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SYMPOSIUM

Governing Communities by Auction

Abraham Bell† & Gideon Parchomovsky††

INTRODUCTION

Auction theory has developed as a branch of game theory in the economic literature.¹ Through the development of sophisticated auctioning mechanisms, auction theorists have been able to come up with ways to allocate goods and services to their highest-value users. Well-designed auctions accomplish this

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¹ See Colin F. Camerer, *Behavioral Game Theory: Experiments in Strategic Interaction* 5–6 (Princeton 2003).

result by decoupling a bidder's bid from the price she will pay if she wins. Auctions based on decoupled bids have a unique ability to reveal private information and overcome information asymmetries.² Furthermore, they have the potential to do so at a lower cost than conventional market transactions.

In this Article, we seek to harness the insights of auction theory to devise an improved governance model for common-interest communities, perhaps the most important real-property form today.

The rise of the common-interest community has transformed the landscape of residential property in the United States. In 1970, only 2.1 million Americans lived in common-interest communities—condominiums, cooperatives, and various other mixtures of common and private ownership in a single real estate development.³ Today, that number exceeds 60 million.⁴ Common-interest communities have become the favorite property form of developers. In California, for example, 60 percent of all new residential construction in the 1990s fell into this category.⁵ This trend is unlikely to change in the future.⁶

A salient feature of common-interest communities is their dependence on collective-choice mechanisms to manage the affairs of the members and plan future development. The most common mechanism used for this purpose is voting.⁷ Voting, while eminently democratic, can also lead to choices that do not fully represent the interests of constituents. The preferences collectively expressed through voting can be unstable,⁸ manipulated

² The most famous example may be a Vickrey auction. See William Vickrey, *Counterspeculation, Auctions, and Competitive Sealed Tenders*, 16 J Fin 8, 20–23 (1961).

³ Paula A. Franzese, *Privatization and Its Discontents: Common Interest Communities and the Rise of Government for "the Nice,"* 37 Urban Law 335, 335 (2005); Foundation for Community Association Research, *Statistical Review 2012: For US Homeowners' Associations, Condominium Communities, and Housing Cooperatives, National and State Data* (2012), online at <http://www.cairf.org/foundationstatsbrochure.pdf> (visited Mar 2, 2014).

⁴ Foundation for Community Association Research, *Statistical Review* at *5 (cited in note 3).

⁵ Tracy M. Gordon, *Planned Developments in California: Private Communities and Public Life* 3 (Public Policy Institute of California 2004).

⁶ See Karen Christensen, Book Review, 10 Berkeley Planning J 126, 127 (1995). Christensen points out that common-interest communities serve the economic interest of all relevant stakeholders, including homeowners, developers, local governments, and planners. *Id.*

⁷ For detailed discussion, see Part I.

⁸ See Kenneth J. Arrow, *Social Choice and Individual Values* 2–3 (Cowles 2d ed 1963); Jean-Pierre Benoit and Lewis A. Kornhauser, *Social Choice in a Representative Democracy*, 88 Am Polit Sci Rev 185, 186–87 (1994).

by chairpersons who strategically dictate the order of votes,⁹ and subject to majority oppression of minority interests.¹⁰ Up-or-down voting is also insensitive to the intensity of preferences, so that a wave of indifference can overcome the intensely desired wishes of a small number.¹¹ Proposals may be strategically crafted in order to allow some to free ride on the preferences of others.¹² Collective decision making, when delegated to representatives, can also fall prey to the well-known agency problem: representatives may prefer their own interests to those of their constituents.¹³

In this Article, we suggest that well-designed auctions can provide common-interest communities with a better decision-making mechanism. An auction's main advantage over voting lies in its ability to reflect the intensity of participants' preferences. At the same time, auctions avoid many of the strategic manipulations and much of the minority oppression to which votes are prey. Although auctions come with their own imperfections, in many cases they outperform voting.

The Article proceeds as follows. In Part I, we discuss the rise of common-interest communities and detail their common governing mechanisms. Part II turns to the extant literature on collective decision making, with a focus on auction theory. Part III combines the lessons of the first two parts and advances a new governance mechanism for common-interest communities. Part IV explores variations on the mechanism and addresses potential flaws.

⁹ See, for example, William J. Carney, *Does Defining Constituencies Matter?*, 59 U Cin L Rev 385, 420–21 (1990) (“By ordering the choices available to the board, the chairman can assure that his individually preferred choice is selected from among mutually exclusive outcomes.”).

¹⁰ Stewart E. Sterk, *Minority Protection in Residential Private Governments*, 77 BU L Rev 273, 319–30 (1997) (“As we have seen, despite its apparent advantages, majority rule risks undervaluing minority interests. By outvoting the minority, the majority avoids confronting and evaluating minority concerns.”).

¹¹ See, for example, Francesco Parisi, *The Market for Votes: Coasian Bargaining in an Arrovian Setting*, 6 Geo Mason L Rev 745, 748 (1998) (“The inability of the democratic process to capture the intensity of the voters' preferences is a by-product of the generally espoused principle that every individual is entitled to one—and only one—vote.”).

¹² See Zohar Goshen, *Controlling Strategic Voting: Property Rule or Liability Rule?*, 70 S Cal L Rev 741, 750–53 (1997).

¹³ See, for example, Michael C. Jensen and William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J Fin Econ 305, 308 (1976).

I. DECISION MAKING IN COMMON-INTEREST COMMUNITIES

In this Part, we briefly describe the history and development of common-interest communities, before turning to their governing structures.

A. The Development of Common-Interest Communities

Modern homeowners' associations and condominium associations, the "two basic types of residential community associations,"¹⁴ came relatively late to the United States.¹⁵ In the era before condominiums, homeowners sometimes gathered together for common governance in private street associations,¹⁶ co-ops,¹⁷ and suburban homeowners' associations.¹⁸ Only in the 1960s were condominiums finally recognized as legitimate forms of property ownership.¹⁹ By the 1970s, cooperatives, condominiums, and suburban-style attached houses "had become popular nationally and comprised the major share of new owner-occupied housing."²⁰ Since that time, the share of common-interest housing among all newly constructed, owner-occupied homes has fluctuated, ranging from a low of 7 percent to a high of 37 percent.²¹ Numerically, the number of cooperatives and condominiums increased from around 400 thousand in 1970 to nearly 1.7 million by the start of 1975.²² Condominiums so gained in popularity during this time "that some experts declared the rental apartment obsolete."²³

¹⁴ Wayne S. Hyatt, *Common Interest Communities: Evolution and Reinvention*, 31 John Marshall L Rev 303, 319–20 (1998).

¹⁵ See Patrick J. Rohan, *Drafting Condominium Instruments: Provisions for Destruction, Obsolescence and Eminent Domain*, 65 Colum L Rev 593, 593 (1965).

¹⁶ Marc A. Weiss and John W. Watts, *Community Builders and Community Associations: The Role of Real Estate Developers in Private Residential Governance*, in Advisory Commission on Intergovernmental Relations, ed, *Residential Community Associations: Private Governments in the Intergovernmental System?* 95, 98 (1989).

¹⁷ Matthew Gordon Lasner, *No Lawn to Mow: Co-ops, Condominiums, and the Revolution in Collective Homeownership in Metropolitan America, 1881–1973* *36 (unpublished PhD dissertation, Harvard University, 2007), online at <http://gradworks.umi.com/3265184.pdf> (visited Mar 2, 2014).

¹⁸ Weiss and Watts, *Community Builders and Community Associations* at 98–99 (cited in note 16).

¹⁹ See Randy K. Lippert, *Governing Condominiums and Renters with Legal Knowledge Flows and External Institutions*, 34 L & Pol 263, 264 (2012).

²⁰ Lasner, *No Lawn to Mow* at *212 (cited in note 17).

²¹ *Id.*

²² *Id.* at *521.

²³ *Id.*

Most recently, the number of residents in common-interest communities in the United States increased from 2.1 million in 1970 to 62 million in 2010, an increase of 2,852 percent,²⁴ while at the same time the population of the United States increased from 205 million to approximately 310 million, an increase of only 51 percent.²⁵ There are no signs yet of any slackening in common-interest communities' popularity.

B. Governing Mechanisms in Common-Interest Communities

Governing mechanisms in common-interest communities can roughly be grouped into three main types: homeowners' associations, condominium associations, and cooperative organizations. All three prototypes involve a mix of property-law and corporate-law doctrines.

In homeowners' and condominium associations, each owner owns a separate unit, and owners are bound together legally primarily by servitudes.²⁶ Servitudes are bilateral agreements enforceable under property law.²⁷ For servitudes to govern effectively, each of the many owners has to be bound to the same set of servitudes, which can then be enforced by any owner against another owner. In homeowners' and condominium associations, the servitudes are generally aggregated in a large document called the covenants, conditions, and regulations (CCR).²⁸ Unfortunately, servitudes cannot provide a full legal framework for

²⁴ Foundation for Community Association Research, *Statistical Review* at *5 (cited in note 3).

²⁵ US Census Bureau, *Population: 1900 to 2002*, online at <http://www.census.gov/statab/hist/HS-01.pdf> (visited Mar 2, 2014); US Census Bureau, *US and World Population Clock*, online at <http://www.census.gov/popclock> (visited Mar 2, 2014).

²⁶ Lee Anne Fennell, *Contracting Communities*, 2004 U Ill L Rev 829, 830:

These private developments, which go by a variety of names in the literature, are remarkably diverse. They can be either gated or ungated, can comprise anything from a single condominium building to a large neighborhood of single-family homes, and may be targeted at consumers in a variety of income strata. However, all such developments are organized around the same principle: the use of servitudes to privately control land use.

See also 2 Restatement (Third) of Property: Servitudes § 6.2 (2000) ("A 'common-interest community' is a real-estate development or neighborhood in which individually owned lots or units are burdened by a servitude that imposes an obligation that cannot be avoided by nonuse or withdrawal.")

²⁷ 1 Restatement (Third) of Property: Servitudes § 1.1 (2000) ("A servitude is a legal device that creates a right or an obligation that runs with land or an interest in land.")

²⁸ See David C. Drewes, Note, *Putting the "Community" Back in Common Interest Communities: A Proposal for Participation-Enhancing Procedural Review*, 101 Colum L Rev 314, 316 (2001).

governing common-interest communities. After the CCR is agreed upon, new issues may come along, requiring new collective action. Thus, the CCR generally creates a continuing governance mechanism that forces unit owners to follow new decisions made by an agreed-upon institution.

The governance mechanism for ongoing decision making in condominiums is the condominium association, which is generally comprised of all owners,²⁹ with membership mandatory and a condition of ownership.³⁰ However, the association is a separate legal entity with “the power to govern the community and to provide for the care, upkeep, and physical maintenance of the common elements.”³¹ The association, in turn, typically delegates this power to a board.³² The board “is responsible for making all the business decisions that affect the association. It has fiduciary responsibility, legal oversight, and overall management responsibility for all of the association’s business.”³³

The constitutive document of a condominium is called a declaration, or master deed.³⁴ If we analogize a condominium to a state, the declaration is its constitution.³⁵ The declaration is often very difficult to amend.³⁶ The Uniform Condominium Act recommends that residential condominiums require at least 67 percent of the votes of the association to amend the declaration.³⁷

The bylaws constitute the next most important document governing a condominium. The bylaws are the rulebook by which the association and the board function.³⁸ Bylaws provide a specific infrastructure under which the condominium will be governed.³⁹ The bylaws are more specific than the declaration in that they “spell out the policies and procedures that will be

²⁹ Donna S. Bennett, *Condominium Homeownership in the United States: A Selected Annotated Bibliography of Legal Sources*, 103 L Library J 249, 272 (2011).

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ Bennett, 103 L Library J at 273 (cited in note 29) (emphasis and quotation marks omitted).

³⁴ *Id.* at 267.

³⁵ *Id.* For further discussion of the analogy between common-interest communities and states, see Uriel Reichman, *Residential Private Governments: An Introductory Survey*, 43 U Chi L Rev 253, 254–56 (1976).

³⁶ Bennett, 103 L Library J at 268 (cited in note 29).

³⁷ Uniform Condominium Act § 2-117 (National Conference of Commissioners on Uniform State Laws 1980).

³⁸ Bennett, 103 L Library J at 268 (cited in note 29).

³⁹ *Id.*

employed in the everyday governance and administration of the complex.”⁴⁰

At its most basic level, a condominium is governed by its rules and regulations. The rules of a condominium state the rules of behavior of the condominium and, like the declaration and bylaws, are binding on each owner.⁴¹ Usually, rules take effect upon a vote of the board, without unit owner agreement, as long as owners receive a copy of the rules adopted.⁴²

Homeowners’ associations are also governed by their own bylaws, rules, and regulations.⁴³ They vary from condominium associations only in large-scale planned developments and planned-unit developments. Such developments may have several homeowners’ associations operating under an umbrella association, or master association, that “maintains the property and facilities common to the entire development, and often negotiates the provision of services for the smaller associations representing each part of the development.”⁴⁴ The smaller associations, often representing owners by geographic area or land use, will then “oversee whatever structures or properties are common to their own section.”⁴⁵

Co-ops go a step further than both homeowners’ and condominium associations. Owners do not even own the units in which they reside; they own only shares in the cooperative, which owns all the realty. Thus, cooperative organizations need not use servitudes. Property law typically comes into play among fellow owners only insofar as the law of leaseholds is relevant. The founding documents of the cooperative and the leases dictate some outcomes, but ongoing decisions regarding the community are generally made by the management of the cooperative (generally a board comprised of some of the leaseholder/co-op owners). Corporate law therefore plays a dominant role in arranging the owners’ mutual rights.⁴⁶

In contrast to homeowners’ and condominium associations, cooperatives operate largely as corporations that are incorporated

⁴⁰ Patrick E. Kehoe, *Cooperatives and Condominiums* 19 (Oceana 1974).

⁴¹ Bennett, 103 L Library J at 268 (cited in note 29).

⁴² Id.

⁴³ See Weiss and Watts, *Community Builders and Community Associations* at 102 (cited in note 16).

⁴⁴ Id.

⁴⁵ Id.

⁴⁶ See Note, *Legal Characterization of the Individual’s Interest in a Cooperative Apartment: Realty or Personalty?*, 73 Colum L Rev 250, 253 (1973).

in their native state.⁴⁷ The first cooperatives elected a board of directors, who had responsibility for the maintenance and daily governance of the cooperative.⁴⁸ This practice has survived into modernity, although now boards largely delegate their maintenance roles to professional management companies that are responsible for issues such as hiring and supervising staff, keeping books, paying property taxes, and approving all sales and sub-leases.⁴⁹ One of the more important duties of the board, one for which there is usually no counterpart in condominium associations, is to evict and rent out a shareholder's unit if she fails to pay maintenance charges attributed to her.⁵⁰

Actual decision-making processes in homeowners' associations, condominium associations, and cooperatives are all actually quite similar, despite their drastic differences of legal form.

Decisions in the condominium association are generally made by majority vote, in which the actual number of votes allotted to each owner generally depends on value of the unit (often determined by the size of the unit).⁵¹ In addition, each association member has the right to participate in the election of the board.⁵² As with association votes, the number of votes each owner gets in electing the board varies by community.⁵³

The actual voting in the association for members of the board of a common-interest community usually occurs in one of two ways: traditional voting or cumulative voting. Under a traditional-voting (or single-winner) system, candidates run for a particular seat on the board. Each seat is voted upon separately by the association members, who vote their entire allotment of votes for a certain candidate, and the top vote getters for each seat are elected to the board. Under this method, a coalition of 50 percent plus one vote could theoretically control the entire

⁴⁷ See Lasner, *No Lawn to Mow* at *56–57 (cited in note 17).

⁴⁸ See *id.*

⁴⁹ See *id.* at *94.

⁵⁰ *Id.* at *204.

⁵¹ See, for example, Uniform Condominium Act § 2-107, comment 1 (National Conference of Commissioners on Uniform State Laws 1980).

⁵² Advisory Commission on Intergovernmental Relations, *RCA Characteristics and Issues*, in Advisory Commission on Intergovernmental Relations, ed, *Residential Community Associations* 9, 10 (cited in note 16) (“Board members are chosen from among the unit owners, and votes are apportioned on the basis of ownership.”).

⁵³ See Uniform Condominium Act § 2-107, comment 1 (National Conference of Commissioners on Uniform State Laws 1980).

board indefinitely. A minority of owners under this voting system may be systematically excluded from board membership.⁵⁴

Cumulative voting tends to give minorities a much greater voice in decision making.⁵⁵ Under a cumulative-voting (or multiwinner) system, the members of the board are not elected to a particular seat. Instead, “[e]ach shareholder is entitled to multiply the number of shares owned by the number of directors to be elected and cast the product for one or more candidates,”⁵⁶ and the candidates with the most votes are elected to the board. Cumulative voting thus “permit[s] minority shareholders to concentrate their votes to secure representation on a board.”⁵⁷ The policy underlying cumulative voting is to empower “minority [owners] to elect [board members] protective of their interests.”⁵⁸ This method of voting is still relatively rare.⁵⁹ For example, under the Uniform Condominium Act, cumulative voting can be used for only the purposes of electing members of the executive board, and then only if it is allowed for in a condominium’s bylaws.⁶⁰ Similarly, for cooperatives, cumulative voting is often allowed only if it is provided for in the certificate of incorporation, a cooperative’s most basic constitutive document.⁶¹

Cumulative voting generally plays no role in the daily governance of common-interest communities. Boards typically make decisions by a simple majority or plurality vote of the board.⁶² Even when a common-interest community’s bylaws require a vote of the entire association for a purpose other than electing board members, often all that is required is a plurality, majority, or supermajority of votes.⁶³

⁵⁴ For an example from corporate law, see Sanjai Bhagat and James A. Brickley, *Cumulative Voting: The Value of Minority Shareholder Voting Rights*, 27 J L & Econ 339, 339 (1984).

⁵⁵ See *id.* at 339–40.

⁵⁶ Richard Siegler and Eva Talel, *Cooperatives and Condominiums: Cumulative Voting Revisited*, 233 NY L J *1 (May 4, 2005).

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ See Jay Romano, *When the Minority Rules the Majority*, NY Times J10 (July 17, 2005) (noting that only about 10 to 15 percent of the cooperatives and condominiums in New York City employ cumulative voting).

⁶⁰ Uniform Condominium Act § 2-107(c) (National Conference of Commissioners on Uniform State Laws 1980).

⁶¹ See Siegler and Talel, *Cooperatives and Condominiums*, 233 NY L J at *1 (cited in note 56).

⁶² Community Associations Institute, *M-100: The Essentials of Community Association Management* 77–79 (2011).

⁶³ *Id.* at 83.

C. The Problem with Common-Interest Community Governance

There have been numerous complaints concerning the ways in which boards exercise their power.⁶⁴ Evan McKenzie objects to the means by which the boards take and maintain authority. He notes that “[s]ometimes the boards simply vote themselves into perpetual power, since they can prevent opponents from voting or running for election by suggesting that the upstarts are not in good standing with the [homeowners’ association]. . . . These elections can make Broward County look like the epitome of fair voting.”⁶⁵

Common-interest communities necessarily regulate sensitive aspects of residents’ lives, and as the number of residents of common-interest communities has grown, so too have conflicts over the creation and application of community rules. The governing mechanisms in common-interest communities must render decisions on a vast array of subjects, running the gamut from home businesses, pets, and lawn ornamentations, to owners’ leasing agreements, pool hours, and garbage pickup. These decisions often leave owners displeased with the outcomes.

One study reported that over two-thirds of the common-interest communities in New York City had experienced litigation over a three-year span.⁶⁶ The Restatement (Third) of Property: Servitudes also acknowledges, “the quantity of litigation arising out of homeowner challenges to association actions in recent years may be regarded as excessive.”⁶⁷ Conflicts in common-interest communities can be “emotionally charged” and “often evoke . . . extreme hostility, bitterness and frustration.”⁶⁸ Disputes between owners and association boards or among owners

⁶⁴ See generally Carol Lloyd, *The Myth of Privatopia: Do Private Residential Governments Mean the End of the American Dream?*, SF Gate (Dec 17, 2002), online at <http://www.sfgate.com/entertainment/article/The-Myth-of-Privatopia-Do-private-residential-2710581.php> (visited Mar 2, 2014).

⁶⁵ Id (quotation marks omitted).

⁶⁶ Jay Romano, *Your Home: Reducing Legal Costs in a Co-op*, NY Times R5 (Aug 18, 1996).

⁶⁷ 2 Restatement (Third) of Property: Servitudes § 6.13, comment b.

⁶⁸ See Scott E. Mollen, *Alternate Dispute Resolution of Condominium and Cooperative Conflicts*, 73 St John’s L Rev 75, 75 (1999) (“The printable vocabulary of occupancy conflicts often includes words like ‘livid,’ ‘vicious,’ ‘revenge,’ ‘fraud,’ ‘arrogant,’ ‘pompous,’ ‘power crazy,’ ‘breach of fiduciary duty,’ ‘self-dealing,’ ‘favoritism,’ ‘insensitive,’ ‘litigious,’ ‘stupid,’ and ‘troublemaker.’ Not only are occupancy conflicts extremely intense, but they are propagating with alarming rapidity.”).

are legion and frequently make it to court.⁶⁹ Unfortunately for dissatisfied owners, courts generally give great deference to the decisions of common-interest-community boards.⁷⁰

The residents' dissatisfaction results from two endemic problems that currently plague collective decision making in common-interest communities. First, the community does not make collective decisions itself. Rather, it delegates decision making to a small number of representatives, typically the board members. This, of course, gives rise to an agency problem.

The second problem is that voting does not necessarily yield results that reflect the community's true preferences. Indeed, as Professor Kenneth Arrow famously showed in his "impossibility theorem," given certain conditions, voting cannot possibly lead to a decision that truly expresses collective preferences.⁷¹ Even if the conditions of Arrow's Impossibility Theorem are not met, the outcome of votes can be manipulated by chairpersons and are susceptible to majority oppression.⁷²

Additionally, since up-or-down voting ignores intensity of preferences, it may lead to a net aggregate unhappiness when a minority intensely disapproves of a certain proposition while the majority only mildly supports it.⁷³

At this point, one can argue that the use of supermajorities can solve this problem. A supermajority requirement increases the probability that the outcomes of votes represent the aggregate will of the community and lowers the risk of majority oppression. Unfortunately, supermajorities can only ameliorate these problems, not solve them. The introduction of a supermajority requirement cannot ensure that the outcomes of votes are welfare maximizing in cases in which there are small minorities with very intense preferences.

But the real problem with supermajority requirements is much more acute. Supermajority rules give small groups blocking power. This small minority may use this blocking power to withhold its assent until granted a side payment. Holdouts may foil efficient projects or create costly and inefficient payment of bribes. Certain voters may oppose an efficient project strictly out

⁶⁹ See *id.* at 79–82.

⁷⁰ See Drewes, Note, 101 Colum L Rev at 327–28 (cited in note 28).

⁷¹ Arrow, *Social Choice and Individual Values* at 98 (cited in note 8).

⁷² See Sterk, 77 BU L Rev at 319 (cited in note 10).

⁷³ Parisi, 6 Geo Mason L Rev at 748 (cited in note 11).

of the hope to extract payment from the majority in exchange for not blocking the proposal.

Interestingly, there have been a handful of studies on voting mechanisms in common-interest communities that have examined the role of developers in making the best of the poor tools available to them. Professors Yoram Barzel and Tim Sass, for example, argued optimistically that developers of common-interest communities tend to choose voting mechanisms that reduce the power of majorities to exploit minorities.⁷⁴ Developers do this by linking voting power to assessments, homogenizing units sold, and selectively requiring supermajority voting. Professors Danny Ben-Shahar and Eyal Sulganik cast doubt on this optimistic assessment, noting that a variety of factors, including variant ex ante estimations of the likelihood of future disagreements, may lead to very different voting rules.⁷⁵ At the end of the day, though, both the optimistic and the pessimistic views acknowledge that any voting rules will leave collective decision making subject to the usual flaws of voting.

Given the well-known flaws of decision making in common-interest communities, the time has come to contemplate a better alternative that is based on the insights of auction theory.

II. AUCTIONS AND COLLECTIVE DECISION MAKING

Auctions are a specialized way of getting many people to opine together on a subject, while expressing the intensity of their preferences. Auctions can be used not merely to allocate goods; they may also be used, more generally, to determine which goods or decisions should be produced. They may also be used to determine future courses of action or leaders.

Essentially, auctions are “stylized markets with well-defined rules,”⁷⁶ and as such can provide a vehicle for introducing some of the benefits of markets without the drawbacks. Unlike votes, auctions reflect the intensity of the participants’ preferences. In auctions, participants indicate numerically the value they attach to the bid and thereby reveal the intensity of their

⁷⁴ See Yoram Barzel and Tim R. Sass, *The Allocation of Resources by Voting*, 105 Q J Econ 745, 760 (1990).

⁷⁵ Danny Ben-Shahar and Eyal Sulganik, *Can Co-owners Agree to Disagree? A Theoretical Examination of Voting Rules in Co-ownerships*, 31 J Real Est Fin & Econ 207, 221 (2005).

⁷⁶ Eric Rasmusen, *Games and Information: An Introduction to Game Theory* 385 (Blackwell 4th ed 2007).

preferences for a certain outcome. It is possible to think of voting as a specialized auction in which participants are permitted to bid only two values: zero or one (that is, a ballot against or in favor of the proposal). Mild and strong preferences alike can be expressed only in bids of one. Mild and strong dislike can be expressed only as zero. Ordinary auctions allow bidders to go beyond one and zero and instead bid any number.

Of particular relevance to our project is the Vickrey-Clarke-Groves (VCG) mechanism, which resulted from the work of Professor William Vickrey in the 1960s and the follow-up work of Professors Edward Clarke and Theodore Groves in the 1970s.

Vickrey is credited with having pioneered the use of game theory to analyze auctions.⁷⁷ He pointed out that in first-price auctions with sealed bids (in which the highest bidder wins the auction and pays her actual bid), participants would not bid their true reserve values; rather, they would bid based on their estimates of others' evaluations of the auctioned item. First-price, sealed-bid auctions, in other words, are elaborate games in which each participant attempts to out-guess the other participant's bidding strategy. Because first-price, sealed-bid auctions induce bidders to act strategically based on their estimates of others' suspected bids, such auctions may result in a misallocation of the auctioned good in those cases in which the highest-value bidder underestimated the bids of her peers.

Vickrey proceeded to propose a superior method: the second-price, sealed-bid auction, under which the good is allocated to the highest bidder at the second-highest price.⁷⁸ In the second-price, sealed-bid auction—known as a “Vickrey auction”⁷⁹—the highest bidder wins the auction but pays the second-highest bid. Here, a bidder's best strategy is to bid her true valuation because the price she might eventually pay does not depend on her bid; the bid determines only who wins the auction.⁸⁰ Thus, a

⁷⁷ See Kenneth J. Arrow, *Introduction*, in Richard Arnott, et al, eds, *Public Economics: Selected Papers by William Vickrey* 13, 14 (Cambridge 1994) (“In ‘Counterspeculation, Auctions and Competitive Sealed Tenders,’ he starts the game theory of auctions when individual valuations are private information.”).

⁷⁸ See Vickrey, 16 *J Fin* at 8 (cited in note 2).

⁷⁹ Paul Klemperer, *Auction Theory: A Guide to the Literature*, 13 *J Econ Surveys* 227, 229 (1999).

⁸⁰ Michael H. Rothkopf, Thomas J. Teisberg, and Edward P. Kahn, *Why Are Vickrey Auctions Rare?*, 98 *J Polit Econ* 94, 95 (1990) (“Because they are dominant strategies, they do not require the gathering or analysis of any information about the situation or intentions of competitors.”).

Vickrey auction eliminates the incentive to bid strategically and induces truthful bidding.⁸¹

Importantly, Vickrey's insight extended far beyond the narrow context of allocating existing goods to bidders. Vickrey's contribution made it possible to use auctions as a generalized mechanism for getting people to reveal private information and expose individual preferences. In this capacity, auctions came to represent an important instrument of social choice by providing policy makers with information about the preferences of constituents.

Picking up on this aspect of Vickrey's theory, Clarke pointed out the possibility of using auctions in the context of "allocational decisions involving public goods."⁸² Clarke observed that Vickrey auctions could help resolve the paradox of supplying public goods. On the one hand, private markets do not supply public goods due to high transaction costs and free riding.⁸³ On the other hand, governments will likely make mistakes in providing public goods, because beneficiaries have every reason to lie about their preferences for the good. Particularly if beneficiaries are required to pay for the benefit they receive from the public good, they will underreport the benefit they derive from the public good.⁸⁴ Clarke suggested that this problem may be addressed by using a Vickrey auction to extract from beneficiaries true information about their actual preferences for the public good. He suggested that once the true preferences of the public are known, public goods should be provided only if the aggregate benefit derived by the public exceeds the cost of provision. As in Vickrey auctions, allocational decisions would be divorced from pricing decisions. The government should provide a public good based on the sum of revealed demand from bidders. However, bidders should pay a price based on others' demand, rather than their own revealed demand.⁸⁵ Clarke's price-setting mechanism ensures both that bidders cannot achieve a more favorable outcome by revealing their demand incorrectly and that the total amount of the contributions always equals or exceeds the total

⁸¹ Id ("[T]he equilibrium strategy is that the bidder bids his or her true cost or value.").

⁸² Edward H. Clarke, *Multipart Pricing of Public Goods*, 11 *Pub Choice* 17, 17 (1971).

⁸³ Id at 18–19.

⁸⁴ See id at 21.

⁸⁵ See id at 22–26.

supply cost.⁸⁶ In other words, the mechanism guarantees that contributions will cover the cost of provision, and the budget will stay balanced.

Subsequently, Groves made a pivotal contribution that complemented the work of Vickrey and Clarke. In a pioneering article from 1973,⁸⁷ Groves turned to auction theory to tackle the challenge of provision of public goods. Like Vickrey and Clarke before him, Groves sought a demand-revealing or incentive-compatible mechanism that would induce truthful reporting or bidding. However, he also wanted his mechanism to be “Pareto optimal.”⁸⁸ The Pareto-optimality condition requires that the provision decision is welfare maximizing in the sense that no other decision could represent an improvement over it. To meet this criterion, Groves proposed that the winner of the auction pay the sum total of the cost (or inconvenience) the adoption of her preference imposes on others.⁸⁹

The combined result of the three theorists has become known as the Vickrey-Clarke-Groves mechanism, or simply the VCG mechanism.

To illustrate how the VCG mechanism may be utilized to determine which public goods to provide, imagine a locality that debates whether to build a new stadium, a new bridge, or a new school. Assume for simplicity’s sake that the locality has only three residents—Anna, Beth, and Carol.⁹⁰ Naturally, the locality can put the three options on a ballot and ask the members to vote. The voting option has two obvious drawbacks: First, it is possible in this case that the vote will yield a tie—with each option receiving one vote. Second, even if the vote does not result in a tie, a clear win for one option may not be the utility-maximizing outcome. Why? Imagine that Anna and Beth both vote for the stadium and Carol for the school. It could very well be the case that Anna and Beth have a very slight preference for the stadium over the school while Carol has a very strong

⁸⁶ Clarke, 11 *Pub Choice* at 27 (cited in note 82).

⁸⁷ See generally Theodore Groves, *Incentives in Teams*, 41 *Econometrica* 617 (1973). For another important contribution, see generally Theodore Groves and John Ledyard, *Optimal Allocation of Public Goods: A Solution to the “Free Rider” Problem*, 45 *Econometrica* 783 (1977).

⁸⁸ Groves and Ledyard, 45 *Econometrica* at 791 (cited in note 87).

⁸⁹ For example, A values a certain public good X at \$100 and a different public good Y at \$85, B values X at \$65 and Y at \$120, and both bid accordingly. Public good Y will be provided as it received the highest bid (\$120) and B will have to pay A \$15—the difference in A’s preference between public goods X and Y. *Id.* at 791–92.

⁹⁰ The number can be actually much larger without loss of generality.

preference for the school. Additionally, if the voting takes place in stages—for instance, the members first decide between the school and the bridge, and then between the winner of the first vote and the stadium—a strategic mayor could manipulate the voting sequence and predetermine the result.

The VCG mechanism can take care of all these problems. Imagine that Anna, Beth, and Carol now bid instead of vote. For simplicity’s sake, imagine Anna and Beth have identical preferences. Under the auction system, Anna and Beth each bid \$50 on the stadium option, \$10 on the bridge option, and \$40 on the school option while Carol bids \$30 on the stadium option, \$0 on the bridge option, and \$60 on the school. Tallying up the bids yields \$130 for the stadium, \$20 for the bridge option, and \$140 on the school. The result is that a new school will be built.

The bids and totals are presented in Table 1, below.

TABLE 1. TRUTHFUL BIDS AND RESULTS

	Stadium	Bridge	School
Anna	50	10	40
Beth	50	10	40
Carol	30	0	60
Total	130	20	140

Result: school will be built; Carol will pay \$20.

In terms of the assessments charged, Anna and Beth will pay nothing (because the outcome would be the same if they had not bid), while Carol would be charged \$20 (the amount of utility lost by Anna and Beth together as a result of Carol pushing the school option to the top). The classic VCG mechanism would therefore fund the project out of general revenues.

The VCG-auction mechanism successfully reveals participants’ valuations because a bid that is too high risks exposing the bidder to excessive payments, while a bid that is too low exposes the bidder to a suboptimal choice of public good.

III. GOVERNING COMMUNITIES BY AUCTION

In this Part, we explain how the VCG mechanism may be used as an important governance tool in common-interest communities. Like townships, common-interest communities face an identical decision to that of local governments: how to decide on which projects to fund with the fees they collect from residents.

To answer this question, common-interest communities, like townships, can harness the VCG mechanism.

A. Illustrating the Vickrey-Clarke-Groves Mechanism in Governance

Consider, for example, the question of what management company should be hired by the community. Assume that a homeowners' association must choose among management companies X, Y, and Z. Instead of putting the matter to a simple vote, the association may use an auction.

For simplicity's sake, we will use three-member communities in all of our examples in this Section. Our three repeat players are Anna, Beth, and Carol. Assume that Anna and Beth each like Management Company X significantly more than Y and slightly more than Z. They bid \$50 on Management Company X, \$10 on Y, and \$40 on Z. Carol, meanwhile, greatly prefers Z, and likes X a little better as well. Carol bids \$30 on Management Company X, \$20 on Y, and \$60 on Z. Tallying up the bids yields \$130 for Management Company X, \$40 for Y, and \$140 for Z. The result is that Management Company Z will be hired.

The bids and totals are presented in Table 2, below.

TABLE 2. TRUTHFUL BIDS AND RESULTS

	Management Company X	Management Company Y	Management Company Z
Anna	50	10	40
Beth	50	10	40
Carol	30	20	60
Total	130	40	140

Result: Management Company Z will be hired; Carol will pay \$20.

In terms of the assessments charged, Anna and Beth will pay nothing (because the outcome would be the same if they had not bid), while Carol would be charged \$20 (the amount of utility lost by Anna and Beth together as a result of Carol pushing management company Z to the top).

B. The Conditions for Using the VCG Mechanism in Governance

We have seen that the VCG mechanism can be used in governance of common-interest communities for two very different

kinds of decisions. First, we have seen that the mechanism can be used to make basic governance decisions, such as which amenities to construct. Second, we have illustrated that the mechanism can be used to make more traditional capital-expenditure decisions, such as which management company to hire. These examples are illustrative of a wide range of governance decisions that must be made by common-interest communities. However, there are other decisions that must be made that are less amenable to VCG mechanisms.

In order for a VCG auction to function, there must be discrete choices among which bidders can choose. An auction takes place, in other words, only after someone has decided on the choices to present to bidders, as well as such practicalities as the timing of the auction.

This means that VCG auctions cannot replace entirely the functions of a board in common-interest communities. While the auction mechanism will allow the board to turn over many of the decisions to the ownership at large, some of the decision making will remain in the hands of the delegates.

Common-interest communities that use VCG auctions will need to develop guidelines for allocating decision making between the board and the ownership at large. Fortunately, it is not difficult to imagine how this might be done. The common-interest community can adopt a rule requiring basic decisions like capital expenditures, changes in assessments, and the like to be made by all owners through an auction mechanism.

The VCG mechanism is not perfect: it suffers from various potential flaws under different conditions.⁹¹ For instance, VCG does not ensure a balanced budget, as the revenues produced by

⁹¹ See, for example, Yuko Sakurai, Makoto Yokoo, and Shigeo Matsubara, *A Limitation of the Generalized Vickrey Auction in Electronic Commerce: Robustness against False-Name Bids*, in *Proceedings of the Annual National Conference on Artificial Intelligence* 86, 89 (AAAI 1999); Michael H. Rothkopf, *Thirteen Reasons Why the Vickrey-Clarke-Groves Process Is Not Practical*, 55 *Operations Research* 191, 191–96 (2007); Lawrence M. Ausubel and Paul Milgrom, *The Lovely but Lonely Vickrey Auction*, in Peter Cramton, Yoav Shoham, and Richard Steinberg, eds, *Combinatorial Auctions* 17, 22–26 (MIT 2006); Vincent Conitzer and Tuomas Sandholm, *Failures of the VCG Mechanism in Combinatorial Auctions and Exchanges*, in Peter Stone and Gerhard Weiss, eds, *Proceedings of the Fifth International Joint Conference on Autonomous Agents and Multi Agent Systems* 521, 523–28 (Association for Computing Machinery 2006); Yoram Bachrach, *Honor among Thieves: Collusion in Multi-unit Auctions*, in Wiebe van der Hoek, et al, eds, 1 *Proceedings of the 9th International Conference on Autonomous Agents and Multi-agent Systems* 617, 623–24 (International Foundation for Autonomous Agents and Multiagent Systems 2010).

the auction will not necessarily correlate with the cost of the public goods provided.⁹²

More significantly, while bidding the truth is a winning strategy for auction participants, it is only a “weakly dominant” strategy, meaning that under some conditions participants will coalesce around a strategy of not telling the truth. When auction participants suffer from significant budget constraints, truth telling will not be the dominant strategy.⁹³ In some cases, auction participants can manipulate the auction to lead to undesirable outcomes. For instance, if the identity of bidders cannot be easily ascertained, dishonest bidders can manipulate the outcome by creating fictitious bidders.⁹⁴

Consequently, in many cases, one cannot achieve mathematical certainty of truthful bidding in VCG auctions. Nonetheless, in many circumstances of common-interest-community governance, VCG remains a potentially important tool for improving common decision making.

For our purposes, the most significant flaw is that auctions are vulnerable to collusive bidding.⁹⁵ If coordination is not too costly, bidders can shade up their bids, get the outcome they want, and walk away without paying anything. In short, when coordination costs are sufficiently low, VCG auctions can be easily rigged; if two or more bidders submit the same bid, none is considered the marginal bidder whose bid secured the winning outcome, and therefore none of them will have to pay anything.⁹⁶ We address this problem at greater length in the next Part.

Collectively, the potential flaws of VCG mechanisms must be taken into account when deciding which common decisions may be taken by auction.

IV. ADDRESSING POTENTIAL OBJECTIONS AND LIMITATIONS

In this Part, we examine the potential counterarguments to our proposal and assess their strengths. Specifically, we discuss three potential objections. First, we will discuss the effect of

⁹² See Part IV.C.

⁹³ Jean-Pierre Benoît and Vijay Krishna, *Multiple-Object Auctions with Budget Constrained Bidders*, 68 Rev Econ Stud 155, 159 (2001).

⁹⁴ See generally Makoto Yokoo, *False-Name Bids in Combinational Auctions*, 7 ACM SIGecom Exchanges 48 (2007).

⁹⁵ Ausubel and Milgrom, *The Lovely but Lonely Vickrey Auction* at 26 (cited in note 91).

⁹⁶ For detailed analysis, see Part IV.A.

collusive bidding on our proposal. Second, we will examine how various agenda-setting strategies affect our proposal. Finally, we address budgetary issues.

A. Collusive Bidding

As we noted, game theorists have observed that VCG auctions are potentially susceptible to collusion among bidders.⁹⁷

To illustrate this problem, let us return to our earlier example of a three-person community bidding on a management company. As we saw in Table 2, if the parties were to vote honestly, Anna and Beth would each bid \$50 on Management Company X, \$10 on Management Company Y, and \$40 on Management Company Z, while Carol would bid \$30 on Management Company X, \$20 on Management Company Y, and \$60 on Management Company Z. The result is that in a straight VCG auction, Carol would get her way and Management Company Z would be hired.

To illustrate the problem of collusion, now assume that all facts are the same, except for the fact that Anna and Beth decide to collude against Carol. They want Management Company X to win, but wish to avoid paying. To this end, they agree that each will strategically bid \$100 on Management Company X and nothing on the other management companies. Carol, by contrast, continues to bid truthfully (\$30 on Management Company X, \$20 on Management Company Y, and \$60 on Management Company Z).

The collusive bidding yields the following totals: \$230 on Management Company X and only \$60 on Management Company Z. In this case, Anna and Beth will get their way and Management Company X will be selected even though it does not represent the honest choice of the participants. The bids and results are summarized in Table 3, below.

⁹⁷ See Part III.B.

TABLE 3. COLLUSIVE BIDS AND RESULTS

	Management Company X	Management Company Y	Management Company Z
Anna	100	0	0
Beth	100	0	0
Carol	30	20	60
Total	230	20	60

Result: Management Company X will be hired; no one will pay.

Because of the collusive bidding, no one will have to pay anything. Given the bidding amounts, none of the participants alone can be said to have altered the outcome. Take Anna's bid out of the picture and Management Company X would still prevail 130–20–60. Likewise, if one eliminates Beth's bid, Management Company X would still prevail 130–20–60. If one erased Carol's bid, the result would be even starker: 200–0–0 in favor of Management Company X.

The possibility of successful collusion is not equal in all VCG auctions. For instance, when multiple items are being auctioned at the same time (such as when a VCG auction is used to distribute several broadcast licenses), the possibility of collusion is greater than when only one item is being auctioned.⁹⁸ This means that VCG auctions can be structured for use in common-interest communities to reduce the possibility of collusion, for instance, by having only one item bid upon at once.

The possibility of successful collusions is also affected by factors external to the auction, such as the ability to police bargains. It's hardly worth it for parties to pay each other for their auction bids if parties to the collusion can cheat without penalty. If bargains for auction bids are forbidden by the governing rules of common-interest communities, it will be harder to enforce payments for collusive bids, and, consequently, collusion will be less attractive.

Ultimately, the problem of collusion cannot be eliminated. It is worth noting, however, that there is little reason to believe that VCG auctions, even when tainted by collusion, will give us a *poorer* reading of collective preference than voting. Decision making by voting is at least equally vulnerable to collusive decision

⁹⁸ Conitzer and Sandholm, *Failures of the VCG Mechanism in Combinatorial Auctions and Exchanges* at 522 (cited in note 91).

making; bargains for votes are so frequent that they have prompted an entire colorful jargon, including terms like pairing and logrolling.

The VCG mechanism, then, can still provide a better reading of collective preference in most cases, and no worse a reading than existing mechanisms.

B. Manipulating the Voting Agenda

Another limitation of our mechanism is that it is susceptible to agenda setting. With respect to voting, the Marquis de Condorcet famously demonstrated that under certain circumstances,⁹⁹ if voters have only ordinal, but not cardinal preferences,¹⁰⁰ a chairperson can “cycle” options to show contradictory preferences. That is to say, if voters have preferences that are fixed relative to other options (in other words, having ordinal utility), but are not measurable in any absolute scale (cardinal utility), a chairperson can manipulate the order of voting and relative preferences to demonstrate inconsistent results.

Consider, for instance, the case in which the three voters Anna, Beth, and Carol have three options among which to choose: a stadium, a bridge, and a school. Assume that Anna prefers a stadium to a bridge and a bridge to a school. Beth prefers a bridge to a school and a school to a stadium. Carol prefers a school to a stadium and a stadium to a bridge. The preferences are summarized in Table 4 below.

TABLE 4. PREFERENCES BY BIDDERS

Anna	Beth	Carol
Stadium	Bridge	School
Bridge	School	Stadium
School	Stadium	Bridge

If we put the options to a simple vote, there will be no clear winner. If the voters are asked to decide between a stadium and

⁹⁹ See generally Marquis de Condorcet, *Essai sur l'application de l'analyse à la probabilité des décisions rendues à la pluralité des voix* (Imprimerie Royale 1785).

¹⁰⁰ Cardinal utility takes account of the magnitude or intensity of preferences whereas ordinal utility simply ranks preferences without ascribing significance to their intensity. See generally Bernard M.S. van Praag, *Ordinal and Cardinal Utility: An Integration of the Two Dimensions of the Welfare Concept*, 50 *J Econometrics* 69 (1991).

a bridge, a stadium will be chosen by a vote of 2 to 1 (Anna and Carol will vote for a stadium while Beth will vote for a bridge). If the voters are asked to choose between a bridge and a school, the bridge will be selected by a margin of 2 to 1 (Anna and Beth will vote for the bridge while Carol will vote for the school). And if the choice is between a school and a stadium, a school will be chosen by a margin of 2 to 1 (Beth and Carol will vote for the school while Anna will vote for the stadium). The series of paired votes will continuously raise one option over another. Building on Condorcet, Kenneth Arrow famously showed that when preferences are ordinal, and other basic conditions are met, *no* voting system can be designed to translate the ordinal preferences into an aggregate choice.¹⁰¹

This gives enormous power to agenda setters. Under these circumstances—indeed, in many real-world situations—the order of the votes, or the agenda, will determine the outcome. For example, if the agenda setter has a preference for a stadium, she can decide that the first vote will be between a bridge and a school. In this vote, the bridge option will prevail. Then she can pit the stadium against the bridge, and the stadium will be selected. By eliminating the school option in the first round, the agenda setter guarantees that a stadium option will be chosen in the second round, and a new stadium will be eventually built. In other words, the agenda setter can manipulate the ordinal utility rankings in order to ensure that her personal preference emerges as the winner.

Auctions are supposed to avoid this set of problems by forcing expressions of cardinal rather than ordinal utility. In auctions, bidders typically express their preferences with an absolute number rather than by ranking. Consequently, there can be no problem of cycling or any other unstable preference.

Unfortunately, in the real world it is impossible to eliminate the problem of agenda setting, even if we switch from voting to auctions.¹⁰² First, administrators may refuse to put certain options up for bidding and thereby “mute” certain preferences of homeowners, forcing them, instead, to accept the administrators’

¹⁰¹ See generally Arrow, *Social Choice and Individual Values* (cited in note 8).

¹⁰² On agenda setting, see Daniel A. Farber and Philip P. Frickey, *Law and Public Choice: A Critical Introduction* 39–41 (Chicago 1991).

preferences. By selective omissions, administrators may deprive homeowners of the ability to make their collective choice.¹⁰³

Relatedly, administrators can use their agenda-setting power to stagger the auction process and amplify or depress the apparent popularity of options. Administrators may group several options together to eliminate some candidates, and then pair off the winner with other candidates. The VCG mechanism must rely on a person, that is, an agenda setter, to decide which options will be subject to bidding. This gives the agenda setter the power to manipulate the process by putting certain options up for bidding first and then, once the results are in, instituting another round of bids in which the winning results are pitted against new options. Clever agenda setting could lead to the elimination of popular options in early rounds, paving the way to the selection of the administrator's preferred choice by the community.

Notwithstanding these imperfections, the VCG mechanism clearly minimizes opportunities for abusive agenda setting relative to simple votes. Because the VCG mechanism can easily accommodate simultaneous bidding on multiple options, it will be harder for agenda setters to justify forcing voters into a series of choices between pairs of options. Thus, the adoption of the VCG mechanism will allow community members to positively demand that their management add options to the ballot. Hence, the VCG mechanism represents an improvement over voting schemes.

C. Budgets

A third and final potential objection relates to budgetary issues. As we noted before, VCG auctions do not “balance the budget.”¹⁰⁴ The revenue raised by VCG auctions is a function of the gaps in utility enjoyed by different auction participants, rather than the cost of the item on which they bid. It is possible to hold a VCG auction in which participants pay nothing, but the outcome of the auction is the purchase of an expensive service.

¹⁰³ See, for example, Frank H. Easterbrook, *Statutes' Domains*, 50 U Chi L Rev 533, 547–48 (1983) (discussing the flaws of voting in the legislative context). It should be noted, however, that Daniel Farber and Philip Frickey have argued, based on empirical studies in political science, that “[w]hen agenda setters use their power to reach results that are systematically opposed to the preferences of the legislators, they are more likely to face challenges to their power.” Farber and Frickey, *Law and Public Choice* at 61 (cited in note 102).

¹⁰⁴ See Part III.B.

Conversely, a VCG auction may lead to large payments by participants for a relatively inexpensive item.

This feature of VCG mechanisms means that common-interest communities that are governed by VCG mechanisms must raise revenues in some other fashion. They cannot rely solely on the revenues of auctions to finance their activities. At the same time, such communities must make provisions for holding excess funds raised by VCG auctions pending their ultimate disbursal.

Fortunately for our proposal, this does not represent any significant change from the current way in which common-interest communities are governed. Common-interest communities must assess fees, and these fees must make up the shortfall for any VCG auctions. Likewise, excess revenues from VCG auctions should be held by the management of the common-interest community in the treasury for future common expenses.

Interestingly, the disconnectedness between the auction's ability to raise revenue and its ability to indicate bidders' desires is important for the functioning of VCG auctions. VCG auctions best incentivize truth telling if revenues from the auction do not benefit any of the auction participants. In fact, if one wanted to best preserve the truth-telling incentives of VCG auctions, one would destroy all the revenues, in order to ensure that participants do not take into account potential profit from other auction participants in making their offers.¹⁰⁵ Our proposed mechanism takes a less extreme approach, eliminating direct revenue to participants in the auction. A common-interest community that wanted to improve the truth-telling incentives even further could arrange for revenue sharing among many local common-interest communities, with each community taking the revenue from other communities' auctions. Such variations on the VCG auction would have interesting effects that are beyond the scope of our analysis.

CONCLUSION

In this Article, we have demonstrated how auction theory can be harnessed to design innovative governance mechanisms for property. Drawing on the insights of Vickrey, Clarke, and Groves, we have crafted a mechanism of auctioning suitable for making decisions in common-interest communities. We then

¹⁰⁵ See Groves, 41 *Econometrica* at 628–29 (cited in note 87).

demonstrated that under certain conditions our mechanism outperforms standard voting and can therefore improve collective decision making in common-interest communities.

Given the pride of place of auctions in the theory of social choice, it is surprising that discussion of auctions as an alternative to voting is largely wanting from property scholarship and practice. It is high time common-interest communities considered auctions as the governance tool of choice.