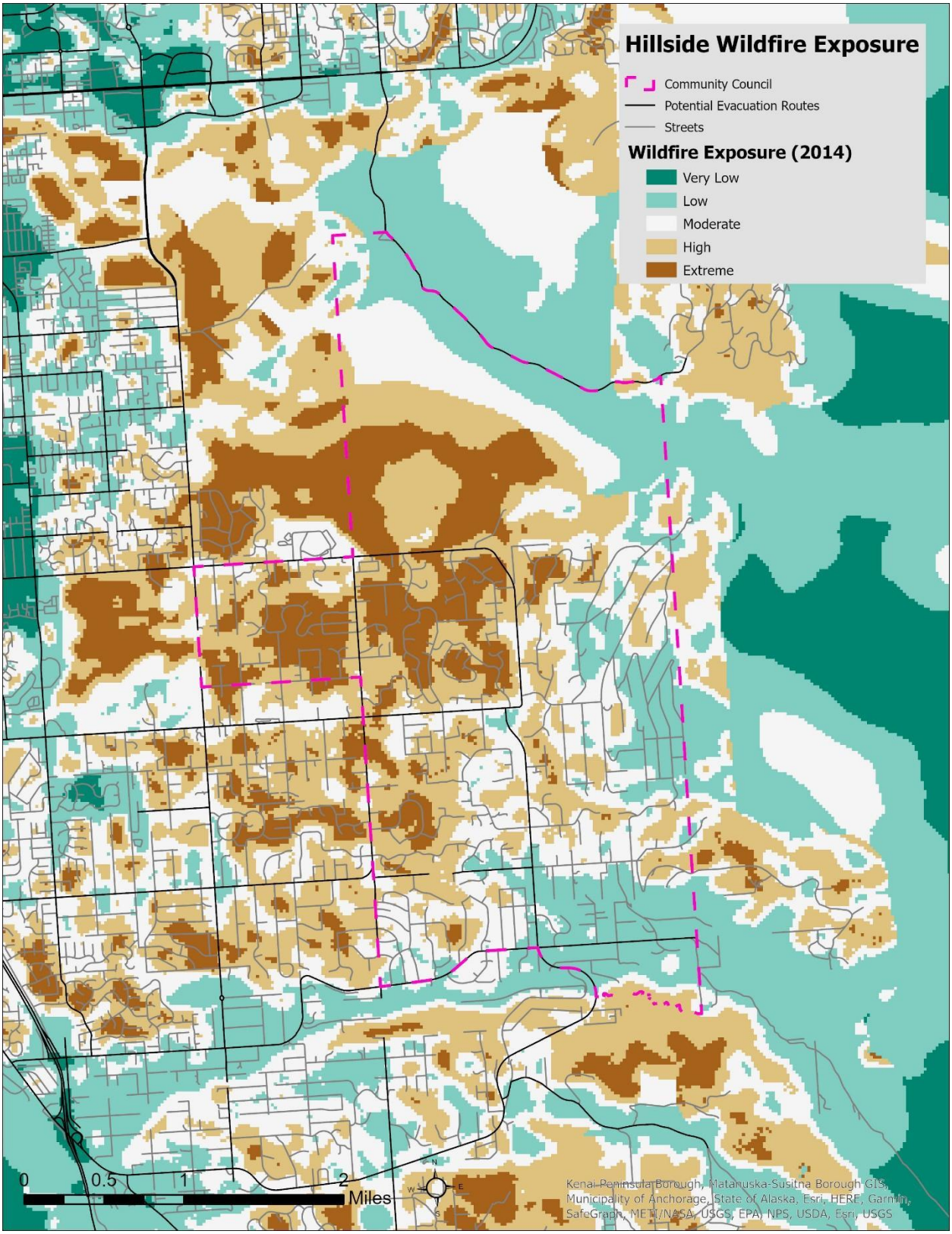
Basher Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
0
0.5
1
1.5
Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS,

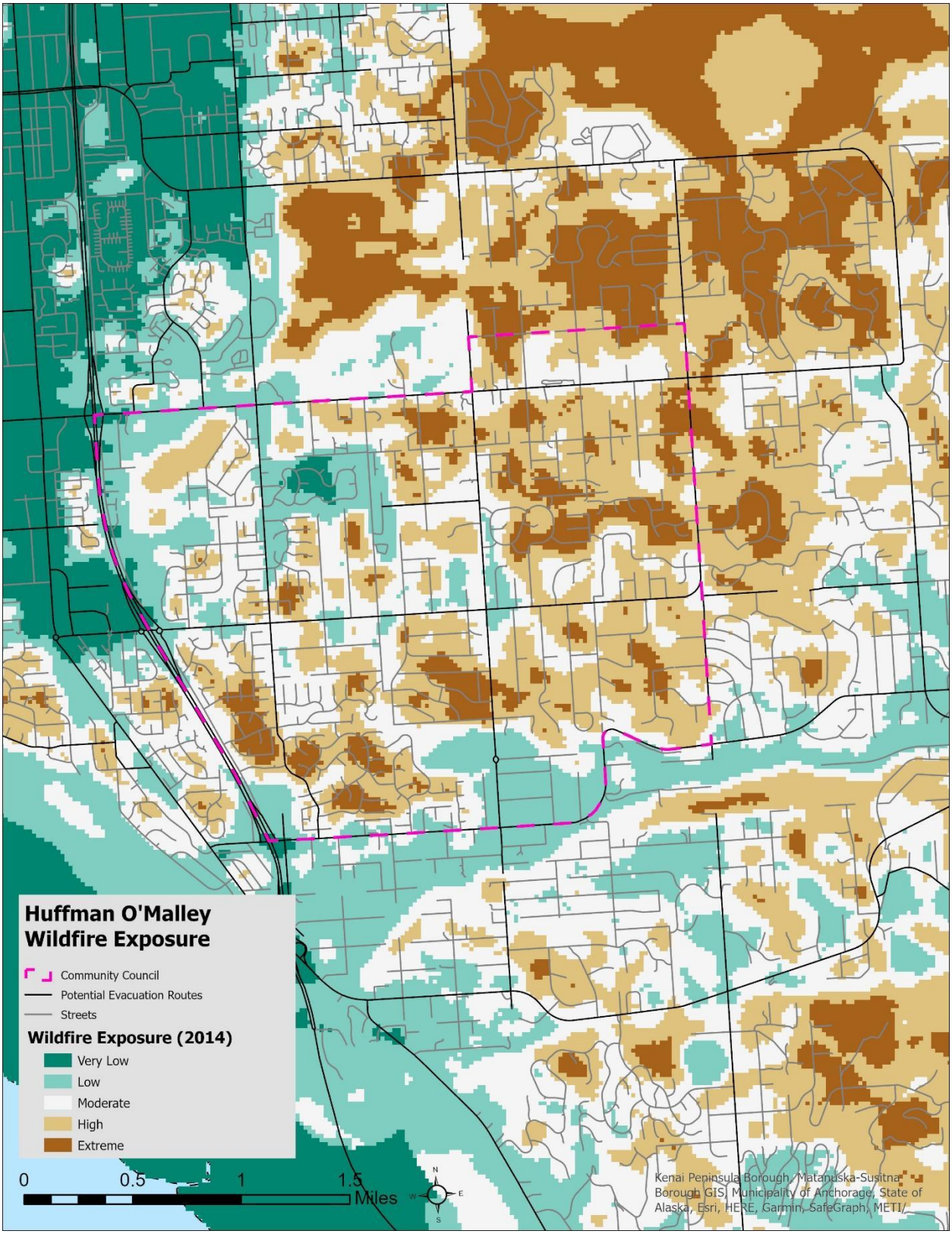

Bear Valley Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
0
0.5
1
1.5
Miles
N
W
E
S
Esri, USGS, FEMA, Kenai Peninsula Borough, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

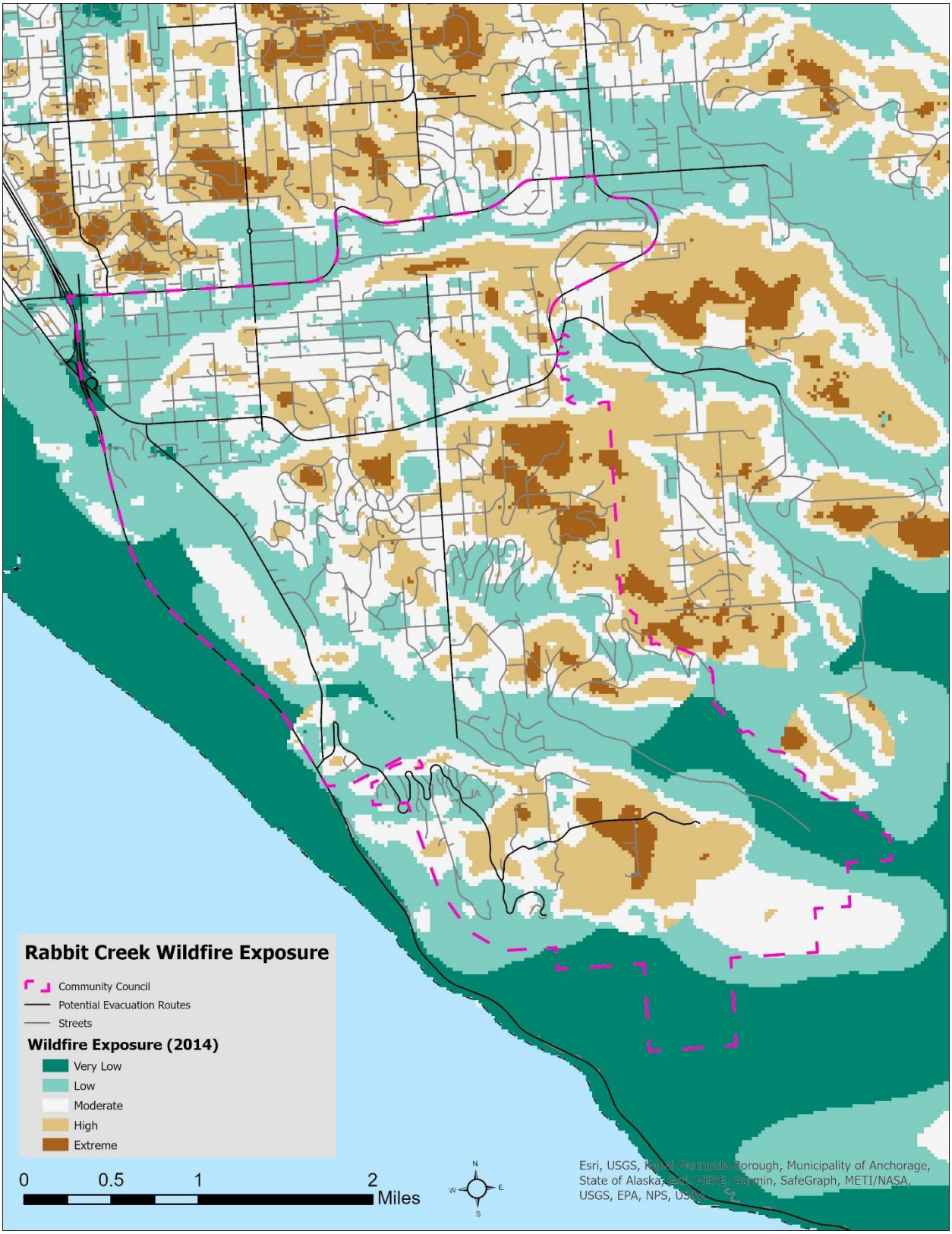

Eagle River
Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
Eagle River
0
1
2
3
Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

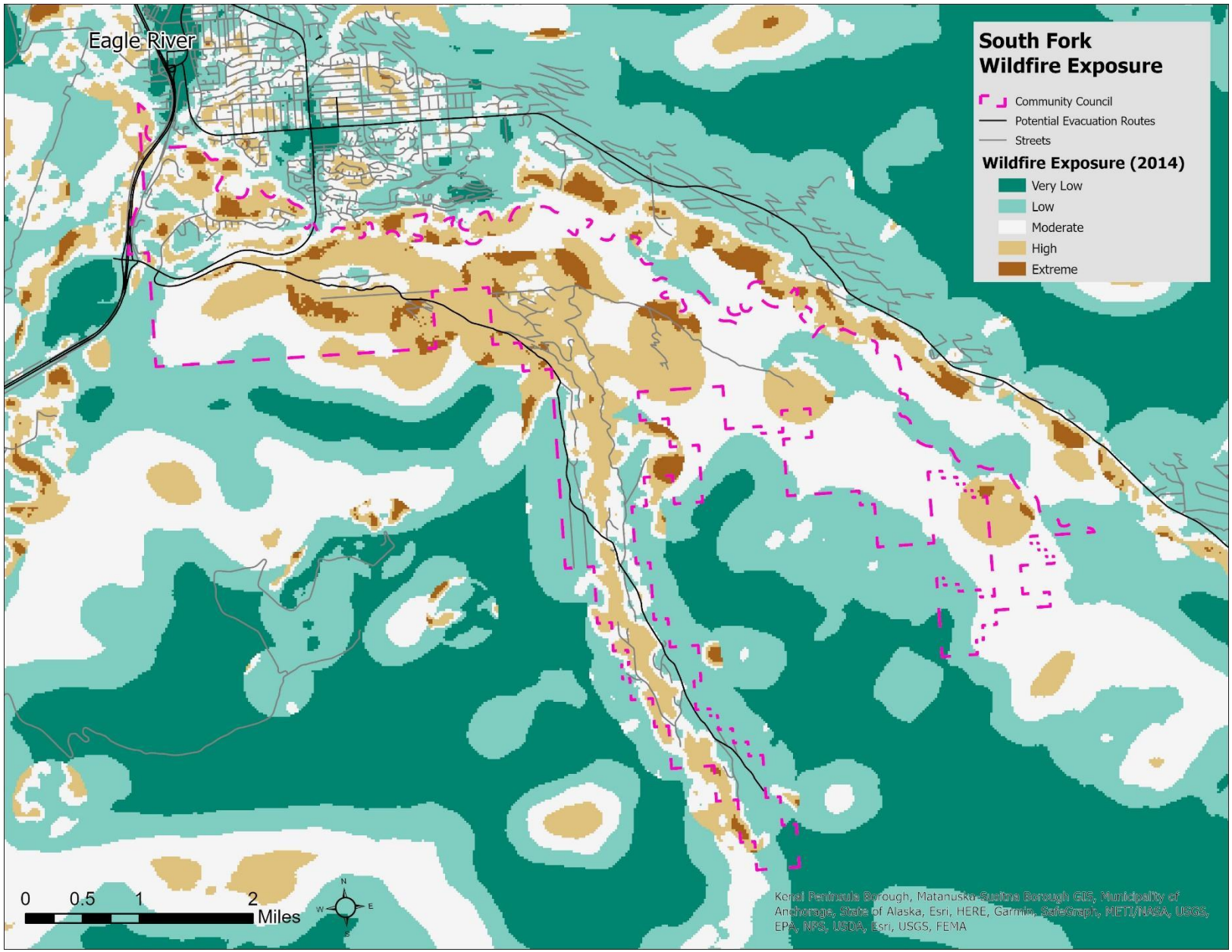

Eklutna Valley Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
0
0.5
1
2
Miles
N
W
E
S
Esri, USGS, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA


Glen Alps Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
0
0.5
1
2
Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

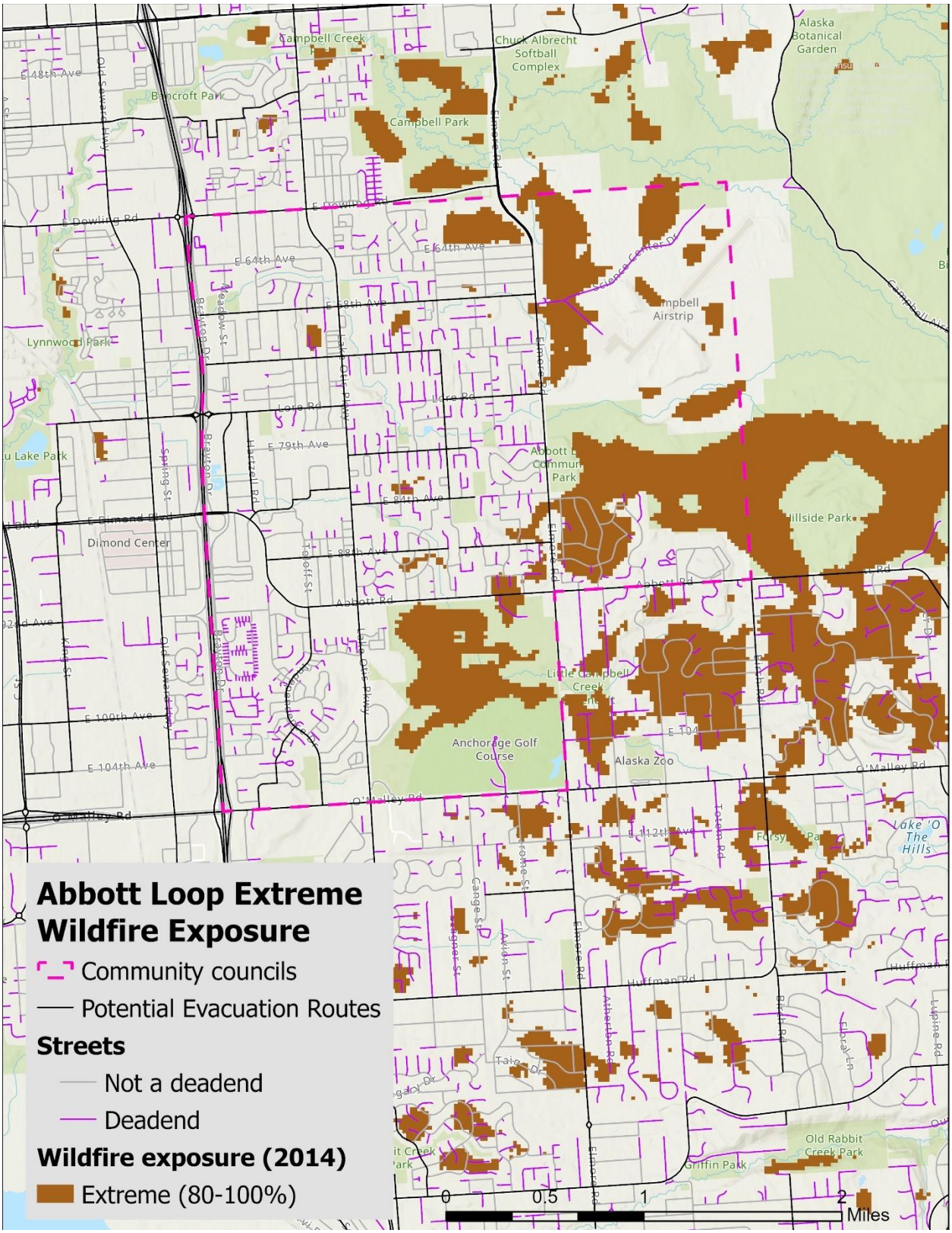

Hillside Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
0
0.5
1
2
Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

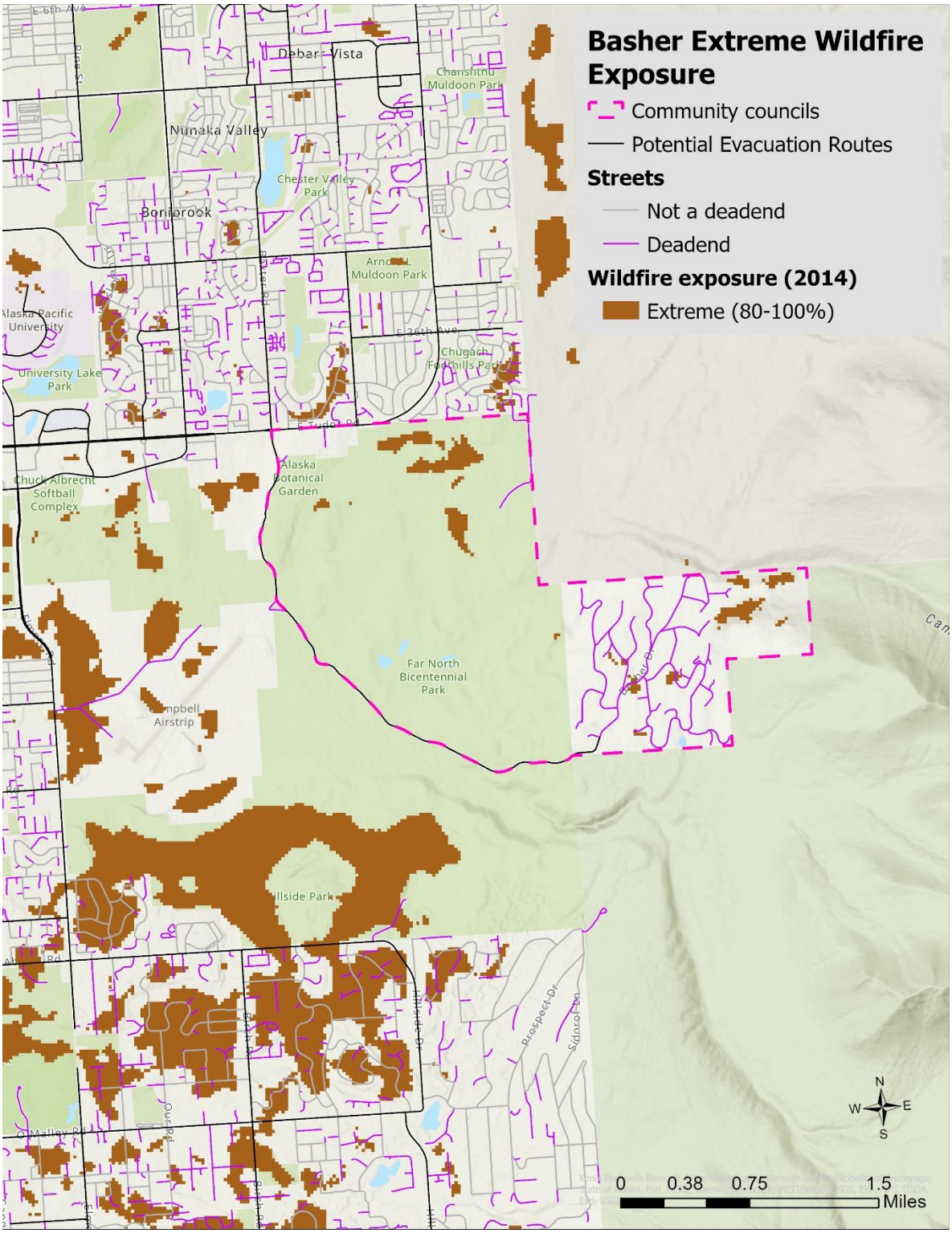

Huffman O'Malley
Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
0
0.5
1
1.5
Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/

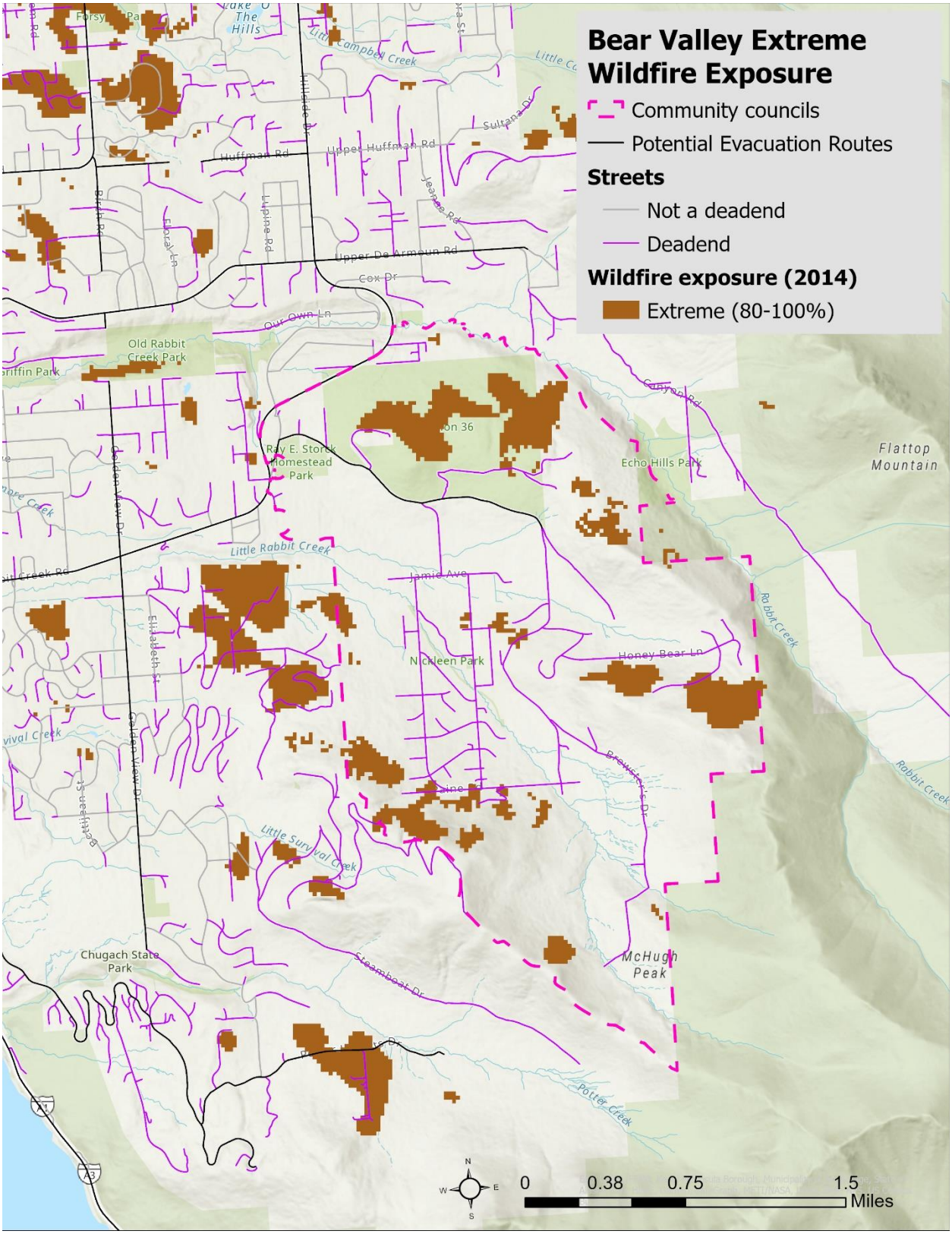

Rabbit Creek Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
0
0.5
1
2
Miles
N
W
E
S
Esri, USGS, Kenai Peninsula Borough, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA

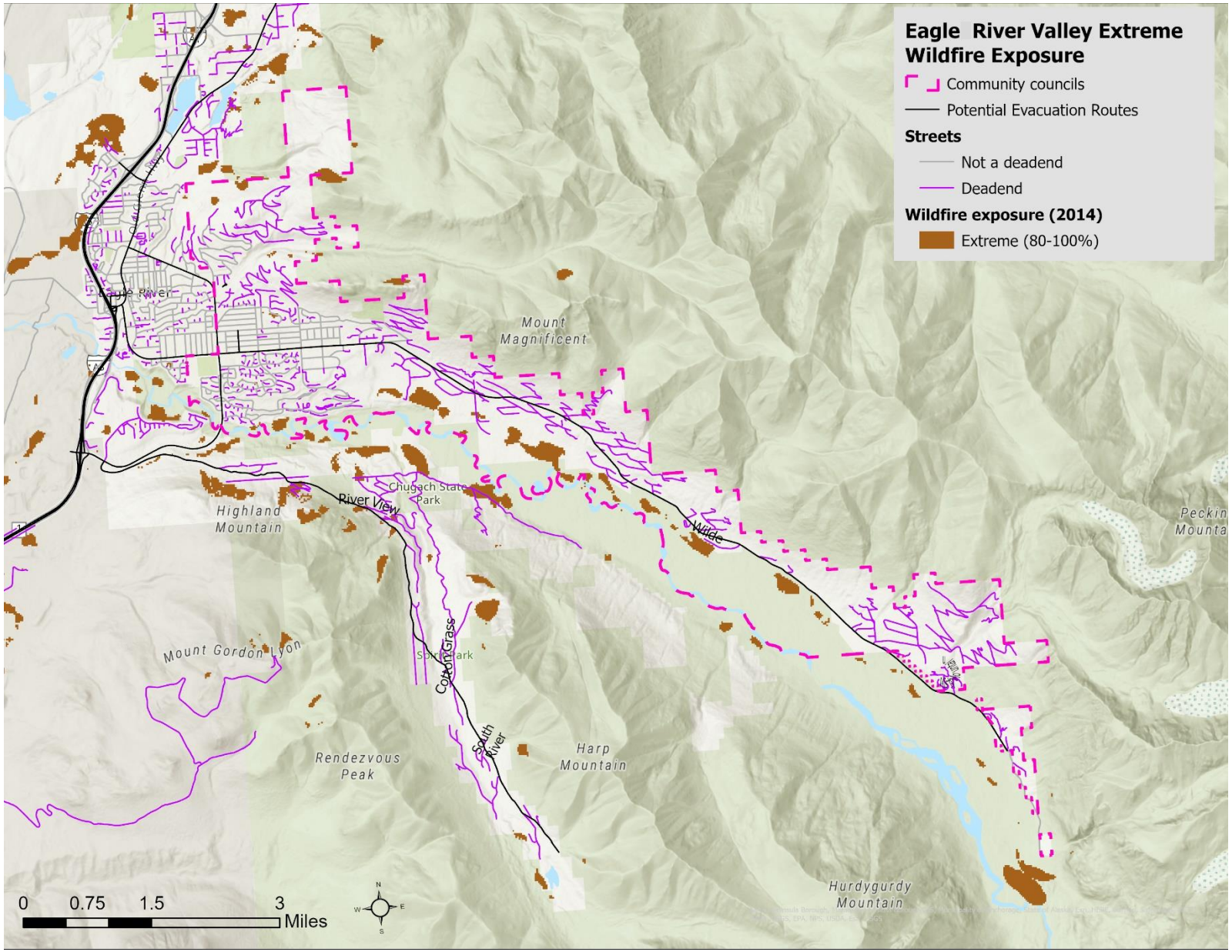

Eagle River
South Fork
Wildfire Exposure
Community Council
Potential Evacuation Routes
Streets
Wildfire Exposure (2014)
Very Low
Low
Moderate
High
Extreme
0
0.5
1
2
Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

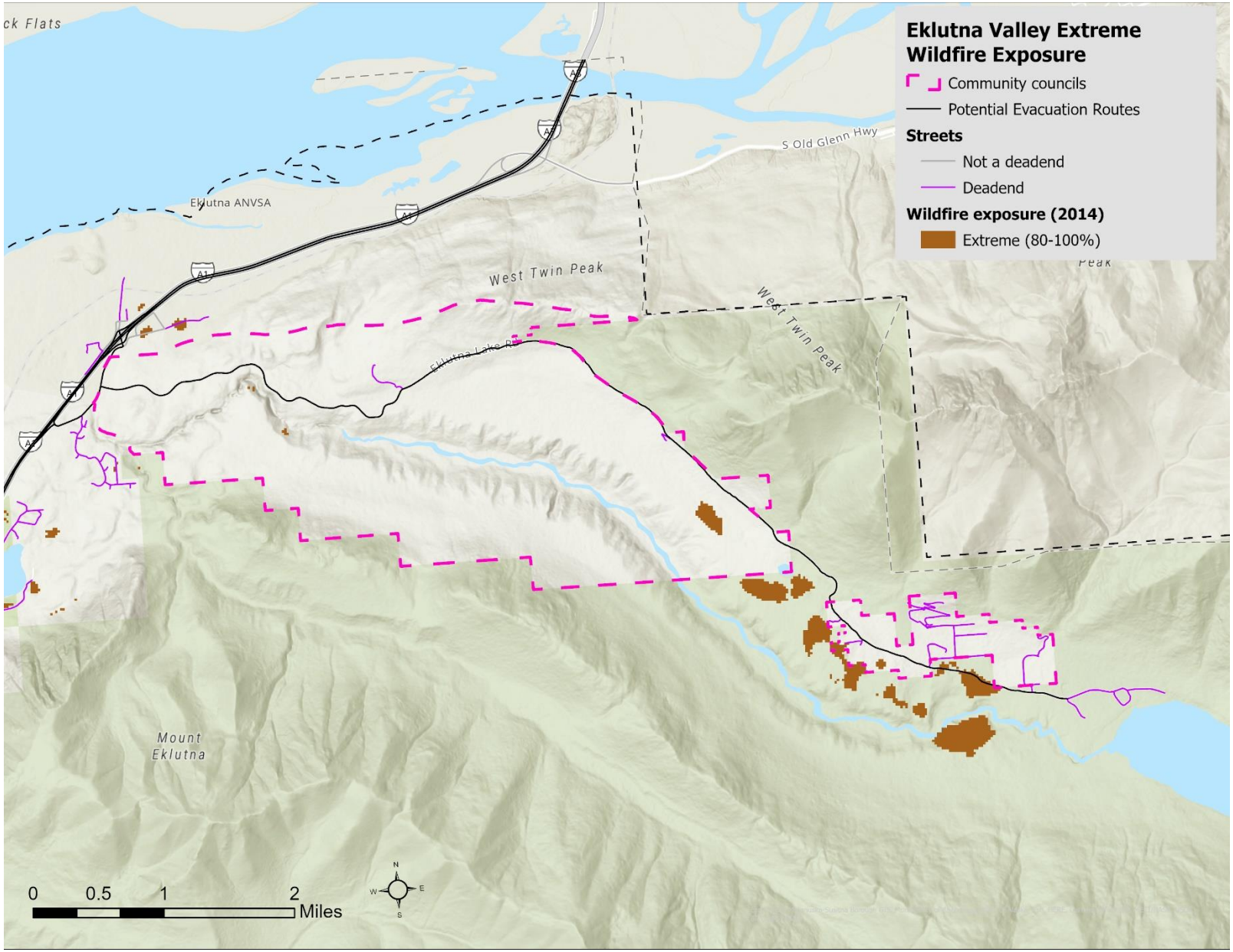
Appendix E. Areas with extreme wildfire exposure (80% or more) to target for mitigation and streets with limited egress (i.e. no outlet).

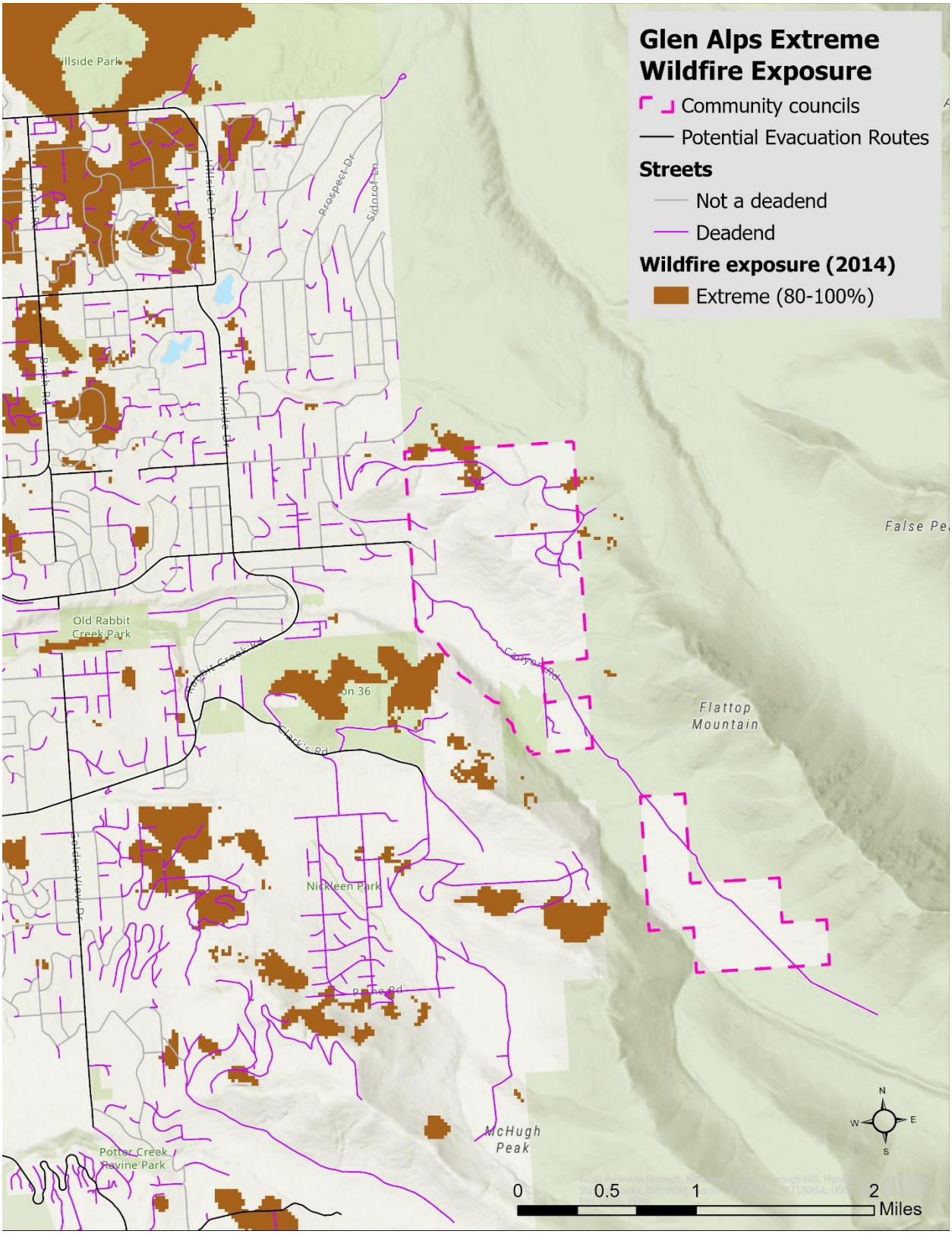


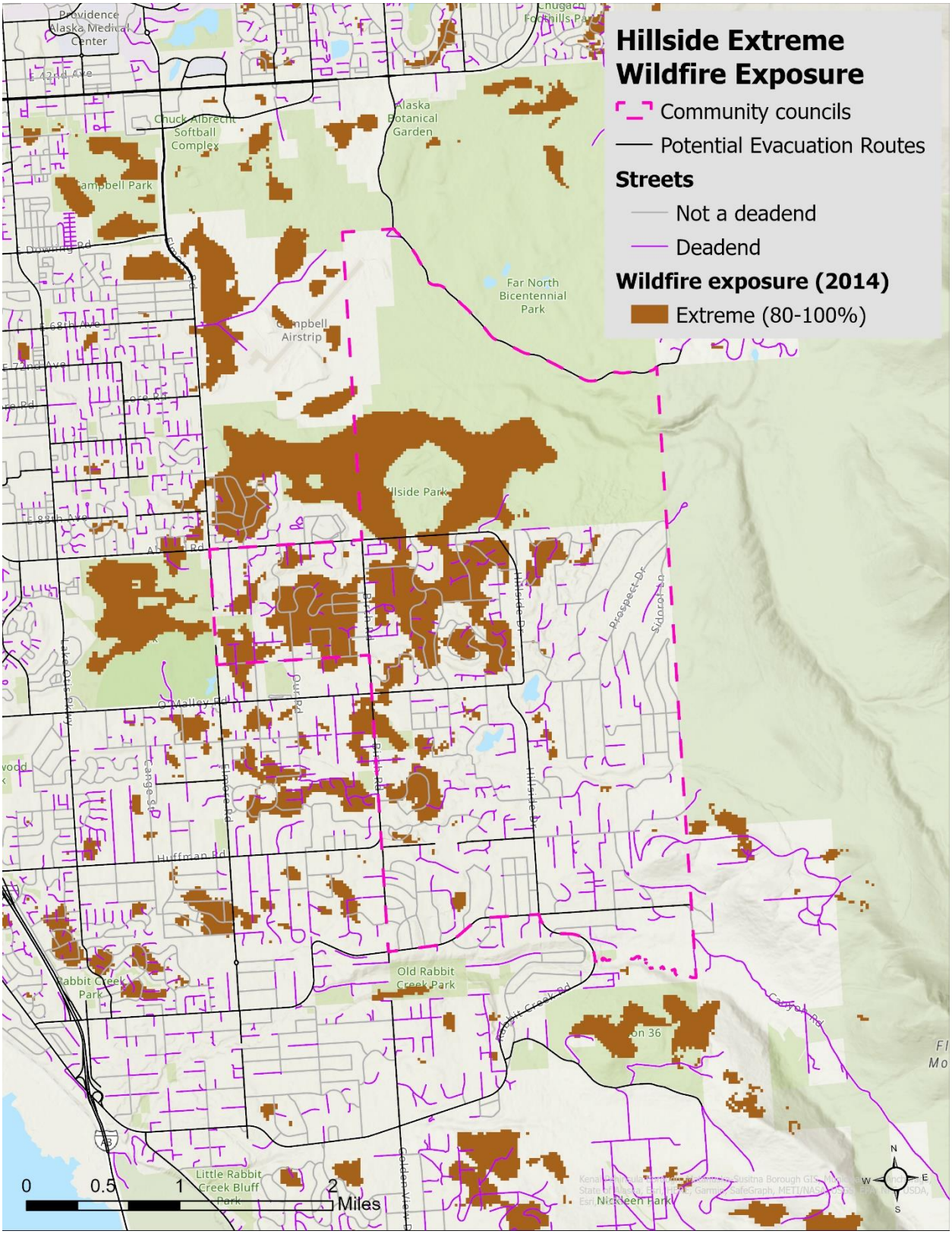

Basher Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
Debar Vista
Nunaka Valley
Chester Valley Park
Bonnybrook
Arnold Muldoon Park
Alaska Pacific University
University Lake Park
Chugach Foothills Park
Alaska Botanical Garden
Chuck Albrecht Softball Complex
Far North Bicentennial Park
Airstrip
Prospect Dr
N
W
E
S
0
0.38
0.75
1.5
Miles

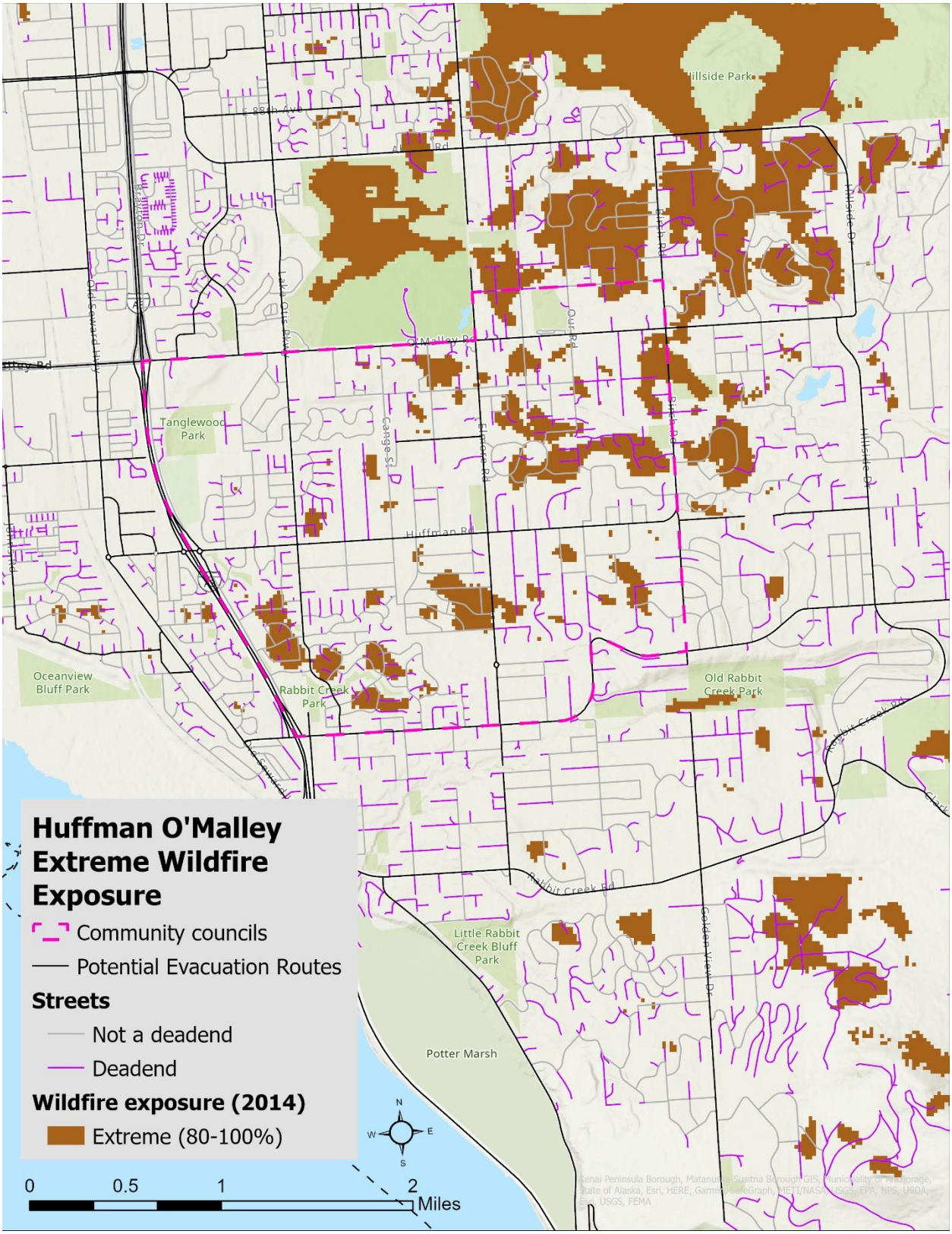

Bear Valley Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
Old Rabbit Creek Park
Ray E. Storck Homestead Park
Echo Hills Park
Flattop Mountain
Little Rabbit Creek
Nickleen Park
Honey Bear Ln
Little Survival Creek
Chugach State Park
McHugh Peak
Upper Huffman Rd
Huffman Rd
Upper De Armoun Rd
Cox Dr
Our Own Ln
Jamie Ave
Steamboat Dr
Potter Creek
Rabbit Creek
Canyon Rd
Golden View Dr
Little Campbell Creek
0
0.38
0.75
1.5
Miles

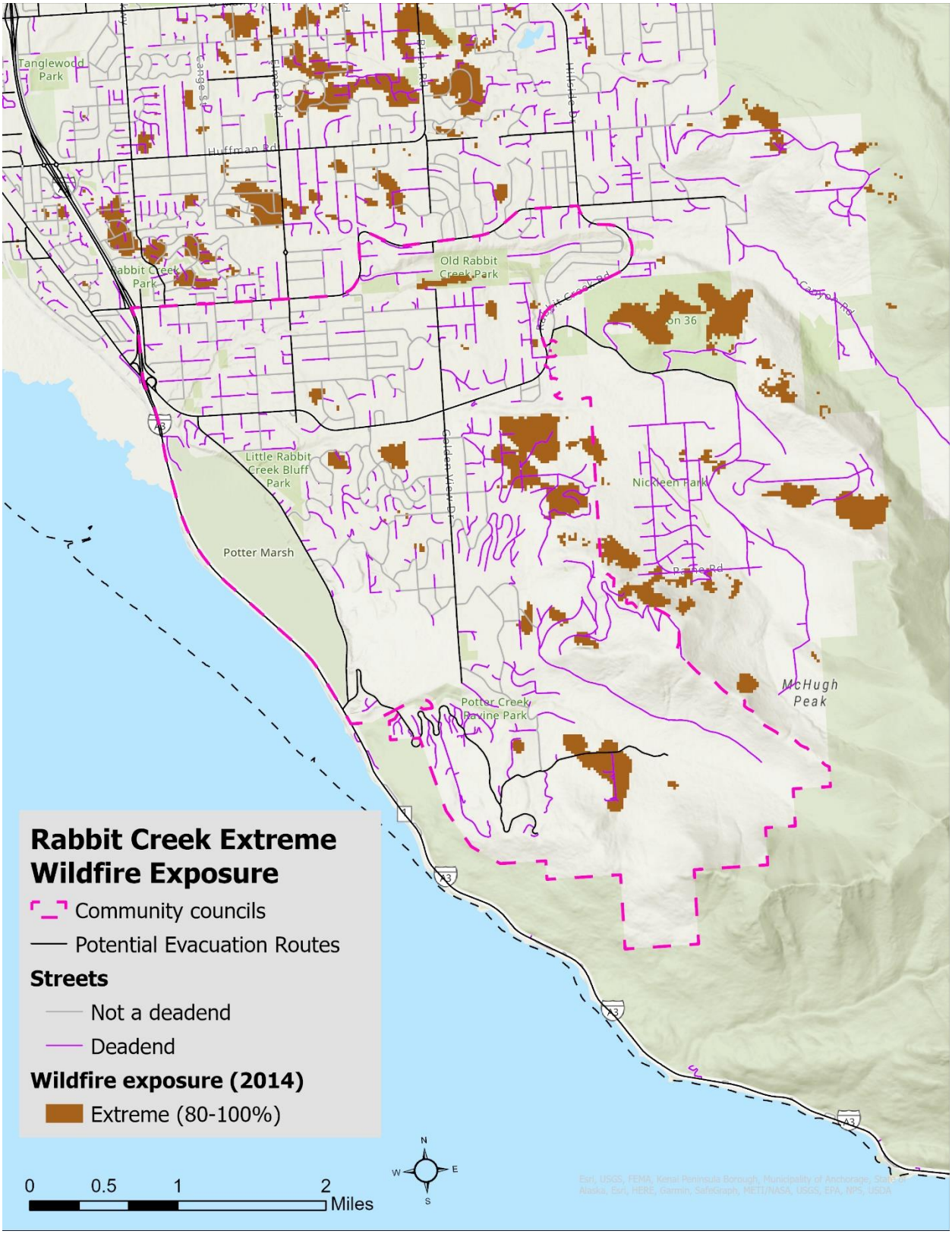

Eagle River Valley Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
Eagle River
Mount Magnificent
Chugach State Park
River View
Highland Mountain
Wide
Peckin Mounta
Mount Gordon Lyon
Sports Park
Cotton Grass
South River
Rendezvous Peak
Harp Mountain
Hurdygurdy Mountain
0
0.75
1.5
3
Miles
N
E
S
W

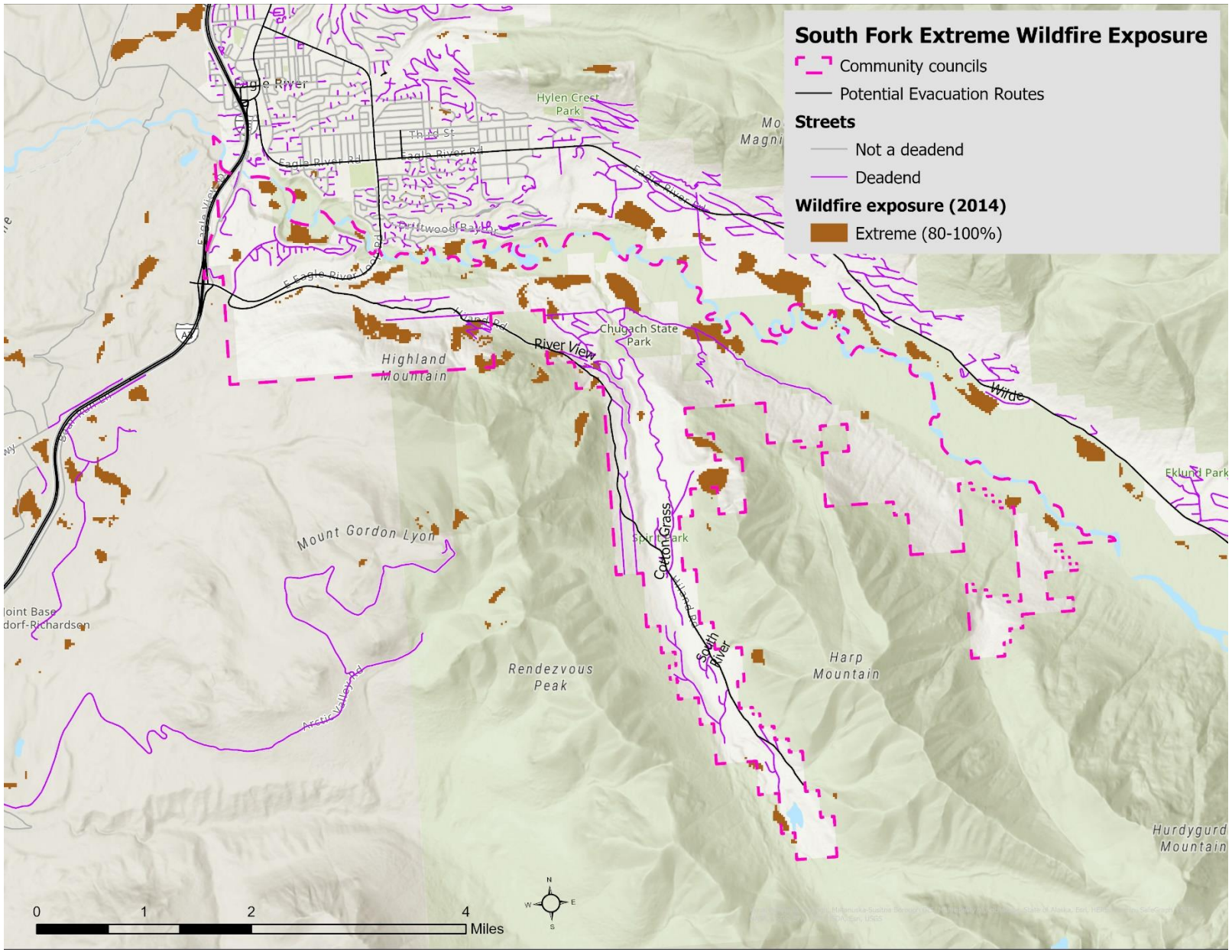

Eklutna Valley Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
S Old Glenn Hwy
Eklutna ANVSA
West Twin Peak
West Twin Peak
Eklutna Lake Rd
Mount Eklutna
0 0.5 1 2 Miles
N
W
E
S


Glen Alps Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
Hillside Park
Hillside Dr
Prospect Dr
Sidorof Ln
Birch Rd
Old Rabbit Creek Park
Rabbit Creek Rd
Canyon Rd
Clark's Rd
Flattop Mountain
False Pe
Golden View Dr
Nickleen Park
McHugh Peak
Potter Creek Ravine Park
N
W
E
S
0
0.5
1
2
Miles

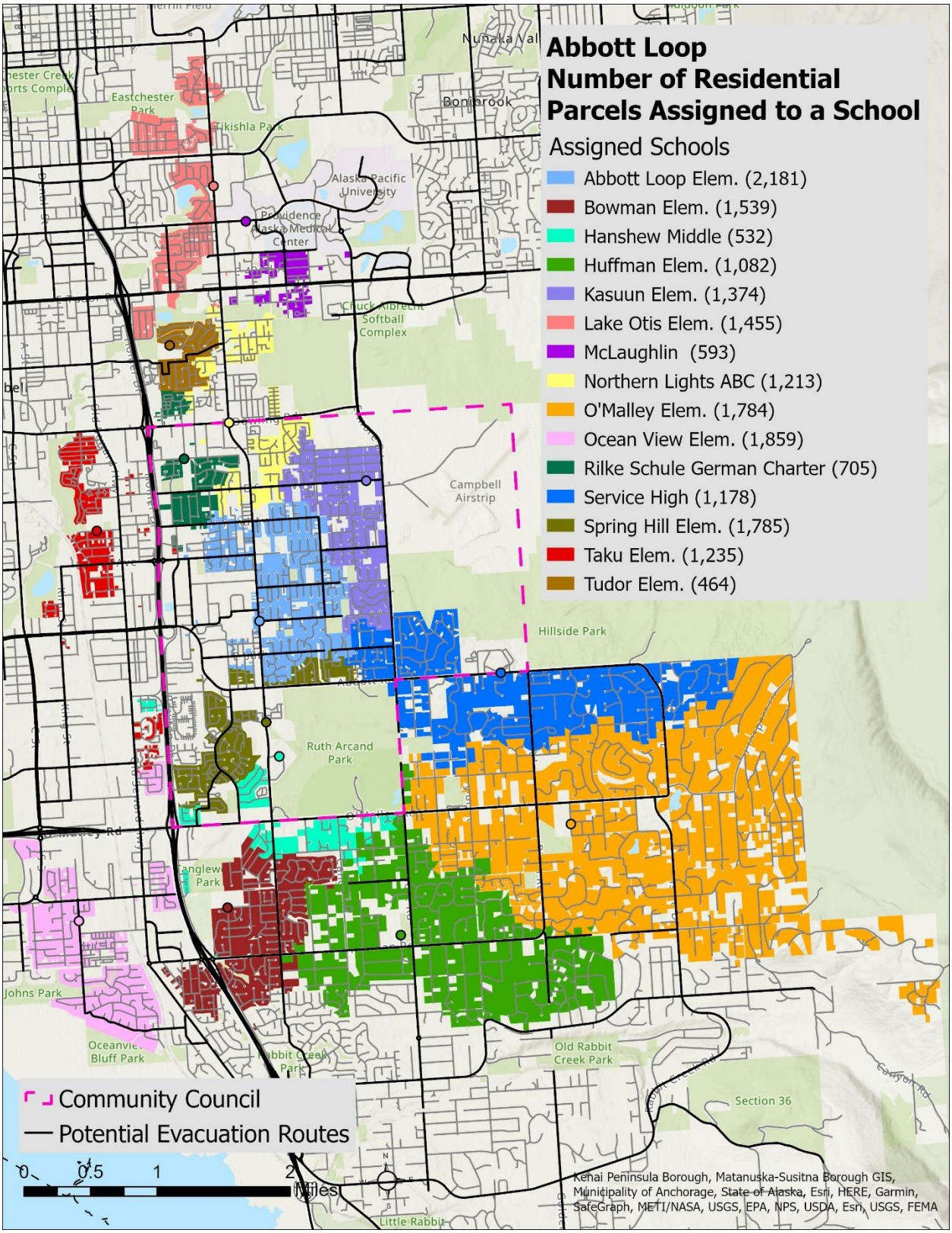

Hillside Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
Providence Alaska Medical Center
Chugach Foothills Park
Alaska Botanical Garden
Chuck Albrecht Softball Complex
Far North Bicentennial Park
Campbell Airstrip
Old Rabbit Creek Park
Little Rabbit Creek Bluff Park
0
0.5
1
2
Miles

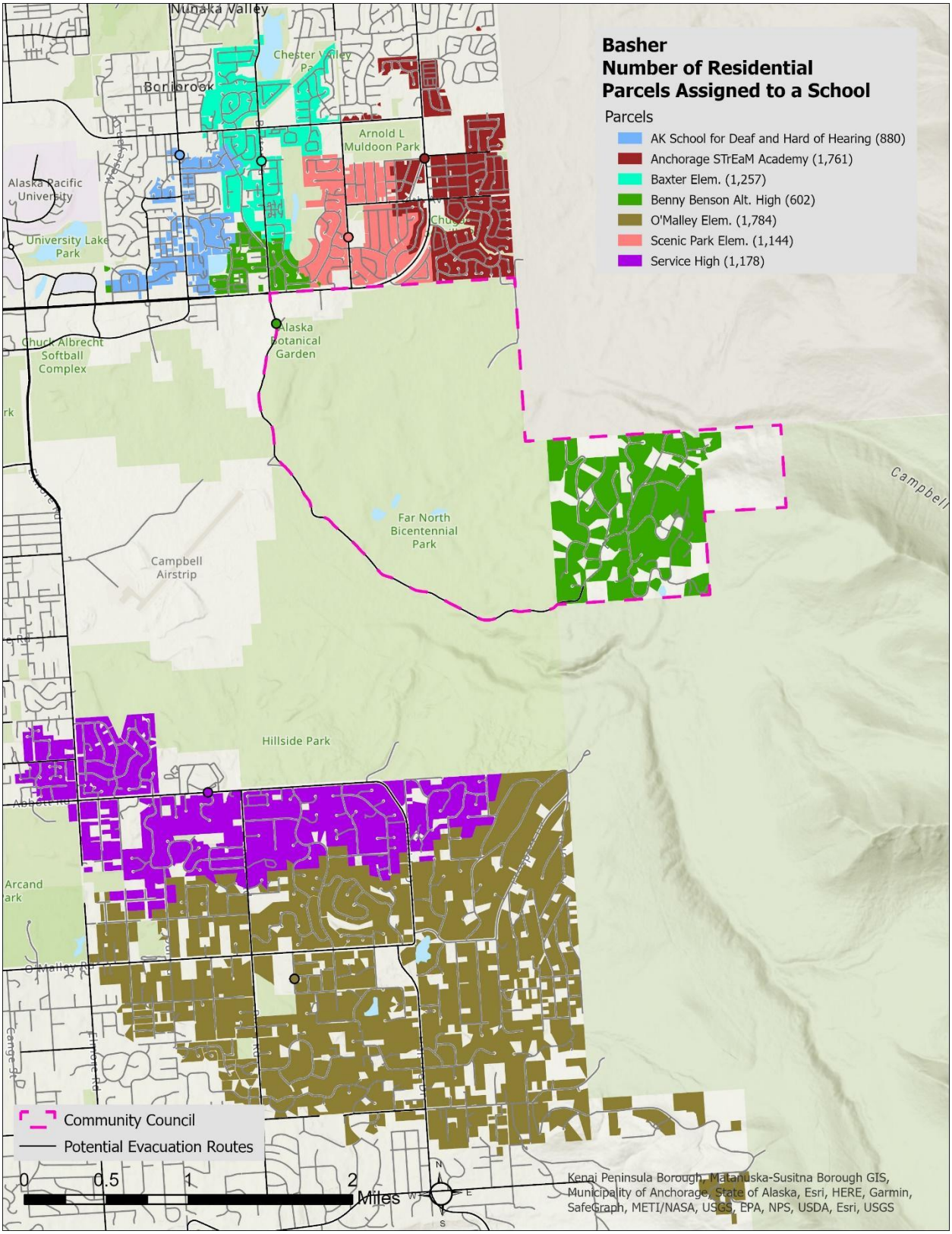

Huffman O'Malley Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
0
0.5
1
2
Miles
N
W
E
S
Hillside Park
Tanglewood Park
Oceanview Bluff Park
Rabbit Creek Park
Old Rabbit Creek Park
Little Rabbit Creek Bluff Park
Potter Marsh
O'Malley Rd
Huffman Rd
Rabbit Creek Rd
Old Seward Hwy
Lake Otis Pkwy
Canyon St
Elmore Rd
Hillside Dr
Golden View Dr

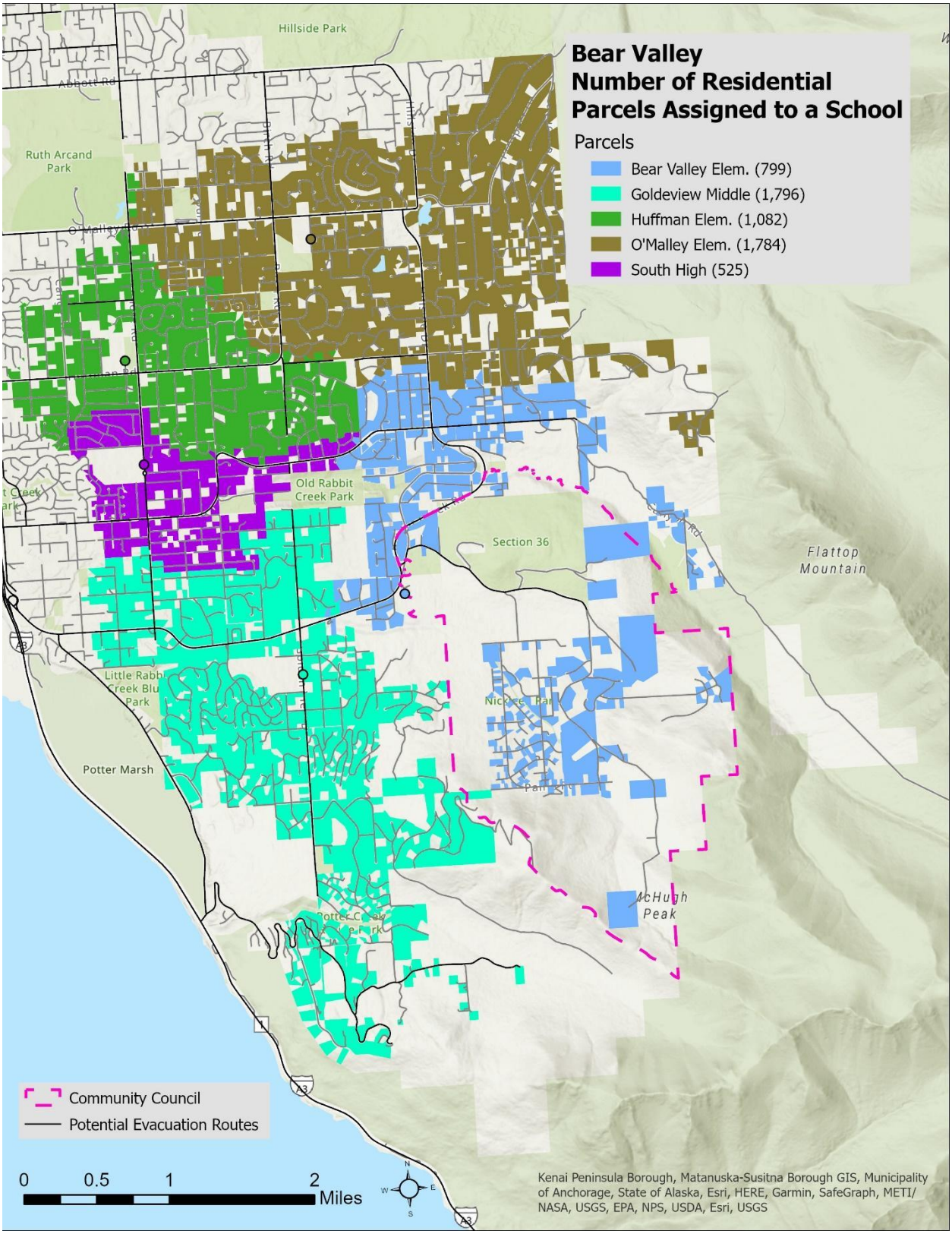

Rabbit Creek Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
0
0.5
1
2
Miles
N
W
E
S
Tanglewood Park
Huffman Rd
Old Rabbit Creek Park
Rabbit Creek Park
Little Rabbit Creek Bluff Park
Potter Marsh
Golden View Dr
Nickleen Park
Potter Creek Ravine Park
McHugh Peak
Canyon Rd
A3
1

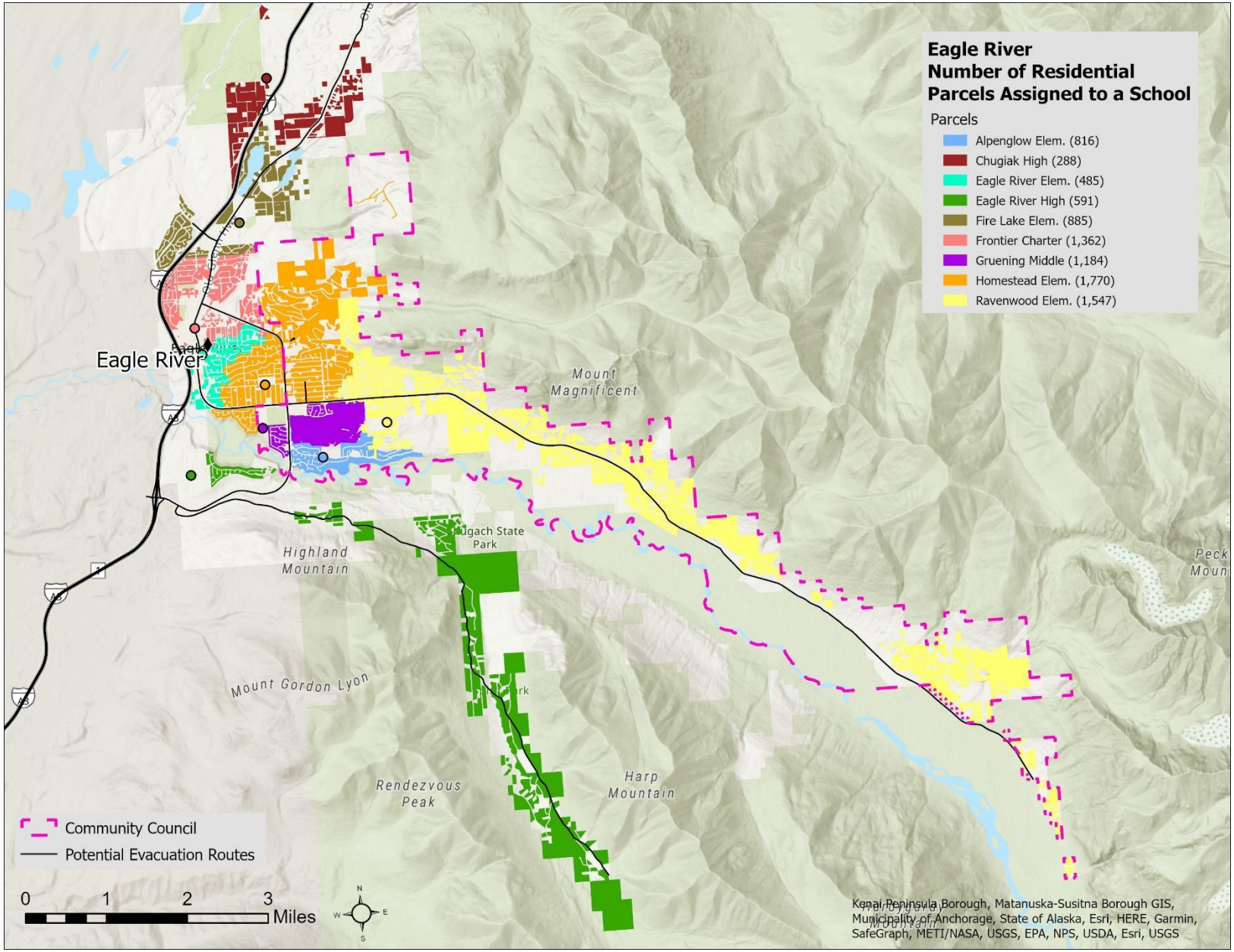

South Fork Extreme Wildfire Exposure
Community councils
Potential Evacuation Routes
Streets
Not a deadend
Deadend
Wildfire exposure (2014)
Extreme (80-100%)
Eagle River
Hylen Crest Park
Third St
Eagle River Rd
Chugach State Park
River View
Highland Mountain
Wilde
Eklund Park
Mount Gordon Lyon
Cotton Grass
South River
Harp Mountain
Rendezvous Peak
Arctic Valley Rd
Hurdygurd Mountain
0
1
2
4
Miles

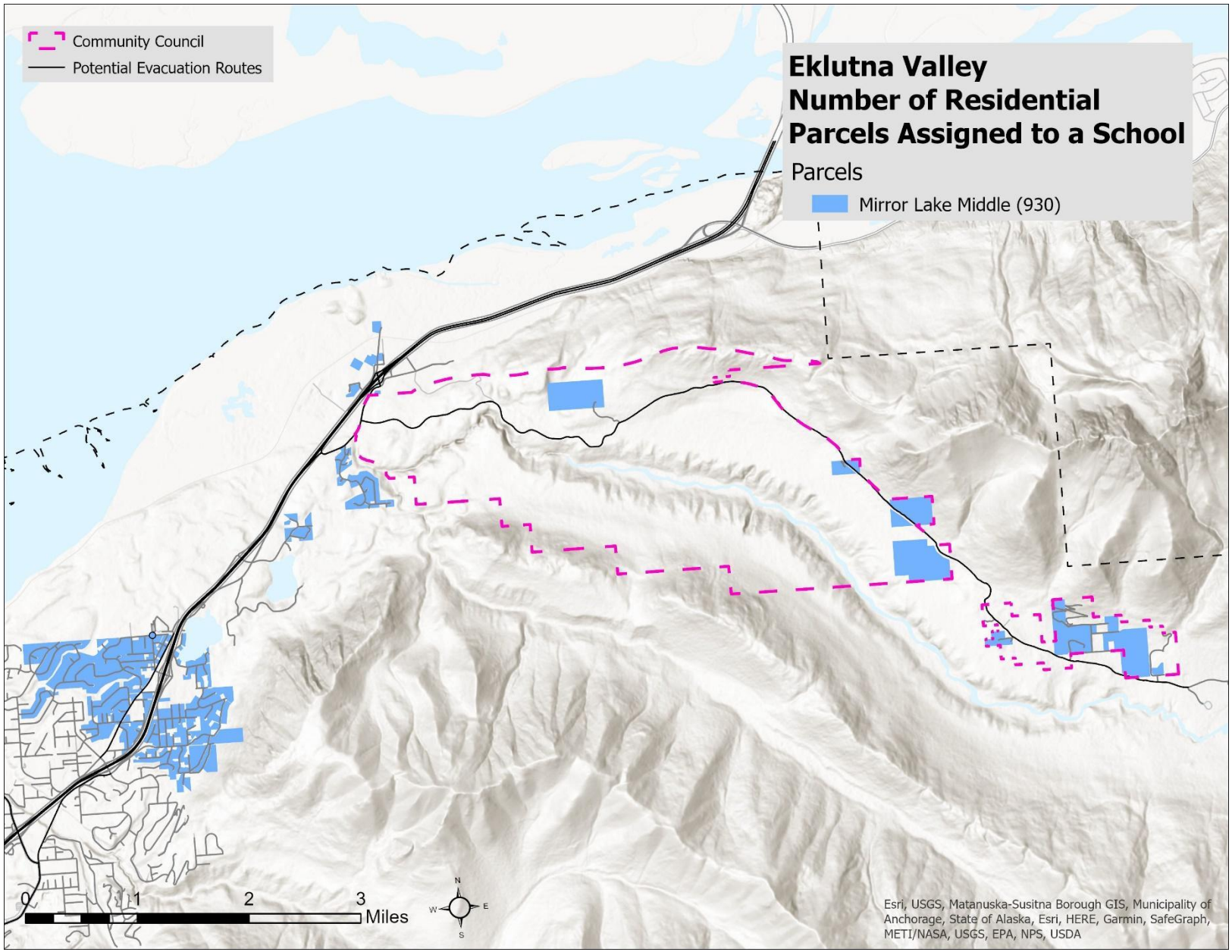
Appendix F. Parcels assigned to evacuation locations (i.e. schools) with the number of parcels for each designated school.

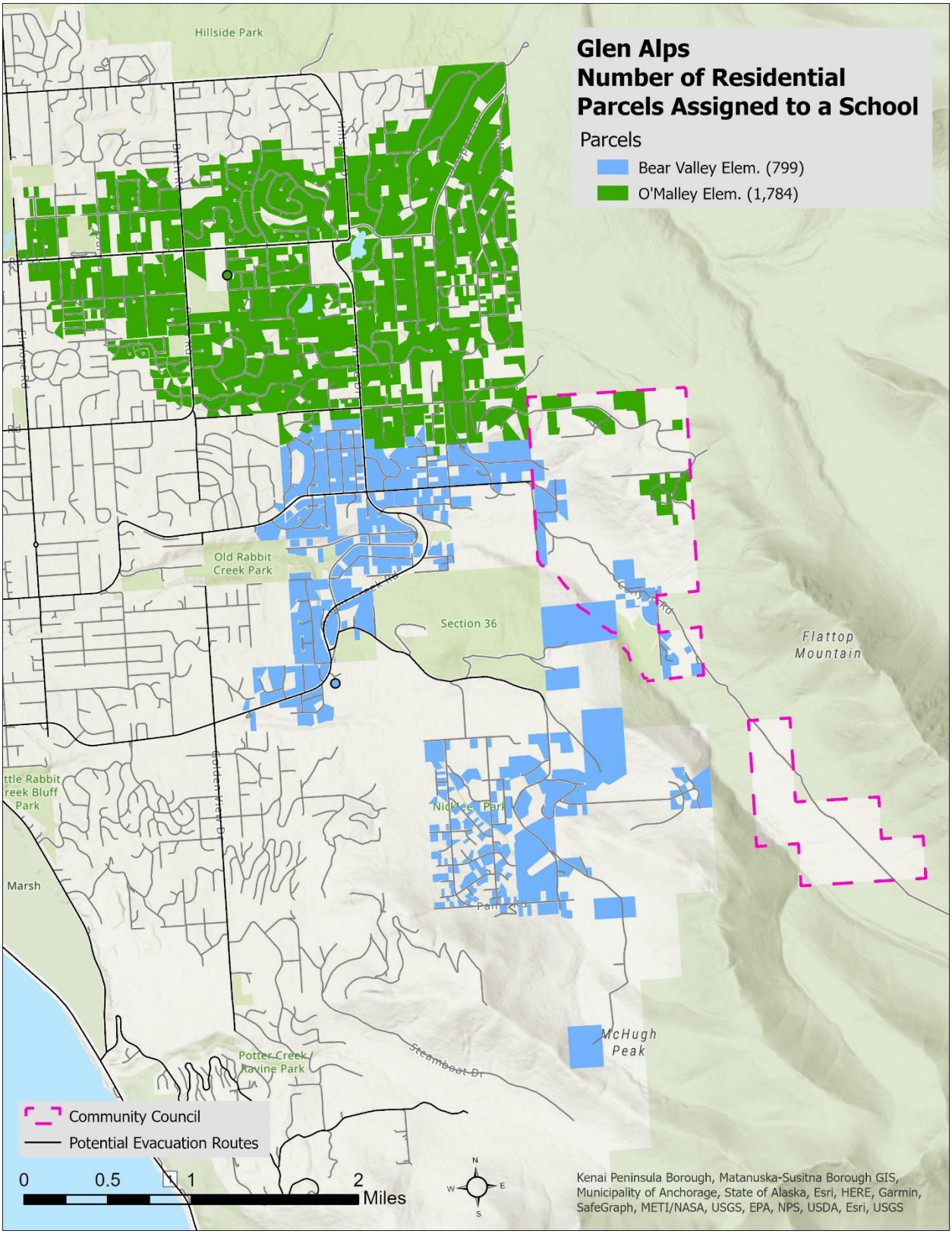


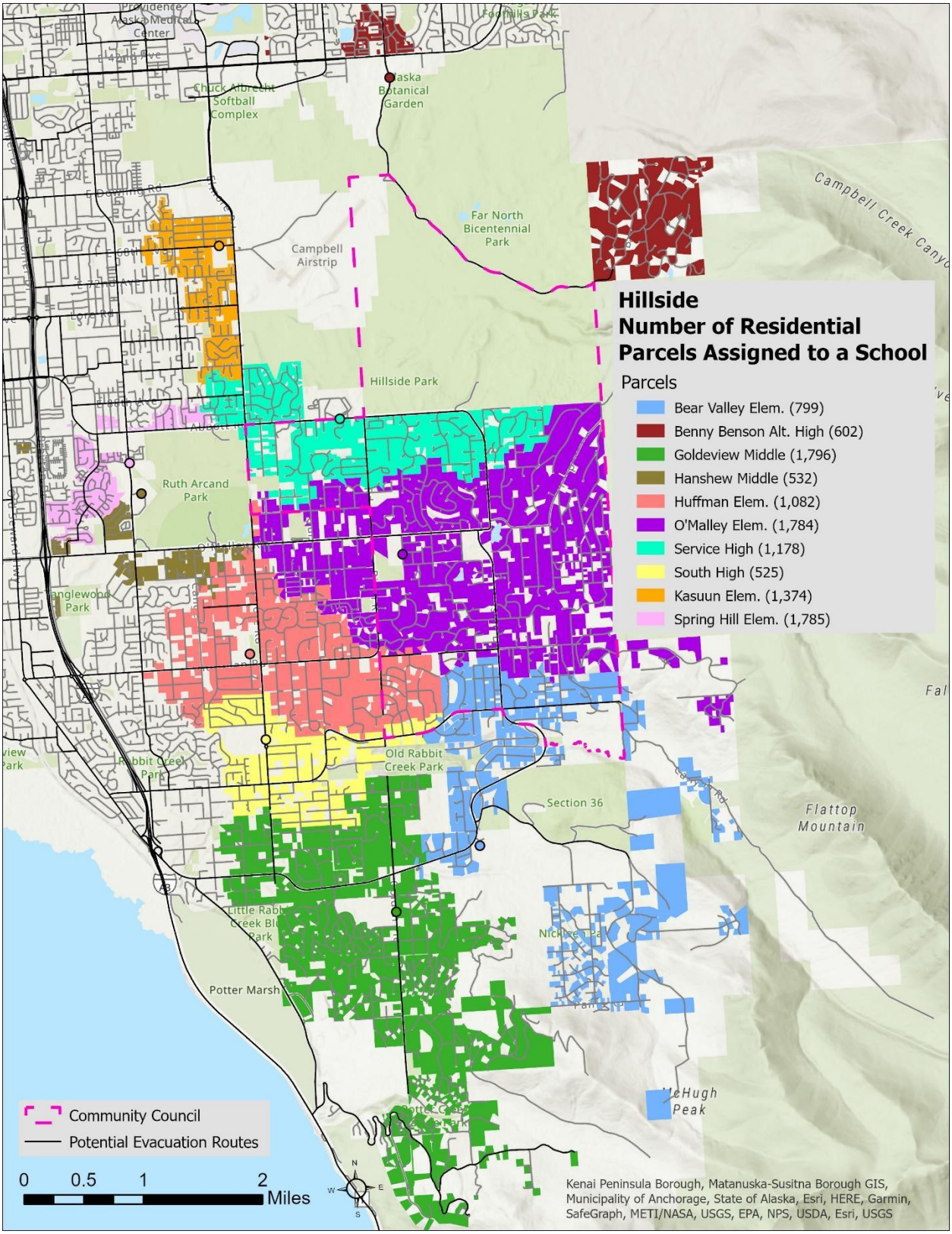

Basher
Number of Residential
Parcels Assigned to a School
Parcels
AK School for Deaf and Hard of Hearing (880)
Anchorage STrEaM Academy (1,761)
Baxter Elem. (1,257)
Benny Benson Alt. High (602)
O'Malley Elem. (1,784)
Scenic Park Elem. (1,144)
Service High (1,178)
Nunaka Valley
Chester Valley Park
Bonnybrook
Arnold L Muldoon Park
Alaska Pacific University
University Lake Park
Chuck Albrecht Softball Complex
Alaska Botanical Garden
Far North Bicentennial Park
Campbell Airstrip
Hillside Park
Arcand Park
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

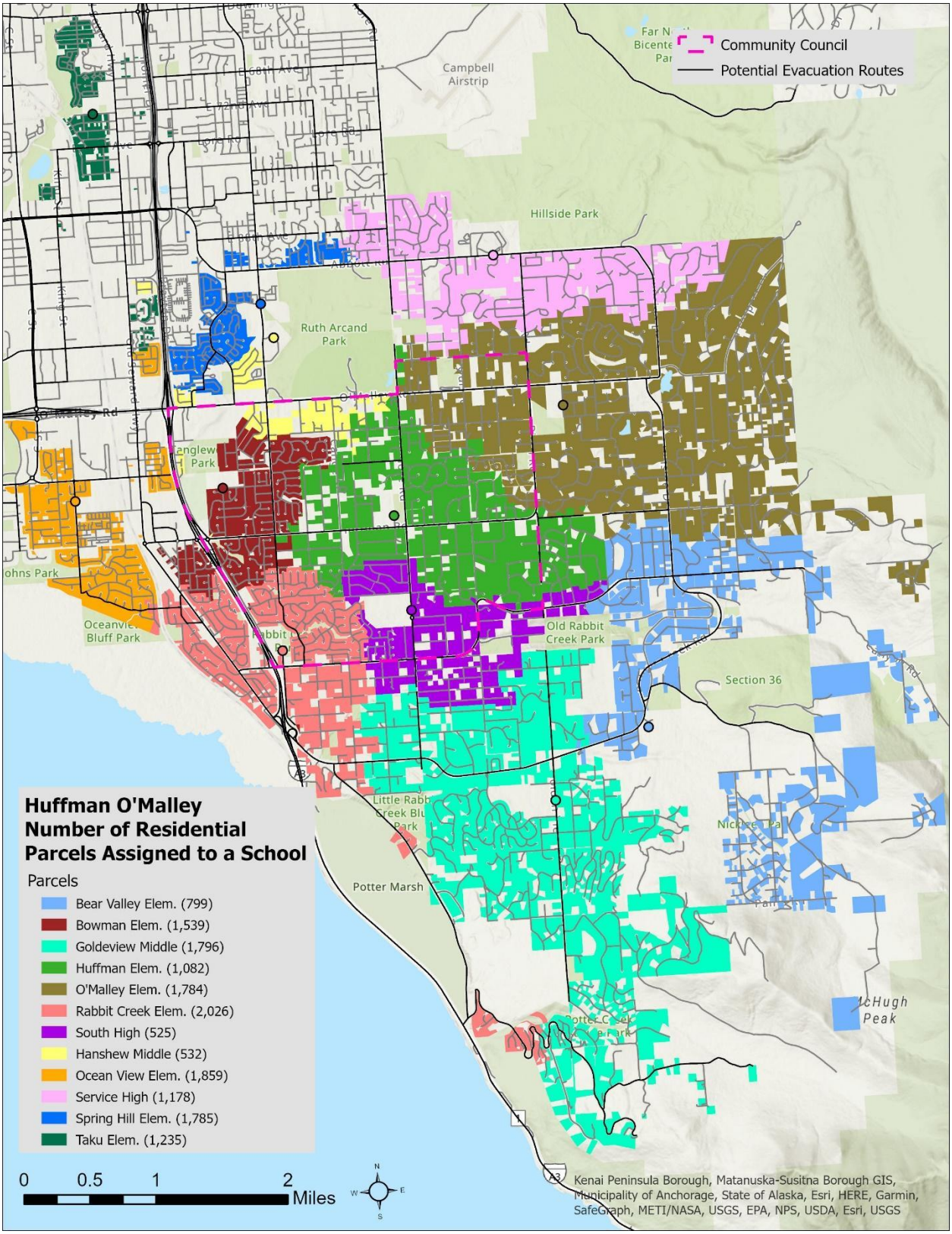

Bear Valley
Number of Residential
Parcels Assigned to a School
Parcels
Bear Valley Elem. (799)
Goldeview Middle (1,796)
Huffman Elem. (1,082)
O'Malley Elem. (1,784)
South High (525)
Hillside Park
Ruth Arcand Park
Old Rabbit Creek Park
Section 36
Flattop Mountain
Potter Marsh
McHugh Peak
Community Council
Potential Evacuation Routes
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/ NASA, USGS, EPA, NPS, USDA, Esri, USGS

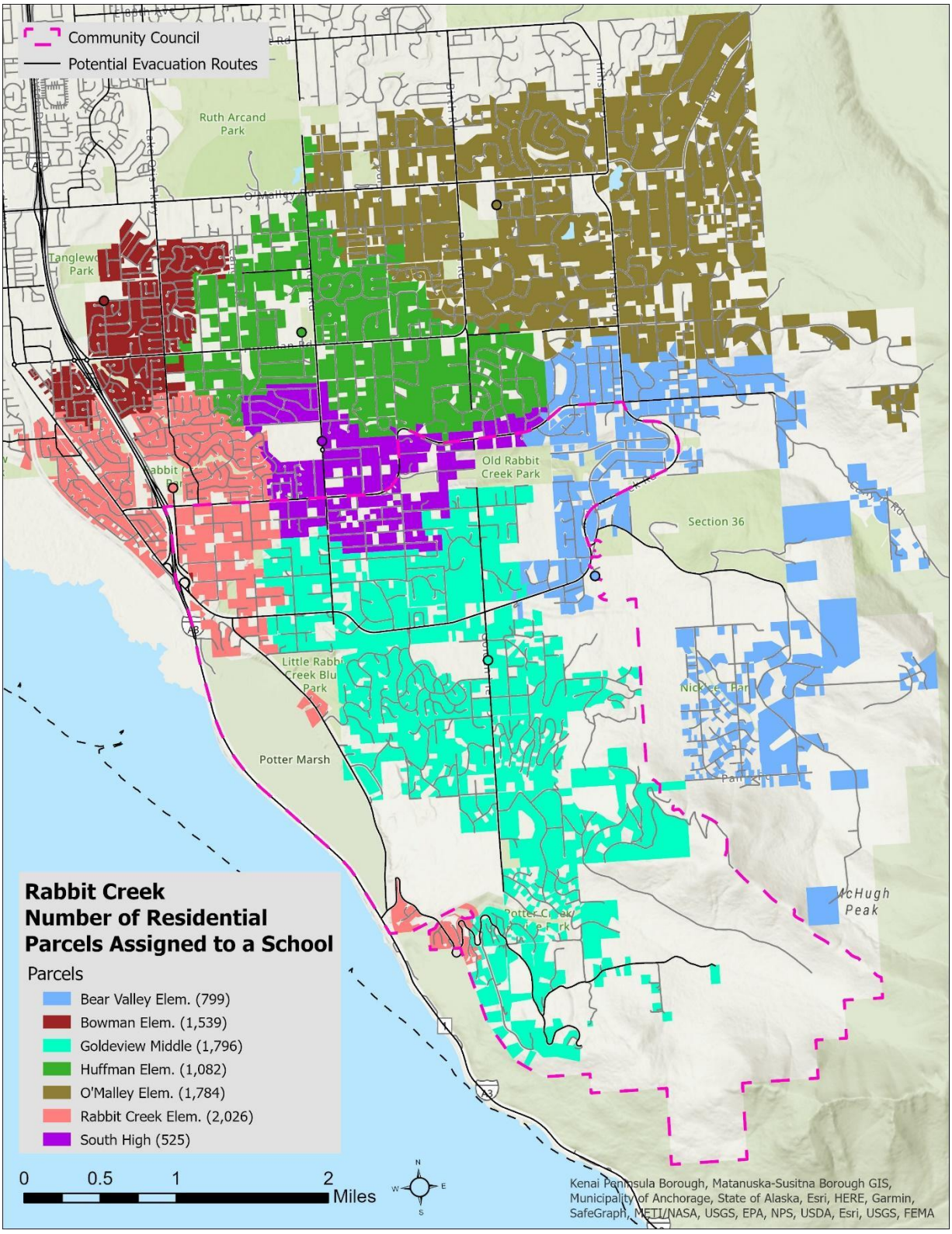

Eagle River
Number of Residential
Parcels Assigned to a School
Parcels
Alpenglow Elem. (816)
Chugiak High (288)
Eagle River Elem. (485)
Eagle River High (591)
Fire Lake Elem. (885)
Frontier Charter (1,362)
Gruening Middle (1,184)
Homestead Elem. (1,770)
Ravenwood Elem. (1,547)
Eagle River
Mount Magnificent
Highland Mountain
Mount Gordon Lyon
Rendezvous Peak
Harp Mountain
Community Council
Potential Evacuation Routes
0 1 2 3 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

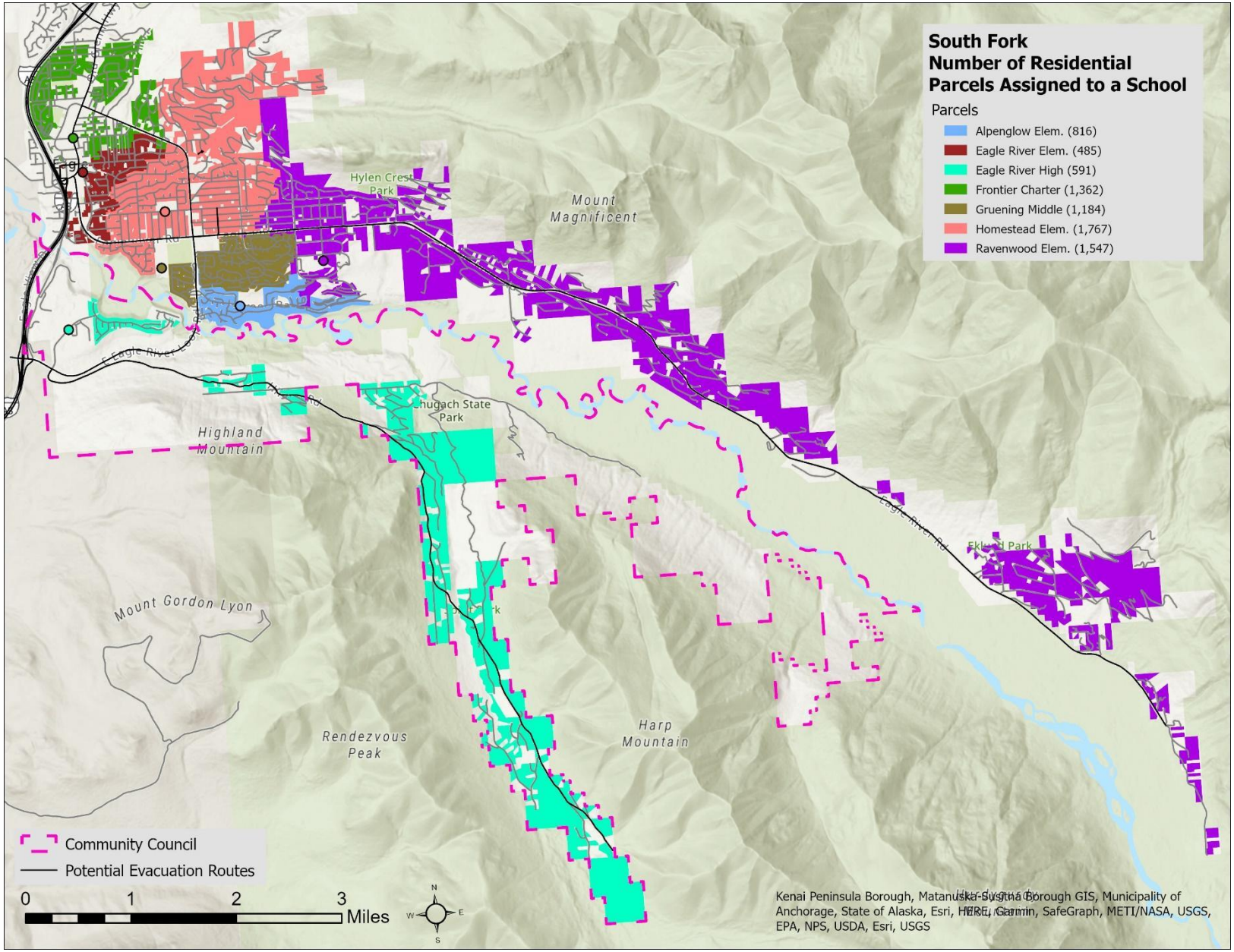

Community Council
Potential Evacuation Routes
Eklutna Valley
Number of Residential
Parcels Assigned to a School
Parcels
Mirror Lake Middle (930)
0
1
2
3
Miles
N
W
E
S
Esri, USGS, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA


Glen Alps
Number of Residential
Parcels Assigned to a School
Parcels
Bear Valley Elem. (799)
O'Malley Elem. (1,784)
Hillside Park
Old Rabbit
Creek Park
Section 36
Flattop
Mountain
Nicklee Park
Marsh
Potter Creek
Ravine Park
McHugh
Peak
Steamboat Dr
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS,
Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin,
SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

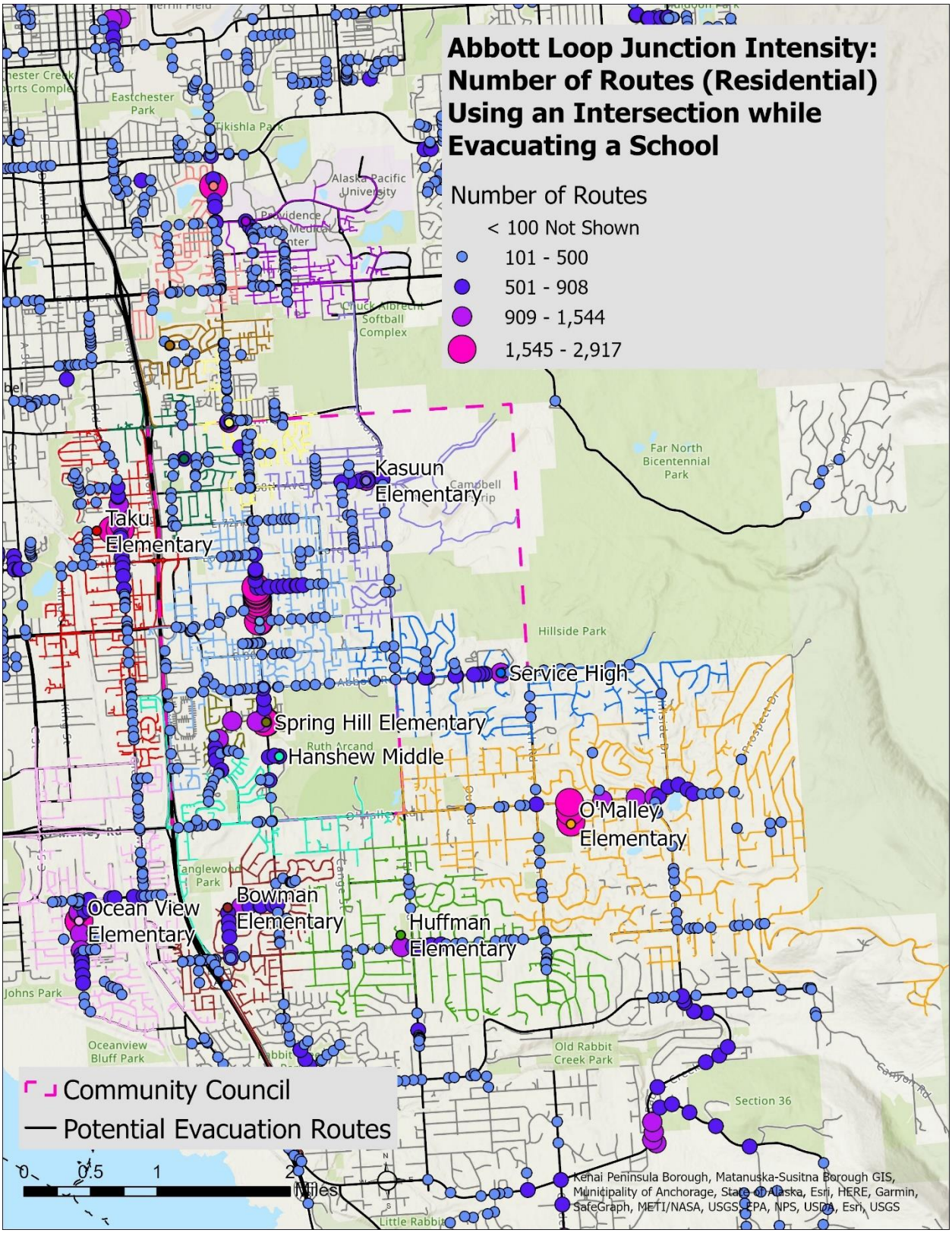

Hillside
Number of Residential
Parcels Assigned to a School
Parcels
Bear Valley Elem. (799)
Benny Benson Alt. High (602)
Goldeview Middle (1,796)
Hanshew Middle (532)
Huffman Elem. (1,082)
O'Malley Elem. (1,784)
Service High (1,178)
South High (525)
Kasuun Elem. (1,374)
Spring Hill Elem. (1,785)
Community Council
Potential Evacuation Routes
0 0.5 1 2
Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS
Campbell Airstrip
Far North Bicentennial Park
Hillside Park
Ruth Arcand Park
Old Rabbit Creek Park
Section 36
Flattop Mountain
Potter Marsh
McHugh Peak
Campbell Creek Canyon

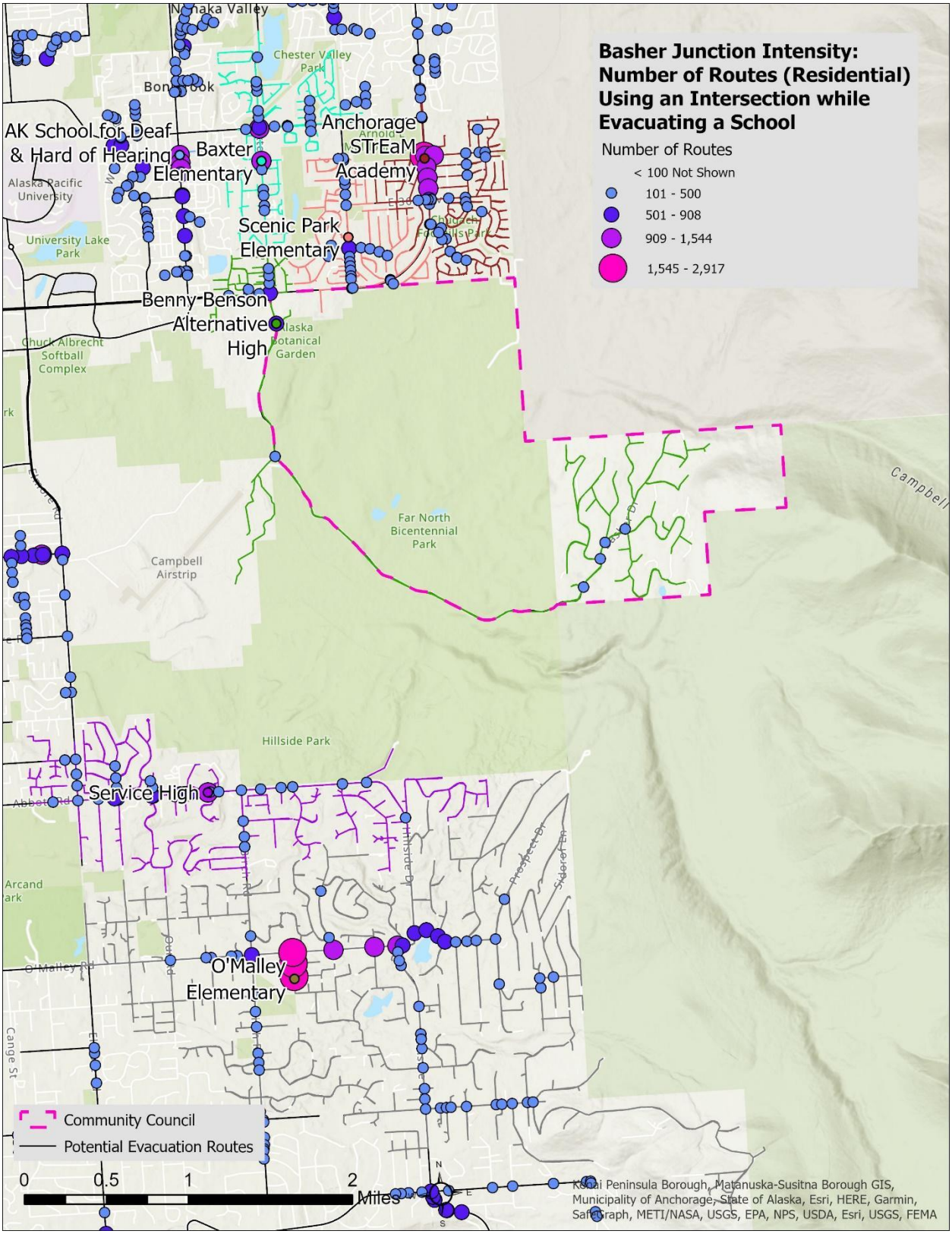

Community Council
Potential Evacuation Routes
Campbell Airstrip
Hillside Park
Ruth Arcand Park
Old Rabbit Creek Park
Section 36
Potter Marsh
McHugh Peak
Huffman O'Malley
Number of Residential
Parcels Assigned to a School
Parcels
Bear Valley Elem. (799)
Bowman Elem. (1,539)
Goldeview Middle (1,796)
Huffman Elem. (1,082)
O'Malley Elem. (1,784)
Rabbit Creek Elem. (2,026)
South High (525)
Hanshew Middle (532)
Ocean View Elem. (1,859)
Service High (1,178)
Spring Hill Elem. (1,785)
Taku Elem. (1,235)
0 0.5 1 2 Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

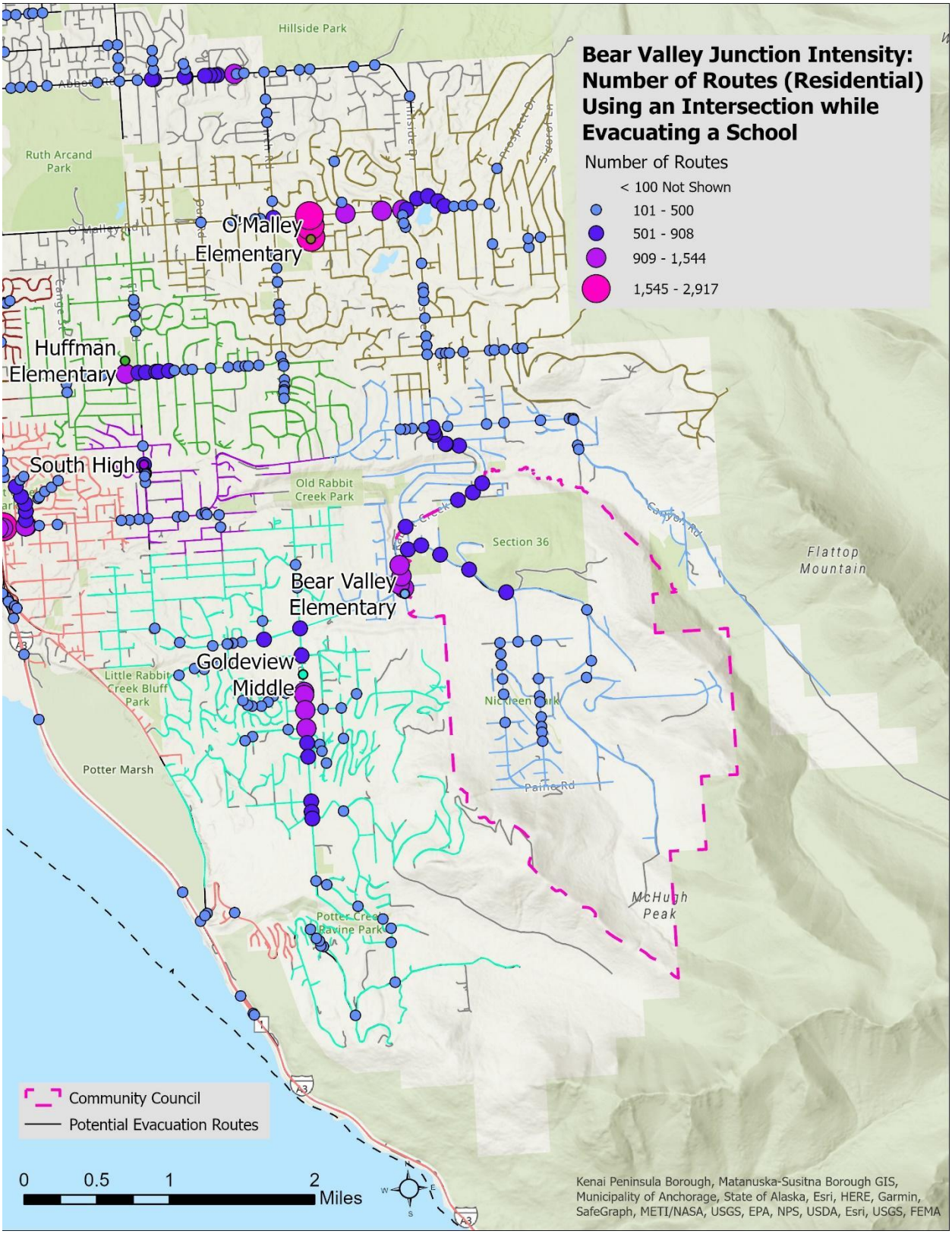

Community Council
Potential Evacuation Routes
Ruth Arcand Park
O'Malley Rd
Old Rabbit Creek Park
Section 36
Little Rabbit Creek Blu Park
Potter Marsh
McHugh Peak
Rabbit Creek
Number of Residential
Parcels Assigned to a School
Parcels
Bear Valley Elem. (799)
Bowman Elem. (1,539)
Goldeview Middle (1,796)
Huffman Elem. (1,082)
O'Malley Elem. (1,784)
Rabbit Creek Elem. (2,026)
South High (525)
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

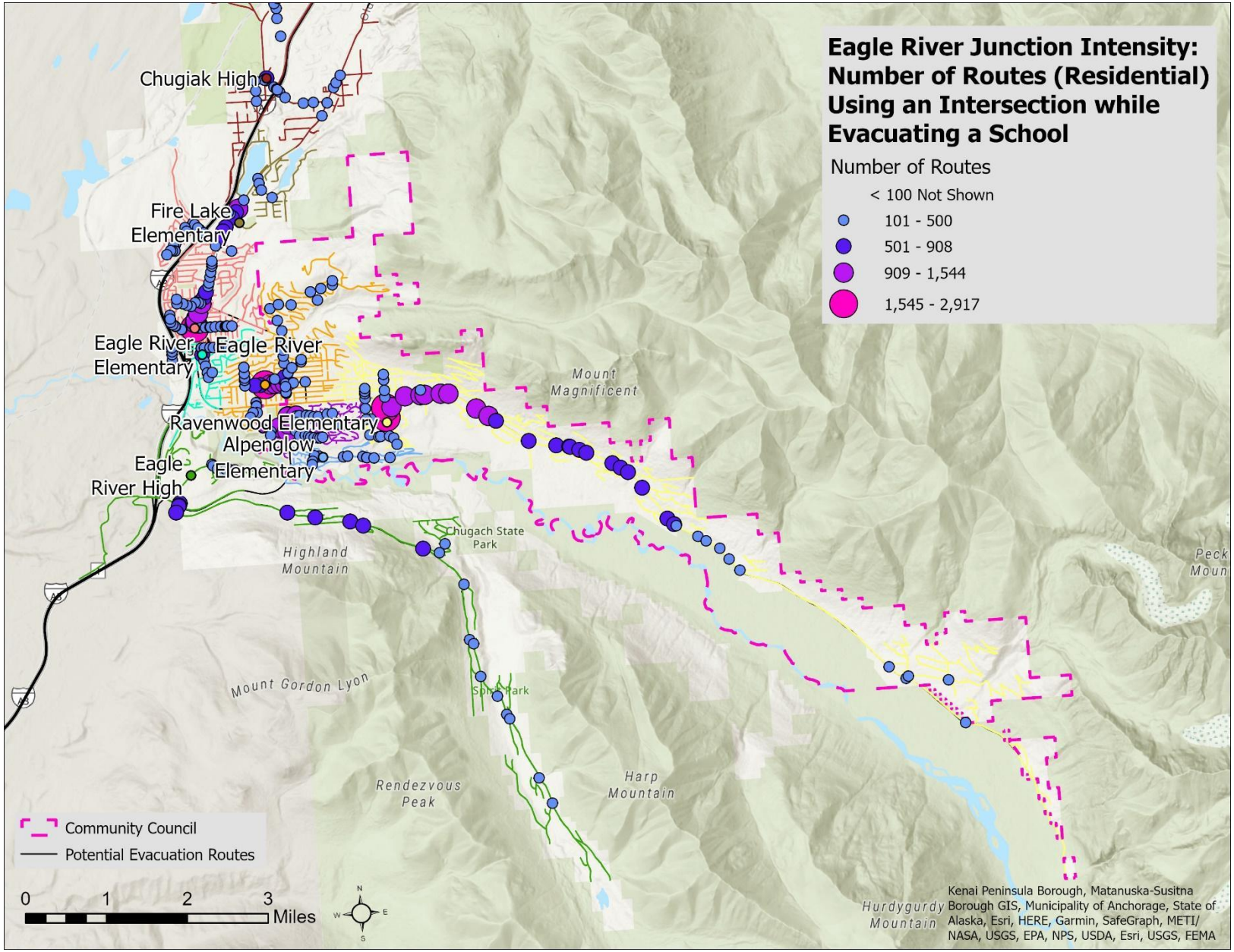

South Fork
Number of Residential
Parcels Assigned to a School
Parcels
Alpenglow Elem. (816)
Eagle River Elem. (485)
Eagle River High (591)
Frontier Charter (1,362)
Gruening Middle (1,184)
Homestead Elem. (1,767)
Ravenwood Elem. (1,547)
Hylen Crest Park
Mount Magnificent
Chugach State Park
Highland Mountain
Eagle River Rd
Mount Gordon Lyon
Rendezvous Peak
Harp Mountain
Community Council
Potential Evacuation Routes
0
1
2
3
Miles
N
S
W
E
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

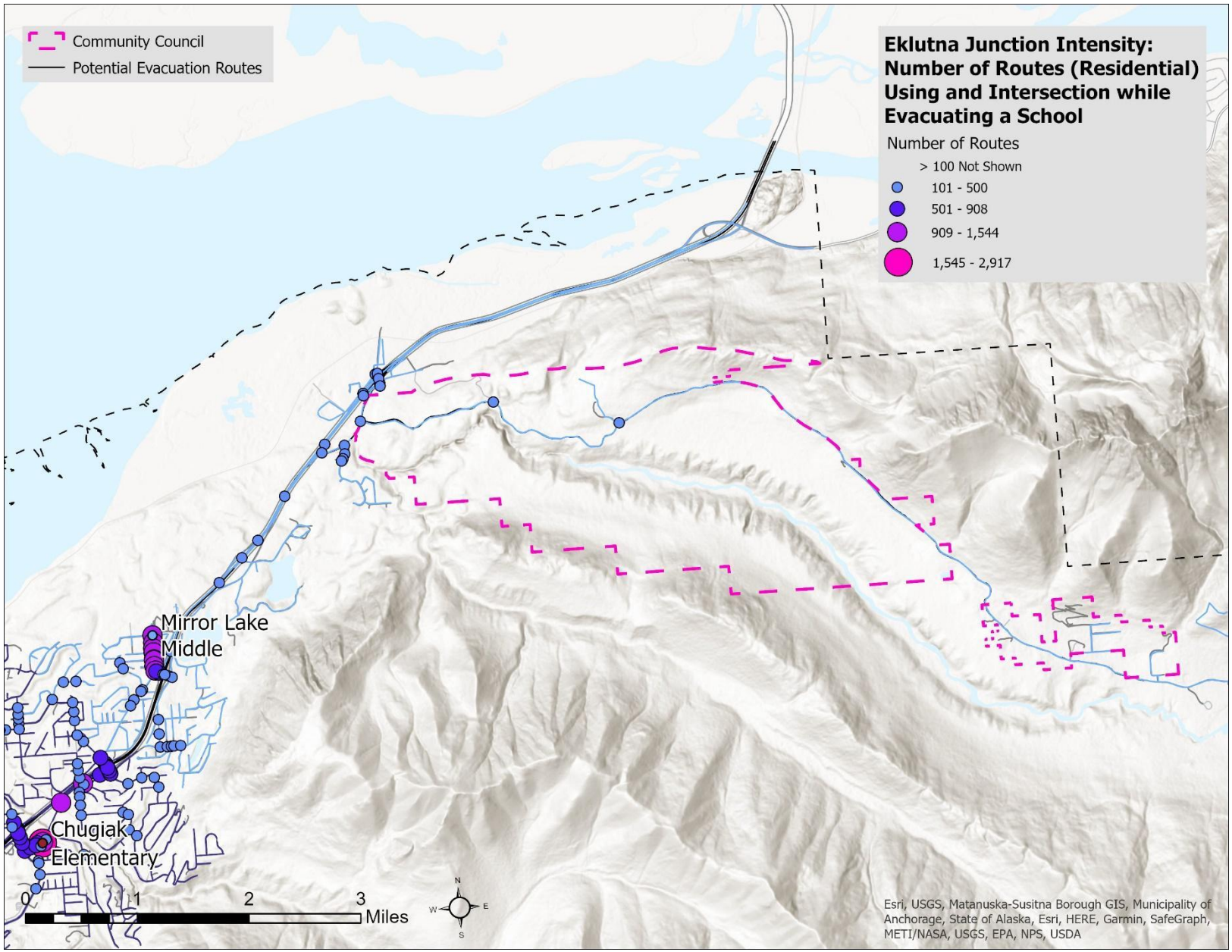
Appendix G. Intersection intensity use which is determined by calculating the number of parcels using an intersection to get to their assigned evacuation location (i.e. school).

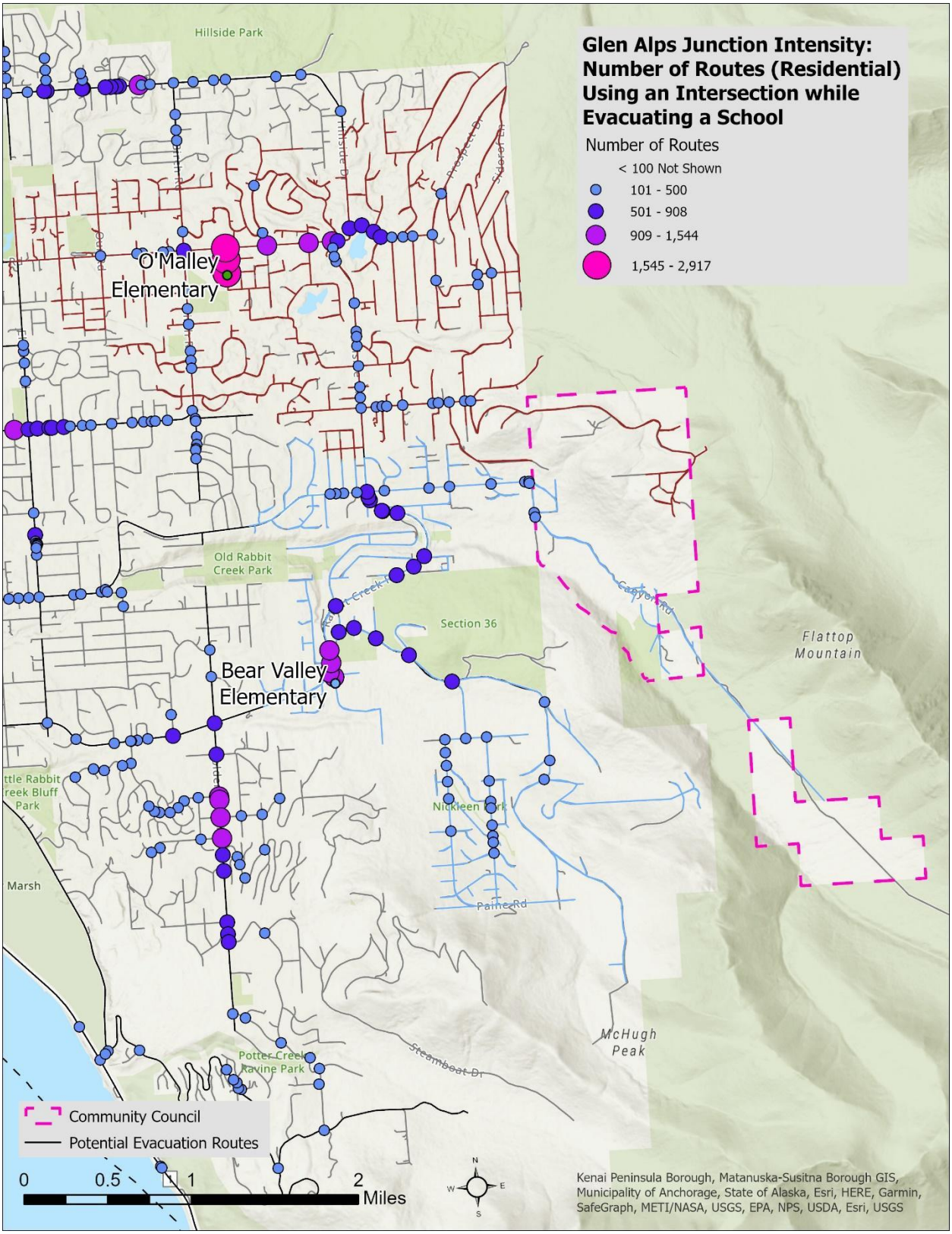


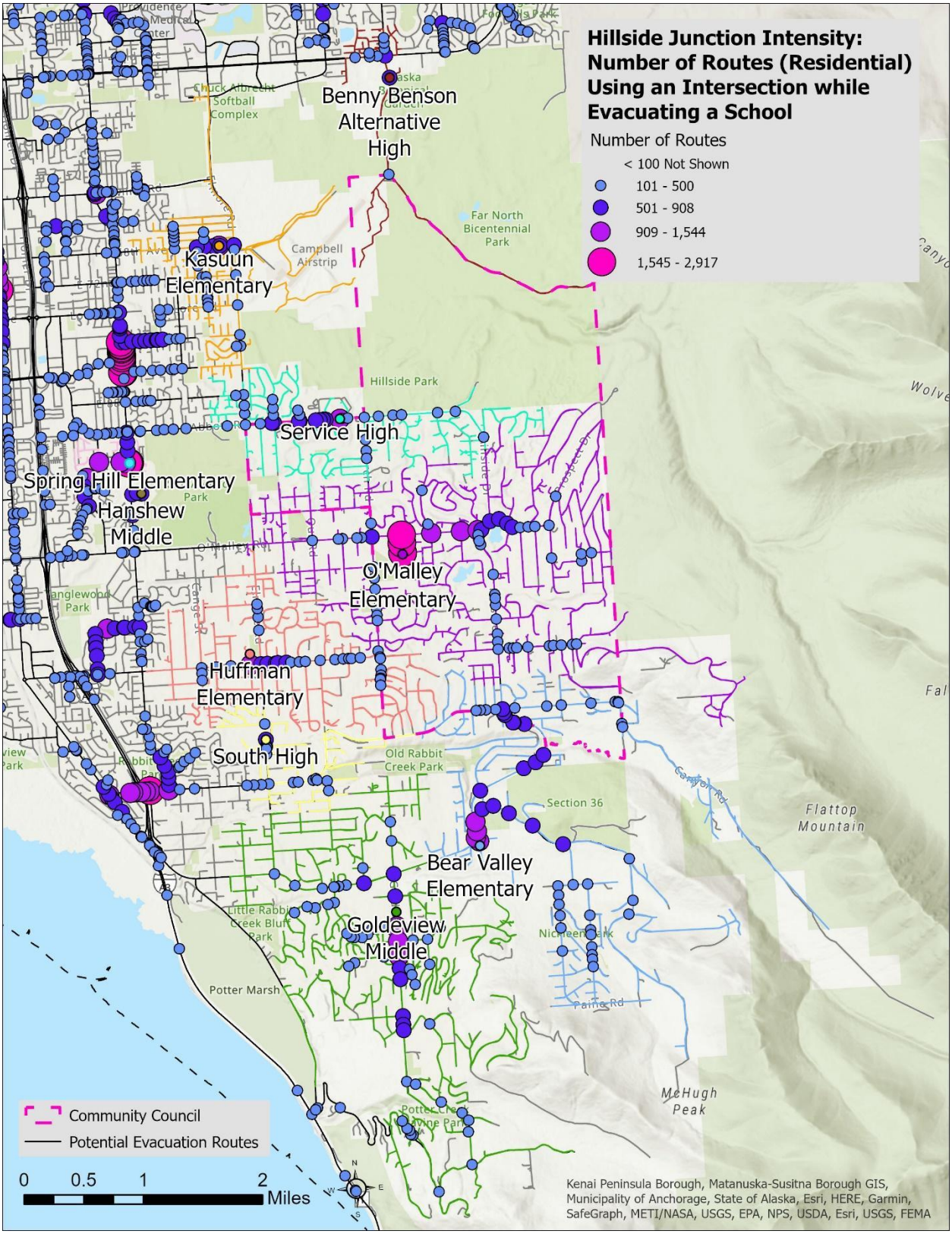

Basher Junction Intensity: Number of Routes (Residential) Using an Intersection while Evacuating a School
Number of Routes
< 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
Anchorage STrEaM Academy
AK School for Deaf & Hard of Hearing
Baxter Elementary
Scenic Park Elementary
Benny Benson Alternative High
Service High
O'Malley Elementary
Chester Valley Park
Alaska Pacific University
University Lake Park
Chuck Albrecht Softball Complex
Alaska Botanical Garden
Far North Bicentennial Park
Campbell Airstrip
Hillside Park
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

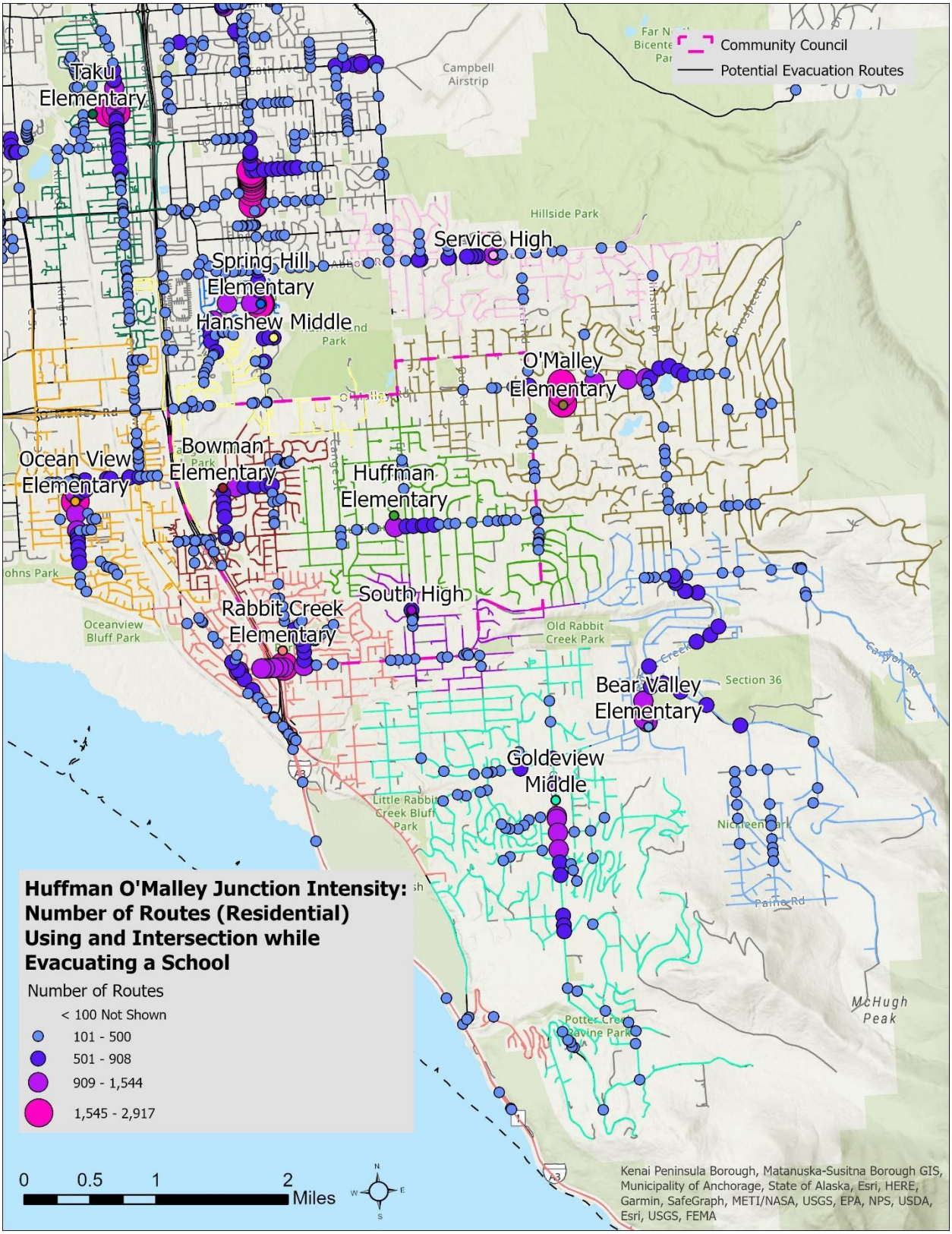

Bear Valley Junction Intensity: Number of Routes (Residential) Using an Intersection while Evacuating a School
Number of Routes
< 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
O'Malley Elementary
Huffman Elementary
South High
Bear Valley Elementary
Goldeview Middle
Hillside Park
Ruth Arcand Park
Old Rabbit Creek Park
Section 36
Flattop Mountain
Little Rabbit Creek Bluff Park
Potter Marsh
McHugh Peak
Community Council
Potential Evacuation Routes
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

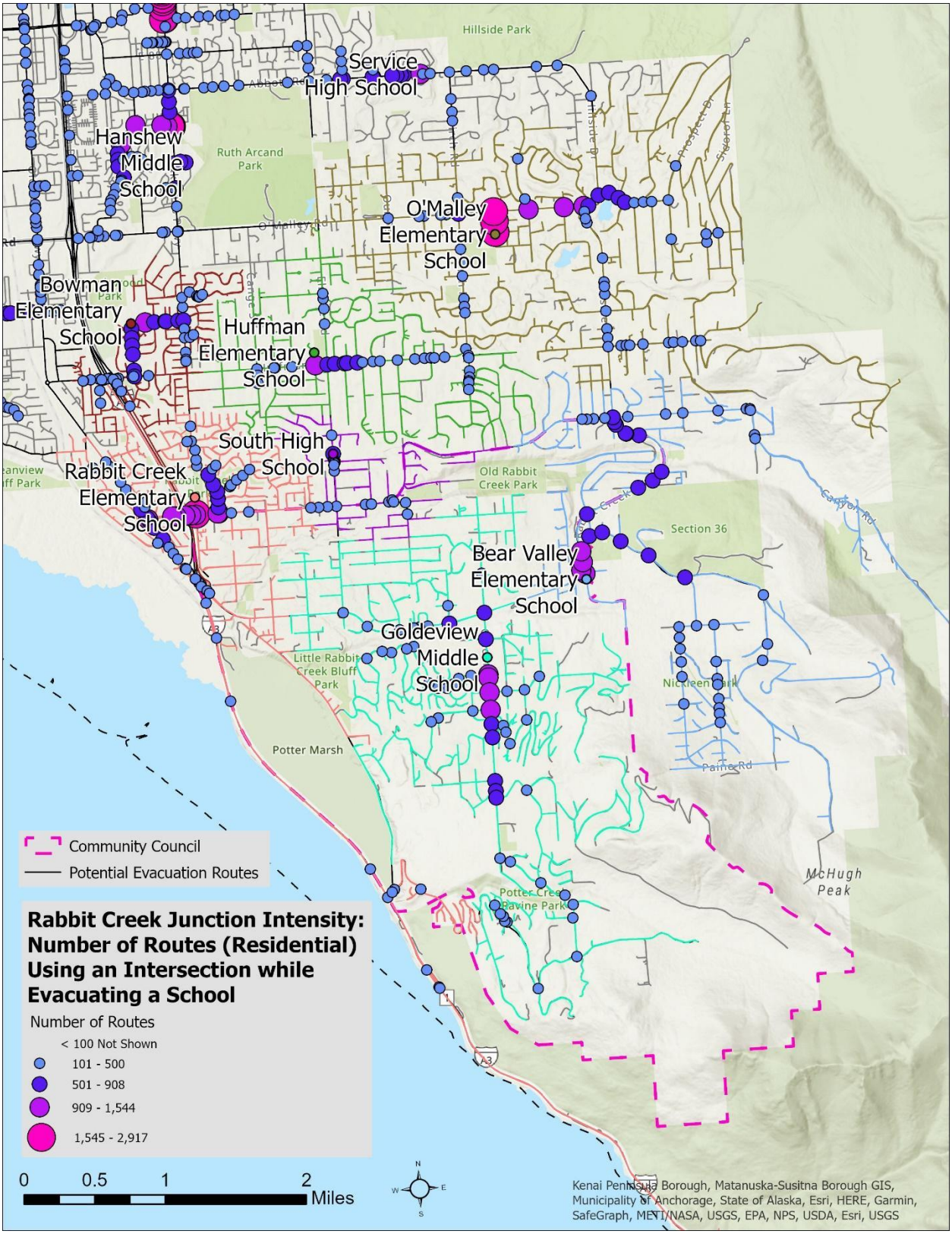

Eagle River Junction Intensity: Number of Routes (Residential) Using an Intersection while Evacuating a School
Number of Routes
< 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
Chugiak High
Fire Lake Elementary
Eagle River Elementary
Eagle River
Ravenwood Elementary
Alpenglow Elementary
Eagle River High
Mount Magnificent
Chugach State Park
Highland Mountain
Mount Gordon Lyon
Rendezvous Peak
Harp Mountain
Hurdygurdy Mountain
Community Council
Potential Evacuation Routes
0 1 2 3 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/ NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

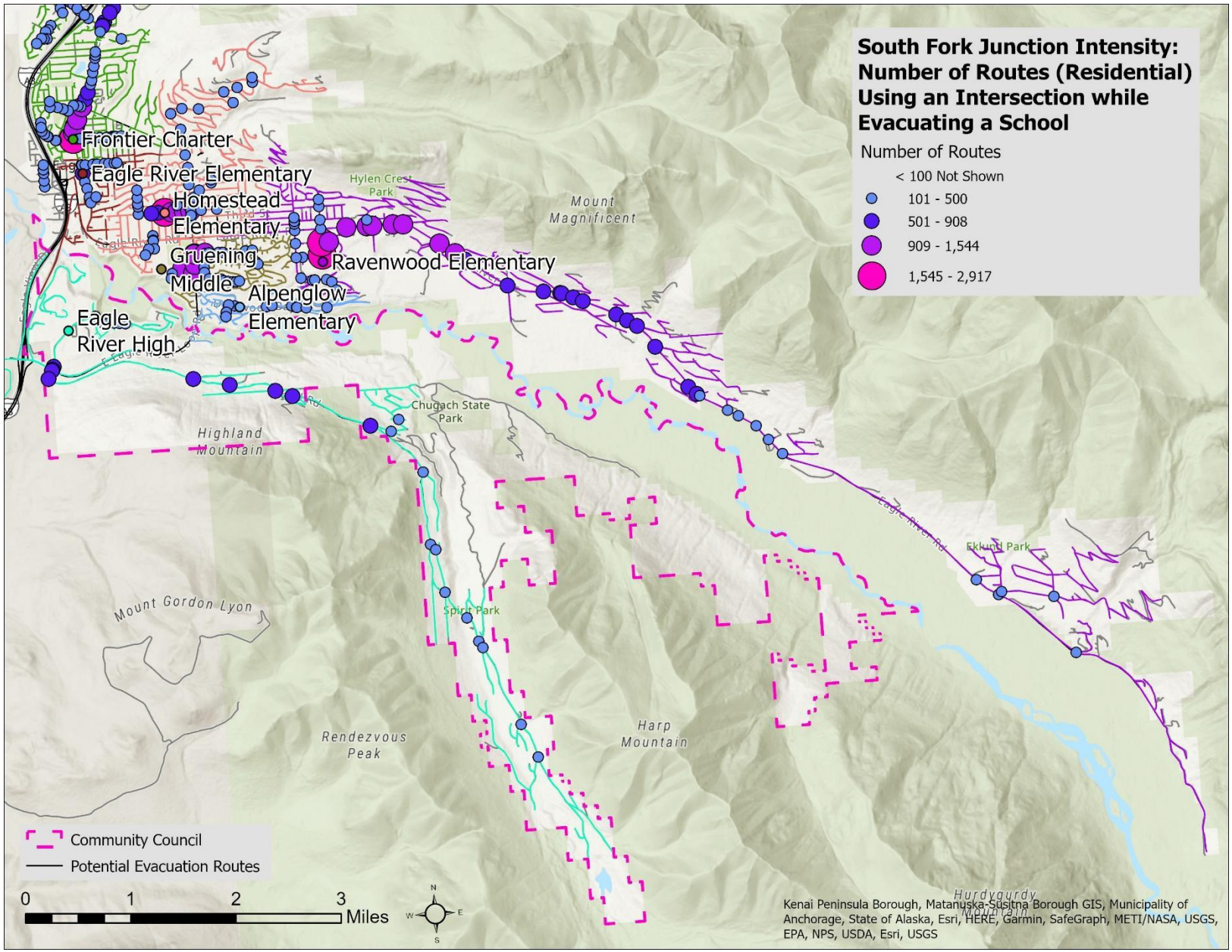

Community Council
Potential Evacuation Routes
Eklutna Junction Intensity: Number of Routes (Residential) Using and Intersection while Evacuating a School
Number of Routes
> 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
Mirror Lake Middle
Chugiak Elementary
0
1
2
3
Miles
N
W
E
S
Esri, USGS, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA


Glen Alps Junction Intensity: Number of Routes (Residential) Using an Intersection while Evacuating a School
Number of Routes
< 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
Hillside Park
O'Malley Elementary
Old Rabbit Creek Park
Section 36
Bear Valley Elementary
Flattop Mountain
Nickleen Park
Paine Rd
McHugh Peak
Steamboat Dr
Potter Creek Ravine Park
Marsh
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

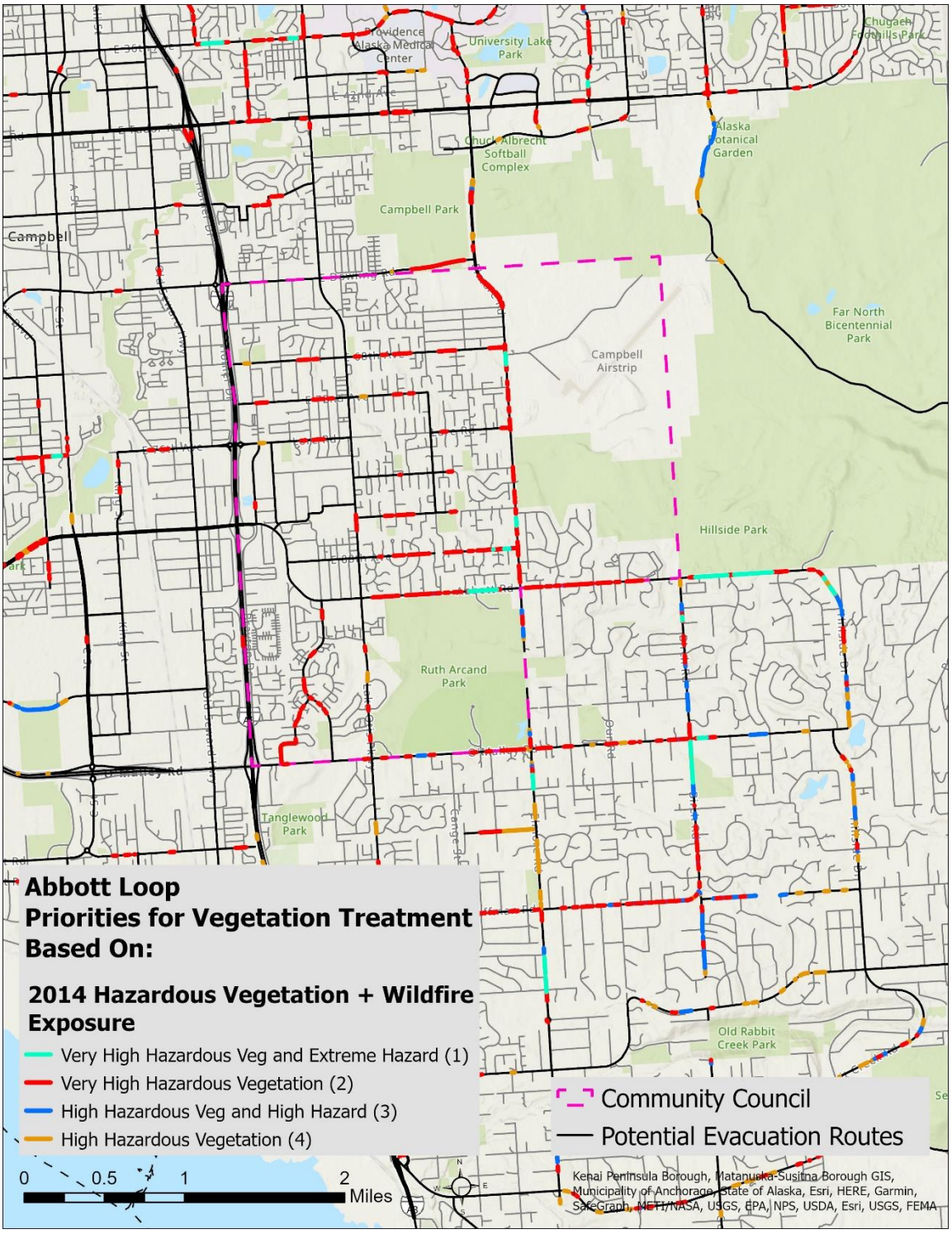

Hillside Junction Intensity: Number of Routes (Residential) Using an Intersection while Evacuating a School
Number of Routes
< 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
Benny Benson Alternative High
Kasuun Elementary
Service High
Spring Hill Elementary
Hanshew Middle
O'Malley Elementary
Huffman Elementary
South High
Bear Valley Elementary
Goldeview Middle
Hillside Park
Far North Bicentennial Park
Campbell Airstrip
Old Rabbit Creek Park
Section 36
Flattop Mountain
McHugh Peak
Potter Marsh
Community Council
Potential Evacuation Routes
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

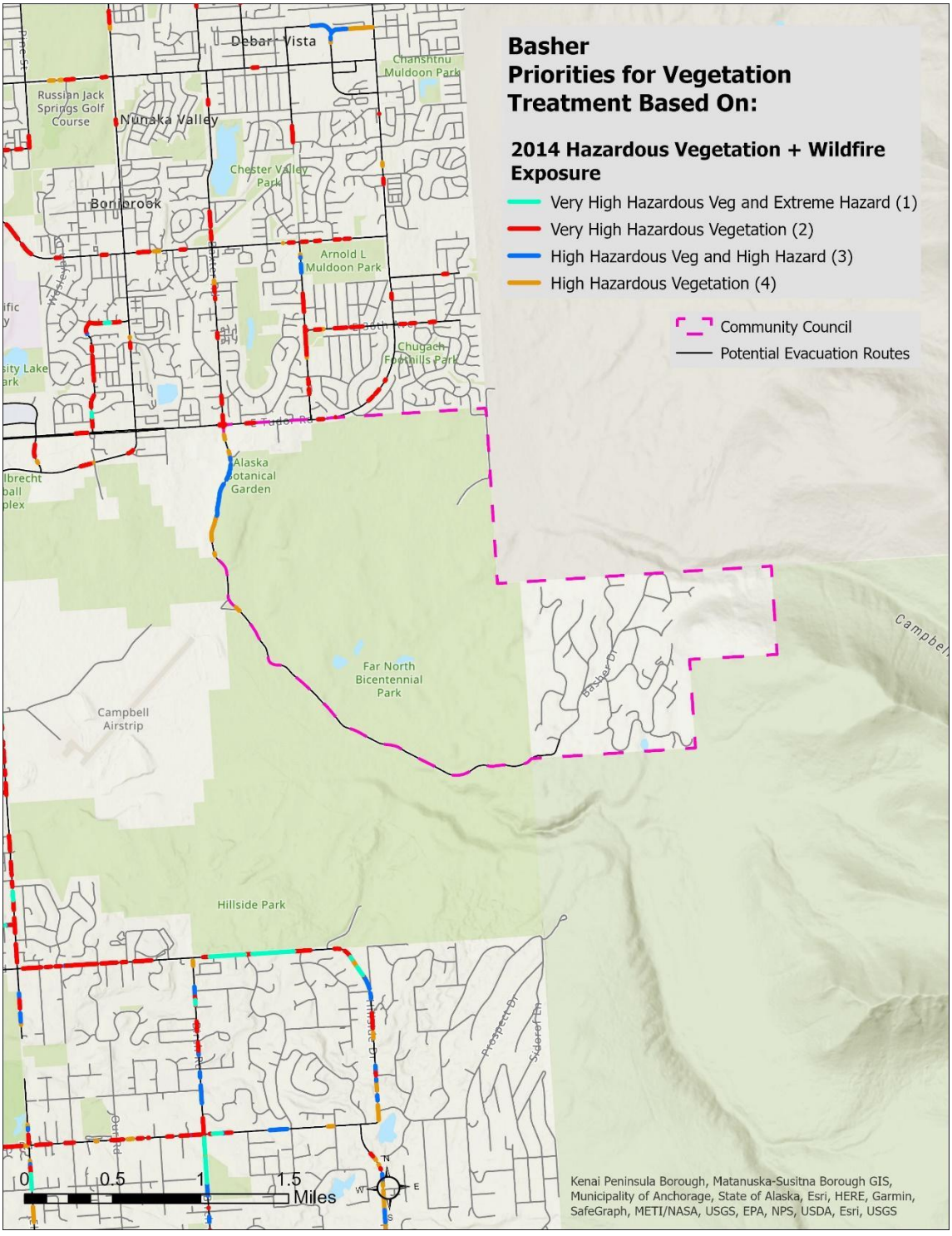

Community Council
Potential Evacuation Routes
Taku Elementary
Campbell Airstrip
Hillside Park
Service High
Spring Hill Elementary
Hanshew Middle
O'Malley Elementary
Bowman Elementary
Ocean View Elementary
Huffman Elementary
South High
Rabbit Creek Elementary
Oceanview Bluff Park
Old Rabbit Creek Park
Bear Valley Elementary
Section 36
Goldeview Middle
Little Rabbit Creek Bluff Park
Nichleen Park
McHugh Peak
Huffman O'Malley Junction Intensity: Number of Routes (Residential) Using and Intersection while Evacuating a School
Number of Routes
< 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

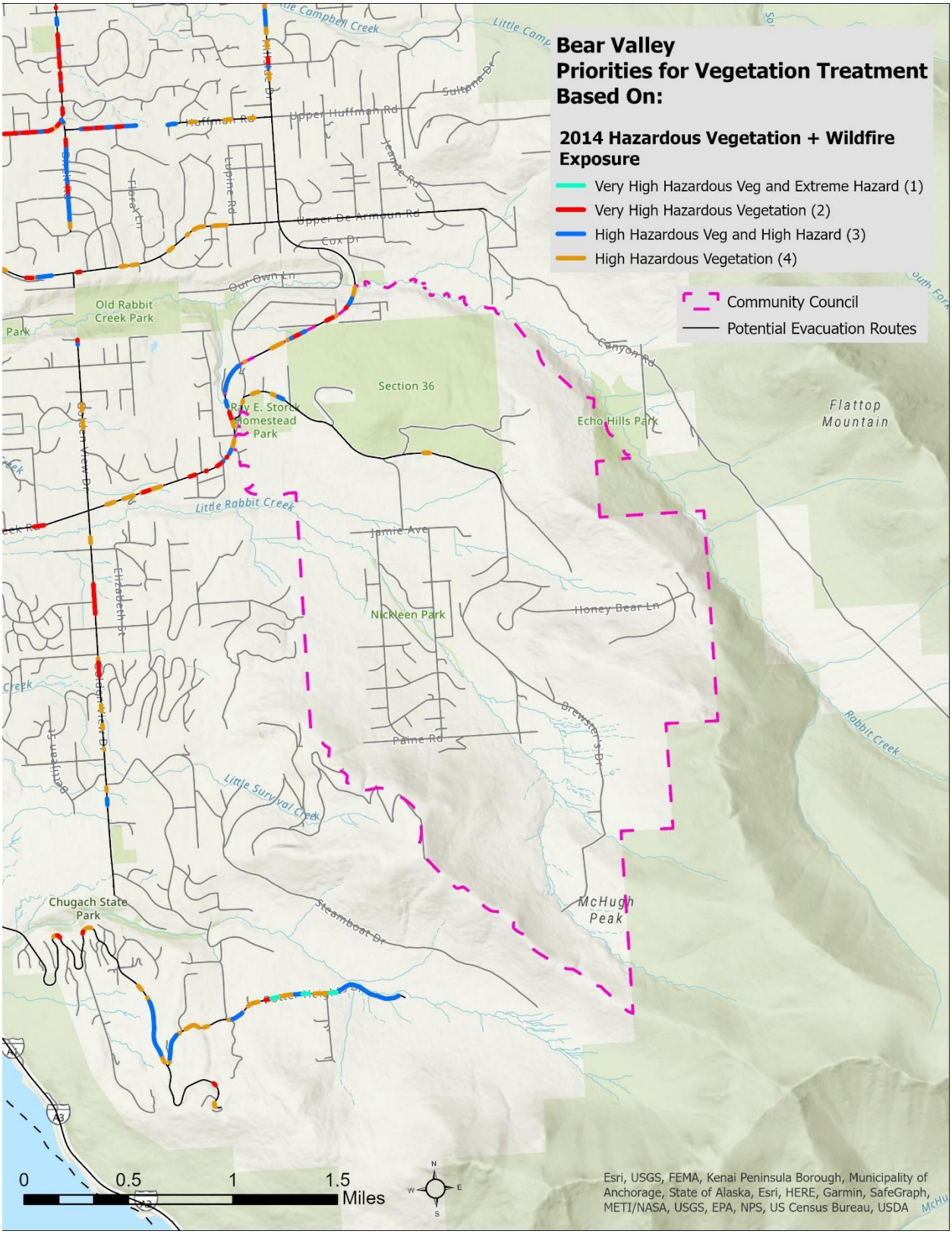

Hillside Park
Service High School
Hanshew Middle School
Ruth Arcand Park
O'Malley Elementary School
Bowman Elementary School
Huffman Elementary School
South High School
Rabbit Creek Elementary School
Old Rabbit Creek Park
Section 36
Bear Valley Elementary School
Goldeview Middle School
Little Rabbit Creek Bluff Park
Potter Marsh
Potter Creek Ravine Park
McHugh Peak
Community Council
Potential Evacuation Routes
Rabbit Creek Junction Intensity: Number of Routes (Residential) Using an Intersection while Evacuating a School
Number of Routes
< 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

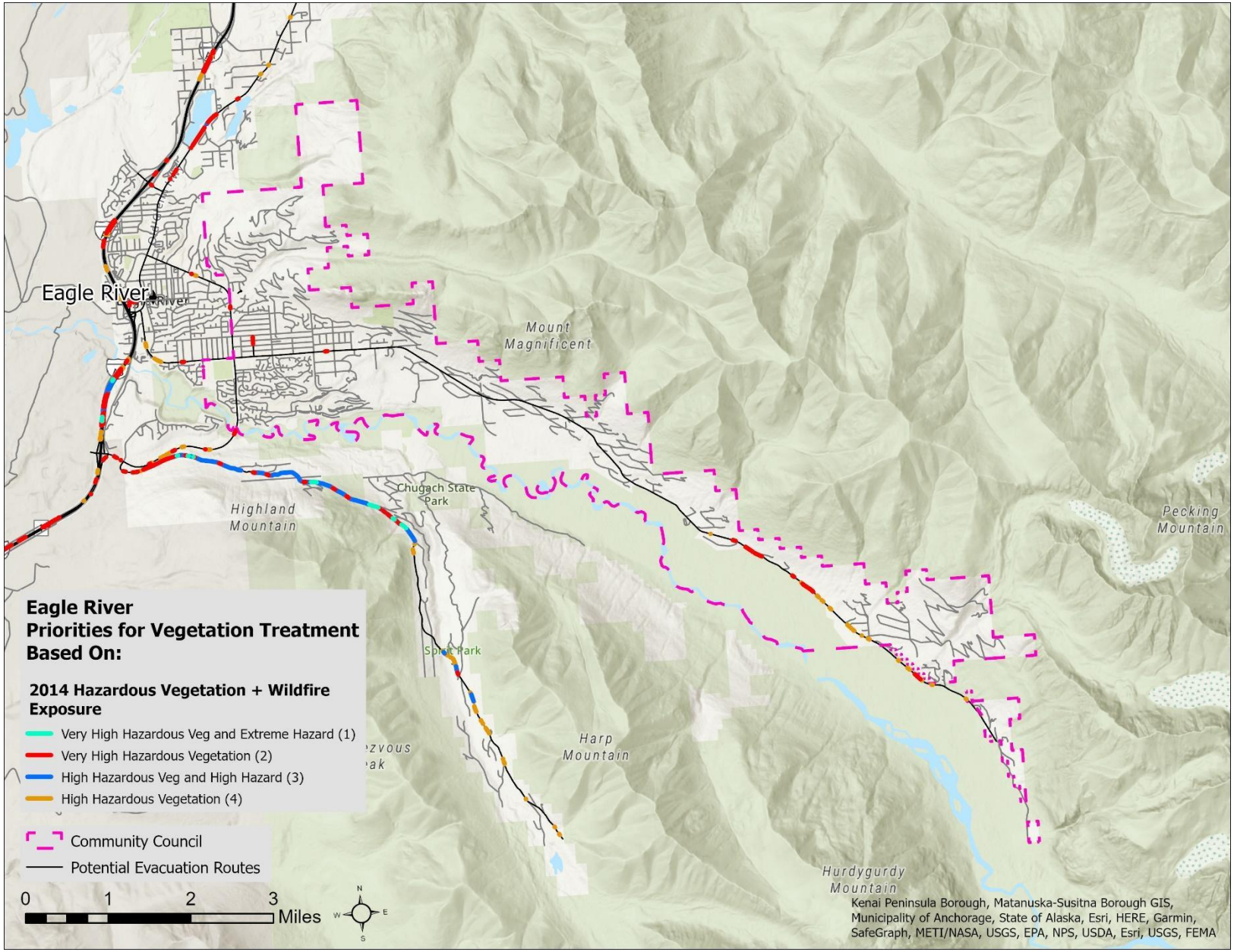

South Fork Junction Intensity: Number of Routes (Residential) Using an Intersection while Evacuating a School
Number of Routes
< 100 Not Shown
101 - 500
501 - 908
909 - 1,544
1,545 - 2,917
Frontier Charter
Eagle River Elementary
Homestead Elementary
Gruening Middle
Alpenglow Elementary
Ravenwood Elementary
Eagle River High
Hylen Crest Park
Mount Magnificent
Chugach State Park
Highland Mountain
Eagle River Rd
Ekluti Park
Spirit Park
Mount Gordon Lyon
Rendezvous Peak
Harp Mountain
Hurdygurdy Mountain
Community Council
Potential Evacuation Routes
0 1 2 3 Miles
N
S
E
W
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

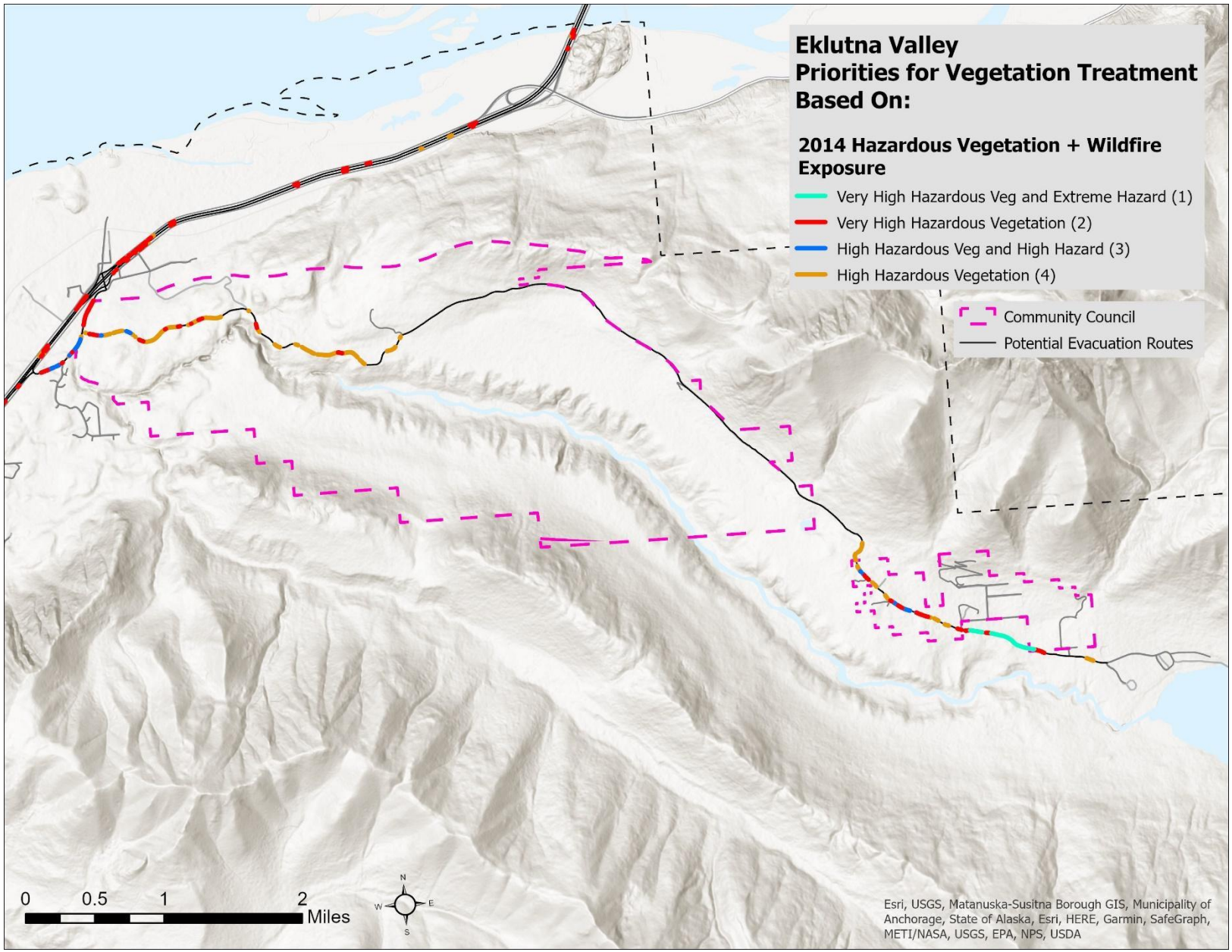
Appendix H. Recommended areas for fuel reduction activities along roadways with hazardous fuels or high exposure values to reduce wildfire hazards and facilitate access and evacuation. Slope is not included in these maps.

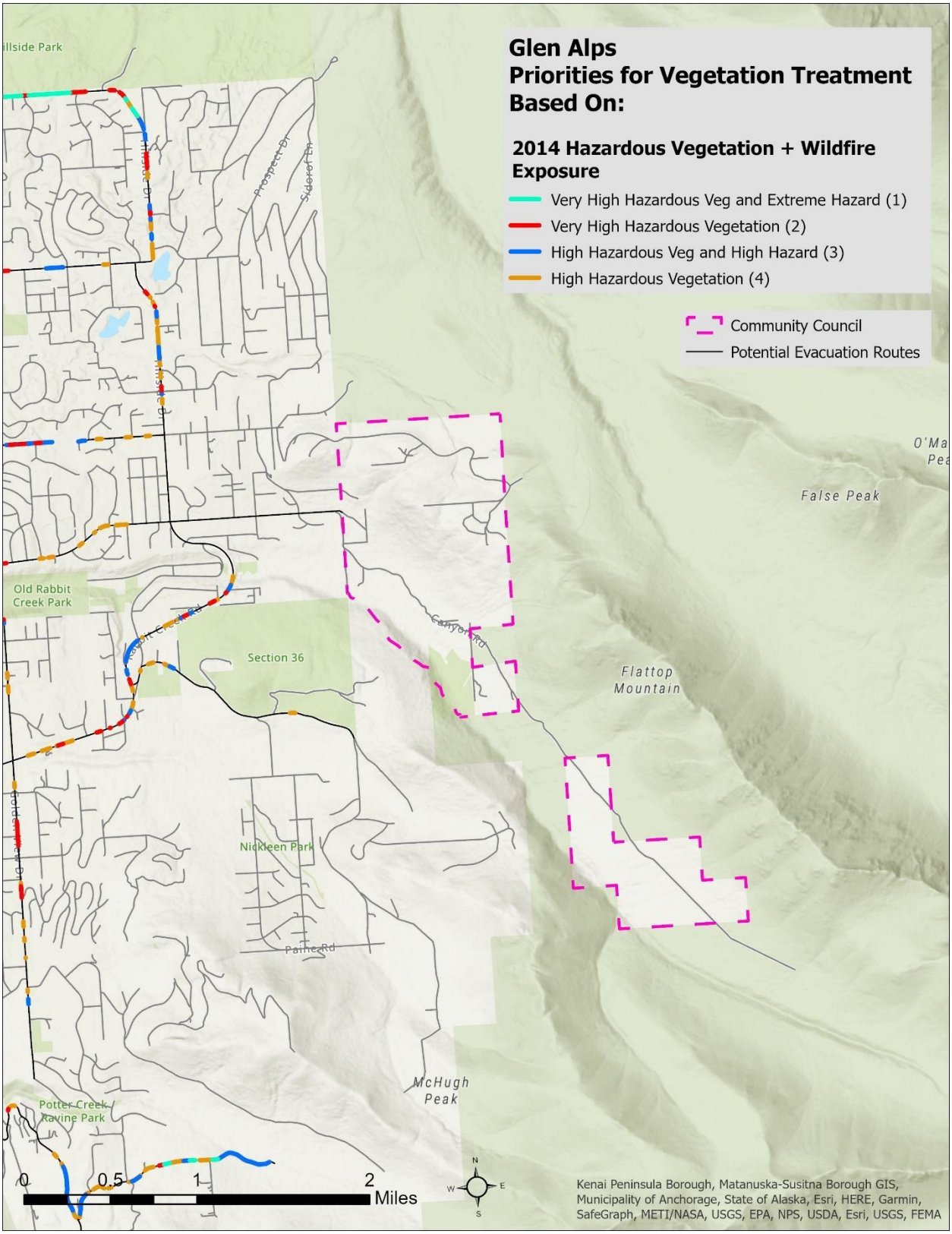


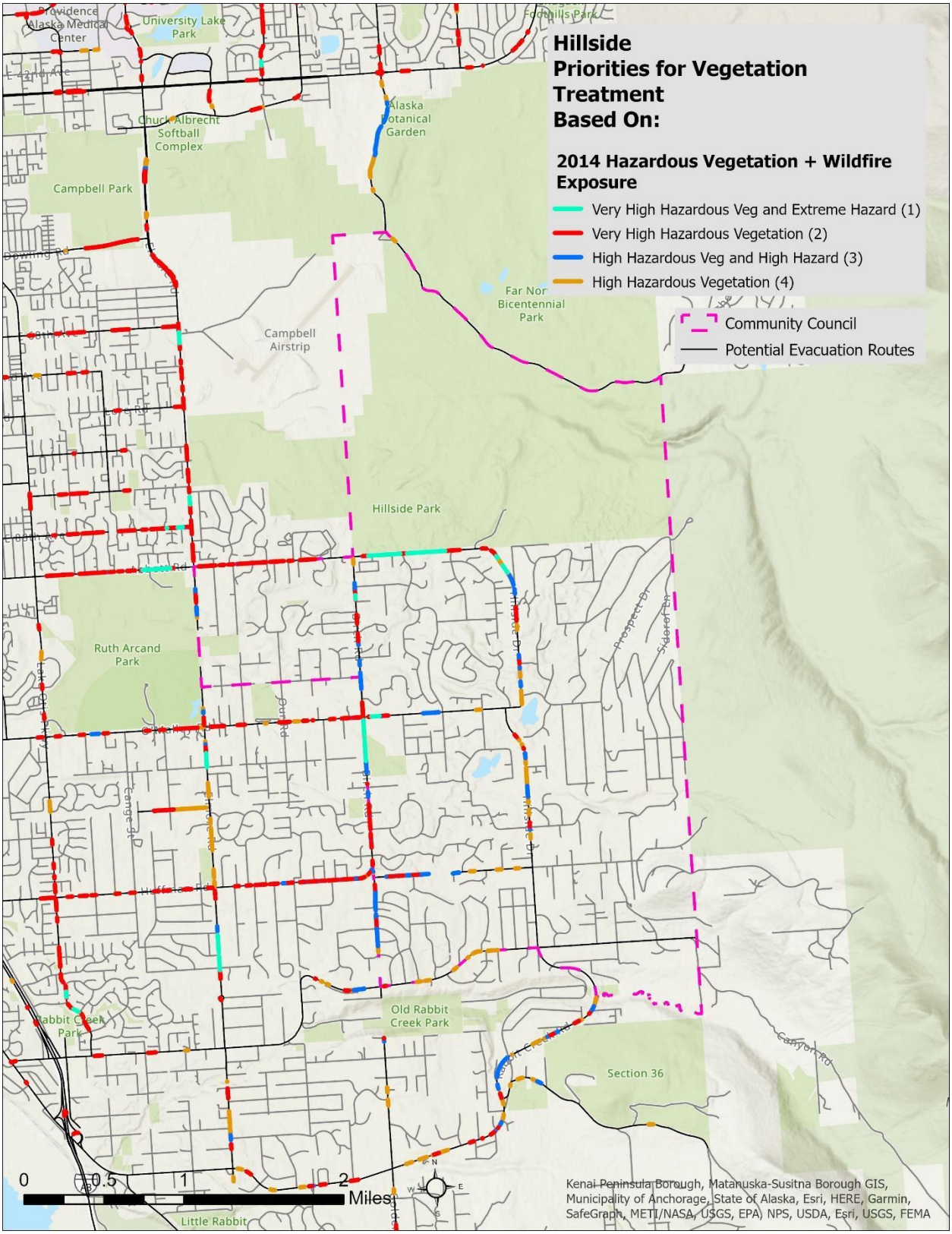

Basher
Priorities for Vegetation Treatment Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Debar Vista
Chanshtnu Muldoon Park
Russian Jack Springs Golf Course
Nunaka Valley
Chester Valley Park
Bonnybrook
Arnold L Muldoon Park
Chugach Foothills Park
Tudor Rd
Alaska Botanical Garden
Far North Bicentennial Park
Campbell Airstrip
Basher Dr
Hillside Park
Prospect Dr
Sidereth Dr
0 0.5 1 1.5 Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS


Bear Valley
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Old Rabbit Creek Park
Section 36
Ray E. Storck Homestead Park
Echo Hills Park
Flattop Mountain
Nickleen Park
Chugach State Park
McHugh Peak
Little Rabbit Creek
Little Survival Creek
Rabbit Creek
Upper Huffman Rd
Huffman Rd
Upper De Armoun Rd
Cox Dr
Our Own Ln
Canyon Rd
Jamie Ave
Honey Bear Ln
Paine Rd
Steamboat Dr
0 0.5 1 1.5 Miles
Esri, USGS, FEMA, Kenai Peninsula Borough, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA


Eagle River
Eagle River
Mount Magnificent
Chugach State Park
Highland Mountain
Pecking Mountain
Harp Mountain
Hurdygurdy Mountain
Eagle River
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0 1 2 3 Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

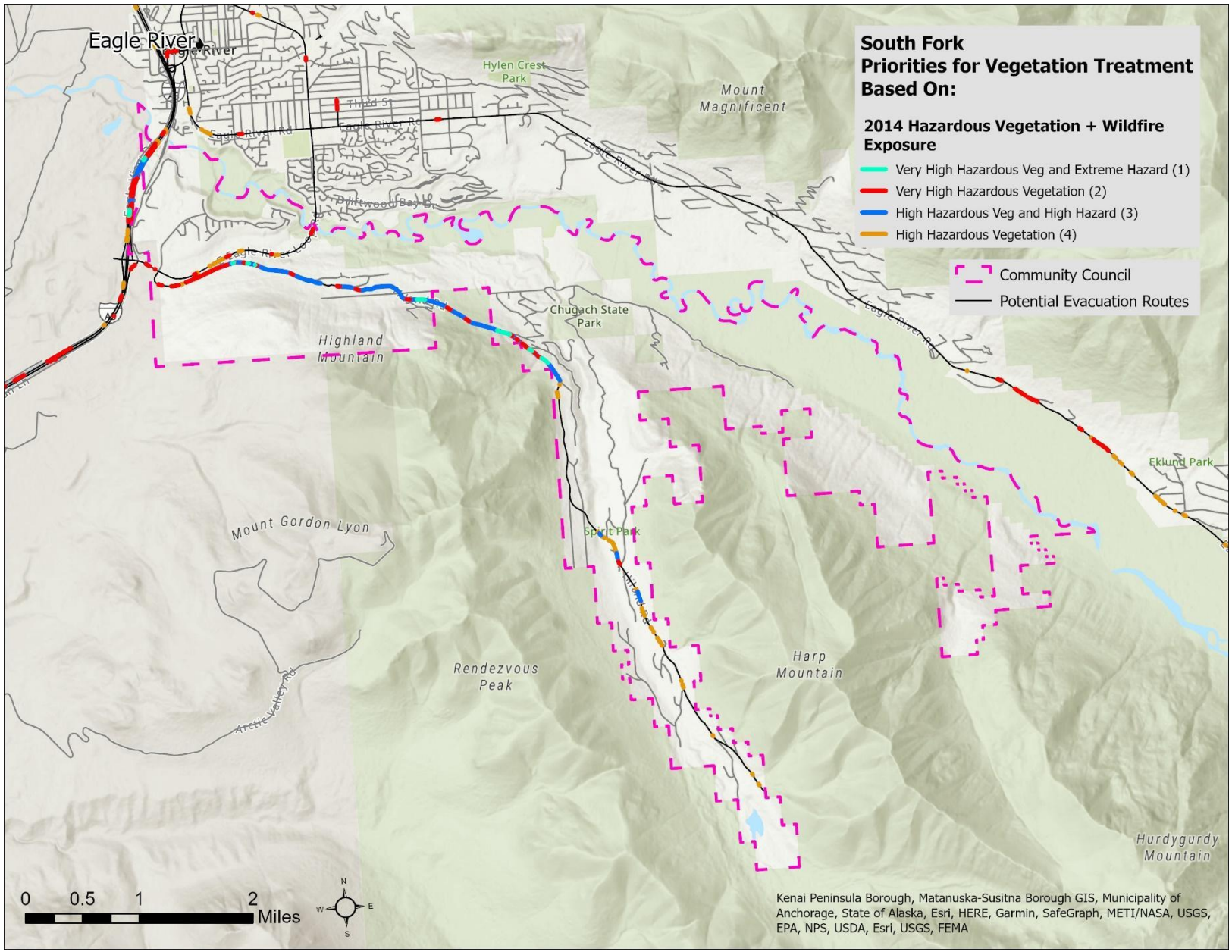

Eklutna Valley
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
N
W
E
S
Esri, USGS, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA


Glen Alps
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Old Rabbit Creek Park
Section 36
Nickleen Park
Potter Creek / Ravine Park
Flattop Mountain
False Peak
McHugh Peak
Canyon Rd
Paine Rd
Prospect Dr
Sidorof Ln
0
0.5
1
2
Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

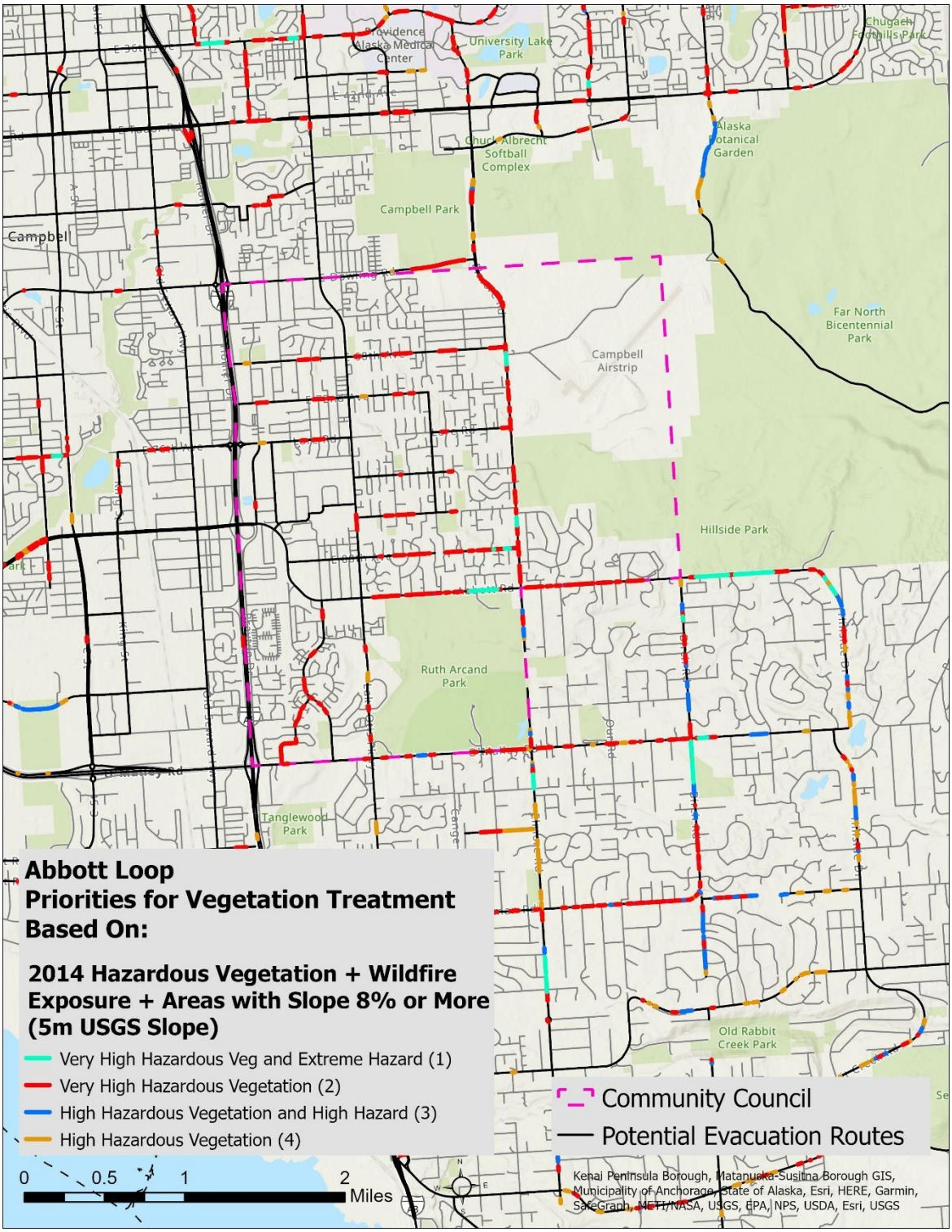

Hillside
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Providence Alaska Medical Center
University Lake Park
Foothills Park
Alaska Botanical Garden
Chuck Albrecht Softball Complex
Campbell Park
Far Nor Bicentennial Park
Campbell Airstrip
Hillside Park
Ruth Arcand Park
Rabbit Creek Park
Old Rabbit Creek Park
Section 36
Little Rabbit
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA) NPS, USDA, Esri, USGS, FEMA

Huffman O'Malley
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0
0.5
1
1.5
Miles
Abbott Loop Community Park
Hillside Park
Little Campbell Creek Greenbelt
Ruth Arcand Park
Anchorage Golf Course
Alaska Zoo
Forsythe Park
Lake 'O The Hills
Tanglewood Park
Fox Hollow Golf Course
Furrow Creek Park
Rabbit Creek Park
Griffin Park
Old Rabbit Creek Park
Little Rabbit Creek Bluff Park
Potter Marsh
Elmore Rd
O'Malley Rd
Huffman Rd
Abbott Rd
E 112th Ave
E 104th Ave
E 145th Ave
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Esri, USGS, FEMA

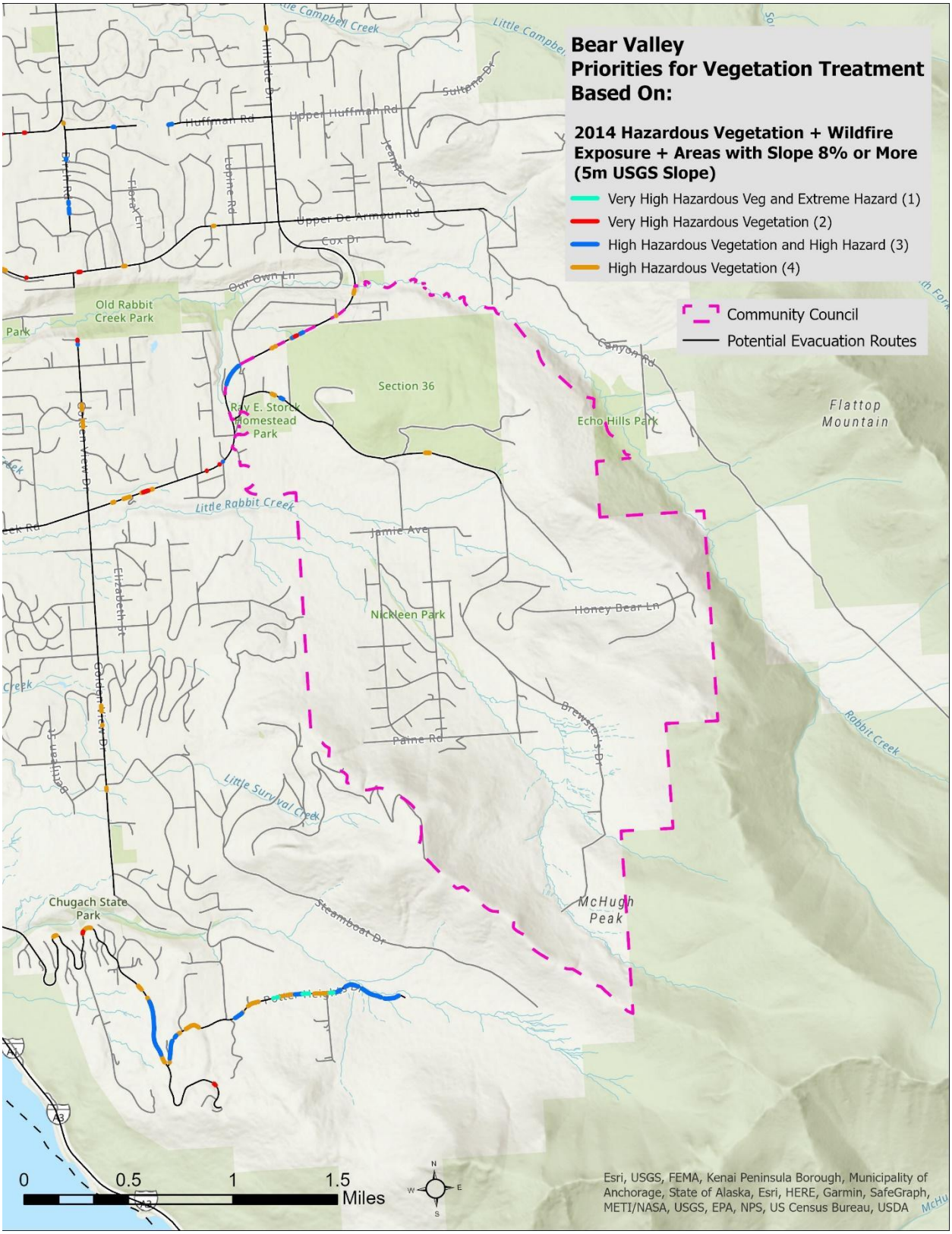
Rabbit Creek
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
Esri, USGS, Kenai Peninsula Borough, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA
Rabbit Creek Park
Old Rabbit Creek Park
Section 36
Little Rabbit Creek Bluff Park
Nickleen Park
Potter Marsh
Potter Creek Ravine Park
McHugh Peak
Canyon Rd
Paine Rd
Huffman Rd
Rabbit Creek Rd
A3

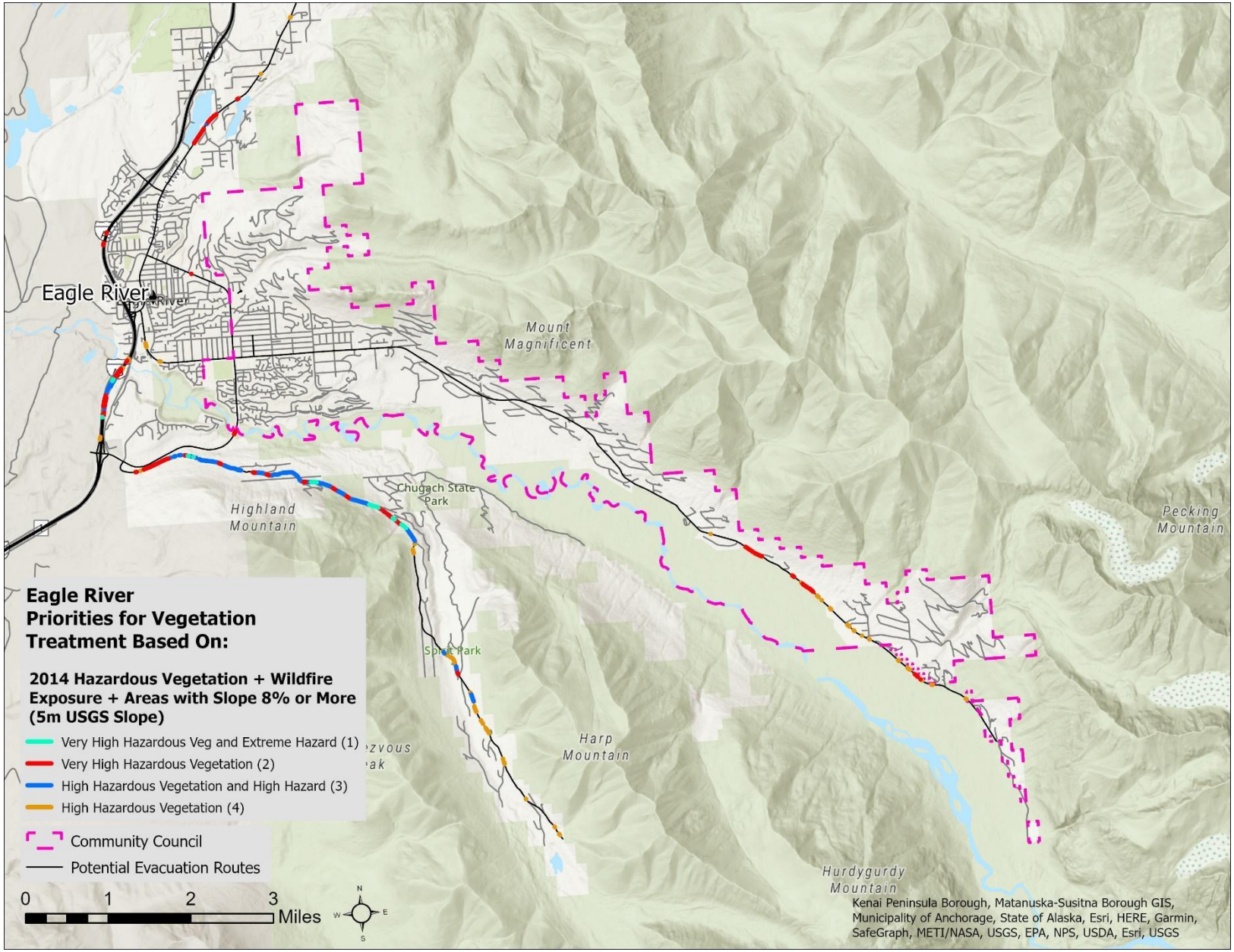

South Fork
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Veg and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Eagle River
Hylen Crest Park
Mount Magnificent
Chugach State Park
Highland Mountain
Mount Gordon Lyon
Spirit Park
Rendezvous Peak
Harp Mountain
Eklund Park
Hurdygurdy Mountain
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

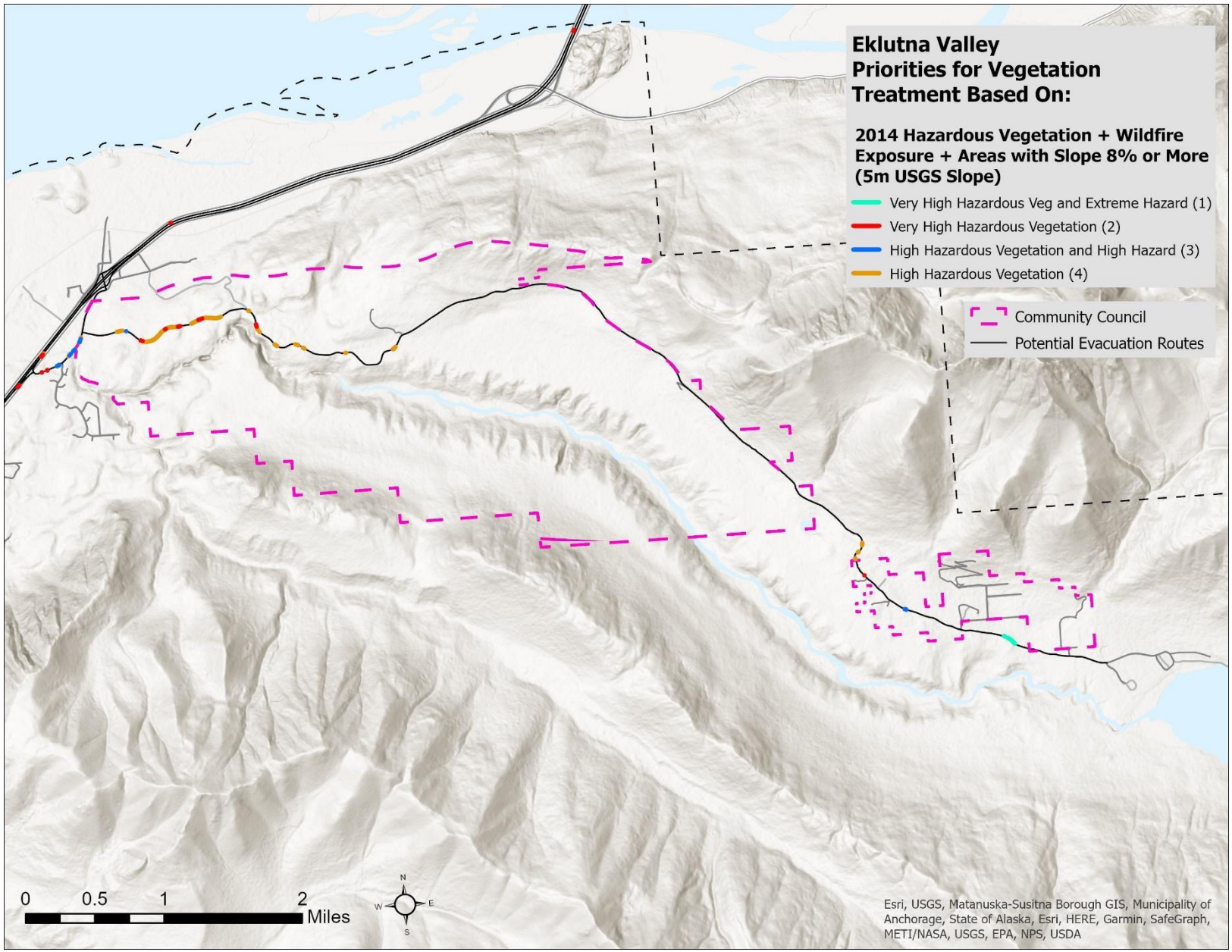
Appendix I. Recommended areas for fuel reduction activities along roadways with hazardous fuels or high exposure values to reduce wildfire hazards and facilitate access and evacuation. A slope of 8% or more was used to further refine the suggested area of treatment.

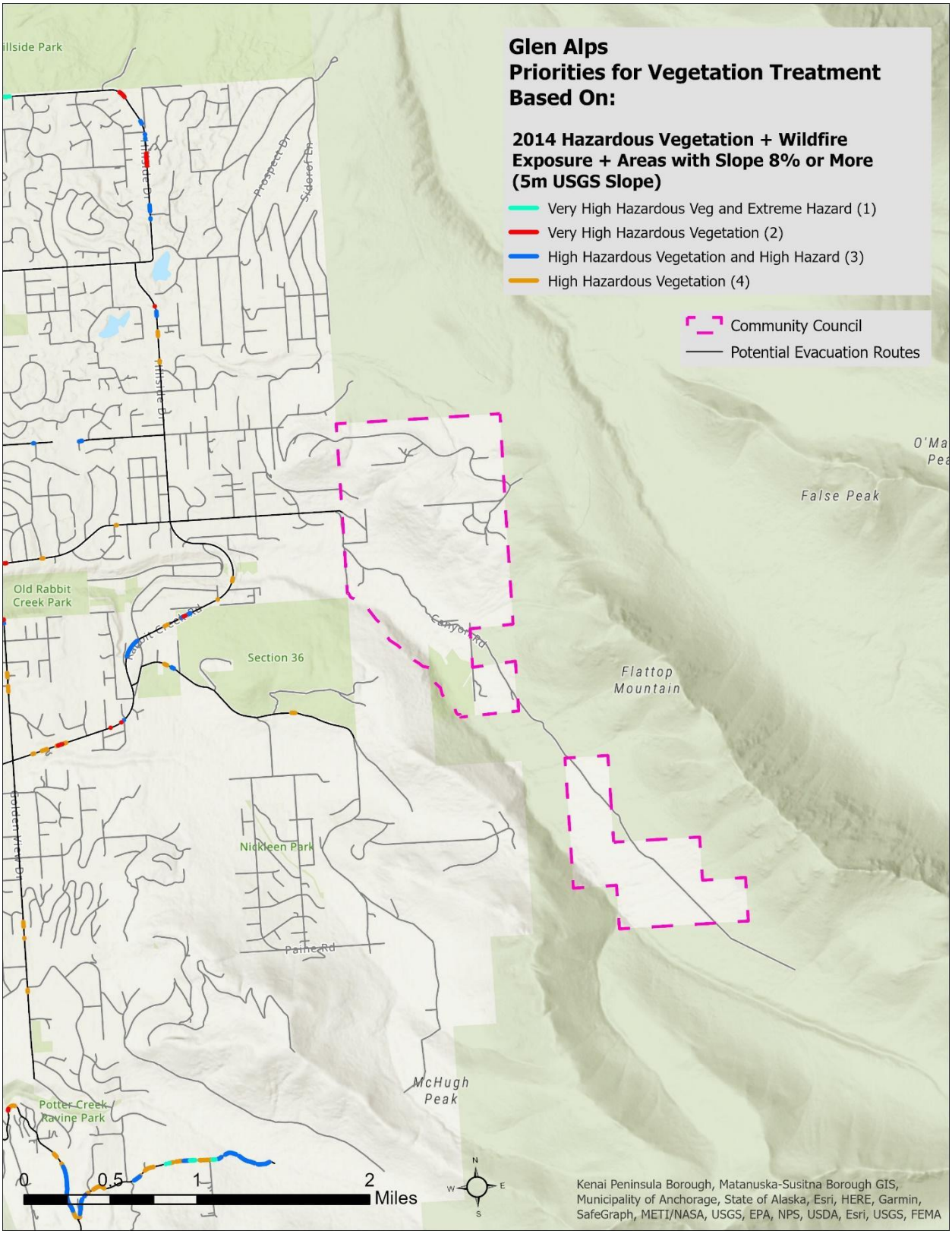


Basher
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Debar Vista
Chanshtnu Muldoon Park
Russian Jack Springs Golf Course
Nunaka Valley
Chester Valley Park
Bonnybrook
Arnold L Muldoon Park
Chugach Foothills Park
E Tudor Rd
Alaska Botanical Garden
Far North Bicentennial Park
Campbell Airstrip
Hillside Park
Prospect Dr
0
0.5
1
1.5
Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

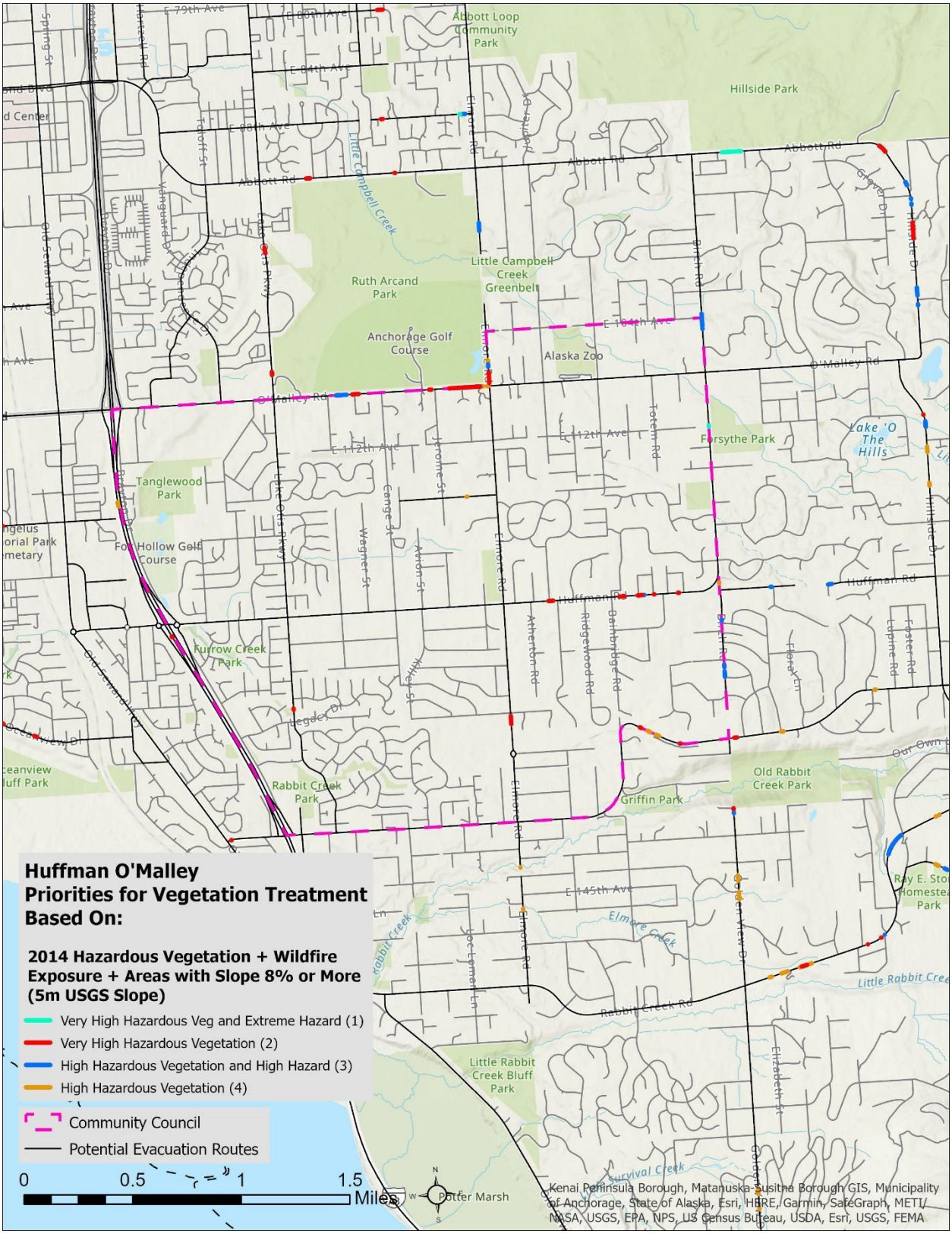

Bear Valley
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Old Rabbit Creek Park
Section 36
Ray E. Storck Homestead Park
Echo Hills Park
Flattop Mountain
Nickleen Park
Chugach State Park
McHugh Peak
Little Rabbit Creek
Little Survival Creek
Rabbit Creek
Huffman Rd
Upper Huffman Rd
Upper De Armoun Rd
Cox Dr
Our Own Ln
Canyon Rd
Jamie Ave
Honey Bear Ln
Paine Rd
Steamboat Dr
0
0.5
1
1.5
Miles
Esri, USGS, FEMA, Kenai Peninsula Borough, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA


Eagle River
Eagle River
Mount Magnificent
Chugach State Park
Highland Mountain
Pecking Mountain
Harp Mountain
Hurdygurdy Mountain
Eagle River
Priorities for Vegetation
Treatment Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0 1 2 3 Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS


Eklutna Valley
Priorities for Vegetation Treatment Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
N
W
E
S
Esri, USGS, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA

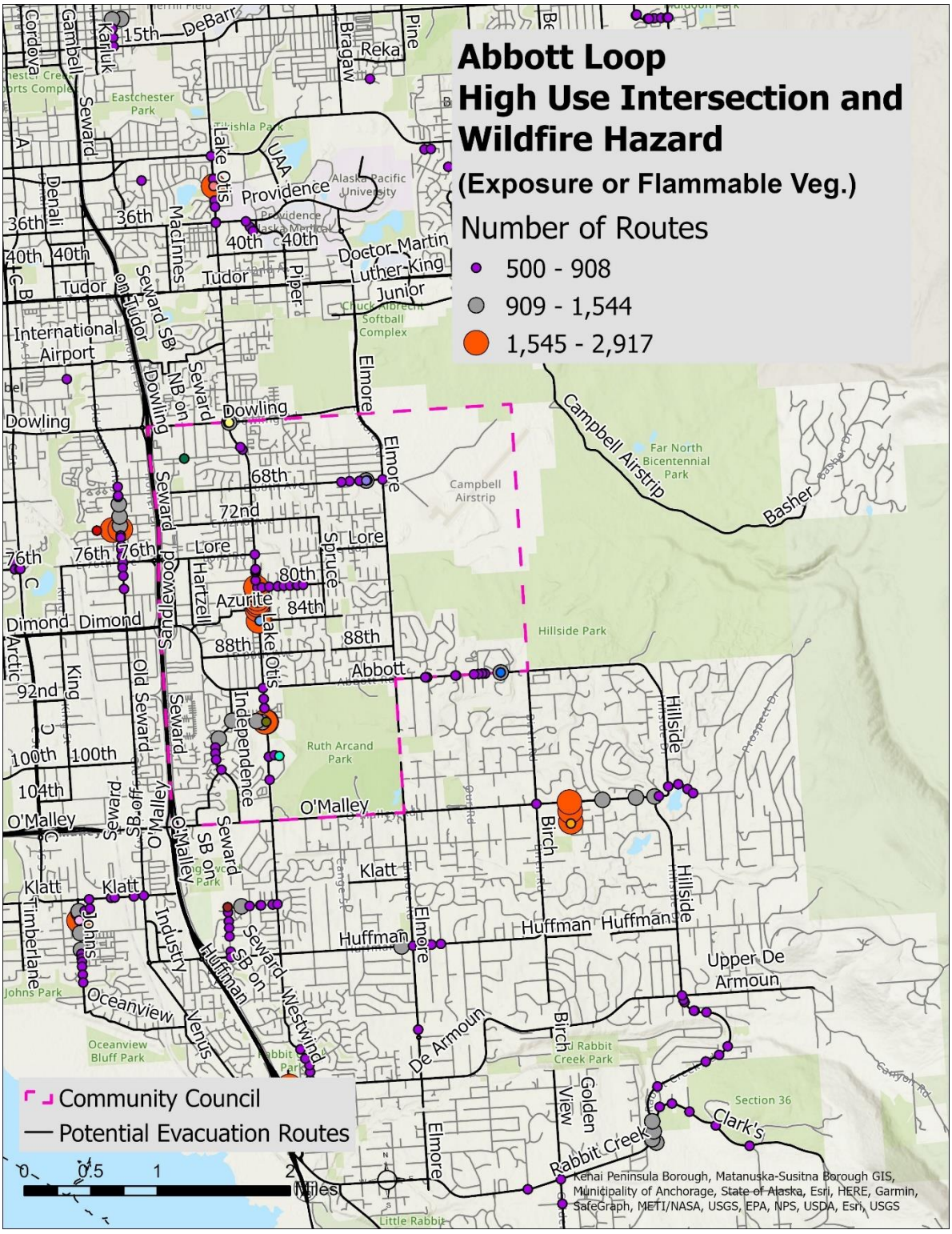

Glen Alps
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Old Rabbit Creek Park
Section 36
Nickleen Park
Potter Creek Ravine Park
False Peak
Flattop Mountain
McHugh Peak
Canyon Rd
Paine Rd
Prospect Dr
Sidorof Ln
Golden View Dr
0
0.5
1
2
Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

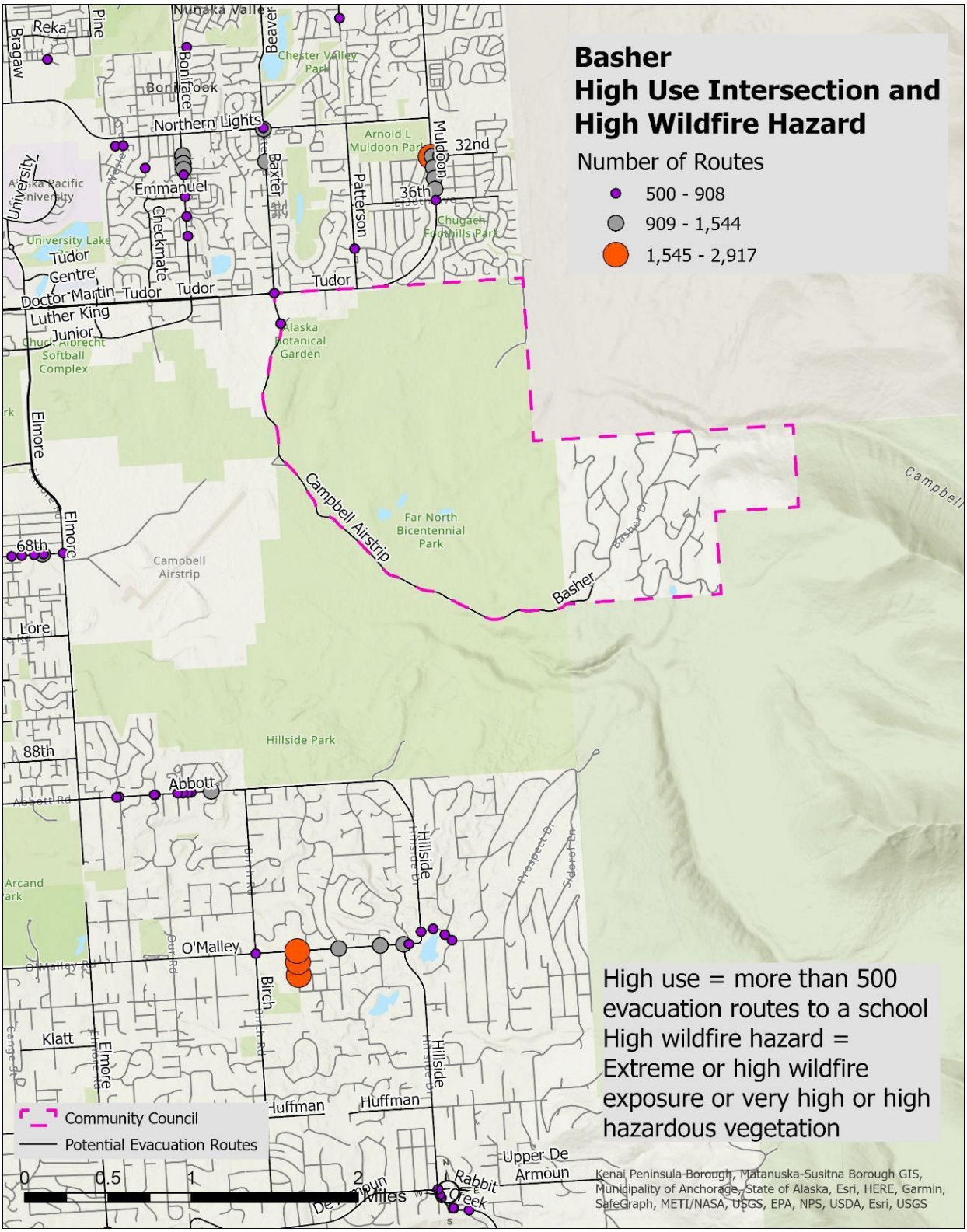
Hillside
Priorities for Vegetation Treatment Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
Providence Alaska Medical Center
University Lake Park
Foothills Park
Alaska Botanical Garden
Chuck Albrecht Softball Complex
Campbell Park
Far North Bicentennial Park
Campbell Airstrip
Hillside Park
Ruth Arcand Park
Old Rabbit Creek Park
Rabbit Creek Park
Section 36
Little Rabbit
Abbott Rd
Huffman Rd
Prospect Dr
Canyon Rd
0
0.5
1
2
Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

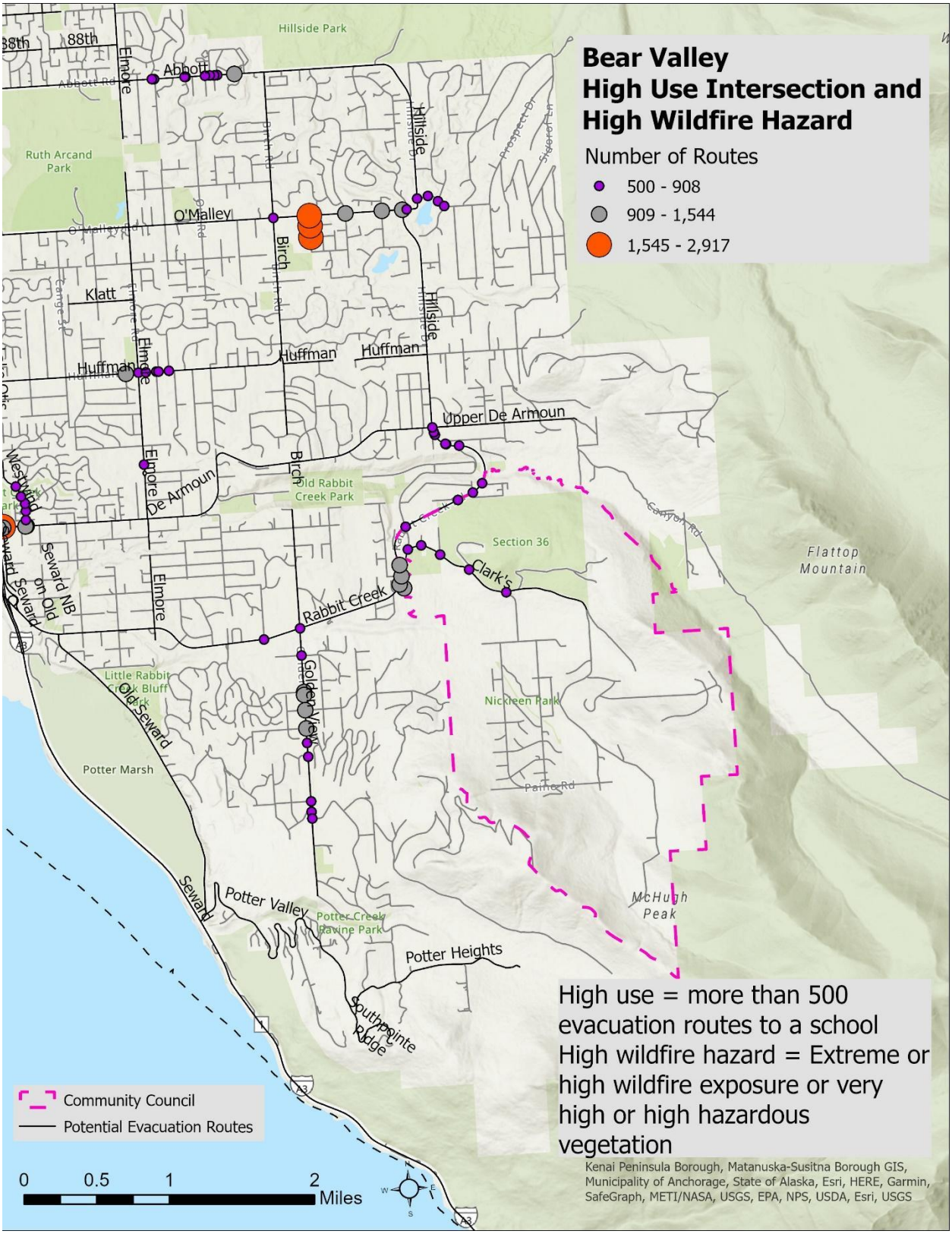

Huffman O'Malley
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0
0.5
1
1.5
Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Esri, USGS, FEMA
Abbott Loop Community Park
Hillside Park
Ruth Arcand Park
Little Campbell Creek Greenbelt
Anchorage Golf Course
Alaska Zoo
Forsythe Park
Lake 'O The Hills
Tanglewood Park
Fort Hollow Golf Course
Furrow Creek Park
Rabbit Creek Park
Griffin Park
Old Rabbit Creek Park
Little Rabbit Creek Bluff Park
Potter Marsh
Little Campbell Creek
Elmore Creek
Rabbit Creek
Survival Creek
Abbott Rd
E 104th Ave
E 112th Ave
O'Malley Rd
Huffman Rd
Rabbit Creek Rd
Elmore Rd
Lake Otis Pkwy
Old Seward Hwy

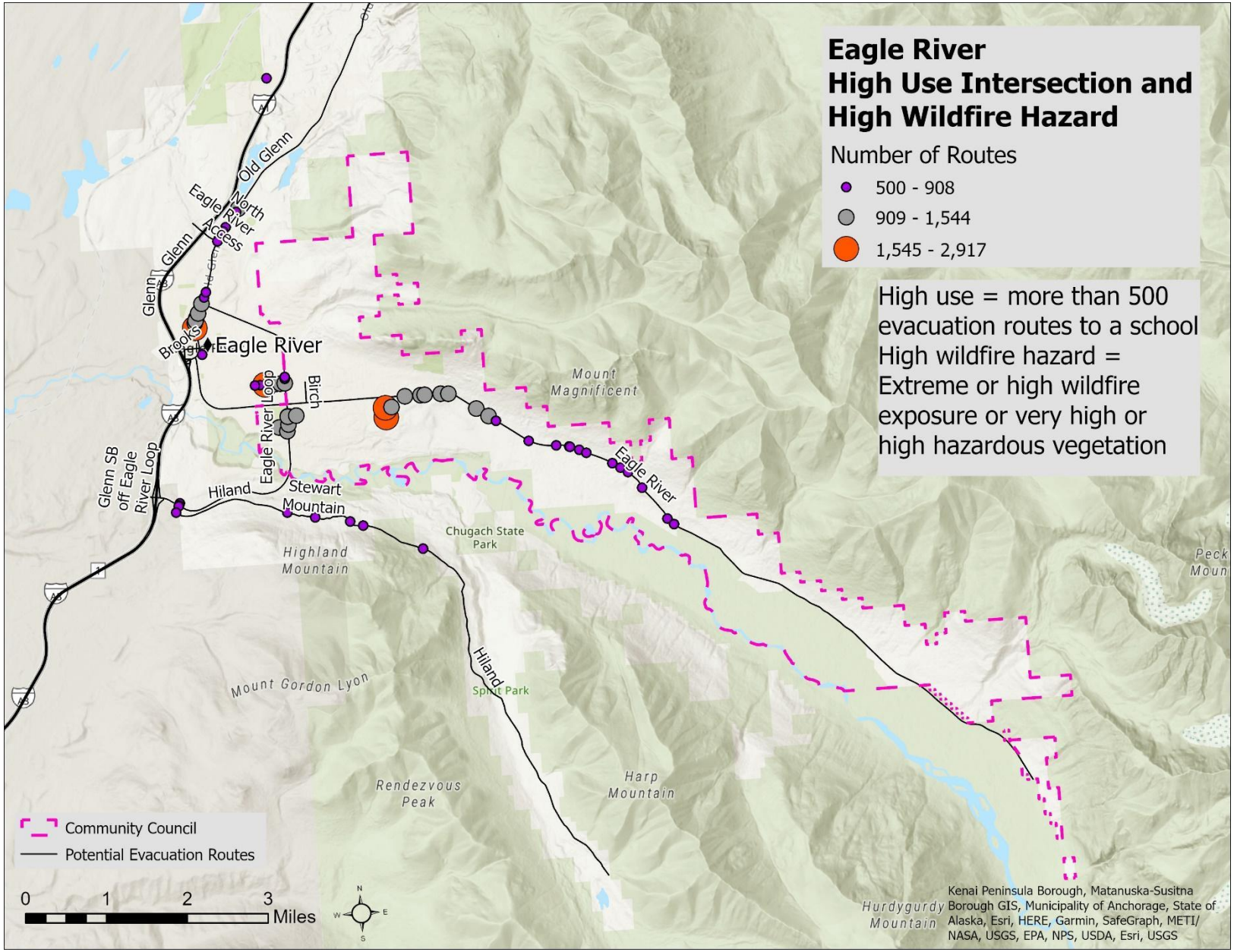
Rabbit Creek
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
Esri, USGS, Kenai Peninsula Borough, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA
Rabbit Creek Park
Old Rabbit Creek Park
Section 36
Little Rabbit Creek Bluff Park
Potter Marsh
Nickleen Park
Potter Creek / Ravine Park
McHugh Peak
Huffman Rd
Rabbit Creek Rd
Canyon Rd
Paine Rd

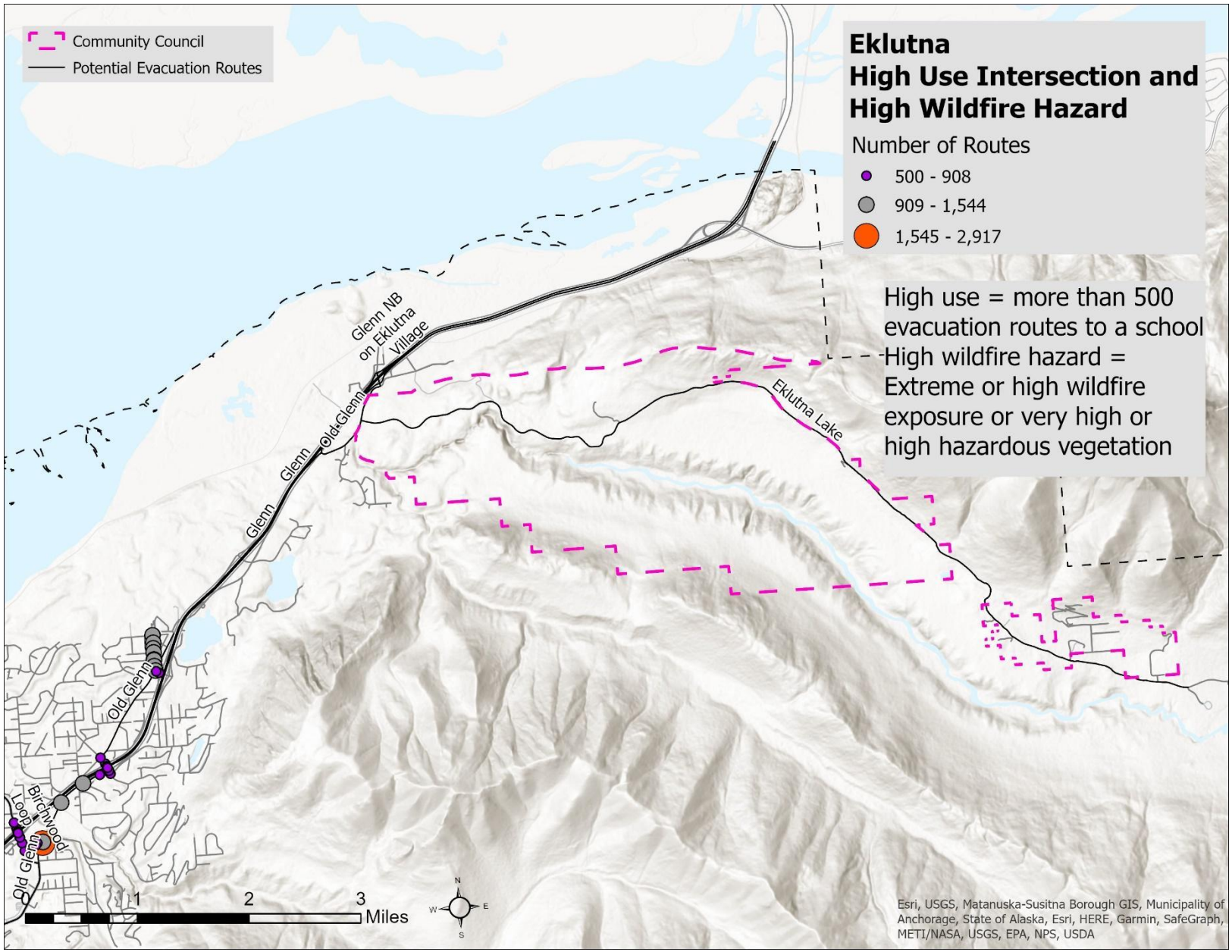
Appendix J. Intersection intensity use which is determined by calculating the number of parcels using an intersection to get to their assigned evacuation location (i.e. school) and wildfire exposure. Intersections that have heavy use and are in areas with exposure values over 60.

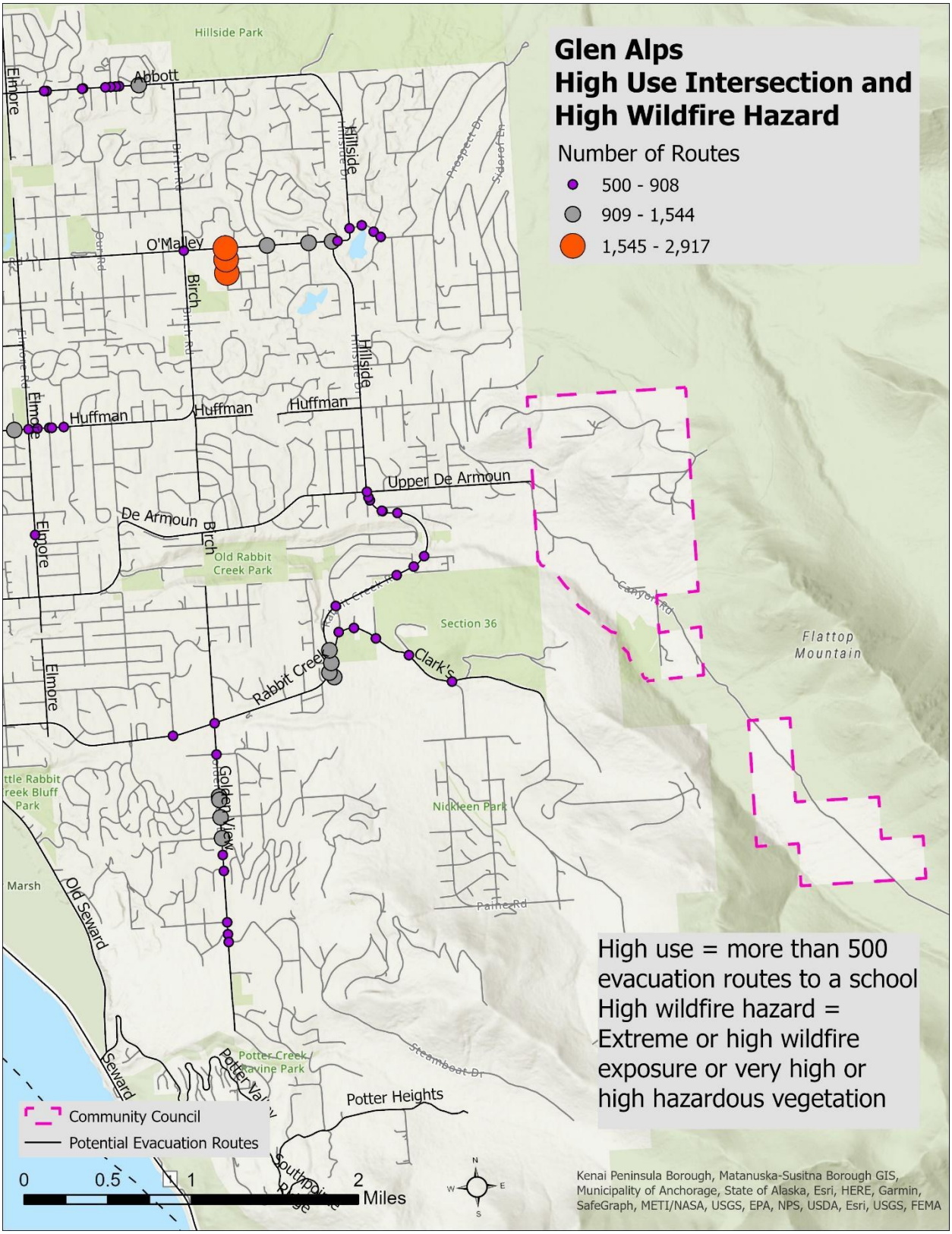


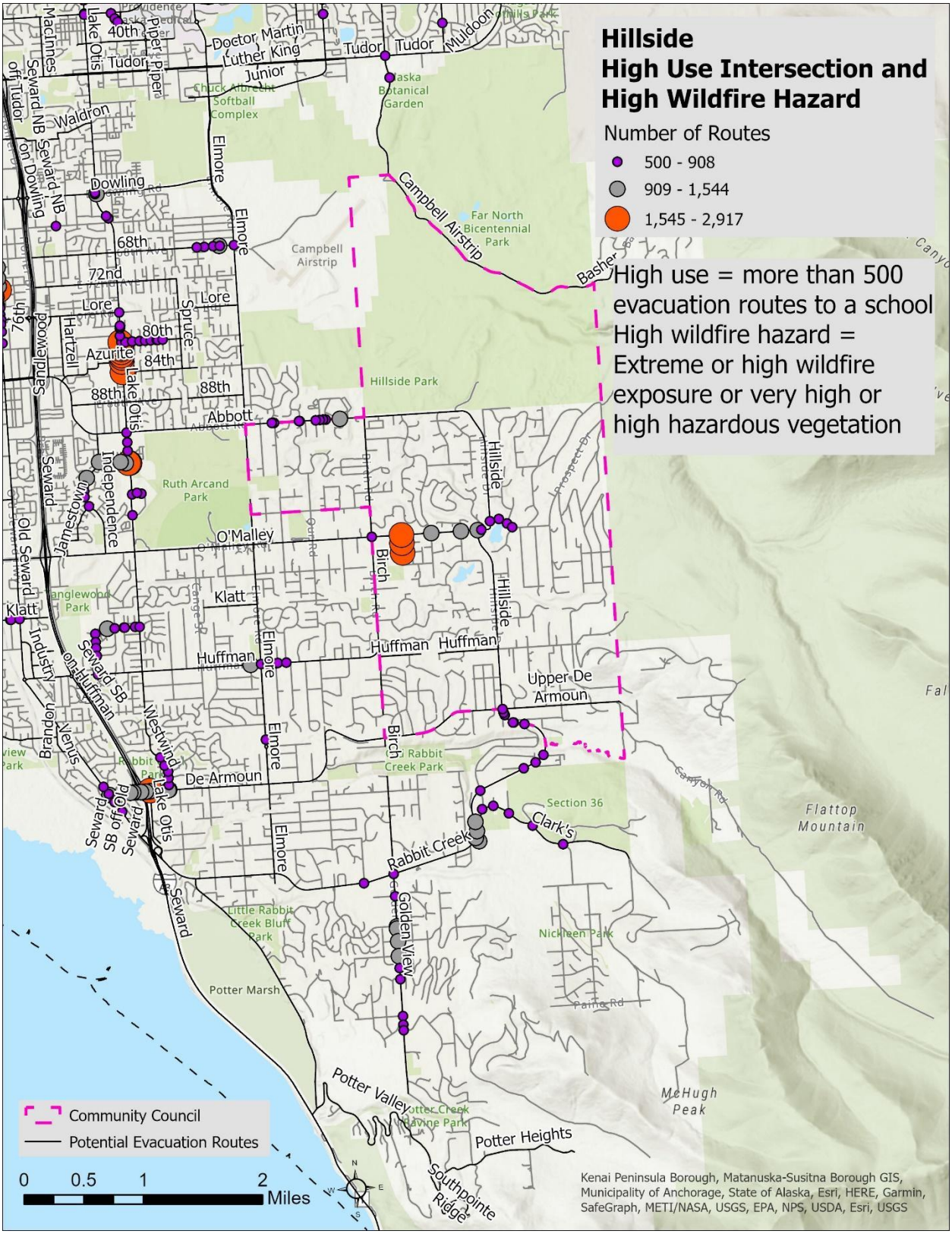

Basher
High Use Intersection and
High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS
Reka
Bragaw
Pine
Nunaka Valley
Beaver
Chester Valley Park
Boniface
Bonifacio
Northern Lights
Arnold L Muldoon Park
Muldoon
32nd
36th
Baxter
Patterson
Emmanuel
Checkmate
University
Alaska Pacific University
University Lake
Tudor
Centre
Doctor Martin
Luther King
Junior
Chugach Foothills Park
Alaska Botanical Garden
Chuck Albrecht Softball Complex
Elmore
68th
Campbell Airstrip
Far North Bicentennial Park
Basher
Lore
88th
Hillside Park
Abbott
Abbott Rd
Hillside
Prospect Dr
Arcand Park
O'Malley
Birch
Klatt
Huffman
Upper De Armoun
Rabbit Creek

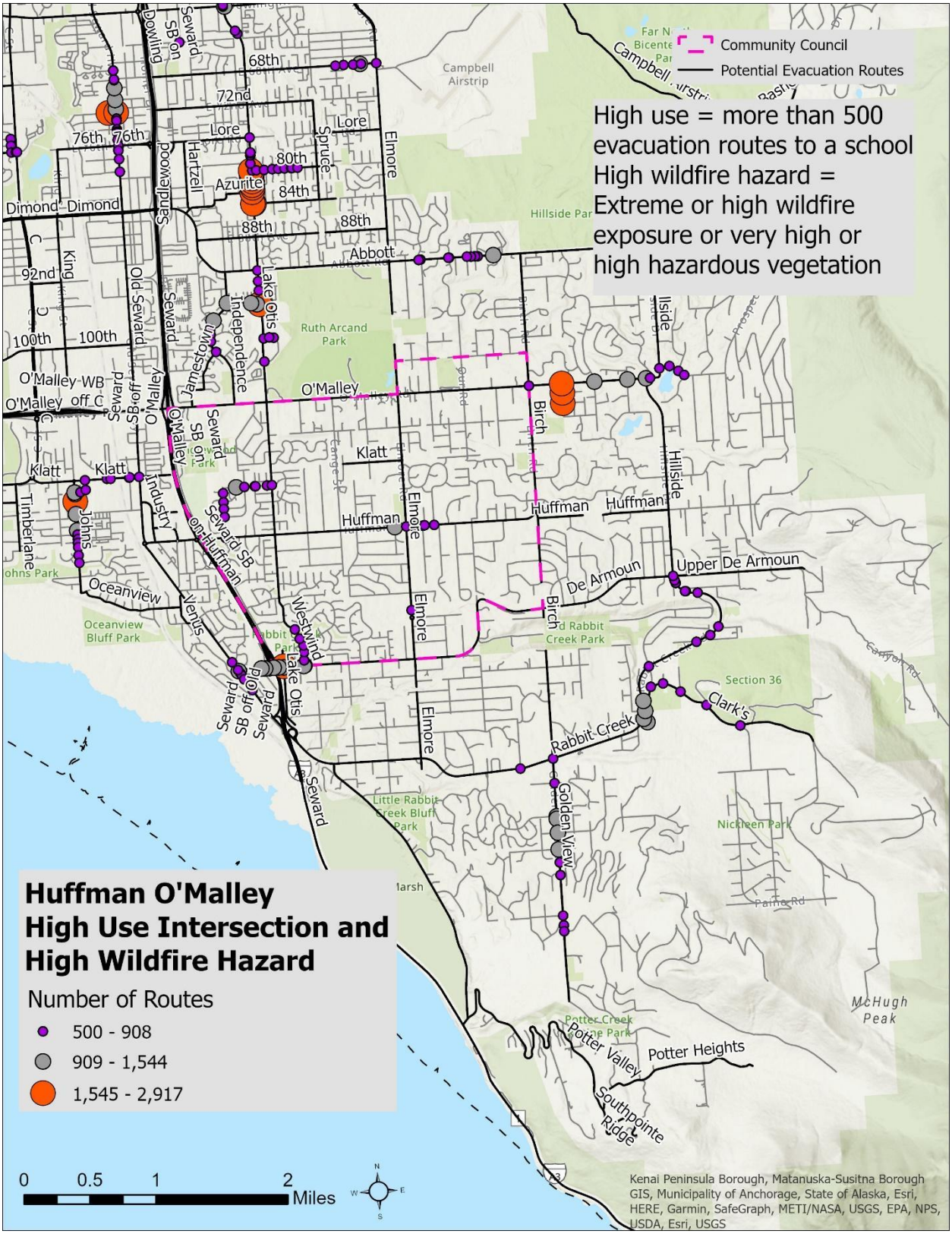

Bear Valley
High Use Intersection and
High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
Hillside Park
Ruth Arcand Park
Abbott
Elmore
O'Malley
Birch
Hillside
Klatt
Huffman
Upper De Armoun
Elmore
De Armoun
Old Rabbit Creek Park
Section 36
Clark's
Flattop Mountain
Rabbit Creek
Golden View
Nickleen Park
Little Rabbit Creek Bluff Park
Old Seward
Potter Marsh
Potter Valley
Potter Creek Ravine Park
Potter Heights
Southpointe Ridge
McHugh Peak
Seward
Seward NB on Old Seward
Community Council
Potential Evacuation Routes
0 0.5 1 2 Miles
High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS

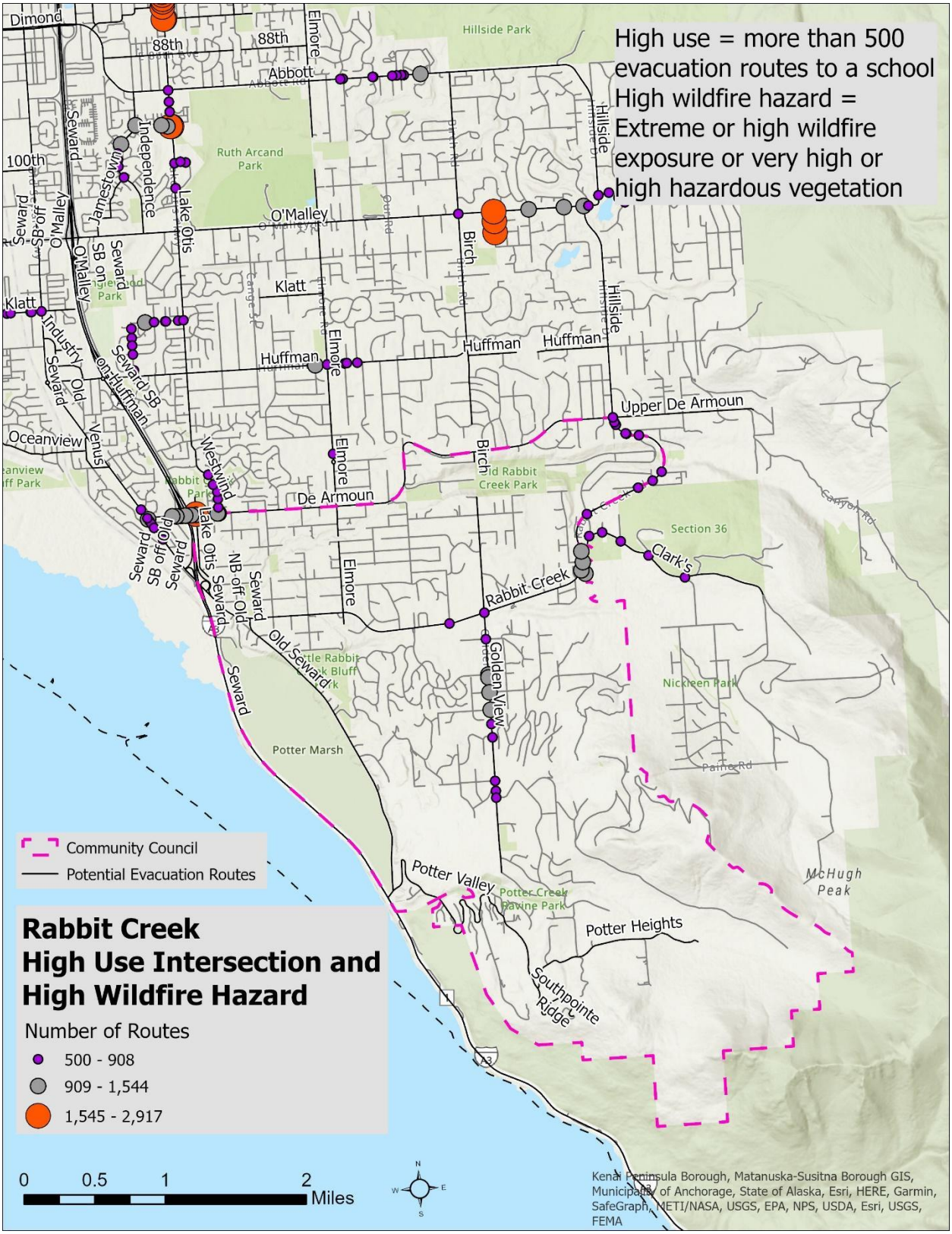

Eagle River
High Use Intersection and
High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Old Glenn
Eagle River North Access
Glenn
Glenn
Brooks
Eagle River
Birch
Eagle River Loop
Glenn SB off Eagle River Loop
Hiland
Stewart Mountain
Mount Magnificent
Eagle River
Chugach State Park
Highland Mountain
Mount Gordon Lyon
Hiland
Rendezvous Peak
Harp Mountain
Hurdygurdy Mountain
Community Council
Potential Evacuation Routes
0 1 2 3 Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/ NASA, USGS, EPA, NPS, USDA, Esri, USGS

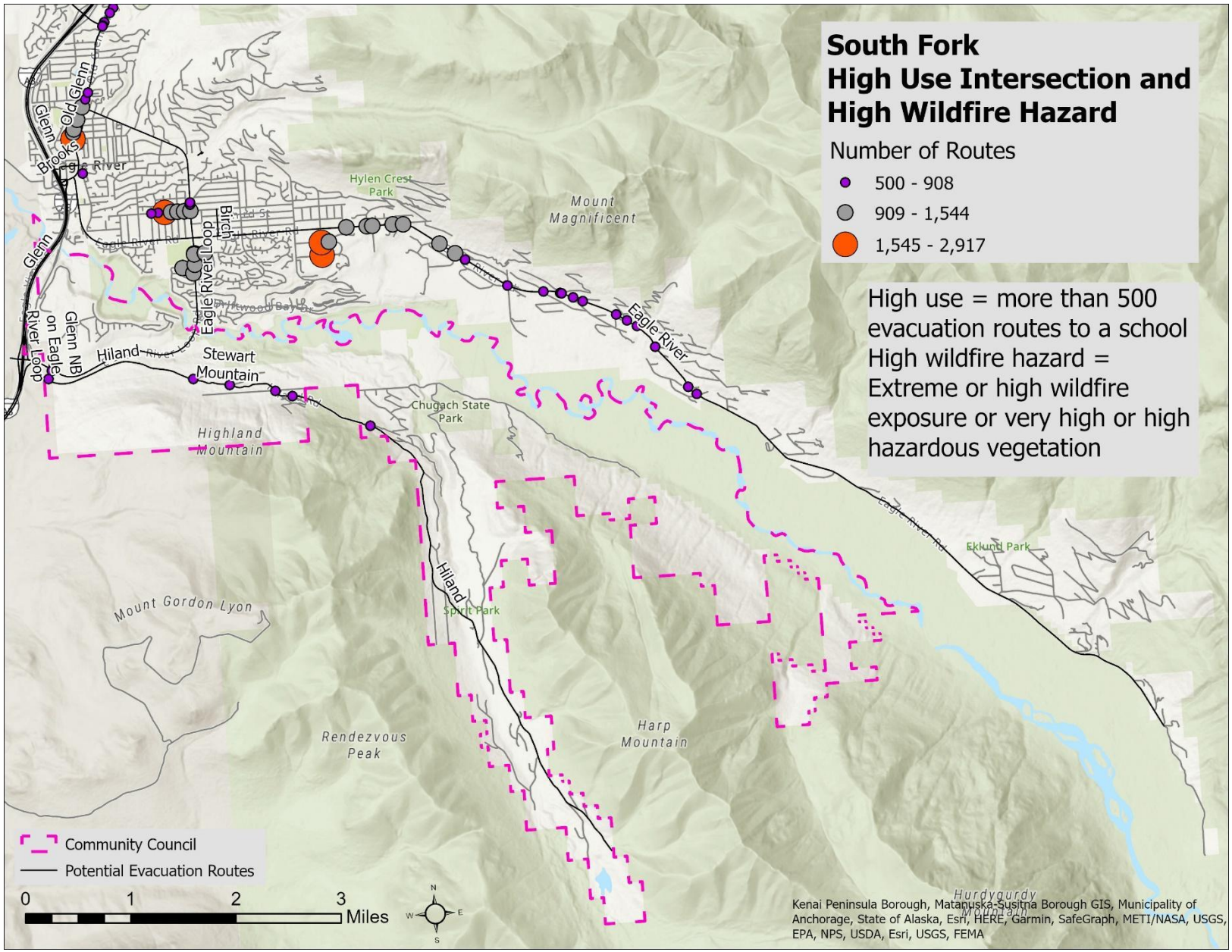

Community Council
Potential Evacuation Routes
Eklutna
High Use Intersection and
High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Glenn NB on Eklutna Village
Old Glenn
Glenn
Glenn
Eklutna Lake
Old Glenn
Birchwood Loop
Old Glenn
1
2
3
Miles
N
W
E
S
Esri, USGS, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA

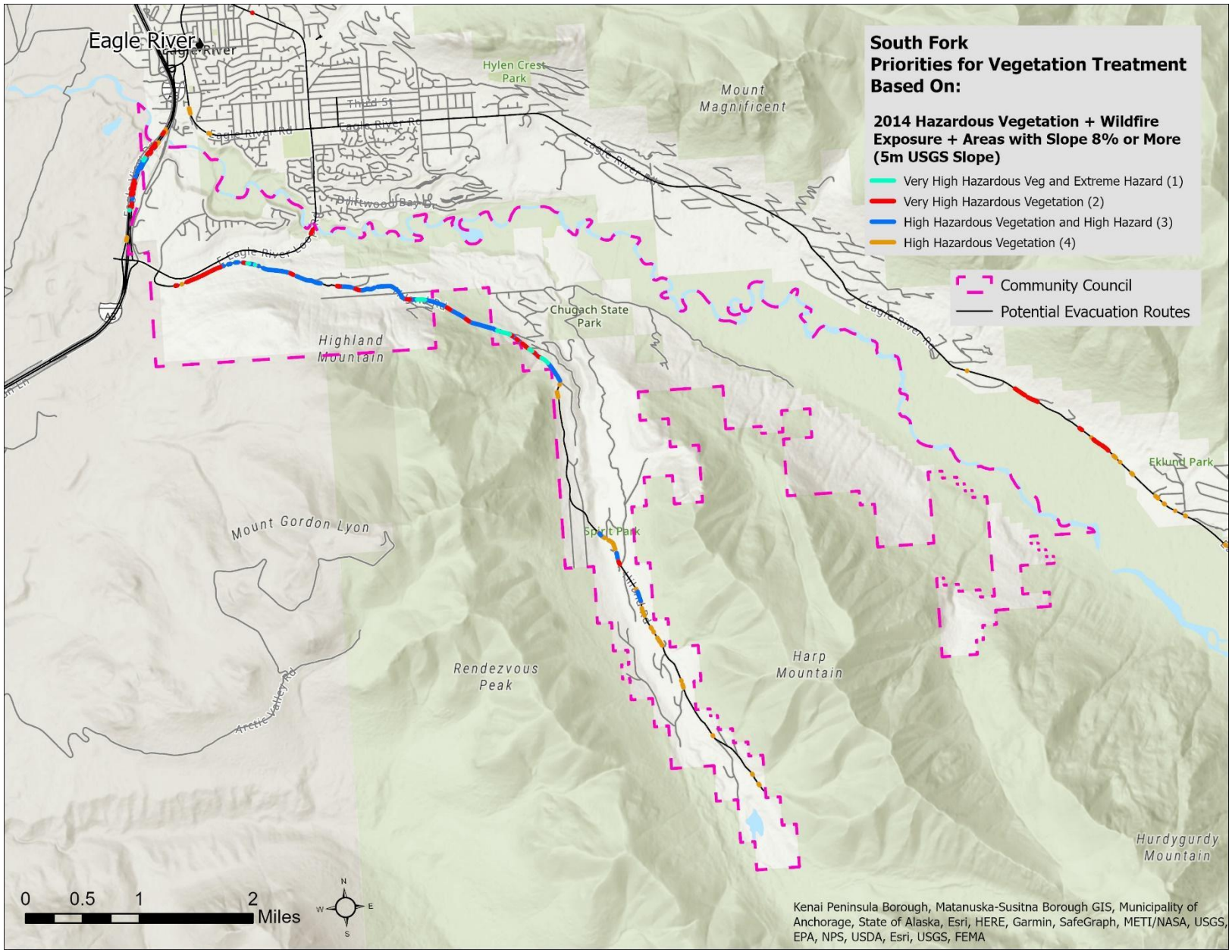

Glen Alps
High Use Intersection and
High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
Hillside Park
Abbott
Elmore
O'Malley
Birch
Hillside
Prospect Dr
Sidorof Dr
Huffman
Upper De Armoun
De Armoun
Old Rabbit Creek Park
Rabbit Creek Rd
Section 36
Clark's
Canyon Rd
Flattop Mountain
Golden View
Nickleen Park
Paine Rd
Marsh
Old Seward
Seward
Potter Creek Ravine Park
Potter Heights
Steamboat Dr
Community Council
Potential Evacuation Routes
0
0.5
1
2
Miles
N
W
E
S
High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA


Hillside
High Use Intersection and
High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Community Council
Potential Evacuation Routes
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS
Campbell Airstrip
Hillside Park
Ruth Arcand Park
Far North Bicentennial Park
Potter Marsh
Potter Valley
Potter Heights
Southpointe Ridge
Flattop Mountain
McHugh Peak
Section 36
Nickleen Park
Little Rabbit Creek Bluff Park
Rabbit Creek
Golden View
Clark's
Upper De Armoun
De Armoun
Huffman
Klatt
O'Malley
Abbott
Lore
Azurite
Dowling
Waldron
Tudor
Elmore
Birch
Hillside
Lake Otis
Independence
Jamestown
Seward
Old Seward
Westwind
Brandon
Venus
Industry
Sandlewood
Hartzell
Spruce
Junior
Luther King
Doctor Martin
Muldoon
Basher
Canyon Rd
Paine Rd
Canyon Rd


Community Council
Potential Evacuation Routes
High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Huffman O'Malley High Use Intersection and High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS
Campbell Airstrip
Ruth Arcand Park
Oceanview Bluff Park
Little Rabbit Creek Bluff Park
Nickleen Park
Section 36
McHugh Peak
Potter Valley
Potter Heights
Southpointe Ridge
Rabbit Creek
Golden View
Clark's
Upper De Armoun
De Armoun
Huffman
O'Malley
Klatt
Abbott
Lore
Azurite
Elmore
Birch
Hillside
Westwind
Lake Otis
Seward
Oceanview
Johns
Timberlane
Industry
Venus
Old Seward
Sandlewood
Hartzell
Independence
Jamestown
Dimond
Dowling
Spruce
68th
72nd
76th
80th
84th
88th
92nd
100th
Seward SB on Huffman
Seward SB off Old Seward
Seward SB on
Seward SB off
O'Malley WB
O'Malley off C
King


High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Community Council
Potential Evacuation Routes
Rabbit Creek
High Use Intersection and High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
0 0.5 1 2 Miles
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA
Dimond
88th
Elmore
Hillside Park
Abbott
Hillside
Ruth Arcand Park
100th
Seward
Independence
Lake Otis
O'Malley
Birch
Klatt
Huffman
Upper De Armoun
Oceanview
Venus
Westwind
De Armoun
Section 36
Clark's
Rabbit Creek
Old Seward
Golden View
Nickleen Park
Potter Marsh
Potter Valley
Potter Creek Ravine Park
Potter Heights
Southpointe Ridge
McHugh Peak
Painter Rd


South Fork
High Use Intersection and
High Wildfire Hazard
Number of Routes
500 - 908
909 - 1,544
1,545 - 2,917
High use = more than 500 evacuation routes to a school
High wildfire hazard = Extreme or high wildfire exposure or very high or high hazardous vegetation
Community Council
Potential Evacuation Routes
0 1 2 3 Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA
Glenn
Old Glenn
Brooks
Eagle River
Hylen Crest Park
Mount Magnificent
Birch
Eagle River Loop
Glenn NB
River Loop
Hiland
Stewart Mountain
Eagle River
Chugach State Park
Highland Mountain
Ekkuni Park
Mount Gordon Lyon
Spirit Park
Rendezvous Peak
Harp Mountain
Hurdygurdy Mountain


Eagle River
Eagle River
Hylen Crest Park
Mount Magnificent
Third St
Eagle River Rd
Whitewood Bay Dr
Eagle River Loop
Chugach State Park
Highland Mountain
Eklutna Park
Mount Gordon Lyon
Spirit Park
Rendezvous Peak
Harp Mountain
Arctic Valley Rd
Hurdygurdy Mountain
South Fork
Priorities for Vegetation Treatment
Based On:
2014 Hazardous Vegetation + Wildfire Exposure + Areas with Slope 8% or More (5m USGS Slope)
Very High Hazardous Veg and Extreme Hazard (1)
Very High Hazardous Vegetation (2)
High Hazardous Vegetation and High Hazard (3)
High Hazardous Vegetation (4)
Community Council
Potential Evacuation Routes
0 0.5 1 2 Miles
N
W
E
S
Kenai Peninsula Borough, Matanuska-Susitna Borough GIS, Municipality of Anchorage, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, Esri, USGS, FEMA

Appendix K. Advancing Wildfire Preparedness and Planning, Correspondence with AFD Captains:

To: AFD Senior Captains assigned to WUI AFD Stations. Thanks for your assistance, in advance, in completing the meaningful task of providing input to the UAA Wildfire Egress Route Study, headed by UAA Professor, Dr. Jen Schmidt, assisted by John See, AFD Forester, Retired.

We have made some progress in furthering the efforts of Captain Joe Albrecht, AFD Station 10 Senior Captain, on wildfire egress. We are broadening the effort by involving other MOA representatives, community council leaders and others in identifying problem areas, including one way in/out egress limitations in our study. We are asking each of you to review the input we have received by providing comments, adding your recommendations to the effort and making notations on the project GIS maps, which will be hand delivered during the upcoming week.

Application for funding has been completed to initiate the process of updating the Community Wildfire Protection Plan (CWPP) for the MOA, completed approximately 15 years ago. The original plan was completed during Sue Rodman's tenure as AFD Forester. Additionally, there has been some information in the pipeline regarding some more significant funding which could help rejuvenate the AFD Wildfire Mitigation Program. More information will be forthcoming in the weeks ahead!

Ideas for wildfire mitigation, developed by the participants in this Wildfire Egress effort, will be forwarded (along with the maps) as part of what could become an important addition to the wildfire mitigation project. This could ultimately be attached to the CWPP update. We are requesting your help in adding to and prioritizing the list of road egress modifications, fuel treatments, etc., necessary to bring the egress efforts more in line with the overall objective to enhance the outcome of a disaster level wildfire within the MOA WUI.

We will be setting up individual meetings (depending on your availability) with you on December 7th, 8th & 9th, as well as the week of December 19th. We are asking that you take some time to review the maps, recommendations and proposed solutions to the MOA's challenges with wildfire egress. We recognize that your input is a key part of this project and welcome your thoughts as we prepare our final report in the next few months.

Regards,

Dr. Jen Schmidt
John W. See

Appendix L. Advancing Wildfire Preparedness and Planning "task list" and budget.

Task	Fall semester	Spring semester
Hazard mapping and egress maps		
Introductory meeting and presentation of hazard maps for community councils (CC)		
Present current parcel, roads, and buildings GIS layers to assess for accuracy, identification of major egress routes, and evacuation points.		
Present updated roads and buildings GIS layers with identified major egress routes and evacuation points		
Use the exposure maps and updated roads and egress layers to identify areas to target for fuel reduction activities		
Present maps of the areas identified for fuel reduction to CC and other wildfire experts for feedback		
Make any necessary refinements to the selection process		
Present final maps and report of the selection process and findings		
Egress modeling		
Create a roads network GIS layer using community feedback		
Build network analysis model		
Simulate evacuation without road closures and identify egress by residents to evacuation points		
Present model results to community council and seek input on potential road closure/wildfire for simulation		
Simulate road closure		
Present model results to community council about effects of closure on egress		
Write short report		

Timeline (2022-2023 academic year):

Budget:

The University of Alaska Anchorage has an agreement with the State of Alaska to charge 25% facilities and administration (F&A) costs for research.

Item	Cost
Salary and benefits	
Dr. Schmidt (175 hours)	$11,875
John See (110 hours)	$7,254
Undergraduate (academic year)	$10,260
Supplies	
Printing of posters/promotional material	$2,611
Total subject to F&A	$32,000
F & A costs	$8,000
Total costs	$40,000

END