



Prioritizing Future Floodplain Acquisitions: Maximizing Opportunities for Habitat Restoration, Community Benefits, and Resilience



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Introduction

Local governments take ownership of floodplain buyout sites with little or no planning or funding for what to do after the sites are acquired. This lack of planning and the often patchwork distribution of floodplain acquisition properties can limit opportunities for restoration or development of community amenities on these sites. The strategic prioritization of future buyouts can enable a community to allocate limited resources to areas that will maximize opportunities for habitat value and connectivity, thereby fulfilling community objectives, and supporting community resilience.

Nationwide, thousands of flood-prone properties have been acquired through federal grant programs, such as FEMA's Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Grant Program, and Flood Mitigation Assistance Program and HUD's Community Development Block Grant (CDBG), as well as through state, or sometimes local, floodplain acquisition or "buyout" programs. Acquisitions allow government entities to move people out of harm's way and reduce the risk of future structural damage and associated disaster recovery costs in a flood-prone area. Once properties are acquired and structures are removed, communities can also benefit by converting acquired land into parks and other community amenities or restoring ecosystems for water quality, flood resilience, and habitat benefits (see examples [here](#)). However, many communities are not proactively planning what to do with the land after acquisition nor strategically prioritizing acquisitions to allow for planned future uses. While floodplain buyouts are fundamentally intended to address flood damage to communities in the short-term and mitigate future related risks, they can provide additional longer-term community benefits. Prioritizing eligible future buyouts in advance of the next funding opportunity can result in more comprehensive mitigation projects and broaden a community's options for management and use of acquired properties.

Given the voluntary nature of floodplain buyout programs, the complex nature of individual decisions about whether to sell one's property, and the limited amount of funding available to purchase properties, buyouts can be limited in number and widely dispersed through the landscape (see Figure 1). The resulting patchwork of buyouts is a major challenge to restoring floodplains and habitat, as well as to improving habitat connectivity on a larger scale, particularly in urban environments. A patchwork distribution may also restrict the type of community amenities that can be developed on the sites, such as a greenway or park.

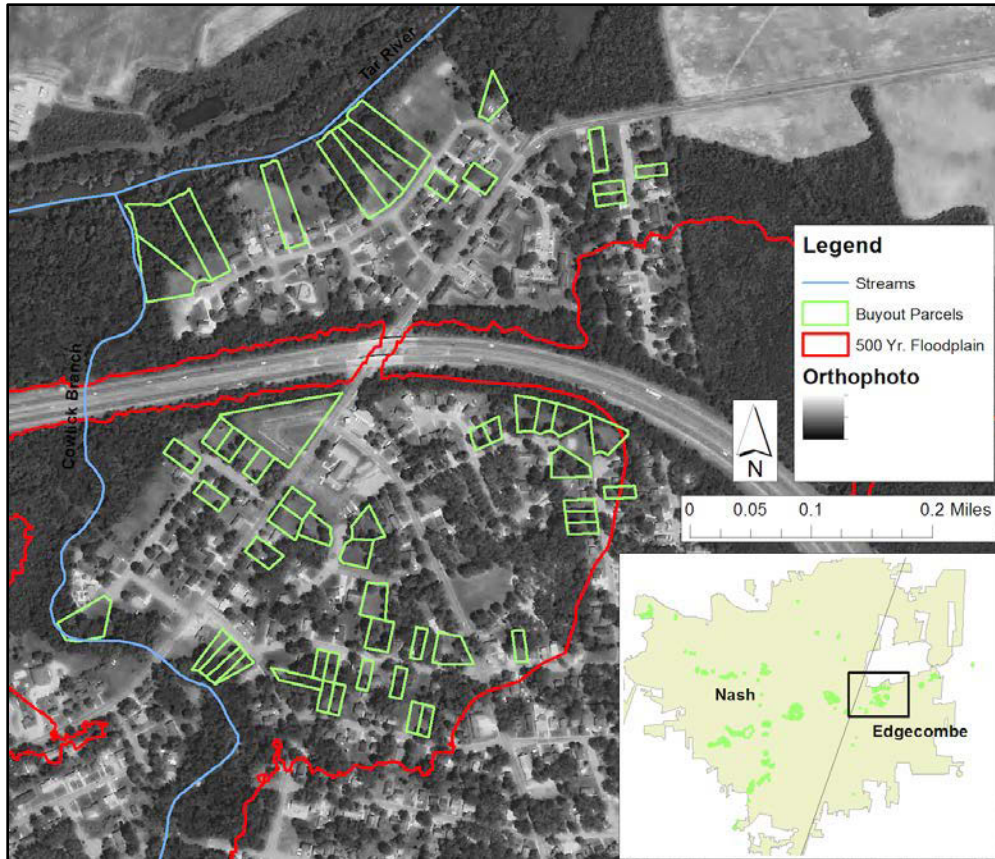


Figure 1: Map showing patchwork distribution of acquisitions in Rocky Mount, North Carolina. Buyout parcels are outlined in green. Map created by Shanwen Liu at UNC Chapel Hill using ERSI basemap.

Proactive planning that sets strategic priorities can allow a community to target limited acquisition resources following the next disaster – when the availability of disaster-related funds and the motivation of property owners to sell is highest – to areas that will maximize habitat value and connectivity, fulfill community objectives, and support community resilience. Many communities have some kind of strategy for prioritizing buyouts from willing sellers, generally based on: financing or grant specifications; disaster or floodplain characteristics; and the level of damages, costs, and losses. Generally, the main goal is to remove people and property from harm’s way. As such, most communities do not prioritize eligible properties for acquisition based on landscape and environmental criteria and other community benefits that they want to achieve on the properties *after* acquisition. And, few communities have developed strategies for prioritizing future buyouts in advance of the next disaster.

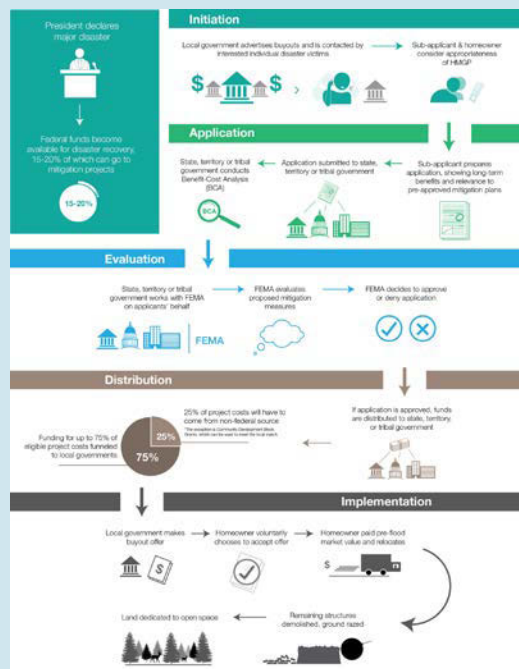
However, many states and local governments have developed tools to prioritize lands for acquisition or protection for various conservation, recreation, or resilience purposes. While most of these guidelines or targets are not yet integrated with other flood

mitigation criteria in voluntary buy-out programs, they provide available data or methodologies that can be useful for that purpose. For example, state conservation plans, local comprehensive plans, and other documents often include natural resource protection goals that may identify priorities for habitat conservation and restoration. Furthermore, state and local hazard mitigation plans often identify specific project areas that will improve infrastructure resilience. Aligning these criteria could enable communities to prioritize the set of floodplain acquisitions that would maximize environmental value while also reducing hazards, improving community resilience, and addressing community needs.

Based on relevant guidance from these representative local and state planning and mapping efforts, we have identified specific criteria that could be applied to prioritize acquisitions based on their potential to reduce hazards, improve community resilience, provide habitat value, and address community needs (e.g., recreation, community health, etc.). Communities can use these criteria and the proposed decision-making process described below to help achieve broader community goals for floodplain buyout properties.

Box A

Box A: Federal Hazard Mitigation Programs



Floodplain acquisitions are funded by a number of federal programs, including FEMA’s HMGP, Pre-Disaster Mitigation Grant Program, and Flood Mitigation Assistance Program, as well as HUD’s CDBG Program. Matching funds are generally provided by state and local governments. Buyouts are voluntary, i.e., flood-prone properties are purchased only from willing sellers. Acquisitions are only approved for federal funding if they are deemed cost-effective, as measured by a Benefit Cost Analysis. After a home is acquired with federal funds, it must be demolished or relocated to remove people from the floodplain. Once properties are acquired and existing structures removed, the land must be dedicated to open space, recreational, or wetland management uses. Local governments typically oversee floodplain buyouts but take ownership of

these sites with little or no funding for, or guidance on, post-acquisition restoration, long-term management, and maximization of community benefits. Although some buyout properties have been converted to parks or restored to natural habitats, the vast majority of these properties remain unimproved empty lots.

What are communities doing now?

We reviewed hazard mitigation plans, flood risk reduction plans, and floodplain acquisition program plans and policies from communities across the country, as well as the results of in-depth [case studies of floodplain buyout programs](#) in individual communities, to identify criteria currently used by state and local governments to identify and prioritize properties in the floodplain for acquisition. Generally, we looked for criteria specifically targeted to property acquisitions. However, there are some compelling criteria and prioritization methods that address hazard mitigation projects in general. If included in this guide, we make a note.

Generally, local programs prioritize property acquisitions based on: (1) financing or grant specifications; (2) disaster or floodplain characteristics; (3) property damages, costs, and losses; and (4) property owner characteristics (Table 1). Some programs also include landscape and environmental criteria, as well as other community benefits in their analysis of eligible properties. For example, communities may select sites based on their proximity to protected areas, other public lands, and identified environmental focus areas (see Table 1).

Table 1: Various Criteria & Categories Used to Prioritize Acquisitions

CRITERIA
<i>FINANCING & GRANT SPECIFICATIONS</i>
Owner willingness to participate ^{3,5}
Property covered by NFIP Policy ^{2,12}
Level of grant assistance required vs. available ^{6,9,11}
Financial feasibility (related to grant availability and participation of interested entities) ^{3,6,9,11,12}
Feasibility, practicality and effectiveness relative to other mitigation measures (or cost-effectiveness in comparison to other project types) ^{9,15,16}
Maximum (positive) impact on locality or state (in comparison to other proposed projects) ¹¹
Feasibility, practicality, effectiveness of proposed mitigation measure ^{6,8,9,12,13,15,17}
Timeframe for completion (feasibility and efficiency; project readiness) ^{6,11,12}
Consistency with hazard mitigation plans required by states ^{6,7,11}
Would not be protected against flooding by another approved flood protection project for which engineering design has begun ^{3,6,8,9,12,17}
Meets one of the CDBG National Objectives ⁷

Local government (and community) concurrence⁷
<i>[Other state requirements or regulations]</i>
DISASTER & FLOODPLAIN CHARACTERISTICS
Location relative to flood hazards^{2,4,7,10,14} <ul style="list-style-type: none"> • Located within 500-year floodplain • Located within 100-year floodplain • Located within 50-year-floodplain
Flood (disaster) frequency^{9,10,11,12,14}
Located within floodway^{2,3,4,5,11,14}
Flood (disaster) recency (may impact grant eligibility and availability)^{10,12}
Threat of erosion¹⁰
DAMAGE, COST, & LOSS CONSIDERATIONS
Minimizes Future Damages¹¹
Minimizes Future Costs^{11,12}
Building Replacement Value (BRV)⁷
Protects human lives (based on death and injury estimates due to floods)^{2,4,5,6,9,11}
Addresses repetitive loss (RL) problem (i.e., mitigation of damages and losses in high frequency events)^{2,4,5,9,11,16} <ul style="list-style-type: none"> • e.g., Property had 2-3 losses that exceeded building FMV or 4+ losses since 1978
Severity of damage to property^{3,5,7,8,12,14,16} <ul style="list-style-type: none"> • e.g., Damages sustained greater than or equal to 50% of FMV
Degree of foundation damage^{3,8,16}
Largest relative amount of damage^{5,8,14}
Highest depth of flooding above the FFE (first/lowest floor elevation)^{4,5,16}
Number of days inundated⁴
Type of building & building size
Properties with the highest BCRs according to the FEMA BCA module^{2,4,5,11,14}
PROPERTY OWNER CHARACTERISTICS
Type of residence (permanent, rental, seasonal)^{4,7,14}
Lower or Middle Income Household (LMI)⁷
Elderly owner or co-owner⁷
Person with disabilities owner or co-owner⁷

Owner or co-owner has Limited English Proficiency (LEP)⁷
Owner is recipient Disaster Housing Assistance Program (DHAP) or equivalent⁷
LANDSCAPE & ENVIRONMENTAL BENEFITS
Importance to contiguity (i.e., comprehensiveness of buyout; “neighborhood approach”)^{2,4,14}
Location relative to protected areas
Location relative to other public lands⁴
Located in an “Environmental Focus Area”² <ul style="list-style-type: none"> i.e., Serves as habitat for species of interest, provision of other key ecosystem services including potential contribution to conservation of biodiversity
Location relative to other hazard mitigation projects^{2,3}
Adjacency to five-year planned greenway trail²
Intersection with water quality buffer^{2,12}
Consistency with (and responsive to) comprehensive local water plan^{3,9,10}
Compatibility with Land Use Plan^{3,4,8}
Potential to further stormwater management goals^{7,8,14}
Maximizes Habitat Value¹²
OTHER PUBLIC or COMMUNITY BENEFITS
Accessibility of recreation opportunities^{2,3,9,12,14}
Accessibility of opportunity to interact with ‘nature’ (e.g., for education purposes)^{2,3,9,12,14}
Located on five-year planned sanitary sewer route^{2,3,9,12,14}
Public service cost savings^{2,3,9,12,14} <ul style="list-style-type: none"> i.e., Less money spent on emergency rescues; less tax money spent on disaster relief; less tax money spent to replenish NFIP; improved access to sewer lines for utility dept. crews

Note: This list of criteria is not comprehensive and should not be used in place of lists of requirements applicable to various grant programs or jurisdictions. The purpose of this list is to demonstrate the various categories of criteria that may be used to evaluate and prioritize properties for acquisition for communities interested in making the most of a floodplain buyout project. The table does not distinguish between threshold criteria for certain grant programs or jurisdictions and the prioritization criteria that may be used to prioritize which properties are selected for acquisition. The determined categories may include both required and optional criteria.

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Some grant programs or municipalities have developed tools to assist in the prioritization of mitigation actions and/or property acquisitions. These programs can serve as examples for other communities across the country:

- The **Charlotte-Mecklenburg Storm Water Services (CMSWS) Flood Risk Assessment and Risk Reduction (RA/RR) Plan** outlines a three-step process to identify the relative flood-related risk of a property and then rank properties by priority for acquisition or other hazard mitigation projects. The Flood Risk Property Score (FRPS) is a numerical score used to identify the relative flood-related risk of a property. Then, a Risk Reduction Recommendation is made by evaluating different flood mitigation techniques and determining how effective they would be at mitigating flood risk on a certain property. Finally, the Flood Mitigation Priority Score (FMPS) compliments the FRPS and Risk Reduction Recommendations by assessing and accounting for community benefits and other relevant factors. For example, the identification of properties that are clustered, which may lead to larger, continuous buyouts, is seen as favorable and leads to a higher FMPS. Ultimately, this score is combined with the Risk Score (FRPS) to prioritize flood mitigation efforts across Charlotte-Mecklenburg County. Together, The Risk Assessment Risk

Reduction Tool (RARRT) produces a score for each property, which had a range of 0 to 3832 for properties considered for FY2015. A Flood Mitigation Priority Score above 1000 identified “highest priority properties.” Properties with scores between 500 and 1000 were designated as “moderate priority properties” and those with scores less than 500 were designated as “lower priority properties.” Ultimately, priority properties are sorted into categories based on their eligibility for certain programs or funds (learn more with Charlotte-Mecklenburg’s *Flood Risk Assessment and Risk Reduction Plan Implementation* report here: <https://goo.gl/bJGYAb>).

Benefits and priority factors accounted for by the Flood Mitigation Priority Score (FMPS)

- Life and human safety (150 points)
- Cost effectiveness (0-150 points, depending on Benefit-Cost Ratio)
- Proximity to other mitigation projects (125 points)
- Property added to flood zone (100 points)
- Repetitive Loss (RL) structure (0-100 points, depending on severity of loss)
- Property adjacent to publicly owned land (50 points)
- Property located on five-year planned greenway trail (50 points)
- Property located on five-year planned sanitary sewer route (50 points)
- Property intersects with water quality buffer (50 points)
- Property located in an Environmental Focus Area (50 points)
- Property covered by NFIP policy (30 points)
- Historic preservation and cultural asset protection (30 points)
- Other (50-150 points)

Note: Not all of these benefit and priority factors apply to every hazard mitigation technique. However, they do generally apply to the property acquisitions, which are the focus of this guide.

For information about how CMSWS identifies funding opportunities for prioritized properties, see their FY 2015 Flood Risk Assessment and Risk Reduction Plan (RA/RR Plan) at http://charlottenc.gov/StormWater/Flooding/Documents/Flood_RARR_Plan-Final.pdf or <http://charlottenc.gov/StormWater/Flooding/Documents/RARRPrioritizationReport.pdf>.

- The **Minnesota Department of Natural Resources’** Flood Damage Reduction Grant Assistance Program sets forth various flood damage reduction and resource management goals (pp 1-4) that are converted into criteria (pp 6-10). Resource management goals include managing lakes and streams for natural characteristics and providing recreational and green space opportunities and natural riparian corridors. If a proposed project meets certain criteria, it is ranked

as high, medium, or low priority – or deemed not fundable. Criteria for designation as high priority project include consistency and responsiveness to comprehensive local water plans and the potential to mitigate economic losses. For more information, see the Minnesota Department of Natural Resource’s *Flood Damage Reduction Grant Assistance Program Guidebook* at <https://goo.gl/a6LJiW>.

- **New York City’s** Floodplain Buyout Plan identifies “Hydraulic Study Buyout Properties” using formal studies or “Individual Buyout Properties” through a community involvement process. The formal studies used to identify “Hydraulic Study Buyout” projects include Local Flood Analyses and Stream Management Plans, and New York Rising-funded scientific evaluations (pp 6-8). Plan-determined buyout properties are selected based on a hydraulic model and subsequent risk and economic prioritization tools, while New York Rising properties are identified through technical studies first and prioritized depending on level of community support. “Individual Buyout Properties” selected through formal community involvement must also meet certain established criteria that assess the property in relation to the community’s flood impact reduction and water quality goals (p 6). Criteria for these buyouts include: would facilitate a stream management project, property has verified erosion threat, and property is threatened with inundation. Additional criteria were developed on an ad hoc basis with stakeholder input. For more information, see the New York City Department of Environmental Protection’s *Plan for the New York City Flood Buyout Program (2014)* (available at: goo.gl/tf7s).
- The **City of Elmhurst, Illinois**, developed a Flood Prone Property Buyout Plan to give the City the ability to prioritize property for acquisition that will help mitigation flooding. The three-step plan first outlines criteria to identify properties that will be considered for the buyout and then another set of conditions that must be met for eligible projects. The final step in the evaluation process prioritizes properties for acquisition based on a “Flood Prone Property Prioritization table.” To be considered for the program, the property must be residential, located in the regulatory floodplain/floodway or in areas known to flood, and must have experienced past flooding. To be eligible for the program, a property should not be protected by an existing or planned flood mitigation project and should meet one of three conditions based on whether the property is within a watershed with a watershed plan or comprehensive plan and is flood-prone (e.g., there is potential for flooding exceeding the top of the foundation). Properties adjacent to at least two properties where there is the potential for or documentation of instances where surface water flooding exceeds the top of foundation or lowest point of entry are eligible for acquisition *even if the property of interest doesn’t meet the aforementioned flooding criteria itself*. The City’s plan states that when considered with adjacent properties, such an acquisition “provides an even greater public benefit than the adjacent properties [would]

alone.” The acquisition must also be voluntary and funding must be available for a project to be eligible. Eligible properties are given a score and prioritized, using the Flood Prone Prioritization table. Only those with the highest score move on for final evaluation. For more information, see the City of Elmhurst, Illinois’ *Flood Prone Property Buyout Plan* (available at: goo.gl/eUZeHQ)

Planning for Future Buyouts to Make the Most of Post-Acquisition Management Opportunities

State and local conservation plans, parks and recreation plans, state and local hazard mitigation plans, local comprehensive plans, water resource management plans, and other plans and documents often include natural resource protection, community recreation and health, and community resilience goals and objectives. They may also identify specific project locations or criteria for prioritizing future projects. Most of these goals, objectives, and criteria have not been integrated with other flood mitigation criteria in voluntary buyout programs, but could provide data or methodologies that can be useful for that purpose.

Based on relevant guidance from representative local and state planning and mapping efforts (e.g., hazard mitigation plans, local plans, state hazard mitigation guidance, state conservation plans, other totals), we have generated a process that may help communities identify the desired characteristics of future acquisitions. The process includes: (1) identifying goals for community use of the properties that will help set a context for a prioritization process; (2) selecting relevant criteria a community can use to target future acquisition resources and potential data sources for each criterion; and finally (3) developing a prioritization plan.

The local mitigation planning process may be an ideal opportunity for communities to research these plans and criteria, think through the opportunities for future acquisitions, and document compatible goals and objectives or potentially compatible projects. The community may wish to incorporate a prioritization process into the local mitigation plan update.

Box B: Plans and Documents Reviewed for this Guide

Coordinating outdoor recreation, conservation, public health, and natural resource management goals with hazard mitigation goals can be a constructive way to leverage funding sources to complete acquisitions and subsequent projects, thereby achieving various community benefits in an efficient manner. The following plans, typically developed by different state or local agencies, may be relevant to the floodplain buyout or post-buyout management processes. We reviewed these types of plans to develop the possible goals and prioritization criteria listed below.

Statewide Comprehensive Outdoor Recreation Plan (SCORP): SCORPs address the demand and availability of outdoor recreation resources, identify opportunities for improving recreation amenities, and outline implementation programs to meet goals determined by the public and elected leaders. SCORPs are required for states to receive federal Land and Water Conservation Fund (LWCF) money. For more information, see the National Park Service [website](#).

Parks & Recreation Plan: These plans typically provide guidance for operations and maintenance, as well as site planning for parks and recreation amenities. There is also usually a jurisdiction-scale master plan that works towards broader and more integrated goals or visions for parks and recreation.

Hazard Mitigation Plan: Hazard mitigation planning identifies “risks and vulnerabilities associated with natural disasters,” and develops “long-term strategies for protecting people and property from future **hazard** events” (FEMA Hazard Mitigation Planning Process at <https://www.fema.gov/hazard-mitigation-planning-process>). Hazard Mitigation Plans may be required to meet certain federal non-emergency disaster assistance grants. These are typically developed by tribes, states, and local jurisdictions and include commitments and strategies to reduce natural hazard-related risks. Visit the FEMA [website](#) for more information.

State Wildlife Action Plan (SWAP): SWAPs provide goals and strategies to conserve fish and wildlife as well as the habitats they require. The objective is to address conservation needs before they become too costly or resources too rare to restore. All states and territories are required to have one of these plans.

Water Resource Management Plan: These plans help ensure that water needs are met and aquatic resources are protected, typically with a watershed perspective. Often, Water Resource Management Plans also contain strategies for protecting fish and wildlife habitat. Variations on this plan may include Integrated or Comprehensive Water Resource Management Plans or related Engineering Reports.

Land Use Plan: Land Use Plans, or Master Plans, set out intended patterns for the location, distribution, and type of land use in a given area. These plans often contain or are based off of maps, which help summarize development policies, transportation and infrastructure, and environmental or historic preservation efforts, among other factors.

State Wetland Plans: Wetland plans address the regulatory and voluntary wetland protection context of a state, opportunities for improvement, and the prioritization of programs to strengthen the wetland protection strategy.

1. Identify Long-Term Goals for Buyout Areas

In addition to removing people and property from harm's way and reducing disaster response and recovery costs, the post-acquisition management and use of buyout properties may create many other long-term benefits. To make the most of these opportunities, communities should identify long-term goals for the sites and prioritize future buyouts with those goals in mind.

Goals will vary by community, size and layout or distribution of the buyout, community desires, and resources available. They should relate to and be integrated with other community planning, restoration, recreation, and resilience goals. Some possible long-term buyout goals include:

Conservation Goals

- **Protect or restore ecological integrity or natural systems** (including connectivity; some communities may choose to frame this as the maximization of ecosystem services)
- **Sustain native species and/or provide habitat for local fauna** (this might be especially valuable when there is a species of interest in the area)

Recreation and Community Goals

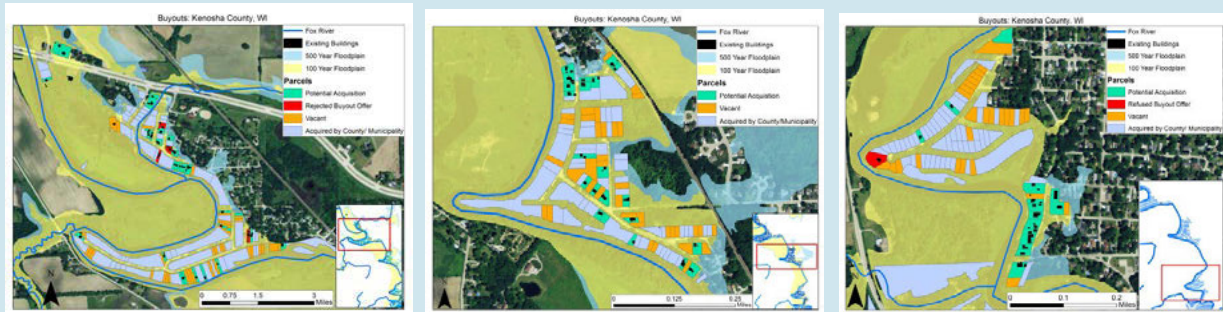
- **Increase recreational opportunities** that are accessible to the community
- **Improve community health** (including, but not limited to exercise opportunities)
- **Improve sense of community among residents/positive community image** by providing additional community amenities and gathering areas
- **Increase green space in underserved neighborhoods**

Flood Mitigation and Water Quality Goals

- **Restore natural floodplain functions**
- **Minimize flood damage to public and private property**
- **Improve community resilience**
- **Improve water quality**

Box C: Prioritizing Buyouts in Kenosha County Wisconsin

Kenosha County, WI, has completed floodplain buyout projects funded primarily by FEMA’s Hazard Mitigation Grant Program (HMGP). Projects were matched by the CDBG, state allocations and the Wisconsin Department of Natural Resources’ Municipal Flood Control Program (MFC), and Revolving Loan Funds (RLF) from the EPA. Acquired properties are currently being left unmanaged; while some plants and wildlife are returning as part of natural succession processes, the properties are not actively managed for their habitat value.



A visit to flooded properties conducted by Kenosha County’s Planning & Development Department and various elected officials helped raise awareness about the extent of damage and the importance of being able to avoid property damage in the future. Subsequently, the County Board agreed to set aside funding for certain targeted annual acquisitions (enough for approximately one property acquisition per year). Locally mandated buyouts are less expensive than those funded by FEMA because they can target closeouts or abandoned properties and can be completed in advance of a major flood event. Additional conversations have led the County to envision a park with trails and fishing access when all planned floodplain acquisitions are complete.

Holdouts pose a challenge for Kenosha County to achieve its management goals. The local government has sent out Property Donation Forms to owners of vacant lots in the area. The vacant lots are flood-prone, and therefore have extremely restricted uses. The most recent mailing included a map to make the appeal more visual. In many cases, the acquisition of these vacant plots remain in the way of parcel consolidation, road vacation, utility removal, and subsequent use as open space. However, the steps following municipal property acquisitions (e.g., utility and road removal) will require funding, which is uncertain.

One challenge faced by the County is the lack of coordination between jurisdictions for planning acquisition projects. For example, federal agencies might offer loans to repair flood-damaged properties before buyout offers can be made by the relevant local government entity. This has led to duplication of efforts (inefficiencies) and has complicated the County’s ability to pursue their goal of acquiring properties in the floodplain for an envisioned park system. However, Kenosha continues to pursue opportunities to acquire properties in order to achieve their long-term goals.

Sources: Buehler, Andy. 2017. Personal Communication with Environmental Law Institute – May 9, 2017. UNC Institute for the Environment and Environmental Law Institute. 2016. “Kenosha County, Wisconsin.” *Environmental Law Institute*. Available at: <https://www.eli.org/sites/default/files/eli-pubs/kenoshacounty-casestudy.pdf>

Information about existing or potential buyout sites and the surrounding landscape, community wants and needs, and the availability of resources will inform community goals for buyout sites and help determine what uses and activities are possible and what constraints might exist. Understanding these elements is an important first step in developing goals. The following factors will help to inform the development of the goals:

- **Location of existing buyouts and areas that may be targets for future buyouts** – Where are the current and possible future buyouts (remembering that buyouts are voluntary and some property owners will decide not to sell)? What is the surrounding land use (e.g., urban, suburban, rural)? What are the characteristics of the sites (e.g., drained wetlands, floodplain, urban sites, etc. or e.g., near existing protected areas, near parks, or in urban areas with few recreation opportunities, etc.)?
- **Total size and pattern of acquisition or potential acquisition** – What a community can do with acquisitions will very much depend on the size of the buyout and how contiguous it is (i.e., Will an entire neighborhood be bought out, or will some homeowners decide to stay, leaving a patchwork distribution of acquired parcels?). Some kinds of projects (e.g., large parks or large restoration efforts) will require larger, more comprehensive buyouts.
- **Goals and objectives from local, regional, and/or state plans** – Reviewing relevant land use, hazard mitigation, recreation, or open space plans will identify some relevant and related goals. For example, restoring natural conditions and functions of the native ecosystem may be consistent with a locality's Comprehensive Plan or a state natural resource plan. Similarly, restoring natural floodplain habitat may be consistent with a local or state hazard mitigation plan or climate resilience strategy. Local (including county) and/or state agencies responsible for land use planning, natural resource management (e.g., floodplain management, water resources, coastal resources, fish and wildlife), climate adaptation planning, and parks and recreation planning in your area may be good sources of information and can help identify relevant plans and priorities.
- **Community Desires** - Community input is extremely important for determining goals for the future use of acquired properties. Without support from neighbors and community members, community amenities might go unused and restoration areas might eventually fail due to a lack of adequate maintenance. Community buy-in is especially important in areas where there are still people living throughout the neighborhood or adjacent to the project area, as the new use of the site will become part of the daily life of those local residents.
- **Available resources** – What a community can do with sites will depend on available financial resources for restoration and long-term

maintenance/management as well as the capacity of the local government to plan for and implement a project. The types of funding vehicles available may inform the goals set for a project. For example, state funds may be available specifically for the development of parks or for wetland restoration (see [Action Guide](#), p 46; Financing & Incentives Guide). It may be good practice to evaluate various possible funding sources in advance or as part of contemplating goals for the sites. Partnerships can be useful in exploring funding sources, and some partners may even be able to offer some funds themselves. Certain partners – other local agencies, non-profit organizations, or academic institutions, for example – may be eligible for funds that may not otherwise apply to a post-buyout project. Or, some partners, such as philanthropic organizations, might be able to assist with a portion of funding for certain projects. Identifying partners or interested stakeholders early on can also help to ensure that there is no duplication of efforts, make the most of coordination, and help all projects achieve mutual objectives.

2. Identify Prioritization Criteria and Gather Information

Once goals are identified, a set of related criteria can help to strategically target and prioritize future buyouts. Criteria are used to evaluate the characteristics or features of a particular site in relation to the goals set forth by the community. Those selected should help address identified community goals relating to conservation, stormwater management or water quality, recreation, or other relevant topics. Criteria may align with those identified in land use, hazard mitigation, or open space plans (this might even be a funding requirement, depending on the funding source). One way to think about this part of the prioritization process is that the more criteria a site meets, the higher priority it should be for acquisition – assuming that the project is eligible and meets flood mitigation criteria. The complete set of criteria can be organized as a checklist or matrix (see Box D for an example of the use of a matrix for hazard mitigation project prioritization). Ultimately, some communities may choose to weigh certain criteria more heavily than others. This can be done by creating different tiers or by using point multipliers.

Table 2: Some examples of criteria that communities could use to prioritize acquisitions

CRITERIA	
<i>Patchwork:</i>	
To help address patchwork distribution, target properties for acquisition that are in:	
Neighborhoods with existing buyouts	<u>Potential Data Sources:</u> State hazard mitigation agency, Conservation plans, State Wildlife Action Plan, Local Comprehensive and other plans
Target areas of interest of other partners or public agencies	
Areas where there are clusters of willing sellers	

Conservation Goals

To help achieve conservation goals, target properties for acquisition that are in or adjacent to:

Areas where restoration/use is compatible with goals/objectives in natural resource element of local plan or local watershed plan	<u>Potential Data Sources:</u> Local comprehensive plans, local conservation plans, local watershed plans, state wildlife action plans, natural heritage maps, national conservation easement database, state conservation data portals
Identified priorities for restoration/conservation	
Environmental focus areas for local/state agency or conservation organization	
Priority habitat areas for local species of concern	
Existing protected areas	
State or local natural areas	

Flood Mitigation and Water Quality Goals

To help achieve stormwater or water quality improvement goals, target properties for acquisition that are in or adjacent to:

Areas where restoration/use is compatible with goals/objectives in local water plan	<u>Potential Data Sources:</u> FEMA flood maps, state flood data, state water data portals, climate change vulnerability analyses and plans, local water plans, wetland conservation plans,
The floodplain (considering climate change projections)	
Public access to a waterway	
Buffer areas for priority waters (e.g., wetlands, streams, etc.)	
Target areas to address stormwater goals/plans	

Recreation and Community Goals

To help achieve recreation or community goals, target properties for acquisition that are in or adjacent to:

Areas where restoration/use is compatible with goals/objectives in local land use plan or parks/recreation plan	<u>Potential Data Sources:</u> Local parks and recreation plans, greenway maps, community comprehensive plans,
Or nearby greenway or trail or planned greenway or trail	
Areas that can connect existing greenways, trails, or parks	
Existing or planned park (e.g., area with few parks)	
Areas where communities gather (e.g., farmer’s market, band shell, ballfields, other recreation)	
Areas that can provide access to recreation in areas where recreation or green space is inaccessible	

See also the example prioritization tools described above for lists of criteria developed to prioritize future buyouts.

Box D

Box D: FEMA’s STAPLEE Matrix for hazard mitigation project prioritization in New Jersey

FEMA developed a method for evaluating hazard mitigation actions and alternatives. Municipalities in New Jersey and elsewhere use this STAPLEE Method to evaluate *and* rank hazard mitigation projects, including property acquisitions, in terms of benefits and costs.

Municipalities in New Jersey prepare various forms in advance of selecting hazard mitigation strategies, including a STAPLEE Matrix. The **STAPLEE** Matrix is named for its organization by categories of **S**ocial, **T**echnical, **A**ministrative, **P**olitical, **L**egal, **E**conomic, and **E**nvironmental project aspects. Environmental aspects considered include the effect on land and water resources and consistency with community environmental goals. Social criteria include community acceptance and the effect on the segment of the population closest to the project or in need of the project. Projects determined to be feasible (i.e., that meet a majority or sufficient number of criteria) can be prioritized.

Sample STAPLEE ACTION EVALUATION TABLE: Town A																						
Alternative Actions	STAPLEE Criteria Considerations																					
	+ Favorable - Less favorable N Not Applicable																					
	S (Social)		T (Technical)			A (Administrative)			P (Political)			L (Legal)		E (Economic)			E (Environmental)					
Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocation	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land/ Water	Effect on Endangered Species	Effect on HAZMAT/ Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Laws
Action 2.1.1: Bridge Replacement	+	N	+	+	+	+	-	+	+	+	+	+	N	+	+	+	N	+		+	+	+
Action 2.1.2: Property Acquisition	-	-	+	+	+	-	-	-	-	+	+	+	+	+	-	-	-	+	+	+	+	+
Action 2.3.1: Elevate critical facility (hospital)	+	+	-	+	-	-	+	+	+	+	+	+	+	+	-	+	-	+	+	N	+	+
Action 5.3.1: Public awareness program on local TV channel	+	+	+	+	+	-	-	+	+	-	+	N	N	+	+	+	-	N	N	N	+	+
Action 1.4.1: Code update	-		N	+	+	-	+	+	+	-	+	+	-	+	+	+	+	N	N	N	+	+

Other communities may be interested in 1) adopting the STAPLEE method and including additional necessary criteria or criteria of interest, or 2) adapting the STAPLEE matrix for acquisition project prioritization specifically by phrasing criteria in terms of added community benefits of the buyout *and* potential management and use of the properties.

For more information, see, e.g., [Atlantic County’s Multi-Jurisdiction Natural Hazard Mitigation Plan \(2010\)](#) at Section 7 (“Action Item Evaluation and Prioritization”).

3. Develop a Plan for Prioritizing Future Acquisitions

Once goals have been identified, information gathered, and associated acquisition criteria developed, communities can develop a plan for prioritizing future acquisitions. Developing a map will aid in the visualization of target areas/neighborhoods, or even priority properties, for future acquisitions. In addition, ranking systems or checklists/matrices could be developed to further prioritize individual properties based on flood mitigation criteria as well as criteria focused on maximizing post-acquisition management opportunities or other goals. Then, the community should develop an acquisition plan that outlines the goals for desired long-term use and management of the sites and a proposed prioritization process for future buyouts.

Identify Target Areas – Make a Map – A map provides a visual representation of target areas for acquisition – keeping in mind that there may be holdouts not willing to sell within the target area or unforeseen opportunities for acquisitions may occur outside of target areas. A map can show the location, pattern, extent, and geographic distribution of buyouts and helps illustrate potential connections to existing public lands, including forests, wetlands, parks, and greenways. Maps can also show where open space is lacking, such as adjacent to low-income neighborhoods. Developing a map may include a number of steps, such as the following:

- Start with a map of flood hazard areas (100- and 500-year flood), and identify the location of existing and planned buyouts. Identify all structures (homes, businesses, schools, etc.) that lie within the flood hazard area, noting that the boundaries of these areas could change over time, e.g., due to climate change and/or an increase in impervious surfaces throughout the watershed. Information on flood risk may be found in the local or regional hazard mitigation plan, which typically includes a vulnerability analysis and flood maps. Personal experience with historic and recent flooding can also be used to inform the map.
- Find spatial data layers corresponding with identified prioritization criteria. We've identified some possible data sources that will help to address individual criteria above.
- Look for areas where factors identified as prioritization criteria or requirements for certain funding resources overlap with buyout areas. This can be done by developing a spatial analysis tool or visually (based on observations).
- Consider areas where various criteria and existing or potential buyout projects overlap relative to the goals for subsequent use of the land. This can help identify properties that, if acquired, can help advance a community's vision in addition to mitigating flood-related hazard.

Where to go for help on a mapping effort? If the locality does not have in-house capacity to develop a map, other resources may be available. In some regions of the country, county governments may have GIS capacity and access to the data needed to develop maps. If not, the entity responsible for planning buyouts may be able to receive pro

bono support from local businesses, non-profit organizations, or academic institutions. Most states will also have GIS data available. These can often be found in a state data repository (e.g., master state GIS portal, etc.). Local emergency management offices or state hazard mitigation grant officer will also be a good source of information on the location of existing buyouts and flood hazard areas. Local natural resource agencies or non-profit conservation organizations may be able to provide data layers on local natural resources and protected areas. Local or state agencies may be able to help with layers detailing greenways, parks, or other recreational amenities. These contacts may also be able to help identify local resource and recreation plans, policies, and priorities that can inform post-acquisition management goals.

Prepare an Acquisition Plan – Make a Plan – The plan should transparently detail a prioritization process for future buyouts, based on criteria adopted by the community. This prioritization process and the weight localities place on individual criteria will depend on the overall goal(s) for the buyout program, but adding post-acquisition management-related criteria (in addition to those that are required) to the overall acquisition plan can help a community be prepared to strategically target buyout funds to areas that will help achieve flood mitigation as well as other community goals. A transparent property prioritization plan helps the community make the most of buyouts as soon as funding becomes available. The plan should include some degree of flexibility. There may be highly favorable opportunities to purchase certain properties that may not have been listed as highest priority, but under the right circumstances would be strategic to acquire (e.g., property becomes vacant, property goes to sale for back taxes, the property owner dies and the family is now interested in selling, funds become available from some other source, the property just incurred significant flooding or damages, etc.). The plan should include the following information:

- **Goals:** Clearly outline the goals for the program and for future use of the acquired properties that were identified above. If possible, it may be helpful to identify the number of properties that a community aims to purchase – and when. Some communities with established hazard mitigation or floodplain management funds may aim to acquire properties as soon as possible; others may have to wait until federal funding becomes available.
- **Criteria:** List the identified prioritization criteria and data used to identify target areas. It may also be helpful to cite the origin of certain criteria relating to post-acquisition management that might be aligned with other agencies' goals – ranging from creating wildlife habitat to facilitating healthy, outdoor recreation opportunities. This may help to identify partners and possible funding sources later.
- **Prioritization Process for Individual Properties:** The prioritization process details how the community will evaluate properties for acquisition and prioritize acquisitions given available funding and community goals. The process should

outline how identified criteria will be weighted, including standard criteria (e.g., financing or grant specification; disaster or floodplain characteristics; property damages, costs, and losses or repetitive loss properties); and property owner characteristics (e.g., renter versus owner, primary versus secondary residence, etc.) as well as those related to post-acquisition management goals (See Table 1). There are number of ways a community could structure this process. For example, a community may wish to develop a map (as described above) using the post-acquisition management criteria to identify target areas, and then prioritize individual properties within the target areas based on grant specification, property damages, and owner status or other 'standard' criteria. Alternatively, a community may incorporate the post-acquisition management criteria into a quantitative or qualitative checklist or matrix. For example, communities in New Jersey use FEMA's STAPLEE Matrix for hazard mitigation project evaluation to prioritize acquisitions (See Box D). Some communities may wish to develop a ranking system that produces a ranking or score for an individual property eligible for a buyout. For example, Charlotte, North Carolina, as described above, has developed a more detailed process to rank properties for acquisition or other mitigation projects (as part of a three-step process to assess the risk of individual properties to help prioritize future mitigation efforts). The city weighted various prioritization criteria, including those related to post-acquisition management, when evaluating properties for mitigation. In the Charlotte process, criteria including life and human safety, cost effectiveness, proximity to other mitigation projects, property added to the flood zone, and repetitive loss status are given the most weight. Criteria related to future use – adjacent to publically owned land, a planned greenway trail, a planned sanity sewer route, a water quality buffer, among others – are given lower, but still significant, weight. The city then uses the resulting scores as part of a ranking process for acquisition or other mitigation efforts. Again, it is a good idea to build in some degree of flexibility to allow for unforeseen opportunities to acquire properties that may not rank at the top of a prioritization list. Note that post-management goals and the accompanying prioritization process for acquisitions can be captured within the Acquisition Plan and expanded on or detailed in the Post-Management Plan (see Step 4 below).

- **Plan for Pursuing Additional Funding:** Outline how the community will pursue additional funding sources for buyouts. Funding can affect the timing of an acquisition or post-acquisition projects, the size (or number of properties) of a buyout and feasibility of subsequent projects, and – in some cases – the type of project implemented after the buyout. For example, FEMA HMGP's open space use restrictions generally prohibit any type of structure in contrast with local funds that may allow closed structures like boat houses in addition to things like non-permeable pavement.

This section may also detail how the individual property prioritization process may change depending on the funding source. If the funding sources that are ultimately available have specific deed restrictions attached, planners may have to change the weight of certain criteria in order to be competitive applicants. Or, if the community commits local funds to acquisitions, the weighting of various criteria may change. The prioritization plan should detail how this will process will work.

This section may also discuss any incentives that might be available to encourage or allow property owners, who may not have otherwise, to participate in the buyout. Some states and localities have provided incentives such as offering a percentage (e.g., 10%) increase over fair market value for the property, relocation assistance, or down payment assistance for some participants. See [Financing & Incentivizing Floodplain Buyouts: A guide](#) for examples.

4. A final task - Develop a Post-Acquisition Management Plan

Finally, the community may want to develop a management plan for how the acquired properties will be managed after the acquisition and over the long term. This plan could be informed by the goals and criteria discussed above, and may include: a vision for the management of the sites; possible costs associated with the implementation of a vision; allowable uses and restrictions; a process for co-managing sites with neighbors, agencies, academic institutions, or local non-profits (e.g., via leases or property transfers, or other types of management partnerships – make sure to become aware of the various leasing and property transfer requirements of various acquisition programs; depending on the program there are certain restrictions and/or requirements before you can lease or transfer properties.); and how the locality will plan, develop, and implement project ideas (including how they will incorporate public input). We have an example plan on our website (<https://www.eli.org/land-biodiversity/floodplain-buyouts>).

A Broader View: Floodplain Acquisitions and Community Planning

Communities interested in maximizing the long-term environmental and social benefits of hazard mitigation-related buyout projects should view their prioritization frameworks in the broader context of land use and community planning. Deliberately including prioritization criteria for floodplain acquisitions and related nature-friendly hazard mitigation projects in broader planning efforts can prepare a community to respond to the effects of flooding more effectively and efficiently when disaster does strike. For example, being able to foresee opportunities to connect recreation areas or protected natural areas by restoring acquired properties after a natural disaster can increase a project's pool of potential funds for the acquisition and subsequent management.

We reviewed various guiding documents before delving into state or local plans that make a compelling case for considering environmental and social benefits when prioritizing acquisition projects and other planning efforts. The list below summarizes some key considerations for integrating hazard mitigation-related buyouts into the broader land use and community planning processes and the benefits this may have for communities.

Integration

1. Hazard mitigation plans, including acquisition plans, should be integrated with other community planning activities. This kind of integration can make it easier to achieve shared goals (between different government entities but also for the community). Coordinating efforts between agencies and relevant organizations can also help leverage funding for acquisition and other hazard mitigation projects. See APA (p. 21), FEMA (1-1 & 1-2, 6-9), SCORPS (all can be found [here](#)), Benedict and McMahon (p. 29).
2. Ecosystem restoration and enhancement should be considered robust options for hazard mitigation projects. Restoration and enhancement projects on floodplain buyout properties, for example, not only prevent future losses on the acquired properties, but if ecosystem integrity is restored, these projects could also prevent future losses to their surroundings. See USACE (p. 86), ASFMP (p. 72), Benedict and McMahon (p. 18).
3. Preserve protective features of the natural environment as a key principle of “smart growth. See APA (p. 56), Benedict and McMahon (p. 17).

Guiding acquisitions

4. Identifying opportunities for recreation amenities and open space, both of which offer many benefits for both hazard mitigation and other community interests, could be used to guide the prioritization of acquisitions as well as land use decisions in general. See APA (p. 37), ASFMP (p. 70).
5. Overall, restoration projects should strive to maximize social benefits. Areas where there is a clear link between restoration actions and a community’s quality of life outcomes should be prioritized for projects. In addition to improving community health, these projects lead to increased community buy-in and more sustainable maintenance. See USACEb (p. 202).

Show importance

6. Considering the benefits of restored buyout properties – sometimes referred to as environmental (ecosystem) goods and services – make acquisitions and subsequent habitat restoration or outdoor recreation projects compelling options. It would also

promote a more holistic community planning process. See APA (p. 34), FEMA (5-2, 6-8), USACEb (p. 202-203), SCORPS (all can be found [at the SORP Scorp Library](#)), LWCFC (p. 19).

7. Risk assessment (and acquisition prioritization) tools that recognize the natural environment as a community asset, or the use of frameworks such as the “benefit transfer technique,” can demonstrate the favorable characteristics of floodplain buyouts for hazard mitigation. This can help make the case for increased funding for acquisitions and restoration of the properties, encourage governments to participate in acquisition programs, and increase community buy-in. See FEMA (5-2), USACEb (p. 209-210).

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Additional Resources

Environmental Law Institute and University of North Carolina Institute for the Environment. *Floodplain Buyouts: An Action Guide for Local Governments on How to Maximize community Benefits, Habitat Connectivity, and Resilience*. 2017. This **Action Guide** is available on our [website](#).

Environmental Law Institute and University of North Carolina Institute for the Environment. *Strategic Partnerships and Floodplain Buyouts: An Opportunity for Wetland Restoration*. 2017. This **Handbook** is available on our [website](#).

Environmental Law Institute and University of North Carolina Institute for the Environment. *Financing & Incentives Guide for Floodplain Buyouts*. 2017. This **Financing Guide** is available on our [website](#).

You can find these resources, our case studies, and more information about how to make the most of floodplain buyouts on our website: www.eli.org/land-biodiversity/floodplain-buyouts



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