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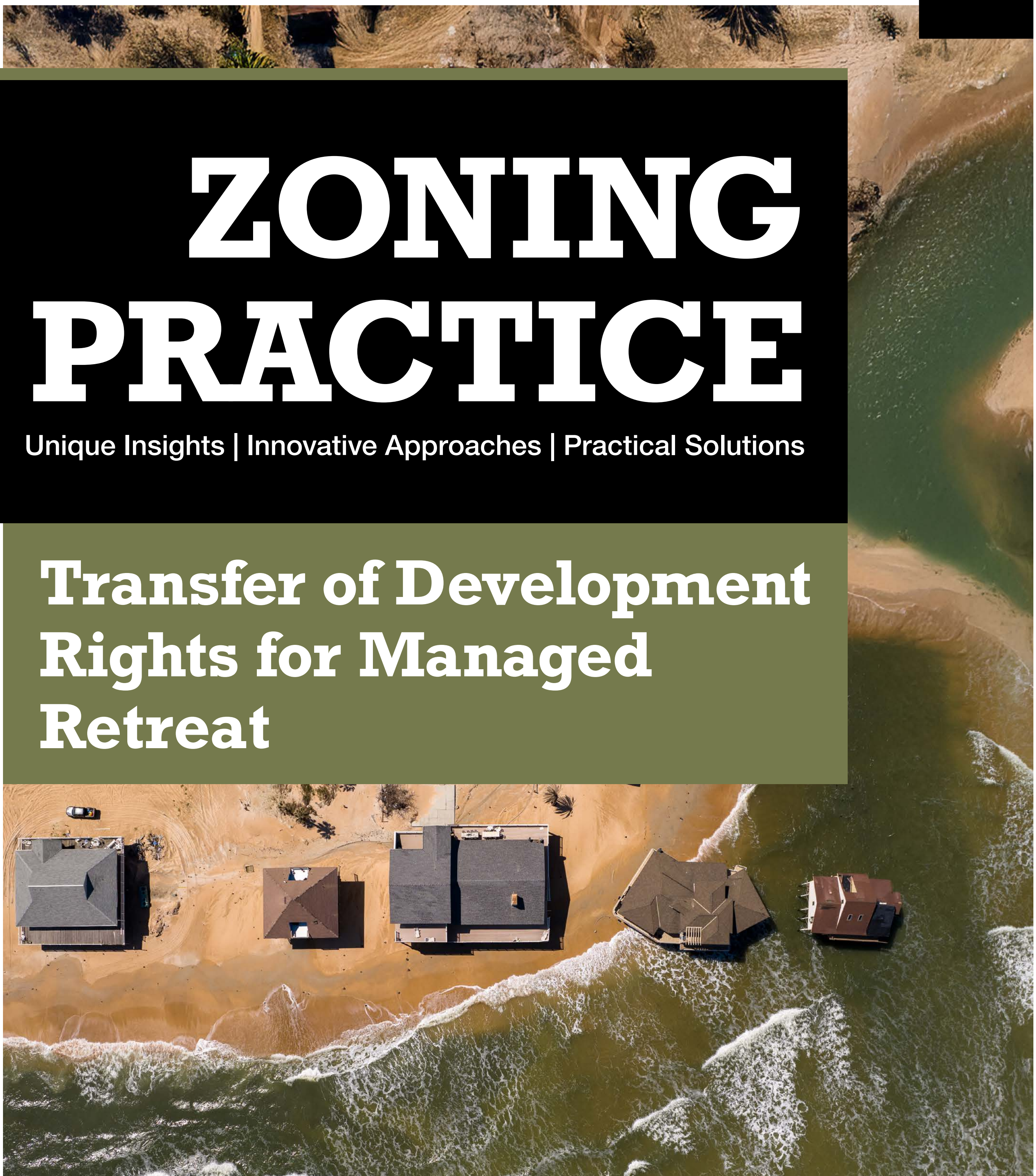


Transfer of Development Rights for Managed Retreat

By Li Fang, PHD

Projections indicate that millions of people in the United States will be at risk in the coming decades from rising sea levels (Hauer, Evans, and Mishra 2016). In places with greater risk, managed retreat may be the only feasible option to mitigate long-term social, economic, and environmental consequences. While federal and subnational buyout programs (Mach et al. 2019; Shi et al. 2022), stricter regulations on floodplain development, and evacuation plans (Bedsworth and Hanak 2010; Berke and Stevens 2016) have facilitated some managed retreat, these efforts remain limited in scale and are unlikely to keep pace with the growing threat of sea level rise.

Market-oriented tools, such as buyout programs, are particularly costly and often constrained by insufficient public funding (Keeler et al. 2022). Regulatory approaches, such as downzoning risk-prone areas, frequently encounter legal challenges from dissatisfied landowners (Kristl 2014). In response, some planners are exploring whether transfer of development rights (TDR) programs, which combine market-oriented and regulatory approaches, could facilitate managed retreat at a greater scale.

This issue of *Zoning Practice* examines the potential promise and limits of TDR as a tool for widespread managed retreat in the U.S. It begins with a brief review of TDR basics before highlighting key program design challenges associated with using TDR for managed retreat and summarizing how existing programs have or have not responded to these challenges.

Coastal development in Ocean City, Maryland (Credit: Brendan Beale/ iStock/Getty Images Plus)

TDR Basics

Simply put, TDR authorizes the transfer of development rights and potential from one piece of land to another. More specifically, a TDR program designates sending sites or areas, where land or buildings are intended for preservation, and receiving sites or areas, where additional density is welcomed or at least can be accommodated. For example, a program may designate an agricultural zoning district as a sending area and a downtown zoning district as a receiving area.

The Goal

If the receiving sites or areas are desirable locations to build more than the current zoning code allows, developers may be willing to buy development rights from landowners in sending sites or areas and use them to build more. Once landowners have sold their development rights, they can no longer use them for new or additional development on the same property. This is a win-win-win solution in which (1) developers profit from further development in the receiving area, (2) landowners get financially compensated for preservation, and (3) the public saves money on preservation as private funds cover some of the costs.

Geographical Design Alternatives

Typically, TDR programs have geographically distinct sending and receiving areas. Commentators refer to this as a dual-zone design.

A TDR program can also be structured in a single zone, with coterminous sending and receiving areas. In this case, any land parcel within this single zone can transfer development rights to any other parcel. This design helps planners leverage market demand, even when they can't predict where such demand occurs (Linkous and Chapin 2014). For jurisdictions with a weaker housing market, this approach can make TDR viable.

Moreover, some TDR programs blend dual- and single-zone design characteristics. For example, Ocean City, Maryland, set up a dual-zone TDR program to facilitate coastal retreat, with adjacent sending and receiving areas (§110-741 et seq.). As a result, some sending area properties can transfer development rights to neighboring receiving area properties. Alternatively, a single-zone TDR program may place additional restrictions on what types of parcels can sell and what types of parcels can receive development rights. For example, Monroe County, Florida, requires sending parcels to be environmentally sensitive and receiving parcels to be in designated infill zones (§130-160). This design is a way to effectively combine regulatory requirements with a market-oriented approach.

Program Success Factors

Aside from geographical design, many other design features matter for the performance of TDR programs (McConnell, Walls, and Kelly 2007; Pruetz and Standridge 2008). For example, there should be few alternatives to TDR to add density beyond what the current zoning code allows.

A program can further incentivize landowners and developers by specifying favorable TDR allocation and transfer ratios.

A program can further incentivize landowners and developers by specifying favorable TDR allocation and transfer ratios. A favorable allocation ratio allows landowners to generate more units of development rights from an acre of land in the sending area. And a favorable TDR transfer ratio allows developers to build more units of dwellings in the receiving area with every unit of development right bought.

Finally, Pruetz and Standridge have identified several other program design features that can contribute to TDR success (2008; 2009). These include providing certainty for developers to use TDR, garnering strong public support for the program, making the program simple to understand and use, effectively promoting and facilitating the program, and setting up a TDR bank.

Coastal homes on Key Largo in Monroe County, Florida (Credit: Ryan Tishken/iStock/Getty Images Plus)

Program Design Challenges

While TDR has been traditionally used for farmland or historic preservation, the concept of TDR easily applies to coastal retreat (Pruetz 2020; Pruetz 2021; GCC 2022). TDR can leverage private funds to transfer development rights from high-risk to low-risk locations, especially in a dual-zone framework. In this case, high-risk coastal areas will be designated as the sending area. Meanwhile, low-risk, probably more inland, areas will serve as the receiving areas for development rights. However, to succeed, TDR programs must contend with at least four distinct design challenges.

Existing Structures

First, TDR programs are typically used to transfer unrealized development potential, while coastal retreat usually requires demolishing existing structures. Most existing TDR programs aim to transfer out unused development rights from farmland, forests, and historical buildings (Smart Preservation 2022). That is to say, for example, a landowner is allowed to build two dwelling units on 10 acres of farmland under the zoning code. However, they have only built one. Through the TDR program, the owner can transfer out the unbuilt development rights and keep the density of their land at one dwelling unit per 10 acres. However, in large-scale coastal retreat, the goal is to terminate land use and development rights from not only unbuilt land but also existing housing and other built structures in high-risk areas. The problem is that for landowners, the value of an existing house vastly exceeds the value of an unbuilt development right. But for developers, these two are equal as they only need these development rights to build in a different area. As a result, unbuilt development rights are much more likely to be transacted on the market compared to existing structures. To solve this problem, existing structures in the sending area need to get a bonus on TDR allocation (say, one dwelling unit generates five TDRs) or they will need a separate TDR market with a different, higher TDR price and a more desirable receiving area.

High Coastal Property Values

Second, coastal properties are of high value, which makes TDR programs harder to work. Despite high risk, most coastal properties are still of significant value due to the desirability of a sea-facing house (Fang et al. 2025). Moreover, the capitalization of sea level rise seems to be myopia: Only housing located sufficiently close to the shore, where erosion is severe enough, will experience a price drop (Below, Beracha, and Skiba 2015). As a result, a TDR program aiming to transfer development rights off coastal properties either has to designate a receiving area with even more desirable locations than ocean-facing houses or provide a lucrative TDR allocation ratio (e.g., one dwelling unit generates five to 10 TDRs). The former is unlikely, while the latter requires the capacity to receive all additional development rights.

Regional Coordination

Third, due to the widespread nature of sea level rise, it may not be possible to find both high- and low-risk areas within a single jurisdiction. Consequently, regional TDR programs may be necessary. However, most existing TDR programs in the U.S. are at the city and county level, and regional coordination on TDR is not easy (Smart Preservation 2022). For example, there may not be a single, overarching, planning agency at the regional level to oversee the TDR program, and multiple planning agencies at the city, county, or regional level may be involved with the TDR program, making the administrative process complicated. Furthermore, there may be conflicts of interest among jurisdictions.

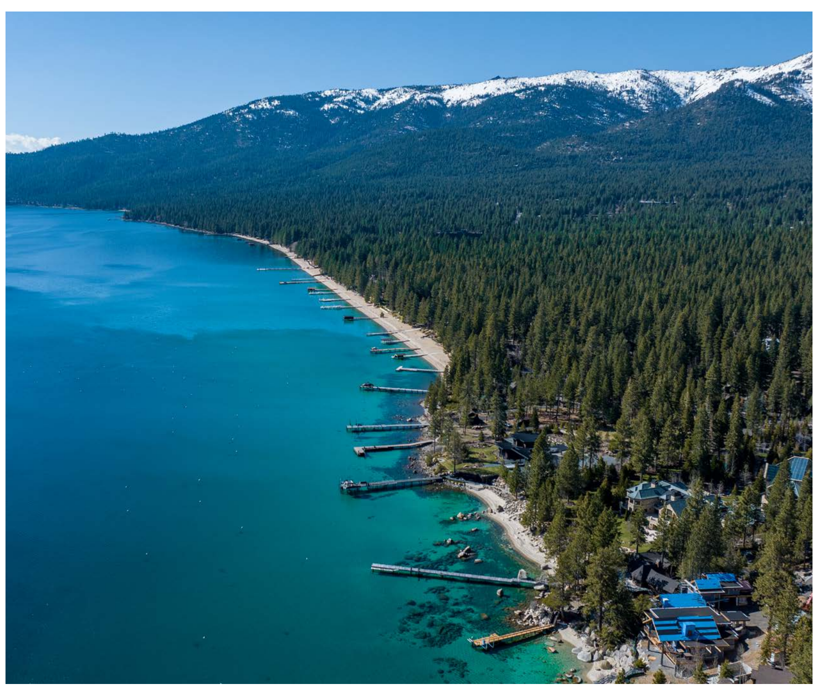
Existing Regulations and Programs

Last, some coastal jurisdictions already have existing TDR programs, other land use regulations, or buyout programs, which are not easily coordinated with another coastal TDR program. For example, TDR programs are used widely for farmland and historic preservation purposes, and some coastal jurisdictions already have them. As a result, one more TDR program on top may flood the TDR market with additional development rights and drive down the price. A lower price, in turn, will disincentivize coastal property owners from selling development rights.

Meanwhile, some coastal jurisdictions have strict land use regulations in place, which may disincentivize participation in the coastal TDR program. A developer under such a system has to not only buy development rights but also comply with the land use regulations. For example, if a developer can only use development rights to build one more floor, instead of having the flexibility of building one to five floors, the developer is less likely to be interested in the TDR program.

In addition, for coastal jurisdictions with existing buyout programs, coordinating buyout programs with TDR programs is another important task. Without coordination, property owners may opt out of the TDR program and wait for a buyout—as a buyout typically pays more. To avoid competition with the TDR program, buyout programs in this case should be structured as an incentive. For example, planners may decide that a coastal TDR program is aimed at removing all unrealized development rights on risky land. Therefore, after landowners sell all unrealized development rights, a buyout program automatically kicks in and buys out their houses. This way, the buyout program becomes an incentive for the TDR program. This program design does require sufficient funding to support, though.

The Lake Tahoe waterfront in Nevada (Credit: Dutcher Aerials/E+)



An Exemplar Regional Program for Waterfront Retreat

Fortunately, despite the difficulties of establishing a regional coastal TDR program, we have an exemplar program to look at—the Tahoe Regional Planning Agency's TDR program for waterfront retreat (§51-5).

Background

The Tahoe Region consists of the 207,000-acre Tahoe Basin, comprising three counties and Carson City in Nevada and two counties and the City of South Lake Tahoe in California, with extraordinary scenery and a sensitive waterfront environment in need of coordinated land use regulations. As a result, in 1969, with the consent of the U.S. Congress through a bi-state compact, California and Nevada established the Tahoe Regional Planning Agency (TRPA) to regulate land use in this region.

> **The establishment of TRPA itself reflects the region's strong consensus and commitment to preserving its unique natural amenity.**

TRPA introduced its TDR program in 1987 to limit overall development in the basin and improve water quality. The program is set up as single zone. All land parcels in the region were evaluated for environmental sensitivity and regulated for future development accordingly. The most environmentally sensitive parcels are not allowed to be developed. Landowners with environmentally sensitive parcels can transfer development rights to less sensitive parcels.

Major Changes

In 2018, TRPA adopted two major changes to the TDR program. First, TRPA removed jurisdictional approval from the transfer procedure. Second, TRPA allowed transfers of development rights between land use categories, such as commercial and residential.

Referencing the first change, Jennifer Self, a senior planner at TRPA who oversees the TDR program said that "(in the past) not only would you have to get approval from TRPA, but you'd also have to get approval from the local jurisdiction. And they kind of had this mentality of, *no*, these are Easter eggs. We want to keep them in our basket, and we don't want them to transfer to another jurisdiction." Therefore, removing local approval means "development rights can move all over the basin, and that's been a very positive change."

The second change makes it easier for developers to assemble required development rights and more flexible for regional land use to adapt to market demands. Self summarized this update as a "mindset shift." She said, "where, in the past, we took a heavy-handed regulatory approach to trying to protect the environment here in Tahoe. In 2012, we (started to) update our regional plan, and that was a shift for the region, our agency, and our regulations to a mindset that was more proactive and had more incentives for redevelopment. Because we fully see that when property is redeveloped, that's when we get the environmental gain."

Success to Date

TRPA's TDR program has achieved notable success. Historically, it has been one of the most active programs in the country, with about 25–35 approved transfers per year (Johnston and Madison 1997; Pruetz 2003). Transfers were particularly active in the 1990s and 2000s—with the annual transfer applications reaching 45-90. With the slowdown of the real estate market in the 2010s, that number dropped to below 40. Recently, with the new updates to the program, the number of applications per year has reached back up to 40 per year in the 2020s. The newly added feature that allows conversion between land use categories has been used by about 10 projects per year, and conversions have overwhelmingly been from commercial to residential uses. So far, more than 150 residential units have been created out of these conversions.

Degree of Regional Coordination

TRPA's program has successfully addressed some, though not all, of the four common challenges facing coastal TDR programs outlined in the previous section (Table 1). It has been the most successful in achieving regional coordination. The establishment of TRPA itself reflects the region's strong consensus and commitment to preserving its unique natural amenity. Meanwhile, throughout the implementation of the TDR program, TRPA has organized intensive community meetings to build consensus and foster a win-win mindset among stakeholders (Kauneckis and Imperial 2007). Over time, the TDR program has evolved from a regulatory byproduct to one that actively supports environmentally beneficial redevelopment. This shift has reframed the mindset from a binary conflict between pro- and anti-development interests to a more integrative approach that balances growth with environmental sustainability (Kauneckis and Imperial 2007). The 2018 update further strengthened regional coordination by removing local approval requirements from the TDR transfer process.

Response to High Coastal Property Values

The program has also partially addressed the issue that the high value of waterfront properties could disincentivize TDR transfers. It supports high-value redevelopment. Because this program is a single-zone program, the receiving sites are also of high value and at desirable locations within the Tahoe Basin. Therefore, it is able to leverage the market demand for highly desirable waterfront locations to preserve some of the most vulnerable sites. Moreover, the program grants bonus density to developers who transfer development rights from sending or receiving sites meeting certain criteria. Furthermore, TRPA downzoned the most environmentally sensitive lands in the Basin, which reduced the value of these lands, and the only way landowners get financial compensation is to sell development rights. This boosts TDR program participation but also introduced legal challenges (Nellermoe 2016; Williams 2014).

Degree of Programmatic Coordination

Coordination between the TDR program and other land use regulations remains a challenge. According to Self, "land use in Tahoe is very complex and (has) a lot of different layers." She explains that it includes not only typical zoning standards, such as density, height, and design, but also a more restrictive approach to calculating lot coverage that counts sidewalks, driveways, decks, and other features in addition to building footprints.

Coordination between the TDR program and other land use regulations remains a challenge.

Those layers made the TDR program complex and potentially also time-consuming for private sector participants (Reid 2007). Specifically, to manage the overall rate of development, TRPA sets annual limits on the amount of development allowed in the basin (Smart Preservation 2021). This quota is called an allocation. New development is required by TRPA to have both a development right and an allocation (Smart Preservation 2025b), which makes it difficult for developers and reduces the incentives to use TDR.

Transfers from Existing Structures

The Tahoe Region TDR program has not been very successful in transferring development rights associated with existing structures. In fact, even redevelopment of already urbanized properties is incredibly difficult (Reid 2007), though that has improved after the 2018 update. As a result, TRPA designed a dedicated program with public funding to remove existing commercial and tourist units from sensitive lands. In addition, two land banks in the region, including one in Nevada and one in California, according to Self, "acquire properties that are developed and tear down that development and restore those lands." Since 2012, 160 tourist units and almost 30,500 square feet of commercial floor area have been removed from the most environmentally sensitive lands (TRPA 2022)—but this level of retreat still failed to meet the benchmark TRPA set in 2013. This new program is essentially a purchase of development rights (PDR) program, which uses public funds to buy and retire development rights. Compared to TDR, PDR gives the public sector more control over preservation but also costs significantly more.

Relevance for Coastal Regions

Though TRPA's TDR program is not a coastal program per se, as a waterfront program, it shares similar environmental vulnerability and preservation goals with coastal jurisdictions. Most of the challenges the TDR program has to overcome, such as the high value of waterfront properties, the difficulty of transferring development rights from existing structures, and the extra layers of land use regulations, are also shared among many coastal communities. Therefore, lessons learned from this program can be generalized to coastal settings.

However, replicating the level of regional collaboration seen in the Tahoe Region across coastal jurisdictions would be challenging. A multijurisdictional TDR program typically requires a highly valuable natural resource that everyone is invested in preserving, legislative action to establish a regional land use authority, and continuing regional consensus-building and coordination.

Marina Del Rey in Los Angeles County, California (Credit: Adam Mustafa/iStock/Getty Images Plus)

Single-Jurisdictional Coastal TDR Programs

There are, at least, 10 existing examples of single-jurisdictional coastal TDR programs (Lester 2013; Linkous and Chapin 2014; Nelson, Pruetz, and Woodruff 2012; Pruetz 2021; Smart Preservation 2022; Schechtman and Brady 2013; Smith 2020). Six are at the county level, including Brevard, Collier, Sarasota, Monroe, and Lee in Florida and Los Angeles County in California. Another four are at the city level, including St. Petersburg in Florida, Ocean City in Maryland, and Oxnard and Malibu in California.

Program Activity

The performance of these coastal TDR programs isn't particularly encouraging. Only two have produced more than 100 transactions over the history of the program. Three have produced between 10 and 100 transactions, while the other five have had less than 10 transactions each. Overall, a coastal TDR program tends to be more active if it overcomes more challenges (Table 1).

Degree of Regional Coordination

Regional coordination remains one of the most difficult challenges. Each of these coastal TDR programs operates within a single jurisdiction, as does the vast majority of non-coastal TDR programs. Regional coordination is a rare exception. As Gina Natoli, AICP, Los Angeles County regional planner puts it, "we don't want the development *here* mitigating its impacts *over there*." This logic prevents TDR transactions across jurisdictions.

Transfers from Existing Structures

Transferring development rights from existing structures also turns out to be almost impossible. Only Ocean City's program has successfully navigated this hurdle. The city implemented a TDR program in 1993 to help transfer development rights from the east of its build-to line to a receiving area west of the line, called the Beach Transfer Receiving district. The program has been quite successful, with most available development rights transferred. It has been able to transfer rights even from existing structures because (1) receiving areas are in highly desirable locations, just west of the build-to line, which still allows for coastal real estate; (2) development is strictly restricted in the sending area, incentivizing landowners interested in further development to move out; (3) landowners receive a favorable TDR allocation ratio of one TDR per 500 square feet and the benefits of beach nourishment and dune construction. However, because the program required all property owners to register and claim their development right allocations by July 1, 1994, Bill Neville, AICP, an Ocean City planner, emphasized that this program was a "one-time deal with a specific purpose" that offers limited lessons for broader use of TDR for retreat.

It is almost impossible to retreat from existing coastal structures with a TDR program. As Kimberly Brown, AICP, Director of Resilience Planning and Implementation in Miami-Dade County, Florida, put it, "I find it a little bit awkward to think about TDR in the context of an established use. I mean, typically when we think about TDRs, you're severing a hypothetical development right, something that hasn't been realized yet. And obviously there's a whole host of challenges when you're talking about not only development that is in existence, but somebody's home, which is incredibly emotional on top of it." As a result, several coastal TDR programs, including ones in Malibu and Los Angeles County, explicitly placed their emphasis on preserving biodiversity rather than removing existing beachfront structures.

Degree of Programmatic Coordination

Effective coordination with other programs also turns out to be challenging for most coastal TDR programs. Among the six coastal TDR programs facing substantial coordination demands with other land use programs, only two have done so successfully. As mentioned above, in Ocean City, Maryland, the TDR program facilitates the beach nourishment/dune system program, while that program in turn provides additional incentives for landowners to participate in the TDR program. In addition, in Los Angeles County, California, the TDR program works as an essential part of other coastal plans.

However, the other four coastal TDR programs struggle to coordinate with other land use programs. Similar to the case in the Tahoe Region, Monroe County in Florida also implements strict land use regulations called the Rate of Growth Ordinance (ROGO) system (§138). The ROGO system is a competitive permit allocation system that limits the award of building permits overall and particularly in risky locations. A developer interested in building more than the current zoning code allows needs to secure both development rights through the TDR program and building permits through the ROGO system. As a result, Brad Stein, AICP, Monroe County planner, called the ROGO system "the biggest hindrance" to the activity of their TDR program.

Effective coordination with other programs also turns out to be challenging for most coastal TDR programs.

Relatedly, in Lee County, a stormwater control program enabled the acquisition of 18 square miles of freshwater marshlands on Pine Island. Similar to the ROGO system in Monroe County, both counties limited development with programs alternative to TDR. This helps achieve preservation goals but also undercuts the performance of TDR programs.

Moreover, in Sarasota and Collier Counties, Florida, there exist competing TDR programs, which turn out to be more attractive to developers than the coastal TDR programs. More broadly, when a competing TDR program exists—especially in areas where coastal property values are high and therefore landowners are reluctant to sell development rights—coastal TDR programs tend to struggle.

Response to High Coastal Property Values

Four of the coastal TDR programs have seen some success in navigating the high value of coastal properties. First, as mentioned above, Ocean City has successfully addressed this issue and transferred most available development rights using a combination of incentives. Three other programs, including those in Los Angeles County, St. Petersburg, and Lee County, have also achieved partial success.

Specifically, Los Angeles County publicly owns most of its beaches, prohibiting future development of beachfront properties. Meanwhile, its TDR program designates receiving sites that appeal to developers, helping them compete effectively with the areas where development rights originate. St Petersburg and Lee County in Florida downzones sending areas and provides bonus density to developers.

However, it's important to note that downzoning and bonus density are not sufficient conditions to address the challenge posed by the high value of coastal properties. Other programs, such as Brevard County, Oxnard, and Monroe County, also provide downzoning or bonus density (or both) but still fail to navigate this challenge.

In fact, the most effective factor in addressing the challenge of high coastal property values is the desirability of the receiving sites. The two programs that incorporate this feature—Ocean City and Los Angeles County—have shown high levels of activity.

Coastal development in St. Petersburg, Florida (Credit: Paola Giannoni/iStock/Getty Images Plus)

Lessons Learned

Overall, a coastal TDR program is not a silver bullet for managed retreat. Jurisdictions interested in implementing a coastal TDR program need to carefully analyze local market conditions and design realistic programs with strong incentives for participation. While regional (i.e., multijurisdictional) programs can remain an aspirational goal, we are more likely to see single jurisdictions adopting coastal TDR programs.

A coastal TDR program is more suitable for preserving undeveloped land. Most coastal TDR programs should aim for redirecting future development from high-risk to low-risk areas, rather than transferring development rights from existing structures. Terminating development rights from existing development is more likely achievable with buyout programs—as a result, integrating a TDR program with a buyout program can build a more comprehensive strategy for coastal jurisdictions to manage retreat.

To maintain program activities, a carefully designed incentive package needs to be built into the TDR program. Desirability of the receiving areas is key. Coastal locations as of now are still highly desirable locations to build, to the extent that extinguishing such development rights remain financially infeasible. Therefore, designing a coastal TDR program that allows some coastal development in lower-risk areas while removing development potential in higher-risk areas may be the best option.

Other helpful incentives include downzoning, desirable allocation ratio, and bonus density. Downzoning high-risk areas and allocating plenty of development rights to landowners incentivize them to sell. Meanwhile, handing out bonus density to developers encourages them to buy.

Coordination with other coastal programs remains important. Specifically, two types of commonly adopted coastal programs need to be better coordinated with TDR—land use regulations and buyout programs. First, many coastal jurisdictions adopted strict land use regulations due to the environmental sensitivity of coastal land. Some of them impose development quotas similar to the Tahoe Region and Monroe County. These programs could hinder the activity of TDR as they add another layer of requirements for developers. However, they can synchronize with TDR programs if the quotas are directed against TDR sending sites and towards receiving sites. When quotas are differentially assigned in this way, they function similarly to downzoning and help incentivize the transfer of development rights from sending to receiving sites.

Second, many coastal jurisdictions implemented their own buyout programs to purchase properties at risk. These programs can compete with TDR programs in preserving properties and therefore reduce TDR activity. However, they can also complement TDR programs if they are designed to only come in where TDR programs fall short—purchasing existing structures too expensive for TDR programs to preserve or filling in gaps between TDR-protected parcels to create larger, contiguous conservation areas.

Lastly, while this is not unique to coastal jurisdictions, any competing TDR programs should be avoided. A coastal jurisdiction already has a TDR program should not blindly introduce another coastal TDR program. It needs to either revise their existing program to incorporate coastal retreat purposes or drop the idea of using TDR for coastal retreat.

Conclusion

The most realistic approach for coastal TDR programs is to focus on redirecting unrealized development rights from higher-risk to lower-risk parcels within a single zone and a single jurisdiction. This way, the TDR program can leverage the high value of some coastal land to preserve others. Meanwhile, bonus allocation ratio and bonus density can be used to further incentivize landowners and developers.

Retreating from existing structures requires buyout programs, with TDR potentially covering the land cost. For example, a coastal TDR and buyout program could be designed so that if a property owner sells all (used) development rights, the buyout program will purchase their house. Since the market value of the development rights is unlikely to cover the full value of a coastal property, the buyout program plays a critical role in bridging that gap. This financial structure is key to encouraging property owners' participation.

Building on single-jurisdictional programs, coastal jurisdictions with a common amenity may start working towards a coordinated regional program. This requires a lot of consensus building, coordination, and negotiation, but existing regional programs such as the Tahoe Region TDR program, can serve as exemplars to learn from.

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Appendix

Table 1. Performance of Existing Waterfront or Coastal TDR Programs

Coastal/ waterfront TDR program	Program activity level	Facilitates transfers from existingstructures	Responds to high coastal/waterfront property values	Includes regional coordination	Promotes coordination with other programs
Tahoe Regional Planning Agency, CA-NV (§51-5)	>100 transactions	Not successful: TRPA created a program similar to PDR and uses land banks to acquire developed properties.	Partially successful: High-value redevelopment accommodated; bonus density; downzone	Successful: Administered by regional agency; intensive consensus building; removed local approval	Not successful: TDR becomes complex with additional layers of land use regulations.
Ocean City, MD (§110-741 et seq.)	>100 transactions	Successful: Desirable TDR allocation ratio; benefits of beach nourishment and dune construction; receiving area right next to the sending area.	Successful: Downzoned sending area; desirable TDR allocation ratio; benefits of beach nourishment and dune construction; receiving area right next to the sending area	Not successful	Successful: TDR facilitated the beach nourishment/dune system program.
Los Angeles County, CA (§22.44.1230)	>100 transactions	Not successful	Partially successful: Public ownership of beach; desirable receiving sites	Not successful	Successful: TDR works as an essential part of other coastal plans.
Monroe County, FL (§130-160)	10–100 transactions	Not successful	Not successful: Downzoned environmentally sensitive lands	Not successful	Not successful: TDR program is less active due to the Rate of Growth Ordinance (ROGO) system.
St Petersburg, FL (§16.70.040.1.6)	10–100 transactions	Not successful	Partially successful: Downzoned sending area; bonus density.	Not successful	No other significant programs to coordinate with
Sarasota County, FL (§124-103)	10–100 transactions	Not successful	Not successful	Not successful	Not successful: There is a competing TDR program.

Coastal/ waterfront TDR program	Program activity level	Facilitates transfers from existingstructures	Responds to high coastal/waterfront property values	Includes regional coordination	Promotes coordination with other programs
Lee County, FL (§2-148 et seq.)	<10 transactions	Not successful	Partially successful: Downzoned sending area; bonus density	Not successful	Not successful: A stormwater control program crowds out part of the functionality of the TDR program.
Collier County, FL (§2.03.07.D.4; §2.03.08.2)	<10 transactions	Not successful	Not successful	Not successful	Not successful: There is a competing TDR program.
Oxnard, CA (§17-65 et seq.)	<10 transactions	Not successful	Not successful: Bonus density; fee exemptions	Not successful	No other significant programs to coordinate with
Malibu, CA (LCP §7)	<10 transactions	Not successful	Not successful	Not successful	No other significant programs to coordinate with
Brevard County, FL (§62-1925)	<10 transactions	Not successful	Not successful; Downzoned sending area; bonus density	Not successful	No other significant programs to coordinate with

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