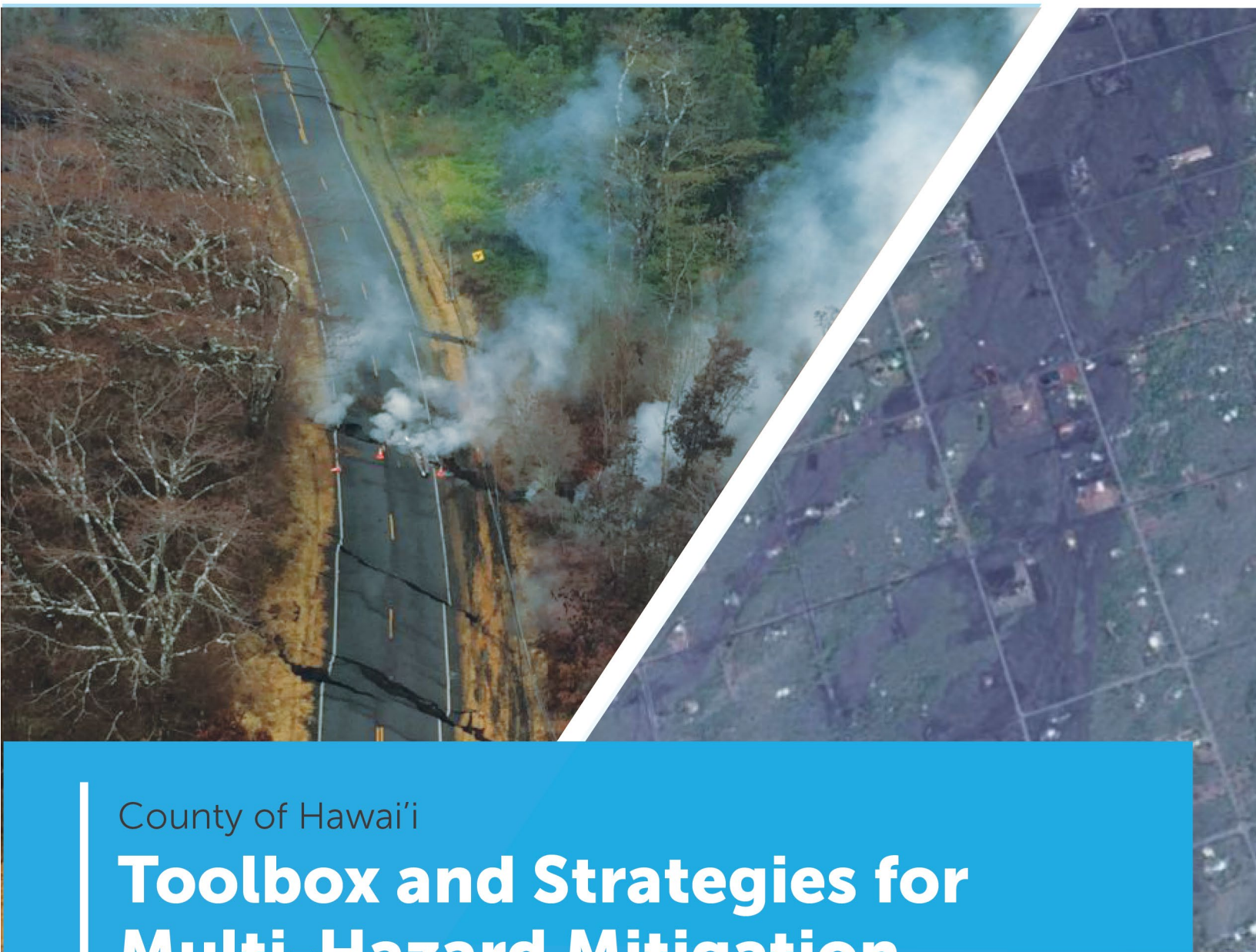




County of Hawai'i

Toolbox and Strategies for Multi-Hazard Mitigation Through Land Use Reallocation

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CLARION

Hawai'i County Land Reallocation Toolbox and Strategies

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Purpose

Following the May 2018 eruption of Kilauea, the County of Hawai'i has asked Focused Planning Solutions to revisit and update various scenarios for preventing or minimizing development in areas of the County deemed less desirable for residential settlements – either because of proximity to volcanic or other hazards or areas that met certain criteria relating to lack of services (see box). For purposes of this report, those areas are called “underserved subdivisions”. While growth in these areas has been significant, many subdivisions are far from reaching zoned capacity. This presents challenges to support the growth in a consolidated way with either private or public services, as well as challenges from the impacts of the extensive, distributed development patterns. From a hazards perspective, many of these unrealized developments are located in areas with high exposure to one or many hazards, and a large majority of them are located in underserved subdivisions. The County has requested that Focused Planning Solutions prepare a “Low Tolerance for Risk Scenario”, which would significantly reduce potential development and redevelopment in hazardous areas – and particularly on hazardous lots within underserved subdivisions -- for evaluation as part of the Hawai'i County General Plan effort. Reducing development in mapped hazard areas would require the County to adopt new regulatory tools and incentives to reallocate potential development to less hazardous areas of the County. Focused Planning Solutions has retained Clarion Associates, LLC, as a subcontractor to perform the following two elements of this work to support the creation of a Low Tolerance for Risk Scenario.

Underserved Subdivisions:

- Have lot sizes that do not conform to State or County standards or other zoning criteria; or
- Have at least 10 lots; and
- Have limited access to public infrastructure and services; and
- Have high lot vacancy rates or a pattern of “leapfrog” development; and
- Have lots sizes too small for agricultural development (1/2 to 3 acres); and
- Are outside County designated preferred development areas.

1. Land Reallocation Toolbox

Part 1 of this document is a Toolbox that describes the range of land reallocation tools available for the County's consideration, as well as examples of where each tool has been used and a general discussion of any constraints on where the tool might be effective to reduce risks associated with development in mapped hazard areas. Because of the increased urgency created by recent volcanic eruptions and related losses and risks to public health, safety, and property, the County may want to consider using a combination of the tools outlined in the Toolbox. This Toolbox is intended to provide Hawai'i County with a range of potential policy responses to choose from to change development patterns throughout the island – not just in the volcanic risk areas associated with the Kilauea eruption.

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2. Land Reallocation Strategies

The second part of this document contains two land reallocation strategies based on the Toolbox. Both strategies include a combination of tools designed to significantly reduce the amount of development occurring in:

- Underserved Subdivisions -- A significant amount of future development capacity, almost 48,000 vacant lots, exists in locations where platted subdivisions have not developed to full capacity over an extended period of time. Infrastructure can be inadequate, with most developed lots using onsite disposal systems and private roads suffer from lack of maintenance. From a State and County planning perspective, these locations are often designated as agriculture even though lot sizes are not adequate for viable agricultural use. Many of these lots are also exposed to hazards. These locations present health and safety concerns due to hazard exposure as well as environmental challenges (water quality, invasive species, habitat conservation), accessibility (road standards, maintenance and grade), and cost to serve (distance to police, fire, hospital and ems); and
- Other Mapped Hazard Areas – Areas outside of underserved subdivisions where high and moderate hazard exposure has been identified on properties that are built or have capacity for future development. Specifically this identifies properties within lava hazard zones 1 and 2 with a 1,000 foot buffer, within the path of historic lava flows, or exposed to coastal hazards – tsunami inundation, hurricane storm surge, sea level rise and/or coastal flooding.

Both strategies prioritize land reallocation away from mapped hazard areas within those two contexts. The two strategies are accompanied by an estimate of likely reductions of development potential in those areas if the strategies were implemented carefully and consistently over time. These estimates are, in turn, intended to be used by Focused Planning Solutions in developing its “Low Tolerance for Risk Scenario” for the General Plan process.

Because several types of hazards and have been well documented in Hawai'i for many years, this is not the first time the County has explored options for reducing exposure to hazards and land reallocation options. Past efforts related to these goals are listed in Appendix A to this document.

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Part 1. Toolbox of Land Reallocation Tools

This portion of the document describes eight different tools that Hawai'i County could use, singularly or in combination, to alter land development and redevelopment patterns throughout the county.

As part of the recovery planning process from the 2018 Kilauea eruption, Hawai'i County has decided to pursue a voluntary housing buy-out program. At the time of this report development the feasibility, specific design and criteria for the program have not been finalized. The options listed below include a Lot Buyout option because the County may want to consider that option for other areas that were in the designated impact area of the 2018 eruption. The other options provide a range of tools available to the County for a variety of purposes, including the fact that some residents affected by the 2018 eruption may not want to participate in the Lot Buyout program, and because the County may want to consider other tools for affected or mapped hazard areas where Lot Buyout funds are not available.

Option 1: Transfer of Development Rights

Transfer of Development Rights (TDR) programs have been successfully implemented in a number of communities, including Hilo after the 1960 tsunami. A TDR program operates by allowing property owners to sever some of the rights associated with their land (usually including the right to build a home). With the establishment of a TDR program, a property owner in a designated "Sending Area" where development is discouraged is allowed or induced to sell those rights to a

Transfer of Development Rights (TDR):

A program allowing development rights associated with land in a designated Sending Area to be severed from that land and sold to buyers for use in a designated Receiving Area where development is preferred.

buyer in a designated "Receiving Area" that can accommodate additional growth. The buyer in the Receiving Area is then permitted to build a bigger, taller, or more intense development than would otherwise be possible. The selection of Sending and Receiving Areas can be difficult, because it is often easier to identify where new development is not wanted than where additional development density is desired and politically acceptable. Once the owner has sold development rights, a restrictive covenant is recorded in the land title records preventing the sold development rights from being used on the sending property, but the owner still retains title to the land. Importantly, the price of TDRs is almost always set by the private market, rather than by the local government.

Normally, TDR programs are designed to move development potential from areas of historic or agricultural value, or from areas with hazards or polluted soils, towards established communities with fewer hazards and with available roads and infrastructure. However, a TDR program could be designed to transfer development potential from outlying and harder-to-serve portions of an underserved subdivision in Hawai'i County to a not-yet-developed activity center or an easier-to-serve node of planned intensity within that subdivision. In the 1990s, Deschutes County, Oregon, designed a TDR program to transfer development potential from approximately 14,000 obsolete lots with groundwater pollution challenges in the Day Road area towards a new planned urban center in nearby LaPine,

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Oregon. However, that plan was later suspended due to advances in wastewater technology that enabled more of the Day Road lots to address their environmental challenges on-site.

Four key decisions in the design of any TDR system are (1) whether the program will be voluntary or mandatory, (2) whether to establish a TDR “bank”, (3) whether the County will participate in the purchase and sale of TDRs, and (4) how to “calibrate” TDRs so that they have enough value that sellers will want to sell and buyers will want to buy the TDRs.

- **Voluntary or Mandatory?**

A TDR program may be voluntary (i.e. the owner may choose to build on the property or sell the rights) or mandatory (i.e. the owner may not build on the property) for landowners in Sending Areas. Mandatory programs tend to be significantly more effective in transferring development potential out of Sending Areas.

- **Create A TDR Bank?**

A TDR bank is an entity authorized to purchase TDRs and hold them for resale to buyers in the Receiving Area. Creation of a TDR bank is not necessary, and a majority of TDR systems in the U.S. do not include a bank, but a bank can add significant liquidity to the system. A bank answers the question “what if someone wants to sell TDRs and no one is ready to buy them right then?” If a bank is created, a source of TDR purchase funds needs to be identified, because the bank will need to purchase TDRs before it recoups some or all of the purchase price by reselling the TDRs. The bank is sometimes run by the local government and sometimes by a non-profit or other institution under an agreement with the local government. If a bank is not created, a real estate agent or other private entity may decide to perform the same function by using its own funds to buy TDRs in hopes that the TDRs can later be resold at a profit. One possible disadvantage of establishing a TDR bank is that, once the local government owns the development rights, it may face public pressure to simply “retire” rather than sell the rights; if it does so, then the TDR system becomes a Purchase of Development Rights (PDR) as described below.

- **Participation in the Market?**

Regardless of whether a bank is created, the local government needs to decide if it will use its own funds to purchase TDRs or if it will stay out of the market. When a local government decides to participate in the TDR market it is usually because (1) it wants to “get the market started” by encouraging those most willing to sell TDRs at a low price to do so quickly in order to create some early success for the program; or (2) it is willing to spend some funds today in order to avoid having to provide infrastructure or services to hard-to-serve or risk-prone lots in the future. When local governments decide to participate in the market, the program is usually designed so that the government cannot make a profit from the purchase and sale of TDRs, in order to avoid the perception of competing with what are normally private market transactions.

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- **Calibrating the System?**

Finally, a TDR system needs to establish what the purchase of one TDR allows the TDR purchaser to develop in the Receiving Area. If zoning in the Sending Area allows the seller one single family dwelling on a lot, does the transfer of that right allow the TDR buyer to build one house, or to add density in a multi-dwelling project, or to increase floor area in a commercial project? For example, a local government that wants to create a strong incentive for sales of TDRs might allow the buyer of one TDR to build two more dwelling units in the Receiving Area than are otherwise permitted. If these types of bonuses are offered, the Receiving Area needs to be able to accommodate more growth, and the zoning in the Receiving Area needs to be “tight” enough that property owners in that area cannot meet market demands without purchasing TDRs.

The two most common mistakes in TDR system design are (1) failure to identify a Receiving Area adequate to accommodate the volume of TDR use that is likely to occur (which results in an oversupply of TDRs for sale, driving the price down to a point where many potential TDR sellers are unwilling to sell), and (2) designating Receiving Areas where zoning rules allow potential buyers to meet market demands for new development without buying TDRs. In spite of these design and calibration issues, Transfer of Development Rights programs have proven effective throughout the U.S. when designed carefully.

Hawai'i Revised Statute section 46-163 provides enabling state legislation for TDR programs. Although the listed purposes do not explicitly mention hazard mitigation, the listed purposes of TDRs are very broad. They include protecting natural and agricultural qualities of open lands and encouraging careful management of land as a basic and valuable natural resource. To exercise powers to create a TDR system, the County would need to adopt local enabling legislation pursuant to that authority.

Examples of TDR implementation

Hilo, HI: After the Hilo tsunami of 1960, the County of Hawai'i worked with state and federal partners to create an Urban Renewal Program that combined development restrictions and buyouts in a program that today would be classified as a Transfer of Development Rights. Acting as a broker, the Redevelopment Agency purchased 388 parcels (349 acres) within the designated redevelopment area, and resold the land to developers who would build in compliance with the new, restrictive zoning that would only allow open space and limited commercial in the project area. Residential redevelopment was strictly prohibited, and the program ultimately relocated 228 families and 42 individuals into designated Receiving Areas.

Montgomery County, MD: Montgomery County is a suburb of Washington, DC, where severe development pressure resulted in the adoption in 1980 of a County TDR program to protect farmland. The County first reduced the permitted density in the Sending Area from one unit per five acres to one unit per 25 acres, but allowed landowners to transfer rights to build dwelling units that they could no longer use on-site. Through 2008, the County used this tool to add 52,500 acres (16% of County land area) to an agricultural reserve totaling 90,000 acres. Development pressures contributed to the success of the program, with Receiving Areas periodically expanded. Where the County found no buyers for rights on the

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sending sites, it also implemented a building lot termination program to buy available sending rights from willing sellers.

Pine Barrens, Long Island, NY: Implemented in 1995, the Pine Barren Credit Program began transferring development rights away from privately owned land that was essential to provision of drinking water on the eastern end of the island. The preservation area included 52,500 acres of land, and three neighboring towns created the Pine Barren Clearing House, from which developers could buy credits to increase the size or intensity of their developments in Receiving Areas. As of 2019, the program had enrolled 975 parcels covering 2,000 acres into the program and generated \$47.5 million in private sales.

Lancaster County, PA: In 1993, Lancaster County implemented a TDR program to preserve farmland from development in this historically important agricultural area. The County, in collaboration with Lancaster Farmland Trust and the County agricultural board, acted as the broker in transferring rights for increased lot coverage to an industrial area in the township. Lots in the Agricultural Zone, or Sending Area, had one development right per two acres of land, which could be used in the Receiving Area, a 150-acre Campus Industrial zone. In this zone, the purchase of one right allowed the developer a 4,000 square foot increase on the permitted amount of impervious surface, up to 70% of lot area. The Lancaster County TDR program has resulted in the preservation of 900 acres of land.

Option 2: Purchase of Development Rights

In a **Purchase of Development Rights (PDR)** program, the County would purchase a landowner's development rights in targeted areas and would then "retire" those rights. Under a PDR program, the County does not become the owner of the property. The land itself remains under private ownership, but the owner no longer has a right to build on or improve the property, or may only do so within strict limits (usually allowing only uses not requiring significant public services or creating significant risks to public health or safety). These limits are then documented in restrictive covenants applied to the property. Since a PDR program does not involve the County owning the land, it eliminates the Lot Disposal Challenge (discussed below).

Purchase of Development Rights (PDR):

A program in which the local government or entity purchases development rights from a property and "retires" those rights, leaving the land itself in private ownership.

Many PDR programs are used to preserve farmland or open space, and are funded by state allocations from taxes or ballot initiatives. For areas affected by the 2018 Kilauea eruption, Hawai'i County might be able to avoid requiring local taxpayer funding by using federal disaster recovery funds to set up a PDR program. If the development rights from volcanic risk lands are purchased at their current values (rather than a pre-eruption value) the relatively low market value will increase the impact of limited funds. However, to implement a PDR program more broadly designed to apply to parcels not affected by the recent eruptions, or to lots at risk of other hazards elsewhere on the island, additional sources of funds would need to be identified.

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The value of development rights is a central issue in any PDR program. Normally, that value is determined by comparing the fair market value of the land with and without the development restrictions. The more development is restricted, the less the property owner will be able to do with the property after the sale, and the higher the price of giving up those development rights. When PDR programs are implemented to protect agricultural lands from development, the price of purchasing development rights is often reasonable because the property owner retains the ability to make significant revenue from farming or ranching on the land. However, when land has little or no agricultural value, and the PDR program is designed to prevent all significant future development of the property, the purchase price of the development rights is likely to be close to the fair market value of the land itself.

In addition, property owners faced with the choice of selling development rights and retaining title to (and paying taxes on) land that has very few uses will often prefer to sell the land itself. For that reason, a PDR program is unlikely to be effective in reducing development potential in areas of the County where lava coverage or lack of access make lot development unlikely in the short or medium run. A PDR program may, however, be effective in portions of Hawai'i County where lots with hazard exposure have agricultural value and property owners may be more willing to sell development rights allowing them to continue that productive use of the land. This type of program might also be effective for lands adjacent to Volcanoes National Park or another assemblage of natural or open lands where the manager of those lands is willing to invest in a "buffer" to their current landholdings.

Designing and structuring a PDR program is generally simpler than designing a TDR system, because there is no need to identify a Receiving Area, or to calibrate what a severed TDR enables its new owner to build in the Receiving Area, or to consider establishing a TDR bank. Financially, however, PDR programs require a greater investment because, while a TDR system can be set up to operate without significant outside funding, a PDR system requires a source of funding to purchase development rights. The County could consider implementing the two tools simultaneously, with certain hazardous areas designated for purchase only and others eligible for transfer, to maximize returns on the necessary investment of resources. Or a PDR program could be structured as an alternative to a Lot Buyout program (described below) by offering lot owners the option to sell development rights rather than the lot itself.

Hawaii Revised Statutes do not appear to contain any enabling legislation for the creation of a Purchase (as opposed to Transfer) of Development Rights system. However, the ability to purchase and sell lands for public purposes is generally treated as one of the inherent powers of a local government, and Hawaii has supported several de facto Purchase of Development Rights programs for conservation and agriculture easements to achieve public purposes. Finally, Hawaii Revised Statutes 53 provides extensive powers to purchase and dispose of lands (usually with conditions attached to achieve public purposes) through the use of a Redevelopment Agency.

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Examples of PDR Implementation

Stafford County, VA: To forestall development pressure on farmland, the County initiated a voluntary program where the owners of parcels of 20 or more acres could sell their development rights, after which a conservation easement would be placed on the land. Owners of contiguous properties of less than 20 acres could agree to have their lands treated as a single assemblage to meet the minimum acreage. The County initially funded the program from the General Fund, and subsequently through a dedicated tax. From 2009-2016, the County spent \$2.9 million to buy 115 rights, preserving 447 acres of land.

Peninsula Township, MI: In 1994, the Township's planning commission initiated a PDR program to protect threatened agricultural lands that supported the area's cherry growing industry. The program, which continued the right of agricultural use on PDR lands but eliminated all other development possibility, had purchased 2,200 acres of rights by 2002, when a ballot initiative approved by voters increased the program funding to \$2 million per year. The program's goal was to acquire 9,200 acres by 2008.

Option 3: Lot Buyouts

As an alternative to a TDR or PDR system, the County could decide to implement a **Lot Buyout** program to purchase some or all of the lots that it does not want to see developed or redeveloped. To do so, it could use any federal recovery funds secured as a result of the Kilauea eruption to purchase land rendered undevelopable or isolated due to lava

Lot Buyout Program: A program in which the local government or entity purchases land on which development is not desired, and then owns that land.

coverage. In such a program, the government first establishes areas in which it will buy lots, prioritizes the purchases based on disaster impact or multi-hazard risk exposure, and then buys lots from owners who are willing to sell their land because the effects of the disaster, or the risk of a future disaster, have rendered it of little value to them. Once in possession of the land, the government prohibits future development by rezoning the land or severing the development rights, either of which reduces future hazard risk on the purchased lots.

A Lot Buyout program need not be restricted to those properties already affected by a disaster: it can also be implemented more generally in high hazard areas or multi-hazard areas. However, use of some federal funds may be tied specifically to disaster-affected properties, rather than extending also to those that are at future risk but have not yet been affected. Expansion of the program to areas not affected by recent volcanic events could leave the County responsible for finding another source of funding for the purchases. In addition, although a demonstrable risk exists in these hazard-mapped areas, if no actual damage has compromised the value of a property, purchase prices could be higher, leading to a more costly Buyout program.

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There is no enabling legislation required to implement a buyout program, as every County has the right to buy and sell real estate, whether in support of protecting public health and safety or for more general purposes. However, the extent of any buyout program is dependent on the availability of funds for property acquisition, as well as the challenge of managing lands once they are acquired.

Examples of Hazardous Lands Buyout Programs

Hilo, HI: One element of the Hilo Redevelopment included buyouts of properties that were destroyed or damaged by the Hilo tsunami. The County of Hawai'i raised funds from a bond issue and then used those funds to match federal funds (25% cost contribution by the County and 75% from federal funds). These funds were used to accomplish buyouts of 388 disaster-affected parcels. The buyouts were done in combination with a larger redevelopment program that rezoned and resold the acquired parcels, thus avoiding the County becoming the landowner responsible for long-term maintenance and administration of the properties acquired under the program.

Chesapeake and Norfolk, VA: These communities experienced repeated property damage due to flooding in the tidewater area. The Commonwealth of Virginia worked with FEMA to secure mitigation funds for the buyout of properties that had been subject to four or more flood events. Once in public ownership, these lands are managed by an organization such as the Middle Peninsula Public Development Corporation, established in 2003. The MPPDC has instituted various programs to turn the land under its management to generating revenue or providing public benefit, including the initiation of an oyster bed pilot program, and renting the lands as camps to organizations like Boy or Girl Scout troops.

The Land Disposal Challenge

Under any program that results in the County owning new lands, the County needs to decide what to do with a potentially large supply of lots that now generate no tax revenues and in some cases have few practical uses. If the lots have agricultural value, they can be "unplatted" and transferred as larger parcels of land to private users who put them back into agricultural use. Similarly, if the lands have environmental or habitat value, the County might transfer ownership to a non-profit to protect those values. If neither of these cases applies, the County may be unable to sell the lots and could incur significant costs to maintain the lots to reduce fire risks, prevent invasive species, and address potential erosion and subsidence following storm. If the County-acquired lots are not vacant, the challenges are compounded, as the County may need to remove the structures to avoid risks to public health and safety, and because additional funds will be needed to do that. As a practical matter, the potential financial cost of any program resulting in County ownership needs to include the potential costs of maintaining those lots that cannot be resold.

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Option 4: Publicly-Owned Lot Retirement Program / Land Banking

Another way in which local governments can reduce future development potential on lots in hazardous areas and/or in underserved subdivisions is to “retire” any lots that come into County ownership through property tax defaults. Because many underserved subdivisions are difficult to access and develop and/or lack basic services, some property owners may decide not to continue paying property taxes, accepting that the local government will someday

foreclose on the lot for unpaid taxes and obtain legal title to the lot. Unfortunately, the process of foreclosing on tax defaults is often cumbersome and lengthy, so years may pass between the date on which the County stops receiving tax revenues and the date on which legal title vests in the County. Nevertheless, once the owner has decided not to make tax payments, it is unlikely that the owner will proceed with additional development or redevelopment.

Lot Retirement Program: A program in which the local government severs development rights or amends subdivision plats to “unplat” any lots that it owns or controls in areas where it does not want additional development.

In addition, the County periodically receives offers to donate lots to the County. While the County needs to have a public purpose for accepting gifts, it has been accepting gifts of lots affected by the 2018 Kilauea eruption as promoting the public purpose of hazard reduction, and the same public purpose would apply to any gift of lots in any of the mapped volcanic or multi-hazard areas.

Once ownership is vested in the County, the local government is faced with the same challenges that arise in Lot Buyout programs – i.e. what to do with this unplanned-for asset – and the options available to the County are the same as in the Lot Buyout scenario. See the discussion of The Land Disposal Challenge above.

Publicly Owned Lot Retirement / Land Banking

Cleveland, OH: The 2008 foreclosure crisis was particularly acute in Cleveland, with surrounding Cuyahoga County coming into possession of thousands of vacant and abandoned properties through tax forecloses. The County created the Cuyahoga County Land Reutilization Corporation to act as administrator of a land bank for these properties. Funded with \$7 million collected annually from penalties and interest on delinquent tax accounts, the land bank set about demolishing vacant and blighted properties, completing 8,000 demolitions in ten years. With the recovery of the real estate market in more recent years, the land bank has switched its focus from demolition to rehabilitation, seeing some of its parcels returned to tax rolls through active use.

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Option 5: Zoning and Development Restrictions

There are numerous examples of municipalities implementing **Zoning and Development Restrictions** to reduce the development potential in hazardous, polluted, or hard-to-serve locations. One common restriction codified in zoning ordinances is enhanced building standards in FEMA-designated floodplains, often requiring two feet of elevation above base flood levels. Other examples include limitations on development in coastal areas, on steep slopes, in earthquake risk areas, and along the wildland-urban interface. In some cases restrictions are based on a publicly sponsored map or study, while in other cases private property owners are required to produce studies or maps documenting the lack of risk or pollution.

Zoning and Development Restrictions:

Zoning, subdivision, and other development restrictions that would reduce the size, intensity, structure location or permanence, or developability of land in the future, or that would change required or permitted water or wastewater treatment standards or approaches.

In Hawai'i County's circumstances, many different types of development restrictions could be explored. This toolkit explores four that may be directly related to reducing the size and permanence of future development in hazard areas: (1) Rezoning to limit the permitted uses of property, (2) Limiting maximum dollar amount of investment into residential construction, or restricting maximum house size to limit the likelihood of long-term occupancy, (3) Using existing state statutes to limit the expansion of residential development on lots that are classified for agricultural uses, and (4) Limiting discretionary building and wastewater approvals, and.

Importantly, exposure to some types of hazards (such as floods) can be mitigated on or near a defined site, while exposure to other types of hazards (such as lava flows) cannot. Where projected exposure cannot be mitigated, development restrictions can establish an acknowledged level of potential loss. For example, restrictions on the size or permanence, permitted habitability, or level of investment in a house can limit the levels of financial loss and reduce the likelihood of human injury anticipated when a hazard event occurs. Just as importantly, restrictions on development can discourage some property owners from developing property that they otherwise would have developed. Hawai'i County has already explored possible development restrictions to limit uses on agricultural lands in Policies 40 and 41 of the Ka'u Community Development Plan.

- **Rezoning or Re-designation to Limit Permitted Uses of Land**

The most straightforward type of development restriction is the rezoning of land to limit the types of uses and structures permitted to be put on the lot (within the limits of state zoning and land use authority). For example, land that is currently zoned for residential use could be rezoned for agricultural use, or regulations for land already zoned for agricultural use could be revised by the County to limit the construction or installation of habitable structures. Similarly, the land could be re-designated from another Hawaii state land use category to "agricultural" or from "agricultural" to "conservation" if the land meets state standards for that new designation. The limit on use of rezoning or re-designation is that each property owner must generally be left

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with a “reasonable economic use” of the property, and if land is not economically viable for agricultural use the next-least-intensive use of property is often some form of habitable structure that could be occupied (at least periodically).

- **Limiting Maximum House Sizes or the Dollar Value of Housing Investments**

Establishing a maximum size limit for new house can significantly reduce the risks to public health and safety created by construction in hazardous areas by discouraging construction of a house for continuous (rather than occasional) habitability, and making it likely that fewer people will be occupying the house at any given time. While most residential zone districts do not include a maximum house size, communities such as Pitkin County, Colorado, have established a 1,000 square foot maximum house size in rural and remote areas that are difficult to serve with public and emergency services.

To ensure that future dwellings in underserved subdivisions and other mapped hazard areas are small and able to be relocated, the County could limit new housing to Efficiency Dwellings (as defined in the Hawai'i County Code) and require that they be located and installed so that they can be removed in case of a hazard event. Most communities that allow these types of small dwellings require that they be installed on permanent foundations and be required to connect to water, sewer, and electric utilities. In this case, however, the County might consider prohibiting installation on permanent foundations in order to make removal of the Efficiency Dwellings easier and to minimize loss in case of a hazard event. Typical requirements that the Efficiency Dwellings be anchored or tied down to limit risks from high winds should still apply. To further ensure that the unit can be evacuated from the lot when there is advance warning of an imminent hazard event, such as a hurricane, the County could require establish a maximum driveway grade from the public right-of-way to the installed location.

This same outcome can effectively be accomplished by limiting the maximum dollar amount of investment into the construction of a home. The County can discourage investment in underserved and hazardous areas by refusing to issue building permits for investments that exceed a stated portion of the existing property value. Dollar limits on new investment are an indirect way to encourage smaller structures and reduce the potential dollar value of property losses from future hazards. They also discourage bargain-hunters from seeking out the least expensive lots (which are often also the hardest-to-serve and the furthest from good roads and emergency access/evacuation routes) in order to spend more of their housing budget to build a larger or more permanent house in a known hazard area. We understand that Hawai'i County has already implemented a dollar limit system in some circumstances.

Future construction on lots where these limits apply will more like a cabin than a primary residence in size. As a general rule smaller, less permanent, and less habitable structures are generally less likely to be occupied year-round and are less likely to be occupied by fewer people, both of which reduce the risk of public injury or death and the difficulty of evacuating occupants of the development when an emergency occurs. The lower dollar cost of building or

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installing smaller homes, or an upper limit on investment in construction that limits house value, also reduces the potential dollar value of property lost due to possible future hazard events that cannot be mitigated on-site (such as lava flows). While many smaller, cabin-like homes are already occupied year-round in Hawai'i County, these types of development restrictions are likely to discourage a significant number of vacant lot owners from deciding to develop their lots with homes in the future.

- **Limiting Discretionary Building and Wastewater Approvals**

Often, applicants for development of a lot or parcel require a discretionary approval from the local government in order to move forward with their project. For example, they may need a variance from a setback, maximum lot coverage limit, parking location requirement, access driveway grade or slope limit. The County decides whether to grant driveway access to lots when that access is at a grade steeper than eight percent. They may also need a discretionary approval from the state government. Where applicants propose development in areas with no sewer system, they must seek state-level discretionary approval from the Wastewater Branch of the Department of Health to install an individual wastewater system on any lot less than 10,000 square feet in area. When the County or the State approves these types of requests on lots in mapped hazard areas, they effectively facilitate the very development they would like to discourage.

To avoid that result, some communities such as Youngstown, Ohio, have adopted limits on the types of variances to building and service standards that they are willing to grant. After determining that it would not be able to provide effective police and fire services to an outlying and sparsely developed area of the City, Youngstown adopted a Limited Service Overlay zone district that prohibited the approval of conditional uses, uses that would result in additional population in the area, uses that would require more police or fire protection, investments that use federal or state funds, or investments that could increase public maintenance expenses. The City also considered prohibiting the granting of development variances, but concluded that it could not extend the Overlay to prohibit those types of decisions due to the requirements of Ohio state law. The goal of the Overlay was to prevent bargain-seekers from purchasing low value lots and developing them in ways that would put more people in harm's way and increase the City's financial burdens.

- **Additional Permitting Requirements**

Another form of development restriction is to require that applicants for residential building permits first provide additional documentation that lots created before some of the current subdivision regulations are in fact safe for development with economic uses, or that residential development is the only reasonable economic use of the land.

In 1976, the Hawai'i Revised Statutes Section 205-2 assigned state-wide classifications for land use, creating four districts: urban, rural, agricultural and conservation. These classifications

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limited permitted uses in the respective districts. Much of the land in the underserved subdivisions and “other areas” of Hawai'i County discussed in this report has been classified as agricultural, which generally permits construction of a farm dwelling to support the primary agricultural use. Additionally, lots created prior to June 4, 1976 (the effective date of the statute) are allowed single family dwellings without any farm-related activity.

Currently, the County requires the filing of a viable agriculture plan before issuing permits for the construction of a second farm dwelling in the State Land Use Agriculture District. However, this requirement would only apply to lots created after June 4, 1976. One option would be for the County to require a viable agriculture plan for any dwelling (including the first farm dwelling) on lots created after June 4, 1976, in the SLU Agriculture District.

The County could use this same general approach to limit construction of homes on lots now designated as agricultural but created before June 4, 1976, where construction of a dwelling is currently permitted by right. In many cases these lots have site conditions or access constraints under which additional development would create wildfire risks, water quality impacts, or increased risks to public safety, and the County could require that the applicant obtain an additional permit documenting that those adverse impacts will not occur.

Development restrictions such as these are sometimes subject to litigation, but are often upheld by the courts. The basic legal inquiry focuses on whether the local government's action is rationally related to a legitimate public purpose and whether the regulation leaves each property owner with a reasonable economic use of his or her property. If a rational relationship is not found, or if no reasonable economic use remains to the landowner, the court may find the regulation to be a taking of private property without just compensation. On the other hand, even a substantial diminution value does not necessarily mean that a regulatory taking has occurred, as recently confirmed by the U.S. Ninth Circuit Court of Appeals in the case of Bridge Aina Le'a, LLC v. State of Hawaii Land Use Commission.

In this case, each of the proposed development restrictions (and others) have a rational relationship to a legitimate governmental purpose – i.e. reducing the potential risks to public health, safety, and property value that occur when land in known volcanic or multi-hazard areas is developed, as well as increasing the likelihood of a successful evacuation when emergencies occur. In addition, each of the listed potential development restrictions leaves the landowner a reasonable economic use of the property – in many cases including the right to build or install a small house, which is the most reasonable economic use of a residentially zoned lot, even if that house is smaller or less permanent than it was before the restriction was imposed. Importantly, if these types of development restrictions are challenged, the court's evaluation of what is a reasonable economic use of the property will consider the value of the lot in light of the mapped hazard risks, which is often low. The lower the existing property value, the lower the level of permitted investment or reinvestment that needs to occur in order to show a reasonable economic use of the property.

Zoning and development regulations can generally be adopted using the County's general zoning and subdivision powers, as well as any additional specific powers granted to address hazardous conditions.

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In addition, unintentional denials of all economically reasonable uses of the lot (due to site-specific factors that were not known when the regulation was adopted) can be addressed through a Beneficial Use Determination process as described in Section 2.5.

Examples of Development Restriction Implementation

Pitkin County, CO: In 2006, in support of efforts to protect rural character and reduce greenhouse gas emissions, the County amended its land use code to reduce the maximum allowable house size in various zoning districts. Those in areas zoned Rural and Remote (RR) were limited to 1,000 square feet measured from the outer walls of the dwelling.

Youngstown, OH: This severely financially challenged community adopted a Limited Services Overlay (LSO) district into its zoning code, applied to areas with large amounts of vacant land. The LSO aimed to discourage investment or reinvestment in such areas, because the costs of providing additional municipal services and infrastructure would exceed the benefits of new investment or reinvestment. Only agricultural or animal-related uses were permitted in these areas, and no discretionary approvals would be granted. Further subdivision of existing lots was prohibited, to avoid increasing the number of lots that would allow development. The City also refused to apply for or allow the use of grants to construct housing in these areas, and required anyone wishing to build to demonstrate that their project generated the tax revenue necessary to support provision of services, or if it did not, to provide the funds required to pay for the provision of those services.

Ozone Park, Queens, NY: One of many “downzoning” actions taken in New York City, this 2013 action applied to a 530 block area with the intent of “reinforc[ing] neighborhood character.” The ordinance limited taller, more dense multi-family developments to established commercial strips, while preventing them from encroaching on residential side streets by eliminating a commercial overlay that existed on those streets. The side streets reverted back to the underlying residential zoning districts, which primarily permit single and duplex dwellings. The objective of the ordinance was to maintain the single dwelling character of the side streets, while continuing to allow mixed use, multi-dwelling and strictly commercial enterprises in areas that had been deemed more appropriate for those uses.

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Option 6: Facilitated Lot Consolidation or Exchange Program

In some cases, local governments with large underserved subdivisions have decided to reduce the potential for future development of those lots by creating a **Facilitated Lot Consolidation or Exchange Program**. Under this type of program, the County acts as the “middleman” between potential lot sellers and buyers in order to reduce the number or improve the location of lots that are likely to be developed. Hawai'i County has discussed a version of this approach in Policy 51 of the Ka'u Community Development Plan.

Facilitated Lot Consolidation or Exchange Program: Zoning, subdivision, and other development restrictions that would reduce the size, intensity, structure location or permanence, or developability of land in the future, or that would change required or permitted water or wastewater treatment standards or approaches.

In the lot consolidation version of this approach, the County (1) compiles an inventory of vacant parcels that are adjacent to developed lots, (2) contacts property owners of vacant lots to determine their interest in selling, and if there is interest, (3) contacts the owners of the developed lots to determine their interest in purchasing the adjacent vacant lot (often at a low price because of the vacant lot owner's lack of interest in developing the property). Similar programs – sometimes called “side lot” programs -- have been implemented by cities such as Detroit and Cleveland to reduce potential risks and service costs in largely vacated neighborhoods.

In the lot exchange version of this tool, the County (1) identifies those vacant lots in underserved subdivisions that are potentially most expensive to serve or at highest risk (often those on the furthest peripheries of the subdivision), (2) identifies lots of similar assessed value, size, or character in locations that the County owns that are less expensive to serve, at lower risk of hazards, or easier to evacuate (often nearer the heart of the subdivision or in a planned-but-never-built activity center on a planned arterial or collector street), and (3) contacts the owners of the more hazardous, peripheral lots and offers them the chance to exchange their lot for a more central and easier-to-serve lot. The Federal Aviation Administration uses an analogous approach authorized in FAA Part 150 (Airport Noise Compatibility Planning Program) to facilitate relocation of households impacted by expansions of airport noise contours to comparable properties further from those contours. As a result of each lot exchange transaction, the County disposes of title to one of its centrally located lots, but gains title to a more remote lot, from which it will then need to sever the development potential. See the discussion of The Land Disposal Challenge above.

While private real estate agents could and often do perform all of these services, the low value of the lots involved and the time and effort required to make these connections often result in low levels of real estate engagement in this market. In contrast, the County's interest in reducing risks to public health and safety and potential future service costs gives it an additional incentive to facilitate these transactions.

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Either version of a Facilitated Lot Consolidation or Exchange program would require an investment of the County's staff resources to initiate and operate such a program. The County would need to establish an initial inventory of the types of vacant lots it wants to target, keep that inventory current, contact property owners, and respond to inquiries from potential buyers who may wish to augment their own lots by buying adjacent property or to move opportunity to build or install a house to a safer location. Since such a program is always voluntary, any reduction in potential development on hazardous lots will probably occur gradually over time. In Routt County, Colorado, a voluntary lot consolidation program produced few lot transfers compared to the time and effort required to administer the program, and it was later discontinued. In Hawai'i County, however, the large number of County owned or controlled lots reduces the time and effort needed to identify potentially exchange-able lots, which could make lot exchanges a good supplement to other land reallocation tools.

There is no State enabling legislation needed to initiate a Facilitated Lot Consolidation/Lot Exchange program, because it simply involves the purchase and sale of real property to achieve a very clear public purpose.

Examples of Lot Consolidation or Exchange Programs

Routt County, CO: In the 1970s, Routt County approved the platting of the very large Stagecoach subdivision, which included about 2,000 mostly one-acre lots requiring a central sewer system. When demand for the lots weakened, the special sewer district that had begun to build that system went bankrupt and was prohibited from investing to connect more lots to the system. While updating its community plans in 2017, the County found that only 378 of 1,938 platted lots in the south Stagecoach had been developed, and those lots were scattered randomly among the remaining undeveloped lots. Though there was little demand for the smaller lots that had been platted in the original subdivision, the County had seen growth in demand for large-lot development, leading it to believe that a lot consolidation program in the area could be effective. After creating an inventory of vacant lots whose owners would be willing to sell, the County began communicating that information to partners such as realtors and homeowners' associations who could match available lots with demand for lots. Consolidation was accomplished by means of "sales pools" made accessible to buyers as well as annual lot auctions. Unfortunately, the program resulted in few lot consolidations and was later discontinued.

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Option 7: Building Permit Moratorium

Hawai'i County's ultimate goal is to manage development and redevelopment to minimize hazard exposure and provide adequate, cost effective services to its citizens. There may be cases where part of that strategy is to use a **Building Permit Moratorium** to delay the issuance of new development approvals while a better location for development is designed and serviced or other approaches to reducing hazard exposure are adopted. For example, the County may want to avoid new construction in an

Building Permit Moratorium: A regulation adopted by a local government suspending the issuance of building permits in a defined area to give the government time to design a thoughtful response to development challenges in that area, and usually lasting not longer than 18 months.

underserved subdivision or contiguous hazard area because it plans to approve development of an activity center that would be easier to serve and evacuate, and to which surrounding development could be induced to relocate or sell development rights. There are numerous successful examples of Building Permit Moratoria that have been implemented to allow local governments to address complex planning and development challenges throughout the U.S. This tool is particularly important to consider in cases where failing to impose a moratorium will create or increase risks to public health and safety.

A Building Permit Moratorium is simply a local ordinance suspending the issuance of building permits in a defined area, for a defined length of time, for a stated public purpose. Although state laws differ, moratoria are generally available in most states provided that (1) the action is taken for a legitimate public purpose, (2) the suspension is for a known and limited period of time, (3) the moratorium is to allow the government to take actions that address the stated public purpose or challenge, and it uses the additional time to do that.

In this case, the legitimate public purpose is the protection of public health and safety from known and mapped hazards, which is among the strongest purposes that can be cited, and one that is very likely to be upheld if the ordinance is challenged. As a temporary solution, a moratorium should remain in effect only during the time needed for creation and implementation of more permanent actions to reduce threats to public health and safety – for example, to design and implement an effective Lot Buyout program. In almost all cases, moratoria lasting six or 12 months have been upheld when challenged, because those are considered reasonable periods of time for a local government to complete a plan or issue contracts for needed development of public improvements that would address the stated challenge. Moratoria or extensions of moratoria lasting 18 months or more have also been upheld, but the longer the moratorium lasts the greater the burden on the local government to show that it was actively working towards a meaningful solution or investment if the moratorium is ever challenged in court.

Finally, local government must be actively trying to develop a solution to the stated challenge – not just using the moratorium as a stalling technique in hopes that affected property owners will lose interest in developing their lots. In this case, the justification for the moratorium could be the development of a County plan to prioritize Lot Buyouts, or to design a Transfer of Development Rights System, or to draft or adopt Development Restrictions to limit the size or amount of allowed investment on lots in mapped

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hazard areas. The justification could also be to allow the County to issue contracts for the design and construction of new activity centers in locations consistent with the County comprehensive plan that could then serve as Receiving Areas for Transferred Development Rights or Lot Exchanges.

Although Hawaii Revised Statutes appear to contain no specific enabling authority for development or Building Permit Moratoria, the Hawaii state legislature has considered proposals to adopt moratoria in some circumstances.

Examples of Development Moratoria

Livermore, CA: The City of Livermore enacted an ordinance prohibiting issuance of new residential building permits until local educational, sewage-disposal, and water-supply facilities complied with specified standards. The stated purpose of the ordinance was to further the health, safety, and welfare of the citizens of Livermore and to contribute to the solution of air pollution. Although Associated Homebuilders brought suit against the City challenging the ordinance, the Court upheld the temporary moratorium on building permits.

Option 8: Building Permit Denials

A final option to reduce risks to public health and safety caused by development on lots in known hazard areas is **Building Permit Denials** – i.e. simply to deny issuance of building permits in some or all of those areas, not just temporarily but permanently.

Because this option raises several difficult questions, the tool is usually generally reserved for the most hazardous lands that have the highest likelihood of resulting in human injury or death in case of an accident. In some cases, Building Permit Denials are not absolute but instead operate as “quotas”; they allow the issuance of additional building permits up to a known limit based on the documented capacity of an area to absorb new growth. In Hawai'i County, for example, the number of new building permits issued could be based on the adequacy of evacuation routes in the highest risk areas. This tool can also be implemented as a delay in approval of building permits until such time as an applicant can show that the public health and safety risks have been removed, even if it is unlikely that those risks can or will be removed.

Before discussing this option, it is important to note that local governments almost always have the authority to condition (rather than deny) building permits subject to the provision of adequate routine and emergency access, drainage, and water and sewer service. Building Permit Denials should only be

Building Permit Denials: A regulation adopted by a local government prohibiting the issuance of building permits in a defined area due to public health and safety risks, particularly where issuance of the permits would create a public nuisance, without payment of compensation.

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considered when that access and public services are already in place, or the applicant is able to supply them, but the County still wants to prevent development or redevelopment of the lot.

As noted earlier, the U.S. Constitution generally requires that private property not be taken for public purposes without due process and the payment of just compensation. In the 1992 case of Lucas v. South Carolina Coastal Commission, the U.S. Supreme Court considered a state action that prohibited construction of a barrier island house on a residentially zoned lot because it was in a mapped area of high hurricane risk. The Court held that denial of the right to build a house was in effect denial of all reasonable economic use of the property, and that South Carolina owed the property owner just compensation for the lot. However, the Court left open two possible ways to avoid the payment of just compensation. The first would have been to allow some reasonable economic use of the lot other than building a house. Importantly, in that case oceanfront property was a very limited resource that had relatively high value in spite of the hurricane risk, so the alternative use of the property would have had to allow more use or structure than if a low value lot were located in an underserved subdivision with a surplus of lots available for purchase.

As a second alternative, the Supreme Court indicated that if the only reasonable economic use of the property was a “nuisance” at common law, denial of that use might not require the payment of just compensation. While that situation will not occur often, it did occur in the 1994 case of The Mill, Inc., v. State of Colorado, and Colorado cited the Lucas case in defense of its actions. The Mill litigation arose when the state prohibited a mine from using the only economically viable form of mining on the property because of resulting pollution to nearby streams. The property owner claimed that this resulted in a taking of all use of the property in violation of the Lucas holding that should require payment of just compensation. The Colorado Supreme Court held, however, that since the resulting pollution would have been a nuisance at common law, the state’s actions to prevent that nuisance fell within the Lucas exception. As a result, the mine was prohibited from engaging in its one and only reasonable economic use and the state was not required to pay compensation.

In Hawai'i County, action to deny building permits in areas of very high risk would probably have to be accompanied by some form of direct or indirect compensation unless its actions prevented a public nuisance. That might be the case, for instance, if the County could show that issuance of a building permit for a new house on a vacant lot close to existing houses was likely to increase risks to the surrounding developed lots. One example where this could occur is a catastrophic event that likely to carry debris across property boundaries, and where the construction of a new home significantly increases the likelihood that debris will damage existing homes. Another possibility is a case in which construction of the new house would significantly increase the likelihood that water flows would be diverted, either because of the home foundation or other grading and property clearing, and instead flow across an important evacuation route. That could be argued to create a public nuisance further endangering public health and safety. A third possibility would occur in an area with inadequate access where each additional house compounds existing challenges of providing residents with evacuation routes or providing emergency personnel to ways to gain access to the threatened properties.

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Because it could be difficult to show that construction of a new home will likely create a public nuisance, a County denial of building permits should probably be accompanied with some form of direct or indirect compensation or relief. While the most common form of relief is a money payment, it may also take the form of a Transferrable Development Right that allows the property owner to obtain money by selling that right, provided the TDR system is designed and calibrated so that it is likely the property owner could actually sell the right for some reasonable value. To avoid potential litigation, the County might also want to amend its zoning variance and relief provisions and be willing to allow the construction of an Efficiency Dwelling, if the property owner who has been denied a building permit can show that the property would not create a public nuisance if the structure is later damaged or destroyed due to any of the mapped hazards.

Conclusion

The eight approaches outlined above provide Hawai'i County with a wide range of options to reduce public exposure to public health and safety hazards. Because of the wide variety of risks that exist in different areas of the County, differing access conditions and evacuation routes, and differing mixes of developed and undeveloped lots in each of the risk areas, it is unlikely that any one of these tools will or should apply to all lots on mapped hazard areas. Instead, it is likely that the County will need to consider a mix of these tools and a tailored approach to different risk, access/evacuation, and development scenarios. The second part of Clarion Associates' this document describes combinations of the tools outlined above that may be most effective in addressing these different risk scenarios.

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Part 2. Land Reallocation Tradeoffs and Strategies

The second section of this document provides our recommendations as to which of the tools described in Part 1 might best promote a “Low Tolerance for Risk” planning scenario for the County of Hawai'i, in what combinations, and under what circumstances, as well as a description of the tradeoffs between those strategies and the challenges to implementing them.

There are three tools discussed in Part 1 that we do not investigate further, however: Purchase of Development Rights (PDR), Publicly-Owned Lot Retirement, and Building Permit Moratoria.

We do not elaborate on the possibility of a PDR program for two reasons. The first immediate challenge is that, in areas where 2018 Recovery funds are not available, the County would need to identify a significant source of funding to purchase development rights. Second, even if funding could be identified, we think few landowners would have an incentive to sell development rights rather than selling the land itself, because the seller of development rights retains ownership of the land and the related duty to pay taxes on that land. In many cases, the lots in mapped hazard areas from which development rights could be purchased have little agricultural or habitat value, and the number of property owners who would be willing to continue paying taxes on land with very limited uses is probably not large. In contrast, participation in a Lot Buyout program would relieve the property owner of the duty to pay taxes, because the County would then own the lot itself. As a result, in the pages below we mention Purchase of Development Rights as option to a Lot Buyout program. In those cases where the County identifies funding for a Lot Buyout program, it could offer to instead purchase development rights if the seller prefers to keep ownership of land without development rights, but we recommend against developing a freestanding PDR program.

In addition, this Part 2 does not further evaluate the possibility of retiring tax default lots or other lots that come into public ownership or control. Instead, we address the potential to use of some of the publicly controlled lots in less hazardous areas as part of a Facilitated Lot Exchange program. Lots that cannot or should not be offered in exchange for more hazardous lots should be unplatted or have their development rights severed and retired by the County.

Finally, we do not discuss Building Permit Moratoria, because that is not a permanent solution for reducing development in underserved subdivisions or other hazard area. Rather, it is a temporary measure that the County could impose if time is needed to create and implement more permanent strategies for preventing development, such as those discussed below.

2.1 Establishing a Strong “Low Exposure/Limited Investment” Policy

Before addressing possible combinations of land reallocation strategies, it is important to discuss the policy background behind those strategies. Inherent in the implementation of a “Low Tolerance for Risk” Scenario to reduce potential development in mapped hazard areas is a County commitment to not approving plan amendments that would increase the potential development in those areas. In other words, inherent in our evaluation of the potential effectiveness of different land reallocation strategies is an assumption that **the County will (1) not approve rezoning requests, re-designation request for a**

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more developable land use category, land subdivision applications, or requests for variances from lot access/driveway standards, (2) work with the Hawaii Department of Health to limit or prohibit approvals for new on-site wastewater systems that would increase development density in mapped hazard areas, and (3) not spend discretionary funds to improve extensions of existing water and sewer lines or to improve road access in those areas (unless necessary to improve evacuation routes in areas where those routes are already inadequate to serve the existing population). Not only would County approvals of those types of requests undercut the effectiveness of the strategies outlined below, but it will be difficult to explain to property owners in mapped hazard areas why the County is restricting development in some areas while approving new development in other, equally hazardous areas.

One good example of a strong policy basis to discourage future development in financially or environmentally unstable areas is Youngstown, Ohio's, Limited Service Overlay district. In that community, the City Council established a policy to deny all requests for discretionary approvals (except variances required by state law), all requests to vary from citywide street access and infrastructure standards, and all proposals to spend discretionary grant funds in a defined area of the City where future growth would require the provision of services or installation and maintenance of roads and infrastructure that the City could not afford to provide. That policy put the public, existing property owners, and potential property buyers in that area of Youngstown on notice that, although the City would not prohibit all development in the area, it would not take any actions that would encourage or facilitate that development. Youngstown's actions were motivated by the City's very serious financial challenges, but in Hawai'i County a similar policy would be motivated and justified by the stronger public purposes of reducing exposure to mapped hazards to public health and safety.

2.2 Calibrating the Strategies

The five tools described in the Toolbox that remain to be evaluated are: Transfer of Development Rights (TDR), Lot Buyouts, Development Restrictions, Facilitated Lot Exchange, and Building Permit Denials. Not surprisingly, we feel that these tools would be more effective in reducing the risk of development in mapped hazard areas or underserved subdivisions if used in combination, rather than as individual freestanding programs.

2.2.1 Underserved Subdivisions

We began the analysis with Hawai'i County's longstanding recognition that planning and zoning should distinguish between:

- **Underserved Subdivisions** -- which were often created long ago and where provision of infrastructure, services, adequate roads is both difficult and expensive; and
- **Other Areas** -- which include centers which are generally less difficult and expensive to serve as well as more rural locations where platted subdivisions have not been established.

In alignment with past County planning efforts, we placed a higher priority on relocating potential development from lots that are located in underserved subdivisions, as compared to redirecting

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development from other areas of the County. All of the remaining discussion about possible land reallocation strategies are described as subsets of this basic planning policy distinction.

2.2.2 Level of Exposure to Hazards

Our second level of analysis focuses on a key difference between the County's current planning effort and past General Plan scenarios – namely, a heightened emphasis on land reallocation away from key mapped hazard areas. We recommend that the County of Hawai'i consider two different combinations of land reallocation tools:

- **A High Hazard Exposure Strategy** – to be applied in mapped hazard areas of the County where the likelihood of loss of life or significant damage to property from a future hazard event is high; and
- **A Moderate Hazard Exposure Strategy** – to be applied in mapped hazard areas where the potential for impacts to public health and safety or property damage is lower or mitigatable.

In underserved subdivisions only, we have addressed a third category of lots that are exposed to Low- or No-Hazard.

To design these two strategies, Focused Planning Solutions provided information about the number of lots in underserved and conforming subdivisions, and augmented this with information about various mapped areas of hazard exposure related to volcanic events, coastal hazards, geology/soils, wildfire and several other types of hazards for which mapped data is available. We then focused the analysis on those types of hazards that are geographically defined, as opposed to those – like geology/soil/ earthquake risks -- that affect most or all of the island. We then distinguished between those hazards that are difficult or impossible to mitigate through on-site construction techniques, such as volcanic risks, and those that can be mitigated to some extent to some extent, like coastal hazards. Where the mapped hazard is difficult or impossible to mitigate on-site, the strategies should focus more heavily on avoidance of future development.

For purposes of this document, we categorized these hazards as follows. High Hazard Areas include lots in Volcano Risk Areas 1 and 2, as well as areas of historic lava flow, including the most recent 2018 Kilauea eruption; Moderate Hazard Areas include lots in coastal hazard areas. A map of the High Hazard Areas and Moderate Hazard Areas under these two assumptions is shown in Appendix B. Obviously, there are many alternative ways to categorize mapped hazards in the County. For example, the County could decide that coastal lots at high risk of wildfire events should be included in the High Hazard Areas strategy; or it could decide that mapped areas of historic lava flow should be included in the Moderate Hazard Areas category. If these changes are made, the number of lots covered by each strategy should be recalculated, and the strategies may have to be refined to respond to those changes.

2.2.3 Vacant or Built Status

Within the subcategories of High Hazard Areas, Moderate Hazard Areas and Low or No Hazard Areas, we then evaluate separately which land reallocation tools should apply to:

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- **Vacant Lots**; and
- **Built Lots** (including partially built lots).

In the case of both vacant and built lots these strategies are intended to apply prospectively as applications to build new houses, to install Efficiency Dwellings, or to repair or replace existing houses are received by the County. They are not intended to apply to, or force the relocation of, County residents who live in mapped hazard areas who have not experienced damage from a hazard event and who intend to continue to occupy their current homes, unless the design of a Lot Buyout program makes them eligible for a buyout and the owner decides to sell the property. Stated another way, the strategies outlined below would apply when a property owner applies to the County for a permit to change the existing use or structure in some way (or begins to make changes to the property that require a permit without applying for that permit). Very few risk reduction strategies require or encourage the relocation of existing residents who have not applied to change or improve their properties simply because (1) it is easier for local government to prevent unwanted development in the future than to remove existing development, and (2) very few programs have funding available to move households that have not been damaged and do not want to move. One exception is the FAA Part 150 Airport Noise Compatibility Planning Program mentioned above, which authorizes local governments to approach property owners in areas to be affected by expanded airport noise contours and find them equivalent housing outside those noise contours. However, the FAA program is specifically authorized and funded by federal law and operates for a very limited purpose that is unlikely to be replicated or funded in the County of Hawai'i.

2.2.4 Number of Lots

Finally, in evaluating possible land reallocation strategies from these different perspectives, we also considered the total number of lots included in different hazard exposure classifications. In this case Hawai'i County has over 75,000 lots in underserved subdivisions and mapped hazard areas. That large number, all by itself, suggests that any effective strategy will need to involve a combination of tools, will need to be tailored to specific conditions in different parts of the county, and will need to be implemented over a long period of time to be effective. It also suggests that any Transfer of Development Rights created by the County needs to be carefully targeted and designed so that the number of development rights available for sale or transfer from Sending Areas does not exceed the capacity of Receiving Areas to absorb a realistic percentage of those transferred development rights over time.

2.2.5 Strategy Overview Matrix

Clarion Associates then created the matrix below to reflect the factors listed above and illustrate which tool or tools we recommend for further investigation in different mapped risk areas in the County of Hawai'i. Blocks that are shaded dark green indicate a strong recommendation to apply the tool in that situation. Lighter green indicates a secondary priority for applying the tool, or suggests that it be considered in combination with tools shown by darker green blocks. White blocks indicate that implementation of the tool is not recommended at this time. As shown in the table, we recommend

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that the County's Low Exposure/Limited Investment policy apply to all properties located in underserved subdivisions – even those that are not in mapped High or Moderate Hazard Exposure areas.

PROPOSED STRATEGIES	High Priority				Secondary Priority					
Subdivision/Lot Status	Underserved Subdivisions						Other Areas			
Level of Hazard Exposure	High		Moderate		Low/No		High Hazard		Moderate	
Built Status	Vacant	Built	Vacant	Built	Vacant	Built	Vacant	Built	Vacant	Built
Number of Lots	22,659	5,290	45	78	25,045	11,869	3,375	3,207	659	3,179
Lot Buyouts (with PDR Option)										
Development Restrictions										
Transfer of Development Rights										
Facilitated Lot Exchange for Public Lots										
Building Permit Denial for Inadequate Evacuation or Public Safety Concerns										

After summarizing each of the recommended strategies, this document summarizes what each of these strategies would mean for property owners who:

- 1. Prefer to stay and live on the property at least part of the time; or**
- 2. Are prepared use the property for only non-residential purposes, or to leave the area if compensation or a good alternative is offered.**

After we have suggested which combination of tools may best apply to different types of lots in each of the situations shown in the table, we then estimate the likely reductions of development in those areas if the strategies are implemented carefully and consistently over time. These estimates are, in turn, intended to be used by Focused Planning Solutions in developing its "Low Tolerance for Risk Scenario" for the General Plan process. Finally, we identify the implementation efforts and challenges required to pursue each of these two strategies.

Before describing each of these strategies, it is useful to remember three key points about County powers to regulate development.

1. While zoning and development regulations must generally leave each property owner with a reasonable economic use of his or her property, and in the case of residential lots that sometimes means a habitable structure, it does not mean that the County must leave each property owner with the right to build a house of whatever size and configuration the owner wants.
2. The County's duty to protect public health and safety is given great weight by the courts. When challenged, regulations adopted to protect human life from injury or death are generally upheld if they are adopted after due process and they are rationally designed to

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achieve their intended purpose. Restrictions on individual property to protect the public or other property owners are given particular weight.

3. While some zoning and development regulations can be held to be “regulatory takings” of property for which the County must pay compensation, those cases are rare. When compensation is due, it does not always have to be cash compensation; sometimes indirect compensation is approved, and the County can establish a Beneficial Use Determination system to evaluate claims as to whether compensation is due on a case-by-case basis based on specific facts, rather than making the decision in advance.

2.3 Strategies for Underserved Subdivisions

2.3.1 Lot Buyouts

We understand that the County has decided to pursue a voluntary housing buy-out program as part of the recovery from the 2018 Kilauea eruption. At the time of this report, the feasibility, specific design, and criteria for the program had not been finalized. If funding is available for that program or a similar Lot Buyout program in the future, we recommend that it be implemented according to priorities approved by the County Council.

Regardless of whether a Lot Buyout program is implemented in areas affected by the 2018 Kilauea eruption, this tool should be considered a very effective tool for reducing development potential in mapped hazard areas in anticipation of possible future hazards – provided that funding is available. A Lot Buyout program serves the dual purposes of assisting some of those most directly affected by a disaster and would reduce the number of lots in mapped hazard areas. We recommend that this tool be applied to built lots in both High and Moderate Hazard Exposure areas of underserved subdivisions and to built lots with High Hazard Exposure in other areas. As lots are purchased, we recommend the County “unplat” or otherwise sever the possible development potential from these lots.

However, we assume that possible recovery funding for a Lot Buyout program will not be sufficient to buy all of the lots affected by any given hazard event, and that some lot owners affected by that event will not want to sell their lots. The strategies below are therefore structured to apply to:

- Owners of lots that qualified for a Lot Buyout program but for which funding was inadequate to purchase the lot;
- Owners of lots in that did not qualify for a Lot Buyout program; and
- Owners of lots affected by a hazard event where no Lot Buyout program is implemented.

2.3.2 Vacant Lots

Development Restrictions

There are over 47,000 vacant lots in underserved subdivisions, of which over 22,700 are in High and Moderate Risk Exposure areas. These are lots on which no home currently exists, and for which a legal “right to rebuild” does not apply. In addition, these are lots on which lives and property are not currently at risk from hazard events, so limiting development on these lots in ways that reduce the

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potential for future loss of life and damage to property should be among the County's highest priorities. To do that, the County should use its zoning powers to adopt significant development restrictions on new construction. Such restrictions could take various forms – including changes to current zoning, limiting new house size or value, building permit moratoria or building permit denial.

Rezoning or Re-designation

Changing the existing zoning or state land use category is one effective way to limit development capacity, especially since many areas are not zoned for residential development, but are rather zoned for agriculture in a way that also allows a residential use. Three types of actions should be considered.

1. In areas of underserved subdivisions where platted lot sizes are large enough to support agricultural enterprises, the County could consider rezoning or re-designation to limit the lot to purely agricultural use and eliminating possible residential structures to the extent possible. Where underserved subdivision lands have State of Hawaii agricultural designations, this would require working with the State government to limit the availability and extent of farm dwellings available.
2. Where there are vacant lots adjacent to the National Park or other areas designated open space or forest reserves, and the operators of those parks or preserves are interested in expanding or buffering those areas, the operator could offer compensation and the lots could be rezoned or re-designated to an open space or conservation category.
3. Finally, if lots are big enough and well situated to provide habitat benefits, compensation could be offered by the managers of habitat programs and the properties rezoned or re-designated for habitat purposes.

However, in many cases the existing lots in underserved subdivisions are small, may not have realistic value for agricultural, open space, or habitat use. These are among the lots where the County may consider allowing residential development only once a landowner has demonstrated that there is no other viable economic use for their property aside from construction of a residence.

Limitations on Types of Dwellings

One effective tool (discussed in the Toolbox above) is to adopt zoning regulations limiting the maximum size or permanence of new habitable structures built on the vacant lot – such as a requirement that only Efficiency Dwellings may be installed on the lot. This can also be accomplished by limiting the total dollar value of building permits that the County will approve, with potentially lower limits in underserved subdivisions (although tracking the incremental value of building permits issued for improvements to a specific lot can be difficult over time). Both restrictions result in smaller or less permanent houses that tend to be occupied less frequently, and by fewer people, than larger and more permanent houses. This alone can significantly reduce the number of residents or guests who need to be evacuated and the risks associated with evacuation (including accidents and road closures). If a hazard event occurs, smaller, less expensive, and less permanent homes result in much less property damage and less financial loss if they are damaged by the disaster. To implement this approach, the

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County could adopt a maximum house size of 600 or 800 square feet, or it could restrict permitted residential units to Efficiency Dwellings.

Requirements for Non-Permanent Installation

Installation of permitted Efficiency Dwellings could also be subject to a requirement that they not be installed on a permanent foundation and that they be able to be accessed by a road or driveway with a maximum grade of no more than eight percent so that the dwelling can be removed when there is advance warning of a hazard event. Requirements that the dwelling be tied down or otherwise anchored to withstand high winds in a manner that could be released by the owner should still be required.

Viable Agricultural Plan Requirements

Another form of development restriction is to require that applicants for residential building permits on land designated as agricultural submit to the County a viable plan to put the property to use for agricultural purposes as a precondition for obtaining a building permit. In 1976, the Hawai'i Revised Statutes Section 205-2 assigned state-wide classifications for land use, creating four districts: urban, rural, agricultural and conservation. Much of the land in the underserved subdivisions and "other areas" of Hawai'i County discussed in this report has been classified as agricultural, which generally permits construction of a farm dwelling to support the primary agricultural use. To ensure compliance with the primary agricultural use requirement, the County could require the filing of a plan identifying the potential crops or vegetables to be grown or other agricultural products to be created, the volume those products anticipated to be created, any required sources of supplemental water supply necessary for that production, areas to be devoted to agricultural production, areas for storage of supplies, equipment, and produce, and potential revenues from sales of those agricultural products. The County would then review the plan to determine if the lot is a viable parcel for agriculture production (as opposed to being primarily a residential lot with an accessory agricultural use) before issuing permits for the construction of a primary or accessory farm dwelling.

Additional Permitting Plan Requirements

Because Hawai'i Revised Statutes Section 205, applies to lots created after June 4, 1976 (the effective date of the statute), however it does not address potential service, safety, or evacuation issues on lots created before that date and then later designated by the state as agricultural lands. To address safety issues on these lots, the Hawai'i County could enact a requirement that the applicant provide a report showing that the lot is safe for residential development as a pre-condition for issuance of a dwelling construction or installation permit.

For example, the plan could require that the applicant show the proposed location of the Efficiency Dwelling, confirm that the location is outside any defensible space requirements if the parcel is located in a fire hazard zone, demonstrate that construction of the dwelling as proposed will not have an adverse effect on groundwater quality, identify driveways and accessways between that location and

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the public rights-of-way with grades that do not exceed eight percent, confirm that the Efficiency Dwelling will be installed and anchored so that it could be relocated in the event of a hazard event with prior warning, confirm that the public rights-of-way serving the lot have adequate capacity to accommodate potential need to evacuate the area, and that in the event the Efficiency Dwelling cannot be evacuated (because of a hazard event that occurs without warning) the destruction of the Efficiency Dwelling is unlikely to result in debris blocking public rights-of-way or driveways or accessways to or on abutting properties. These are basic public health and safety concerns, and a requirement to document compliance with these types of protections are generally considered well within the limits of County regulatory authority.

To limit development of land subject to high lava hazard exposure regardless of State or County land use and zoning, Hawai'i County could also consider enacting a requirement that the applicant provide a geotechnical/geothermal report showing that the lot is safe for residential development without the installation of a permanent foundation as a pre-condition for issuance of a building or installation permit.

Regardless of which type of development restriction is chosen, it should be accompanied by the strong Low Exposure/Limited Investment policy described above. New investments in water and sewer infrastructure would not be made, new investments in roads would only be made to the extent necessary to improve evacuation routes for existing homes, and variances and exceptions for new on-site wastewater systems would not be approved.

Denial of Building Permits where Evacuation Routes are Inadequate

In addition to requiring that future Efficiency Dwellings can be moved from their installed locations to a public right-of-way along a route with a grade of no more than eight percent, the County should consider requiring an evaluation of those rights-of-way to serve as potential evacuation routes as a prerequisite to issuance of new building or installation permits on vacant lots in both underserved subdivisions and other High-and Moderate Hazard Exposure Areas. This is a situation where two important legal principles come into tension. On the one hand, the law generally requires that each property owner be left with a reasonable economic use of his or her property. On the other hand, local government is charged to protect the health and safety of its citizens. As noted in the Toolbox above, where the lack of adequate evacuation routes is likely to result in unsafe conditions during evacuations or where damage to new homes may block evacuation routes, the County should consider denying additional building permits. As an alternative, the County could adopt a regulation delaying the issuance of building permits in these areas until such time as the availability of adequate evacuation capacity is shown. Where the adequacy of an evacuation route is unknown, the County could impose a building permit delay for a defined period of time (6 to 12 months) to allow an evacuation study to be completed.

Facilitated Lot Exchange Program

For those vacant lot owners who are not interested in building or installing a 400-800 square foot home, or for those who face a lengthy wait for a building permit because of the inadequacy of evacuation

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routes, the County should consider facilitating lot exchanges for County owned lots outside High and Moderate Hazard Exposure Areas. As noted earlier, the County regularly obtains ownership or control of lots through tax defaults, as well as occasional lot donations. In addition, some development plans and subdivision plats have designated some lots for County ownership or control (for example, consolidated lots in Hawaiian Paradise Park intended for future centers). In order to reduce the potential for future development in High and Moderate Hazard Exposure Areas, the County could offer to exchange some of the lots it controls to those willing to give up lots in more hazard prone areas in underserved subdivisions. A Facilitated Lot Exchange program could also serve as a source of indirect compensation to those property owners who were interested in participating in a Lot Buyout program, but who did not qualify or for whom funding for purchase of the lot was unavailable.

We recommend one limited exception to the vacant lot strategies outlined above. Because of the small number of vacant underserved subdivision lots in Moderate Hazard Exposure Areas (45 lots), we recommend those lots be instead subject to the Mandatory TDR program outlined below.

2.3.3 Built Lots

Strategies for underserved subdivision lots in that are already partially or fully developed but are then damaged in a hazard event are harder to design, simply because of the emotional attachment that property owners have to a home that they used to live in – or a home that they still live in but would like to rebuild to

Getting TDR Right Requires Creating a Seller's Market

1. Don't include too many lots in the Sending Area. If there are too many TDR sellers and not enough places to use them, prices for TDRs will remain low. Many potential sellers will not engage in the market, and those who do may not feel they received meaningful value in return for their foregone right to rebuild in the High Hazard Area.

2. Don't make the Receiving Area too small. The Receiving Area has to have the capacity to accommodate the additional density represented by the transferred development rights. In order to avoid opposition to the existing Receiving Area residents, this often means allowing purchased development rights to only increase future development density by 10-20 percent. A small Receiving Area will not be able to accept the transfer of many TDRs.

3. Make sure there is a market in the Receiving Area. Most importantly, property owners in the Receiving Areas must see the economic value of purchasing TDRs to meet market demand. That means that the current zoning in the Receiving Area must not allow the intensity of development that is demanded by the market. If builders in the Receiving Area can collectively meet market demands without purchasing TDRs, they will do so. The TDR program must allow the developer to realize more money from the development after paying for the TDR than they could have without buying the TDR.

If the market is already strong in the Receiving Areas, the County will need to avoid "up-zoning" land and instead require the purchase of TDRs to meet market demand. If demand is weak, a TDR program will not work unless the County is willing to "downzone" parts of the Receiving Area so that the purchase of TDRs will have value.

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pre-disaster conditions. In developing the following strategy we assume a Lot Buyout program was not available, or if it was available then funding was inadequate to buy the lot.

Primary Strategy: Mandatory Transfer of Development Rights Program

Where homes located in underserved subdivisions in High or Moderate Hazard Exposure Areas have been destroyed or rendered uninhabitable, the argument for permitting reconstruction of homes is particularly weak, both because the rebuilt home will have a long useful life, and because extending future services to the underserved subdivision will likely be expensive. As shown in the matrix above, in 2015 there were about 5,370 developed lots in underserved subdivisions in High and Moderate Hazard Exposure Areas (although some of those lots may have been damaged by the 2018 event).

When homes in these mapped hazard areas have been destroyed or become uninhabitable, Hawai'i County should consider prohibiting reconstruction of destroyed or uninhabitable homes and should instead consider creating a mandatory Transfer of Development Rights program. Owners of those lots would not be issued building permits to rebuild, but would be issued TDRs that could be sold in defined Receiving Areas outside of High Hazard Areas where adequate services and emergency access are available. The TDR serves as a form of indirect compensation to owners who did not benefit from a Lot Buyout program but for whom a new building permit would perpetuate the number of citizens living in High Hazard Areas where the County would like to see fewer people at risk. A mandatory TDR is one way to balance those competing interests.

Designing a workable Transferable Development Rights program is not easy, however, and requires political will and discipline over time (see the sidebar). Because it is often difficult to identify Receiving Areas large enough to absorb potential development rights transfers, it is important to limit the number of potential sellers. Under this strategy, the number of TDRs is probably substantially less than 5,370 because after any one hazard event the majority of the homes in underserved subdivision lots in High and Moderate Hazard Areas are likely to still be habitable. The matrix above shows that there are also 45 vacant lots in underserved subdivisions in Moderate Hazard Exposure areas, and because that small number is unlikely to undermine the viability of a TDR program, we recommend that these lots be included in the Mandatory TDR program. If the County is able to identify and zone workable Receiving Areas to create a successful TDR system at this scale, it might consider expanding the program to other types of lot owners, but we do not advise including more potential sellers of TDRs at the start of the program. In particular, we do not recommend extending the program to the almost 23,000 underserved subdivision lots in High Hazard Exposure areas, because of the unlikelihood that acceptable Receiving Areas for those lots could be identified.

Fallback Strategy: Development Restrictions and Facilitated Lot Exchanges.

If the County is unwilling or unable to identify or create workable Receiving Areas, we recommend that a Mandatory TDR program not be created. Instead, we recommend that underserved subdivision lots in High and Moderate Hazard Exposure areas be subject to the following limitations.

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- **Development Restrictions** on the size or permanence of habitable structures that can be built, similar to those applicable to vacant lots in High and Moderate Hazard Areas. If a home is damaged or destroyed in a future event, similar development restrictions to vacant lots could then apply.
- **Facilitated Lot Exchange** opportunities, with priority given to lots in High Hazard Areas. In the event of two possible exchanges of lots in mapped hazard areas for County owned or controlled lots in other areas of the County, an exchange to remove potential population in the High Hazard Area should have priority.

2.3.4 Options for Property Owners

If Hawai'i County implemented the strategies outlined above, property owners in underserved subdivisions would have the following options.

	My lot is vacant	My house is in a High Hazard Exposure Area	My house is in a Moderate Hazard Exposure Area	My house is in an Other Hazard / No Hazard Area
I want to stay on my property and live on it – at least part of the time	High Hazard Exposure Area: Maximum house size will be limited to 600 sq. ft. If evacuation route is inadequate, building permit will be denied until adequate access exists. Moderate Hazard Exposure Area – see below	You may continue to live on it until/unless it is made uninhabitable by a hazard event. If it is damaged and becomes uninhabitable -- see below.	You may continue to live on it until/unless it is made uninhabitable by a hazard event. If it is damaged and becomes uninhabitable -- see below.	You may continue to live on it until/unless it is made uninhabitable by a hazard event. If it is damaged and becomes uninhabitable, maximum replacement house size will be limited to 600 sq. ft.
I am willing to use my property for non-residential purposes or give up my property if there are good alternatives	You can sell the lot as part of a Lot Buyout program (if one exists) or exchange it for a County controlled lot outside the High and Moderate Hazard Area	You can sell the lot as part of a Lot Buyout program (if one exists) or sell a TDR from the property to a TDR buyer in the Receiving Area outside of the High and Moderate Hazard Areas.	You can sell the lot as part of a Lot Buyout program (if one exists) or sell a TDR from the property to a TDR buyer in the Receiving Area outside of the High and Moderate Hazard Areas.	You can sell the lot on the private market; No buyout or Lot Buyout or Facilitated Lot Exchange program applies.

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2.4 Strategies for Other Areas

By definition, lots located outside of underserved subdivisions lower costs and present fewer challenges to providing public services, so Hawai'i County may assign a somewhat lower priority to discouraging future development in these areas. Even among these lots, however, there is a large amount of potential development with significant exposure to different types of hazards. The matrix above shows that there are about 10,420 lots located in High and Moderate Hazard Exposure areas that are not in underserved subdivisions. When considering strategies to reallocate development potential away from these areas the distinction between vacant and built lots is still relevant. Preventing or limiting development on vacant lots should be a high priority, because each of those lots that is developed represents an increase (rather than a decrease) of citizens living in mapped hazard areas. In addition, prevention of new development does not involve the emotional attachment to an existing home that is present when an existing home becomes uninhabitable due to a hazard event and the owner wants to rebuild. Finally, when existing homes are destroyed, preventing or limiting redevelopment of those homes in High Hazard Exposure Areas should have a higher priority than preventing the same types of redevelopment in Moderate Hazard Exposure Areas, simply because the risks of future loss are higher.

2.4.1 Lot Buyouts

If a future hazard event affects lots outside of underserved subdivisions, and Lot Buyout funds are available, we recommend that a Lot Buyout program be implemented for built lots in those areas, because that is the most direct way to ensure that those most directly affected do not redevelop, and that the number of residents in High and Moderate Hazard Exposure Areas is decreased over time. However, we do not assume that those funds will be available or will be adequate to purchase all the lots eligible for purchase. The analysis below assumes that adequate Lot Buyout funds are not available or are not adequate to purchase all of the damaged built lots.

Our recommended strategy for areas outside of underserved subdivisions references some of the same tools and approaches described for underserved subdivisions, but applies them in more limited ways to reflect the lower costs and difficulty of providing services to those who want to live or rebuild in these areas.

2.4.2 Vacant Lots

The tools used to discourage future development or redevelopment of Vacant lots in underserved subdivisions should also apply to vacant lots in other areas, with the minor modifications noted below.

- **Development Restrictions** on the size or permanence of habitable structures that can be built, similar to those applicable in underserved subdivisions. However, in light of the reduced challenges to serve development in these areas, the maximum size of permitted structures might be increased to 800 or 1,000 square feet, Efficiency Dwellings could be installed on more permanent foundations, and restrictions on future utility extensions and variances and exceptions for on-site wastewater treatment could be relaxed.

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- **Building Permit Denials** for lots in High Hazard Exposure Areas with known inadequate evacuation routes, at least until the availability of an adequate route is shown. Because these lots are newer and comply with (or come closer to complying with) current subdivision standards, the County could make this determination based on existing studies, rather than requiring property owners to complete studies or demonstrate adequate evacuation routes. The County might also consider applying this requirement to lots in Moderate Hazard Exposure Areas.
- **Facilitated Lot Exchange** opportunities for lots in High Hazard Exposure Area, with a lower priority than exchanges with property owners in underserved subdivisions. In the event of two possible exchanges of lots in mapped hazard areas for County owned or controlled lots in other areas of the County, an exchange to remove potential population in the High Hazard Areas in underserved subdivisions should have priority.

2.4.3 Built Lots

Within the context of this Toolbox and Strategies document, requests to rebuild on already developed lots High and Moderate Hazard Areas outside of underserved subdivisions require the least change from current County policies. Challenges are lower than those in underserved subdivisions, and – almost by definition – access/ evacuation routes are more likely to be safe and adequate, and utility services are more likely to exist and be less expensive to maintain, than those in underserved subdivisions.

We recommend that where homes in High and Moderate Hazard Exposure Areas have been destroyed or become uninhabitable, and the lots are not located in underserved subdivisions, those lots not be included in the mandatory TDR system outlined above. Including those additional 6,300 lots in a TDR system would double the number of potential number of TDR sellers and would create the additional challenge of finding or creating much larger workable Receiving Areas. Instead, we recommend that lots in these areas should be addressed through the following tool:

- **Development Restrictions** on the size or permanence of habitable structures that can be built,. In light of the lower challenges presented by development in these areas, the maximum size of permitted structures might be increased to 800 or 1,000 square feet, Tiny Homes could be permitted to be installed on more permanent foundations, and restrictions on future utility extensions and on-site wastewater treatment could be relaxed.

Because they are located outside of underserved subdivisions, the likelihood that these lots have inadequate and unsafe evacuation routes is lower. However, in areas where existing studies show that evacuation routes are inadequate to serve the potential population on platted lots, the County should consider adopting a Denial of Building Permit program as described for vacant lots above.

2.4.3 Options for Property Owners

If Hawai'i County implemented the strategies outlined above, property owners in the High or Moderate Hazard Exposure Area would have the following options.

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	My lot is vacant	My house is in a High or Moderate Hazard Exposure Area
I want to stay on my property and live on it – at least part of the time	Maximum house size will be limited to 800 sq. ft. If evacuation route is inadequate, building permit will be denied until adequate access exists.	You may continue to live on it until/unless it is made uninhabitable by a hazard event. If uninhabitable after a hazard event, replacement house will be limited to 800 sq. ft.
I am willing to use my property for non-residential purposes or give up my property if there are good alternatives	You can sell the lot as part of a Lot Buyout program (if one exists) or exchange it for a County controlled lot.	You can sell the lot as part of a Lot Buyout program (if one exists)

2.5 Beneficial Use Determinations and Adjustments

The strategies above are designed to help the County of Hawai'i develop a strategy to significantly reduce the risks or future development and redevelopment in a variety of hazard areas throughout the county. They have been calibrated so that stronger and more prescriptive limitations on development are targeted to those areas where the existing platting, access, and service patterns are the furthest from what the County would approve today, and where the potential risks of human injury and property damage are highest. Where they recommend that development or redevelopment on existing platted lots should not be permitted, they are designed to offer direct compensation (through Lot Buyouts) or indirect compensation (through Transferrable Development Rights or Facilitated Lot Exchanges), except in those cases where the County can demonstrate that approving development will create a threat to public health or safety. Even when those threats can be shown, however, the County may want to offer some degree of flexibility to lot owners who would otherwise not be permitted to redevelop their homes or develop their lots. One way to build in that flexibility is through a Beneficial Use Determination system.

Under a Beneficial Use Determination, a property owner who believes that the strategies above have deprived him or her of all reasonable economic use of the property in a way that is not justified by threats to public health and safety caused by the proposed development – and for which compensation would probably need to be paid by the County -- would have an opportunity to request County review of those facts before filing a lawsuit for a “regulatory taking”. The applicant would be required to present evidence related to the economics of the property, often including evidence of the original purchase price of the lot, the improvements (if any) made to date, any insurance or other settlements already received due to damage to the house or property, and the potential use of the property for agricultural purposes. If, after reviewing that evidence, the County believes that strict application of the strategies above would indeed result in a regulatory taking, the County would have the opportunity to vary the

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terms of those regulations and controls to allow an economic use of the property. Possible forms of relief might include the right to build a somewhat larger house than permitted by the Development Restrictions listed above, an exception to connect to utility systems or to use an on-site wastewater system in spite of the limits otherwise applicable in High Hazard Areas, or to permit access to a lot in a location where it would not otherwise be permitted. In exceptional cases, the County could also decide to offer compensation for the development restrictions in order to avoid the time and expense of litigating a case that it might lose.

2.6 Possible Reductions in Development Potential

This section estimates possible reductions in potential development in the High and Moderate Hazard within and outside of underserved subdivisions assuming that the County of Hawai'i adopts and implements the above strategies carefully and consistently over time. This task is difficult, for several reasons.

1. Effectiveness of Lot Buyout Program

It is difficult to know what portion of the built lots that are damaged or destroyed through a hazard event will be removed from the totals through a Lot Buyout program, because that is completely dependent on the amount of funding available for Lot Buyouts. While the amount of Recovery funding for Lot Buyouts after the 2018 Kilauea eruption may soon be known, the amount of funding that may or may not be available for Lot Buyouts after future hazard events cannot be known before those events occur. Each lot that is purchased through a Lot Buyout program, and from which development rights are removed, represents one less lot in that risk category that may be developed in the future. For purposes of these estimates, we assume that Lot Buyouts after an event reduce the number of built lots by 10%. Since a hazard event is just as likely to occur within or outside an underserved subdivision, we take the same assumption for both types of lots. We assume that Lot Buyouts do not reduce the number of vacant lots in either High Hazard or Moderate Hazard Areas, because of limited funding and likely priority given to built lots in those areas.

2. Impact of Permitting Requirements for Evacuation and Public Safety

It is difficult to know how many of the existing vacant lots have inadequate evacuation routes or will fail to meet additional permitting requirements that would require the County to apply a Denial of Building Permit program until such time as those standards are met. Because of the very large number of vacant lots in underserved subdivisions in Hawai'i County, because inadequate roads is one of the factors that can lead to designation as an underserved subdivision, and because a significant number of lots have site conditions in which construction of a dwelling would create public safety hazards, it is likely that a significant percentage of the current vacant lots in underserved subdivisions will not be developed. After discussions with County staff and other consultants, we estimate that between 20 and 30 percent of underserved subdivision lots in hazard areas and between 10 and 13 percent of other hazard

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areas will have inadequate evacuation routes or otherwise fail to meet additional permitting requirements related to public safety.

3. Success of Mandatory TDR System

As noted in the Toolbox above, it is difficult to design an effective TDR system. For that reason, we recommended that the TDR system have limited applicability -- i.e. built lots in underserved subdivisions in High and Moderate Hazard Areas that are destroyed or rendered uninhabitable by a hazard event, plus the small number (45) of vacant lots in Moderate Hazard Exposure Areas. We assume that each hazard event destroys or makes uninhabitable 10 percent of the built lots in the High Hazard Exposure Areas. That reduces the number of TDRs for sale at any one time and the difficulty of designing a Receiving Area adequate to absorb those transferred development rights. Because of the likely small volume of TDRs to be transferred after each hazard event, and assuming the County designates an adequate Receiving Area in which developers need to acquire TDRs to meet the intensities of development supported by the market, and assuming the County does not permit rebuilding of the damaged homes in these categories, we assume that almost all of the potential TDRs available after each hazard event will be successfully transferred.

4. Response to Strict Development Restrictions

It is difficult to estimate how property owners will respond to development restriction that limit future development of vacant lots in High and Moderate Hazard Areas to Efficiency Dwellings without utility connections and in light of a County Low Exposure/Limited Investment policy. However, if strict versions of the recommended strategies are adopted and enforced (e.g. maximum house sizes at the low end of the ranges discussed above, very rare approvals of discretionary variances, and additional permitting requirements) it is likely that these changes will lead many property owners to decide not to pursue development on their property and instead use it for passive or recreational purposes. After consultation with County staff and other consultants, we estimate that approximately two-thirds of vacant lot owners will decide not to pursue home construction or installation under these circumstances, or will instead decide to explore other options such as participation in the Facilitated Lot Exchange program.

5. Effectiveness of Facilitated Lot Exchange Program

The effectiveness of a Facilitated Lot Exchange program depends heavily on the supply of County controlled lots available for exchange, the number of those lots located outside of the High Hazard and Moderate Hazard areas, and the desirability of those lots in terms of location, access, and available services. Although there are over 5,000 tax delinquent lots in the County, it is not clear how many of them are located in safe locations that make them attractive prospects in a proposed exchange for a hazard prone lot. For purposes of these estimates, we assume that roughly one-third of the 5,000 lots would be good candidates for exchange. However, those 1,650 lots represent only seven percent of the vacant lots that would be eligible to participate in the lot exchange program under the strategies described above. Because of

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potentially high demand for this program and limited supply of County controlled lots, we assume that virtually all available lots will be exchanged, reducing the total of the eligible lots in High and Moderate Hazard areas by seven percent.

In light of these important sources of uncertainty, any estimate of reductions of potential development in the High Hazard and Moderate Hazard Areas under the strategies outlined above will be approximate at best. The table below applies the assumptions above to the number of lots in each risk and development category to make those approximations.

The County's Low Exposure/Limited Investment policy is not listed as a separate source of lot reductions, because it operates to reinforce the other listed tools. Building permit moratoria are not included in the table because they are not a means of permanently reducing development potential in any of these areas.

PROPOSED STRATEGIES										
Subdivision/Lot Status	Underserved Subdivision						Other Areas			
Level of Hazard Exposure	High		Moderate		Low/No		High		Moderate	
Built Status	Vacant	Built	Vacant	Built	Vacant	Built	Vacant	Built	Vacant	Built
Number of Lots	22,659	5,290	45	78	25,045	11,869	3,375	3,207	659	3,179
Lot Buyouts (with PDR Option)		10%		10%				10%		10%
Development Restrictions	50-65%		50-65%		25-30%		60%		30%	
Transfer of Development Rights		10%	10%	10%						
Facilitated Lot Exchange for Public Lots	7%		7%				7%		7%	
Building Permit Denial for Inadequate Evacuation or Public Safety Concerns	20-30%		20%				10-15%		10%	
TOTAL REDUCTION	100%	20%	100%	20%	27%	0%	79%	10%	47%	10%

2.7 Implementation Requirements

This section of the document identifies the need for additional legislation, completion of a supporting study, or establishment of a new County program (with possible staffing implications) for each of the land reallocation tools used in the High Hazard and Moderate Hazard Strategies described above. The table summarizes general requirements in each of these areas, but different or additional requirements may apply depending on how these tools are combined in the different strategies.

Implementation Requirements Tools	Additional Legislation?	Supporting Study?	New County Program/ Staffing?
Development Restrictions	Implemented through existing zoning and subdivision powers	Not required	No
Lot Buyout Program	Implemented through existing powers of acquisition for a public purpose	Not required	Yes

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Implementation Requirements Tools	Additional Legislation?	Supporting Study?	New County Program/ Staffing?
Transfer of Development Rights	Local ordinance to implement H.R.S. 46-163 required; Amendment to existing zoning in Receiving Areas may be required	Evaluation of Proposed Sending and Receiving Areas Required	Yes
Lot Exchange Program	Implemented through existing powers of acquisition for a public purpose Amendment of state law allowing retention of tax default lots may be required	Appraisals of exchange parcels may be required	Yes
Building Permit Denial for Inadequate Evacuation Routes	Generally supported by zoning and subdivision regulations but application to already approved subdivisions may require legislation	Evacuation route adequacy studies required	No
Building Permit Moratoria for Program Design	Generally supported by case law	Not required	No

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Appendix A: Past Studies and Strategies Considered by Hawaii County

HOVE memo (PBR Kau CDP)

Strategies considered:

- Establishing a defensible “build-out” cap based on evacuation clearance rates, traffic mitigation, and/or desired growth patterns. This is only possible on a regional basis as a means to manage proposed new development.
- Down-zoning and other tools for “vacating” lots. This is politically and legally impractical.
- Condemnation and other tools for acquiring land and development rights. This is prohibitively expensive, takes control out of local hands, and is impractical on a large scale.

COH Subdivision Briefing Paper (COH 2016)

Strategies considered:

- Transfer of Development Rights
- Urban Redevelopment Act

COH Development Pattern Adjust (COH 2017)

Strategies considered:

- “Retire” unbuilt tax delinquent properties
- PDR (purchase development rights) of unbuilt lots, with a focus on absentee owners and those lots that are the most expensive to service and the least expensive to buy
- TDR (transfer development rights) of unbuilt lots, with a focus on transfers from subdivisions to nearby existing town/village centers, perhaps associated with a TDR density bonus.
- Building permit rationing in substandard subdivisions, particularly in high hazard areas
- Proactive development of existing and new town/village centers

Resettlement Options and Tools Briefing Paper (COH May 2018)

Strategies considered:

- Acquisition of the Land or Property Rights
- Adverse Possession
- Transfer of Development Rights (TDR)
- Land Pooling (clustering)
- Land Bank
- Redevelopment Authority
- Land Exchanges
- Building Permit Moratoria
- Building Permit Quotas
- Rate of Growth Ordinance
- Concurrency Requirements for Access and Services
- Amortization of Nonconforming Use

Select Draft General Plan strategies (COH 2019)

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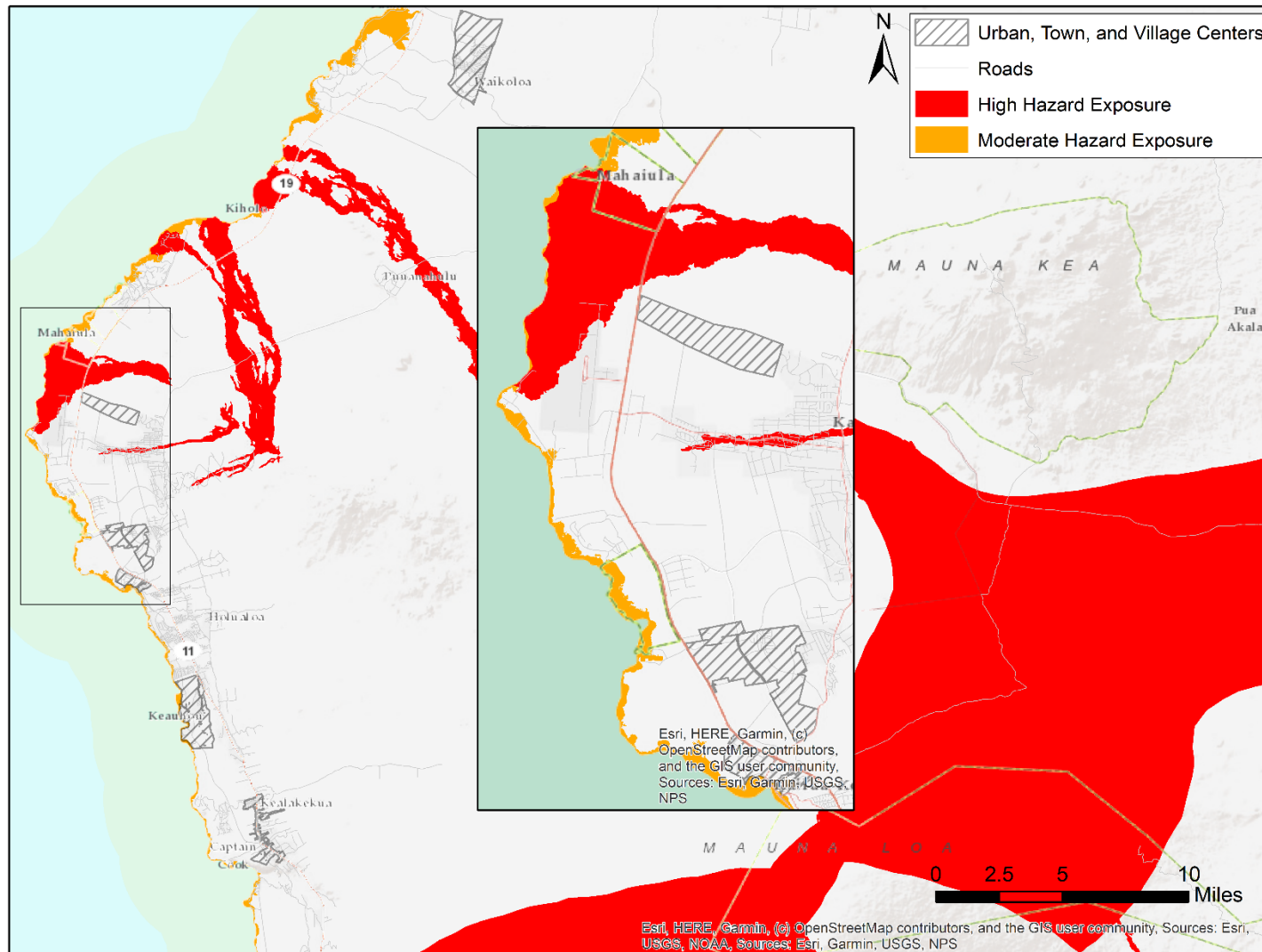
Draft strategies considered:

- Feasibility study of hazard mitigation strategies
- Land acquisition program
- Retention/retirement of tax delinquent lots
- Building envelope regulation for lots designated as Productive Agricultural Land
- Public trust for priority lands that achieve community objectives
- Alternatives treatment for Special Management Area Major Permits along coastline
- Rural Cluster Development regulations and incentives
- County-side Transfer of Development Rights program
- Facilitated lot consolidation

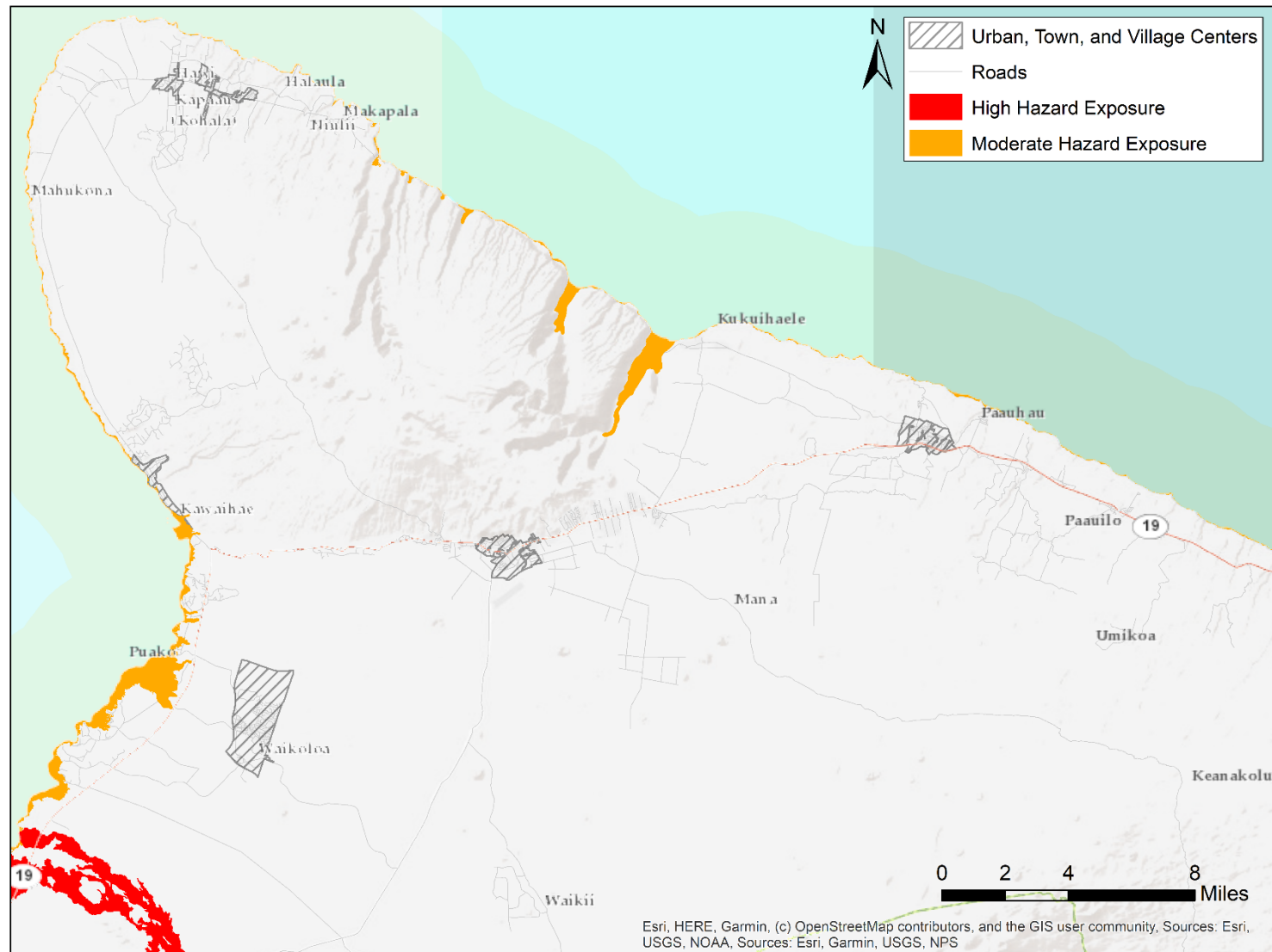
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Appendix B: Map of High Hazard and Moderate Hazard Areas

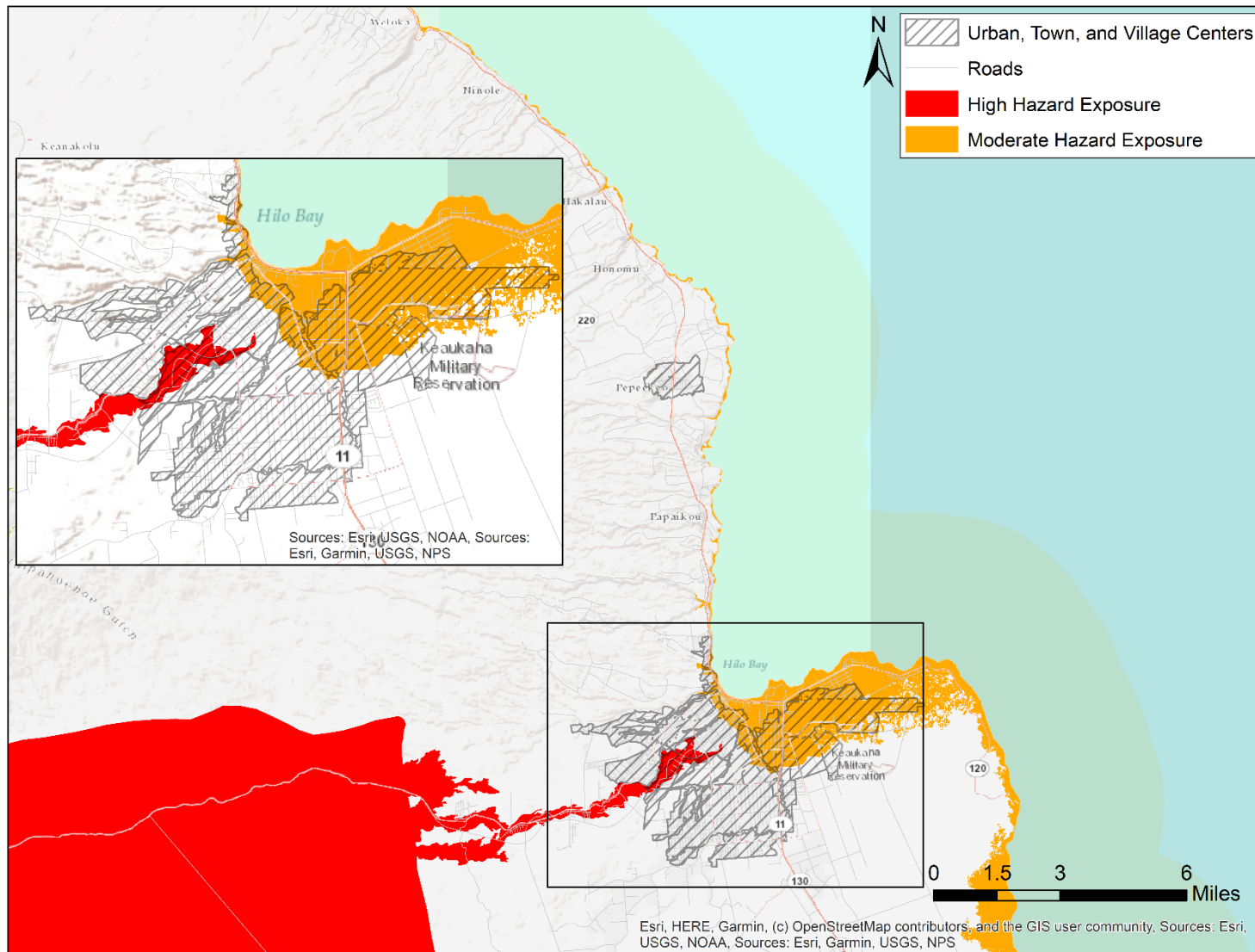
For purposes of this Tools and Strategies document, High Hazard Areas include Volcanic Risk Areas 1 and 2 and areas of historic lava flow, and Moderate Hazard Areas include mapped areas of coastal hazard risk.



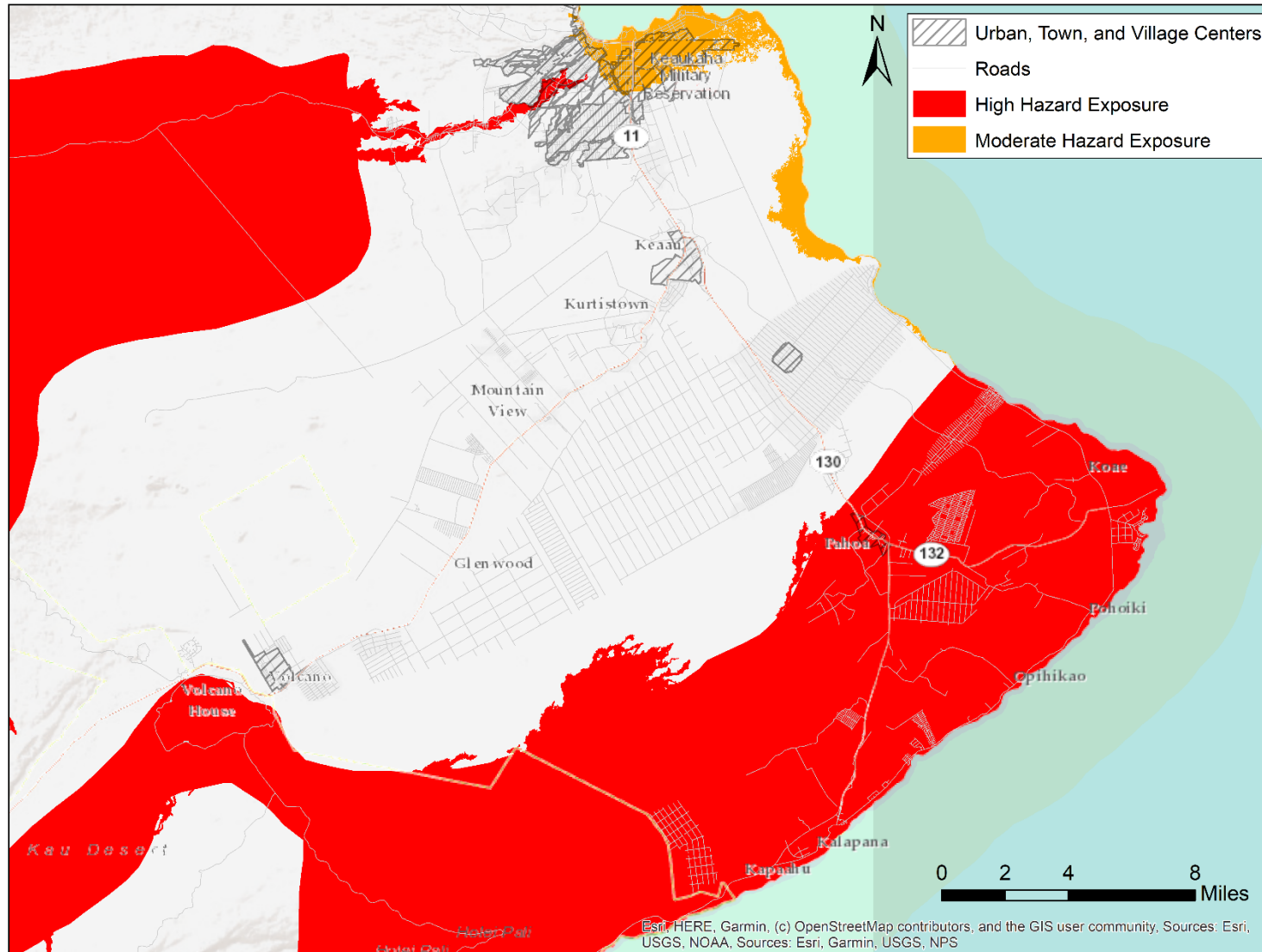
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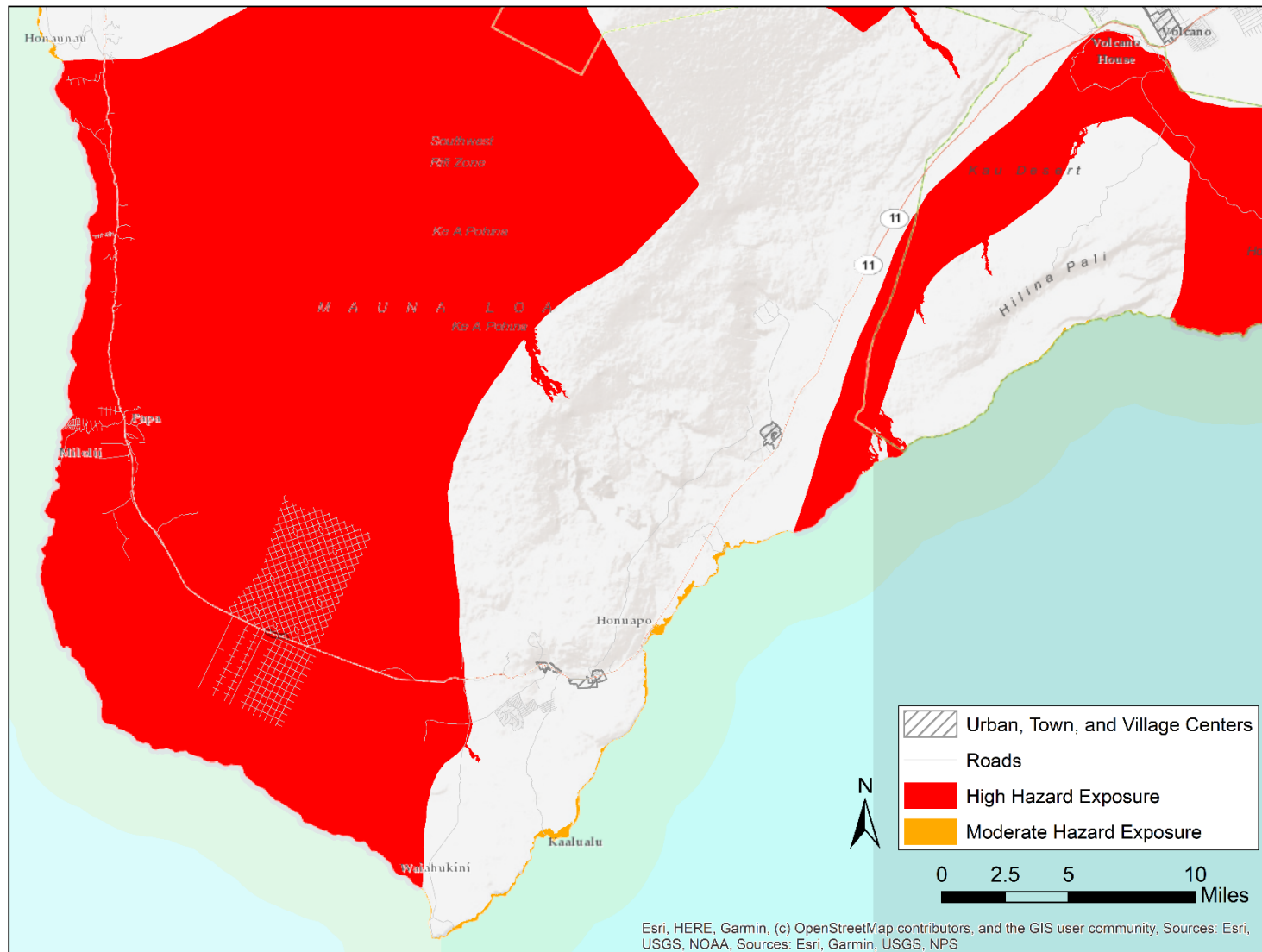
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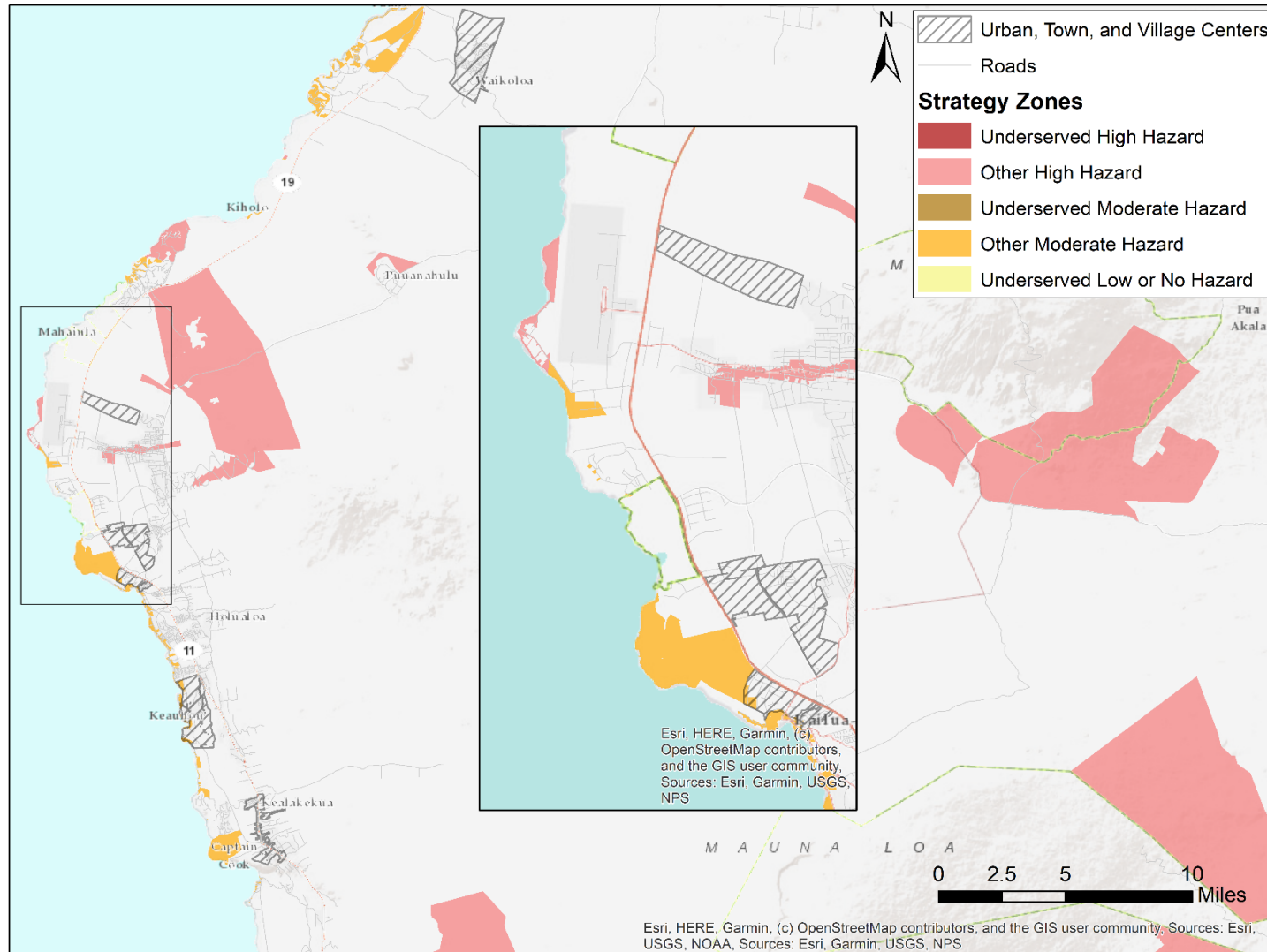
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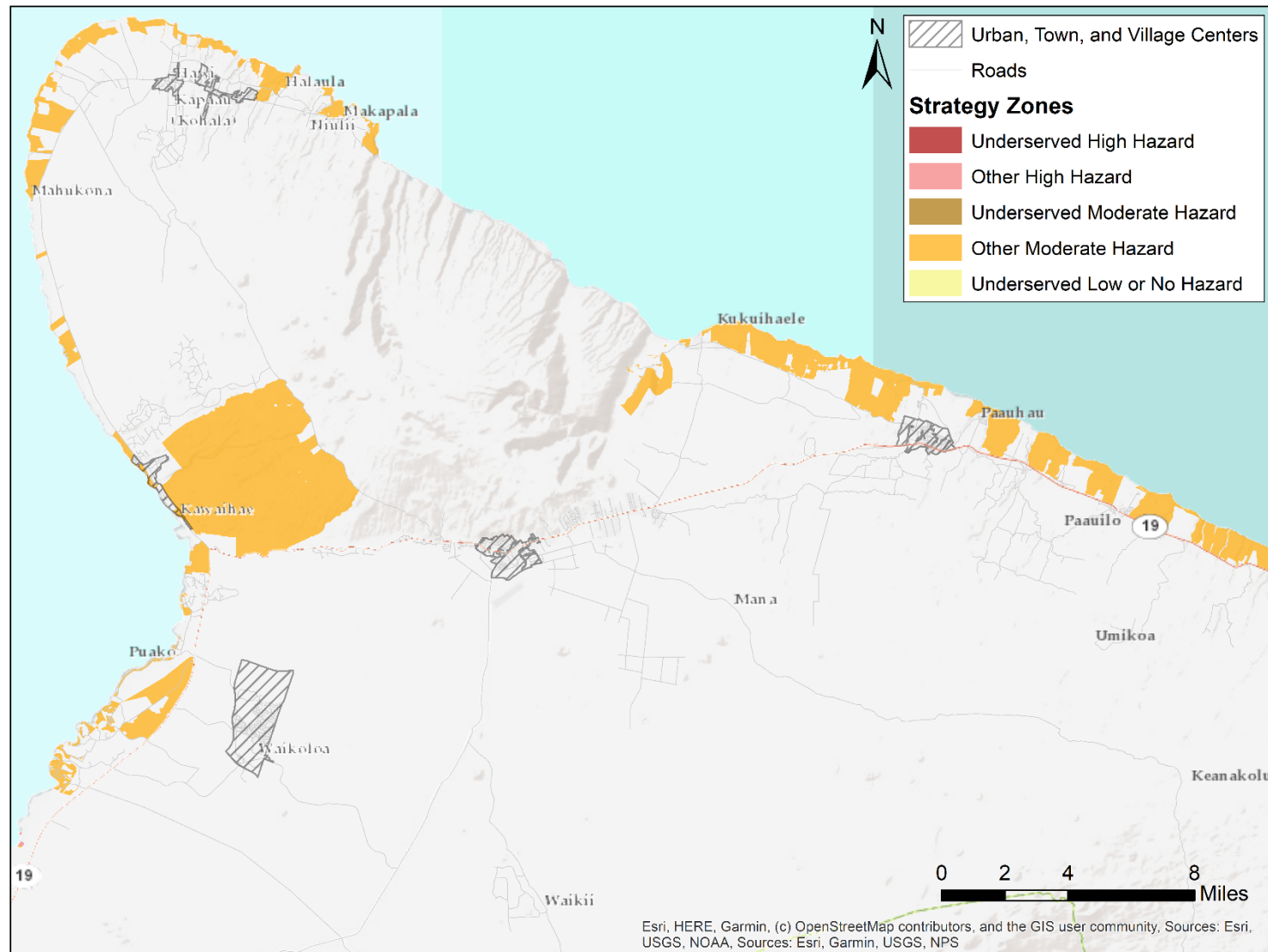
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Appendix C: "Strategy Zone" Maps

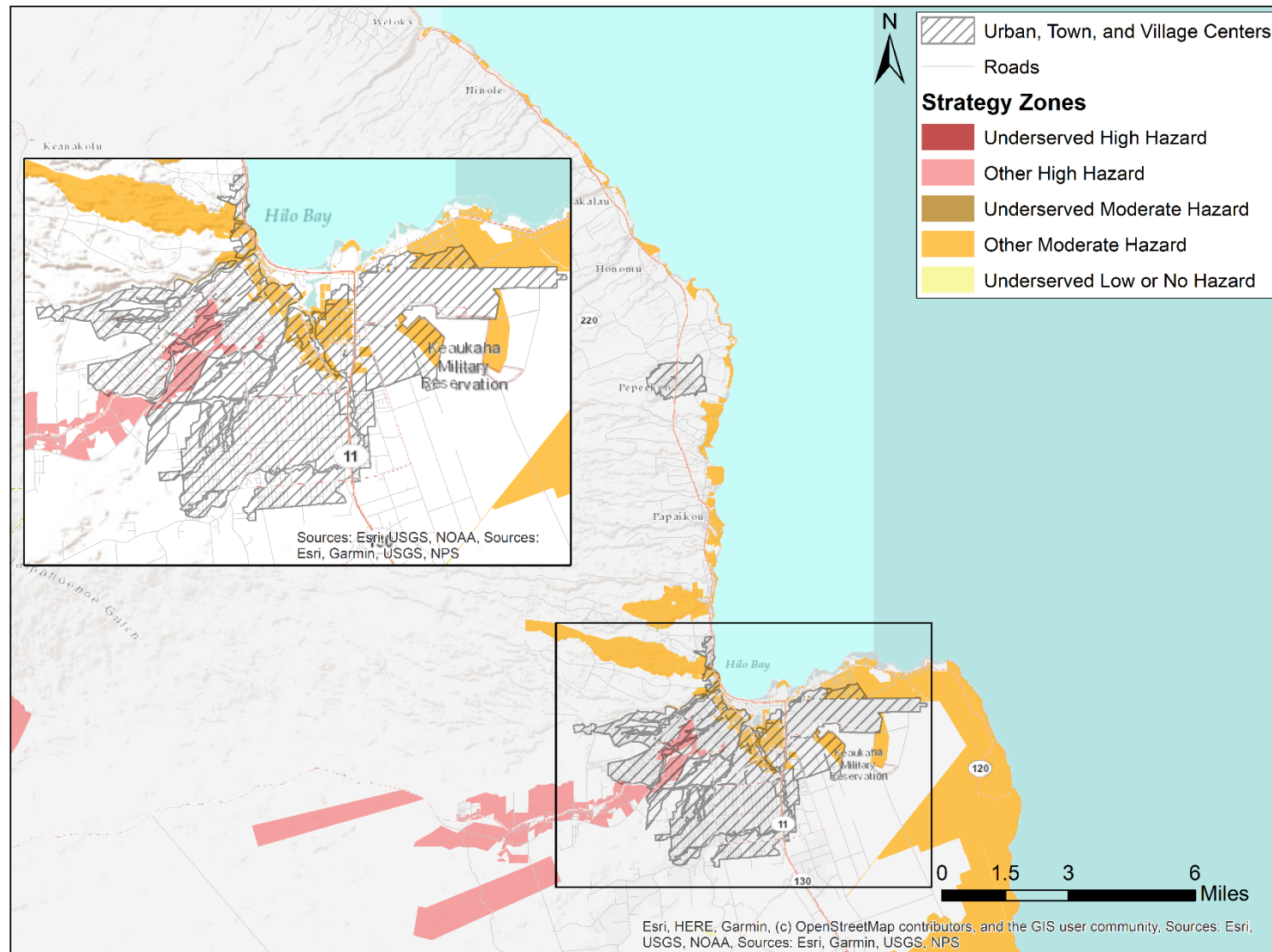
These maps depict locations throughout the island that will be impacted by implementation of the development reallocation strategies.



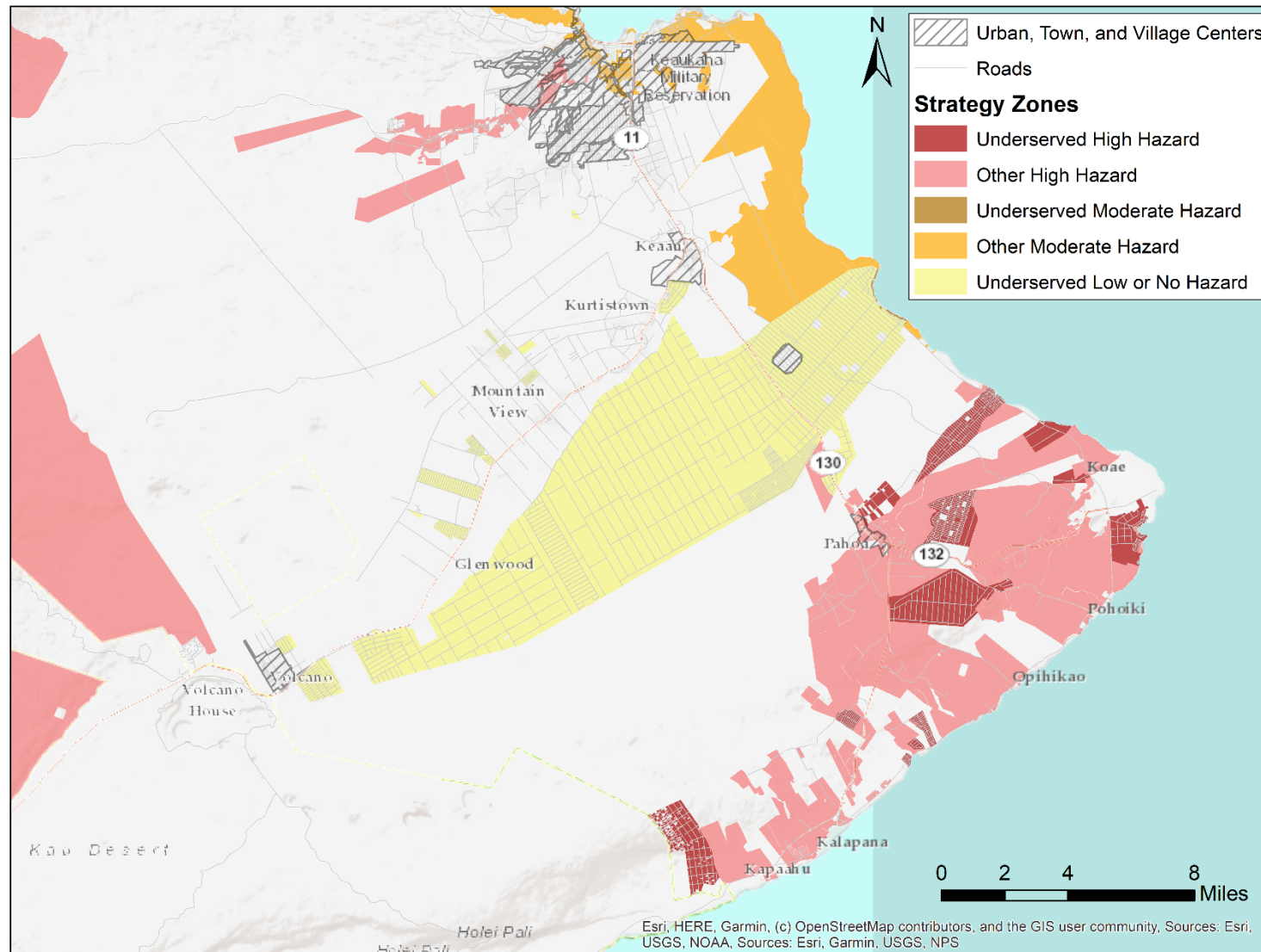
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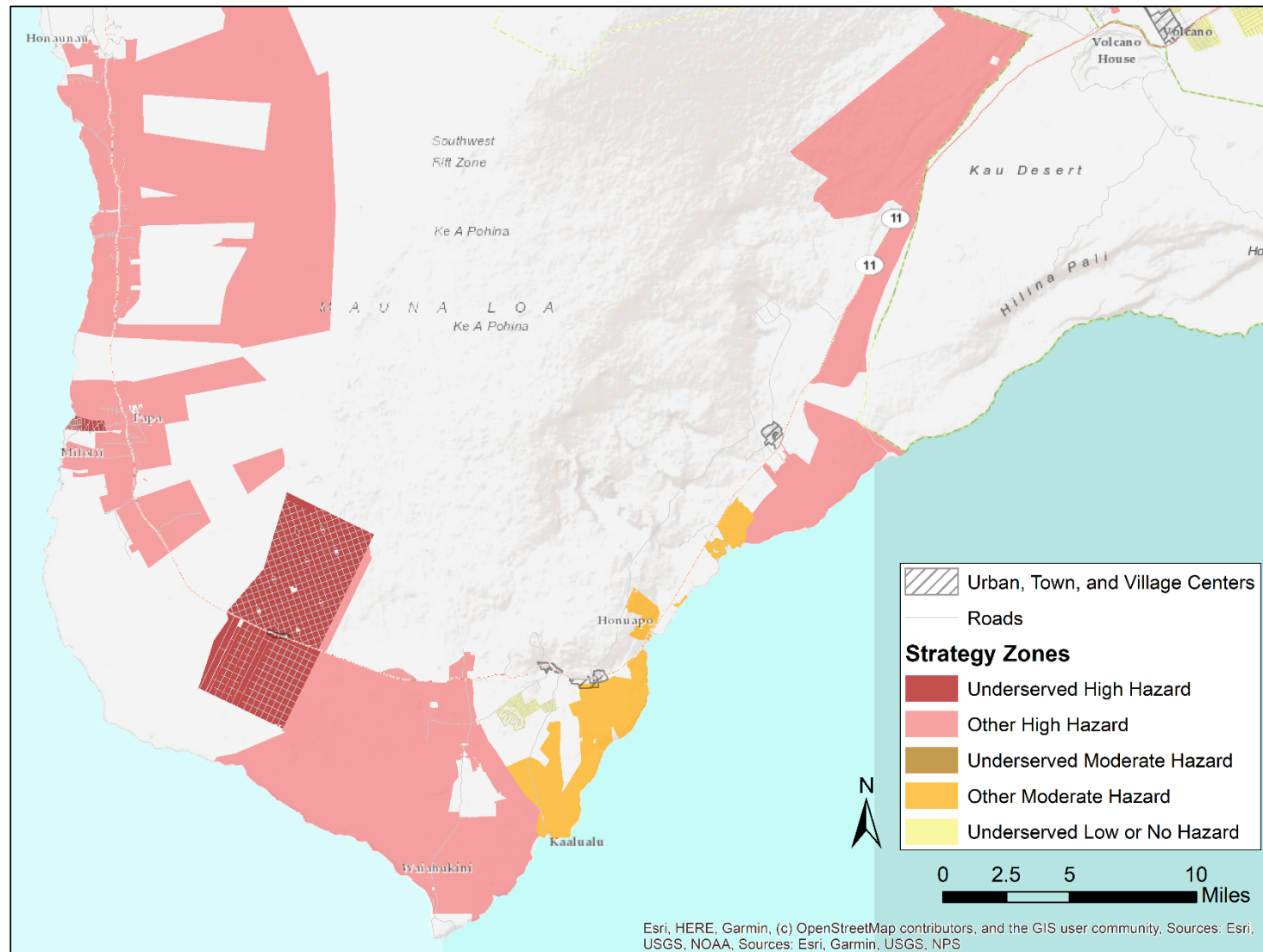
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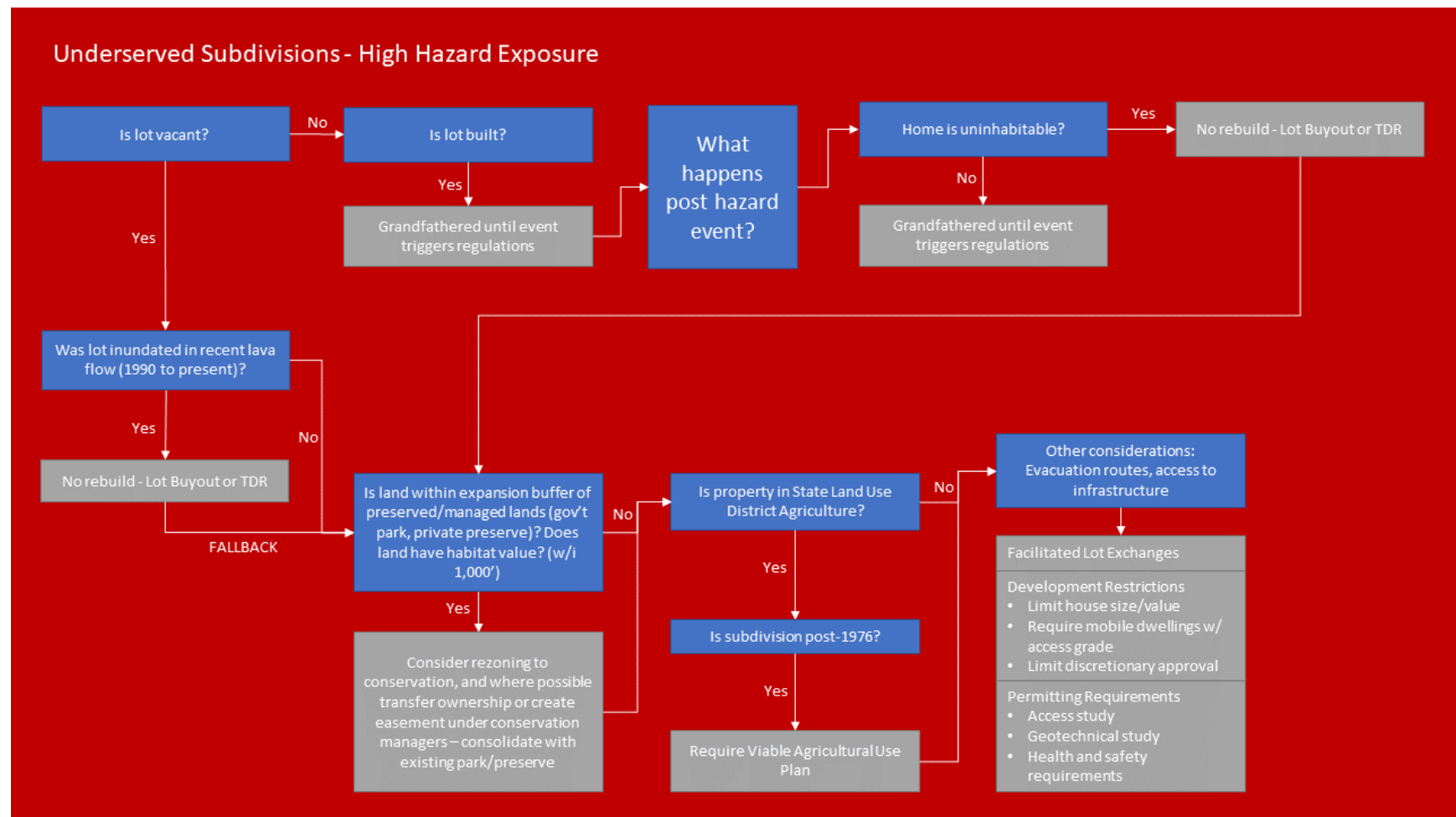
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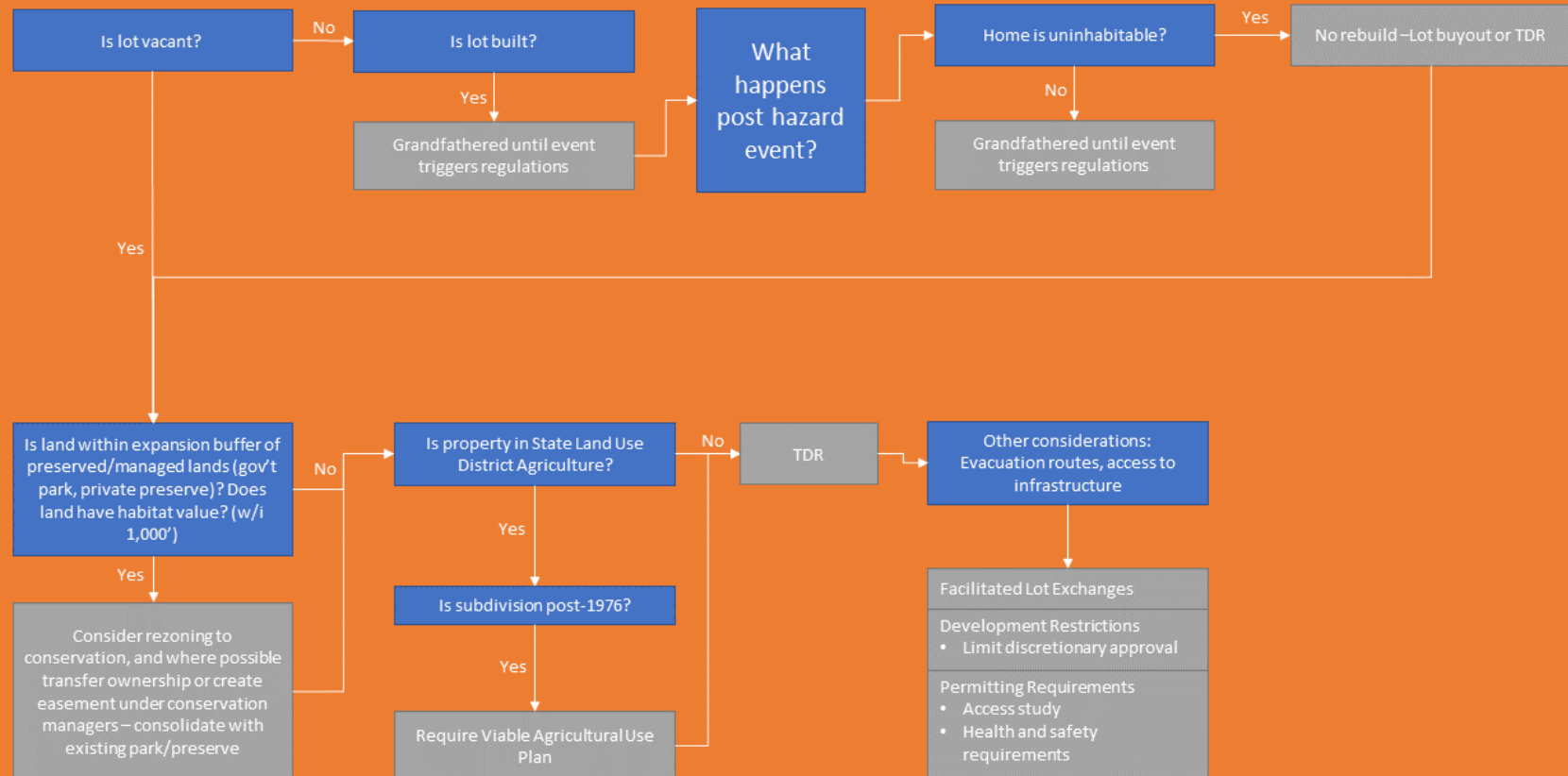
Appendix D: Strategy Implementation Decision Trees

The figures below are decision trees for each of the main land use categories discussed in this report: Underserved High Hazard Areas, Underserved Moderate Hazard Areas, Underserved Low/No Hazard Areas; Other High Hazard Locations and Other Moderate Hazard Locations. The decision tree for each classification shows the recommended reallocation strategies associated with that category of land.



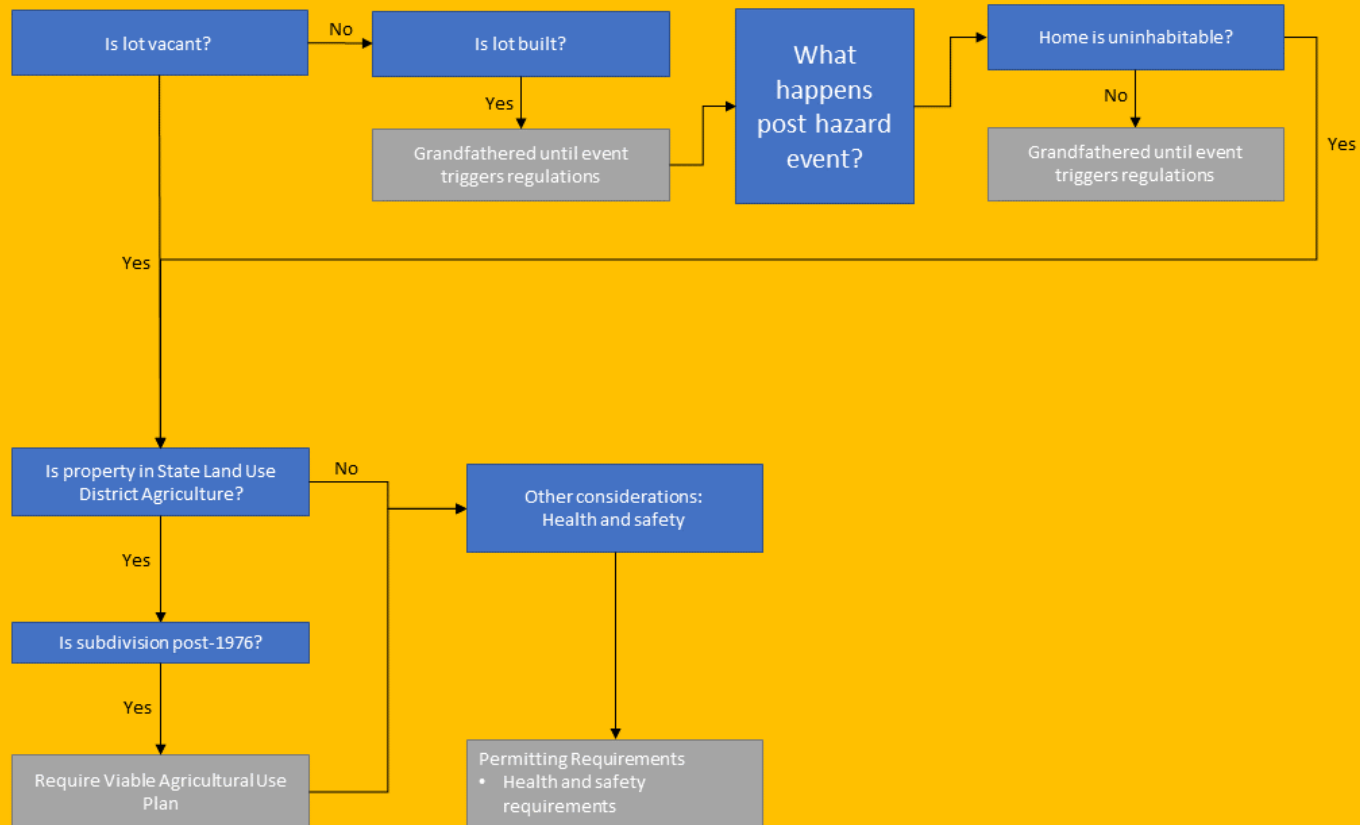
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Underserved Subdivisions - Moderate Hazard Exposure



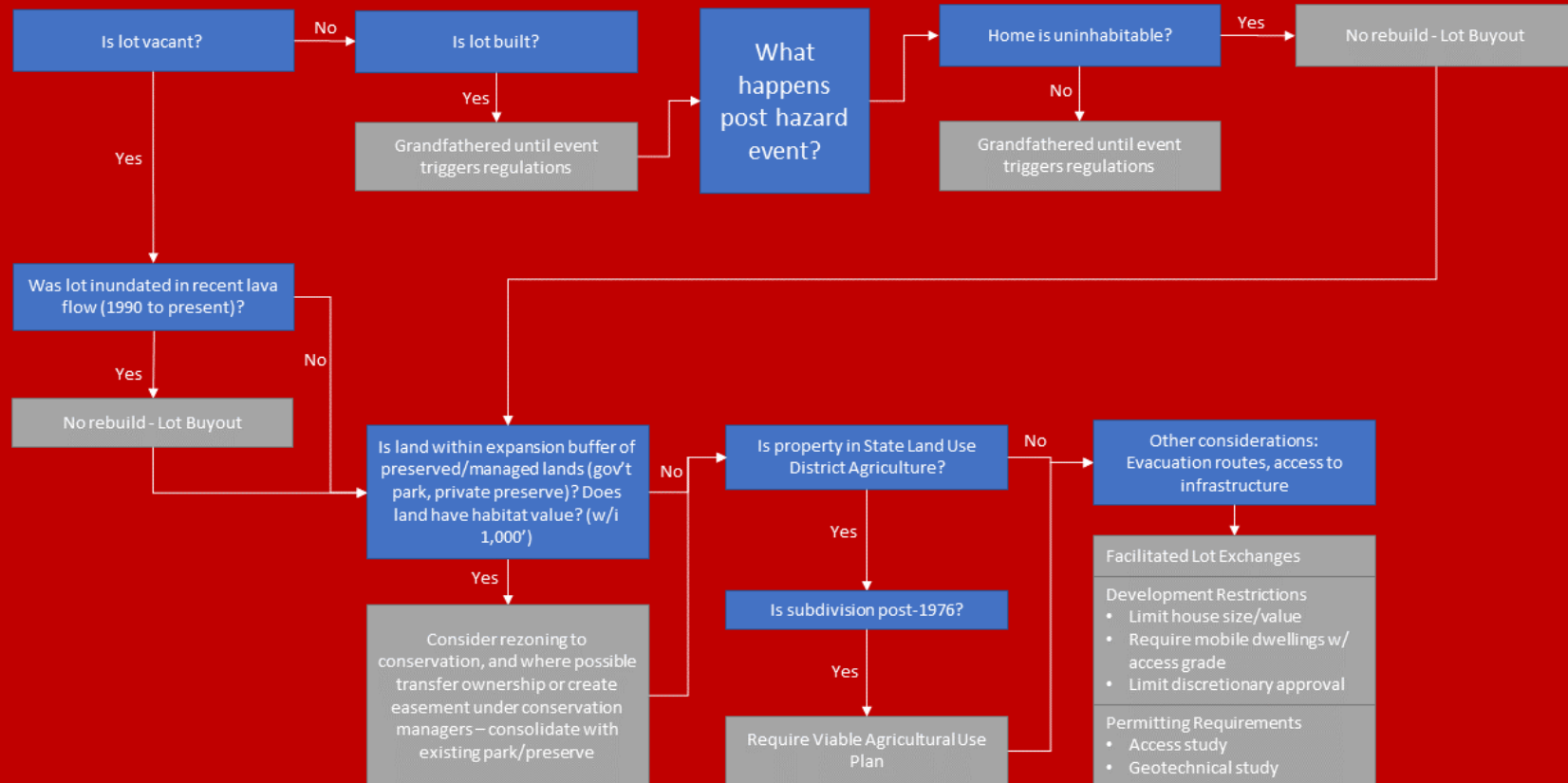
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Underserved Subdivisions - Low/No Exposure



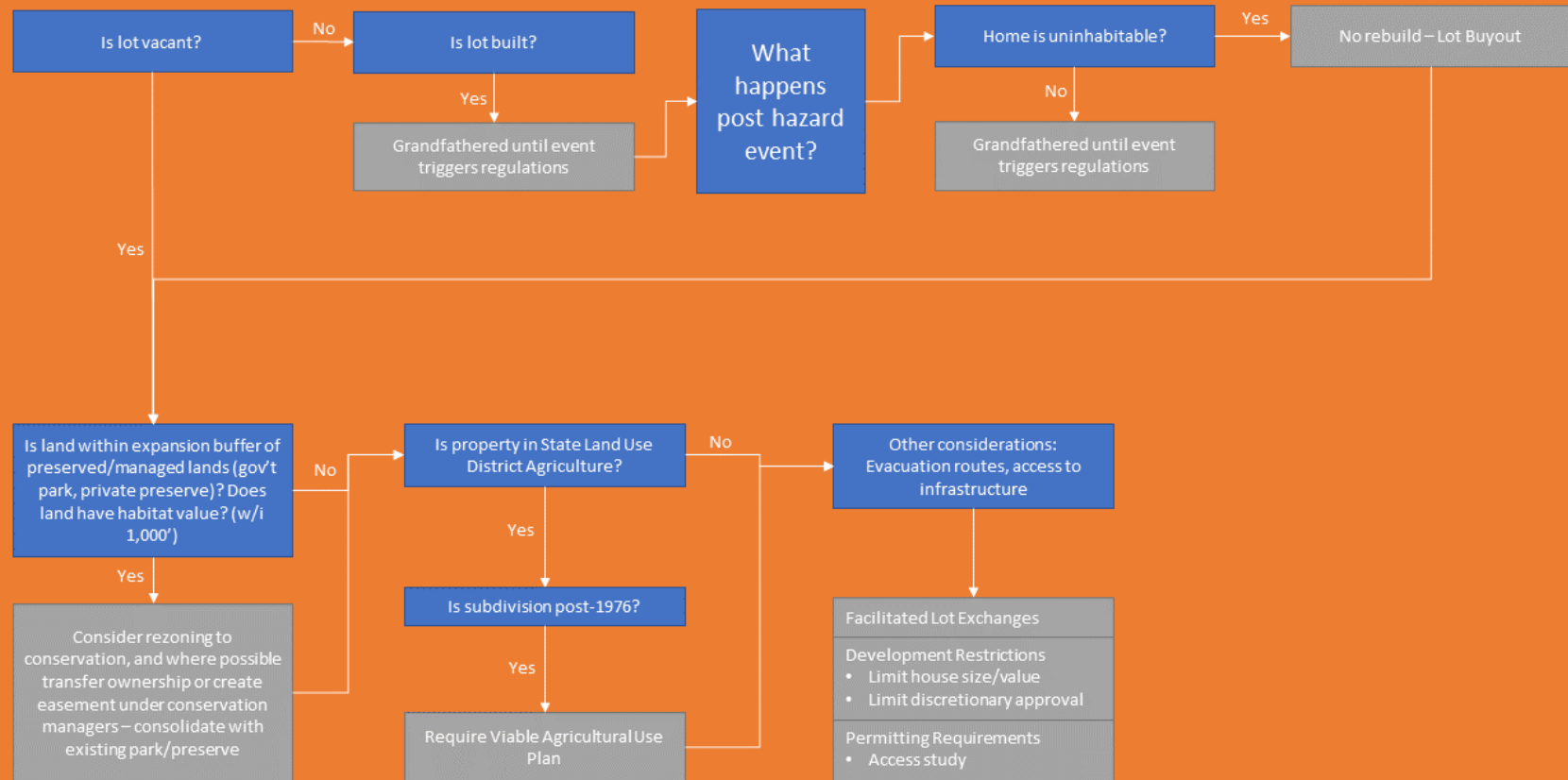
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Other Areas - High Hazard Exposure



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Other Areas - Moderate Hazard Exposure



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