

**AGENDA  
ITEM  
8**



# AGENDA STAFF REPORT

**DATE:** September 19, 2018

**TO:** Mayor and City Council

**APPROVED BY:** David B. Dale, City Manager *Kp*

**PREPARED BY:** Karla E. Lobatos, Finance Director *Kp*

**SUBJECT:** Adopt a Resolution of the City Council of the City of Calexico, California, Approving the Transfer of Certain Water Enterprise Fund and Wastewater Enterprise Fund Revenues to the City's General Fund to Compensate the General Fund for Ground-Lease Rental of Real Property to the Water and Wastewater Enterprises for their Operations

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## Recommendation:

City Council approve resolution for the ground-lease rental of general City property to the Water and Wastewater Enterprises for operation of the City's water facilities and wastewater treatment plant (WWTP), and to approve a corresponding transfer of money from the Water Enterprise Fund and Wastewater Enterprise Fund to the General Fund as ground-lease rent for the properties.

## Background:

The water system and wastewater collection & treatment plant system operate as stand-alone public utility enterprises. Under State law, they must have separate accounting and financial reporting mechanisms for revenues and expenses. As enterprise business-type operations, the revenues, expenditures, and assets are separated into enterprise funds with their own accounts, balance sheets, and financial statements. More importantly, State law (Proposition 218) requires that water and wastewater customer charges not exceed the reasonable cost of providing the utility service.

## Discussion & Analysis:

Therefore, as a general rule, a city may not transfer water and wastewater rate money to the General Fund, as that would usually exceed the cost of providing the service. However, there is an exception where the General Fund is paying for or providing a valuable asset to the utility to support its operations. In that case, the debt owed to the General Fund becomes part of the "reasonable cost of providing the service" and may be paid with rate money. California law (Proposition 26) further provides that "a charge imposed for entrance to or use



of local government property, or the purchase, rental, or lease of local government property” is not a tax requiring voter approval, provided the “amount of the charge must bear a reasonable relationship to the value of the property interest conveyed. . . .” That is situation we have here.

The water system and wastewater collection & treatment plant system are located on real property which was purchased by and remains a fixed capital asset of the General Fund. In essence, the General Fund is the “landlord” of these sites and the Water Enterprise Fund and the Wastewater Enterprise Fund are the “tenants” who are ground-leasing the property for their operations. For many years, the General Fund has not charged rent to these utilities and has, therefore, been subsidizing these utilities. Since the two Enterprise Funds are treated as separate business-type operations, they should be paying rent to the General Fund for use of these valuable properties, without which, neither utility could function.

Staff has retained the services of Urban Futures, Inc. to prepare market studies of fair lease value of the General Fund properties in question. They are attached as Attachments 2 and 4. The Studies conclude that fair lease value for the water facilities is \$180,101.00 annually, while the fair lease value for the wastewater plant site is \$112,802.00 annually, totaling \$292,903.00 annually. Staff is recommending that the Council approve this transfer of Enterprise Fund monies to the General Fund for the reasons outlined above by adoption of the attached Resolution (Attachment 5).

**Fiscal Impact:**

\$180,101.00 Water Enterprise Fund for use of General Fund real property.

\$112,802.00 Wastewater Enterprise Fund for use of General Fund real property.

**Coordinated with:**

None.

**Attachment:**

1. Water Facilities Occupancy and Use of General Fund Property Comparable Land Sales Table, Yield and Valuation Calculations Fiscal Year 2018-19.
2. Urban Futures Inc. Report on Fair & Reasonable Compensation for Water Enterprise Fund Use of General Fund Real Property for Water Facilities.
3. WWTP Occupancy and Use of General Fund Property Comparable Land Sales Table, Yield and Valuation Calculations Fiscal Year 2018-19.
4. Urban Futures Inc. Report on Fair & Reasonable Compensation for Wastewater Enterprise Fund Use of General Fund Real Property for WWTP.
5. Resolution No. 2018-\_\_\_\_\_ - A Resolution of the City Council of the City of Calexico, California, Approving the Transfer of Certain Water Enterprise Fund and Wastewater Enterprise Fund Revenues to the City’s General Fund to Compensate the General Fund for Ground-Lease Rental of Real Property to the Water and Wastewater Enterprises for their Operations



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# City of Calexico

## REPORT ON FAIR AND REASONABLE COMPENSATION FOR WATER ENTERPRISE FUND USE OF GENERAL FUND REAL PROPERTY FOR WATER FACILITIES



*"Where California And Mexico Meet"*

**Urban Futures, Inc.**  
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# Table of Contents

Cover Letter .....	iii
I. Introduction and Background .....	1
A. Background and Objective of Report .....	1
B. City Provided Data and Assumptions; Limitations.....	1
C. Preparation of Valuation Model; General Methodology; Legal Standards .....	2
II. Summary of Valuation .....	2
III. Description of Water Facility Sites .....	3
IV. Comparable Property Sales .....	5
A. IR-Zoned Property .....	5
B. IND-Zoned Property .....	6
V. Valuation Methodology to Determine Compensation for Water Facilities Occupancy and Use of General Fund Real Properties .....	7
VI. Update and Maintenance of Valuation Model .....	10
Table 1: Summary of Estimated Fair and Reasonable Annual Compensation for Water Facilities Occupancy and Use of General Fund Properties (FY 2018-19) .....	3
Table 2: Summary of Comparable Sale Transactions for IR-Zoned Property (2015 to 2018) .....	5
Table 3: Summary of Comparable Sale Transactions for IND-Zoned Property (2015 to 2018) .....	6
Table 4: Market Valuation of General Fund Properties Occupied and Used by the Water Facilities (FY 2018-19).....	8
Table 5: Annual Value (Fair Compensation) for Water Facilities Occupancy and Use of General Fund Properties (FY 2018-19) .....	9

*Appendix 1 – Valuation Model*

*Appendix 2 – Parcel Maps of Subject Properties*

*Appendix 3 – Property Profile of Comparable IR-Zoned Properties*

*Appendix 4 – Property Profile of Comparable IND-Zoned Properties*



# UFI

## Financial Solutions

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September 11, 2018

David B. Dale  
City Manager  
City of Calexico  
608 Heber Avenue  
Calexico, CA 92231

**Re: Report on Fair and Reasonable Compensation for Water Enterprise Fund Use of General Fund Real Property for Water Facilities**

Dear Mr. Dale:

In response to your request, Urban Futures, Inc. (UFI) is pleased to provide the City of Calexico with a valuation model and report on fair and reasonable compensation for the Water Enterprise Use of General Fund property for the various water facilities. Since 1972, UFI has provided financial consulting and advisory services to California cities, counties, special districts, schools, community colleges, and non-profits. Through our two divisions—the Public Finance Group and the Public Management Group—we offer solutions to financial opportunities and challenges our clients encounter.

The Public Management Group that prepared this report is comprised of former city executives, legal counsel, and finance and economic development professionals. Collectively, our Public Management Group has decades of expertise in specialty areas such as finance, public law, real estate, and economic and fiscal impact analysis.

We appreciate this opportunity to work with the City. If you have any questions, please do not hesitate to contact me at (909) 648-3176 or [jamesm@urbanfuturesinc.com](mailto:jamesm@urbanfuturesinc.com).

Sincerely,

James P. Morris  
Managing Principal

## **I. Introduction and Background**

### **A. Background and Objective of Report**

The City of Calexico (City) Calexico operates its own water treatment, storage and distribution system ("water system"). The City's water treatment and storage system receives untreated/raw Colorado River surface water imported by the Imperial Irrigation District (IID) via the All-American Canal. The imported raw water is stored in a 25 million-gallon (MG) surface reservoir. The water is pumped from the raw water reservoir to a 14 million gallons per day (MGD) water treatment plant. Treated water is stored in three above-grade fabricated steel tanks, two located at the treatment plant site (6 MG and 4 MG) and one located at the eastside reservoir (16 MG). The water distribution system includes seven pumps that over 75 miles of pipelines ranging from two inches to 30 inches in diameter to serve customers throughout the city.

The water system operates as a stand-alone public enterprise, with a separate accounting and financial reporting mechanism for revenues and expenses associated with providing water service to customers. As an enterprise operation (business-type activity), the revenues, expenditures and assets for water treatment, storage and distribution are segregated into an enterprise (proprietary) fund with its own accounting, balance sheet and financial statements ("Water Enterprise Fund") that is separate from the revenues, expenditures and assets of government activities in the City's General Fund ("General Fund").

According to the City, certain components of the water system are located on real property recorded as a long-term fixed capital asset of the General Fund. In other words, the Water Enterprise Fund is using assets of the General Fund to provide water service. Because the Water Enterprise Fund is accounted as enterprise fund and treated as separate business-type activity, the Water Fund should compensate the General Fund for the fair value of its proportionate use of any General Fund asset.

The purpose of this report (and the attached valuation model) is to document the basis and methodology used to determine an estimate of fair and reasonable compensation that should be paid to the General Fund from the Water Enterprise Fund for any water facility's occupancy and use of a General Fund real property asset.

### **B. City Provided Data and Assumptions; Limitations**

In preparing this report and the valuation model, we have relied upon information provided by city staff. The city-provided information and data were considered accurate and reliable, and no independent verification was undertaken. Additional data from publicly available sources was gathered when required by the methodologies and variables incorporated within the model. The

data, information, and assumptions provided by city staff that were relied upon in this report, and the additional data gathered from other sources, is detailed in Appendix 1.<sup>1</sup>

This report and model were prepared solely for the City of Calexico in accordance with the contract between the City and Urban Futures, Inc. (UFI) and is not intended for use by any other party for any other purpose. Various portions of this report may address relevant laws and regulations but should not be relied upon as legal advice.

### **C. Preparation of Valuation Model; General Methodology; Legal Standards**

The purpose of this report is not the preparation of an appraisal for the General Fund properties nor a property valuation based on averaging the per square foot price from recent sales of comparable properties. The circumstances present a more nuanced situation in which an enterprise fund operation is fully occupying and utilizing the real property assets of separate governmental fund. There is no set term or expected cessation of the use, and it could be the use continues in perpetuity because an entire treatment, storage and distribution system is designed to flow from the current location of the water facilities.

To address these unique circumstances, a valuation model was developed and utilized to generally satisfy the applicable provisions and restrictions of Propositions 218 and 26, as interpreted by the courts, including but not limited to the "reasonable costs standard" of Articles XIII A and XIII C, and the "proportionate cost standard" of Article XIII D, of the California Constitution. The valuation model was developed in a Microsoft Office Excel® environment for ease of future maintenance, update and adjustment by city staff. The model is attached as Appendix 1 to this report, and an electronic copy of the model has been separately provided to the City for ongoing annual update, adjustment and use.

## **II. Summary of Valuation**

Table 1 is a summary of the output from the valuation model of the estimated reasonable and fair annual compensation that should be paid to the General Fund from the Water Enterprise Fund for the water facilities' occupancy and use of General Fund real properties.

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<sup>1</sup> All information and data contained in this report has been obtained from sources believed to be reliable. UFI, however, has not verified such information and makes no guarantees, warranties or representations as to the completeness or accuracy thereof. This report is not an appraisal or intended to be used as a substitute for an appraisal, and valuation of the subject property is submitted subject to errors, omissions, or change in price or other material conditions.

<b>Table 1: Summary of Estimated Fair and Reasonable Annual Compensation for Water Facilities Occupancy and Use of General Fund Properties (FY 2018-19)</b>	
Estimated Total SF of General Fund Property Occupied and Used for Water Facilities	1,251,256 sf
Per SF Value from Sales of Comparable Properties	\$2.98 to \$3.48 sf
Market Value of General Fund Properties Occupied and Used for Water Facilities	\$4,149,793
Return on Equity or Yield for Ground-Leased General Fund Property	4.34%
<b>Estimated Fair and Reasonable Annual Compensation for Water Facilities' Occupancy and Use of General Fund Properties</b>	<b>\$180,101</b>

The specific methodologies and calculations applied to determine the above are detailed in the sections below.

**III. Description of Water Facility Sites**

The properties that are the subject of this report ("Properties") comprise approximately 29 acres across four separate parcels located in both the "IND Industrial" and "IR Industrial Rail Served" zoning districts of the City. The site occupied by each water facility is separately described.

- Raw Water Reservoir.** The water system's open surface storage reservoir occupies the entirety of an 11.3-acre parcel owned by the City and recorded as an asset of the General Fund (APN 058-871-002). The property is generally located on the northwest corner of the intersection between VV Williams Avenue and Sam Ellis Street, and is bound to the north by the All-American Canal. The property is zoned OS Open Space but is adjacent to two separate zoning districts: R-1 Residential Single Family to the west and south, and IR Industrial Rail Served to the east and north. The Assessor's Map encompassing the City's parcel is attached in Appendix 2.

The purpose of the City's OS zoning designation is to provide protection from natural hazards, to create open space for recreational use and to preserve land in its natural form. As such, the OS zoning designation is extremely restrictive and allows for minimal development. Based on the location and site characteristics of the property, the OS zoning designation would not be considered to provide for the property's highest and best use. The site is not useful for providing protection from any natural hazard, it is located across the street from an existing public park that serves the neighborhood's recreational and open space needs, and the site is completely flat and does not have any natural features or distinctive physical characteristics that merit protection.

Thus, the logical highest and best use of the site would be under an adjacent zoning designation: R-1 Residential Single Family or IR Industrial Rail Served. Given the size of the parcel (11.3 acres), its adjacency to other IR-zoned properties of similar size and its proximity to the railroad line and Pruett Road (a major north-south corridor), UFI believes the highest and best use of the property is for IR-uses. This determination is based on the property's as-is condition. The IR zoning designation provides for uses which can avail themselves of the nearby railroad line, including many general industrial uses such as manufacturing, storage, and wholesale trades, services, public and semi-public uses.

- **Water Treatment Plant and Storage Tanks.** The water system's treatment plant and several treated water storage tanks are located on 8.03 acres of property spread across two parcels owned by the City and recorded as assets of the General Fund (APNs 058-400-009 and 058-400-060). The address for the property is 545 Pierce Avenue, Calexico, CA, and it is generally located at the dead-end intersection of Pierce Avenue and West 5<sup>th</sup> Street. The property is bounded to the east by Legion Park, to the west and south by the New River, and to the north by other industrial properties. The Assessor's Map encompassing the two City parcels is attached in Appendix 2.

The property is zoned IR Industrial Rail Served and is surrounded by similar zoned property with the exception of the New River to the west and south which is zoned OS Open Space. The uses permitted in the IR zone are detailed in the prior section. In addition, the property is located within the County's Airport Land Use Compatibility Plan (ALUCP). The ALUCP designation for the property is Approach/Departure Zone (B-1) which prohibits certain uses. Prohibited industrial uses in the B-1 Zone include highly noise-sensitive uses, above ground storage, storage of highly flammable materials, and hazards to flight. Uses not normally acceptable in the B-1 Zone include intensive retail, intensive manufacturing or food processing, and multi-story office buildings.

The property is located near and takes access from Cesar Chavez Boulevard which has been master planned to serve as the primary roadway entrance from Mexico through the Calexico West Border Station and is designated as a primary arterial. Primary arterial roadways are designed to have four travel lanes and carry large volumes of traffic. When built to standard, this roadway classification has a maximum capacity of 37,500 vehicles per day.

Based on the above, the property's current highest and best use is for industrial activities and the property is similar in character, size and location as other strategically located industrial properties close to the United States – Mexico border.

- **East Side Storage Tank.** The water system's largest treated water storage tank is located on a 9.39-acre parcel owned by the City and recorded as an asset of the General Fund (APN 059-180-043). The address for the property is 839 E. Cole Blvd., Calexico, CA, and it

is generally located at the intersection of Cole Blvd. and Highway 98. The property is bounded to the west by vacant land and the All-American Canal, and to the north, south and east by agricultural land within the county unincorporated area. The Assessor’s Map encompassing the City’s parcel is attached in Appendix 2.

The property is zoned IND Industrial and is surrounded in the city by similar zoned property and by agricultural uses in the adjacent county unincorporated area. The IND zoning is intended as an area for modern industrial manufacturing and heavy industrial uses while permitting research, and administrative facilities that can meet high performance and development standards. Storage and whole trades are generally permitted but retail commercial uses are limited.

The property access from Cole Blvd. which is a primary arterial street. Primary arterial roadways are designed to have four travel lanes and carry large volumes of traffic. When built to standard, this roadway classification has a maximum capacity of 37,500 vehicles per day. The property also takes access from State Highway 98 which is a major east-west thoroughfare through the city, with four lanes of travel separated by a median.

Based on the above, the property’s current highest and best use is for industrial activities and the property is similar in character, size and location as other strategically located industrial properties close to the United States – Mexico border.

**IV. Comparable Property Sales**

**A. IR-Zoned Property**

Within the last five years, there have been three sale transactions for comparable properties zoned IR Industrial Rail Served within the City of Calexico. The comparable sales are for raw/unimproved industrial-zoned properties with access from an improved street. The comparable properties are smaller than the Properties, ranging in size from approximately 1.0 acre to 2.5 acres, but sufficient in size to accommodate a diversity of industrial uses. The locations of the comparable properties are generally in areas adjacent to other IR-zoned land.

The following table summarizes the comparable properties used for this report. A full profile for each property and its sales transaction is contained in Appendix 3.

Table 2: Summary of Comparable Sale Transactions for IR-Zoned Property (2015 to 2018)			
Address	Sales Price	Property Size (sf)	Price/sf
Estrada Blvd., Calexico, CA 92331	\$300,000	84,071	\$3.57
Estrada Blvd., Calexico, CA 92331	\$375,000	106,722	\$3.51

Sherman Ct., Calexico, CA 92331                      \$120,000                      37,768                      \$3.18

<i>Average Price per SF for IR-Zoned Property – All Sales</i>	<b>\$3.48</b>
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Based on the similar use, condition and general location of these comparable properties, and in compliance with the general legal standards discussed in Section 1, we do not recommend any adjustments to the comparable sales the valuation of data. Thus, \$3.48 per square foot is used in this report as the market value sales price for the IR-zoned property. This value was derived by assembling five years of market data for the sale of raw/unimproved IR-zoned properties in the market area. Outlier sales transactions were eliminated to help normalize the data and then an average per square foot sales value was calculated.

**B. IND-Zoned Property**

Within the last five years, there have been eight sale transactions for comparable properties zoned IND Industrial within the 92231 zip code which encompasses the City of Calexico and adjacent unincorporated areas. The comparable sales are for raw/unimproved industrial-zoned land with access from an improved street. The comparable properties are smaller than the Properties, ranging in size from approximately 1 to 10 acres, but sufficient in size to accommodate a diversity of industrial uses. The locations of the comparable properties are generally in areas adjacent to industrial or light industrial uses, with three of the eight properties located in a light industrial park within an adjacent county unincorporated area.

The following table summarizes the comparable properties used for this report. A full profile for each property and its sales transaction is contained in Appendix 4.

<b>Table 3: Summary of Comparable Sale Transactions for IND-Zoned Property (2013 to 2018)</b>			
<i>Address</i>	<i>Sales Price</i>	<i>Property Size (sf)</i>	<i>Price/sf</i>
285 Rood Rd., Calexico, CA 92331	\$575,000	329,749	\$1.74
SW Corner M.L. King Ave. and Cole Blvd., Calexico, CA 92331	\$325,000	45,738	\$7.11
SW Corner M.L. King Ave. and Cole Blvd., Calexico, CA 92331	\$325,000	43,996	\$7.39
374 Camacho St., Calexico, CA 92231	\$110,000	54,450	\$2.02
Maggio Rd., Calexico, CA 92231	\$350,000	53,579	\$6.53

Maggio Rd., Calexico, CA 92231	\$350,000	40,075	\$8.73
Pan American St., Calexico, CA 92331	\$800,000	282,269	\$2.83
300 W. Cole Blvd., Calexico, CA 92331	\$1,000,000	435,600	\$2.30
Average Price per SF for IND Industrial Zoned Property - All Sales			\$2.98

Based on the similar use, condition and general location of these comparable properties, and in compliance with the general legal standards discussed in Section 1, we do not recommend any adjustments to the comparable sales the valuation of data. Thus, \$2.98 per square foot is used in this report as the market value sales price for the IND-zoned property. This value was derived by assembling five years of market data for the sale of raw/unimproved IND-zoned properties in the market area. Outlier sales transactions were eliminated to help normalize the data and then an average per square foot sales value was calculated.

#### V. Valuation Methodology to Determine Compensation for Water Facilities Occupancy and Use of General Fund Real Properties

The Water Enterprise Fund has constructed and operates three major water utility facilities on the Properties. Thus, long-term capital assets of the General Fund have been completely occupied and are fully utilized by the enterprise operations of the water system, and the Properties are not available for any governmental operations of the City. In the absence of using the Properties, the Water Enterprise Fund would need to obtain other real properties on which to locate, construct and operate its water facilities. Similar to investor-owned public utilities, in which shareholders are entitled to be fairly compensated for contributed capital assets being used for the provision of utility services,<sup>2</sup> the City's General Fund has contributed a real property asset to the Water Enterprise Fund for which the General Fund should be fairly compensated.

Because the Properties are exclusively occupied and used by the water facilities, it was determined that treating the property uses as similar to unsubordinated long-term ground leases was the most appropriate valuation methodology. Long-term ground leases from 55 to 99 years are increasingly common in the industrial sector and are most often found in locations where real estate sales transactions are minimal due to scarcity of available land and high demand. There are two basic inputs for determining an appropriate rate for a long-term ground lease: (1) the market value of the property (land only), and (2) an appropriate yield for the property use. The following explains the methodology used to determine these two inputs:

<sup>2</sup> Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n, 262 U.S. 679 (1923); FPC v. Hope Natural Gas Co., 320 U.S. 591 (1944) [Utility shareholders are entitled to a fair return on prudently invested capital for assets that are "used and useful" in providing service to customers.]

- Market Value of General Fund Properties. Based on the property valuation data detailed in Section IV of this report, the following is the market value of the General Fund Properties being occupied and used by the water facilities:

<b>Table 4: Market Valuation of General Fund Properties Occupied and Used by the Water Facilities (FY 2018-19)</b>				
<b>Water Facility</b>	<b>Property Zoning</b>	<b>Property Size (sf)</b>	<b>Market Value (sf)</b>	<b>Total Market Value of Property</b>
Raw Water Reservoir	IR	492,228	\$3.48	\$1,712,109
Water Treatment Plant and Storage Tanks	IR	350,000	\$3.48	\$1,217,399
East Side Storage Tank	IND	409,028	\$2.98	\$1,220,285

- Appropriate Yield for Property Use. As explained below, a yield of 4.34% is used in this report as appropriate for ground-leased General Fund property exclusively occupied and used by a utility facility or other infrastructure. As landowner, the General Fund has a reasonable expectation to be compensated for the use of the Properties. For an unsubordinated ground lease, this reasonable expectation of compensation takes the form of determining an appropriate “yield” from the lease (lease rate). In making this determination, several factors were considered:
  - An unsubordinated ground lease is a ground lease where the landowner maintains its first position in the hierarchy of claims on the asset. In this case, a third-party would not have the right to take back the land in the case of default by the tenant. This unsubordinated position is considered much safer for the landowner (superior to a mortgage) and is typically accompanied by a lower expectation of yield (lease rate).
  - For ground leases to high-credit tenants, landowners have no management or maintenance responsibility, little market risk and no physical depreciation concerns. For these reasons, the expected yield on a ground lease cannot be reasonably compared to a rate of return on alternative real estate investments. Instead, a ground lease is more comparable to a bank certificate of deposit or bond rate, and a historical review of ground lease rates has found them to fluctuate commensurately with interest rates like other long-term fixed investments.<sup>3</sup>

Given the above considerations, a range of potential yields was created. The upper boundary of the range is a 10.45% yield used by the California Public Utilities Commission (CPUC) as the return

<sup>3</sup> “Determining Ground-Lease Rental Rates,” *Appraisal Journal*, The Appraisal Institute, Vol. 62 (April 1994).

on equity which investor owned utilities may use for their investment in utility infrastructure.<sup>4</sup> We recommend the City set its expected yield below the upper boundary as the General Fund is not an investor-owned operation for which a market-based rate of return can be expected. The lower boundary of the range is the current yield for 5-year maturity on “AAA” rated and insured general obligations bond.<sup>5</sup> The 5-year benchmark is a good proxy for a very low-risk, high-grade investment over a five year period, and was selected on the assumption that the City will use a five-year rolling average of real estate values for adjusting the market value of General Fund real property assets. We recommend the City set its expected yield at least two bases points above this yield, as the 5-Year benchmark is considered to largely only keep pace with inflation (similar to a certificate of deposit).

Based on the above-described data and general industry practices/assumptions, an estimate of the annual value of an unsubordinated long-term ground lease for each of the Properties was calculated. This annualized value is the equivalent of the fair and reasonable compensation the General Fund should be annually paid by the Water Enterprise Fund for the water facilities use and occupancy of the Properties. The following table summarizes the data and calculations in the valuation model in Appendix 1 used to determine the ground-leased value of the Properties:

<b>Water Facility</b>	<b>Total Market Value of Property</b>	<b>Appropriate Yield for Long-term Ground Lease</b>	<b>Annualized Value (Fair Compensation)</b>
Raw Water Reservoir	\$1,712,109	4.34%	\$74,306
Water Treatment Plant and Storage Tanks	\$1,217,399	4.34%	\$52,835

<sup>4</sup> The 10.45% return on equity is derived from the methodology approved by regulatory commissions such as the California Public Utilities Commission (CPUC) by which investor owned utilities may recover the cost of their investment in utility infrastructure (see, CPUC Decision 12-12-034 December 20, 2012, pp. 37-39, “Decision on Test Year 2013 Cost of Capital for the Major Energy Utilities”). Under this methodology, an investor is entitled to earn a return upon the value of its property (fixed assets) employed for the convenience of the public, within certain parameters established by a regulatory body to assess and ensure the reasonableness of such return. While the goal of this report is not to generate a “return on equity” (ROE) for General Fund capital assets used by the city’s public utilities, the CPUC industry practice and standard of ROE is reasonable and rationale methodology for determining an annual reimbursement for the utilities’ use of General Fund capital assets. The 10.45% ROE used in this report is the current (2016) ROE on common equity established by the CPUC for Southern California Edison (see id., CPUC Decision 12-12-034 December 20, 2012 [adopting capital structures and ROR and ROE for the four major California public utilities for year 2013 – 2016]. We recommend this ROE factor be periodically updated to ensure consistency with the then current CPUC determination for ROE on common equity for investor owned utilities.

<sup>5</sup> The specific benchmark used in the Reimbursement Report is the Municipal Market Data – “AAA” Insured 5-Year Maturity. The Thomson Reuters Municipal Market Data (MMD) AAA Curve is a proprietary yield curve that provides the offer-side of “AAA” rated and insured state general obligation bonds, as determined by the MMD analyst team. As of September 11, 2018, the current yield for this benchmark was 2.34%.

East Side Storage Tank	\$1,220,285	4.34%	\$52,960
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**VI. Update and Maintenance of Valuation Model**

The valuation model upon which this report is based has been provided to the City under separate cover in Microsoft Office Excel® format. The valuation model is designed to be updated and maintained by city staff. Periodically, the data in the valuation model should be updated. As a best practice, we recommend updating the model at least every five years or earlier to ensure real estate values and yield benchmarks reflect current market pricing.

# APPENDIX 1

CITY OF CALEXICO - VALUATION MODEL - WATER FACILITIES OCCUPANCY AND USE OF GENERAL FUND PROPERTY  
 Comparable Land Sales Table, Yield and Valuation Calculations  
 Fiscal Year 2018-19

SALES OF VACANT RAW/UNIMPROVED LAND ZONED INDUSTRIAL (2013-2018)								
APN	Street	County	Sale		Owner Name	Property Size (sf)	Price/sf	
			Price	Date				
059-511-006	285 Rood Rd., Calexico, CA 92331	Imperial	\$575,000	7/25/2013	CALEXICO DISTRIBUTION CENTER LLC	329,749	\$1.74	
058-051-011	5W Corner M.L. King Ave. and Cole Blvd., Calexico, CA 92331	Imperial	\$325,000	12/28/2015	SOUTHBAY TRANSPORT INC	45,738	\$7.11	
058-051-017	5W Corner M.L. King Ave. and Cole Blvd., Calexico, CA 92331	Imperial	\$325,000	12/28/2015	SOUTHBAY TRANSPORT INC	43,996	\$7.39	
058-030-054	374 Camacho St., Calexico, CA 92231	Imperial	\$110,000	3/31/2016	CARBAJAL, POMOSO	54,450	\$2.02	
059-384-004	Maggio Rd., Calexico, CA 92231	Imperial	\$350,000	4/21/2016	VALEG LLC	53,579	\$6.53	
059-384-005	Maggio Rd., Calexico, CA 92231	Imperial	\$350,000	4/21/2016	VALEG LLC	40,075	\$8.73	
059-511-009	Pan American St., Calexico, CA 92331	Imperial	\$800,000	8/25/2016	CALEXICO CROSSINGS II LLC	282,269	\$2.83	
058-020-015	306 W. Cole Blvd., Calexico, CA 92331	Imperial	\$1,000,000	4/12/2017	HT INDUSTRIAL LLC	435,600	\$2.30	
TOTALS			\$3,835,000			1,285,456	\$2.98	

SALES OF VACANT RAW/UNIMPROVED LAND ZONED INDUSTRIAL RAIL SERVED (2013-2018)								
APN	Street	County	Sale		Owner Name	Property Size (sf)	Price/sf	
			Price	Date				
058-010-066	Estrada Blvd., Calexico, CA 92331	Imperial	\$300,000	1/19/2018	W SILVER RECYCLING INC.	84,071	\$3.57	
058-010-073	Estrada Blvd., Calexico, CA 92331	Imperial	\$375,000	8/18/2017	W SILVER RECYCLING INC.	106,722	\$3.51	
058-400-051	Sherman Ct., Calexico, CA 92331	Imperial	\$120,000	3/15/2017	SCHAEFER LIVING TRUST	37,768	\$3.18	
TOTALS			\$795,000			228,561	\$3.48	

INDICES FOR RETURN ON EQUITY (ROE) OR YIELD FOR GROUND-LEASED CITY PROPERTY			
High Yield: CPUC - ROE for Investor-Owned Utilities	10.45%		
Low Yield: Municipal Market Data - "AAA" 5-Year Maturity	2.34%	as of	9/11/2018
Fair and Reasonable Yield for Ground-Leased City Property	4.34%	= Low Yield +	2.00%

VALUATION OF WATER FACILITIES OCCUPANCY AND USE OF GENERAL FUND REAL PROPERTY	
Per SF Value from Sales of Comparable Properties Zoned Industrial	\$2.98 sf
Per SF Value from Sales of Comparable Properties Zoned Industrial Rail Served	\$3.48 sf
Total SF of General Fund Property Occupied and Used by Water Facilities	
Raw Water Reservoir (APN 058-871-002)	492,228 sf
Water Treatment Plant (APNs 058-400-009 and 060)	350,000 sf
East Side Reservoir (APN 059-180-043)	409,028 sf
Market Value of General Fund Property Occupied and Used by Water Facilities	
Raw Water Reservoir (APN 058-871-002)	\$1,712,109
Water Treatment Plant APNs 058-400-060 and 009)	\$1,217,399
East Side Reservoir (APN 059-180-043)	\$1,220,285
Return on Equity or Yield for Ground-Leased General Fund Property	4.34%
Estimated Fair and Reasonable Compensation for Water Facilities Occupancy and Use of General Fund Property	
Raw Water Reservoir (APN 058-871-002)	\$74,306
Water Treatment Plant APNs 058-400-060 and 009)	\$52,835
East Side Reservoir (APN 059-180-043)	\$52,960
TOTAL	\$180,101

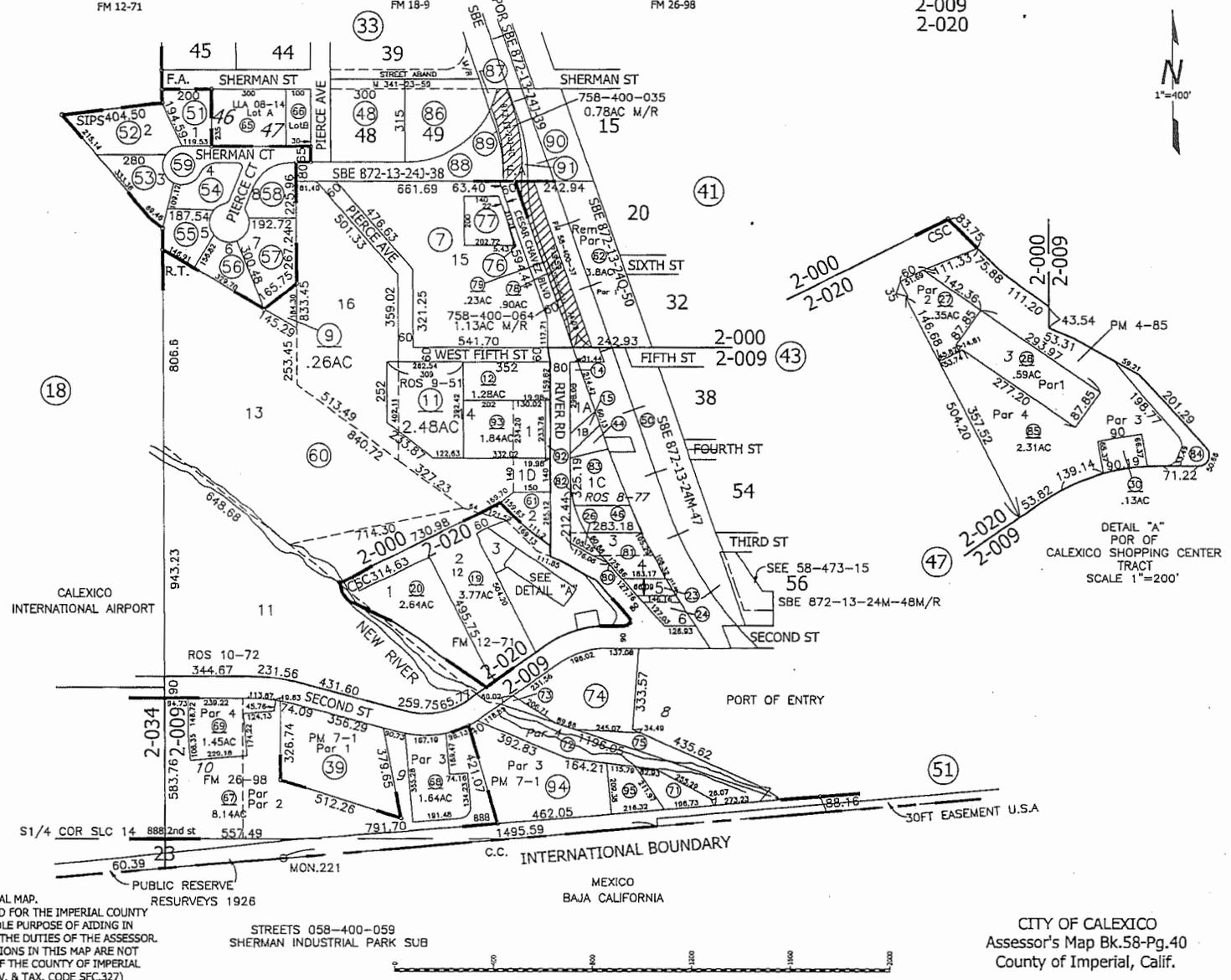
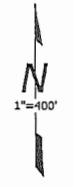
# APPENDIX 2



INDUSTRIAL ADD. & POR. RIVER TRACT & POR. FIRST ADD. & POR. OF TOWNSITE &  
 CALEXICO SHOPPING CENTER & SHERMAN INDUSTRIAL PARK SUB & 888 W. 2ND STREET

Tax Area Code  
 2-000  
 2-009  
 2-020

58-40



- 10-9-06 RM 11-2-16 MF
- 12-29-05 RM 10-19-16 MF
- 5-30-05 AR 10-13-16 MF
- 4-19-04 RM 8-15-16 MF
- 5-28-03 AR 3-11-16 MF
- 5-29-97 LS 3-2-16 MF
- 9-28-95 DP 11-2-15 MF
- 8-3-95 DP 5-4-15 MF
- 3-24-93 DP 3-25-15 MF
- 7-23-91 DP 1-27-15 MF
- 4-16-91 RM 12-24-14 MF
- FROM 57-25 10-15-14 MF 10-5-17 MF
- 1-30-90 LS 10-6-11 MF 2-10-17 MF

**DISCLAIMER:**  
 THIS IS NOT AN OFFICIAL MAP.  
 THIS MAP WAS CREATED FOR THE IMPERIAL COUNTY  
 ASSESSOR, FOR THE SOLE PURPOSE OF AIDING IN  
 THE PERFORMANCE OF THE DUTIES OF THE ASSESSOR.  
 ANY ERRORS OR OMISSIONS IN THIS MAP ARE NOT  
 THE RESPONSIBILITY OF THE COUNTY OF IMPERIAL  
 OR THE ASSESSOR. (REV. & TAX. CODE SEC.327)

STREETS 058-400-059  
 SHERMAN INDUSTRIAL PARK SUB

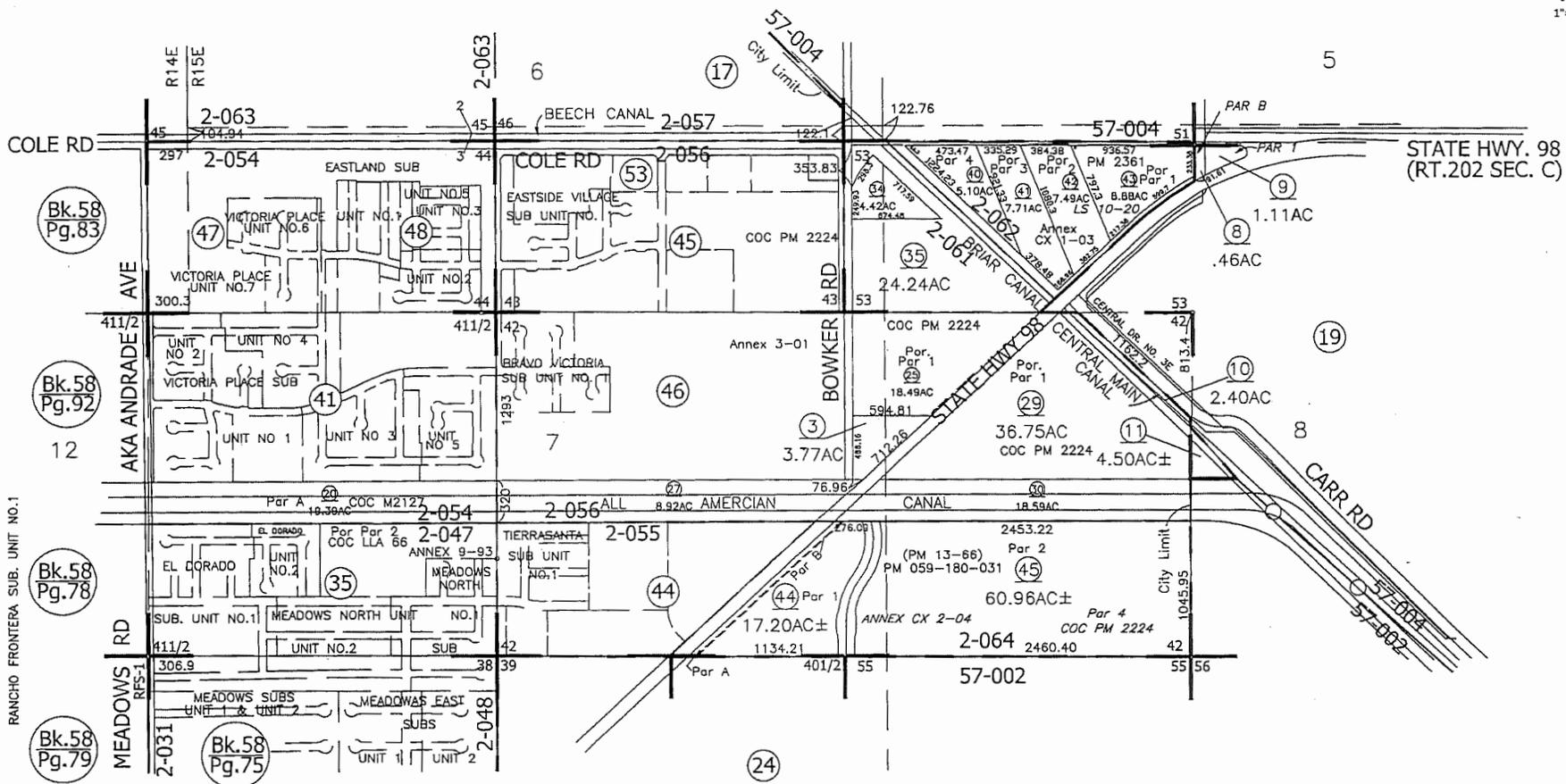
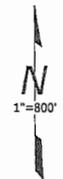


CITY OF CALEXICO  
 Assessor's Map Bk.58-Pg.40  
 County of Imperial, Calif.

TR.44 T17S, R14/15E & TR.42 & 43 T17S, R15E  
 & POR. TR.411/2 T17S, R14/15E & POR. TR. 53 T17S, R15E

Tax Area Code  
 2-047 2-061  
 2-054 2-062  
 2-055 2-064  
 2-056  
 57-004

59-18



FROM 57-78	9-3-96 LS	5-22-02 AR	6-26-07 MF
1-24-78 DM	7-1-97 LS	8-01-02 AR	5-23-08 MF
FROM 57-40	10-27-97 LS	7-23-03 AR	5-27-08 LC
1-28-93 LS	7-20-00 RM	3-30-04 RM	5-28-08 MF
9-6-94 RM	11-14-00 AR	9-09-04 AR	6-19-09 LC
12-13-94 RM	10-31-01 AR	2-16-05 RM	7-2-09 MF
10-20-99 LS	12-12-01 AR	5-16-05 AR	8-10-11 MF
5-3-95 DP	1-23-02 AR	12-29-05 RM	3-13-12 MF
7-13-95 RM		6-06-07 MF	6-16-15 MF
			8-12-15 MF

**DISCLAIMER:**  
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CITY OF CALEXICO  
 Assessor's Map Bk.59-Pg.18  
 County of Imperial, Calif.

# APPENDIX 3

Property Location

Address:
APN#: 058-010-066000
Tract: ESTRADA INDUST PARK
Map Page/Grid: /
Total Assessed Value: 18,566
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
Census Tract: 0.00
Legal Desc: LOT 6 ESTRADA INDUSTRIAL PARK CITY OF CALEXICO 2AC
Tax Amount: 217.40
Tax Year: 2017
Zip: 92243-2114
County: Imperial
Zone:

Current Owner Information

Current Owner: W SILVER RECYCLING INC
City, State, Zip: EL PASO, TX, 79901-1824
Last Transaction: 02/20/2018
Amount:

Owner Address: 1720 MAGOFFIN AVE
Owner Occupied: No
Deed Type: deed of trust
Document: 0000002933

Last sale Information

Transferred From: MARTINEZ, BRENDA E
Recording / Sale Date: 02/20/2018 / 01/19/2018
Most Recent Sale Price: 300,000
Document Number: 0000002932
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender:
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carport: /
Fireplaces: 0
Pool/Spa: No

Lot Size: 84,071
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:

Property Location

Address:
APN#: 058-010-073000
Tract: ESTRADA INDUST PARK
Map Page/Grid: /
Total Assessed Value: 22,705
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
Census Tract: 0.00
Legal Desc: PAR A OF PM 058-010-67 IN CITY OF CALEXICO 2.46AC
Tax Amount: 264.40
Tax Year: 2017
Zip: 00000-
County: Imperial
Zone:

Current Owner Information

Current Owner: W SILVER RECYLING INC
City, State, Zip: EL PASO, TX, 79901-1824
Last Transaction: 02/20/2018
Amount: 375,000

Owner Address: 1720 MAGOFFIN AVE
Owner Occupied: No
Deed Type:
Document: 0000002931

Last sale Information

Transferred From: ESTRADA ALICE TRUST
Recording / Sale Date: 02/20/2018 / 08/18/2017
Most Recent Sale Price: 375,000
Document Number: 0000002931
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender: CITIZENS BK/LAS CRUCES
Loan Amount / 2nd Trust Deed: 378,353 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carport: /
Fireplaces: 0
Pool/Spa: No

Lot Size: 106,722
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:

Property Location

Address:
APN#: 058-400-051000
Tract:
Map Page/Grid: /
Total Assessed Value: 123,500
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
Census Tract: 122.00
Legal Desc: LOT 1 SHERMAN INDUSTRIAL PARK SUB CITY OF CALEXICO
Tax Amount: 1,409.82
Tax Year: 2017
Zip: 92243-9725
County: Imperial
Zone:

Current Owner Information

Current Owner: SCHAEFER LIVING TRUST
City, State, Zip: CALEXICO, CA, 92231-4026
Last Transaction: 11/06/2017
Amount:

Owner Address: 1235 GARNET ST
Owner Occupied: No
Deed Type: quitclaim/deed of trust
Document: 0000024314

Last sale Information

Transferred From: DAVILA MARIA B E
Recording / Sale Date: 08/31/2017 / 03/15/2017
Most Recent Sale Price: 120,000
Document Number: 0000019563
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender:
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carpport: /
Fireplaces: 0
Pool/Spa: No

Lot Size: 3,639
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:

# APPENDIX 4

**Property Location**

Address: 374 CAMACHO ST  
 APN#: 058-030-054000  
 Tract: KLOKE  
 Map Page/Grid: 6620/ G5  
 Total Assessed Value: 59,555  
 Percent Improvement: 0.00

City: CALEXICO  
 Use Code: Industrial Miscellaneous  
 Census Tract: 119.00  
 Legal Desc: PAR 1 PM 2064 OF E2 OF E2 LOT 15 KLOKE TRACT 1.25AC  
 Tax Amount: 670.60  
 Tax Year: 2017

Zip: 92231-9724  
 County: Imperial  
 Zone:

**Current Owner Information**

Current Owner: CARBAJAL,POMPOSO GERARDO  
 City, State, Zip: CALEXICO, CA, 92231-3918  
 Last Transaction: 03/31/2016  
 Amount: 110,000

Owner Address: 992 ZAPATA ST  
 Owner Occupied: No  
 Deed Type:  
 Document: 0000006160

**Last sale Information**

Transferred From: AAXIOS FINANCIAL LLC  
 Recording / Sale Date: 03/31/2016 / 03/29/2016  
 Most Recent Sale Price: 110,000  
 Document Number: 0000006160  
 Document Type: grant deed/deed of trust

Seller Address:  
 Prior Recording / Sale Date: 07/16/2004 /  
 Prior Sale Price: 85,000  
 Prior Document No.: 0000022160  
 Prior Document Type: grant deed/deed of trust

**Lender Information**

Lender:  
 Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F  
 Loan Type: conventional

**Physical Information**

Building Area: 0  
 Additional: 0  
 Garage: 0  
 First Floor: 0  
 Second Floor: 0  
 Third Floor: 0  
 Basement Finished: 0  
 Basement Unfinished: 0

# of Bedrooms: 0  
 # of Bathrooms: 0.00  
 # of Stories: 0  
 Total Rooms: 0  
 # of Units: 1  
 Garage/Carport: /  
 Fireplaces: 0  
 Pool/Spa: No

Lot Size: 54,450  
 Year Built / Effective: 0 / 0  
 Heating:  
 Cooling:  
 Roof Type:  
 Construction/Quality: Primary Material Unlisted / 0  
 Building Shape:  
 View:

Property Location

Address: 300 W COLE BLVD  
APN#: 058-020-015000  
Tract: KLOKE  
Map Page/Grid: /  
Total Assessed Value: 679,562  
Percent Improvement: 0.00

City: CALEXICO  
Use Code: Vacant Industrial  
Census Tract: 119.00  
Legal Desc: LOT 4 KLOKE TR 10AC OM 1 8  
Tax Amount: 7,721.68  
Tax Year: 2017

Zip: 92231-9754  
County: Imperial  
Zone:

Current Owner Information

Current Owner: HT INDUSTRIAL LLC  
City, State, Zip: BUFFALO, WY, 82834-0  
Last Transaction: 04/12/2017  
Amount: 1,000,000

Owner Address: 412 W MAIN ST 100  
Owner Occupied: No  
Deed Type:  
Document: 0000008668

Last sale Information

Transferred From: AQUA GROUP VENTURES LLC  
Recording / Sale Date: 04/12/2017 / 04/05/2017  
Most Recent Sale Price: 1,000,000  
Document Number: 0000008668  
Document Type: grant deed/deed of trust

Seller Address:  
Prior Recording / Sale Date: /  
Prior Sale Price:  
Prior Document No.:  
Prior Document Type:

Lender Information

Lender:  
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial:  
Loan Type: conventional

Physical Information

Building Area: 0  
Additional: 0  
Garage: 0  
First Floor: 0  
Second Floor: 0  
Third Floor: 0  
Basement Finished: 0  
Basement Unfinished: 0

# of Bedrooms: 0  
# of Bathrooms: 0.00  
# of Stories: 0  
Total Rooms: 0  
# of Units: 0  
Garage/Carport: /  
Fireplaces: 0  
Pool/Spa: No

Lot Size: 435,600  
Year Built / Effective: 0 / 0  
Heating:  
Cooling:  
Roof Type:  
Construction/Quality: Primary Material Unlisted / 0  
Building Shape:  
View:

**Property Location**

Address: COLE RD  
 APN#: 058-051-011000  
 Tract: CALEXICO INDUST PARK  
 Map Page/Grid: /  
 Total Assessed Value: 172,380  
 Percent Improvement: 7.00

City: CALEXICO  
 Use Code: Vacant Industrial  
 Census Tract: 119.00  
 Legal Desc: LOT 28 BLK 3 CALEXICO INDUSTRIAL PARK CITY OF CALEXICO  
 Tax Amount: 1,963.64  
 Tax Year: 2017

Zip: 92231-  
 County: Imperial  
 Zone:

**Current Owner Information**

Current Owner: SOUTHBAY TRANSPORT INC  
 City, State, Zip: LONG BEACH, CA, 90806-1308  
 Last Transaction: 12/28/2015  
 Amount: 325,000

Owner Address: 3180 GOLDEN AVE  
 Owner Occupied: No  
 Deed Type:  
 Document: 0000026457

**Last sale Information**

Transferred From: HASS ERICH R LIVING TRUST  
 Recording / Sale Date: 12/28/2015 / 12/21/2015  
 Most Recent Sale Price: 325,000  
 Document Number: 0000026457  
 Document Type: grant deed/deed of trust

Seller Address:  
 Prior Recording / Sale Date: 12/07/2010 / 12/06/2010  
 Prior Sale Price: 300,000  
 Prior Document No.: 0000030531  
 Prior Document Type: grant deed/deed of trust

**Lender Information**

Lender: PRIVATE INDIVIDUAL  
 Loan Amount / 2nd Trust Deed: 255,000 / 0

Full/Partial: F  
 Loan Type: conventional variable

**Physical Information**

Building Area: 0  
 Additional: 0  
 Garage: 0  
 First Floor: 0  
 Second Floor: 0  
 Third Floor: 0  
 Basement Finished: 0  
 Basement Unfinished: 0

# of Bedrooms: 0  
 # of Bathrooms: 0.00  
 # of Stories: 0  
 Total Rooms: 0  
 # of Units: 0  
 Garage/Carport: /  
 Fireplaces: 0  
 Pool/Spa: No

Lot Size: 45,738  
 Year Built / Effective: 0 / 0  
 Heating:  
 Cooling:  
 Roof Type:  
 Construction/Quality: Primary Material Unlisted / 0  
 Building Shape:  
 View:

**Property Location**

Address: COLE RD  
 APN#: 058-051-017000  
 Tract: CALEXICO INDUST PARK  
 Map Page/Grid: /  
 Total Assessed Value: 159,120  
 Percent Improvement: 0.00

City: CALEXICO  
 Use Code: Vacant Industrial  
 Census Tract: 119.00  
 Legal Desc: LOT 22 BLK 3 CALEXICO INDUSTRIAL PARK CITY OF CALEXICO  
 Tax Amount: 1,813.12  
 Tax Year: 2017

Zip: 92231-  
 County: Imperial  
 Zone:

**Current Owner Information**

Current Owner: SOUTHBAY TRANSPORT INC  
 City, State, Zip: LONG BEACH, CA, 90806-1308  
 Last Transaction: 12/28/2015  
 Amount: 325,000

Owner Address: 3180 GOLDEN AVE  
 Owner Occupied: No  
 Deed Type:  
 Document: 0000026457

**Last sale Information**

Transferred From: HASS ERICH R LIVING TRUST  
 Recording / Sale Date: 12/28/2015 / 12/21/2015  
 Most Recent Sale Price: 325,000  
 Document Number: 0000026457  
 Document Type: grant deed/deed of trust

Seller Address:  
 Prior Recording / Sale Date: 12/07/2010 / 12/06/2010  
 Prior Sale Price: 300,000  
 Prior Document No.: 0000030531  
 Prior Document Type: grant deed/deed of trust

**Lender Information**

Lender: PRIVATE INDIVIDUAL  
 Loan Amount / 2nd Trust Deed: 255,000 / 0

Full/Partial: F  
 Loan Type: conventional variable

**Physical Information**

Building Area: 0  
 Additional: 0  
 Garage: 0  
 First Floor: 0  
 Second Floor: 0  
 Third Floor: 0  
 Basement Finished: 0  
 Basement Unfinished: 0

# of Bedrooms: 0  
 # of Bathrooms: 0.00  
 # of Stories: 0  
 Total Rooms: 0  
 # of Units: 0  
 Garage/Carport: /  
 Fireplaces: 0  
 Pool/Spa: No

Lot Size: 43,996  
 Year Built / Effective: 0 / 0  
 Heating:  
 Cooling:  
 Roof Type:  
 Construction/Quality: Primary Material Unlisted / 0  
 Building Shape:  
 View:

Property Location

Address:
APN#: 059-384-004000
Tract: UNIT #1
Map Page/Grid: /
Total Assessed Value: 203,686
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
Census Tract: 119.00
Legal Desc: LOT 12 TRACT 941-UNIT NO 1 17-15/16 1.22AC
Tax Amount: 6,238.86
Tax Year: 2017

Zip: 00000-
County: Imperial
Zone:

Current Owner Information

Current Owner: VALEG LLC
City, State, Zip: CALEXICO, CA, 92231-9765
Last Transaction: 04/21/2016
Amount: 350,000

Owner Address: 413 ROOD RD STE 9
Owner Occupied: No
Deed Type:
Document: 0000007680

Last sale Information

Transferred From: WALAPAI TRUST
Recording / Sale Date: 04/21/2016 / 02/09/2016
Most Recent Sale Price: 350,000
Document Number: 0000007680
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender:
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carport: /
Fireplaces: 0
Pool/Spa: No

Lot Size: 53,579
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:

Property Location

Address:
APN#: 059-384-005000
Tract: UNIT #1
Map Page/Grid: /
Total Assessed Value: 153,313
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
Census Tract: 119.00
Legal Desc: LOT 11 TRACT 941-UNIT NO 1 17-15/16 .92AC
Tax Amount: 4,703.06
Tax Year: 2017

Zip: 00000-
County: Imperial
Zone:

Current Owner Information

Current Owner: VALEG LLC
City, State, Zip: CALEXICO, CA, 92231-9765
Last Transaction: 04/21/2016
Amount: 350,000

Owner Address: 413 ROOD RD STE 9
Owner Occupied: No
Deed Type:
Document: 0000007680

Last sale Information

Transferred From: WALAPAI TRUST
Recording / Sale Date: 04/21/2016 / 02/09/2016
Most Recent Sale Price: 350,000
Document Number: 0000007680
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender:
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carpport: /
Fireplaces: 0
Pool/Spa: No

Lot Size: 40,075
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:

**Property Location**

Address: 285 ROOD RD  
 APN#: 059-511-006000  
 Tract:  
 Map Page/Grid: /  
 Total Assessed Value: 6,639,144  
 Percent Improvement: 0.90

City: CALEXICO  
 Use Code: Industrial Miscellaneous  
 Census Tract: 119.00  
 Legal Desc: PAR B PER LLA 00219, 7.579AC, COUNTY OF IMPERIAL  
 Tax Amount: 98,409.76  
 Tax Year: 2017

Zip: 92231-9534  
 County: Imperial  
 Zone:

**Current Owner Information**

Current Owner: CALEXICO DISTRIBUTION CENTER LLC  
 City, State, Zip: CHULA VISTA, CA, 91914-4508  
 Last Transaction: 07/25/2013  
 Amount: 575,000

Owner Address: 821 KUHN DR STE 100  
 Owner Occupied: No  
 Deed Type:  
 Document: 0000017460

**Last sale Information**

Transferred From: MICII LLC  
 Recording / Sale Date: 07/25/2013 / 07/23/2013  
 Most Recent Sale Price: 575,000  
 Document Number: 0000017460  
 Document Type: grant deed/deed of trust

Seller Address:  
 Prior Recording / Sale Date: 10/21/2010 / 10/18/2010  
 Prior Sale Price: 2,777,399  
 Prior Document No.: 0000026375  
 Prior Document Type: high liability

**Lender Information**

Lender:  
 Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F  
 Loan Type: conventional

**Physical Information**

Building Area: 0  
 Additional: 0  
 Garage: 0  
 First Floor: 0  
 Second Floor: 0  
 Third Floor: 0  
 Basement Finished: 0  
 Basement Unfinished: 0

# of Bedrooms: 0  
 # of Bathrooms: 0.00  
 # of Stories: 0  
 Total Rooms: 0  
 # of Units: 0  
 Garage/Carport: /  
 Fireplaces: 0  
 Pool/Spa: No

Lot Size: 329,749  
 Year Built / Effective: 0 / 0  
 Heating:  
 Cooling:  
 Roof Type:  
 Construction/Quality: Primary Material Unlisted / 0  
 Building Shape:  
 View:

Property Location

Address:
APN#: 059-511-009000
Tract:
Map Page/Grid: /
Total Assessed Value: 800,000
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
Census Tract: 119.00
Legal Desc: PAR 1 OF PM 13-74 ALSO BEING A POR SEC 13 17-15
Tax Amount: 29,908.84
Tax Year: 2017
Zip: 00000-
County: Imperial
Zone:

Current Owner Information

Current Owner: CALEXICO CROSSINGS II LLC
City, State, Zip: CHULA VISTA, CA, 91914-4508
Last Transaction: 08/25/2016
Amount: 800,000

Owner Address: 821 KUHN DR STE 100
Owner Occupied: No
Deed Type:
Document: 0000017325

Last sale Information

Transferred From: CHAPEL L TRANSPORTERS LLC
Recording / Sale Date: 08/25/2016 / 07/08/2016
Most Recent Sale Price: 800,000
Document Number: 0000017325
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender:
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carport: /
Fireplaces: 0
Pool/Spa: No

Lot Size: 282,269
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:



URBAN FUTURES, INC.  
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Public Finance Group

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Tustin, CA 92780

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[www.urbanfuturesinc.com](http://www.urbanfuturesinc.com)

# City of Calexico

## REPORT ON FAIR AND REASONABLE COMPENSATION FOR WASTEWATER ENTERPRISE FUND USE OF GENERAL FUND REAL PROPERTY FOR WWTP



*"Where California And Mexico Meet"*

**Urban Futures, Inc.**  
17821 E 17th St, Suite 245  
Tustin, CA 92780

# Table of Contents

Cover Letter .....	iii
I. Introduction and Background .....	1
A. Background and Objective of Report .....	1
B. City Provided Data and Assumptions; Limitations.....	1
C. Preparation of Valuation Model; General Methodology; Legal Standards .....	2
II. Summary of Valuation .....	2
III. Description of WWTP Site.....	3
IV. Comparable Property Sales .....	4
V. Valuation Methodology to Determine Compensation for WWTP Occupancy and Use of General Fund Real Property .....	5
VI. Update and Maintenance of Valuation Model .....	7
 Table 1: Summary of Estimated Fair and Reasonable Annual Compensation for WWTP Occupancy and Use of General Fund Property (FY 2018-19).....	 3
Table 2: Summary of Comparable Property Sale Transactions (2015 to 2018) .....	4
 Appendix 1 – Valuation Model	
Appendix 2 – Parcel Map of Subject Property	
Appendix 3 - Property Profile of Comparable Properties	



# UFI

## Financial Solutions

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September 11, 2018

David B. Dale  
City Manager  
City of Calexico  
608 Heber Avenue  
Calexico, CA 92231

**Re: Report on Fair and Reasonable Compensation for Wastewater Enterprise Fund Use of General Fund Real Property for WWTP**

Dear Mr. Dale:

In response to your request, Urban Futures, Inc. (UFI) is pleased to provide the City of Calexico with a valuation model and report on fair and reasonable compensation for the Wastewater Enterprise Use of General Fund property for the city's wastewater treatment plant. Since 1972, UFI has provided financial consulting and advisory services to California cities, counties, special districts, schools, community colleges, and non-profits. Through our two divisions—the Public Finance Group and the Public Management Group—we offer solutions to financial opportunities and challenges our clients encounter.

The Public Management Group that prepared this report is comprised of former city executives, legal counsel, and finance and economic development professionals. Collectively, our Public Management Group has decades of expertise in specialty areas such as finance, public law, real estate, and economic and fiscal impact analysis.

We appreciate this opportunity to work with the City. If you have any questions, please do not hesitate to contact me at (909) 648-3176 or [jamesm@urbanfuturesinc.com](mailto:jamesm@urbanfuturesinc.com).

Sincerely,

James P. Morris  
Managing Principal

## **I. Introduction and Background**

### **A. Background and Objective of Report**

The City of Calexico (City) operates its own wastewater collection and treatment system. The City's wastewater operations consist of a collection system with pipes ranging in size from six inches to 30 inches in diameter, a wastewater treatment plant (WWTP) located in the southwest part of the City and a recycled water disposal system. The WWTP uses activated sludge technology and has an average daily flow capacity of 4.3 million gallons per day (MGD) and peak daily flow capacity of 5.5 MGD. The process consists of a head works structure, primary clarifier, aeration tanks, secondary clarifiers and sludge drying beds.

The wastewater collection and treatment system operates as a stand-alone public enterprise, with a separate accounting and financial reporting mechanism for revenues and expenses associated with providing the utility service to customers. As an enterprise operation (business-type activity), the revenues, expenditures and assets for wastewater collection and treatment are segregated into an enterprise (proprietary) fund with its own accounting, balance sheet and financial statements ("Wastewater Enterprise Fund") that is separate from the revenues, expenditures and assets of government activities in the City's General Fund ("General Fund").

According to the City, the WWTP is located on real property recorded as a long-term fixed capital asset of the General Fund. In other words, the Wastewater Enterprise Fund is using an asset of the General Fund to provide sewer service. Because the Wastewater Enterprise Fund is accounted as enterprise fund and treated as separate business-type activity, the Wastewater Fund should compensate the General Fund for the fair value of its proportionate use of any General Fund asset.

The purpose of this report (and the attached valuation model) is to document the basis and methodology used to determine an estimate of fair and reasonable compensation that should be paid to the General Fund from the Wastewater Enterprise Fund for the WWTP's occupancy and use of a General Fund real property asset.

### **B. City Provided Data and Assumptions; Limitations**

In preparing this report and the valuation model, we have relied upon information provided by city staff. The city-provided information and data were considered accurate and reliable, and no independent verification was undertaken. Additional data from publicly available sources was gathered when required by the methodologies and variables incorporated within the model. The data, information, and assumptions provided by city staff that were relied upon in this report, and the additional data gathered from other sources, is detailed in Appendix 1.<sup>1</sup>

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<sup>1</sup> All information and data contained in this report has been obtained from sources believed to be reliable. UFI, however, has not verified such information and makes no guarantees, warranties or representations as to the

This report and model were prepared solely for the City of Calexico in accordance with the contract between the City and Urban Futures, Inc. (UFI) and is not intended for use by any other party for any other purpose. Various portions of this report may address relevant laws and regulations but should not be relied upon as legal advice.

### **C. Preparation of Valuation Model; General Methodology; Legal Standards**

The purpose of this report is not preparation of an appraisal for the General Fund property nor a property valuation based on averaging the per square foot price from recent sales of comparable properties. The circumstances present a more nuanced situation in which an enterprise fund operation is fully occupying and utilizing the real property assets of separate governmental fund. There is no set term or expected cessation of the use, and it could be that the use continues in perpetuity because an entire collection system is designed to flow to WWTP's current location.

To address these unique circumstances, a valuation model was developed and utilized to generally satisfy the applicable provisions and restrictions of Propositions 218 and 26, as interpreted by the courts, including but not limited to the "reasonable costs standard" of Articles XIII A and XIII C, and the "proportionate cost standard" of Article XIII D, of the California Constitution. The valuation model was developed in a Microsoft Office Excel® environment for ease of future maintenance, update and adjustment by city staff. The model is attached as Appendix 1 to this report, and an electronic copy of the model has been separately provided to the City for ongoing annual update, adjustment and use.

## **II. Summary of Valuation**

Table 1 is a summary of the output from the valuation model of the estimated reasonable and fair annual compensation that should be paid to the General Fund from the Wastewater Enterprise Fund for the WWTP's occupancy and use of a General Fund real property.

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completeness or accuracy thereof. This report is not an appraisal or intended to be used as a substitute for an appraisal, and valuation of the subject property is submitted subject to errors, omissions, or change in price or other material conditions.

<b>Table 1: Summary of Estimated Fair and Reasonable Annual Compensation for WWTP Occupancy and Use of General Fund Property (FY 2018-19)</b>	
Estimated Total SF of General Fund Property Occupied and Used for WWTP	871,200 sf
Per SF Value from Sales of Comparable Properties	\$2.98 per sf
Market Value of General Fund Property Occupied and Used for WWTP	\$2,599,118
Return on Equity or Yield for Ground-Leased General Fund Property	4.34%
<b>Estimated Fair and Reasonable Annual Compensation for WWTP Occupancy and Use of General Fund Property</b>	<b>\$112,802</b>

The specific methodologies and calculations applied to determine the above are detailed in the sections below.

**III. Description of WWTP Site**

The subject property (“Property”) comprises approximately 20 acres and is a portion of two parcels owned by the City that are recorded as assets of the General Fund (APN 058-180-019 and APN 058-180-021), and located at 298 East Anza Road, Calexico, California. The Property is bound to the north by the New River, to the south by the Calexico International Airport, and to the east by the City Animal Shelter. The Assessor’s Map encompassing the parcels identified herein is attached as Appendix 2.

The Property is zoned IND Industrial and is adjacent to bounded on the south, east and west by similarly zoned property. The IND zoning is intended as an area for modern industrial manufacturing and heavy industrial uses while permitting research, and administrative facilities that can meet high performance and development standards. Storage and whole trades are generally permitted but retail commercial uses are limited.

In addition, the Property is located within the County’s Airport Land Use Compatibility Plan (ALUCP). The ALUCP designation for the Property is Approach/Departure Zone (B-1) which prohibits certain uses. Prohibited industrial uses in the B-1 Zone include highly noise-sensitive uses, above ground storage, storage of highly flammable materials, and hazards to flight. Uses not normally acceptable in the B-1 Zone include intensive retail, intensive manufacturing or food processing, and multi-story office buildings.

The Property is located near and takes access from Cesar Chavez Boulevard which has been master planned to serve as the primary roadway entrance from Mexico through the Calexico West Border Station and is designated as a primary arterial. Primary arterial roadways are

designed to have four travel lanes and carry large volumes of traffic. When built to standard, this roadway classification has a maximum capacity of 37,500 vehicles per day.

Based on the above, the Property's current highest and best use is for industrial activities and the Property is similar in character, size and location as other strategically located industrial properties close to the United States – Mexico border.

#### IV. Comparable Property Sales

Within the last five years, there have been eight sale transactions for comparable properties zoned IND Industrial within the 92231 zip code which encompasses the City of Calexico and adjacent unincorporated areas. The comparable sales are for raw/unimproved industrial-zoned land with access from an improved street. The comparable properties are smaller than the Property, ranging in size from approximately 1 to 10 acres, but sufficient in size to accommodate a diversity of industrial uses. The location of the comparable properties are generally in areas adjacent to industrial or light industrial uses, with three of the eight properties located in a light industrial park within an adjacent county unincorporated area.

The following table summarizes the comparable properties used for this report. A full profile for each property and its sales transaction is contained in Appendix 3.

**Table 2: Summary of Comparable Property Sale Transactions (2013 to 2018)**

Address	Sales Price	Property Size (sf)	Price/sf
285 Rood Rd., Calexico, CA 92331	\$575,000	329,749	\$1.74
SW Corner M.L. King Ave. and Cole Blvd., Calexico, CA 92331	\$325,000	45,738	\$7.11
SW Corner M.L. King Ave. and Cole Blvd., Calexico, CA 92331	\$325,000	43,996	\$7.39
374 Camacho St., Calexico, CA 92231	\$110,000	54,450	\$2.02
Maggio Rd., Calexico, CA 92231	\$350,000	53,579	\$6.53
Maggio Rd., Calexico, CA 92231	\$350,000	40,075	\$8.73
Pan American St., Calexico, CA 92331	\$800,000	282,269	\$2.83
300 W. Cole Blvd., Calexico, CA 92331	\$1,000,000	435,600	\$2.30

Average Price per SF – All Sales	\$2.98
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Based on the similar use, condition and general location of these comparable properties, and in compliance with the general legal standards discussed in Section 1, we do not recommend any adjustments to the comparable sales the valuation of data. Thus, \$2.98 per square foot is used in this report as the market value sales price for the Property, which equates to a total value of \$2,599,118 for the 20-acres. This amount was derived by assembling five years of market data for the sale of raw/unimproved IND-zoned properties in the market area. Outlier sales transactions were eliminated to help normalize the data and then an average per square foot sales value was calculated.

#### V. Valuation Methodology to Determine Compensation for WWTP Occupancy and Use of General Fund Real Property

The Wastewater Enterprise Fund has constructed and currently operates its WWTP on the Property. Thus, a long-term capital asset of the General Fund has been completely occupied and is fully utilized by the enterprise operations of the WWTP, and the Property is not available for any governmental operations of the City. In the absence of using the Property, the Wastewater Enterprise Fund would need to obtain other real property on which to locate, construct and operate its WWTP facility. Similar to investor-owned public utilities, in which shareholders are entitled to be compensated for contributed capital assets being used for the provision of utility services,<sup>2</sup> the City's General Fund has contributed a real property asset to the Wastewater Enterprise Fund for which the General Fund should be fairly compensated.

Because the Property is exclusively occupied and used by the WWTP, it was determined that treating the property use as similar to an unsubordinated long-term ground lease was the most appropriate valuation methodology. Long-term ground leases from 55 to 99 years are increasingly common in the industrial sector and are most often found in locations where real estate sales transactions are minimal due to scarcity of available land and high demand. There are two basic inputs for determining an appropriate rate for a long-term ground lease: (1) the market value of the property (land only), and (2) an appropriate yield for the property use. The following explains the methodology used to determine these two inputs:

- Market Value of General Fund Property. The market value of the Property (land only) is \$2,599,118, as detailed in Section IV of this report.
- Appropriate Yield for Property Use. As explained below, a yield of 4.34% is used in this report as appropriate for ground-leased General Fund property exclusively occupied and

<sup>2</sup> Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n, 262 U.S. 679 (1923); FPC v. Hope Natural Gas Co., 320 U.S. 591 (1944) [Utility shareholders are entitled to a fair return on prudently invested capital for assets that are "used and useful" in providing service to customers.].

used by a utility facility or other infrastructure. As landowner, the General Fund has a reasonable expectation to be compensated for the use of the Property. For an unsubordinated ground lease, this reasonable expectation of compensation takes the form of determining an appropriate “yield” from the lease (lease rate). In making this determination, several factors were considered:

- An unsubordinated ground lease is a ground lease where the landowner maintains its first position in the hierarchy of claims on the asset. In this case, a third-party would not have the right to take back the land in the case of default by the tenant. This unsubordinated position is considered much safer for the landowner (superior to a mortgage) and is typically accompanied by a lower expectation of yield (lease rate).
- For ground leases to high-credit tenants, landowners have no management or maintenance responsibility, little market risk and no physical depreciation concerns. For these reasons, the expected yield on a ground lease cannot be reasonably compared to a rate of return on alternative real estate investments. Instead, a ground lease is more comparable to a bank certificate of deposit or bond rate, and a historical review of ground lease rates has found them to fluctuate commensurately with interest rates like other long-term fixed investments.<sup>3</sup>

Given the above considerations, a range of potential yields was created. The upper boundary of the range is a 10.45% yield used by the California Public Utilities Commission (CPUC) as the return on equity which investor owned utilities may use for their investment in utility infrastructure.<sup>4</sup> We recommend the City set its expected yield below the upper boundary as the General Fund is not an investor-owned operation for which a market-based rate of return can be expected. The lower boundary of the range is the current yield for 5-year maturity on “AAA” rated and insured general obligations bond.<sup>5</sup> The 5-

<sup>3</sup> “Determining Ground-Lease Rental Rates,” *Appraisal Journal*, The Appraisal Institute, Vol. 62 (April 1994).

<sup>4</sup> The 10.45% return on equity is derived from the methodology approved by regulatory commissions such as the California Public Utilities Commission (CPUC) by which investor owned utilities may recover the cost of their investment in utility infrastructure (see, CPUC Decision 12-12-034 December 20, 2012, pp. 37-39, “Decision on Test Year 2013 Cost of Capital for the Major Energy Utilities”). Under this methodology, an investor is entitled to earn a return upon the value of its property (fixed assets) employed for the convenience of the public, within certain parameters established by a regulatory body to assess and ensure the reasonableness of such return. While the goal of this report is not to generate a “return on equity” (ROE) for General Fund capital assets used by the city’s public utilities, the CPUC industry practice and standard of ROE is reasonable and rationale methodology for determining an annual reimbursement for the utilities’ use of General Fund capital assets. The 10.45% ROE used in this report is the current (2016) ROE on common equity established by the CPUC for Southern California Edison (see id., CPUC Decision 12-12-034 December 20, 2012 [adopting capital structures and ROR and ROE for the four major California public utilities for year 2013 – 2016]. We recommend this ROE factor be periodically updated to ensure consistency with the then current CPUC determination for ROE on common equity for investor owned utilities.

<sup>5</sup> The specific benchmark used in the Reimbursement Report is the Municipal Market Data – “AAA” Insured 5-Year Maturity. The Thomson Reuters Municipal Market Data (MMD) AAA Curve is a proprietary yield curve that provides

year benchmark is a good proxy for a very low-risk, high-grade investment over a five year period, and was selected on the assumption that the City will use a five-year rolling average of real estate values for adjusting the market value of General Fund real property assets. We recommend the City set its expected yield at least two bases points above this yield, as the 5-Year benchmark is considered to largely only keep pace with inflation (similar to a certificate of deposit).

Based on the above-described data and general industry practices/assumptions, an estimate of the annual value of an unsubordinated long-term ground lease of the Property was calculated to be \$112,802. This annualized value is the equivalent of the fair and reasonable compensation the General Fund should be annually paid by the Wastewater Enterprise Fund for the WWTP use and occupancy of the Property. The data and calculations used to determine the ground-leased value of the Property are contained in the valuation model in Appendix 1.

#### **VI. Update and Maintenance of Valuation Model**

The valuation model upon which this report is based has been provided to the City under separate cover in Microsoft Office Excel® format. The valuation model is designed to be updated and maintained by city staff. Periodically, the data in the valuation model should be updated. As a best practice, we recommend updating the model at least every five years or earlier to ensure real estate values and yield benchmarks reflect current market pricing.

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the offer-side of "AAA" rated and insured state general obligation bonds, as determined by the MMD analyst team. As of September 11, 2018, the current yield for this benchmark was 2.34%.

# APPENDIX 1

CITY OF CALEXICO - VALUATION MODEL - WWTP OCCUPANCY AND USE OF GENERAL FUND PROPERTY  
 Comparable Land Sales Table, Yield and Valuation Calculations  
 Fiscal Year 2018-19

SALES OF VACANT RAW/UNIMPROVED LAND ZONED INDUSTRIAL (2013-2018)								
APN	Street	County	Sale		Owner Name	Property Size (sf)	Price/sf	
			Price	Date				
059-511-006	285 Rood Rd., Calexico, CA 92331	Imperial	\$575,000	7/25/2013	CALEXICO DISTRIBUTION CENTER LLC	329,749	\$1.74	
058-051-011	SW Corner M.L. King Ave. and Cole Blvd., Calexico, CA 92331	Imperial	\$325,000	12/28/2015	SOUTHBAY TRANSPORT INC	45,738	\$7.11	
058-051-017	SW Corner M.L. King Ave. and Cole Blvd., Calexico, CA 92331	Imperial	\$325,000	12/28/2015	SOUTHBAY TRANSPORT INC	43,996	\$7.39	
058-030-054	374 Camacho St., Calexico, CA 92231	Imperial	\$110,000	3/31/2016	CARBAJAL, POMOSO	54,450	\$2.02	
059-384-004	Maggio Rd., Calexico, CA 92231	Imperial	\$350,000	4/21/2016	VALEG LLC	53,579	\$6.53	
059-384-005	Maggio Rd., Calexico, CA 92231	Imperial	\$350,000	4/21/2016	VALEG LLC	40,075	\$8.73	
059-511-009	Pan American St., Calexico, CA 92331	Imperial	\$800,000	8/25/2016	CALEXICO CROSSINGS II LLC	282,269	\$2.83	
058-020-015	300 W. Cole Blvd., Calexico, CA 92331	Imperial	\$1,000,000	4/12/2017	HT INDUSTRIAL LLC	435,600	\$2.30	
TOTALS			\$3,835,000			1,285,456	\$2.98	

INDICES FOR RETURN ON EQUITY (ROE) OR YIELD FOR GROUND-LEASED CITY PROPERTY		
High Yield: CPUC - ROE for Investor-Owned Utilities	10.45%	
Low Yield: Municipal Market Data - "AAA" 1-Year Maturity	2.34%	as of 9/11/2018
Fair and Reasonable Yield for Ground-Leased City Property	4.34%	= Low Yield + 2.00%

VALUATION OF WWTP OCCUPANCY AND USE OF GENERAL FUND REAL PROPERTY	
Per SF Value from Sales of Comparable Properties	\$2.98 sf
Total SF of General Fund Property Occupied and Used for WWTP	871,200 sf
Market Value of General Fund Property Occupied and Used for WWTP	\$2,599,118
Return on Equity or Yield for Ground-Leased General Fund Property	4.34%
Estimated Fair and Reasonable Compensation for WWTP Occupancy and Use of General Fund Property	\$112,802

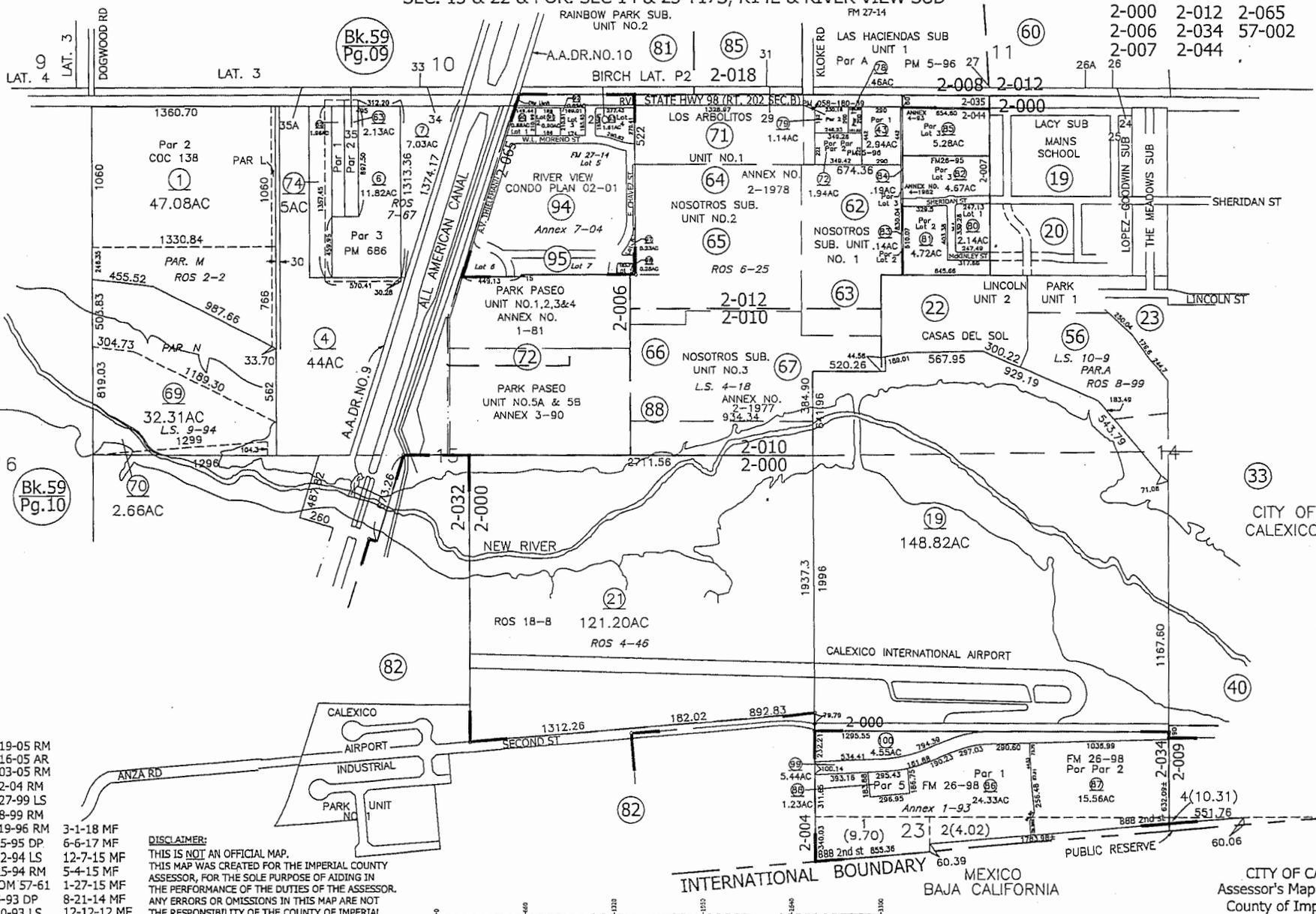
# APPENDIX 2

SEC. 15 & 22 & POR. SEC 14 & 23 T17S, R14E & RIVER VIEW SUB

Tax Area Code

2-000 2-012 2-065  
 2-006 2-034 57-002  
 2-007 2-044

58-18



- 08-19-05 RM
- 05-16-05 AR
- 02-03-05 RM
- 4-22-04 RM
- 10-27-99 LS
- 4-18-99 RM
- 11-19-96 RM
- 9-25-95 DP
- 6-22-04 LS
- 3-25-94 RM
- FROM 57-61
- 2-4-93 DP
- 3-10-93 LS
- 3-11-93 DP
- 3-1-18 MF
- 6-6-17 MF
- 12-7-15 MF
- 5-4-15 MF
- 1-27-15 MF
- 8-21-14 MF
- 12-12-12 MF
- 4-14-09 MF

**DISCLAIMER:**  
 THIS IS NOT AN OFFICIAL MAP.  
 THIS MAP WAS CREATED FOR THE IMPERIAL COUNTY  
 ASSESSOR, FOR THE SOLE PURPOSE OF AIDING IN  
 THE PERFORMANCE OF THE DUTIES OF THE ASSESSOR.  
 ANY ERRORS OR OMISSIONS IN THIS MAP ARE NOT  
 THE RESPONSIBILITY OF THE COUNTY OF IMPERIAL  
 OR THE ASSESSOR. (REV. & TAX. CODE SEC.327)

INTERNATIONAL BOUNDARY  
 MEXICO  
 BAJA CALIFORNIA

CITY OF CALEXICO  
 Assessor's Map Bk.58-Pg.18  
 County of Imperial, Calif.

# APPENDIX 3

Property Location

Address: 374 CAMACHO ST  
APN#: 058-030-054000  
Tract: KLOKE  
Map Page/Grid: 6620/ G5  
Total Assessed Value: 59,555  
Percent Improvement: 0.00

City: CALEXICO  
Use Code: Industrial Miscellaneous  
Census Tract: 119.00  
Legal Desc: PAR 1 PM 2064 OF E2 OF E2 LOT 15 KLOKE TRACT 1.25AC  
Tax Amount: 670.60  
Tax Year: 2017

Zip: 92231-9724  
County: Imperial  
Zone:

Current Owner Information

Current Owner: CARBAJAL,POMPOSO GERARDO  
City, State, Zip: CALEXICO, CA, 92231-3918  
Last Transaction: 03/31/2016  
Amount: 110,000

Owner Address: 992 ZAPATA ST  
Owner Occupied: No  
Deed Type:  
Document: 0000006160

Last sale Information

Transferred From: AAXIOS FINANCIAL LLC  
Recording / Sale Date: 03/31/2016 / 03/29/2016  
Most Recent Sale Price: 110,000  
Document Number: 0000006160  
Document Type: grant deed/deed of trust

Seller Address:  
Prior Recording / Sale Date: 07/16/2004 /  
Prior Sale Price: 85,000  
Prior Document No.: 0000022160  
Prior Document Type: grant deed/deed of trust

Lender Information

Lender:  
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F  
Loan Type: conventional

Physical Information

Building Area: 0  
Additional: 0  
Garage: 0  
First Floor: 0  
Second Floor: 0  
Third Floor: 0  
Basement Finished: 0  
Basement Unfinished: 0

# of Bedrooms: 0  
# of Bathrooms: 0.00  
# of Stories: 0  
Total Rooms: 0  
# of Units: 1  
Garage/Carport: /  
Fireplaces: 0  
Pool/Spa: No

Lot Size: 54,450  
Year Built / Effective: 0 / 0  
Heating:  
Cooling:  
Roof Type:  
Construction/Quality: Primary Material Unlisted / 0  
Building Shape:  
View:

Property Location

Address: 374 CAMACHO ST  
APN#: 058-030-054000  
Tract: KLOKE  
Map Page/Grid: 6620/ G5  
Total Assessed Value: 59,555  
Percent Improvement: 0.00

City: CALEXICO  
Use Code: Industrial Miscellaneous  
Census Tract: 119.00  
Legal Desc: PAR 1 PM 2064 OF E2 OF-E2 LOT 15 KLOKE TRACT 1.25AC  
Tax Amount: 670.60  
Tax Year: 2017

Zip: 92231-9724  
County: Imperial  
Zone:

Current Owner Information

Current Owner: CARBAJAL,POMPOSO GERARDO  
City, State, Zip: CALEXICO, CA, 92231-3918  
Last Transaction: 03/31/2016  
Amount: 110,000

Owner Address: 992 ZAPATA ST  
Owner Occupied: No  
Deed Type:  
Document: 0000006160

Last sale Information

Transferred From: AAXIOS FINANCIAL LLC  
Recording / Sale Date: 03/31/2016 / 03/29/2016  
Most Recent Sale Price: 110,000  
Document Number: 0000006160  
Document Type: grant deed/deed of trust

Seller Address:  
Prior Recording / Sale Date: 07/16/2004 /  
Prior Sale Price: 85,000  
Prior Document No.: 0000022160  
Prior Document Type: grant deed/deed of trust

Lender Information

Lender:  
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F  
Loan Type: conventional

Physical Information

Building Area: 0  
Additional: 0  
Garage: 0  
First Floor: 0  
Second Floor: 0  
Third Floor: 0  
Basement Finished: 0  
Basement Unfinished: 0

# of Bedrooms: 0  
# of Bathrooms: 0.00  
# of Stories: 0  
Total Rooms: 0  
# of Units: 1  
Garage/Carport: /  
Fireplaces: 0  
Pool/Spa: No

Lot Size: 54,450  
Year Built / Effective: 0 / 0  
Heating:  
Cooling:  
Roof Type:  
Construction/Quality: Primary Material Unlisted / 0  
Building Shape:  
View:

Property Location

Address: COLE RD  
APN#: 058-051-011000  
Tract: CALEXICO INDUST PARK  
Map Page/Grid: /  
Total Assessed Value: 172,380  
Percent Improvement: 7.00

City: CALEXICO  
Use Code: Vacant Industrial  
Census Tract: 119.00  
Legal Desc: LOT 28 BLK 3 CALEXICO INDUSTRIAL PARK CITY OF CALEXICO  
Tax Amount: 1,963.64  
Tax Year: 2017  
Zip: 92231-  
County: Imperial  
Zone:

Current Owner Information

Current Owner: SOUTHBAY TRANSPORT INC  
City, State, Zip: LONG BEACH, CA, 90806-1308  
Last Transaction: 12/28/2015  
Amount: 325,000

Owner Address: 3180 GOLDEN AVE  
Owner Occupied: No  
Deed Type:  
Document: 0000026457

Last sale Information

Transferred From: HASS ERICH R LIVING TRUST  
Recording / Sale Date: 12/28/2015 / 12/21/2015  
Most Recent Sale Price: 325,000  
Document Number: 0000026457  
Document Type: grant deed/deed of trust

Seller Address:  
Prior Recording / Sale Date: 12/07/2010 / 12/06/2010  
Prior Sale Price: 300,000  
Prior Document No.: 0000030531  
Prior Document Type: grant deed/deed of trust

Lender Information

Lender: PRIVATE INDIVIDUAL  
Loan Amount / 2nd Trust Deed: 255,000 / 0

Full/Partial: F  
Loan Type: conventional variable

Physical Information

Building Area: 0  
Additional: 0  
Garage: 0  
First Floor: 0  
Second Floor: 0  
Third Floor: 0  
Basement Finished: 0  
Basement Unfinished: 0

# of Bedrooms: 0  
# of Bathrooms: 0.00  
# of Stories: 0  
Total Rooms: 0  
# of Units: 0  
Garage/Carpport: /  
Fireplaces: 0  
Pool/Spa: No

Lot Size: 45,738  
Year Built / Effective: 0 / 0  
Heating:  
Cooling:  
Roof Type:  
Construction/Quality: Primary Material Unlisted / 0  
Building Shape:  
View:

Property Location

Address: COLE RD  
APN#: 058-051-017000  
Tract: CALEXICO INDUST PARK  
Map Page/Grid: /  
Total Assessed Value: 159,120  
Percent Improvement: 0.00

City: CALEXICO  
Use Code: Vacant Industrial  
Census Tract: 119.00  
Legal Desc: LOT 22 BLK 3 CALEXICO INDUSTRIAL PARK CITY OF CALEXICO  
Tax Amount: 1,813.12  
Tax Year: 2017  
Zip: 92231-  
County: Imperial  
Zone:

Current Owner Information

Current Owner: SOUTHBAY TRANSPORT INC  
City, State, Zip: LONG BEACH, CA, 90806-1308  
Last Transaction: 12/28/2015  
Amount: 325,000

Owner Address: 3180 GOLDEN AVE  
Owner Occupied: No  
Deed Type:  
Document: 0000026457

Last sale Information

Transferred From: HASS ERICH R LIVING TRUST  
Recording / Sale Date: 12/28/2015 / 12/21/2015  
Most Recent Sale Price: 325,000  
Document Number: 0000026457  
Document Type: grant deed/deed of trust

Seller Address:  
Prior Recording / Sale Date: 12/07/2010 / 12/06/2010  
Prior Sale Price: 300,000  
Prior Document No.: 0000030531  
Prior Document Type: grant deed/deed of trust

Lender Information

Lender: PRIVATE INDIVIDUAL  
Loan Amount / 2nd Trust Deed: 255,000 / 0

Full/Partial: F  
Loan Type: conventional variable

Physical Information

Building Area: 0  
Additional: 0  
Garage: 0  
First Floor: 0  
Second Floor: 0  
Third Floor: 0  
Basement Finished: 0  
Basement Unfinished: 0

# of Bedrooms: 0  
# of Bathrooms: 0.00  
# of Stories: 0  
Total Rooms: 0  
# of Units: 0  
Garage/Carport: /  
Fireplaces: 0  
Pool/Spa: No

Lot Size: 43,996  
Year Built / Effective: 0 / 0  
Heating:  
Cooling:  
Roof Type:  
Construction/Quality: Primary Material Unlisted / 0  
Building Shape:  
View:

Property Location

Address:
APN#: 059-384-004000
Tract: UNIT #1
Map Page/Grid: /
Total Assessed Value: 203,686
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
Census Tract: 119.00
Legal Desc: LOT 12 TRACT 941-UNIT NO 1 17-15/16 1.22AC
Tax Amount: 6,238.86
Tax Year: 2017
Zip: 00000-
County: Imperial
Zone:

Current Owner Information

Current Owner: VALEG LLC
City, State, Zip: CALEXICO, CA, 92231-9765
Last Transaction: 04/21/2016
Amount: 350,000

Owner Address: 413 ROOD RD STE 9
Owner Occupied: No
Deed Type:
Document: 0000007680

Last sale Information

Transferred From: WALAPAI TRUST
Recording / Sale Date: 04/21/2016 / 02/09/2016
Most Recent Sale Price: 350,000
Document Number: 0000007680
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender:
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carport: /
Fireplaces: 0
Pool/Spa: No

Lot Size: 53,579
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:

Property Location

Address:
APN#: 059-384-005000
Tract: UNIT #1
Map Page/Grid: /
Total Assessed Value: 153,313
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
Census Tract: 119.00
Legal Desc: LOT 11 TRACT 941-UNIT NO 1 17-15/16 .92AC
Tax Amount: 4,703.06
Tax Year: 2017

Zip: 00000-
County: Imperial
Zone:

Current Owner Information

Current Owner: VALEG LLC
City, State, Zip: CALEXICO, CA, 92231-9765
Last Transaction: 04/21/2016
Amount: 1350,000

Owner Address: 413 ROOD RD STE 9
Owner Occupied: No
Deed Type:
Document: 0000007680

Last sale Information

Transferred From: WALAPAI TRUST
Recording / Sale Date: 04/21/2016 / 02/09/2016
Most Recent Sale Price: 1350,000
Document Number: 0000007680
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender:
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carport: /
Fireplaces: 0
Pool/Spa: No

Lot Size: 40,075
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:

Property Location

Address: 285 ROOD RD  
APN#: 059-511-006000  
Tract:  
Map Page/Grid: /  
Total Assessed Value: 6,639,144  
Percent Improvement: 0.90

City: CALEXICO  
Use Code: Industrial Miscellaneous  
Census Tract: 119.00  
Legal Desc: PAR B PER LLA 00219, 7.579AC, COUNTY OF IMPERIAL  
Tax Amount: 98,409.76  
Tax Year: 2017  
Zip: 92231-9534  
County: Imperial  
Zone:

Current Owner Information

Current Owner: CALEXICO DISTRIBUTION CENTER LLC  
City, State, Zip: CHULA VISTA, CA, 91914-4508  
Last Transaction: 07/25/2013  
Amount: 575,000

Owner Address: 821 KUHN DR STE 100  
Owner Occupied: No  
Deed Type:  
Document: 0000017460

Last sale Information

Transferred From: MICII LLC  
Recording / Sale Date: 07/25/2013 / 07/23/2013  
Most Recent Sale Price: 575,000  
Document Number: 0000017460  
Document Type: grant deed/deed of trust

Seller Address:  
Prior Recording / Sale Date: 10/21/2010 / 10/18/2010  
Prior Sale Price: 2,777,399  
Prior Document No.: 0000026375  
Prior Document Type: high liability

Lender Information

Lender:  
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F  
Loan Type: conventional

Physical Information

Building Area: 0  
Additional: 0  
Garage: 0  
First Floor: 0  
Second Floor: 0  
Third Floor: 0  
Basement Finished: 0  
Basement Unfinished: 0

# of Bedrooms: 0  
# of Bathrooms: 0.00  
# of Stories: 0  
Total Rooms: 0  
# of Units: 0  
Garage/Carport: /  
Fireplaces: 0  
Pool/Spa: No

Lot Size: 329,749  
Year Built / Effective: 0 / 0  
Heating:  
Cooling:  
Roof Type:  
Construction/Quality: Primary Material Unlisted / 0  
Building Shape:  
View:

Property Location

Address:
APN#: 059-511-009000
Tract:
Map Page/Grid: /
Total Assessed Value: 800,000
Percent Improvement: 0.00

City:
Use Code: Vacant Industrial
County: Imperial
Zone:
Census Tract: 119.00
Legal Desc: PAR 1 OF PM 13-74 ALSO BEING A POR SEC 13 17-15
Tax Amount: 29,908.84
Tax Year: 2017

Current Owner Information

Current Owner: CALEXICO CROSSINGS II LLC
City, State, Zip: CHULA VISTA, CA, 91914-4508
Last Transaction: 08/25/2016
Amount: 800,000

Owner Address: 821 KUHN DR STE 100
Owner Occupied: No
Deed Type:
Document: 0000017325

Last sale Information

Transferred From: CHAPEL L TRANSPORTERS LLC
Recording / Sale Date: 08/25/2016 / 07/08/2016
Most Recent Sale Price: 800,000
Document Number: 0000017325
Document Type: grant deed/deed of trust

Seller Address:
Prior Recording / Sale Date: /
Prior Sale Price:
Prior Document No.:
Prior Document Type:

Lender Information

Lender:
Loan Amount / 2nd Trust Deed: 0 / 0

Full/Partial: F
Loan Type: conventional

Physical Information

Building Area: 0
Additional: 0
Garage: 0
First Floor: 0
Second Floor: 0
Third Floor: 0
Basement Finished: 0
Basement Unfinished: 0

# of Bedrooms: 0
# of Bathrooms: 0.00
# of Stories: 0
Total Rooms: 0
# of Units: 0
Garage/Carport: /
Fireplaces: 0
Pool/Spa: No

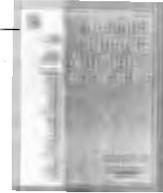
Lot Size: 282,269
Year Built / Effective: 0 / 0
Heating:
Cooling:
Roof Type:
Construction/Quality: Primary Material Unlisted / 0
Building Shape:
View:



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## Regional Science and Urban Economics

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## Valuing urban land: Comparing the use of teardown and vacant land sales

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## ABSTRACT

This study explores the use of “teardown” sales to estimate the value of urban land. When a buyer purchases a property intending to tear down the existing structure and rebuild, the value of land can potentially be estimated as the purchase price plus demolition costs. There has been little exploration of teardown sales in cities around the country, or any explicit comparisons between the estimates of land values derived from teardown sales and those derived through vacant land sales. This paper undertakes just such an explicit comparison, analyzing approximately 3800 teardown sales and 4900 vacant land sales occurring in New York City between 2003 and 2009. The two approaches yield surprisingly similar estimates of the value of both parcel attributes and locational amenities. However, vacant parcels are disproportionately located in very distressed neighborhoods and tend to be valued less highly than teardown parcels, even in the same neighborhood. Teardown parcels appear to be more representative of the city as a whole and may be a more useful approach to developing estimates of land prices, at least in the central cities of large urban areas where sample sizes are large enough.

## 1. Introduction

Understanding the value of urban land is critical for policy makers. Putting a price tag on land is a pre-requisite to adopting land taxes and other land-related policy reforms. Land values can also provide a critical window into people's willingness to pay for various neighborhood amenities. Because the supply of land is highly inelastic, its market value should be shaped mostly by residential and commercial demand. Variations in land prices within a city should thus reveal how much households and firms are willing to pay for neighborhood amenities such as accessibility to employment opportunities, access to better schools, and/or proximity to improved parks and public spaces. Additionally, land values can provide important information about real estate market fluctuations, as the value of land is likely more volatile than the value of structures. Unfortunately, it is difficult to get data on land prices – and even harder to get data that can explain variation in land prices within an urban area. Some try to infer the value of land from hedonic regressions of property transactions, or by subtracting replacement costs from the total property value (Glaeser and Gyourko, 2003). But given unobserved heterogeneity in homes, separating the price paid for land from the price paid for the structure is a challenge. Others examine sales of vacant lots, but such transactions are relatively rare and may not be representative (see, e.g., Haughwout et al., 2008; Kok et al., 2014; Nichols et al., 2013). A third possibility is “teardown sales,” which occur when a buyer

purchases a property intending to demolish the existing structure and rebuild. In such sales, the value of the land can potentially be estimated as the purchase price of teardown properties plus the costs of demolition. Rosenthal and Helsley (1994) and Dye and McMillen (2007) argue that teardown sales provide a unique opportunity to measure land values in high-demand, built-up urban areas.

There has been little exploration of these teardown sales in cities around the country, or any explicit comparison between the estimates of land values derived from teardown sales and those derived from sales of vacant parcels. This study aims to undertake just such an explicit comparison, and to build our understanding of the determinants of land values in large cities in the process. We focus on New York City during a housing boom, when teardowns were relatively frequent. We are able to identify approximately 3800 teardown sales and 4900 sales of vacant land parcels occurring in New York City between 2003 and 2009. We identify teardowns by matching a unique data set of all property sales to a full listing of demolition permits.

We start by comparing the location and attributes of the two types of transacting parcels to the full set of residential lots in New York City to see how representative they are. We then further test the validity of using teardowns as a measure of land prices by assessing the extent to which structural characteristics of the original building contribute to sales prices. Finally, we compare land value estimates produced by teardown sales to prices of vacant lots that sold during the same time frame. Do the

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two approaches offer differing assessments of the determinants of land values in New York City? Using the two methods, we estimate the contributions of proximity to the central business district, transit accessibility, proximity to parks, zoning restrictions (maximum allowed building capacity), and neighborhood demographics. Findings from this study will aid researchers and public officials in developing more sophisticated estimates of land prices in dense urban areas, improving our understanding of price volatility in real estate markets, and shedding light on the value of different neighborhood attributes and amenities.

## 2. Theory and past evidence

### 2.1. Determinants of land values

While the supply of land is ultimately fixed, local zoning restrictions control how much land is available for housing development, and how much housing can be built on individual parcels. Permitting requirements and other local regulations also shape how easy it is to build in different localities. Thus supply elasticity varies across localities, can change over time, and contributes to both housing and land prices (Glaeser and Gyourko, 2003; Mayer and Somerville, 2000).

As for demand for land, it is likely to be shaped by several factors. Some attributes of the lot itself determine the ease of building (such as zoning restrictions, lot size, and topography). Beyond these intrinsic features, the location of the lot should matter too. The classic monocentric model emphasizes accessibility to employment opportunities and markets, as proxied by distance to the central business district. The price of land is typically believed to be a negative exponential function of distance from the central business district, although some recent work has questioned the continued validity of this assumption (see Colwell and Munneke, 1997). (In today's polycentric cities, accessibility to highways or transit may be a more important measure of proximity to job opportunities.) The quality of local public services (and most critically schools) in the immediate area should also affect the value of a plot of land. Finally, other neighborhood conditions like demographics and crime may also be priced by the market.

Many hedonic studies of house prices attempt to measure the value of accessibility and various other amenities. They generally find that accessibility is positively related to house prices, as are measures of school quality and safety. But as noted, few studies have access to clean estimates of land values, and estimates of amenity values derived from house price regressions may be biased, in that unobserved differences in house quality may be correlated with neighborhood features and amenities.

### 2.2. Approaches to measuring land values

One common approach to valuing urban land is to compare the value of similar homes on lots of different sizes or on similarly sized lots in different locations. Hedonic regressions should theoretically reveal the marginal value that consumers place on an additional square foot of land. Unfortunately, data are inevitably incomplete, and unobserved heterogeneity of the underlying structures confounds these estimates.

An alternative approach is to subtract construction costs from the sales price of a property. Glaeser and Gyourko (2003), for example, subtract estimated construction costs (provided by R.S. Means) from reported home values and then divide by the square footage of land to come with their "extensive" estimates of the price of land. As the authors explain, this method should reveal the price tag of a buildable lot. Similarly, Davis and Palumbo (2008) and Davis et al. (2017) estimate changes in land prices as the difference between changes in overall house price appreciation and changes in the costs of constructing a home. Some drawbacks with this approach are again unobserved heterogeneity in structures and uncertainty about construction costs. Furthermore, to the extent that property values reflect the value of the option to continue using the existing structure, the value of the building may not perfectly

match construction costs.

We focus instead on two more direct ways of measuring land prices. First we analyze actual sales of vacant lots, building on a few recent studies that analyze samples of vacant land transactions in selected metropolitan areas. For example, Colwell and Munneke (2003) study 1194 vacant land sales over three years in the Chicago metropolitan area. Dale-Johnson et al. (2005) analyze land prices for 1760 unimproved parcels in Krakow, Poland, that transferred to private ownership following the end of socialist rule. More recent studies of vacant land sales analyze a proprietary data set provided by CoStar. Haughwout et al. (2008) use these data to examine over 6000 vacant land sales in the New York City metropolitan area from 1999 to 2006.<sup>1</sup> Similarly, Kok et al. (2014) analyze more than 7000 sales of vacant land in the San Francisco Bay Area occurring between 1990 and 2009. Finally, Nichols et al. (2013) use CoStar data to investigate the determinants of land values in 23 metropolitan areas in the United States. These studies find that land prices reflect attributes of the lot itself (size, preparation for building, and allowable zoning), as well as the parcel's location (access to jobs).

Our second approach follows the work of Rosenthal and Helsley (1994) and Dye and McMillen (2007), and uses teardown sales to estimate land values – that is, sales of properties that are demolished within a short window after purchase. Rosenthal and Helsley (1994) proposed that, under the reasonable assumption that net demolition costs are low, sales prices for teardown properties can provide reliable estimates of land value. Using the teardowns approach, these authors recover land values for a sample of 532 residential properties in Vancouver, British Columbia, that experienced a sale in 1987 and were slated for redevelopment at that time.<sup>2</sup> The authors find evidence that land prices in Vancouver decrease with distance to the central business district (CBD) and that neighborhood amenities are capitalized into land values.

In a more recent paper, Dye and McMillen (2007) define teardown sales as residential property sales for which demolition permits were issued in the subsequent two years. Using this definition, they identify 339 teardown sales in Cook County, Illinois (Chicago and its inner suburbs) between 1997 and 2003. These authors show that the sales prices of these properties are associated with locational attributes but not with the characteristics of the original structures, providing further evidence that these properties were purchased with the intent to demolish. Most recently, Brooks and Lutz (2016) rely on the teardown method to recover land values in Los Angeles.

### 2.3. Are vacant land and teardown parcels representative?

The key concern with using vacant parcels to assess land values is that they may be systematically different from other properties in the area. In particular, there may be good reasons that these parcels are vacant, reasons that are unobserved by researchers. Moreover, although some of the studies include a fairly large sample of total sales, they include relatively few sales in central cities.

Teardown parcels may also be unrepresentative of the broader set of parcels of land within a city or metropolitan area. Teardowns are likely to occur where demolitions are more profitable. As Weber et al. (2006) and Dye and McMillen (2007) explain, we expect aggregate demolition activity to increase in times when home prices are appreciating rapidly, and

<sup>1</sup> Approximately 10 percent of their parcels contain a vacant structure slated for demolition at the time of purchase – these sites would qualify as teardowns in our analysis.

<sup>2</sup> Rosenthal and Helsley (1994) estimate land values using sales information for three types of properties: vacant parcels; single-family homes for which a demolition permit was issued "within a few months" of sale; and single-family homes for which "the assessment authority believes the property was purchased with the intent to redevelop" (p. 190). In their application of the teardown method, the authors do not distinguish between sales of vacant land and "true" teardown sales involving demolition, as we do in the current study.

in neighborhoods where those increases are sharpest. Theory also predicts that characteristics of the parcel should matter. Specifically, larger parcels with higher maximum allowable zoning capacity should be more likely to experience demolition.

In separate studies of the determinants of residential demolition activity in the Chicago area, Weber et al. (2006), Dye and McMillen (2007), and McMillen and O'Sullivan (2013) find that these theoretical predictions are generally borne out. Weber et al. (2006) find that older homes in areas experiencing stronger house price appreciation are more likely to be demolished, and that properties with less lot coverage are more likely to be demolished, even after controlling for the total square footage of the building. Dye and McMillen (2007) and McMillen and O'Sullivan (2013) replicate the finding that inexpensive, older buildings are more likely to be torn down, and also show that buildings constructed in ways that are likely to increase demolition costs (e.g., presence of a basement or fireplace) are less likely to be demolished.

#### 2.4. How does the market value structural capital for teardown sales?

Rosenthal and Helsley (1994) first posited that for teardown sales, the sales price should reflect only the value of the underlying land. Importantly, however, the authors argue that because teardowns are not drawn randomly from the universe of properties, running standard OLS house price hedonic regressions for teardown sales will yield biased coefficients, due to the selection problem. To remove this bias, they propose a two-stage selection correction procedure, the first stage of which estimates a probit model of demolition probability. The second stage runs a house price hedonic regression that includes as independent variables characteristics of the parcel (e.g., lot size), characteristics of the structure (e.g., building size), and a variable representing the probability of the lot being selected for demolition – the inverse Mills ratio – that is estimated as part of the first stage. The authors postulate that after correcting the house price regression for selection into teardown status using the two-stage least squares method, a teardown property's structural characteristics should not significantly affect sales price.

Dye and McMillen (2007) provide the first empirical evaluation of this proposition. Analyzing property sales for a sample of smaller residential properties in the Chicago metropolitan area, the authors run separate house price hedonic regressions on teardown sales and non-teardown sales occurring 1993 to 2003. They find evidence that structural variables affect sales prices to a much lesser extent for teardown sales than for other sales, even before correcting the estimates for selection into teardown status. After running the correction, however, they find that the coefficients on most structural variables drop to insignificance in the house price regressions. They interpret this as evidence that teardown sales provide a reasonable estimate of land values.

Recent work proposes a more nuanced view about how the market should value structural capital, drawing on options theory. In the presence of uncertainty about future house prices or regulatory approval for a project, owners may place a value on the option to delay the preservation versus demolition decision (Clapp and Salavei, 2010; Clapp et al., 2012; McMillen and O'Sullivan, 2013; Munneke and Womack, 2017). For teardown properties, therefore, structural attributes can still affect price, as the implicit price of a structural variable may reflect its option value. Of course, structural characteristics of a building can also affect the cost of demolishing it. So more structural capital will tend to lower the sales price for teardowns through the demolition cost effect, but it will increase sales price through the option value effect. The coefficients on structural attributes are expected to reflect the balance of these two forces: an option value effect and a demolition cost effect.

In principle, when a sale is instantaneously followed by a demolition, we would expect the demolition cost effect to dominate and coefficients on structural capital to be negative, reflecting higher demolition costs (McMillen and O'Sullivan, 2013). However, for sales where the probability of demolition delay is high, buyers are more likely to pay a premium for buildings that are worth more in their current use.

While several empirical studies suggest that teardown buyers prefer smaller, older structures that are cheaper to demolish (Weber et al., 2006; Dye and McMillen, 2007), two later studies provide evidence of an option value effect. Specifically, Clapp and Salavei (2010) find that the implicit price of structural attributes reflects an option value that is above and beyond the building's use value, analyzing a sample of property sales in Greenwich, Connecticut. McMillen and O'Sullivan (2013) find additional evidence that reinforces the options view. In their study of property sales in the Chicago area, the authors find that the magnitude of the estimated coefficients on structural attributes decline as the probability of redevelopment (teardown) increases.

### 3. Data and methods

This section describes the data sources and methods we use to estimate the value of land in New York City. Note that our analysis is restricted to properties that are zoned strictly for residential use throughout the entire study period, from 2003 to 2009.

#### 3.1. Data

The analysis relies on data from multiple sources. First, we use information on residential property transactions to identify sales prices. Specifically, we use a unique database provided by the New York City Department of Finance that includes information on all real property sales in the city occurring between 2003 and 2009. Each record contains the sales price, date of sale and a unique tax lot identifier. The analysis is restricted to arms length sales where the nominal sales price is between \$10,000 and \$60,000,000. All information on property sales prices and land values are reported in constant 2009 dollars.

Second, we rely on a comprehensive listing of all demolition permits issued between 2003 and 2011 from the New York City Department of Buildings.<sup>3</sup> The universe of demolition permits covers all zoning classifications and building types. Each observation in this data set corresponds to one property (tax lot) and includes the following information: a unique tax lot identifier, permit issuance date, and an indicator for initial permits versus renewals. Our analysis is restricted to the initial issuance of all demolition permits.<sup>4</sup>

Third, to get information on the characteristics of properties that sell or are redeveloped, we use the Real Property Assessment Data (RPAD) file, which is collected by the Department of Finance annually for the purpose of computing property tax assessments. Our analysis employs RPAD files from 2002 to 2009. For each property in New York City, RPAD records the following variables: a unique tax lot identifier, parcel characteristics (e.g., lot area, lot frontage, indicators for corner and "irregular"<sup>5</sup> lots), zoning classification, current land use, and characteristics of any structures on the property. We link RPAD files to sales data and demolition permits based on the tax lot identifier.

Fourth, we obtained geographic coordinates, census tract, and historic district status for each property from the Department of City Planning's Primary Land Use Tax Lot Output (PLUTO) file. For each property in our data, we calculate distance to the central business district, the nearest subway station, and the nearest park edge.<sup>6</sup> Following

<sup>3</sup> Although we obtained data on demolition permits back to 1990, there was relatively little teardown activity prior to 2003.

<sup>4</sup> Demolition permits automatically expire one year after the initial issuance date. In cases where the permit is not exercised within this period, the owner may apply for a permit renewal. To identify teardowns, we consider only initial permits, not renewals.

<sup>5</sup> A parcel is deemed to be irregular if its shape is non-rectangular.

<sup>6</sup> To measure distance to the nearest subway entrance, we obtained geographic coordinates for all subway entrances in New York City, provided by the Department of Transportation. For distance to the nearest park edge, we rely on geographic coordinates obtained from the New York City Department of Parks and Recreation.

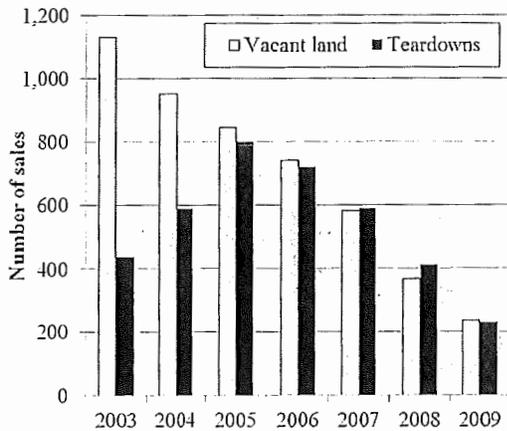


Fig. 1. Samples of vacant land sales and teardown sales, 2003–2009.

Haughwout et al. (2008), we measure the distance to New York's CBD as the distance to the Empire State Building, which is located in Midtown Manhattan. All distance calculations are done using GIS techniques and measured "as the crow flies." Using information from PLUTO, we calculate for each property in our sample the maximum allowable residential floor area ratio (FAR) allowed by zoning rules. Maximum residential FAR is determined by the parcel's zoning classification as well as other locational factors, such as whether the lot is located on a wide street and proximity to a body of water. Finally, we use information on neighborhood demographics from the 2000 decennial Census, reported at the census tract level. Thus neighborhood characteristics do not vary over time.

Our analysis sample includes 665,860 residential properties in New York City (appendix Table A.1, panel A). The overwhelming majority of properties are located in the outer boroughs (counties), where smaller buildings are ubiquitous. Almost three-quarters of properties are in Queens and Brooklyn alone, while just 2.4 percent are in the city's densest borough, Manhattan. As of the beginning of 2003, about 4.8 percent of parcels in the sample were listed as vacant.<sup>7</sup> The remainder of the sample consists of properties that, as of 2003, contained a single-family home (45.3 percent), two-family home (33 percent) or walkup apartment building (16.9 percent).

### 3.2. Estimating land values from vacant land sales

The most direct way to measure residential land values is simply to observe the sales of vacant lots that are zoned for residential use. As shown in Table A.1, panel B, between 2003 and 2009, we observe nearly 200,000 arms length sales for properties in our sample. Of these sales, roughly 2.4 percent (4,858) were vacant lots, meaning that the property did not contain a structure either in 2003 or as of the beginning of the year when the sale occurred. For these vacant land sales, we determine the price per square foot of land by simply dividing the sales price by the square footage of the lot. Fig. 1 shows that the volume of vacant land sales declined steadily between 2003 and 2009.

### 3.3. Identifying teardown sales

We consider a sale to be a teardown if a demolition permit is issued for the lot within two years after the sale date. To identify our sample of teardowns, we begin with a list of all initial demolition permits issued in New York City between 2003 and 2011. We then match these demolition

permits to a listing of all property sales occurring between 2003 and 2009, based on the unique tax lot identifier.<sup>8</sup>

For each property that had both a demolition permit issued and at least one sale, we identify the *latest* sale occurring before the earliest demolition permit was issued. If the issuance date of the demolition permit occurs no more than two years (730 days) after the date of this sale, we then classify the sale as a teardown. Note that while the main sample of teardown sales uses a two-year window, we also explore shorter demolition windows (one year, six months, and three months) for sensitivity testing.

We identify a total of 3777 teardown sales occurring in New York City between 2003 and 2009. Fig. 1 shows that teardown activity peaked in 2005, and that the volumes of vacant land sales and teardown sales were quite similar between 2005 and 2009.

Fig. 2 plots the number of months that elapsed between the sale and permit issuance dates for our sample of teardown sales. A majority of teardowns (about 54 percent) received a demolition permit within six months of the sale date, and 82 percent within 12 months of the sale date. Given the administrative lag between the time of applying for a permit and actual permit issuance, owners likely applied for a demolition permit within months of purchasing the property in the vast majority of the teardown sales in our sample. We take this as a good indication that these properties were purchased with demolition in mind.

### 3.4. Estimating land values from teardown sales

For teardown sales, we measure per square foot land value as the sum of sales price and estimated demolition costs, divided by land area. We estimate demolition costs based on the characteristics of the building and the lot as of the time of sale. Local demolition contractors reported that a typical demolition job in NYC cost about \$6 per building square foot during our period of analysis.

The contractors we spoke with explained that demolition costs increase with the number of stories (controlling for overall square footage, demolishing a taller building is more expensive) and decrease with the amount of open space on a property (demolition costs increase when there is less space on the property for demolition equipment). Thus, we allow demolition costs to be higher for properties with a relatively high floor area ratio. Specifically, we distinguish between "standard" demolition properties (FAR is 0.5 or lower), for which we estimate demolition costs to be \$6 per square foot, and "high cost" demolition properties (FAR exceeds 0.5), for which we estimate demolition costs to be \$12 per square foot.<sup>9</sup> Based on consultation with experts, we also impose a floor on total demolition costs at \$3,000 and a ceiling at \$100,000. Our estimates of demolition costs average about \$15,900 per property, and demolition costs for the median teardown property represent just 1.8 percent of the sales price.

<sup>8</sup> The matching procedure is modified slightly for teardown sales in cases where the project involved land assembly. In New York City, when multiple tax lots are merged into a single parcel, the resulting assembled parcel is typically assigned a new tax lot identifier. In instances where owners apply for a demolition permit after the lots have been legally merged into a single parcel, the permit will be associated with the new tax lot identification number. However, any property sales preceding land assembly will be associated with the old tax lot identifier. To avoid undercounting teardown sales, for properties that were part of a land assemblage at any point from 2003 to 2009, we allow sales to match demolition permits flexibly – either based on the identification number of the property sold into assembly, or the identification number of the final, assembled parcel. We obtained information on lot line changes from a database provided by the Furman Center for Real Estate and Urban Policy. See Gedal (2013) for a description of this matching procedure.

<sup>9</sup> Dollar amounts are in 2009\$. We assume that the per square foot demolition costs stay fixed, in real terms, over the study period.

<sup>7</sup> The category "vacant land" includes both vacant parcels (those listed as "vacant" and having no structure) and parking lots (those listed as "garage" and having no structure).

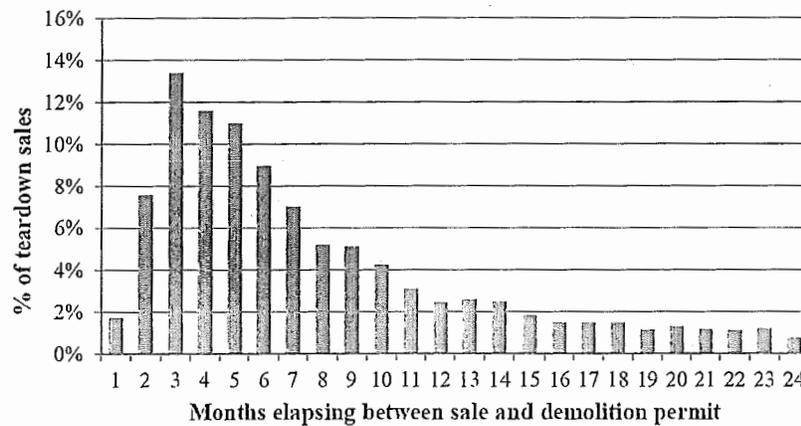


Fig. 2. Timing of demolition permit issuance relative to sale date, Teardown sales occurring 2003–2009 (N = 3777).

4. Where do teardowns and vacant land sales take place?

As noted, a key concern about using either teardowns or vacant land sales to estimate land values is that neither set of parcels is likely to be representative of the broader set of residential lots within a city. Table 1

Table 1  
Characteristics of properties as of 2003<sup>a</sup>.

	All properties	Teardown lots	Vacant lots
N	665,860	3777	4155
<b>Distribution by borough</b>			
Bronx	10.1%	7.3%	19.5%
Brooklyn	32.2%	27.4%	33.4%
Manhattan	2.4%	0.7%	4.1%
Queens	41.1%	50.6%	25.9%
Staten Is.	14.1%	14.0%	17.0%
<b>Neighborhood indicators (census tract)</b>			
Mean household income	\$64,598	\$62,677	\$52,788
Poverty rate	15.1%	15.6%	23.1%
Homeownership rate	49.0%	46.9%	37.2%
<b>Race/ethnicity</b>			
% white non-Hispanic	44%	48%	29%
% black non-Hispanic	26%	17%	37%
% Hispanic	18%	19%	27%
% other non-Hispanic	12%	16%	7%
% foreign born	34%	38%	29%
% college graduates	23%	24%	17%
Change in % college grads, '90-'00	0.044	0.048	0.035
<b>Locational attributes</b>			
Miles to Empire State Building	9.54	9.95	9.14
Close to subway (1/4 mile)	19%	21%	27%
Close to park (250 ft)	12%	12%	18%
<b>Parcel characteristics</b>			
Lot area (sq. ft.)	3272	5042	4133
Lot frontage (ft.)	32.2	46.7	39.7
Irregular lot	10%	12%	19%
Corner lot	9%	14%	13%
Historic district	1.9%	0.1%	0.3%
<b>Structural characteristics</b>			
<b>Tax class</b>			
1 family	45%	61%	–
2 family	33%	30%	–
Walkup apartment	17%	8%	–
Vacant	5%	–	100%
<b>Building area (sq. ft.)</b>			
1 family	1621	1507	–
2 family	2279	2171	–
Walkup apartment	5260	3292	–
Age	66.92	76.13	–
Attached	0.55	0.19	–
Stories	2.18	1.97	–

Table 1 (continued)

	All properties	Teardown lots	Vacant lots <sup>b</sup>
<b>Development capacity</b>			
Maximum FAR of parcel	1.22	1.36	1.70
1 family	0.83	1.07	–
2 family	1.27	1.70	–
Walkup apartment	2.07	2.26	–
Vacant	1.47	–	1.70
<b>Unused FAR (%)</b>			
1 family	29.7%	60.5%	–
2 family	25.5%	60.4%	–
Walkup apartment	19.7%	52.6%	–

Notes:

<sup>a</sup> All parcel-level variables are reported as of 2003. All neighborhood indicators are reported at census tract level per 2000 US Census.

<sup>b</sup> Because a vacant parcel can experience multiple sales, the number of vacant parcels is smaller than the number of vacant land sales.

describes the characteristics of the two sets of parcels and compares them to the full set of residential lots in our sample. Compared to the distribution of all residential properties in the city, a disproportionately large share of teardown sales took place in Queens (50.6 percent), while a relatively small share occurred in Manhattan (0.7 percent). These percentages reflect the fact that teardown sales are more likely to take place farther from the CBD, in neighborhoods dominated by smaller buildings.

In contrast, sales of vacant lots are disproportionately located in the Bronx – the borough with the highest poverty rate. Nearly 20 percent of vacant land sales were in the Bronx even though the borough housed just 10 percent of residentially zoned parcels. The much lower poverty borough of Queens housed about one quarter of vacant lot sales, despite the fact that the borough was home to over 40 percent of residentially zoned parcels.

There are differences in the distribution of sales across neighborhoods within boroughs too. Fig. 3 displays maps of teardown sales and vacant land sales. While teardowns occur throughout the city, they are concentrated in eastern Queens and southern Brooklyn (areas highlighted), as well as Staten Island. Vacant land sales, on the other hand, took place in an almost entirely distinct set of neighborhoods, with high concentrations in central Brooklyn, upper Manhattan, and the Bronx (areas highlighted).

As expected, vacant land sales took place in relatively disadvantaged neighborhoods. Table 1 shows that the average vacant land sale took place in a census tract with a poverty rate of approximately 23 percent and a mean household income of \$53,000, while the average residential parcel in the city was located in a tract with a poverty rate of 15 percent



Fig. 3. Location of vacant land sales and teardown sales in New York City.

and a mean household income of nearly \$65,000. Finally, vacant land sales occurred in neighborhoods with lower homeownership rates, fewer college graduates, and higher proportions of minorities, as compared to typical tracts in the city.

By contrast, teardown sales were located in neighborhoods that

looked fairly similar to the typical residential neighborhood in the city, with similar homeownership rates, incomes, racial composition, and education levels. At first blush then, teardown parcels appear to be more typical of other parcels in the city – and thereby might yield a more generalizable estimate of land values.

Table 2  
Sample description for teardown sales and vacant land sales.

	Full sample			Sample of matched tracts			Sample of matched blocks		
	Teardown	Vacant	Difference	Teardown	Vacant	Difference	Teardown	Vacant	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Number of sale records	3777	4858		2972	3227		1150	1145	
How many community districts?	55	57		53	53		52	52	
How many tracts?	1009	1148		701	701		479	481	
How many blocks?	2765	2909		2143	1998		739	739	
<i>Parcel characteristics</i>									
Lot area (sq. ft.)	5042	4041	−1001***	5182	4255	−927***	4870	4269	−601***
Frontage (ft.)	46.7	39.4	−7.3***	47.6	41.3	−6.3***	44.6	41.2	−3.4***
Corner	13.6%	12.7%	−0.9%	13.5%	12.9%	−0.6%	11.6%	12.8%	1.2%
Irregular	12.1%	18.6%	6.6%***	11.9%	19.1%	7.2%***	10.4%	15.8%	5.4%***
Maximum FAR	1.36	1.73	0.37***	1.33	1.45	0.12***	1.61	1.56	−0.04
Close to subway (1/4 mile)	20.6%	28.1%	7.5%***	20.3%	22.4%	2.10%**	24.2%	22.5%	−1.7%
Close to park (250 ft)	12.5%	17.8%	5.3%***	12.6%	15.4%	2.8%***	12.9%	13.4%	0.5%
Historic district	0.11%	0.31%	0.20%**	0.13%	0.09%	−0.04%	–	–	–
<i>Neighborhood indicators (census tract)</i>									
Mean hshold income (\$10,000's)	6.27	5.17	−1.10***	6.27	5.57	−0.70***	5.80	5.64	−0.16*
Poverty rate	16%	24%	8%***	15%	21%	5%***	18%	20%	2%***
Homeownership rate	47%	36%	−11%***	48%	42%	−6%***	41%	40%	−1%
<i>Race/ethnicity</i>									
% white non-Hispanic	48%	27%	−21%***	47%	34%	−13%***	43%	38%	−5%***
% black non-Hispanic	17%	38%	21%***	18%	33%	14%***	20%	29%	9%***
% Hispanic	19%	28%	9%***	20%	25%	5%***	23.8%	23.7%	−0.1%
% other non-Hispanic	16%	7%	−9%***	14%	8%	−7%***	13%	10%	−3%***
% foreign born	38%	29%	−9%***	37%	30%	−7%***	38%	33%	−5%***
% college graduates	24%	17%	−7%***	23%	18%	−5%***	22%	20%	−2%***
Change in % college grads, 1990–2000	0.048	0.034	−0.014***	0.045	0.037	−0.008***	0.043	0.042	−0.002
<i>Land value per sq. ft (2009\$)</i>									
Mean	\$197	\$164	−\$33***	\$184	\$158	−\$26***	\$206	\$174	−\$32***
S.D.	\$199	\$373		\$164	\$359		\$211	\$286	
Coeff. of variation	1.01	2.28		0.89	2.27		1.03	1.64	

## Notes:

Statistical significance indicated by: \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

As for locational amenities, teardown lots were located slightly farther from the central business district (as proxied by the Empire State Building) than vacant lots. Teardown sales were on average about 0.8 miles further out. Vacant lot sales are more likely than both teardown lots and all lots in the city to be located close to a subway station entrance (within one-quarter of a mile) or close to a park (within 250 feet). In terms of parcel characteristics, teardown lots are considerably larger, on average, than vacant lots that sold, which in turn are larger than the average lot in the city. Both teardown and vacant parcels are more likely to be on corners, and vacant land sales are more likely to be irregularly shaped lots, suggesting some difficulty in building there. Finally, both teardown parcels and vacant lots tend to have a higher maximum FAR than the average lot in the city. Vacant lots actually had the highest allowable FAR of the three groups; this is perhaps not surprising, as the high poverty neighborhoods in our sample tend to be zoned for higher density and larger multifamily structures.

<sup>10</sup> To test these relationships in a more rigorous way, we also estimated a probit model (results not shown) predicting the likelihood that a lot was selected for teardown redevelopment between 2003 and 2011, conditional on property characteristics as of 2003. Independent variables included the neighborhood, locational, parcel, structural and development capacity variables listed in Table 1, as well as fixed effects for the community district. The analysis confirmed that, all else equal, teardown probability increases significantly for larger parcels, and for structures that are older, smaller, detached, or have fewer stories. This result is not surprisingly, given the greater potential value of redevelopment on these sites. Indeed, the probit results also showed that properties with more unused FAR were significantly more likely to be selected for teardown redevelopment, as were properties located outside of historic preservation districts, all else equal. It is also possible that demolition costs play a role, as they should increase with building size, number of stories, and for attached structures.

Table 1 also shows that, compared to the average lot in the city, parcels involved in teardown sales tend to house smaller, older buildings, and are less likely to be attached to another structure. This pattern is consistent with previous studies (Weber et al., 2005; Eya and McMillen, 2007) and provides suggestive evidence that as the costs of demolishing a property rise, the probability of teardown declines. Table 1 also reveals that parcels located in historic districts are significantly less likely to be demolished, as we would expect. Finally, teardown parcels had almost twice as much unused development capacity as the average lot in the city (approximately 60 percent compared to 30 percent).<sup>10</sup>

To investigate whether the characteristics of teardown and vacant sale lots are significantly different, we compared parcel-level measures for teardown sales and vacant lot sales both for the full sample and restricted to the matched sets of micro-neighborhoods (census tracts or city blocks) that contain both types of sales. Table 2 displays descriptive statistics for three samples of sales. Columns 1–3 correspond to the full samples of teardown and vacant land sales. Columns 4–6 describe sales located in the 701 “matched census tracts” that contain at least one teardown sale and at least one vacant land sale over the study period.<sup>11</sup> Finally, columns 7–9 display results for sales in the 739 “matched blocks” that similarly contained at least one teardown sale and at least one vacant land sale. As expected, after restricting the sample to matched tracts (columns 4–6) and to then to matched blocks (columns 7–9), the samples of vacant and teardown sales generally become more similar, particularly in terms of average neighborhood characteristics.

Column 6 of the table shows that when limiting to matched tracts, vacant lots are still significantly smaller, and more likely to be irregularly shaped and located close to parks, compared to teardown sales. Even

<sup>11</sup> The sample of matched tracts includes about one-third of New York City's roughly 2200 census tracts.

**Table 3**  
Hedonic house price regression results.

	Non-teardown	Teardown sales, by demolition window			
	sales	2 years	1 year	6 months	3 months
	(1)	(2)	(3)	(4)	(5)
N	121,887	3777	3093	2073	870
R-squared	0.4156	0.7580	0.7648	0.8005	0.8993
<b>Parcel characteristics</b>					
Log of lot area	0.2193***	0.5245***	0.5353***	0.5549***	0.6009***
Irregular lot	-0.0070*	-0.0381*	-0.0473**	-0.0526*	-0.1003**
Corner lot	0.0247***	0.0334*	0.0294	0.0326	0.0061
<b>Structural characteristics</b>					
Building class (reference = 1 family)					
2 family	0.5507***	0.6477**	0.5585*	0.3456	-0.1726
2 family* brick	0.0213***	-0.0027	-0.0013	0.0036	0.2710**
Walkup apartment	1.0745***	0.3625	0.2767	1.9258**	-1.0334
Building area (sq. ft.)					
1 family* Log of building area	0.2438***	0.1367***	0.1109***	0.1037***	0.1160**
2 family* Log of building area	0.1797***	0.0517	0.0378	0.0638	0.1401
Walkup* Log of building area	0.1085***	0.0920	0.0744	-0.1311	0.3242
Age	-0.0029***	-0.0035	-0.0016	0.0014	0.0081
Age <sup>2</sup>	1.E-05***	7.E-06	-7.E-06	-2.E-05	-8.E-05**
Attached	-0.0372***	-0.0266	-0.0006	-0.0106	-0.1121**
Stories	0.0213***	2.E-05	-0.0068	-0.0148	0.0036
Number of units in apartment buildings	0.0253***	-0.0057	0.0093	0.0177	-0.1766*
<b>Development capacity</b>					
Maximum FAR of sale property					
1 family* Log of max. FAR	-0.0720***	0.2942***	0.2159***	0.1854**	0.1838
2 family* Log of max. FAR	0.0023	0.2077***	0.2650***	0.1911*	0.3372**
Walkup* Log of max. FAR	-0.0082	0.1320	0.1845	-0.0194	-0.6453**
Average maximum FAR of other properties on block					
1 family* Log of block max. FAR	0.0245**	-0.1095*	-0.0073	-0.0288	0.0230
2 family* Log of block max. FAR	-0.0089	0.0278	0.0085	0.0124	-0.0586
Walkup* Log of block max. FAR	-0.0238	0.1658	0.1197	0.1671	0.8225***

## Notes:

Statistical significance indicated by: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

The dependent variable is the log of the property sales price, expressed in 2009\$. Fixed effects model includes tract and quarter fixed effects. The estimation samples are restricted to census tracts that had one or more teardown sales occurring between 2003 and 2009. The sample of non-teardown sales excludes properties located in historic districts, where there is little teardown activity.

after restricting to matched blocks (column 9), vacant parcels are still significantly smaller and more likely to be irregular.

Beyond these observed differences, it is also possible that lots differ in unobservable ways within a neighborhood. For example, vacant parcels may have characteristics that raise land preparation costs (e.g., environmental contamination, poor soil conditions for building) or be located closer to undesirable land uses. Indeed, such factors may be the very cause of the parcel being vacant in the first place (McGrath, 2000). This question deserves further investigation in future work.

##### 5. Testing the validity of the teardown method: How do parcel and structural characteristics affect sales price?

In this section, we assess whether teardown sales provide a good estimate of the value of the underlying land. We estimate separate hedonic house price functions for the sub-sample of sales that are teardowns and for the sub-sample of properties that experienced no demolition activity between 2003 and 2011 (non-teardown sales). Our analysis considers many of the property and neighborhood level variables used in previous teardown studies. In addition, we are able to include a critical variable omitted from other studies: the parcel's development capacity, as measured by maximum FAR.

If teardown sales reflect land value, we would expect the innate characteristics of the parcel to play a stronger role in determining price for teardown sales than for non-teardown sales. Similarly, we would expect structural characteristics of the existing property to matter less – and development capacity to matter more – for teardowns compared to non-teardown sales.

We estimate hedonic house price regressions on a sample of non-teardown sales, as well as on four samples of teardown sales, each with

a progressively smaller window between the sales and demolition dates. For all specifications, the dependent variable is the log of house price, and all models include fixed effects for the year and quarter of the sale. We also include census tract fixed effects, which help to isolate the role that parcel, structural and zoning variables play in determining sales price, as opposed to neighborhood variation.<sup>12</sup> Importantly, both samples are restricted to properties located in census tracts that experienced at least one teardown sale between 2003 and 2009, which ensures that the samples cover similar neighborhoods.<sup>13</sup>

Table 3 displays house price regression estimates. Results for the non-teardowns sample (column 1) are familiar. Buyers pay a premium for larger lots and for larger, newer structures. All else equal, buyers pay more for detached structures and for additional stories. We also find that buyers of two-family homes pay more for brick structures, likely reflecting the amenity value of brick buildings. Dye and McMillen (2007) similarly document that non-teardown buyers in Chicago pay a premium for brick buildings. Based on results displayed in column 1, non-teardown sales prices appear to reflect the consumption value of the existing structure, as expected.

A different story emerges from the teardown regressions. Comparing

<sup>12</sup> Census tracts in New York City tend to cover a smaller geographic area than in cities with lower levels of population density. The average tract in our sample includes about 15 city blocks.

<sup>13</sup> We experimented with correcting the hedonic regression estimates for selection bias, but were unable to find a satisfactory instrument. When we did run the correction for the teardown sales house price regressions, however, even with the imperfect instruments, the estimated coefficients changed in the predicted direction.

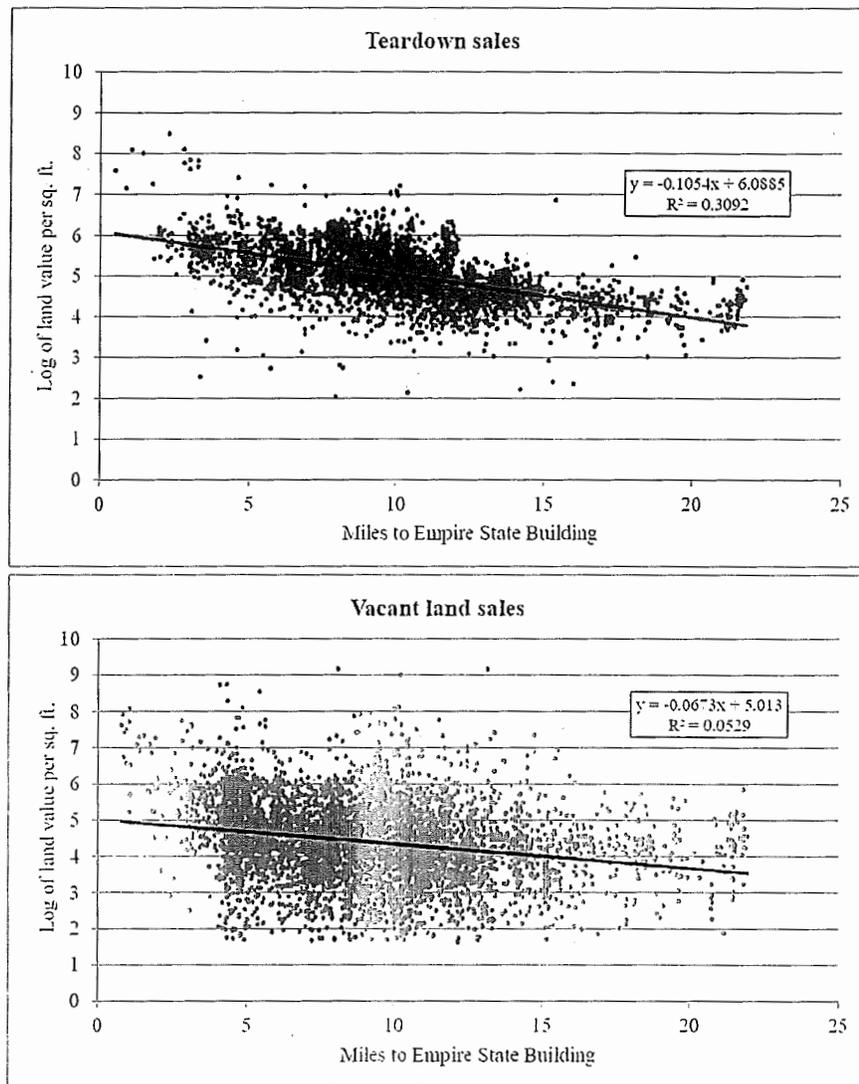


Fig. 4. Comparing teardown and vacant parcel methods, Land value distance gradients.

the coefficients in column 1 with each of the teardown samples in columns 2–5, we find that the estimated coefficient on land area is significantly larger for teardowns than for non-teardown sales, consistent with expectations.<sup>14</sup> In fact, for all teardown samples, the land area coefficient is more than twice as large as for the sample of non-teardown sales.

Similarly, we find that teardown buyers value additional development capacity more highly than other buyers. Focusing on results in column 2 (the main sample of teardown sales where the demolition window is two years), teardown buyers of one- and two-family buildings value additional development capacity highly, even after controlling for characteristics of the structure, as well as for the maximum FAR of other properties on the same block.<sup>15</sup> For non-teardown sales, however, buyers do not pay any premium. In fact, buyers of single-family homes actually

pay a premium for properties with less development capacity, even after controlling for the development capacity of surrounding properties, perhaps because it is correlated with the size and development capacity of immediately proximate structures. Regression results for development capacity reinforce the idea that teardown buyers value the property for its future use, while non-teardown buyers value it for its current use.

We also find that teardown buyers tend to value structural characteristics less highly than other buyers, as expected. For example, the coefficients on building area are smaller for teardowns. Comparing results for columns 1 and 2, we see that among single-family properties, the implicit price of an additional square foot was estimated to be about 78 percent higher for non-teardown sales (.244) compared to teardown sales (.137); and this difference is statistically significant at the one percent level. For other types of properties, building area is positively associated with price for non-teardown sales but is not significantly related to price for teardown sales. The pattern suggests that although teardown buyers may place some positive value on the option to use a larger structure (at least in the case of single-family homes), they value it less highly than other buyers, perhaps in part due to larger demolition costs.

Table 3 also sheds light on how teardown buyers value other attributes of the structure. Comparing column 1 and subsequent columns, we find that building age is a significant predictor of prices only for non-

<sup>14</sup> To determine whether the coefficients displayed for teardown sales in Table 3 are statistically different from coefficients displayed for the non-teardown sample, we estimated a series of fully interacted regressions that pooled non-teardown sales and teardown sales. These t-tests revealed that for all samples of teardown sales (columns 2–5), the coefficient on land area is significantly higher, at the one percent level, than for non-teardown sales.

<sup>15</sup> We obtained similar results when using the ratio of existing FAR to maximum FAR, instead of maximum FAR.

teardown sales. For non-teardown sales, attached properties sell for a significant discount. Estimates for teardown sales also reveal a discount for attached properties, however this may be due to higher demolition costs.

We also observe in Table 3 that, all else equal, non-teardown buyers pay a significant premium for structures with additional stories and additional units, while teardowns buyers do not. The result for non-teardown sales is not surprising, as owners may value having additional stories, and landlords can charge higher rent (on a per square foot basis) in buildings with more units. However, we find that, at the margin, teardown buyers place no value on an additional story or unit.

These results seem to suggest that buildings that are more costly to demolish sell at a discount for teardown properties relative to non-teardown properties. However, t-tests (not displayed) revealed that any such discount is not significant for the number of stories. And for the number of units in apartment buildings, this discount is only significant for the main sample of teardown sales (column 2). Nevertheless, these findings provide further evidence that teardown sales reflect land value, as opposed to the value of existing structures.

Columns 2–5 of Table 3 display results for teardown samples that have progressively smaller demolition windows. Column 5 represents teardown sales for which the demolition permit was issued almost immediately following the sale (within three months). We expect the teardown estimates to look less similar to the non-teardown estimates as the demolition window shortens. Findings in columns 2 to 5 generally support this prediction. As the teardown window becomes shorter, the coefficient on land area grows monotonically, while the coefficients on building area drop somewhat, going from column 2 to column 5. Although the coefficient on building age remains insignificant for all teardown specifications, the estimated coefficient on building age actually turns positive for the shortest demolition windows (columns 4 and 5).

Taken together, the hedonic regression results suggest that teardown buyers value the property for its future use value, and therefore provide a reasonable estimate of land values in areas with little vacant land.

### 6. Explaining variation in land values in New York City: Teardowns versus vacant land

The preceding analyses suggest that both our approaches – teardowns and vacant land sales – are valid ways to estimate land values, though the vacant parcels are disproportionately located in distressed neighborhoods and thus may be less representative. In this section, we compare the estimates yielded by our two approaches. We also use both methods to test how land values vary with the intrinsic characteristics of the lot and proximity to transit and the CBD and explore the extent to which the findings vary depending on which of the approaches is used.

The bottom panel of Table 2 compares raw, per square foot land value estimates generated using the two approaches. For the full sample of sales occurring 2003 to 2009 (columns 1–3), vacant land sells for an average of \$33 (17 percent) less, on a per square foot basis, than land sold through teardowns. One plausible explanation for the price differential is that vacant land tends to be in less desirable neighborhoods than teardown properties, as documented above. However, the apparent discount for vacant land persists even when restricting the comparison to vacant land sales and teardown sales located in the same census tract (column 6) or the same block (column 9). Therefore, it appears that differences in average neighborhood characteristics alone do not explain the price differential for vacant land sales compared to teardown sales.

Vacant land sales also exhibit considerably more price dispersion than teardowns. Table 2 shows that for the full sample of sales (columns 1 and 2), the coefficient of variation on land value is more than twice as large using the vacant land method (2.28) compared to the teardown approach (1.01). A large difference persists even after restricting to the samples of matched tracts (columns 4 and 5) or matched blocks (columns 7 and 8). Furthermore, Fig. 4 plots the natural logarithm of land values against the distance to CBD (before controlling for any other variables in the model) separately for teardowns and vacant land sales, showing both the individual estimates and the fitted line. A quick visual inspection reveals that at all distances, land value estimates are more dispersed for vacant land sales than for teardown sales. Taken together, these findings provide some preliminary evidence that the vacant land method may yield less

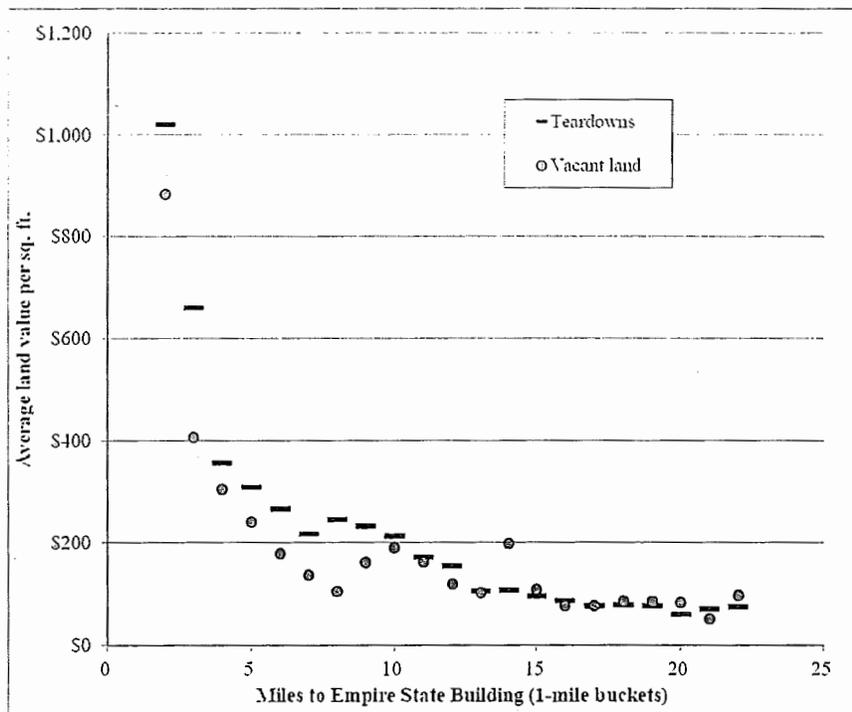


Fig. 5. Comparing teardown and vacant parcel methods, Average land value by distance to CBD.

precise estimates of land values in a neighborhood.

The key question we address in this section is whether the two methods yield more similar estimates when we control for a fuller set of relevant characteristics. Fig. 5 plots average land values against distance from the central business district (as proxied by the Empire State Building) by one-mile increments. The horizontal bars show average land value estimates produced using the teardown method, while the small circles show those from vacant land sales. As expected, both methods yield estimates of land values that are highest close to the CBD, and tend to decline (at a decreasing rate) with distance. (Land value estimates in other cities would probably not show such consistency with the monocentric model, but development patterns in New York City remain fairly centralized.) Fig. 5 shows that for parcels located about 10 miles or more from the CBD, the two methods yield very similar estimates. However, between zero and about 9 miles from the CBD, the teardown method yields average estimates that are somewhat higher than vacant land sales.

To compare the two methods – and to study variation in land values across neighborhoods in a more systematic way – we rely on a series of regression models that explain the value of land as a function of parcel and neighborhood characteristics, as well as time. First, we estimate regressions for a pooled sample of vacant lot sales and teardown sales. Second, we run land price regressions separately for vacant land and teardowns to compare the ability of each method to explain variation in land prices. The following sub-sections present models and results for both the pooled and unpooled regressions.

### 6.1. Pooled regression models and results

We begin by analyzing a pooled sample of teardown and vacant land sales and estimating a regression model that explains land values as a function of time, as well as parcel and neighborhood characteristics. The independent variable of interest is an indicator for vacant sales. We restrict the sample to parcels located in micro-neighborhoods (tracts or blocks) that experienced at least one teardown sale and at least one vacant land sale between 2003 and 2009. We include block (or tract) fixed effects in the regressions, which control for any unobserved, time-invariant differences between neighborhoods that might also influence land values. We estimate an OLS fixed effects model using only a) the sample of matched tracts and b) the sample of matched blocks. Specifically, we estimate the following model:

$$\ln LV_{imt} = \alpha L_i + \beta \text{Vacant}_i + \gamma_m M_m + \delta_t Q_t + \varepsilon_{it} \quad (1)$$

where  $\ln LV_{imt}$  is the natural logarithm of the value of land per square foot for property  $i$ , in micro-neighborhood (census tract or block)  $m$ , in quarter  $t$ ;  $L_i$  is a vector of characteristics of the lot, including the natural logarithm of lot area, lot frontage, and maximum FAR, as well as indicator variables for corner lots and irregularly shaped lots, and measures of proximity to transit and parks<sup>16</sup>;  $\text{Vacant}_i$  is an indicator for vacant land sales;  $M_m$  are fixed effects for the micro-neighborhood, which control for unobserved, time-invariant differences between areas; and  $Q_t$  represents a series of dummy variables indicating the year and quarter in which the sale occurred. The coefficients to be estimated are  $\alpha$ ,  $\beta$ ,  $\gamma$  and  $\delta$ , and  $\varepsilon$  is the error term.

Table 4 shows pooled regression results for the samples of matched tracts (column 1) and matched blocks (column 2). Larger lots are cheaper on a per square foot basis, reflecting the fact that marginal additions to a buildable lot are not as valuable as the total square footage increases. In the sample of matched tracts, buyers pay a significant premium for additional lot frontage and for additional development capacity. As for the main coefficient of interest, the indicator for vacant land sales, the estimated coefficient is  $-.371$  for the sample of matched tracts, with statistical significance at the 1 percent level. This result implies that

<sup>16</sup> We do not include distance to CBD as an explanatory variable. The effect of distance is absorbed in the fixed effect variables for micro-neighborhood.

Table 4

Land price regression results: Pooled fixed effects model, Do vacant lots sell for less than teardown lots in the same micro-neighborhood?

	Sample of matched tracts (1)	Sample of matched blocks (2)
N	6199	2295
R-squared	0.547	0.724
Log of lot area	-0.407***	-0.217***
Log of lot frontage	0.106***	0.042
Irregular lot	-0.040	-0.037
Corner lot	0.032	0.049
Log of maximum FAR	0.335***	0.227
Close to subway (1/4 mile)	-0.036	-0.134
Close to park (250 ft)	-0.108***	-0.193**
Vacant	-0.371***	-0.253***

Notes:

Statistical significance indicated by: \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

The dependent variable is the log of land value per sq. ft., expressed in 2009\$. All models include fixed effects for quarter and micro-neighborhood (tract or block).

vacant land sells for a discount of about 37 percent relative to teardown lots in the same census tract that have similar parcel characteristics. When switching to the sample of matched blocks – which is expected to give more precise estimates – the estimated coefficient on the flag for vacant sales drops in absolute terms to a discount of about 25 percent.

What might explain the apparent discount for vacant parcels? The most straightforward explanation is that vacant sale lots may differ systematically from teardown lots in unobservable ways that make them less desirable to housing developers. As discussed above, physical qualities of the parcel itself may make it more costly to build on the lot (e.g., environmental contamination, high cost of building foundation). Even within the same neighborhood, vacant lots may also be systematically located closer to undesirable land uses that lower consumers' willingness to pay for housing there. Finally, to the extent that teardown prices reflect the value of the option to use existing structures in their current state (as well as the value of the land), we would expect teardown prices to be slightly higher compared to vacant parcels.<sup>17</sup>

### 6.2. Unpooled regression models and results

To examine whether teardowns produce more precise estimates of land values than vacant land sales, we run separate land price regressions for teardown sales versus vacant land sales. By estimating separate regressions, we are able to compare the ability of each method to explain variation in land prices. As before, we estimate regressions first on the sample of matched census tracts, and then on the sample of matched blocks, as a way to ensure that the sample of teardown and vacant lot neighborhoods are comparable. All models include fixed effects for the calendar quarter. The explanatory variables in model 1 are distance to the CBD and the allowable development capacity (maximum FAR). Models 2 and 3 add controls for parcel attributes and either micro-neighborhood fixed effects (Model 2) or a set of neighborhood

<sup>17</sup> The holdout problem in land assembly is another potential factor. If holdout sellers successfully bargain for higher prices, then lots acquired later in the assembly process may sell at artificially high prices. To the extent that vacant lots sell earlier in the assembly process compared to teardown properties, the "discount" we observe for vacant land could simply reflect holdout bargaining. A recent study of residential land assembly in New York City finds little evidence for this explanation, however. Gedal (2013) finds that vacant parcels are not more likely than teardown lots to sell earlier in the assembly process.

**Table 5**  
Land price regression results: Unpooled fixed effects models, Sample of matched tracts.

	Vacant land sales			Teardown sales		
	1	2	3	1	2	3
N	3227	3227	3227	2972	2972	2972
R-squared	0.102	0.493	0.236	0.431	0.851	0.701
Log of miles to CBD	-0.47***	-	-0.43***	-0.52***	-	-0.34***
Log of maximum FAR	0.16***	0.37***	0.31***	0.37***	0.22***	0.28***
Log of lot area	-	-0.40***	-0.33***	-	-0.48***	-0.51***
Log of lot frontage	-	0.11*	0.06	-	0.09***	0.00
Irregular lot	-	0.01	-0.04	-	-0.03	-0.06***
Corner lot	-	-4.E-03	0.04	-	0.04**	0.05**
Close to subway (1/4 mile)	-	-0.01	0.04	-	-0.04*	-0.02
Close to park (250 ft)	-	-0.21***	-0.15***	-	0.01	0.04**
Mean household income (\$10,000's)	-	-	0.05***	-	-	0.04***
Poverty rate	-	-	-0.09	-	-	0.75***
Homeownership rate	-	-	-0.14	-	-	-0.07
Race/ethnicity	-	-	-	-	-	-
% black non-Hispanic	-	-	-0.68***	-	-	-0.52***
% Hispanic	-	-	-1.05***	-	-	-0.70***
% other non-Hispanic	-	-	0.33	-	-	-0.09
% foreign born	-	-	1.05***	-	-	0.68***
% college graduates	-	-	-0.20	-	-	0.88***
Change in % college grads, '90-'00	-	-	1.05**	-	-	-0.70***
Includes tract fixed effects	YES			YES		

## Notes:

Statistical significance indicated by: \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.  
The dependent variable is the log of land value per sq. ft., expressed in 2009\$.  
All models include fixed effects for quarter.

characteristics (Model 3).

Tables 5 and 6 report regression estimates for the samples of sales in matched census tracts and matched blocks, respectively. The models of land prices using vacant land sales consistently explain a much lower share of variation in land values than the models using teardown sales. Results for the sample of matched tracts (Table 5, model 1) show that two conceptually important predictors of land values, distance to CBD and maximum FAR, alone account for about 36 percent of variation in land values for the sample of teardown sales but only 7 percent of variation in land values for vacant land sales.<sup>18</sup> When we consider only sales in the matched sample of blocks (Table 6, model 1), the gap shrinks somewhat, but remains large – distance to CBD and maximum FAR together explain approximately 37 percent of variation in land prices for teardown sales, compared to 11 percent for vacant parcel sales. Turning to models 2 and 3 in Table 5 and to model 2 in Table 6, we see that after controlling for a more extensive set of parcel and neighborhood covariates, the large difference in explanatory power persists.

Still, the two approaches yield fairly similar estimates of the value of most observed attributes. Focusing on model 3 in Table 5, which controls for demographic characteristics of the census tract and is run on the sample of matched tracts, we see that the intrinsic characteristics of the parcel appear to matter a lot, when using either the teardown sales method or vacant land sales. Larger lots are cheaper on a per square foot basis and, as expected, residential parcels on which larger structures can be built as of right are more valuable. Corner lots command a premium, although this effect is not statistically significant for sales of vacant land. After controlling for census tract fixed effects, we find that being closer to a park is associated with lower prices for vacant lots but higher prices for teardown properties, suggesting there is heterogeneity in the quality of parks and there may be a disamenity from being located immediately next to some parks.

<sup>18</sup> These figures were determined by taking the difference between the R-squared reported for model 1 and the R-squared for a slimmed down regression (results not displayed) that included only calendar quarter dummies.

**Table 6**

Land price regression results: Unpooled fixed effects models, Sample of matched blocks.

	Vacant land sales		Teardown sales	
	1	2	1	2
N	1145	1145	1150	1150
R-squared	0.175	0.824	0.460	0.954
Log of miles to CBD	-0.43***	-	-0.46***	-
Log of maximum FAR	0.27***	0.09	0.47***	0.33**
Log of lot area	-	-0.20	-	-0.28***
Log of lot frontage	-	0.10	-	-0.15
Irregular lot	-	0.13	-	-0.11*
Corner lot	-	-0.19	-	0.06
Close to subway (1/4 mile)	-	-0.11	-	-4.E-03
Close to park (250 ft)	-	-0.32	-	0.09
Includes block fixed effects	YES		YES	

## Notes:

Statistical significance indicated by: \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.  
The dependent variable is the log of land value per sq. ft., expressed in 2009\$.  
All models include fixed effects for quarter.

The regressions also confirm the theoretical prediction that accessibility to employment and services matters, even after controlling for other factors. Estimates of the distance gradient are similar for vacant land sales and teardowns, with a range of -.52 to -.34 for all models in Tables 5 and 6. Our estimates are substantially larger than those reported in Colwell and Munneke's (2003) analysis of vacant land sales in Chicago. But this divergence in results may simply reflect underlying differences between New York City and Chicago.

Finally, we find evidence that land prices are correlated with neighborhood demographics. Parcels located in tracts that had a greater share of black and Hispanic residents in the year 2000 are typically valued less highly. While overall results are similar, more of the coefficients on neighborhood socioeconomic attributes are statistically significant for the teardown regression compared to vacant land sales. The teardowns

regressions suggest that land values are higher in tracts with higher income and more educated populations. A somewhat counterintuitive result for teardown sales is that the coefficient on poverty rate is positive and significant, but this coefficient only becomes positive after controlling for the mean income of the neighborhood.

Tables 5 and 6 reveal that on average across all models the teardown method is able to explain roughly 2–3 times more variation in land values than vacant land sales. This difference in explanatory power reinforces our view that teardowns produce land value estimates that better reflect the fundamentals of land value. Unobservable attributes (perhaps environmental contaminants or micro-locational features) appear to be more significant in driving the value of vacant land. Teardowns appear to produce more precise estimates of land values.

## 7. Conclusion

This paper shows that teardowns were quite common in New York City over the past decade. They tended to occur in low density neighborhoods in Queens and Brooklyn, and on parcels that have larger than average land area. We also identify a large number of sales of vacant land.

We find that the two approaches yield surprisingly similar estimates of the value of both parcel attributes and locational amenities. The physical attributes of the parcel, zoning restrictions, accessibility to the central business district, and the income and racial composition of the census tract are all associated, in the predicted direction, with the value

of urban land.

Still, our regressions are less able to explain the variation in the value of vacant land parcels, which are disproportionately located in very distressed neighborhoods and tend to be valued less highly than teardown parcels, even in the same neighborhood. Teardown parcels, by contrast, appear to be more representative of the city as a whole. Thus, teardowns may be a more useful approach to developing estimates of land prices, at least in the central cities of large urban areas, where sample sizes are large enough.

## Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## Declaration of interest

None.

## Acknowledgements

We are grateful to Sewin Chan, Amy Ellen Schwartz, Dan McMillen, Chris Redfean, and Henry Munneke for their useful suggestions on an earlier draft.

## Appendix

Table A.1  
Sample description.

A. Sample of residential properties							
	All properties		By property type (as of 2003)				
	N	%	Vacant land <sup>a</sup>		Parcel had residential structure		
			N	% of total	1 Family	2 Family	Walkup apt.
Queens	273,712	41.1%	9060	3.3%	156,037	79,338	29,277
Brooklyn	214,249	32.2%	9688	4.5%	58,622	90,487	55,452
Staten Is.	94,178	14.1%	6482	6.9%	63,856	22,326	1514
Bronx	67,584	10.1%	5341	7.9%	21,744	26,243	14,256
Manhattan	16,137	2.4%	1253	7.8%	1329	1449	12,106
Total	665,860	100%	31,824		301,588	219,843	112,605
% of all properties			4.8%		45.3%	33.0%	16.9%

B. Sample of vacant land and teardown sales			
	All arms length sales in our sample of properties	Vacant land sales <sup>c</sup>	Teardown sales
2003	31,554	1132	438
2004	33,983	951	587
2005	36,926	846	800
2006	35,117	742	721
2007	26,044	583	589
2008	19,124	367	412
2009	17,183	237	230
Total	199,931	4858	3777
% of all sales		2.4%	1.9%

### Notes:

<sup>a</sup> The sample of residential properties was determined in three steps. First, we restricted to parcels that were zoned exclusively for residential use between 2003 and 2009. Second, we excluded buildings that, as of the beginning of 2003, met any of the following criteria: contained condominiums or cooperative apartments; had more than 50 units; had an elevator; contained a non-residential use; or constructed after 1998 (making them less than five years old as of the beginning of the study period). Finally, we excluded all properties in two community districts (Manhattan districts 1 and 5) that experienced no demolition permit activity between 2003 and 2011 for any of the 1 family, 2 family or walkup apartment buildings in our sample.

<sup>b</sup> The category "vacant land" includes both vacant parcels (those listed as "vacant" and having no structure) and parking lots (those listed as "garage" and having no structure).

<sup>c</sup> Vacant parcels can be sold multiple times over the sample period.

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**RESOLUTION NO. 2018-\_\_\_\_\_**

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CALEXICO, CALIFORNIA, APPROVING THE TRANSFER OF CERTAIN WATER ENTERPRISE FUND AND WASTEWATER ENTERPRISE FUND REVENUES TO THE CITY'S GENERAL FUND TO COMPENSATE THE GENERAL FUND FOR GROUND-LEASE RENTAL OF REAL PROPERTY TO THE WATER AND WASTEWATER ENTERPRISES FOR THEIR OPERATIONS**

**WHEREAS**, the City of Calexico operates a water system and wastewater collection & treatment plant system to serve the citizens of Calexico; and

**WHEREAS**, both utilities operate as stand-alone public enterprises, which must have separate accounting and financial reporting mechanisms for revenues and expenses; and

**WHEREAS**, the water system and wastewater collection & treatment plant system operate on real property that was purchased by the City's General Fund and which remains a fixed capital asset of the General Fund; and

**WHEREAS**, in effect, the General Fund functions as the "landlord" of the real property in question and the utilities function as the "tenants" who are ground-leasing the real property from the General Fund; and

**WHEREAS**, for many years, the water and wastewater utilities have used this real property without paying any compensation to the General Fund. In effect, the General Fund has been subsidizing the costs of the water and wastewater utilities by not charging rent to the utilities; and

**WHEREAS**, the City Council desires to more equitably allocate these costs to the water and wastewater utilities rather than place this burden on the General Fund; and

**WHEREAS**, California law (Proposition 218) requires that water and wastewater customer charges not exceed the reasonable cost of providing the utility service; and

**WHEREAS**, because the General Fund is providing a valuable real estate asset to the water and wastewater utilities that is central to support their operations, the rental value for these assets becomes part of the "cost of providing the service" and may be paid with water/wastewater rate revenues; and

**WHEREAS**, California law (Proposition 26) further provides that "a charge imposed for entrance to or use of local government property, or the purchase, rental, or lease of local government property" is not a tax requiring voter approval, provided the "amount of the charge must bear a reasonable relationship to the value of the property interest conveyed. . . ." *Jacks v. City of Santa Barbara*, (2017) 3 Cal. 5th 248.

**WHEREAS**, City Staff has retained the services of Urban Futures, Inc. to prepare market studies of the fair lease value of the General Fund properties in question. The Studies conclude that fair lease value for the real property where the water facilities are located is \$180,101.00

annually, while the fair lease value for the real property where the wastewater plant site is located is \$112,802.00 annually, totaling \$292,903.00 annually.

**NOW, THEREFORE**, be it resolved, determined, and ordered by the City Council of the City of Calexico:

**Section 1.** The City Council finds and determines that the foregoing recitals are true and correct.

**Section 2.** The City Council directs City staff to transfer the following revenues from their respective utility enterprise funds to the City's General Fund for the reasons set forth above:

- |    |                                  |               |
|----|----------------------------------|---------------|
| A. | From Water Enterprise Fund # 513 | \$180,101.00. |
| B. | From Wastewater Enterprise # 544 | \$112,802.00. |

**Section 3.** The City Clerk shall attest to the passage of this Resolution at the Regular City Council meeting of September 19, 2018.

**PASSED, ADOPTED and APPROVED** this 19th day of September, 2018, by the City Council of the City of Calexico.

\_\_\_\_\_  
Lewis Pacheco, Mayor

ATTEST:

\_\_\_\_\_  
Gabriela Garcia, Deputy City Clerk

**APPROVED AS TO FORM:**

\_\_\_\_\_  
Carlos Campos, City Attorney

State of California )  
County of Imperial ) ss.  
City of Calexico )

I, Gabriela T. Garcia, Deputy City Clerk of the City of Calexico do hereby certify the above Resolution No. 2018-\_\_\_\_\_ was approved at a regular City Council meeting held on the 19<sup>th</sup> day of September, by the following vote to-wit:

AYES:  
NOES:  
ABSTAIN:  
ABSENT:

\_\_\_\_\_  
Gabriela T. Garcia, Deputy City Clerk