

Proceedings of the 2011 Land Policy Conference



Balance Sheet and Cash Flow Effects

	Own	Rent	
	\$1,000,000	\$0	Building
	\$0	\$100,000	Cost
	\$120,000	\$0	Rent Saved
	\$0	\$100,000	Bond Income

Revenues 276,294

Flow Approach and Davis-Heathcote

Health

higher education

hospitals

housing shelter

human

Grazing

EWR Newark Liberty Int

FLL Fort Lauderdale Int

HNL Honolulu Int

IAD Washington

IAH Houston

IND Indianapolis

JAX Jacksonville

JFK New York

LAX Los Angeles

LGA New York

MIA Miami

MDW Chicago

MEX Mexico

ONT Ontario

PHX Phoenix

SEA Seattle

SFO San Francisco

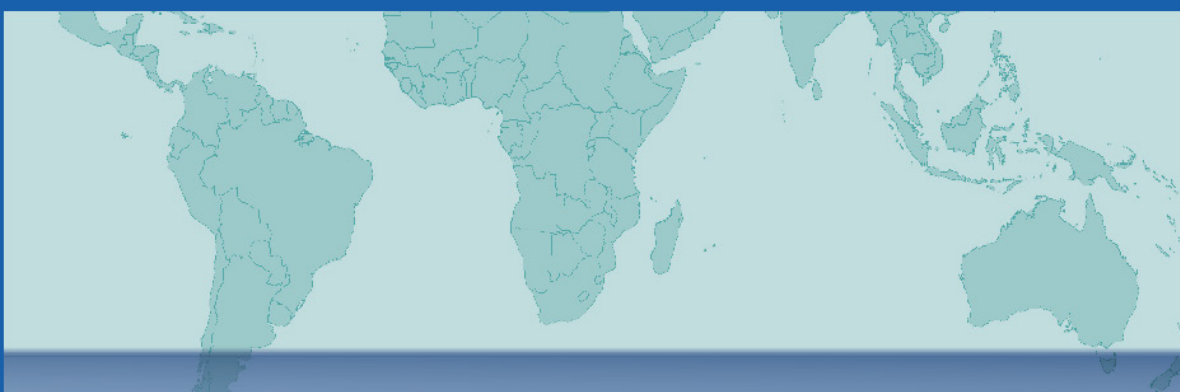
SLC Salt Lake City

TOL Toronto

WAS Washington

YUL Quebec

VALUE CAPTURE and LAND POLICIES



Edited by Gregory K. Ingram and Yu-Hung Hong

Value Capture and Land Policies

Edited by

Gregory K. Ingram and Yu-Hung Hong

L LINCOLN INSTITUTE
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Experimenting with Land Value Capture on Western State Trust Land

Susan Culp and Dan Hunting

In the intermountain West, particularly in Arizona, a significant amount of developable land near growing urban areas is state-owned trust land. This little-known and often misunderstood category of land is playing an increasingly important role in shaping development patterns within western megaregions. Over the past decade, increasing attention has been paid to potential value capture on state trust land, owing to its high development potential and amenity value. The concept of value capture—and the mechanisms to regain incremental land value increases resulting from planning and zoning activities, infrastructure investment, and orderly, high-quality development patterns—is traditionally viewed in the context of local governments working with private development interests. The West presents a unique case, however, where value capture opportunities may exist on state-owned land.

The revenue generated from state trust land supports a variety of public beneficiaries, the largest of which is the public schools. In Arizona this revenue is primarily realized through land sales and lease rentals. In the case of sales, trust land agencies typically sell only the raw land and are often constrained by constitutional or statutory requirements governing such dispositions. Their ability to gain the highest value increment in land sales—which takes place at the time when raw land becomes planned, zoned, entitled, served by infrastructure, and eventually developed—is considerably limited. The potential public gains associated with higher revenue returns, and in turn increased income for trust beneficiaries, would argue for greater emphasis on value capture in this context. Value capture on state trust land has the potential to yield a two-part benefit to the community: (1) increased revenue for public beneficiaries of the trust; and (2) value to local jurisdictions through orderly development.

This chapter explores the opportunities for and limitations of value capture on state trust land, lessons learned from recent experiments to capture higher value from trust land, and reforms that would enable greater returns to trust beneficiaries. Case studies highlight innovative approaches for additional value capture opportunities possible through the strategic development of state trust land holdings, including parcels of sufficient size to enable the planning and development of an entire city, as with Superstition Vistas in Arizona.

Background on State Trust Land in the West —————

HISTORY OF THE STATE TRUST LAND GRANTS

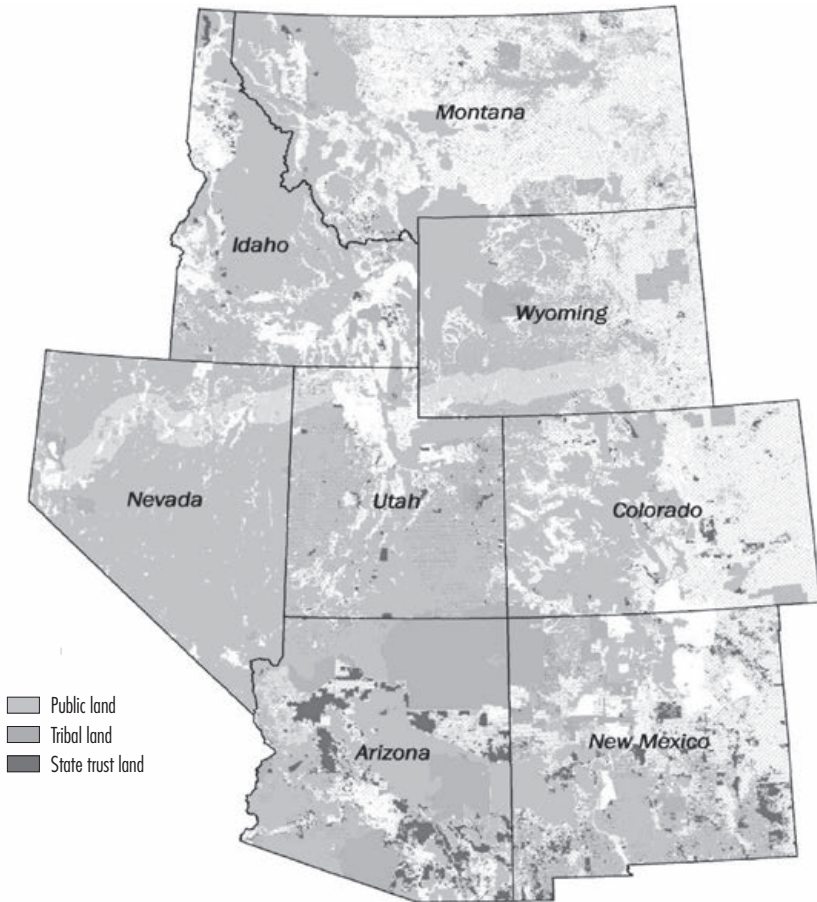
A glance at any map of the western United States showing land ownership will reveal not only vast federal landholdings, representing U.S. Forest Service and park land, Bureau of Land Management land, and Native American reservations, but also a significant portion of state trust land. Trust land comprises 46 million acres in the American West (Culp, Conradi, and Tuell 2005). Figure 15.1 shows state trust land, as compared with other public land and tribal land, in the intermountain West.

The origins of state trust land date back to the first decade after the Revolutionary War, with the Land Ordinance of 1785 and the Northwest Ordinance of 1787. After the war, the new nation faced three interrelated problems: a flood of immigrants pushing west, a need to clarify ownership of the new frontier, and massive war debts and cash flow difficulties. The one thing the federal government had in abundance was land. These two ordinances established a congressional policy of organizing settlements through the rectangular survey system, raising funds through the sale of land, and granting land to the states to support public institutions, primarily education. This focus on education reflected the Jeffersonian belief that an educated public was essential for a successful democracy.

This system of land conveyance continued and expanded through the process of state accession. Ohio, which entered the Union in 1803, was the first state to receive a federal land grant in support of public schools. The rectangular survey system provided a mathematically consistent means of identifying grants for this purpose. Section 16, located at the center of every township, was given to the state to support schools. Originally, this land was reserved to the local township, with the idea that a school would be built on the land, placing education at the heart of every community.

Many of the states that received grants, however, sold all or most of the land shortly after receiving it. (See the appendix for an outline of trust land holdings by state.) But many western states, which typically entered the Union much later than those in the East, retained a significant amount of their original conveyances. These states also received, by acreage, larger grants than states in the East. That was because early land grants were based on a vision of an agrarian lifestyle. The arid land of the West, however, had little value for farming. The extractive

Figure 15.1
State Trust Land in the Intermountain West, 2011



Source: Sonoran Institute (2011).

industries that would come to utilize the natural resources there—mining, logging, and ranching—were poorly organized and brought little revenue at the time. The federal government recognized that for the western states to generate income to support education, they would require larger quantities of trust land. The grants were thus expanded to include additional sections for education (2, 32, and 36). Not only did the federal government’s view of the amount of land needed by western states change, but its approach to the disposition of public land changed as well. This evolving approach became focused less on immediate

disposal for profit and more on long-term management. Western states' retention of state trust land mirrors this evolution.

BENEFICIARIES OF STATE TRUST LAND AND THE TRUST MANDATE

Over time, the institutions that benefited from state trust land expanded to include not only schools, but also universities, hospitals, penitentiaries, and other public entities. However, these beneficiaries saw limited returns from the trust land. The conveyances were made with no requirements or restrictions on the management or sale of the land in question. Most states rushed to sell or dispose of the land, raising money that was quickly spent. Other states squandered their holdings through incompetence or corruption. As Congress gained experience with the conveyance process, grants were made with increasingly complex and stringent requirements governing the use and disposal of the land. Many states began to impose additional restrictions of their own on the use of revenue from the land. Among these were minimum land sale prices, requirements for fair market value and public auctions for trust land dispositions, and other management constraints that endure to this day.

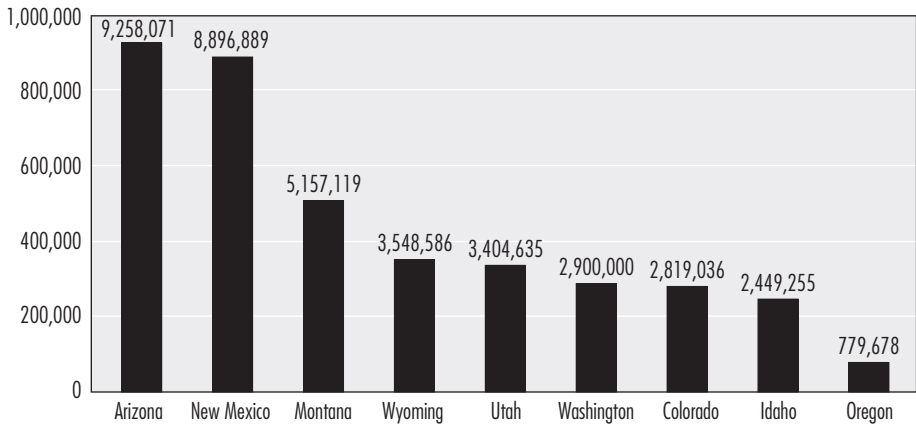
The concept of a “trust responsibility” regarding the management of state trust land emerged when four western states—Idaho, Montana, South Dakota, and Washington—recognized that a responsibility existed in their state constitutions. In 1910 the Arizona–New Mexico Enabling Act, which created the two states, marked the last state trust land conveyance in the lower 48 states and explicitly stated that the land was to be held in trust for public beneficiaries. The U.S. Supreme Court later found that a legal trust had been established through the act, and other western states also concluded, through ensuing court decisions, that their conveyances were held in similar trust relationships (*Ervien v. United States*, 251 U.S. 41 [1919]).

While each state's enabling act, constitution, and statutory requirements are unique with respect to the administration and management of state trust land, several common themes run through western states that still hold trust land: (1) the land is held in trust for specific beneficiaries; (2) the state has a fiduciary duty as a trustee to manage the land for the benefit of these beneficiaries; and (3) the fiduciary duty created by the trust requires that the land be managed in a manner that is in the best interests of the trust (Culp, Conradi, and Tuell 2005).

Twenty-three U.S. states continue to hold state trust land grants. Several of them have only a small amount of land remaining. Others have retained a significant portion of their trust land. For example, Nevada is left with only 3,000 of its initial 2.7 million acres, while Arizona still has 9.3 million of its original 10.2 million acres (Arizona State Land Department 2010). Nine states in the intermountain West—Arizona, Colorado, Idaho, Montana, New Mexico, Oregon, Utah, Washington, and Wyoming—hold approximately 85 percent of the trust land in the United States (see figure 15.2).

Western state trust land has typically been managed for traditional extractive industries predominant in the West around the turn of the twentieth century.

Figure 15.2
State Trust Land Acreage in the Intermountain West, 2010



Source: Sonoran Institute (2011).

Most of this land is used for grazing or agriculture under short-term leases. Forested land is used for timber production. Mineral or fossil fuel resources located on trust land deliver substantial revenues through subsurface development.

ARIZONA: A UNIQUE CASE FOR VALUE CAPTURE

Arizona, being one of the last states to receive trust land grants, still has 9.3 million acres of trust land. Due to the state's late entry into the Union, many of the original sections that would have been granted by Congress were already designated for tribal reservations, national parks or monuments, railroad land grants, and other federal dispositions. This enabled Arizona to receive a large amount of consolidated holdings near urban centers through an in lieu selection process. As a result, Arizona now holds more than a million acres in and around growing cities. More than 335,000 acres of trust land are within current urban boundaries, and 1.4 million acres are within three miles of existing metropolitan areas (Hunting 2011). Overall, trust land comprises more than 30 percent of the developable land within the Sun Corridor megaregion, the fastest-growing area of the state (Arizona Town Hall 2007).

Arizona's unique advantages in the Sun Corridor real estate market make it an intriguing case study for value capture in the state trust land context. The Arizona State Land Department (ASLD), like other trust land agencies, focuses on managing trust land to generate revenue in support of the beneficiaries—primarily K–12 public schools. Through efficient and orderly development strategies, infrastructure investments on state trust land, and improved urban form patterns,

the ASLD has the potential to generate significant revenue for the beneficiaries, as well as broader community value.

State Trust Land Revenue Generation in Arizona —————

Revenue generation on Arizona's state trust land can be divided into roughly three categories: (1) surface uses, such as agriculture or ranching; (2) subsurface uses, such as mineral development; and (3) trust land sales. As mentioned previously, Arizona receives the lion's share of its revenues through permanent land dispositions for residential or commercial development, rights-of-way, and other sales.

SURFACE USES

The vast majority of Arizona's trust land holdings, approximately 8.4 million acres, are leased for grazing (Arizona State Land Department 2010). Although this constitutes about 90 percent of the state trust land, these leases bring in only a small portion of the total revenues from trust land activities—approximately \$2.4 million in fiscal year 2010. Agricultural leases account for approximately 160,000 acres and bring in \$4.4 million (Arizona State Land Department 2010). Grazing and agricultural leases are administered under 10-year terms that can be granted upon application without public auction. Lease values for grazing land are established by a set formula developed by the state's Grazing Land Valuation Commission (Culp, Conradi, and Tuell 2005).

Commercial leases and rights-of-way account for a little over 202,000 acres of Arizona's trust land, but generate more than \$26 million in revenue for the beneficiaries (Arizona State Land Department 2010). Unlike grazing and agricultural leases, commercial leases are commonly administered using 10- to 99-year lease agreements and are generally required to be issued at fair market value, subject to periodic adjustment.¹

SUBSURFACE USES

The ASLD issues three types of leases for subsurface uses (i.e., mineral development): (1) leasable minerals, which include base or precious metals or unique industrial minerals; (2) garden-variety minerals, including construction and landscaping materials commonly referred to as aggregate or fill; and (3) energy minerals, which include oil, gas, and geothermal resources (Culp, Conradi, and Tuell 2005). Mineral development on Arizona trust land brought in just over \$3 million in fiscal year 2010 (Arizona State Land Department 2010).

1. Ariz. Rev. Stat. § 37-335.02(A).

TRUST LAND SALES AND DISPOSITIONS

As mentioned earlier, a considerable percentage of Arizona's state trust land is located in or around rapidly growing metropolitan areas. It is no surprise that the largest portion of revenues comes from land sales for development. Although data from fiscal year 2010 shows no revenue from land sales (no doubt due to the economic recession), preceding years saw record-breaking sales of trust assets for real estate development. In fiscal year 2005, land sales accounted for more than 80 percent of total incoming revenues, nearly \$120 million (Culp, Conradi, and Tuell 2005). Land sales in fiscal year 2006 were even higher, coming in at \$544 million (Arizona State Land Department 2006). Urban trust land in Arizona has significantly higher value than rural land. Between fiscal years 2003 and 2009, urban trust land sold for an average of \$125,557 per acre, while rural trust land averaged \$27,975 per acre (Hunting 2011).

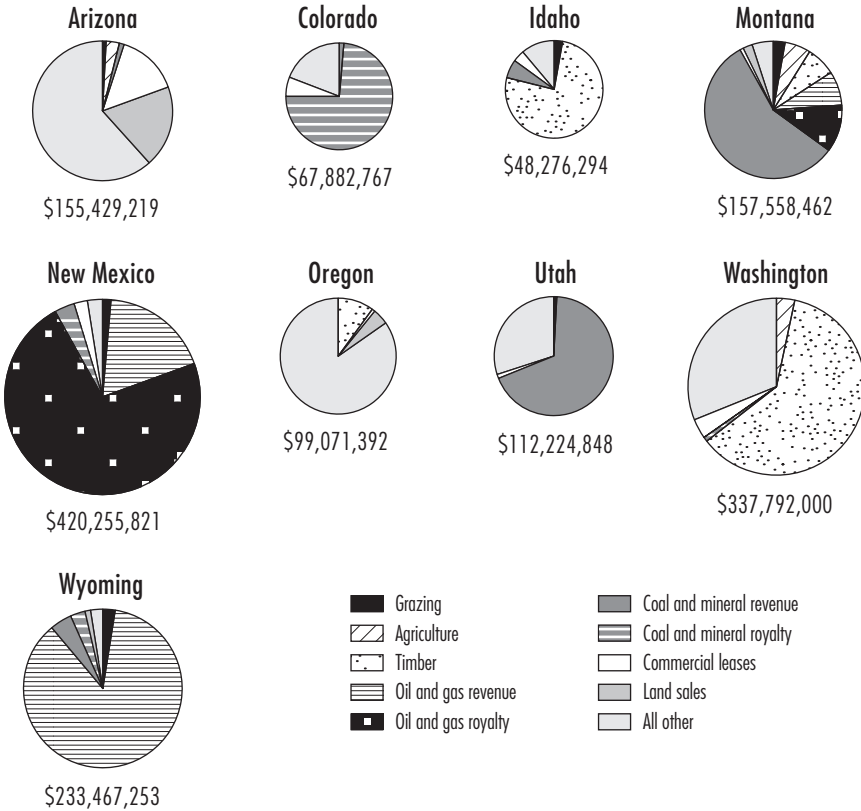
The complex disposition rules that govern Arizona state trust land sales require that the land be conceptually planned prior to sale in a manner that corresponds roughly to local governments' comprehensive planning process. A key step in this process is the identification of land that is best suited for development, which requires the ASLD to consider a variety of factors prior to making that determination, including the availability of water and infrastructure and whether the area is near or adjacent to existing development.

Cross-State Comparison of Revenue Generation —————

In comparing trust land activities in Arizona with those in other western states, it is clear that Arizona stands apart in that its state trust land holdings have the highest potential to shape urban development patterns and have significant potential to benefit from their proximity to growing urban areas. New Mexico generates the most income from state trust land in the West, receiving its revenues primarily through the development and leasing of rich oil and gas deposits. Wyoming and Colorado earn a significant portion of their revenues from oil, coal, and other mineral development. Washington, Idaho, and Oregon earn the majority of their trust land revenues through timber sales. All of these states earn the bulk of their revenues from the natural resources that are present on or under their state trust land holdings. Arizona, as the second-highest state trust land revenue generator prior to the recession that began in 2007, is unique in that most of its trust land income comes through land sales and commercial leasing. Figure 15.3 shows trust land revenues by sector for the nine intermountain states.

Although Arizona seems to have an edge in revenue generation through land disposition, and thus makes an excellent case study for examining value capture strategies associated with real estate development, land sales for development may emerge as a significant new source of income for trust beneficiaries in other states as the economic recovery continues. Many western states have trust land holdings located in the path of development near growing cities and megapolitan regions (see Figure 15.4). As these areas continue to expand, trust land nearby will have

Figure 15.3
Total State Trust Land Revenues in the Intermountain West, 2010



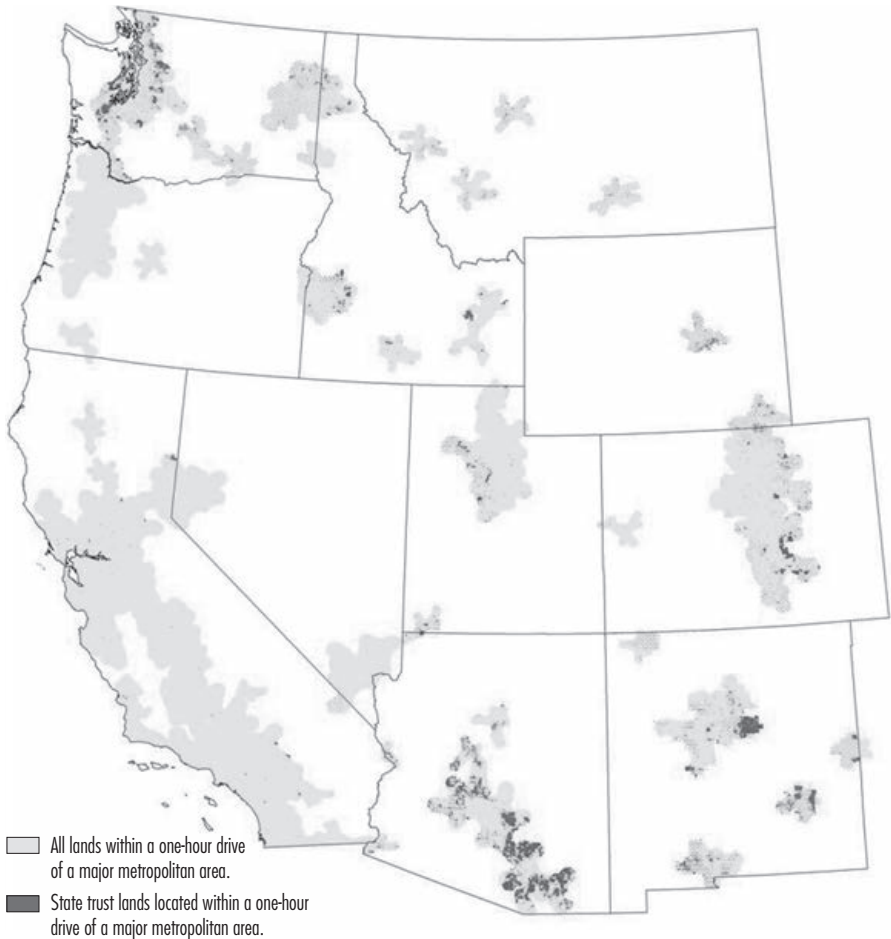
Source: Sonoran Institute (2011).

higher development potential and enable further experimentation with mechanisms for value capture for both local governments and trust beneficiaries.

Advantages and Tools for State Trust Land Managers in Value Capture

VALUE CAPTURE FOR STATE TRUST LAND MANAGERS

Of the traditional land value capture mechanisms available, joint development seems to be the one best suited to maximizing value capture by state land trusts at the time of sale or through annual lease payments. State land trusts have large landholdings and little or no capital to make improvements that will increase

Figure 15.4**State Trust Land Located Near Growing Urban Areas in the Intermountain West, 2005**

Source: Sonoran Institute (2005).

land value. Partnering with private developers who have access to the requisite capital, financing expertise, and experience in land development would seem to be a solution for capturing increasing land value. The specific arrangements for these public-private partnerships necessarily depend on legal restrictions associated with state trust land in the various states and on the situations of the particular land parcels to be developed.

State trust land also offers unique opportunities for value capture by trust beneficiaries through a variety of other mechanisms, including long-term leasing; recognition of “patient capital” in the timing of sales and dispositions; and large-scale, collaborative master planning efforts on large, contiguous state trust land parcels located near urban centers, such as Superstition Vistas in Arizona and Mesa del Sol in New Mexico.

The strategic use of value capture mechanisms by local jurisdictions in partnership with state land departments can increase the potential for recovery of greater revenues for trust beneficiaries. This is particularly true in Arizona, where the real estate development potential of trust land is especially high. Value capture not only would fulfill the local government’s desire to recover some of the value created through public investment on soon-to-be-developed land; it also would increase the value of nearby state trust land that could subsequently be sold, thereby increasing returns to trust beneficiaries.

In Arizona a large percentage of state trust land lies directly in the path of development, near the metropolitan areas of Phoenix and Tucson. Through careful disposition planning in collaboration with local governments, trust land managers could identify those parcels that would have the highest auction value based on the location of existing or planned infrastructure, higher-density zoning, or the siting of other community amenities. Because state trust land managers often sell only the raw land at auction, their ability to recover increases in value resulting from public investments is limited. By prioritizing sales where trust land has already seen value increases as a result of planning, capital improvements, or development of nearby areas, trust land managers could recover increased revenue above the value of raw land. In such cases, the concept of “patient capital” is useful to keep in mind.

The low carrying costs associated with trust land allows states more flexibility in the timing of infrastructure improvements. Private developers need to ensure that transportation and utility improvements are developed in close coordination with one another and with surrounding development so that projects can start generating revenue as quickly as possible. With no financial obligations on the land itself, state trust land managers need not rush to develop as a private landowner with debt obligation on the land would. The state needs to finance only the cost of the physical infrastructure itself, which reduces the debt burden considerably.

PATIENT CAPITAL

Research conducted by Gary Pivo for Western Lands and Communities, a joint venture of the Lincoln Institute of Land Policy and the Sonoran Institute, examined the financial benefits that trust land managers can gain for beneficiaries by being patient and holding land suitable for development until it is “ripe” rather than selling it for lower short-term prices (Pivo 2006). In his working paper, Pivo discusses the virtue of patience in achieving both the optimal sales price for developable state trust land and the optimal societal benefit resulting from

the development of the land. Although many state trust land holdings in Arizona are located near growing urban areas, many are not yet within the urban service areas themselves. For state trust land managers, it may be more efficient for those landholdings to remain off the table for the time being, allowing the urban area to grow closer. At that point, the land could be sold at a much higher market price for higher-density housing and commercial centers that would offer shorter commuting times. The community would benefit from avoiding the costs of providing services for discontinuous, “leapfrog” development, and the resulting, more orderly development pattern would be consistent with planned infrastructure and amenity investments.

Pivo outlines three key strategies that could help state trust land managers exercise patience in making development decisions: (1) evaluating the price path to development; (2) understanding the timing of the real estate market; and (3) identifying site qualities that will increase the value of the parcel itself (Pivo 2006).

First, with regard to the price path to development, the closer a given parcel is to being “ripe” for development, the higher the value of the land. To achieve that higher value, however, a private developer must wait to maximize his investment and endure additional costs through property taxes by holding the land until it can generate revenue (Pivo 2006). As state agencies, trust land managers are able to avoid carrying costs on land because they are not subject to property tax assessments and are in a position to wait until the price of the land is at its highest point before selling.

Second, real estate market cycles are a complicating factor in determining the highest land value with respect to the price path to development. Land prices can vary widely over time and are affected by broader economic trends and fluctuations, land supplies, and absorption rates for raw land based on construction lags and over- or underbuilding. Understanding the real estate market cycles and overlaying the price path to development with the broader trends in market prices can enable state trust land managers to time sales to coincide with cycle peaks, where the price is above long-term trends (Pivo 2006).

Lastly, site qualities influence land prices. These attributes can include the location of the parcel, the types of amenities it contains or is adjacent to, and the tax structure or regulatory framework associated with it. These features may change over time based on urbanization and development patterns, siting of infrastructure, and changes in tax or regulatory policies. As expressed by Pivo (2006), the largest value increases due to site qualities occur with changes in zoning, infrastructure services, and accessibility, as well as annexations by neighboring jurisdictions. State trust land managers would be well served to take the time required to create such value and work with local governments to obtain advantageous upzoning and access to infrastructure and other services that would enhance the development value of their holdings. Through such proactive negotiation with local jurisdictions, state trust land managers can direct value increases to parcels held in trust for public beneficiaries, recovering greater sales values from

developers. Local governments would also see benefits from such arrangements, magnifying the value to the public. Because conventional value capture mechanisms can still be in place once state trust land is sold to a developer, recovery of local government public investment is still possible.

LONG-TERM LEASING

As discussed earlier, the highest-value leasing arrangements for the ASLD are connected with long-term commercial leasing of property. These leases are typically awarded as 10- to 99-year agreements that are auctioned to the highest and best bidder, subject to approval by the State Land Department Board of Appeals, according to Arizona statute.² For a lease to be awarded for more than 10 years, the state land commissioner must make a finding that the lease is in the best interests of the trust. Lease rentals must also be consistent with fair market value.³ Lease rentals are also subject to periodic review and adjustment, which is essential in agreements with very long terms, such as 99 years.

Commercial leases on state trust land are structured such that the improvements made on the land remain the property of the leaseholder. The lease may include an amortization schedule that would help trust land managers assess the value of those improvements if and when the lease ends (Culp, Culp, and Hunting 2011b). One constraint on state trust land managers is their inability to finance the construction of infrastructure that would add value, and thus rental returns, to the property being leased. This restriction is a result of funding constraints and practical limitations of the ASLD's administrative and operational capacities.

One alternative that has been used in limited cases is a lease structure that offers lower rental costs in exchange for infrastructure improvements on the property. Desert Ridge, a master-planned area in the north Phoenix metropolitan area, highlights recent experimentation with capturing value to finance infrastructure on state trust land. The case, discussed in detail later in this chapter, experienced some limited success, as well as some difficulties. Generally speaking, however, long-term leasing of commercial development in emerging urban areas could provide significant value capture opportunities for state trust land managers as those areas develop, densify, and redevelop over time.

CONTRIBUTORY VALUE AND NONMONETARY CONSIDERATION

Growing public interest in the preservation of ecologically sensitive state trust land has sparked intense interest in the concept of contributory value and non-monetary consideration. Laws governing the management of state trust land in Arizona mandate that all trust land holdings must be sold to the highest bidder at

2. Ariz. Rev. Stats. § 37-132(A)(7) and § 37-214(B).

3. Ariz. Rev. Stat. § 37-281.02.

public auction, regardless of the conservation, open space, or cultural or historical value of the land.

The literature is rife with economic analyses demonstrating the value premium that open space and parks designations have on adjacent parcels that are either already developed or slated for development. As the demographics and economic drivers in the West have changed, public pressure to conserve open space to meet aesthetic, ecological, or recreational values has greatly increased. State trust land managers have felt this pressure, and many have sought to find mechanisms to conserve valuable open space and wildlife habitat without violating their fiduciary mandate as trustees.

Strategies that enable trust land managers to capture the value associated with open space have been explored by state agencies, conservation advocates, and community groups. One reform that has been proposed in Arizona is the constitutional recognition of nonmonetary consideration in the valuation of state trust land. Through this mechanism, the ASLD would be able to set aside land identified as having value for conservation or open space purposes, then recover that value through the premiums gained by adjacent or nearby trust land.

There have been attempts in the Phoenix area to transfer the value of open space designations on state trust land to nearby or adjacent commercial and residential development of other trust land. The rapidly urbanizing town of Cave Creek, which encompasses significant state trust land holdings, has an expressed goal of preserving its native desert setting and balancing its population growth and subsequent development through the conservation of open space. An agreement was reached between the Town of Cave Creek and the ASLD that attempted to transfer the value of preserved open space to nearby trust land. The ASLD held a 4,000-acre parcel suitable for open space and recreational uses, as well as a smaller parcel appropriate for residential and commercial development. A deal was proposed whereby the town would buy the larger parcel of open space land at the appraised nominal value of \$600 per acre, and in exchange it would rezone the smaller parcel (which would still belong to the state) as residential and commercial property at a higher density in order to recover the value from the open space designation. The basis for this agreement was the notion that the presence of the preserved open space would drive up the value of the nearby residential land, garnering increased revenue for the ASLD.

This plan has yet to be implemented. Concerns have been raised over the valuation of the potential open space land and whether the town would have offered higher-density rezoning without the exchange of value from the open space designation. Other cities within the Phoenix metropolitan area have paid between \$14,000 and \$32,000 per acre for open space land in recent sales, causing the \$600 per acre appraisal to seem artificially low. When a change of management occurred at the ASLD, the department tabled the plan, illustrating the difficulty of pursuing transactions involving nonmonetary consideration absent constitutional or statutory guidelines for the agency (Arizona State Land Department 2010).

JOINT VENTURES AND PARTICIPATION CONTRACTS

When a landowner is land rich but cash poor, a common development technique is to enter into a joint venture. A partner is engaged to provide the capital and other expertise needed to develop the land, and when revenues begin to flow, they are divided among the partners according to a formula agreed on at the start of the joint effort. State trust land departments in the West, with their vast landholdings and, in most cases, limited resources and capacity, present themselves as good candidates for exploring these types of arrangements. In Arizona, however, joint ventures are specifically prohibited by the state constitution.⁴

There have been creative attempts to bypass this restriction through participation contracts between the ASLD and developers. Although this mechanism is similar to a joint venture, the constitutional prohibition of the mingling of state and private assets complicates the crafting of contracts. Additionally, the law dictates that until 10 percent of the purchase price has been paid to the state, development of the property cannot take place, and partial patents for the property cannot be issued.⁵ These requirements place potential partners in the position of having to invest considerable sums of money up front, long before returns can be expected on the investment, making the option financially less attractive to private investors and developers.

Limitations on State Trust Land Managers in Value Capture ———

The courts have interpreted Arizona's trust responsibility strictly over the years and have ruled that all trust land transactions must be handled through public auctions, with sales and leases completed at no less than "true value" (Culp, Conradi, and Tuell 2005, 62). In theory, this mechanism should allow full recovery of value increases to trust land resulting from public investments in infrastructure. However, the value of raw land absent any infrastructure improvements will remain low, and the ASLD does not have the authority or the resources to efficiently improve its landholdings in ways that will increase their value for the trust.

The ASLD holds a number of large parcels in its portfolio. One of these, known as Superstition Vistas, is a contiguous 275-square-mile parcel on the eastern edge of the Phoenix metropolitan area. Once the 50-year build-out horizon is reached, it is anticipated to have a population of one million residents. Land values will increase significantly when all the public infrastructure improvements are in place, but legal restrictions make construction of such improvements on trust land difficult.

4. Ariz. Const. art. IX, § 7.

5. Ariz. Rev. Stat. § 37-239.

LASSEN V. ARIZONA COMPLICATES RIGHTS-OF-WAY

For 50 years, the ASLD provided rights-of-way across trust land to the state highway department free of charge, bypassing the fair market value auction process required for state trust land dispositions. The logic was that the economic loss to the trust resulting from rights-of-way would be more than offset by an increase in the value of the surrounding trust land resulting from the improved infrastructure. However, a strict interpretation of Arizona's constitutional auction requirements for state trust land, provided by the U.S. Supreme Court in the 1967 decision in *Lassen v. Arizona*, rendered this practice illegal.⁶ The *Lassen* decision held that the trust must always obtain full compensation for its land and that granting rights-of-way without charge was an unacceptable violation of the state's trust responsibility.

LIMITED FINANCING OPTIONS AVAILABLE FOR INFRASTRUCTURE DEVELOPMENT

Mechanisms available to a local government for value capture include property tax levies, tax increment financing (TIF) and special taxing districts, impact fees and other development exactions, joint venture agreements, and improvements to the land. These mechanisms are commonly used by local governments to ensure infrastructure provision in an orderly and low-cost manner and to recover value increments associated with good planning. However, they cannot currently be used in their traditional form within the context of state trust land. Trust land is governed by a variety of enabling acts and constitutional and statutory provisions that prevent trustees from taking advantage of certain value capture strategies.

The charges levied through TIF, special taxing districts, and so forth cannot be collected until the trust land has been sold or leased, so the state is effectively precluded from constructing infrastructure or making other improvements in advance of development (Culp, Culp, and Hunting 2011a). State trust land is not taxed and is constitutionally immune from lien. Therefore, it is quite difficult to issue bonds for state trust land, since bonds issued under an improvement plan would typically use the underlying land as collateral in the event of a default. Since liens against state land are illegal, no collateral is available on state trust land.

The financing of infrastructure or other improvements to enhance the quality of state trust land holdings is also restricted by the legal environment in which each state land department operates, as well as by the obligations of the fiduciary trust. In Arizona the ASLD is allowed to enter into agreements for the provision of roads, sewer and water, energy, and other infrastructure on trust land. Through this mechanism, the private sector builder of these improvements is authorized to be reimbursed by later purchasers or lessees of the property (Culp,

6. *Lassen v. Arizona ex rel. Arizona Highway Department*, 385 U.S. 458 (1967).

Culp, and Hunting 2011a). This tool requires significant up-front capital, making this type of financing considerably more expensive on state trust land than on privately held land.

Special assessments or charges associated with improvement plans can be vital in enabling the use of local impact fees to finance infrastructure on trust land. However, the use of this mechanism is subject to two important limitations. First, such fees can only be imposed against the interest held by the lessee in a commercial lease and/or the owner of a certificate of purchase on the affected land; it cannot be imposed against state land itself. As such, any costs associated with such an assessment must be held in abeyance until the land is sold or leased.⁷ Assessment charges levied against state land in connection with improvement plans and other special assessments are reported to the ASLD, including payment of such charges as a condition of each lease and certificate of purchase.⁸ Where charges are held in abeyance, accumulated back charges are assessed against a purchaser or lessee as a condition of the lease or sale.⁹ Failure to pay assessment charges is a basis for default under a lease or certificate of purchase.¹⁰ Similarly, in the event of default, the only recourse available to the city or special district is against the interest held in the state land; the state land itself cannot be subject to lien and cannot be foreclosed on as a result of any default.¹¹ Second, the assessment cannot be imposed against any existing lessee or certificate of purchase holder unless the person consents to the inclusion.¹² Absent such consent, an improvement plan must generally be put in place prior to development sales and leases, since financing must generally rely on prospective purchases and leases.

These limitations fundamentally undermine the ability of local jurisdictions and special taxing districts to provide bond financing for public infrastructure and other improvements on state trust land (Culp, Culp, and Hunting 2011b). Under normal conditions, infrastructure bonds can be secured and repaid from assessments levied against the land that is benefited by them (Culp, Culp, and Hunting 2011b). Even in the event of default, these assessments function as a lien on the land, which can, under the worst-case scenario, be foreclosed on. In the case of trust land, however, because only a lessee or purchaser's interest in trust land can be subject to lien, there is no opportunity to foreclose on the underlying land in the event of default. This effectively prevents the use of bonds to construct

7. Ariz. Rev. Stat. § 37-335.02(A)(5).

8. *Ibid.*

9. Ariz. Rev. Stat. § 37-335.03.

10. Ariz. Rev. Stat. § 37-335.03(C).

11. Ariz. Rev. Stat. § 37-335.04.

12. Ariz. Rev. Stat. § 37-335.02(B).

infrastructure on trust land—limiting access to the most common and cheapest forms of financing for public infrastructure or improvements.

Experiences with Value Capture on State Trust Land: Case Studies

DESERT RIDGE, ARIZONA

Desert Ridge is a large commercial and residential development constructed on a large state trust land parcel in north Phoenix. In 1990 the ASLD worked in conjunction with the City of Phoenix on a master plan to develop 5,700 acres of state trust land slated to be bisected by a major freeway. The close proximity of this land to the fashionable and affluent north Scottsdale region, and the easy access to the rest of the metropolitan area provided by the freeway, made it highly desirable to the development community. The plan included industrial areas south of the freeway and a resort and golf course, along with residential and intensive commercial development, north of the freeway. The ASLD would sell the residential land outright to developers, but the commercial and industrial areas would be leased under the customary 10- to 99-year agreements, with revenues flowing to the ASLD.

The legal restrictions imposed on trust land in Arizona complicated the development of infrastructure. An early proposal for the site would have directed 100 percent of the lease revenues from 300 acres of commercial land to the development of infrastructure for the remaining land. The ASLD would not consent to this agreement, which was perceived to be in conflict with its mission to generate immediate revenue for the beneficiaries of the trust. Several other mechanisms were considered before settling on a complex, yet innovative, strategy that allowed infrastructure to be developed incrementally as the project progressed.

Under this plan, the ASLD attached the value of essential, but as yet unbuilt, infrastructure (such as roadways, water service, and sewer connections) to the appraised value of land that was otherwise bare desert absent any improvements. The first buyer of land within Desert Ridge would agree to construct oversize infrastructure on his parcel. The second and subsequent buyers would be charged impact fees designed to cover their share of the infrastructure. These impact fees would be used to compensate the first buyer for the “excess” infrastructure that had been built. The second buyer might also install larger roads and pipes than would be needed for his parcel, which would extend development opportunities to a third parcel. In this case, the third buyer would in turn be assessed development fees to cover the second buyer’s costs (Culp, Culp, and Hunting 2011b).

The ASLD sold 19 parcels totaling more than 2,500 acres in Desert Ridge between 2000 and 2007. At the peak of Arizona’s real estate boom, auction prices in Desert Ridge were headline record breakers for the ASLD, with some parcels exceeding \$1 million per acre (Arizona State Land Department 2006). During that seven-year period, winning bids at auction exceeded the appraised value

of the land by an average of 39 percent, with some bids nearly three times the appraised value (Arizona State Land Department 2004). Nearly 200 bids were placed at some auctions. The ASLD trumpeted Desert Ridge as a major success and held it up as a model of innovative development of state trust land.

With the collapse of Arizona's real estate market beginning in 2007, Desert Ridge encountered significant challenges to which the model, while innovative, was ill equipped to adapt. The infrastructure of each parcel was linked to that of adjoining parcels, so that when one owner ran into financial difficulty or insolvency, his neighbors were left with unfinished roads and sewers. If one project suffered a delay, the linked nature of the infrastructure construction agreements meant that many other projects might also be delayed, pushing back the time for owners and leaseholders to begin collecting revenues.

Additional problems arose as competing developers brought a lawsuit against the City of Phoenix for giving incentives to some developers that were perceived as overly favorable and as developers in turn took one another to court. As prospective owners defaulted on their certificates of purchase, the land reverted to the ASLD, and the payments that had been made reverted to the department's expendable funds. In fiscal year 2009, the ASLD reported that nearly \$33 million in purchase agreements had been forfeited to the department, many for Desert Ridge properties.

The economic downturn has also affected the commercial properties located at the heart of the development. As land values have fallen, commercial tenants across Arizona have been unable to negotiate lower lease payments for their properties. Although commercial leases issued by the ASLD can be adjusted every five years, the formulas used to calculate the adjustments do not allow lease rates to decrease consistent with the economic recession. Furthermore, the terms of existing leases cannot be amended without taking the agreement back through the auction process.

The Arizona legislature has recently passed a measure to provide some relief for commercial tenants holding leases on state trust land currently in excess of market value. The bill allows lessees to defer payments to the ASLD for up to five years.¹³ Although full payment of the original lease is required, presumably the extended payment plan will offer commercial lessees some means of weathering the recession while retaining their leaseholds. There is some question of whether it is appropriate for the private sector to receive such relief at the expense of the trust beneficiaries, however, which essentially shifts risk and costs to the state in commercial leasing arrangements.

MESA DEL SOL, NEW MEXICO

Mesa del Sol, in Albuquerque, New Mexico, is a 12,400-acre master-planned community located on trust land held by the New Mexico State Land Office

13. State of Arizona, S.B. 1228, 50th Legis., 1st reg. sess. (2011).

(Lincoln Institute of Land Policy, Sonoran Institute, and the City of Tucson 2005). The site is wedged between the Albuquerque downtown area and the region's airport, making it a prime location for commercial and residential development. The Mesa del Sol project was initially approved as a joint public-private partnership of the City of Albuquerque, the University of New Mexico, and the New Mexico State Land Office. Since it involved state trust land, the project fell under the direction of the land office, whose long-term goal was to establish Mesa del Sol as a model for mixed-use sustainable development in the desert Southwest.

Within the City of Albuquerque, planned communities are required to meet a series of policy objectives outlined in the Planned Communities Criteria Policy Element, adopted in 1991 (Lincoln Institute of Land Policy, Sonoran Institute, and the City of Tucson 2005). A key component of this policy is the requirement that public services for planned communities in Albuquerque be provided at no net expense to the city. As part of the partnership agreement, the state land office voluntarily came to an agreement with the City of Albuquerque that the community would be built under its "no net expense" criteria and required that ensuing development pay for itself over time. The planning and visioning process occurred in fits and starts through the 1980s and 1990s, but ultimately the vision for Mesa del Sol emerged as a series of 39 mixed-use urban and rural villages, interspersed with commercial and employment centers, all linked by an extensive multimodal transportation system and open space network (Lincoln Institute of Land Policy, Sonoran Institute, and the City of Tucson 2005). The horizon for build-out was envisioned at 50 years. In 2002 the state land office selected Forest City Covington NM as the primary developer for 9,000 acres within the project. Three thousand acres were sold to the developer outright, with the remaining 6,000 leased by Forest City Covington NM.

The master plan developed for Mesa del Sol plots out 1,400 acres for industrial and commercial development; 4,400 acres for residential and retail use; 3,200 acres for parks and open space; and 800 acres for schools and universities. However, Forest City Covington NM faced a challenge in meeting the "no net expense" requirement for development of the site. So the developer proposed the use of a tax increment development district (TIDD) to tap into future tax revenues to pay for up-front infrastructure expenses (Good Jobs First 2007). Local and state officials agreed to the creation of the TIDD, and the arrangement provided the developer with 67 percent of gross receipts and property taxes at the city and county level, with two state agencies agreeing to the provision of 75 percent of future tax revenues (Good Jobs First 2007). State land commissioner Ray Powell negotiated the agreement, which provided that the state land office, and subsequently the trust beneficiaries, would receive 100 percent of the original land value, plus 14 percent of the increased value created through Forest City Covington NM's investments (Mesa del Sol 2011).

The Mesa del Sol project was energized by early success in attracting employment centers to the development. In 2005 Advent Solar chose Mesa del Sol as the site for its new photovoltaic panel research, production, and manufacturing

plant, bringing with it 1,000 jobs. Later, in 2008, SCHOTT, another solar manufacturing company, announced plans to build a 200,000-square-foot manufacturing facility at what has become known as Mesa del Sol's renewable energy cluster. When the bottom dropped out of the housing market in 2007, Forest City Covington NM's plans to continue residential development were tabled. In 2010, however, the plans were dusted off, and in 2011 the developer broke ground on the first residential neighborhood, with model homes anticipated to be completed by July 2012.

It is still too early to know whether Mesa del Sol represents a good model for value capture for both state trust land managers and local communities. One could argue that the New Mexico State Land Office succeeded in obtaining higher revenues for the trust beneficiaries through the deal by securing not only the raw land sales value, but also a percentage of the development's upside land values. In addition, Mesa del Sol has certainly excelled in bringing up-front employment and investment to the development.

Yet the TIDD agreement has generated intense debate among state and local officials on whether such arrangements, which lock up large portions of future revenues, are in the long-term fiscal interest of the state. In 2009 legislative deadlock on a vote to create another TIDD reflected the growing controversy and uneasiness about New Mexico's willingness to surround such infrastructure with financing mechanisms (Childress and Jennings 2009). One concern was that the size of the TIDDs being offered, in Mesa del Sol's case estimated to be more than \$500 million, created an unacceptable level of risk for the state and local jurisdictions, jeopardizing communities' ability to secure future revenues for operating budgets and other capital investments. Other concerns centered on whether TIDD revenues would eventually be enough to repay the bonds generated, or whether future receipts would far exceed the bond payments, thus creating unanticipated windfalls for developers. Local communities also worried that TIDDs could further erode their tax base if residents and businesses relocated to a TIDD development that boasted better infrastructure and amenities than the surrounding area.

Reforms to Enable Improved Value Capture Opportunities on State Trust Land

The most promising path to greater value capture on state trust land for public beneficiaries involves site improvements prior to the sale or disposition of the land through investments in infrastructure, master planning, and accessibility for development. These mechanisms could allow trust land managers to realize value increments associated with transforming raw land into parcels that are zoned, entitled, and ready for development.

State trust land managers have recently focused on improved mechanisms for infrastructure siting and financing. Infrastructure investment on trust land could

yield considerable advantages to beneficiaries by generating the highest possible value for developable land. Good planning in advance of development also provides significant societal benefits in defining transportation, utility, and green infrastructure corridors that are efficient, well connected regionally, and capable of supporting a more sustainable urban form. (Examples of green infrastructure include wildlife migration paths, washes and floodplains, groundwater recharge sites, and trails.)

Improvements to the process could create value for both the trust and the public. Potential reforms to better enable this type of value capture on state trust land include (1) long-term infrastructure planning by trust land agencies and local jurisdictions working in cooperation; (2) the creation of an exception for the constitutional restriction against liens on state land; and (3) the expansion of state land agencies' ability to engage in participation contracts in partnership with developers and local jurisdictions (Superstition Vistas Steering Committee 2011).

LONG-TERM INFRASTRUCTURE PLANNING

In Arizona more than 90 percent of the revenues generated by trust land come through the sale and commercial leasing of land located in urban areas, which constitutes a very small subset of the total trust portfolio. The agency sells an average of about 2,500 acres per year out of the trust's total holdings of 9.3 million acres (Hunting 2011). However, because of the nature and location of these dispositions, they have a significant impact on growth patterns within Arizona's urban areas, as well as a strong influence on the location and timing of public infrastructure improvements, particularly transportation. At the 91st Arizona Town Hall on land use in the twenty-first century, which convened in October 2007, the critical importance of state trust land to future development patterns in the Sun Corridor megaregion was widely recognized, and improved tools to manage and promote long-term planning and sustainable smart growth on state trust land emerged as a key recommendation of participants (Arizona Town Hall 2007).

Arizona's 1998 "Growing Smarter" legislation requires the ASLD to work in conjunction with local planning efforts to develop five-year disposition plans for state trust land within urban areas.¹⁴ While this approach has improved the ASLD's planning process overall, enabling the department to more proactively target its limited resources to high-priority disposition opportunities, the legislation's primary effect has been the ASLD's effort to rank and prioritize the development of state trust land holdings with high development potential and market value. The ASLD has yet to establish a long-term strategy to improve the market value of its larger portfolio of trust land holdings over time. The statutory authority reflected in Growing Smarter, which enables the ASLD to "make

14. Ariz. Rev. Stat. § 37-132(A)(3).

long-range plans for the future use of state lands in cooperation with other state agencies, local planning authorities and political subdivisions,” would seem to provide similar authority to engage in collaborative planning efforts for long-term infrastructure and amenities. To date, however, it has not been considered in that manner. Providing further clarity by statute could make this implicit authority more explicit and foster greater activity within the ASLD on this front.

EXCEPTION FOR CONSTITUTIONAL RESTRICTION AGAINST LIENS

A constitutional exception that would allow state trust land to be included in a special taxing district such as a community facilities district (CFD) could allow trust land managers improved value capture. These districts would need to ensure that certain criteria were met, including adequate security to avoid risk of forfeiture on the lien (Culp, Culp, and Hunting 2011b). For a CFD to accomplish the ASLD’s goals for value capture through infrastructure improvements on state trust land, it would need to identify methods of both creating a revenue stream and securing the state trust land such that the bonds issued under the CFD would be marketable (Culp, Culp, and Hunting 2011b).

For this approach to be successful, the methodology and implementation of the CFD would need to happen early enough in the development cycle for a large project to provide a viable alternative for financing public infrastructure, while still having an identified revenue stream that could support a marketable bond issuance. The CFD would also need to identify a sufficient method of securing the trust land against the lien created by a bond obligation, so that the trust land would not be forfeited if things were to go badly with the project (Culp, Culp, and Hunting 2011b).

Past efforts to consider this type of reform have relied on the availability of a variety of credit forms allowing developers to secure a trust land lien. In those cases, developers could use purchase payments or lease rentals as collateral rather than the underlying land. Practically speaking, however, in the current credit market, this type of financing may be quite difficult to obtain.

EXPANSION OF PARTICIPATION CONTRACT AUTHORITY

By far the most promising avenue for value capture on state trust land involves an expansion of the authority to engage in participation contracts. Such frameworks, statutorily allowed in many states, provide for the formation of a limited joint venture. They allow a developer to obtain access to state trust land at a substantially lower cost in exchange for providing the agency, and thus the trust beneficiaries, with a percentage of the revenues after the land is developed (Culp, Culp, and Hunting 2011b). This is the type of structure that enabled Mesa del Sol to proceed, with trust beneficiaries receiving a percentage of the development’s profits.

While many agencies can already use this mechanism for making site improvements and increasing the revenue-generating potential of their trust land holdings, it is not currently widely viewed as a desirable option. Under current

statute, the mechanism has some noteworthy drawbacks. The patent rules governing the ASLD, for example, create significant challenges for participation agreements. The ASLD can only issue a patent for less than the fair market value of the property in cases where the remaining value of the parcel is greater than the amount owed under the certificate of purchase, and where the value already paid for the acreage subject to the partial patent exceeds the per acre purchase price for the entire property (Culp, Culp, and Hunting 2011b). This substantially limits the flexibility of the ASLD in designing participation deals.

Participation contracts require a relatively high down payment from the private partner, and for large-scale projects, the developer must provide a substantial amount of additional financing up front. This limits the potential size of a project, and as such places a high financing burden on the developer and makes investment unlikely. Statutes require the developer to cover high up-front costs—in some cases more than 10 percent—as well as assume increased risk prior to reaching the entitlement stage of planning and zoning (Culp, Culp, and Hunting 2011b). This can create an incentive for the developer to delay entitlements for as long as possible to avoid incurring those costs, which is contrary to the interests of the trust in recovering the maximum amount of value from the project.

The statutes and rules governing participation contracts could be relaxed in key ways to enable this tool to be more broadly and successfully used in Arizona. For example, up-front payments could be made smaller and more palatable to developers, perhaps by requiring a lower, nonrefundable down payment on the property to improve its marketability. Or the ASLD could allow the issuance of patents on the property pursuant to a negotiated participation contract rather than through the less flexible process currently required.

State trust land managers have been leery of participation contracts and joint ventures because of the additional risk exposure. These risks could reasonably be addressed through contract provisions that mitigate them on a case-by-case basis. It is unclear, however, whether the ASLD or other trust land agencies, during these times of budget cutbacks, reduced staff, and dramatically lower operating capacity, would have the capability, expertise, and sophistication to evaluate and manage such risks in joint venture agreements.

Lessons Learned on Value Capture in the State Trust Land Context

Most western states have benefited from high-value energy, mineral, and timber resources on their trust land, but Arizona has few of these assets in its trust portfolio. Traditionally, the bulk of Arizona's trust land has been leased for cattle grazing, generating little revenue for trust beneficiaries. State trust land throughout the western United States, but particularly in Arizona, has the potential to generate significantly more revenue for trust beneficiaries than is currently collected. Arizona has more than a million acres of trust land in close proximity to

urbanizing areas, where land values are likely to show significant increases in the near future.

Although their trust responsibilities can be highly restrictive, state trust land managers have some advantages in creating additional value on their holdings through the provision of infrastructure that will facilitate the development of open land into higher-value uses. States such as Arizona, with large portfolios of trust land in proximity to developing areas, may be able to guide development in a way that benefits their holdings. This may be especially important when new areas are opened for development on the urban fringes, as there is evidence that returns from infrastructure investments are maximized when new markets are opened (Federal Highway Administration 1996). As some of this land is converted from low-value grazing to high-value commercial and residential uses in the coming years, managing this transition will be greatly complicated by the complex legal environment of the trust land system.

The safeguards that were built into the system to protect the trusts from unscrupulous land dealings now often prevent land managers from realizing the full value of state trust land. Additionally, state agencies, particularly trust land managers, are highly risk averse and sensitive to controversy. This presents yet another challenge, as real estate transactions require some level of risk taking and innovation. State land managers are reluctant to engage in new or untested approaches that may fail in a highly visible manner, even if those approaches might promise high returns in most instances. Using Mesa del Sol and Superstition Vistas as high-profile case studies can serve to inspire stakeholders to support reform and innovative practices on state trust land and provide some degree of political cover for trust land managers.

If Arizona is to take advantage of its transformation from an agrarian frontier to a globally connected urban economy and direct the proceeds of that change to the beneficiaries of trust land, it will need to institute some key constitutional and statutory changes to align its century-old trust land rules with the realities of the modern economy.

To maximize the revenues from trust land, changes need to be made that will allow the efficient construction of transportation, energy, and water infrastructure on trust lands in a timely manner. These changes will allow state land departments to capture the large increase in land value that takes place when parcels are planned, zoned, and supplied with the infrastructure needed for development. With few exceptions, state land departments currently lease and sell raw land, leaving others to realize the gains that result from preparing parcels for further development.

Several changes to the state trust land system would allow trust managers to position their holdings to generate higher returns for trust beneficiaries.

- Allow traditional bond financing for projects on state trust land. In Arizona, at least, this option is largely unavailable due to the constitutional prohibition against liens on state property. Since the land itself secures

bond projects, it is potentially the subject of a lien in the event of forfeiture of the bond. If bonds cannot be issued for projects on state trust land, the most common form of infrastructure financing is unavailable to a large portion of the developable land in the West.

- Allow true joint ventures involving state trust land. States with trust land are in the position of having a large amount of land with low carrying costs, but lacking the capital and expertise to develop the land into higher uses. This would be an ideal situation for a joint venture with the private sector. Typically, one partner would contribute the land for the project, and the other would provide the financing and knowledge of the development process, with revenues divided between them. The Arizona Constitution prohibits these arrangements. The state does allow participation contracts as a limited form of joint venture, but additional flexibility is needed to facilitate the smooth development of infrastructure improvements.
- Improve long-term planning practices within state trust land departments to encourage active collaboration with local governments in planning for infrastructure and the orderly development of trust land. This would better enable trust land managers and local officials to prepare and develop state trust land in a manner that returns increased revenues to trust beneficiaries and creates value returns to the local community in the form of rational development patterns and increased land values.

Despite these challenges, achieving value capture from state trust land should not be seen as an unrealistic goal. The sheer size of the trust land holdings in states such as Arizona and New Mexico, and the location of these holdings in areas that are expected to see significant growth in coming years, indicate that trust land will continue to be an important and valuable asset for the states. State land departments also have a key advantage over their counterparts in the private sector when it comes to developing trust land. While most landowners incur continual financing costs throughout the development process, state land trusts are free from this burden, just as they are from taxes on their land. These low carrying costs give land managers greater flexibility in the timing of projects, allowing them to wait until market conditions are optimal before proceeding with development.

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APPENDIX: STATE TRUST LAND HOLDINGS BY STATE

Year	State	Sections Granted	Common Schools (acres)	All Public Institutions (acres)	All Land Grants (acres)	Surface Acres Remaining
1803	Ohio	16	724,266	1,447,602	2,758,862	0
1812	Louisiana	16	807,271	1,063,351	11,441,032	807,271
1816	Indiana	16	668,578	1,127,698	4,040,518	0
1817	Mississippi	16	824,213	1,104,586	6,097,064	838,329
1818	Illinois	16	996,320	1,645,989	6,234,655	0
1819	Alabama	16	911,627	1,318,628	5,007,088	0
1821	Missouri	16	1,221,813	1,646,533	7,417,022	0
1836	Arkansas	16	933,778	1,186,538	11,936,834	974,137
1837	Michigan	16	1,021,867	1,357,227	12,143,846	0
1845	Florida	16	975,307	1,162,587	24,208,000	0
1846	Iowa	16	1,000,679	1,336,039	8,061,262	0
1848	Wisconsin	16	982,329	1,320,889	10,179,804	76,000
1850	California	16	5,534,293	5,736,773	8,852,140	469,000
1858	Minnesota	16	2,874,951	3,167,983	16,422,051	2,500,000
1859	Oregon	16, 36	3,399,360	3,715,244	7,032,847	772,000
1861	Kansas	16, 36	2,907,520	3,106,783	7,794,669	0
1864	Nevada	16, 36	2,061,967	2,223,647	2,725,666	3,000
1867	Nebraska	16, 36	2,730,951	2,958,711	3,458,711	1,300,000
1876	Colorado	16, 36	3,685,618	3,933,378	4,471,604	3,000,000
1889	N. Dakota	16, 36	2,495,396	3,163,476	3,163,552	708,206
1889	S. Dakota	16, 36	2,733,084	3,432,604	3,435,373	803,000

(continued)

APPENDIX
(continued)

Year	State	Sections Granted	Common Schools (acres)	All Public Institutions (acres)	All Land Grants (acres)	Surface Acres Remaining
1889	Montana	16, 36	5,198,258	6,029,458	602,945,851	5,100,000
1889	Washington	16, 36	2,376,391	3,044,471	3,044,471	2,900,000
1890	Idaho	16, 36	2,963,698	3,663,965	4,254,448	2,500,000
1890	Wyoming	16, 36	3,472,872	4,248,432	4,345,383	3,600,000
1896	Utah	2, 16, 32, 36	5,844,196	7,414,276	7,507,729	3,500,000
1907	Oklahoma	16, 36	2,044,000	3,095,760	3,095,760	750,000
1912	New Mexico	2, 16, 32, 36	8,711,324	12,446,026	12,794,718	8,900,000
1912	Arizona	2, 16, 32, 36	8,093,156	10,489,156	10,543,931	9,300,000
	Total		78,195,083	97,587,810	804,870,960	48,800,943