

ZONING **PRACTICE**

JANUARY 2021



AMERICAN PLANNING ASSOCIATION

➡ ISSUE NUMBER 1

PRACTICE **MARKET-SMART TDR**



The Market Factors That Make Transferable Development Rights Work

By Lane Kendig

Transferable development rights (TDR) sounds so simple, a magic tool to allow downzoning without it becoming a taking. While the concept is simple, execution requires a balanced system to ensure both willing buyers and willing sellers. There are two uses for TDR: for urban preservation (targeted TDR) and as a growth management tool (rural TDR) to preserve rural land. The market factors that constrain the design of a workable system are different for these uses. Growth management and rural preservation has been the more attractive use, but rural TDR has seen many failures. Meanwhile, targeted TDR is not as widely used but has been more successful.

CONCEPT

TDR is designed to allow a site or building to be preserved by downzoning it to prohibit its development or redevelopment. Without TDR, downzoning actions are often vulnerable to takings claims. With TDR, the downzoning occurs, but the landowner is issued TDRs, which can be sold on the open

market to provide compensation, avoiding the taking. The U.S. Supreme Court ruled that TDR was valid when New York used the concept to preserve the Penn Central Terminal building. The system has two zones: a sending area where land is downzoned and a receiving area where developers can use TDRs to increase the intensity of development.

Sending Zone

Typically, downzoning lowers the value of property, while development or redevelopment offers a much higher value. For TDR to work, landowners (i.e., sellers) in the sending zone must see the sale of TDRs as comparable to the value to develop or redevelop. Rural landowners keep abreast of what land is sold for, so they have informed expectations as to the difference between development value and agricultural value. When the owners of historic structures see rental income decline relative to surrounding property, demolition becomes appealing.

An important difference between targeted and rural TDR is in the size of the

sending zone. In targeted markets, there are relatively few buildings so important that the city feels they must be preserved. While in rural areas, a large portion of the community is in agricultural use, so preservation requires a large number of property owners to receive and sell TDRs.

Receiving Zone

The receiving zone provides an upzoning that increases intensity when developers purchase TDRs. In both targeted and rural TDR systems, the land is currently zoned and must be upzoned to create a market. With targeted TDR, the districts typically permit mid- to high-rise buildings, and development potential is measured in floor area. So purchasing TDRs permits taller buildings with more floor area. In rural TDR, the receiving zone(s) may be residential or nonresidential. This results in two problems. The first is the marginal value of a TDR. The value of an additional dwelling will differ by the types and size of the dwelling unit. A developer can afford to pay less for an additional townhouse or apartment unit than a single-family unit. Nonresidential floor area also has different values. Consequently, the receiving zone must provide a schedule of the number of TDRs required for different types of residences or uses. The second problem is a desire to preserve too much land.

I strongly recommend hiring an economic consultant to provide recommended values based on the local market conditions. For example, a developer may need to purchase one TDR for a small single-family house, 0.85 TDRs for a townhouse, and 0.65 TDRs for an apartment. Meanwhile, developers may need 1.3 TDRs to build a single-family house larger than 2,600 square feet and 1.25 TDRs for an additional 1,000 square feet of retail space.



Lane Kendig

- ➡ Without a transferable development rights (TDR) system, land owners in both rural and developing areas sell to developers, failing to preserve rural land (left). With a successful TDR system, rural landowners sell development rights to another property in a development area, preserving rural land (right).

TDR Market

For the market to work there must be willing sellers and willing buyers. This requires that the price buyers can pay meets the expectations of the sellers. If a developer's top price is equal to the lowest price landowners expect, few sales will result. When drafting the TDR ordinance, care must be taken to achieve the overlap where most buyers are willing to pay what most sellers expect. If landowners expect between \$2,000 and \$2,500 per TDR, but developers can only pay \$1,700 to \$2,100, there is not a good match, and few buyers or sellers will exist. Ideally, the expected maximum TDR value should be within the range developers are willing pay.

A market study is important for both systems in determining the value developers will pay. There must be enough buyers to purchase the allocated development rights so that when a landowner wants to sell, developers are present. Some jurisdictions provide a TDR bank to address market fluctuations or bolster confidence in the system.

TARGETED TDR

Any city, county, or township can create a workable targeted TDR system. There are many logical targets: historic buildings, historic complexes and surrounding land, and historic sites with no buildings. Another application might be a desired existing use threatened with redevelopment. For example, marinas have waterfront locations that are often desirable for high-end condominium or rental residences. In cities and towns, the target is usually a single building. The TDR program must compensate for the difference between current value and the prospective value as zoned.

With targeted TDR, there are sending sites, not a sending district. In general,

historic districts are not zoned for more intense uses, and TDR is not needed for preservation. This means that there will be only a few sites or targets to protect, and they may be scattered throughout the jurisdiction. The receiving zone regulations need to specify the increase in height and floor area permitted though TDR purchase. The assessment records and construction costs of new buildings may provide an accurate starting point for value of an additional square foot. The result is an ordinance with a list of sending sites and one or more receiving zones. The small number of sending sites means that it is easy to create a large market for TDRs.

Targeted TDR Market Challenges

There are some potential challenges in designing an effective targeted TDR program. If the zoning is more intense than what developers have been building, there will be no demand for TDRs. The market needs to be brisk. If there have been few new buildings in the receiving district in the last 10 years, it is unlikely to be a market for taller buildings.

In targeted TDR, square footage is being transferred. The increase in height needs to be significant enough to provide a marketing advantage to the purchaser. The tall buildings will generally be of similar uses, so there is not likely to be substantial differences in the value of an additional square foot. It is possible that several different receiving districts might be needed if target buildings are in different zoning districts.

Preserving Specific Buildings

For specific historic buildings, the code would provide a list of the TDRs available. Table 1 below shows the calculations used to determine the TDRs available to landowners. In this example, owners receive one TDR per

1,000 square feet of floor area, and a total of 298 TDRs are available.

A market analysis is needed to determine the amount of floor area a developer would get for purchasing a TDR. For example, a TDR could be worth more than 1,000 square feet to incentivize purchases. If we assume each building is in a different district, each district should provide 20 to 50 times the development potential, depending on the strength of the market in larger buildings. The planners need to look at vacant land, areas that might redevelop, existing building height averages, and the market for new building at the maximum intensity. Unless there is demand, simply zoning for taller larger buildings does not create a market.

Preserving Specific Sites

Many townships and counties have historic farms where both the building and the surrounding land is important. TDR can address the entire property or land within a specific radius of the building(s), which could include other properties. The receiving zone might be all parcels in whole or in part within the same zoning district or some portion of the district. There would be specific target sites listed as the sending zone, similar to the table for buildings, but with the TDR being the number of dwellings that could be built on the site.

RURAL TDR PROGRAMS

Since the 1970s, many rural counties have created TDR programs to incentivize agricultural preservation. Conventionally, these programs established separate sending and receiving areas. The county would downzone the sending zone, making agriculture the only permitted use, and landowners would receive TDRs based on a simple formula,

TABLE 1. CALCULATING THE TDRS AVAILABLE FROM PRESERVING SPECIFIC BUILDINGS

a. Historic Building	b. Lot Size (ft ²)	c. Permitted FAR	d. Permissible Floor Area (ft ²) [b * c]	e. Actual Floor Area (ft ²)	Available TDRs [(d - e) / 1,000]
Factory	645,000	0.44	283,900	200,000	83.9
Mansion	32,500	1.00	32,500	13,000	19.5
Church	83,300	2.50	208,300	15,000	193.3

typically rooted in the previously permissible development density (e.g., one TDR per three acres). Developers could only increase density or intensity in receiving zone(s) by buying TDRs.

Rural TDR programs need a careful explanation of density. Most people, including too many planners, assume one-acre zoning allows the owner of 100 acres to build 100 units. Because development requires the installation of roads and stormwater detention, conventional development on 100 acres seldom results in more than 81 dwellings, or a gross density of 0.81 dwellings per acre. This impacts the number of TDRs allocated to the sending zone and increases landowner expectations above what developers can pay.

Market realities have limited the success of conventional, downzoning-driven, rural TDR programs. However, there are six distinct alternatives, several of which retain the existing zoning. Others change the existing zoning, either making clustering the only development option or downzoning all unincorporated areas outside of designated municipal growth areas.

Conventional Rural TDR Market Challenges
Market systems only work if there are willing sellers and willing buyers. If either party

feels the system is inequitable or unrealistic, it will fail. In many counties, the existing rural zoning poses the biggest challenge to designing a successful TDR program. Often, the existing zoning designation for the sending area permits single-family lots of one to five acres in addition to agricultural uses. This sets high development-value expectations compared to agricultural land values and creates a demand-side problem. Even in rural areas with strong growth pressure the receiving area can only preserve a portion of the desired protection area. Furthermore, in most counties, growth is absorbed by cities and villages, further reducing potential purchases. Finally, many counties lack sewer capacity that would facilitate higher-density development in receiving zones. The result is the number of TDRs in the sending area far exceeds the potential market.

The dilemma of conventional rural TDR can be illustrated with the following (simplified) hypothetical example. A county has identified a potential 150,000-acre sending area to protect prime agricultural land and a potential 2,500-acre receiving area to accommodate future demand for 12,500 new dwelling units. The current zoning designation for both areas permits a minimum lot size of one acre per dwelling unit (or, as

highlighted above, a gross density of 0.81 dwelling units per acre). Tables 2 and 3 highlight the mismatch between the demand for and supply of TDRs.

In this example, the existing zoning is the major problem. Less than nine percent of the 150,000 acres of prime agricultural land zoned could be protected in 25 years with TDR. Farmers are unlikely to support a TDR program where there is no market for the vast majority of TDRs. To create a workable TDR program with one-acre zoning, the protection area would have to be reduced to less than 20,000 acres. As Table 3 illustrates, the potential of TDR is closely related to the existing base density. With a base zoning of 10-acre lots (i.e., a gross density of 0.1 dwelling units per acre), preserving a major portion of the prime agricultural area becomes feasible. Giving in to the desire to preserve over market realities is a major cause of TDR failure.

Alternative 1: Noncontiguous Development
The first alternative to conventional rural TDR is, technically, not TDR but clustering by a single landowner across multiple parcels. It is an attractive option because it is simple. It has potential because large farms have multiple parcels, some of which are better

TABLE 2. TDR DEMAND CALCULATION FOR A HYPOTHETICAL CONVENTIONAL TDR PROGRAM

a. Receiving area size (acres)	b. Permissible gross density with TDR (DUs/acre)	c. Existing permissible gross density (DUs/acre)	d. Permissible additional DUs/acre with TDR [b – c]	e. Total number of DUs that need TDRs to accommodate growth [a * d]	f. Exchange rate (TDRs per dwelling unit)	g. Number of TDRs needed to accommodate growth [e * f]
2,500	5	0.81	4.19	10,475	1	10,475

TABLE 3. TDR SUPPLY AND PROTECTED AREA CALCULATIONS FOR A HYPOTHETICAL CONVENTIONAL TDR PROGRAM

a. Sending area size (acres)	b. Existing permissible gross density (DUs/acre)	c. Total number of TDRs allocated to sending area [a * b]	d. Number of TDRs needed to accommodate growth	e. Potential acres preserved through TDR [d / b]	f. Percent of goal [e / a]
150,000	0.81	121,500	10,475	12,932	8.6%
150,000	0.44	66,000	10,475	23,807	15.9%
150,000	0.29	43,500	10,475	36,121	24.1%
150,000	0.20	30,000	10,475	52,375	34.9%
150,000	0.10	15,000	10,475	209,500	69.8%

TABLE 4. THE EFFECT OF SENDING AREA DENSITY ON THE PERCENTAGE OF LAND PRESERVED THROUGH INTRADISTRICT TDR

a. Base density	b. Units on 100 acres [a * 100]	c. Units if TDRs purchased	d. TDRs needed [c - b]	e. Land preserved by purchase (acres) [d / a]	f. Total acres involved [100 + e]	g. Percent open space preserved [e / f]
1.0	100	200	100	100	200	50.0%
0.5	50	200	150	300	400	75.0%
0.33	33	200	167	506	606	83.5%
0.2	20	200	180	900	1,000	90.0%
0.1	10	200	190	1,900	2,000	95.0%

located for development. Only a single landowner is required. When a landowner wants to develop, the farmer can select the parcel most desirable to developers. The zoning must permit clustering as of right and set a minimum size for the clustered lots. The most important element is the smaller cluster lot.

The constraint here is lot size. On-site septic and well require 20,000 square feet per unit. Public utilities provided by the developer are required for smaller lots, permitting the preservation of more land. The system does not require a farmer to sell the entire farm. With 20,000-square-foot lots, the farmer can preserve 50 percent of his land (and 75 percent with 10,000-square-foot lots). The farmer can use proceeds from the sale to enhance farm operations, rather than retiring. At the time of subdivision, the landowner is required to deed restrict to permanent agriculture a portion of the remaining property.

Alternative 2: Intradistrict TDR

The second alternative to conventional rural TDR permits the landowner to develop or sell TDRs to another landowner in the same district. The existing zoning remains in effect. It requires a significant revision to zoning, increasing the maximum density on the receiving site and including a schedule of TDRs required for different land uses. The rural development standard would remain the existing density but would allow the receiving site to have smaller lots. The developer must provide public utilities for this system to accommodate adequate densities.

While less complex than conventional TDR, a residential market study is needed to determine the incremental value of the TDR for different housing products to make it work well for developers.

The existing sending area density determines the amount of land that would be preserved through a sale, and the gross density of the receiving site determines the size of land needed for TDRs. To illustrate, let's assume a 100-acre farm wants to develop with TDRs. The current density is one dwelling unit per acre and, with septic and well, would permit two dwelling units per acre. Purchasing the development rights to add 100 units means purchasing TDRs from 100 acres. If the zoning permitted a lower density, the attractiveness of the sale increases because the potential increase in development is greater. In table 4 we see the impact of the base zoning. As the units permitted on the 100-acre farm decline, the potential to develop with TDRs increases. This creates a stronger market to sell. The density for the seller and the value per acre declines while the value for the developer increases, making a willing sale more attractive.

For landowners, the lower the base density the more attractive it is to sell TDRs. At the upper end of base density, a higher density with TDRs is needed, forcing the provision of public sewer and water. This greatly increases costs because the developer must borrow funds to install public systems at the time of subdivision. On-site systems are the purchaser's expense. Finally, there is a real question as to whether higher densities will be marketable since not all sites in the

zoning district will have desirable locations for higher densities.

Because the landowner can develop or sell TDRs, large areas can be zoned for TDR eligibility. The system preserves open space only where the landowner chooses to sell TDRs, and this remains a weak option except where the base density is low, and development is not highly profitable and the market of large lots low. Offering a density bonus to developers would make sending area TDRs more valuable, increasing the likelihood of transfers.

Alternative 3: Intradistrict TDR With Clustering

The third alternative to conventional rural TDR allows development that is clustered or the sale of TDRs. There need to be two density levels set—one for the cluster development and a second one for development on the receiving site. Land is preserved whether the farmer chooses to develop or sell TDRs. Clustering requires the provision of open space, and zoning designed to preserve the agricultural economy requires a minimum open space ratio of 80 percent. With this open-space ratio, clustered 9,000-square-foot lots have a slightly higher gross density than one-acre lots (i.e., a gross density of 0.83 dwelling units per acre versus 0.81). Thus, if every landowner developed, 80 percent of the preservation area would be preserved (outperforming the conventional TDR example above).

If the developer purchases TDRs, the minimum lot size is 4,500 square feet, and the gross density goes up to 1.25 dwelling

units per acre, with 80 percent open space. A landowner having 100 acres could build 125 homes, while preserving a total of 130.6 acres (see Table 5). As is true in all TDR systems, a lower density for the existing zoning enhances performance, and it is possible to allow more dense hamlets with commercial potential to increase the market performance.

Alternative 4: TDR With Very Large-Lot Agricultural Districts

The fourth alternative to conventional rural TDR is useful in counties where agricultural zoning districts have very large minimum lot sizes (e.g., 35 acres or more). Because the sending area density is low, (i.e., a gross density of 0.029 dwelling units per acre for a 35-acre lot), there would only be 5,674 development rights allocated to the 150,000-acre prime agricultural area compared with a market for 10,475 TDRs in the conventional example above. Even with a much lower development demand, TDR is a better option than 35-acre zoning. If a county allowed either the 35-acre lot or two or more TDRs, a

very workable TDR system would result with traditional sending and receiving zones. The landowners could be given more TDRs, and the developer could build more per TDR to create a greater incentive to sell rather than develop.

Alternative 5: Cluster Option With Very Large-Lot Agricultural Districts

The fifth alternative to conventional rural TDR combines very large lots with intradistrict TDR and clustering. Colorado and other western states do not require subdivision where lots are over 35 acres. The problem with very large minimum lot sizes is that there is no assurance that the entire property would remain in agricultural use. It is common for an owner to devote five or more acres to a house, accessory buildings, and lawn, leaving 30 or fewer acres for agriculture.

If owners routinely devote more than 14 percent of their land to nonagricultural uses, mandating clustering and permitting intradistrict TDR is a better option than simply establishing a 35-acre minimum lot

size. For example, the base ordinance could allow a minimal cluster of two one-acre lots at 91.4 percent open space and density of 0.057 dwelling units per acre. Owners who elect not to build would receive four TDRs per 35-acre parcel. If the owner of a 35-acre parcel bought another 35-acre parcel, six homes could be built: two by right and four with purchased TDRs. Table 6 compares a cluster development on a single 35-acre parcel to multiple clustering with TDR options. If the receiving site owner purchases the development rights from two or more other 35-acre parcels, clustering with TDR exceeds the protection level of the cluster development.

Alternative 6: Mandatory Countywide TDR

The sixth alternative to conventional rural TDR requires intergovernmental cooperation. The unincorporated county (or rural township) serves as the sending area, and one or more municipalities serve as the receiving areas. The majority of growth in most counties occurs in its municipalities. When they participate, it greatly increases the

TABLE 5. PRESERVATION POTENTIAL OF INTRADISTRICT TDR WITH CLUSTERING

a. Option	b. Parcel size (acres)	c. Gross density (DUs / acre)	d. Minimum open space	e. Total dwelling units [b * c]	f. Sending site (acres)	g. Total acres preserved [b * d + f]	h. Percent preserved [g / (b + d)]
Clustering	100	0.83	80%	83	0	80	80.0%
Clustering with TDR	100	1.25	80%	125	(125 - 83) / 0.83 = 50.6	130.6	86.7%

TABLE 6. PRESERVATION POTENTIAL OF INTRADISTRICT TDR WITH CLUSTERING IN A VERY LARGE-LOT DISTRICT

a. Option	b. Parcel size (acres)	c. Minimum open space	d. Sending site (acres)	d. Total dwelling units [4 * (d / 35) + 2]	e. Total acres preserved [b * c + d]	f. Percent preserved [e / (b + d)]
Clustering	35	91.4%	0	2	32	91.4%
	35	80.0%	35	6	63	90.0%
Clustering with TDR	35	80.0%	70	10	98	93.3%
	35	80.0%	105	14	133	95.0%
	35	80.0%	140	18	168	96.0%
	35	80.0%	175	22	203	96.7%
	35	80.0%	210	26	238	97.1%
	35	80.0%	245	30	273	97.5%
	35	80.0%	280	34	308	97.8%

TABLE 7. PRESERVATION POTENTIAL OF MANDATORY COUNTYWIDE TDR

a. Scenario	b. Growth multiplier	c. Dwelling units required to accommodate growth [b * 12,500]	d. Total acres preserved [b * 12,932]	e. Percent preserved [d / 150,000]
Unincorporated county TDR	1	12,500	12,932	8.6%
	2	25,000	25,864	17.2%
Countywide TDR (including municipalities)	4	50,000	51,728	34.5%
	6	75,000	77,592	51.7%
	8	100,000	103,456	69.0%
	10	125,000	129,320	86.2%

market for TDRs, making the preservation of large areas possible. Table 7 compares a hypothetical unincorporated county TDR program seeking to protect 150,000 acres and accommodate 12,500 dwelling units with a countywide TDR program under different growth scenarios. Under a mandatory countywide TDR program, the total county growth can be up to 10 times the unincorporated growth.

This system requires the county and municipalities to identify long-term growth areas for each municipality. The county transfers zoning control of the growth areas to the municipalities, and all zoning changes require the developer to purchase TDRs that cover the increase in density, providing a large market for TDRs. This alternative provides a robust system for the protection of critical resource or agricultural areas and growth management in the county. There are also important secondary benefits:

- Competition between the county and its municipalities is eliminated.
- County planning can concentrate on rural needs.
- The municipalities are better equipped to manage growth and infrastructure improvement.

New legislation is the best way to achieve this (see “Model Enabling Legislation for Rural County Planning and Zoning” in the July 2014 edition of *Zoning Practice* and the model ordinance attached to *Using the New Performance Zoning*). In the absence of state legislation, it is possible to achieve a

countywide TDR program through voluntary intergovernmental cooperation.

CONCLUSIONS

The concept of transferable development rights has been around for 50 years, and it has had mixed success. Targeted TDR for historic preservation has clearly succeeded. However, rural TDR has largely failed. Often, the market simply cannot absorb the supply of TDRs. Instead of giving up on rural preservation, counties should stop relying on Euclidian residential zones to preserve agriculture. Fortunately, there are at least six promising alternatives. States interested in preserving agriculture should mandate countywide TDR. Absent state action, though, it should be possible for county and municipal planners to work toward a countywide system that would benefit both the county and the municipalities to achieve better planning.

ABOUT THE AUTHOR

Lane Kendig is the founder of Kendig Keast Collaborative, a national planning firm. Prior to that he worked in Bucks County, Pennsylvania, and was county planning director in Lake County, Illinois. He has practiced planning for over 45 years across the United States, working for large and small cities, counties, and developers. He is the author of *Performance Zoning*, *Community Character*, *Planning with Community Character*, and *Using the New Performance Zoning*.

Cover: iStock.com/
SimplyCreativePhotography

VOL. 38, NO. 1

The American Planning Association will lead the way to equitable, thriving communities by creating unique insights, as well as innovative and practical approaches that enable the planning community to anticipate and successfully adapt to the needs of a rapidly changing world.

Zoning Practice (ISSN 1548-0135) is a monthly publication of the American Planning Association. Joel Albizo, FASAE, CAE, Chief Executive Officer; Petra Hurtado, PhD, Research Director; Joseph DeAngelis, AICP, and David Morley, AICP, Editors.

Subscriptions are available for \$95 (U.S.) and \$120 (foreign). Missing and damaged print issues: Contact APA Customer Service (312-431-9100 or subscriptions@planning.org) within 90 days of the publication date.

©2021 by the American Planning Association, which has offices at 205 N. Michigan Ave., Suite 1200, Chicago, IL 60601-5927, and 1030 15th St., NW, Suite 750 West, Washington, DC 20005-1503; planning.org.

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means without permission in writing from APA.

Printed on recycled paper, including 50-70% recycled fiber and 10% postconsumer waste.



American Planning Association

Creating Great Communities for All

ZONING PRACTICE

AMERICAN PLANNING ASSOCIATION

205 N. Michigan Ave.

Suite 1200

Chicago, IL 60601-5927



WHICH MARKET FACTORS MAKE TRANSFERABLE DEVELOPMENT RIGHTS WORK?

