Próspera Severable Rights: Optimizing Best Practices

EXECUTIVE SUMMARY: The Próspera ZEDE is seeking to adopt legislation which will recognize a decentralized severable rights property regime in the jurisdiction. This system, when implemented, will give Próspera an optimal approach to development, borrowing best practices from the most prosperous cities around the world and leveraging technology to modernize them for the digital age, all in a way that ensures an efficient allocation of resources and minimizes externalities without creating excessive urban planning bureaucracy.

Property Rights & Bundling

To understand the need for severable rights as already implemented in most major cities around the world, it's important to take a step back and understand: just what are property rights, why are they necessary, and what form do they take?

The economist Harold Demsetz set out to answer this exact question in his seminal 1974 paper "Toward a Theory of Property Rights."[1] With almost 10,000 citations across nearly every social science discipline, this paper is the intellectual and theoretical foundation of the modern understanding of property rights.

What Demsetz finds is actually quite simple: property rights are merely bundles of rights traded together voluntarily intended to reduce conflict over the use of resources amongst competing interests. Furthermore, the exact bundle of rights to be transferred, and the stipulations tied to those rights, varies according to the cost of creating and trading that right. It is thus of paramount importance to allow for individuals and firms to trade these

[1] Demsetz, Harold, "Toward a Theory of Property Rights," American Economic Review, Vol. 57, No. 2, 1967, https://econ.ucsb.edu/~tedb/Courses/Ec100C/Readings/Demsetz_Property_Rights.pdf

bundles of rights at will in order to reduce overall negative externalities and reach a Pareto optimal outcome. As Demsetz notes:

> *"A primary function of property rights is that of guiding incentives to achieve a greater internalization of externalities. In general, transacting cost can be large relative to gains because of "natural" difficulties in trading or they can be large because of legal reasons. In a lawful society the prohibition of voluntary negotiations makes the cost of transacting infinite. Some costs and benefits are not taken into account by users of resources whenever externalities exist, but allowing transactions increases the degree to which internalization takes place."*

As this makes clear, allowing for the easy, low cost, and low friction trading of the bundle of property rights is key to internalizing the costs of negative externalities. But what if the bundle as a whole is suboptimal? In other words, what if a party neither needs nor wants one of the rights implicitly bundled into the existing and accepted property rights? This will inflate the cost of the good relative to its actual value to the party at hand. In the best case scenario, this results in a potential misallocation of resources as a particular property right goes unused. In the worse case, it prevents a transaction from happening altogether, allowing the negative externality to persist, to the detriment of all parties involved. This happens all the time with the bundling of some services, such as home internet services, TV subscriptions, and phone services, with some consumers left frustrated that they must purchase a service they don't desire and won't use to obtain the one they do. This leaves both the purchaser and society worse off as the opportunity costs of the lost capital accumulates across millions of such transactions.

This problem also makes clear the solution: what if a jurisdiction were to unbundle the property rights so that each right was separately tradable and deployable, allowing individuals to purchase only those rights which they desire and none others?

This is exactly the solution major cities around the world have employed, and the solution Próspera is employing.

The bundling of property rights can vary widely from jurisdiction to jurisdiction depending on its legal and regulatory frameworks. However, the Próspera legal team has identified a few key rights which are key to the bundle of property rights. Each of these appears in

some form in every major prosperous city[2] (even if it's not always tradable) and is severable (that is, capable of being unbundled) in all common law jurisdictions:

- **Air Rights—**Air rights are the right to exclude structural occupation of a specific three-dimensional space by anyone other than the owner of the air rights of the space in question. These are severable from the land title itself, meaning they are titled property the same as the land itself.
- **Development Rights—**Development rights are the right to build a physical structure in a given three dimensional space.
- **Occupancy Rights—**Occupation rights are the right to occupy a given three dimensional space with a given number of people per unit of space within the structure.
- **Use Rights –** The rights to certain traditional uses; including residential, commercial, manufacturing.

The next section will detail how cities around the world have partially achieved this goal.

New York, Sao Paulo, and More Unbundle Air Rights

Cities around the world have leveraged the advantages presented by severable rights to partially unbundle air rights from the bundle of property rights discussed above, creating windfalls for city governments and enabling the construction of innovative architecture, affordable infrastructure, and much more. Some of the cities which have, to varying degrees, instituted severable rights in this manner include:

- New York City
- London
- Chicago
- Portland
- Seattle
- Sao Paulo

[2] Article 614 of the Honduran Civil Code recognizes the bundling in land titles of the "upper space within the vertical planes raised at the boundaries of the land."

- Boston
- LA
- Sydney
- Adelaide
- Perth
- Ottawa
- Vancouver
- Calgary
- Paris

This report will examine the experiences of New York City and Sao Paulo, as these cities have had some of the most successful implementations of the severable rights concept and informed the Próspera approach.

Severable Rights in New York City

In New York City in the early 1960's, the city found itself facing the unwanted bundling issue discussed above. Ever since the *Slate v. David* court case in 1797, it was assumed that for all land ownership, the owner is presumed to own "from heaven to hell" on his or her lot.[3] However, this common law precedent was established in a time before construction technology allowed the creation of skyscrapers, something that wasn't even contemplated as a possibility at the time. Fast forward back to 1960's New York, a city in disparate need of economic development and growth, and city planners realized there was a massive quantity of unused potential development space as a result of this "heaven to hell" concept. In other words, the common law precedent established in 1797 bundled air rights, development rights, and occupancy rights altogether. This resulted in a clear inefficiency: many structures who didn't want to build higher now owned a right they had no desire to use and could not trade away, while other more ambitious developers were

[3] Allam, Zaheer; Jones, David Sydney,"The Potential of Blockchain within Air Rights Development as a Prevention Measure against Urban Sprawl", *Urban Science,* Vol. 3, No. 1, 2019, https://www.mdpi.com/2413-8851/3/1/38/htm#:~:text=The%20concept%20of%20air%20right,their%20Colony%20of%20New%20York.&text=In%20the%20ruling%2C%20the%20court,individual's%20property%20belonged%20to%20them.

unable to purchase the ability to construct more or higher than zoning and planning allowed.

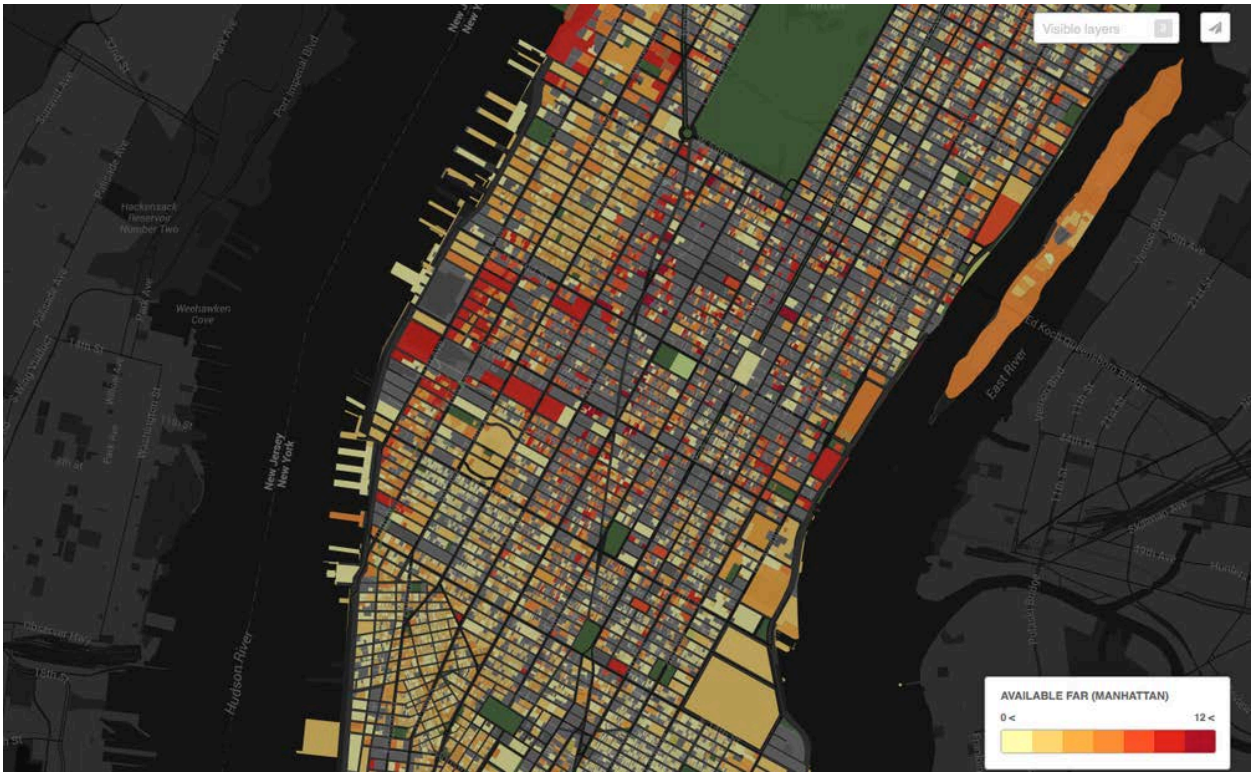
The relationship between zoning, planning, and the bundling of property rights is what caused this dysfunction. Zoning and planning placed de facto limits on the use of air rights (a form of property right), which kept individuals from either using their property rights fully or severing them from the bundle and trading them. This is because unbundling requires legal action from the government at hand—given that governments make the rules of the game and enforce property rights, the presiding governing entity must first create the legal mechanisms for severing and trading rights before this can be done. Recall that Demsetz made clear that only clear and transparent trading of property rights with low transaction costs can maximize generalized prosperity.

It is precisely the role of government to enable this unbundling and trading, and that is what New York City did in 1961.

Enabling the unbundling and trading of these property rights is also a powerful boon to the municipal government. Taxes and fees related to the sale of these rights can help the city government finance the development of new infrastructure to support the newly densified area. As a result of this insight, New York revamped its zoning laws in 1961 to create what are formally known as Transferable Development Rights, or TDRs, but are colloquially known as air rights.

These air rights are tradable between any properties which share a property line, and are tradable as far as a few blocks for specially designated zones within the city. These air rights are traded in square feet of floor area ratio, or FAR. A map of the available air rights across Manhattan today shows how ubiquitous this air rights system is throughout the city:

Manhattan Air Rights Map[4]



"Accidental Skyline," Municipal Arts Society of New York

This system of air rights in New York has enabled the construction of a number of important structures, from the JP Morgan Chase Midtown Headquarters,[5] to the One Vanderbilt project,[6] to the world-record-breaking Hudson Yards project,[7] to One57,[8] and

[4] "Accidental Skyline," Municipal Arts Society of New York, https://www.mas.org/initiatives/accidental-skyline/

[5] https://www.nytimes.com/2018/03/02/nyregion/jp-morgan-chase-midtown-east-air-rights.html

[6] https://www.onevanderbilt.com/

[7] https://www.hudsonyardsnewyork.com/

[8] https://one57.com/

many more. These marvels of prosperity and modern architecture shape the skyline of Manhattan, and were only made possible by New York's severable air rights market.

However, the New York system suffers from a number of drawbacks. Air rights can only be traded between properties sharing at least 10 feet of property line, increasing transaction costs and constraining the market. New York's notoriously convoluted and opaque zoning and planning system, with its multitude of boards and veto points, still suffers from the tragedy of the anti-commons[9] and often makes it difficult if not impossible for developers to acquire the air rights needed to create new housing supply where it's needed most. World leading expert on urban planning Alain Bertaud,[10] in discussing New York's zoning and planning, said the following: *"I am telling this long story about this bizarre zoning category not to make fun of the NYC Planning Department but to show to what extreme zoning boards can err by excess of zeal in their desire to design city land use to its smallest detail*."[11] New York also, through zoning and planning, bundles the aforementioned development rights within air rights, and bundles occupation rates with traditional property rights and zoning and planning, which narrows the positive scope of impact of the unbundling of air rights considerably.

Próspera has attempted to rectify these issues in the design of the Próspera Decentralized Land Regulation Statute, which will be discussed in more detail below.

Severable Rights in Sao Paulo, Brazil

Sao Paulo, Brazil, also has a system of severable rights. Created in 1995 to buttress the municipal government's budget and expand real estate development in the city, Sao Paulo instituted a system of Certificate of additional construction potential bonds

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[9] Heller, Michael, "The Tragedy of the Anticommons: Property in the Transition from Marx to Markets," *Harvard Law Review,* Volume 11, 1997, https://deepblue.lib.umich.edu/bitstream/handle/2027.42/39430/wp40.pdf;jsessionid=4284E4AF11097AAB8BB2DBA3E47FD86C?sequence=3

[10] Bertaud is also an informal advisor to the Próspera ZEDE.

11 Bertaud, Alain. Order without Design (p. 328). MIT Press. Kindle Edition.

(CEPACs).[12] These bonds are issued by the São Paulo City Hall and are sold in electronic auctions in the São Paulo Stock Market Exchange (Bovespa). These CEPACs are fairly straightforward: a real estate developer purchases CEPACs at the Sao Paulo stock exchange, which can then be paid to the Urban Operation (UO) commission within a given development area to obtain rights to build more floor area (operating on a similar sqm/FAR principle to New York City). These Urban Operations are quasi-public entities (public-private partnerships) charged with developing a particular area of the city. The CEPACs thus can only be used within the UO which issued them, creating balkanized severable rights markets within each UO.[13] It is important to note that in this system, the municipal government is selling the rights, not the individual landowner in question, and the rights apply to a given UO area, not just to one property. This serves two functions: it provides up-front capital to the municipal government for expanding infrastructure to the area to be densified, and it allows for a greater deployment of the air rights within the given area instead of restricting them to only adjacent lots as in NYC. This approach has been endorsed by the World Bank as well.[14]

It is important to note that the municipal government sets how many CEPACs are to be sold in each UO, and what the limitations of those CEPACs are, so as to conform with the infrastructure carrying capacity and development plans for the city.

These CEPACs have been a massive boon to the government of Sao Paulo, bringing in more than $812 million USD since their creation.[15] However, the indirect effects are even more powerful: these CEPACs allow for the construction of more developments, which in

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[12] Ingram, Gregory; Hong, Yu-Hung, “Municipal Revenues and Land Policies”, *Lincoln Institute of Land Policy,* 2010, https://www.lincolninst.edu/sites/default/files/pubfiles/value-capture-sao-paulo_0.pdf

[13] Ibid., pg. 219

[14] “Suzuki, Hiroaki; Murakami, Jin; Hong, Yu-Hung; Tamayose, Beth. 2015. Financing Transit-Oriented Development with Land Values : Adapting Land Value Capture in Developing Countries. Urban Development;. Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/21286

[15] Ibid., pg. 221

turn results in more property tax payments as well as rapid development of the city in response to market demands. A selection of CEPAC transactions from a single UO from 2004-2009 can be found below:

Public and Private Auctions of CEPACs in Faria Lima UO, 2004-2009[16]

	Offered (no. of CEPACs)	Sold ($USD)	Price ($USD)	Income ($USD)
2004				
Public	17,100	1,727	209	1,900,019
Private		4,748	209	5,223,119
2005				
Private		1,858	209	2,043,602
2006				
Public	1,900	519	190	570,361
Private		1,186	190	1,304,369
2007				
Public	29,779	29,779	236	36,925,588
Private		13,859	236	17,185,135
2008				
Public	15,920	15,920	292	24,484,529
Private		475	328	819,375
2009				
Public	19,000	10,566	323	17,962,676
Public	5,700	289	326	495,618
Public	22,800	22,800	399	47,880,000
Total		103,725		156,794,391

Clearly, these severable rights have been a powerful success story for Sao Paulo.

However, they suffer a similar flaw to New York: the air rights and development rights are partially bundled together and partially governed by zoning and planning, and occupancy rights are bundled with the land title property right and also governed by

[16] Ibid, pg. 227

zoning and planning, all of which greatly increase transaction costs which, as Demsetz pointed out, reduces the efficacy and utility to be gained from unbundling rights.

The Próspera Approach: Decentralized Land Regulation Statute

The usage of severable rights to increase municipal revenue, unleash the productive capacity of developers, and reduce transaction costs for the organic flourishing of cities around the world is well established. However, as was noted above, each of these examples mixes some severable rights concepts with a thicket of zoning and planning regulations, restrictions, approvals, and committees, which many of the world's leading experts have pointed out are stalling urban growth, driving up housing costs,[17] and negatively impacting the global economy (potentially even causing the Great Recession).[18] The most startling example of this comes from New York City, where 40% of existing structures in the city would be illegal to build if started today.[19]

This is a result of a simple fact: each of these cities incorporated some, but not all, of Demsetz's insights regarding the bundling of property rights. They partially unbundled one single right, but none of the other rights which are easily unbundled. Thanks to modern technology and the ability to adapt best practices from both academic literature

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[17] Quigley, John; Rosenthal, Larry, "The Effects of Land Use Regulation on the Price of Housing: What Do We Know? What Can We Learn?", *Cityscape: a Journal of Policy Development and Research,* Vol. 8, No. 1, 2005, U.S. Department of Housing and Urban Development • Office of Policy Development and Research, https://www.huduser.gov/periodicals/cityscpe/vol8num1/ch3.pdf

[18] Erdmann, Kevin, *Shut Out: How a Housing Shortage Caused the Great Recession and Crippled Our Economy,* Rowman & Littlefield Publishers (January 21, 2019), https://www.amazon.com/Shut-Out-Shortage-Recession-University-ebook/dp/B07KZ5P1YB/ref=tmm_kin_swatch_0?_encoding=UTF8&qid=1548110136&sr=8-1-fkmrnull%2Fmarginalrevol-20

[19] https://www.nytimes.com/interactive/2016/05/19/upshot/forty-percent-of-manhattans-buildings-could-not-be-built-today.html

and thriving cities around the world, Próspera has created the solution with the Decentralized Land Regulation Statute.

Próspera has unbundled property rights into these three separate tradable rights:

- **Air Rights—**Air rights are the right to exclude structural occupation of a specific three-dimensional space by anyone other than the owner of the air rights of the space in question. These are severable from the land title itself, meaning they are titled property the same as the land itself. They can be traded, bought, purchased, and appended to other land parcels at will within the restrictions of the covenants, conditions, and restrictions (CC&Rs) of the area therein.
- **Development Rights—**Development rights are the right to structurally occupy a given three dimensional space. Like the air rights, these are severable from the land title itself, meaning they are titled property the same as the land itself. They can be traded, bought, purchased, and appended to other land parcels at will within the restrictions of the covenants, conditions, and restrictions (CC&Rs) of the area therein. These can also be delimited by floor area ratio by CC&R.
- **Occupancy Rights—**Occupation rights are the right to occupy a given three dimensional space with a given number of people per unit of space within the structure. Like air rights, these are severable from the land title itself, meaning they are titled property the same as the land itself. They can be traded, bought, purchased, and appended to other land parcels at will within the restrictions of the covenants, conditions, and restrictions (CC&Rs) of the area therein. These can also be delimited by floor area ratio by CC&R.
- **Use Rights—**Use rights are the right to use a designated property for traditionally recognized uses typically prescribed by zoning, such as residential, commercial and manufacturing. Like other severable rights, they can be traded, bought, purchased and appended to land parcels at will subject to the restrictions of the covenants, conditions, and restrictions (CC&Rs) of the area therein. This allows zoning to be set initially by the vision of the masterplan; but then, within the parameters allowed by the plan, they are allowed to evolve with market forces based on supply and demand.

A basic allotment of each right comes along with each property purchase, and Próspera is building a trading platform upon which all three types of rights can be traded, appended to a property, bought, and sold. As this should make immediately apparent, Próspera has unbundled property rights in a similar way to the aforementioned global cities, learning from the mistakes and limitations of their systems to improve upon it. Rather than institute a labyrinthine bureaucracy of zoning, land use codes, and commissions, Próspera has instead created a tradable right which forces private landowners to internalize the negative externalities of development. By making them all tradable, Próspera has likewise reduced transaction costs, creating an environment wherein trading and Coasean bargaining (as enumerated by Nobel Prize winning economist Ronald Coase) can always reach an optimal outcome.[20]

It is crucial to note that the Próspera ZEDE sets the initial allocation of all three severable rights, as well as the geographic limits of their trading and the aggregate supply of them, just as Sao Paulo has done. This makes it such that the jurisdiction can develop within the planning vision of the Próspera ZEDE's council while still allowing for a voluntary market allocation of development resources. This avoids the main problem of modern urban development outlined by the planner and scholar Alain Bertaud in which cities attempt to force development into a specific area, resulting in vacant buildings, unhappy communities, and a dysfunctional labor market.[21] This is the result of a simple fact: urban planners are not urban economists, and even urban economists are not real estate developers. Only market participants with real skin in the game and experience in developing should determine exactly what type of structure goes where. However, the Próspera ZEDE puts guardrails on this market allocation of resources with the Industrial Regulation Statute, Hazardous Materials Statute, Coral Reef Protection Statute, and the initial allocation of and rules governing the transfer of the three severable rights.

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[20] Coase, Ronald, The Problem of Social Cost, *The Journal of Law and Economics,* 1960, https://www.journals.uchicago.edu/doi/10.1086/466560

[21] Bertaud, Alain. Order without Design (p. 328). MIT Press. Kindle Edition.

Próspera achieves this balance of planning and efficient allocation of resources in a few key ways. First, by determining the initial amounts and allocations of these rights, the Próspera ZEDE ensures the developments fit within the existing constraints on infrastructure development and the needs of the community with regard to density and development. Second, The Próspera ZEDE delimits the geographic area within which these rights can be traded, ensuring a situation does not arise wherein one area becomes hyper-dense while others remain barren against the wishes of the community. Third, the Próspera ZEDE incorporates a number of aspects of planning and zoning within the severable rights themselves to ensure basic safety and regulatory concerns are addressed in a decentralized and market-oriented manner.

This last point deserves a closer examination.

Occupancy rights in particular act as a de facto safety enforcement mechanism. The Próspera ZEDE sets the parameters of the occupation rights as well as their total supply and upper and lower limits. This means there is an upper limit on how densely populated a building can become with occupancy rights, acting as a decentralized fire code preventing overcrowding, and a decentralized safety code preventing unsafe, too-small housing units.

These severable rights also create a direct, swift, and voluntary solution to age-old property disputes, such as views from a window, sunlight, etc. By purchasing the air rights over their neighbor's home, a homeowner can ensure that their view or sunlight is preserved without having to go to a planning committee, lobby the municipal government, file an injunction, or any other time consuming and costly mechanism. It's a direct mechanism for settling property disputes that would normally clog civil courts.

Finally, again following the example of Sao Paulo, Próspera has structured these severable rights in a way that enables the funding of the infrastructure and public services needed to grow the jurisdiction in a safe and sustainable manner. This is because the Próspera ZEDE only grants land purchasers a certain amount of each of the severable rights with each property purchase. If they wish to build higher than this default purchase amount, or preserve a view that comes along with their property, or create more density than this initial allotment allows, they can buy more directly from Próspera. This, in turn,

will be used to fund the public services that enable the expanded development. In this way, Próspera has turned real estate development from an easily corruptible exercise in negotiation for each deal to a simple, clear, and transparent mechanism for funding sustainable development.

Conclusion: The Long-Term Benefits of Severable Rights

The Próspera ZEDE has instituted a system of severable rights that is based on best practices from around the world, all geared toward making a simple, transparent, safe, and low friction environment for building out human-centric spaces. It is of crucial importance that the jurisdiction is *starting* with such a system rather than instituting it later.

Cities around the world only adopted severable rights in the last 50 years or less, meaning many of them had centuries of growth without such mechanisms. These cities also have not fully implemented the severable rights concept as Próspera has. This combination has created an environment where easily corruptible political influence, mistaken urban planners, and administrative bureaucrats have made catastrophic mistakes that permanently scar a city—mistakes that are impossible under the Próspera severable rights system.

Perhaps the best example of this is Penn Station in New York City. This famed subway station, built in 1910, has not been renovated since the 1960's, and is rapidly crumbling; as a particularly noxious example, in 2017, a massive sewer pipe burst into the subway during rush hour.[22] There has been a continuous effort to renovate or completely rebuild the station since roughly 1960, and yet it still has yet to be done. The reason is simple: the web of stakeholders who have veto power over any given plan to renovate is so complex, the rules and politics governing it so opaque, that even some of the most

[22] https://nymag.com/intelligencer/2017/05/penn-stations-latest-addition-a-sewage-waterfall.html

powerful men in New York's history have been unable to make it happen, while the city government has been unable to afford it.[23]

Yet all of this could have been avoided if New York had a similar severable rights system to Próspera. The Próspera municipal government (or whatever firm owned the station) could have easily sold all the air rights and development rights above the station for a massive cash windfall, which it could then deploy to rebuild the station from scratch. Being the only stakeholder with say over the property because, unlike New York City, property rights are clearly defined in Próspera, the station owner could have then commenced reconstruction without having to go through any of the veto points which have made such a project impossible for a full 60 years in New York City.

As this example illustrates, Próspera's decentralized land regulation avoids the pitfalls of major cities around the world, keeping the physical development flexible, driven by market demands, and within the guardrails and master vision of the Próspera ZEDE's leadership. Próspera's skyline will never be scarred by well-meaning but mistaken urban planners with a "vision;" it will instead be a direct reflection of the wishes, desires, and preferences of the city itself.

[23] https://www.politico.com/news/magazine/2019/11/29/penn-station-robert-caro-073564