MONEY TALK$

Using Fiscal Analysis to Frame Discussions and Inform Decisions on Growth, Infrastructure and Development

NCTCOG Public Works Roundup
Grapevine, TX
May 21, 2019

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verdunity.com

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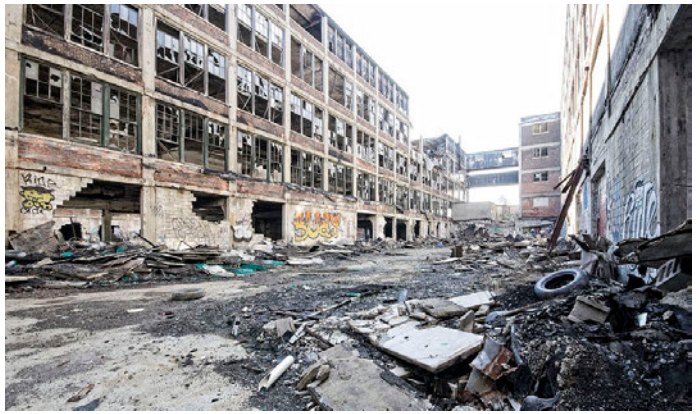
Race to be the Best Place to Live, Work and Play

Post WW2, cities have aggressively pursued higher quality of life in the short-term without consideration of the long-term fiscal and environmental impacts.

What about Maintenance AFTER Growth?



Fragile Economies and Municipal Bankruptcies

Source: governing.com

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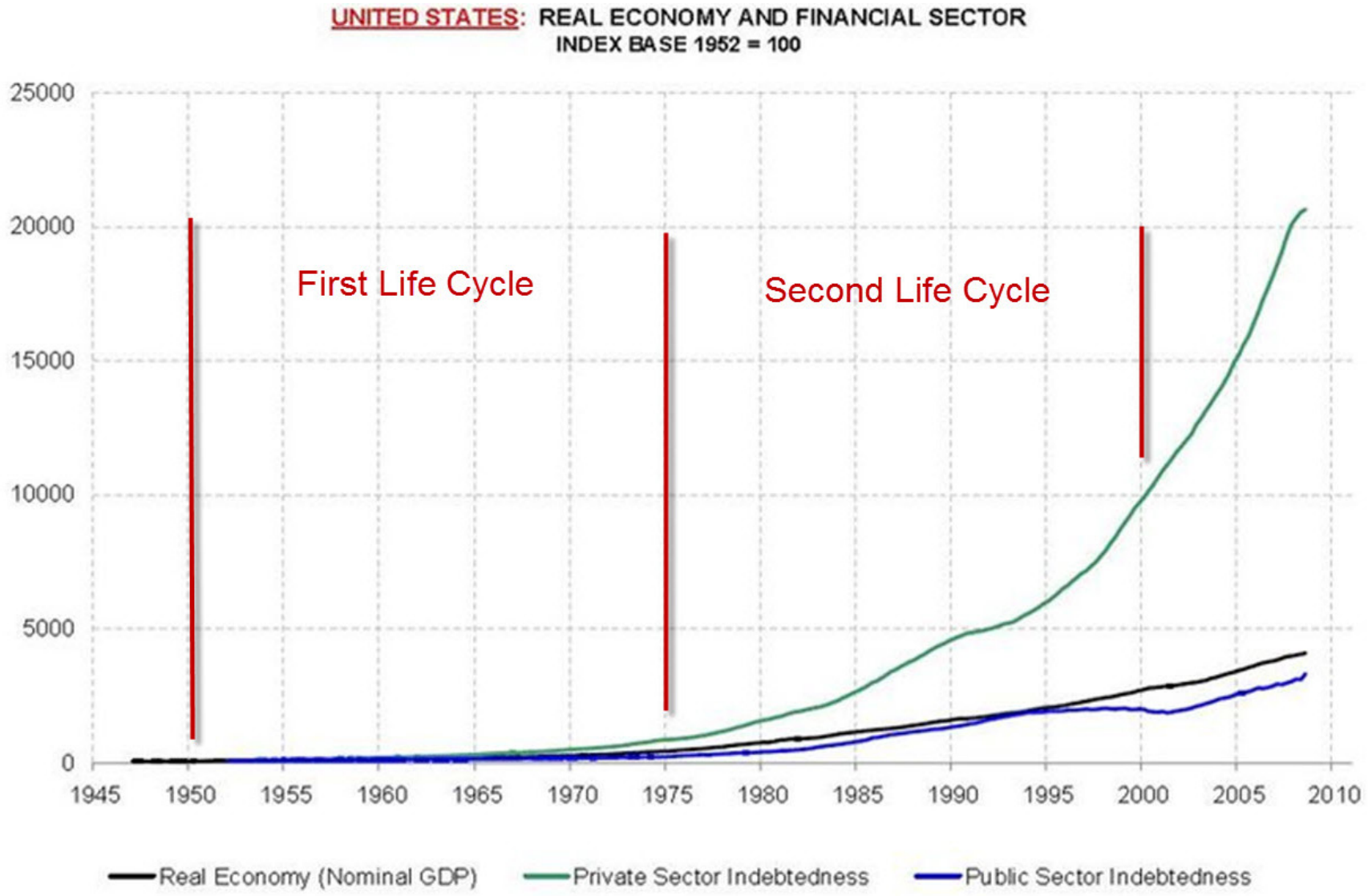
Rapidly Increasing Public and Private Sector Debt



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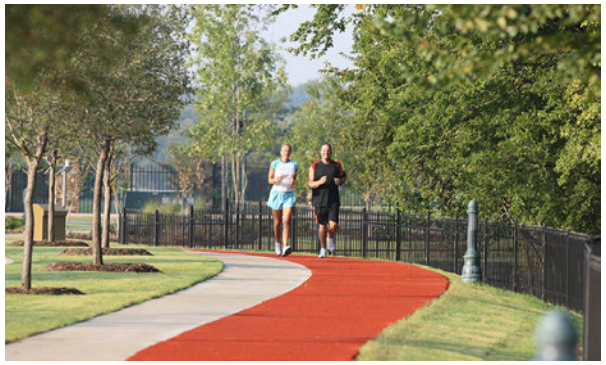
Rising Debt Levels and Credit Risk

Largest funding gaps				30-year remediation (mut. exclusive)						W/O remediation, req. return on assets		Pension funding ratio		
City	Current IPOD ratio	Norm. IPOD ratio	Funding gap	Tax increase		Cut in direct non-pension spending		Increase in worker contributions		B/E nom. pension return	B/E nom. OPEB return	Current	Est. in 10 yrs w/out remed @ 6% return*	Debt Risk indicator
Chicago	35%	62%	27%	27%	or	14%	or	428%		17.9%	-11.7%	23%	15%	121
Houston	24%	50%	26%	26%	or	23%	or	772%		10.0%	Con<Serv	66%	58%	86
Austin	26%	51%	26%	26%	or	28%	or	287%		9.1%	Con<Serv	67%	67%	56
Dallas	20%	45%	25%	25%	or	30%	or	459%		11.1%	No solution	54%	62%	95
Baton Rouge	28%	52%	24%	24%	or	20%	or	525%		8.0%	Con<Serv	71%	67%	90
Fort Worth	21%	44%	24%	24%	or	20%	or	549%		11.0%	No solution	58%	59%	78
Oakland	29%	51%	22%	22%	or	22%	or	462%		8.1%	No solution	72%	71%	88
Phoenix	29%	51%	22%	22%	or	18%	or	404%		11.2%	6.7%	52%	56%	119
Jersey City	20%	41%	21%	21%	or	29%	or	510%		10.0%	Con<Serv	56%	67%	66
Pittsburgh	33%	52%	20%	20%	or	24%	or	333%		11.5%	No solution	45%	57%	103
Atlanta	33%	52%	19%	19%	or	15%	or	329%		8.2%	No solution	69%	68%	98
Sacramento	23%	42%	19%	19%	or	18%	or	301%		7.9%	Con<Serv	77%	75%	76
Minneapolis	18%	36%	18%	18%	or	13%	or	217%		8.3%	No solution	82%	74%	83
Los Angeles	33%	50%	18%	18%	or	19%	or	228%		7.2%	8.0%	84%	77%	89
Omaha	26%	44%	17%	17%	or	19%	or	286%		12.4%	No solution	48%	50%	85
Honolulu	34%	51%	17%	17%	or	21%	or	76121%		10.0%	32.8%	64%	65%	81
Cleveland	19%	35%	16%	16%	or	15%	or	207%		8.3%	16.2%	80%	70%	99
El Paso	26%	41%	16%	16%	or	16%	or	200%		8.0%	Con<Serv	83%	76%	68
Columbus	19%	34%	15%	15%	or	15%	or	243%		8.9%	18.7%	73%	65%	59
Cincinnati	16%	31%	15%	15%	or	15%	or	278%		9.3%	8.8%	60%	49%	78
County														
Cook(IL)	11%	30%	19%	19%	or	33%	or	577%		Con<Serv	Con<Serv	41%	65%	47
King(WA)	21%	39%	18%	18%	or	9%	or	301%		7.8%	No solution	84%	80%	76
Pr.Georges(MD)	30%	46%	16%	16%	or	18%	or	783%		8.0%	No solution	61%	63%	70
LA(CA)	14%	29%	15%	15%	or	14%	or	552%		7.0%	Con<Serv	87%	79%	48
SanClara(CA)	21%	34%	13%	13%	or	16%	or	282%		8.2%	10.9%	77%	74%	39
Bergen(NJ)	19%	32%	13%	13%	or	17%	or	558%		9.9%	No solution	55%	69%	43
Shelby(TN)	27%	39%	12%	12%	or	16%	or	217%		7.4%	19.7%	94%	84%	62
Suffolk(NY)	14%	26%	12%	12%	or	11%	or	3855%		6.9%	No solution	98%	86%	39

Source: J.P. Morgan Asset Management, Center for Retirement Research at BC, City/county CAFRs. FY 2015. * See page 9 for details on calculations and assumptions.

Is Your City Really Fiscally Sustainable?



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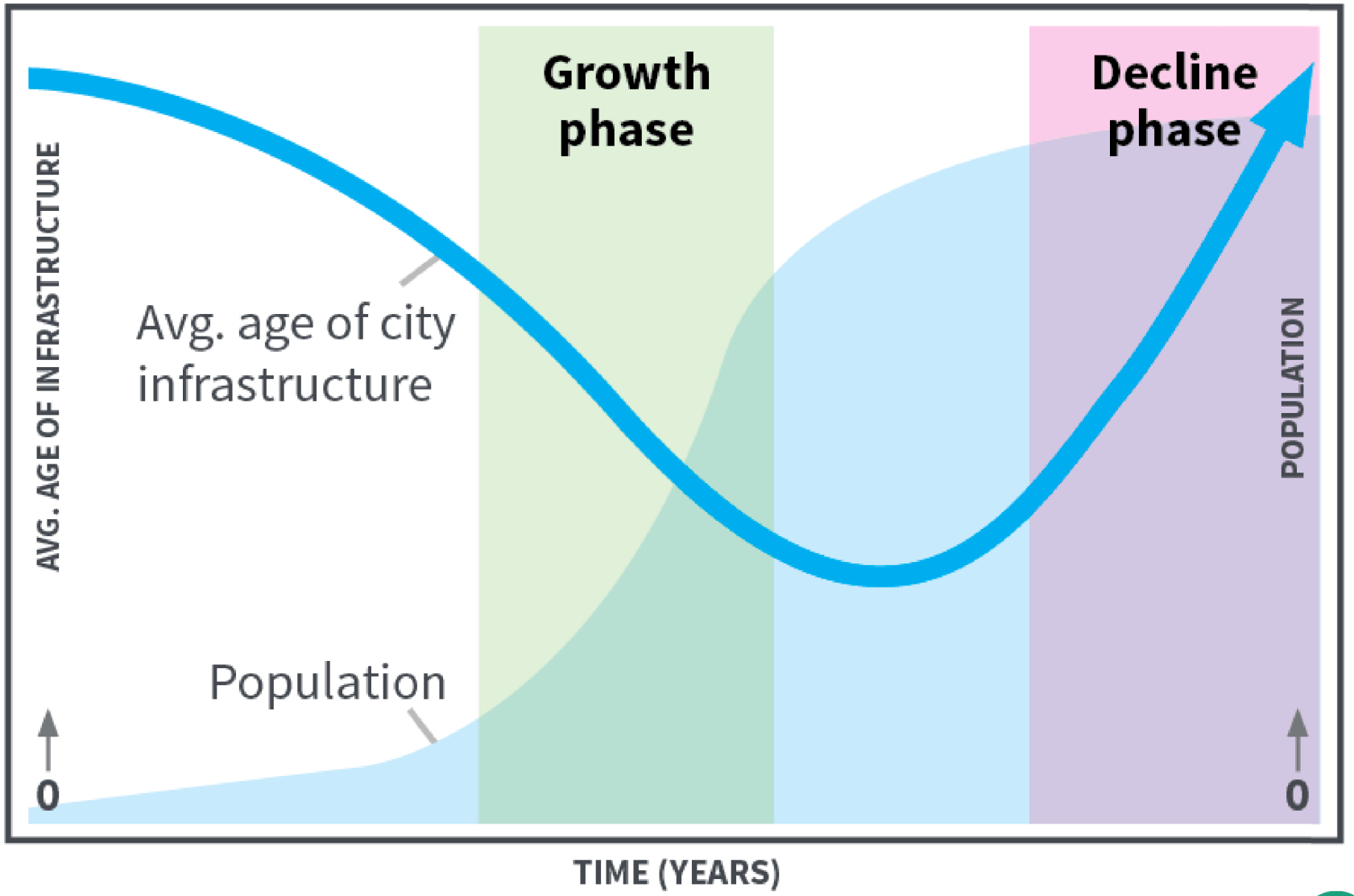
Long-Term Impacts of Rate and Pattern of Growth



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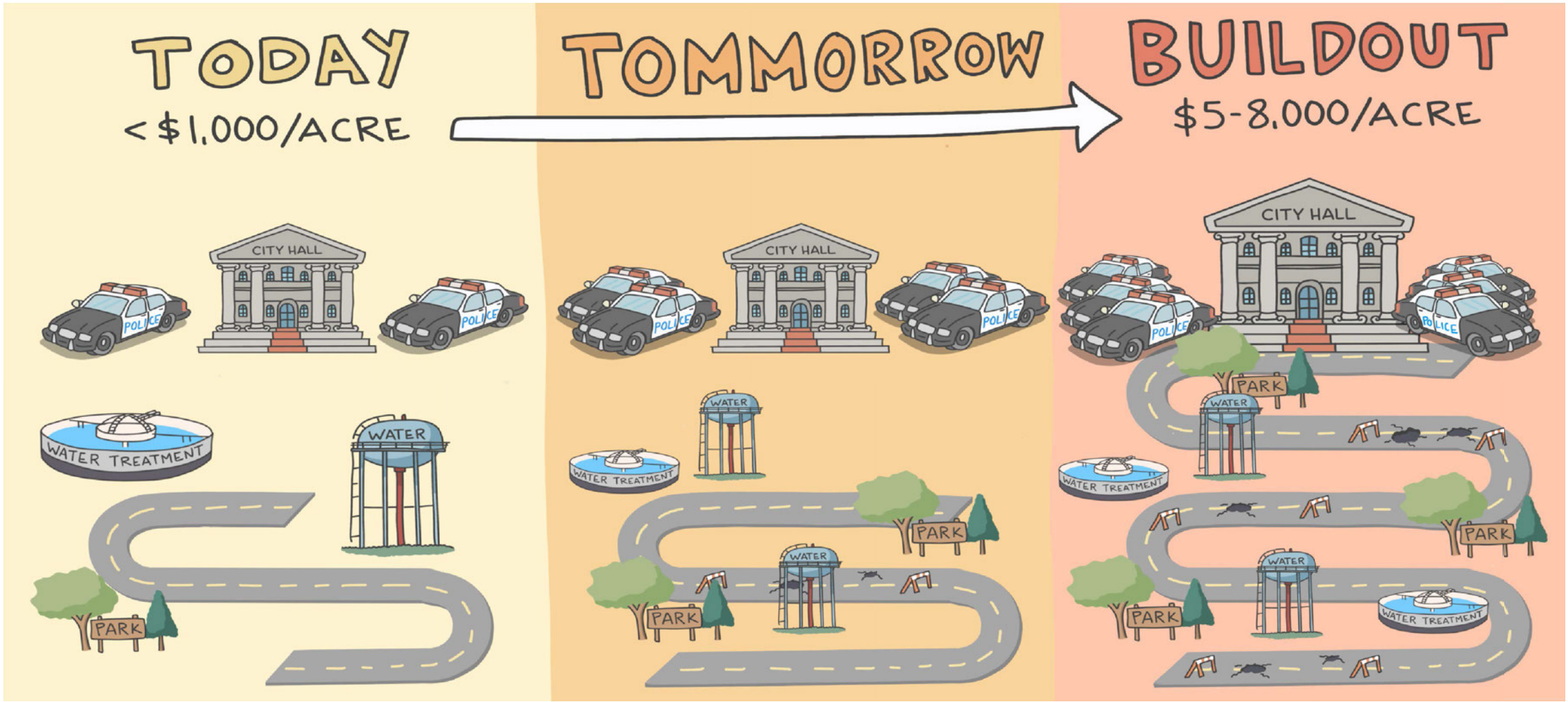
Service Costs Grow with Population & Geographic Expansion



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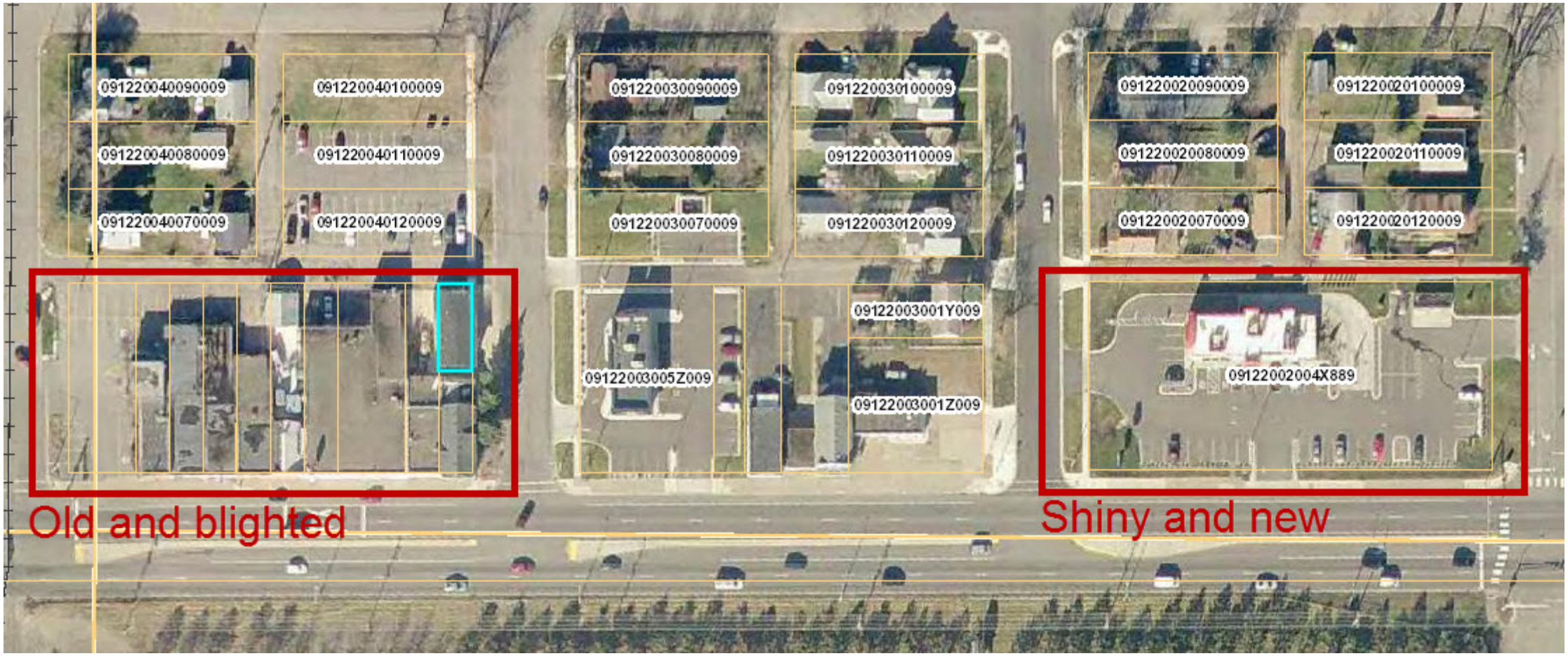
Comparing the Value of Development Patterns



Chuck Marohn
Strong Towns

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Comparing the Value of Development Patterns

Old & Blighted Block
($/acre)
$1,136,500

New Fast Food Restaurant
($/acre) $803,200

Chuck Marohn
Strong Towns

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Comparing the Value of Development Patterns

Auto Oriented “Big Box”
$0.6M/acre

Traditional Grid Downtown
$1.1M/acre

Chuck Marohn
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Revenue/Infrastructure Cost Gap

Taxable Value:	$747,552
Tax Received:	$ 2,176
Cost of Repair:	$ 36,484
Life Expectancy:	5 to 7 yrs

Based on the current taxable value and the current tax rate, it would take **16.77** years for the properties to repay the repairs – that is assuming all of the future tax revenues are dedicated to the replacement costs and no other city services are provided during that same period.

Fate, TX

Revenue/Infrastructure Cost Gap

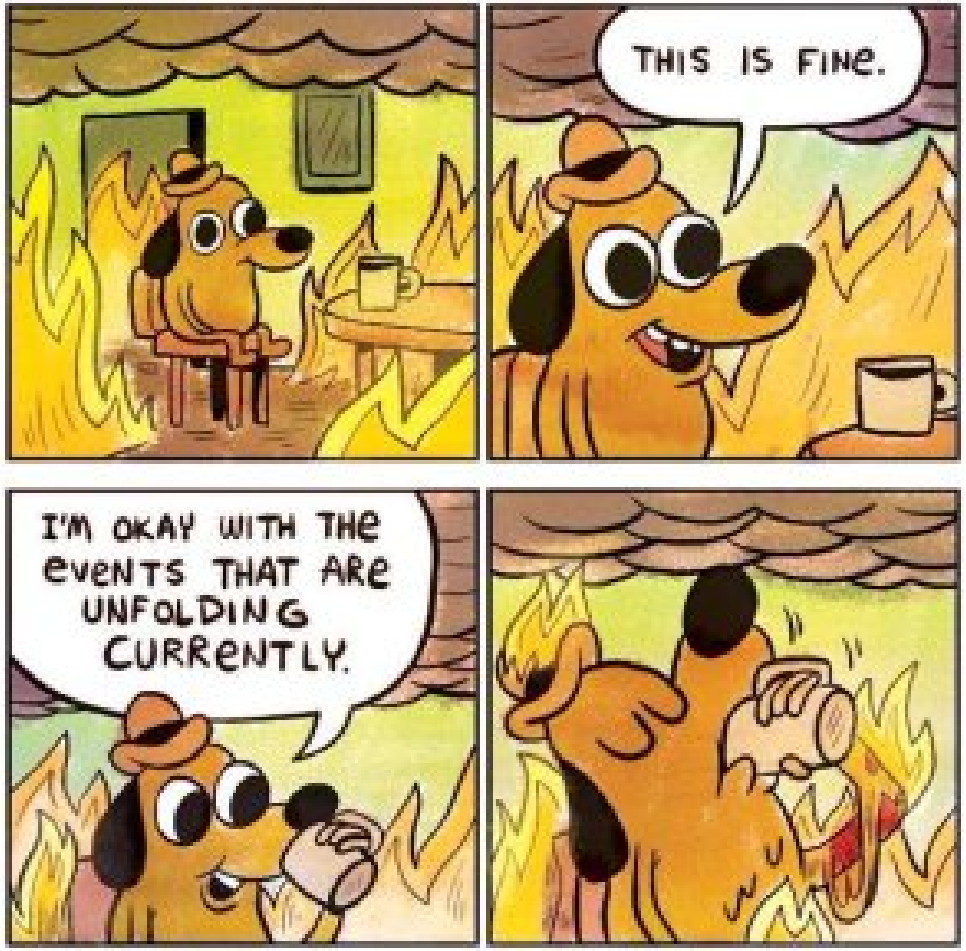
Taxable Value:	$953,441
Tax Revenue:	$ 6,114
Cost of Repair:	$ 206,876
Life Expectancy:	40 years

Based on the current taxable value and the current tax rate, it would take **33.84** years for the properties to repay the repairs – that is assuming all of the future tax revenues are dedicated to the replacement costs and no other city services are provided during that same period. **Location: East 32nd Ave & East Avenue**.

Brownsville, TX

PAIN EXISTS TO...

...COMMUNICATE A WARNING



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WE NEED A COMMON LANGUAGE

DISCUSS COMMON PROBLEMS

BUILD COMMON SOLUTIONS

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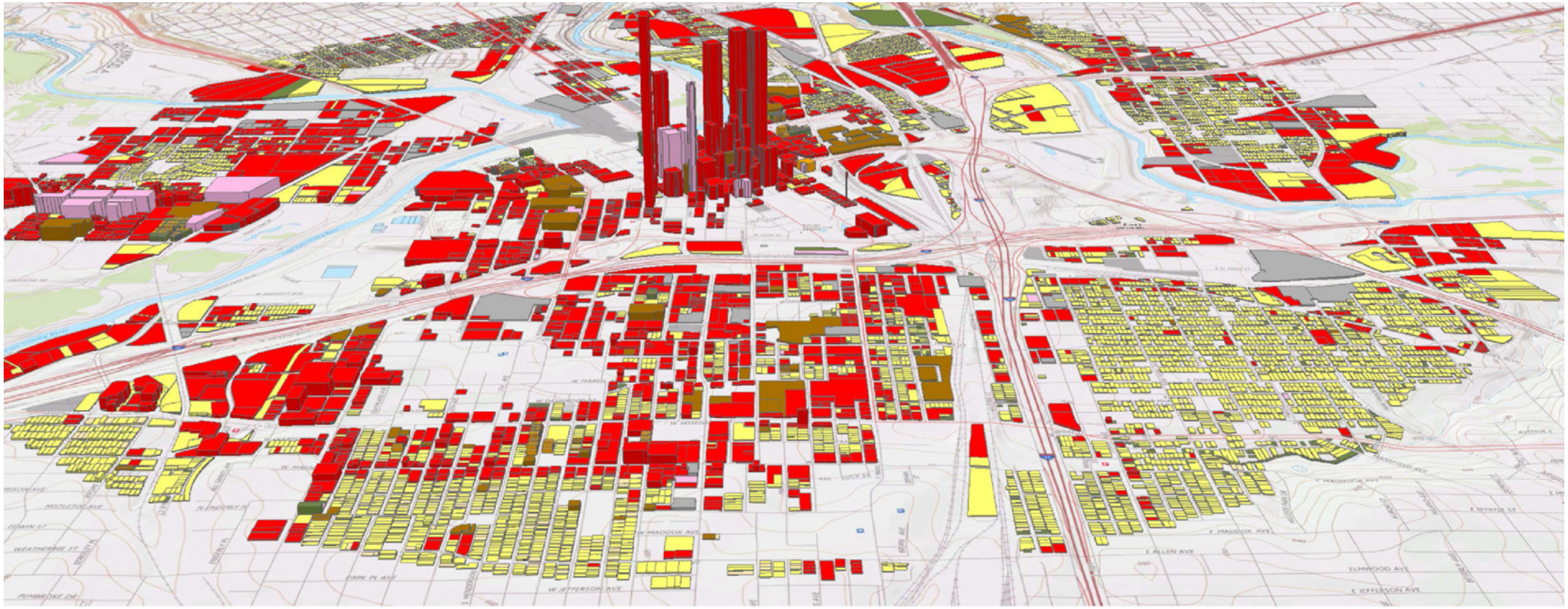
Fiscal Sustainability as a Common Language



Circle City Parcels 2014 Land Use

- Single Family
- Apartments
- Commercial
- Condos / Townhomes
- Duplex/Triplex/Quadplex
- Industrial
- Mixed Use
- Undeveloped

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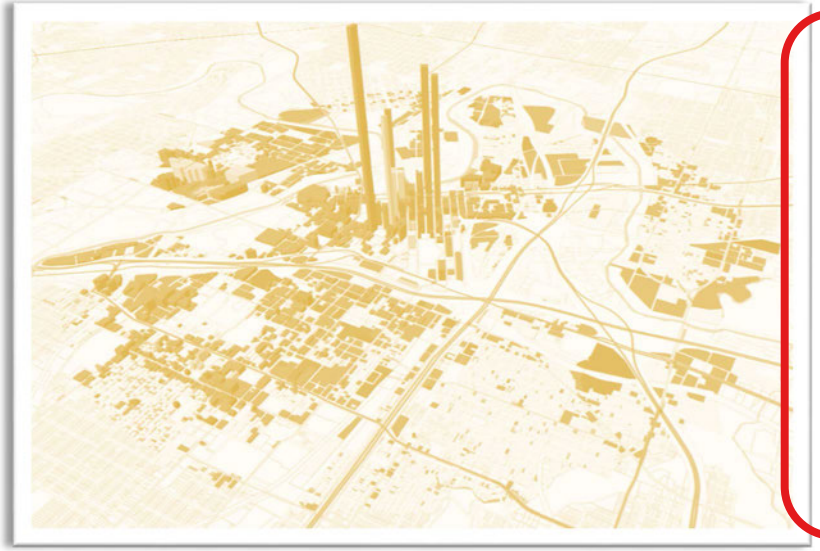
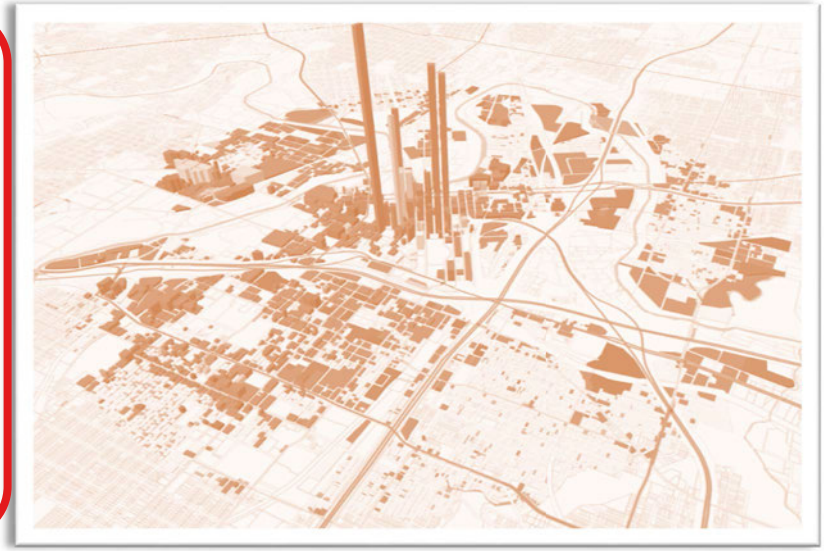
The Potential of Fiscal Analysis



LU 1
Single Family

Added Population
10,568

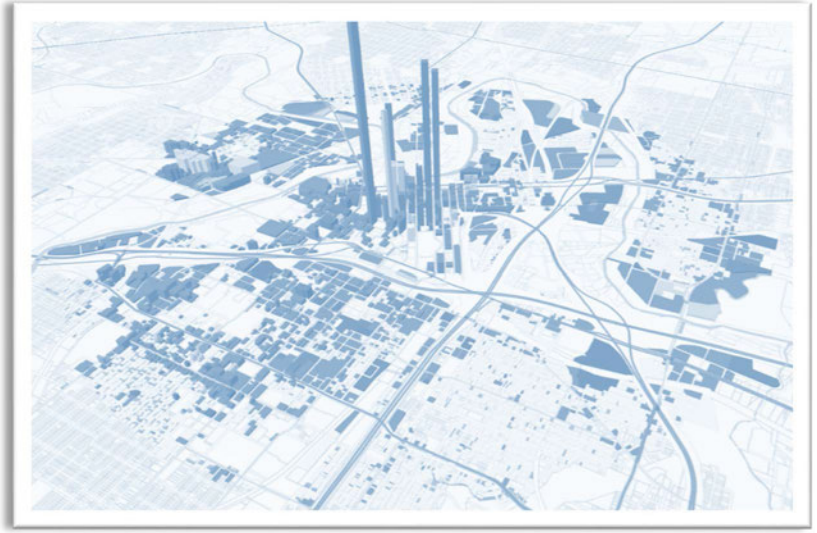
Projected Tax Rate
$ 0.786



LU 2
Apartments

Added Population
14,331

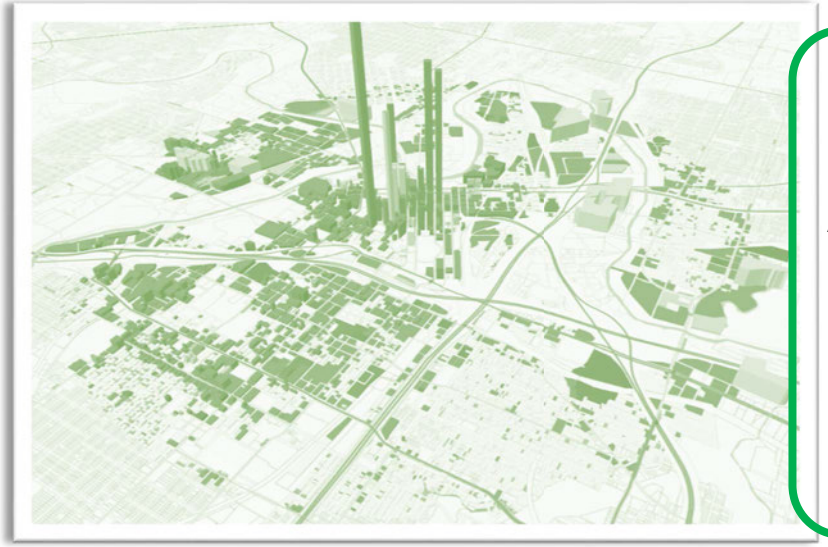
Projected Tax Rate
$ 0.775



LU 3
Condos

Added Population
15,156

Projected Tax Rate
$ 0.763



LU 4
Mixed Use

Added Population
18,156

Projected Tax Rate
$ 0.557

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Closing the Gap: Options for Citizens

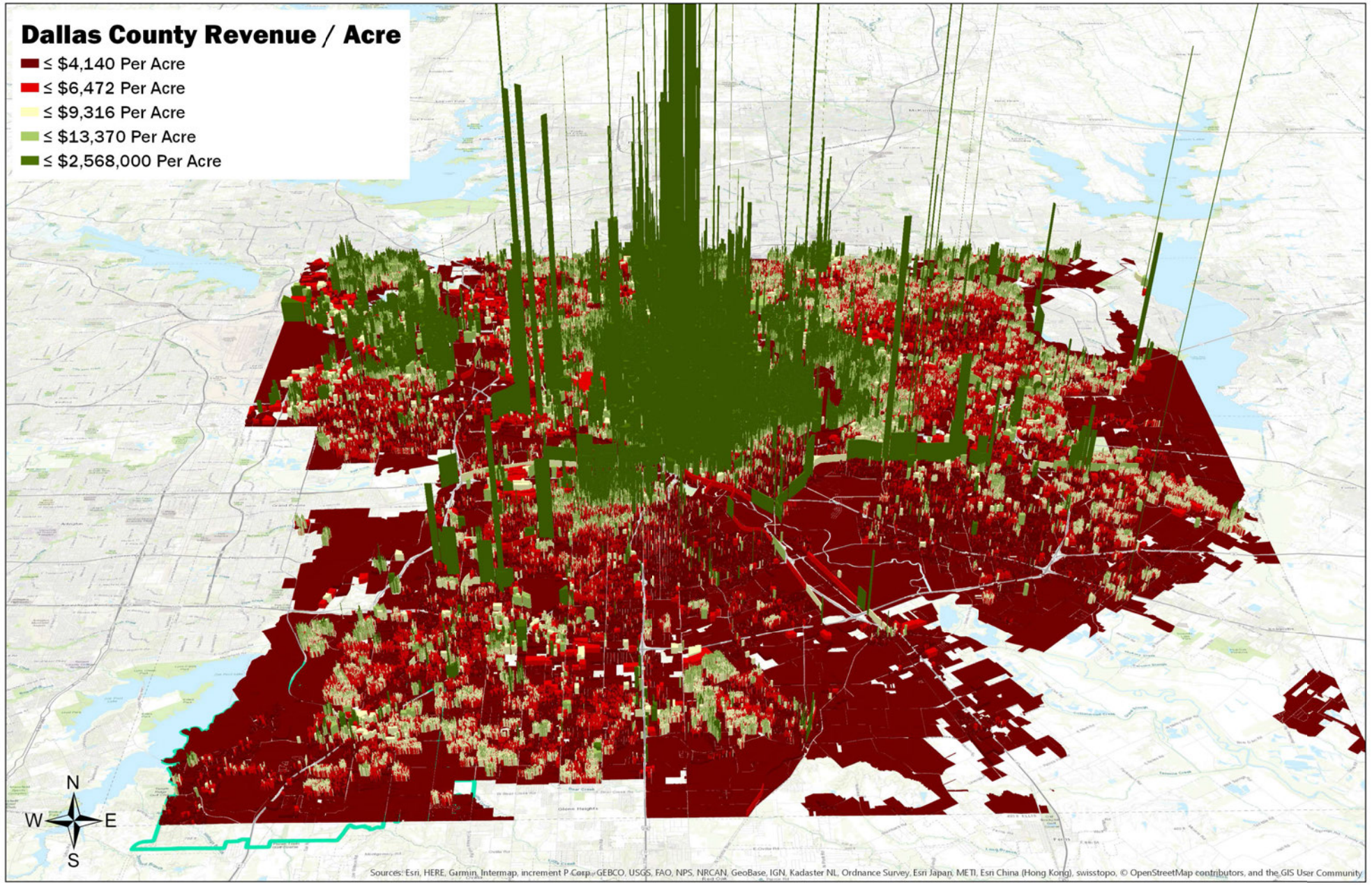
1. Keep development patterns and service levels where they are, but charge more (via higher taxes and fees) to cover the true costs.

2. Keep tax rate where it is, but cut services to align with revenues.

3. Shift development pattern and infrastructure design to enable an affordable balance of services and taxes.

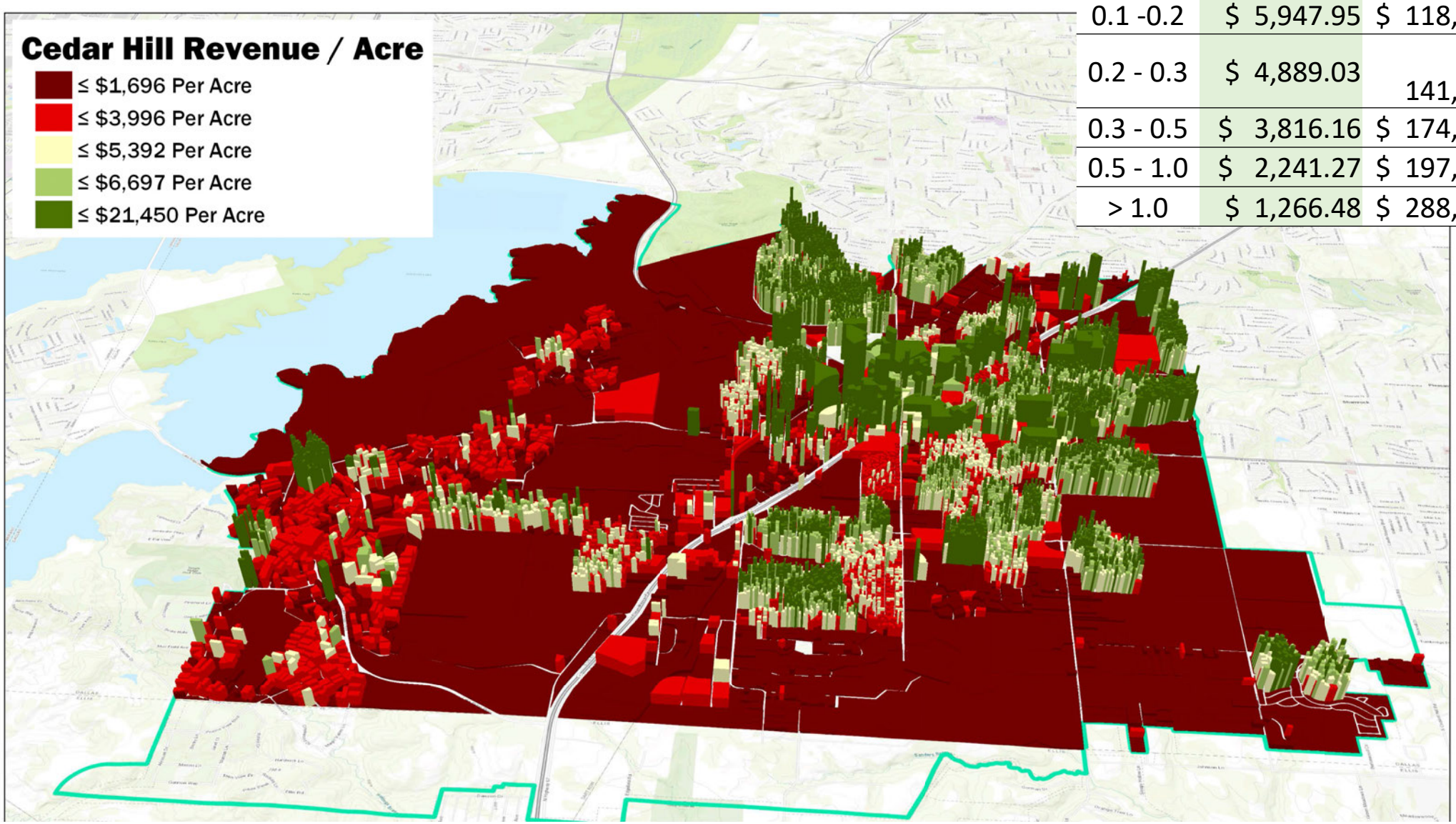
Our goal is to align the development pattern and service levels with what citizens are willing and able to pay for – now and in the future.

Levy Revenue per Acre Mapping



Dallas County, TX

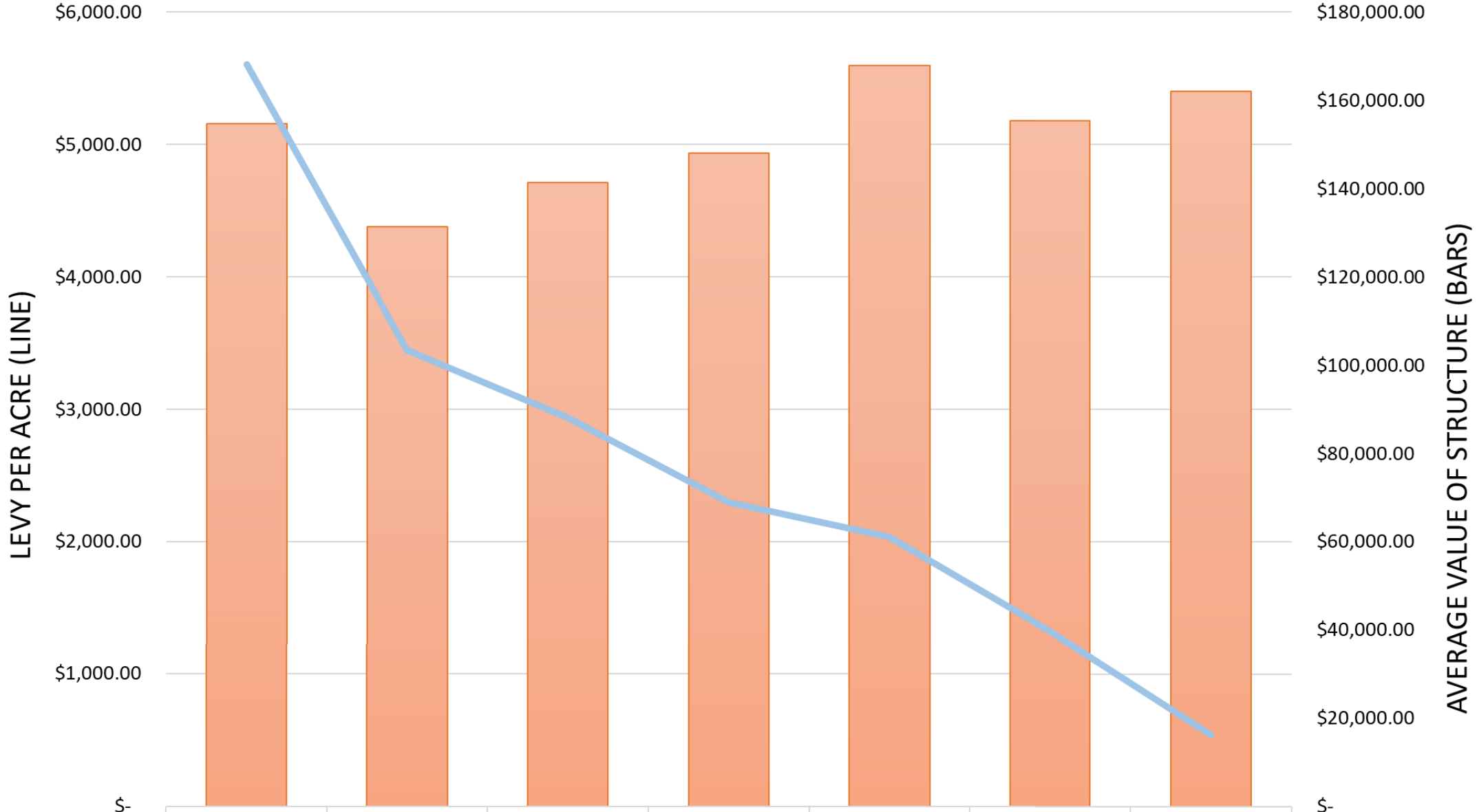
Levy Revenue per Acre Mapping



Lot Size in Acres	Levy / Acre	Avg Impv. Value	Levy Structural SqFt	Portion of City
0.1 -0.2	$ 5,947.95	$ 118,800	$ 0.51	6%
0.2 - 0.3	$ 4,889.03	$ 141,271	$ 0.51	5%
0.3 - 0.5	$ 3,816.16	$ 174,886	$ 0.56	2%
0.5 - 1.0	$ 2,241.27	$ 197,265	$ 0.57	2%
> 1.0	$ 1,266.48	$ 288,126	$ 0.68	13%

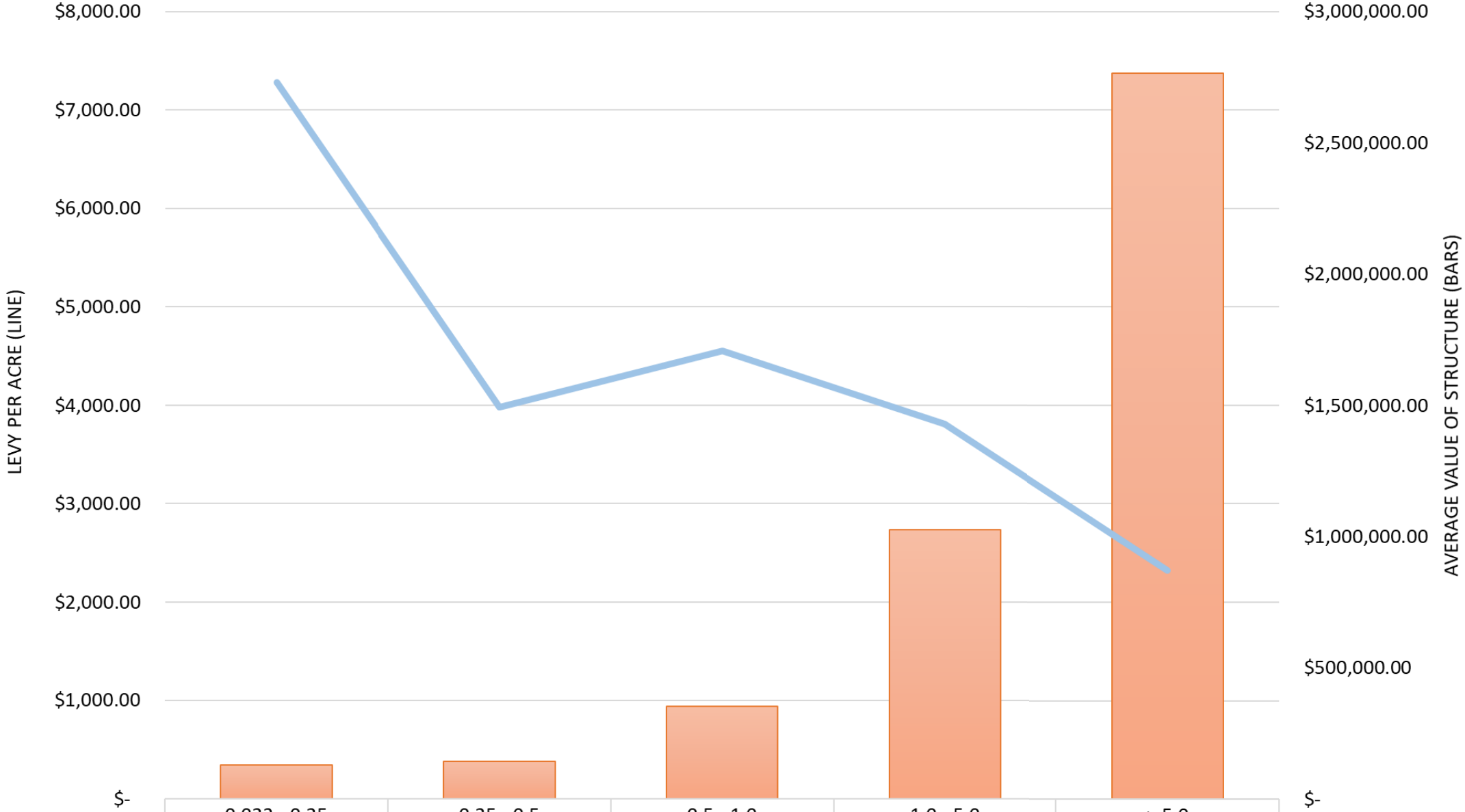
Cedar Hill, TX

Property Tax Levy per Acre - Residential



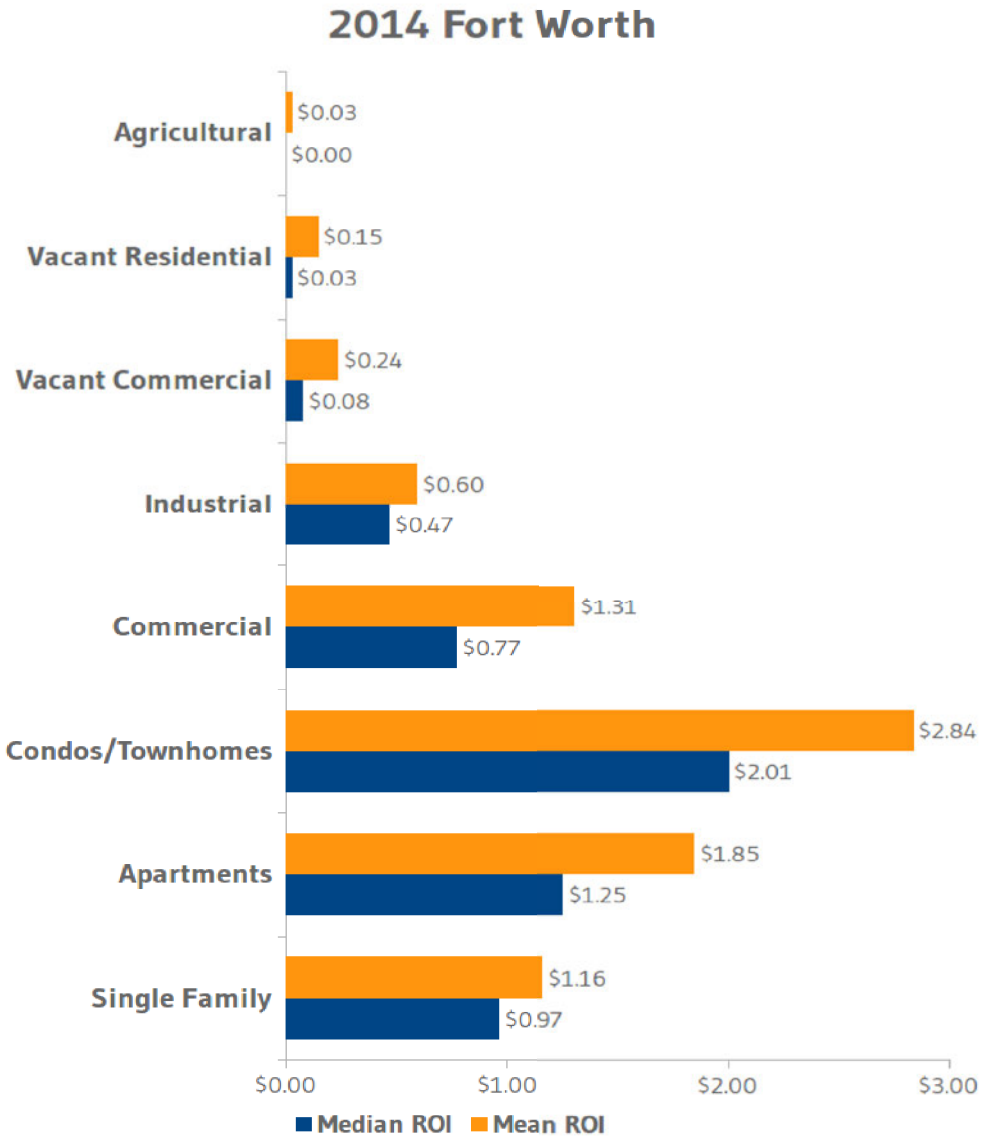
	0.02 - 0.2	0.2 - 0.3	0.3 - 0.4	0.4 - 0.5	0.5 - 0.75	0.75 - 1.0	> 1.0
Average Improvement Value per Structure	$154,686.55	$131,314.47	$141,248.16	$148,034.97	$167,797.19	$155,292.00	$162,005.78
Levy Per Acre	$5,603.09	$3,448.62	$2,934.44	$2,299.31	$2,033.54	$1,322.84	$538.77

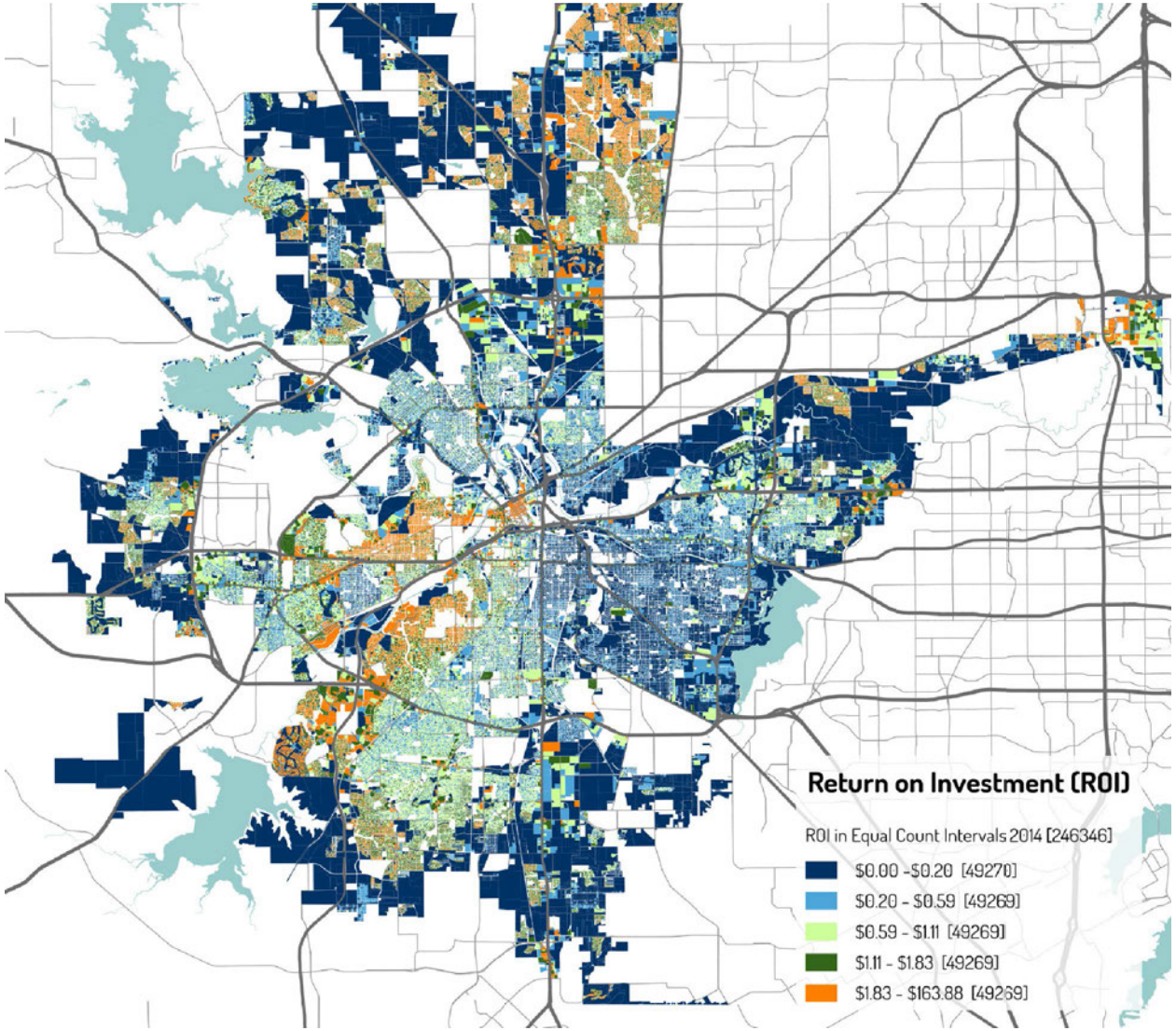
Property Tax Levy per Acre - Commercial



	0.023 - 0.25	0.25 - 0.5	0.5 - 1.0	1.0 - 5.0	> 5.0
Average Improvement Value per Structure	$128,059.30	$141,451.31	$351,830.54	$1,025,652.08	$2,765,479.17
Levy Per Acre	$7,276.79	$3,980.05	$4,555.58	$3,812.97	$2,320.21

Development Return on Investment (ROI)





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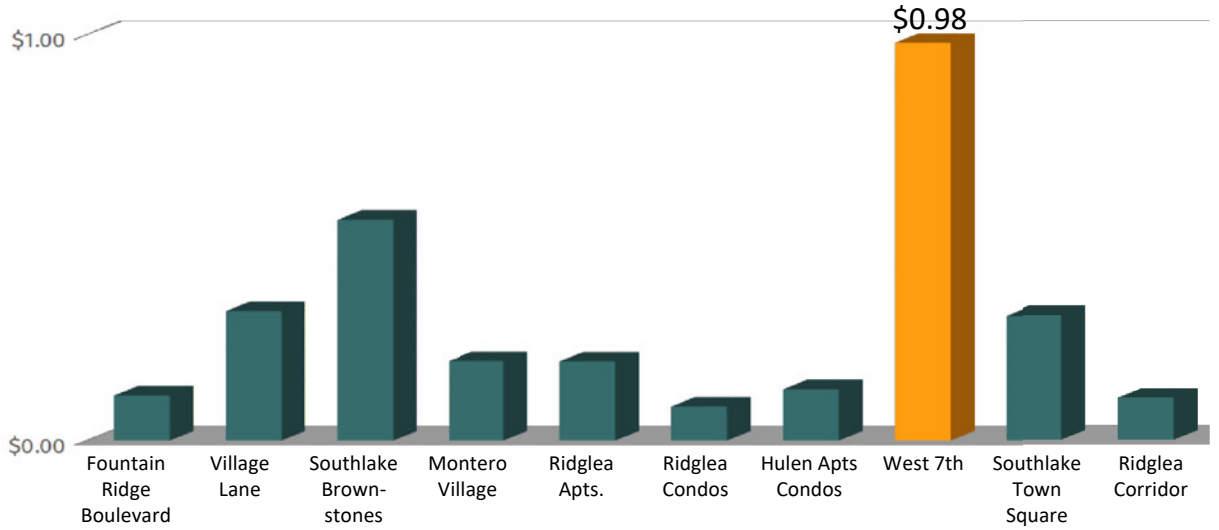
Development Context Data



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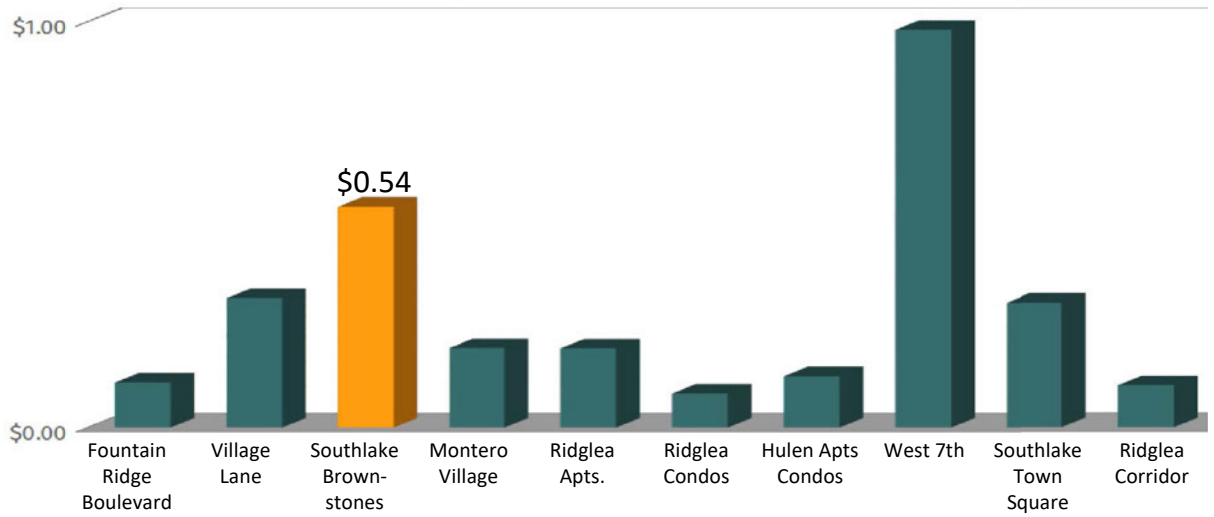
Development Context Data



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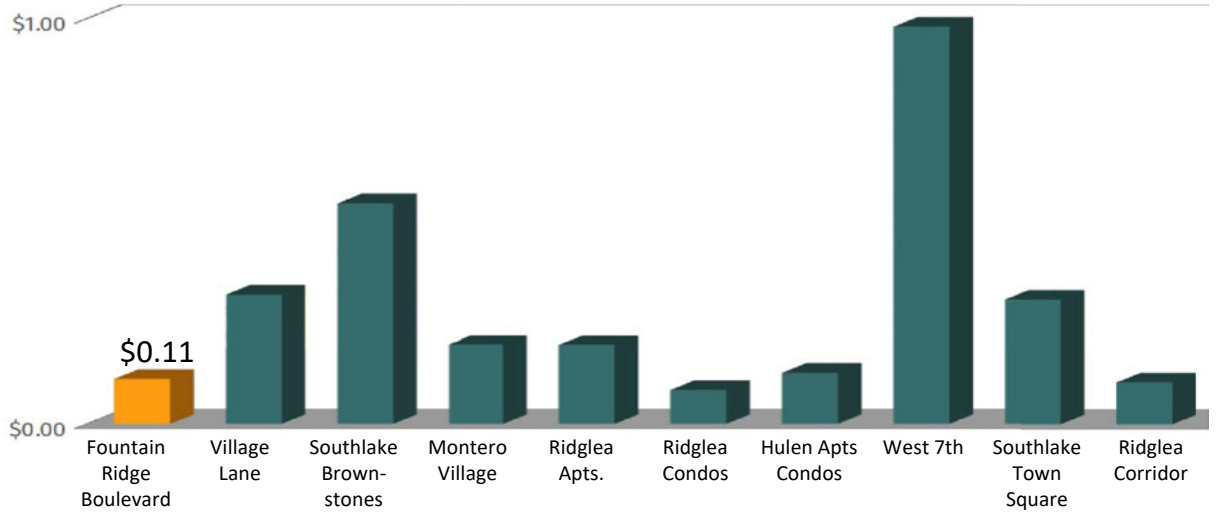
Development Context Data



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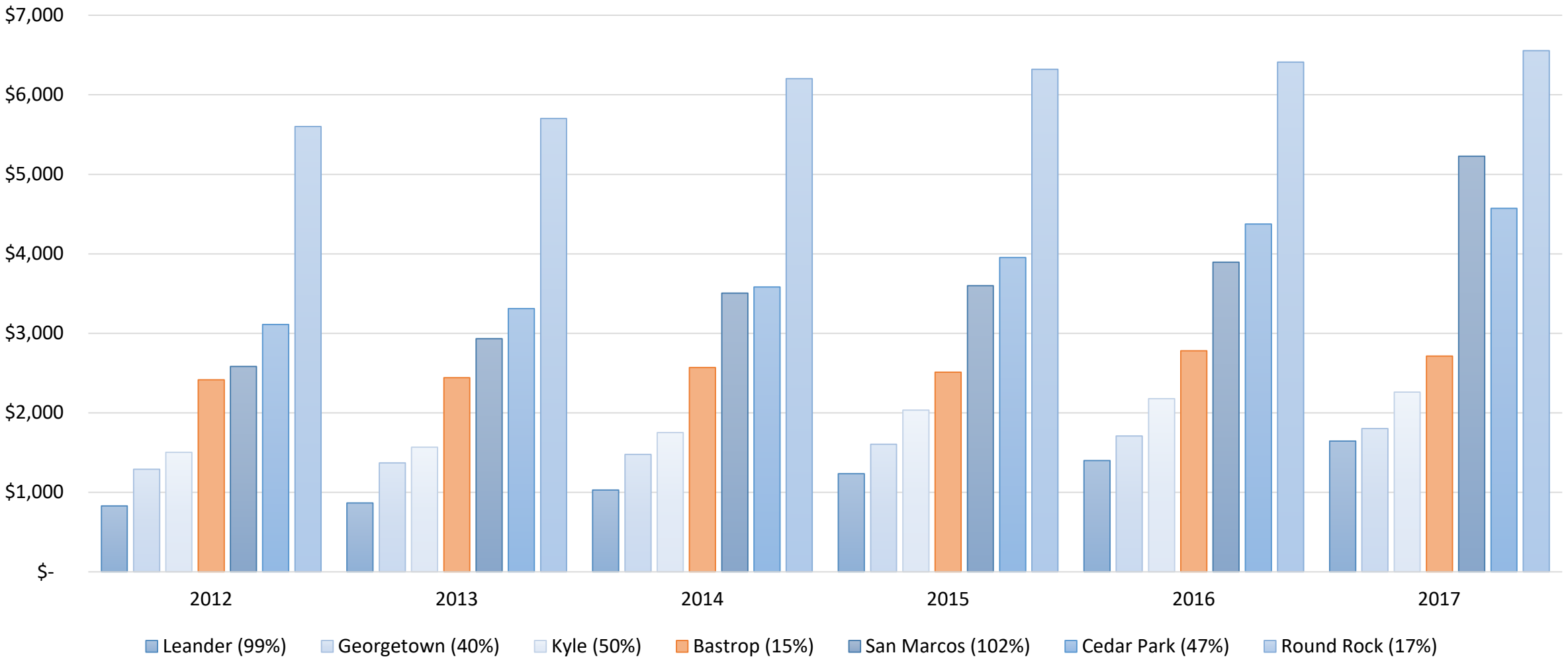
Projecting General Fund Costs



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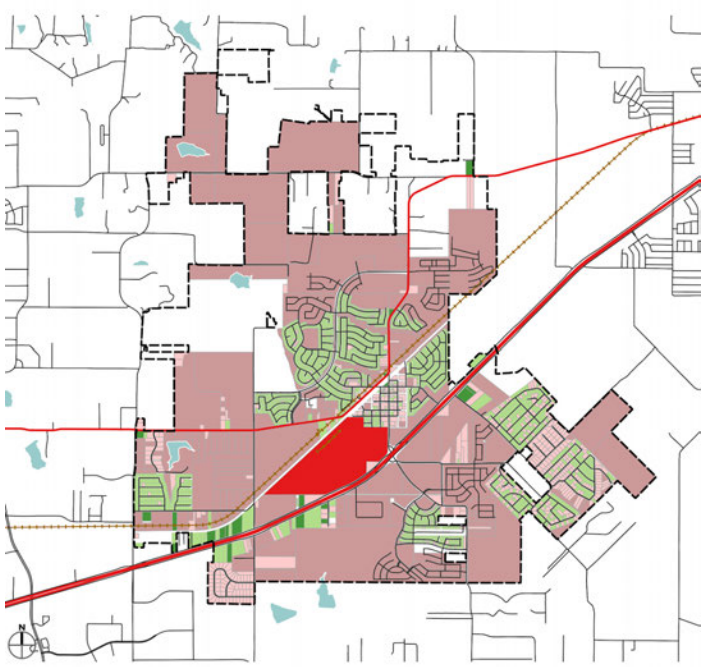
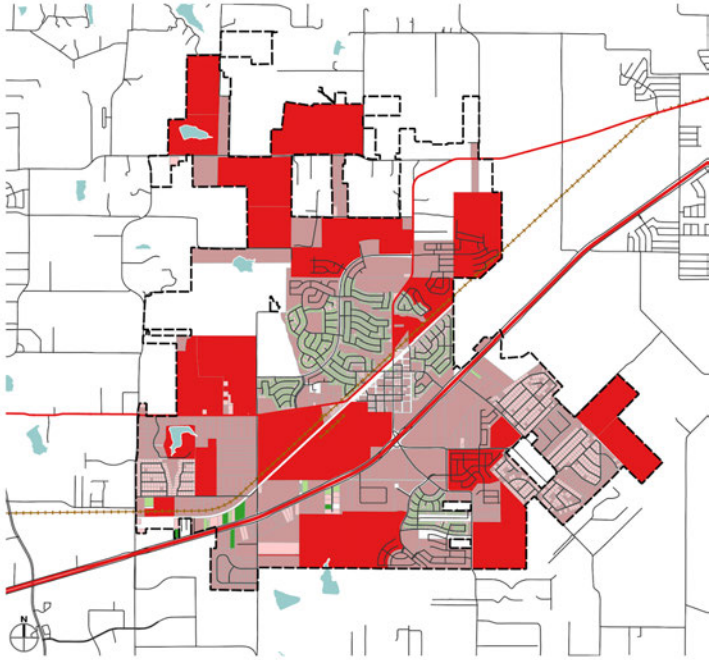
Forecasting Fiscal Impacts of Development



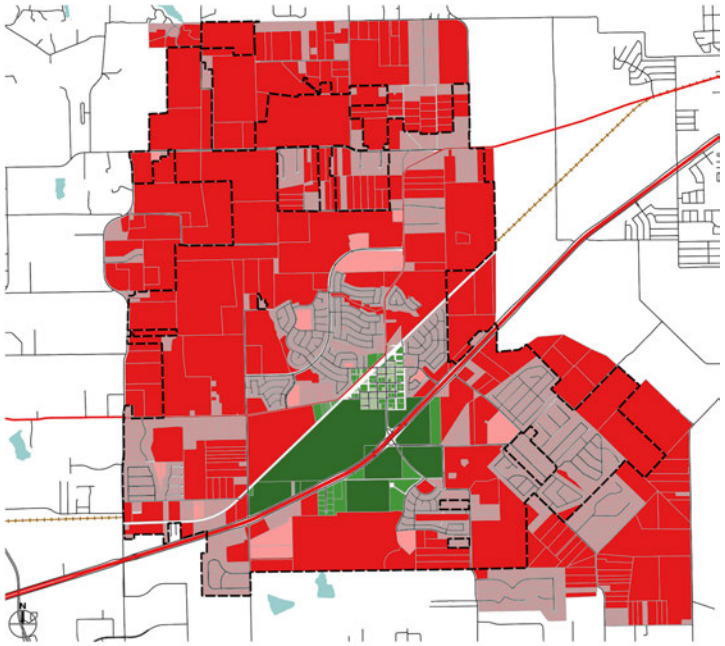
2015 Net Revenue

- < $-50,000
- $-50,000 – $-1,000
- $-1,000 - $0
- $0 - $1,000
- $1,000 - $50,000
- > $50,000



2015 Net Revenue w/ Street Replacement Costs

- < $-50,000
- $-50,000 – $-1,000
- $-1,000 - $0
- $0 - $1,000
- $1,000 - $50,000
- > $50,000



2050 Projected Net Revenue at Buildout

- < $-50,000
- $-50,000 – $-1,000
- $-1,000 - $0
- $0 - $1,000
- $1,000 - $50,000
- > $50,000

$72M Deficit

City of Fate, TX

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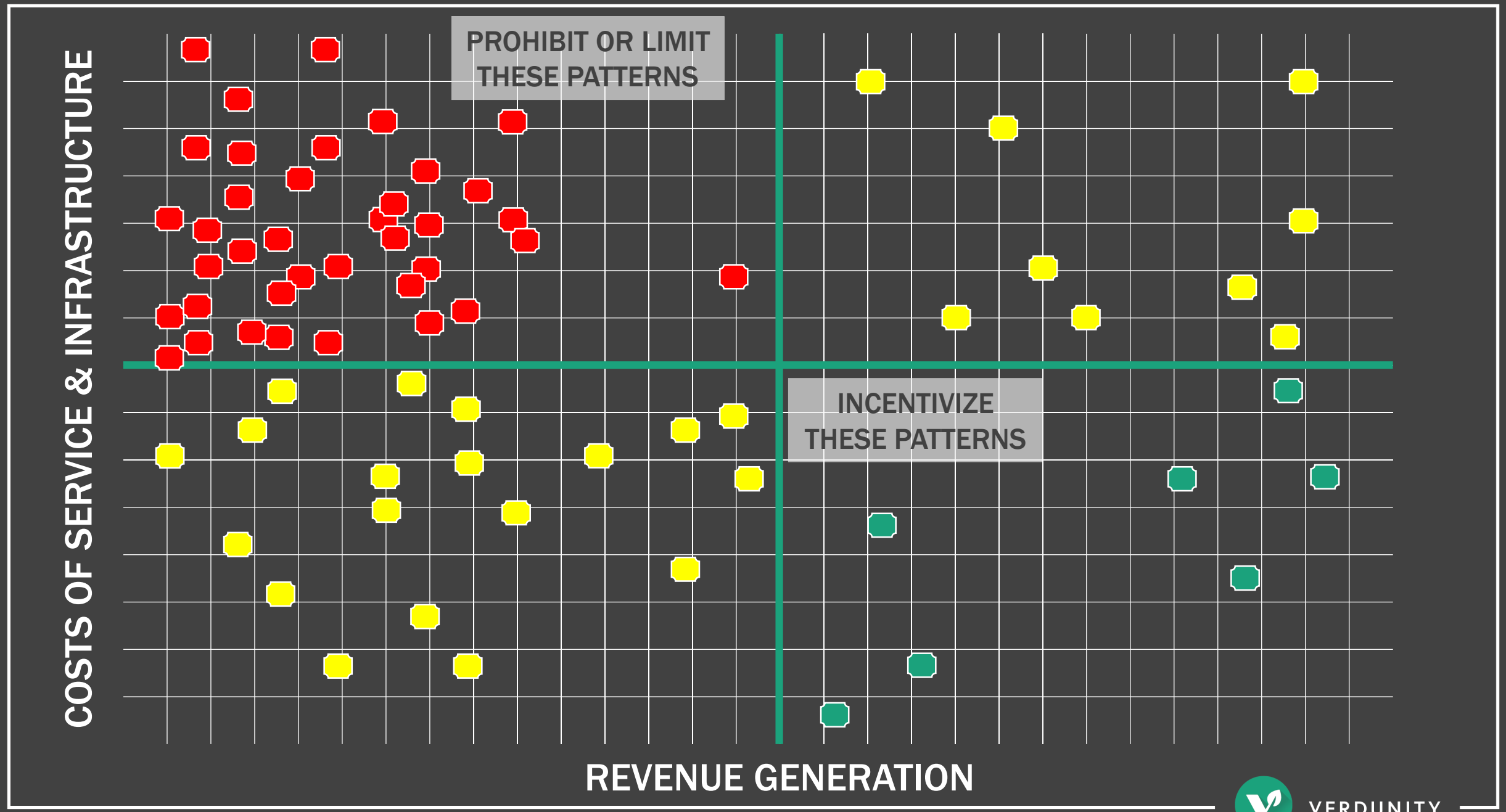
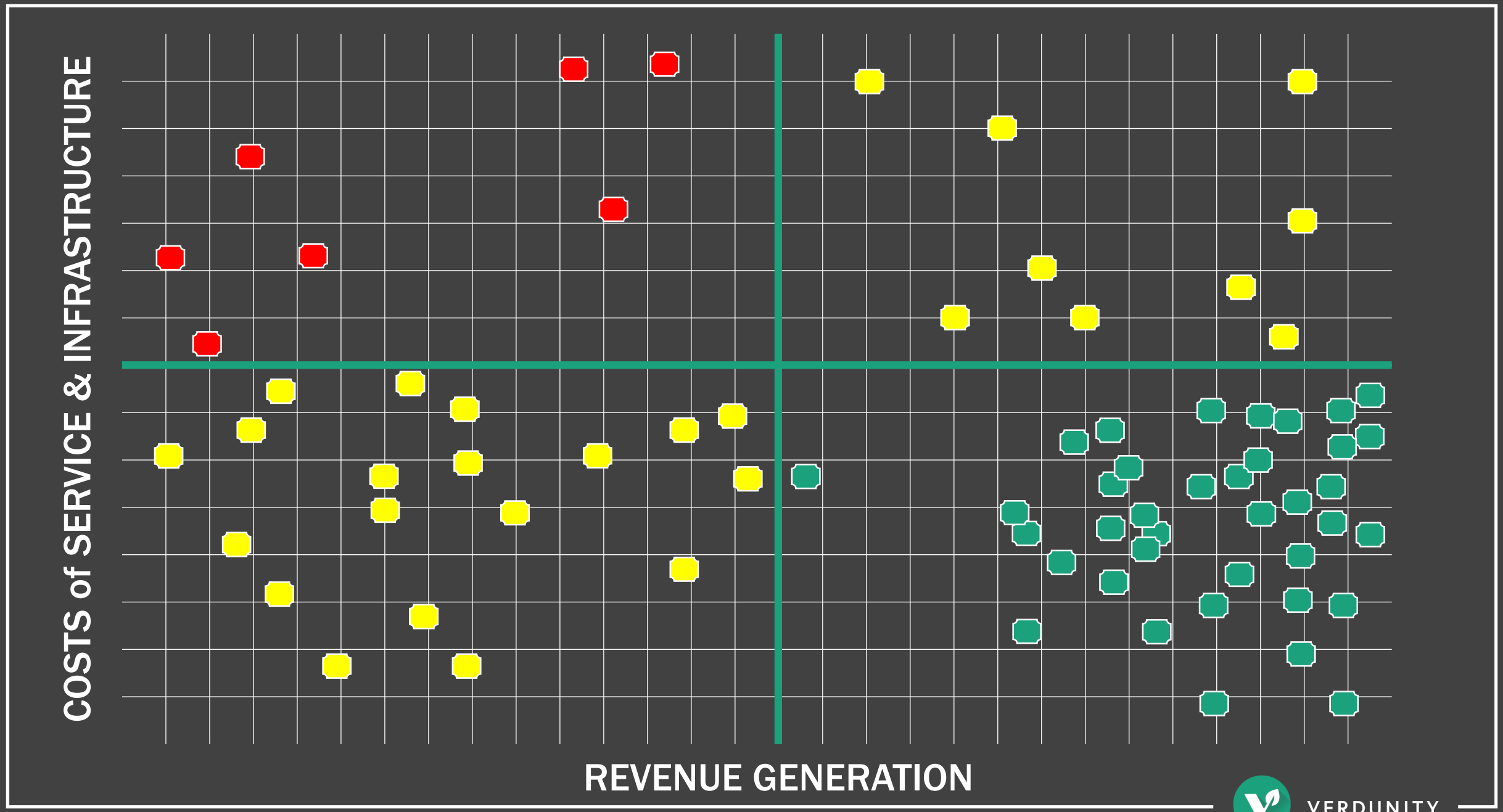
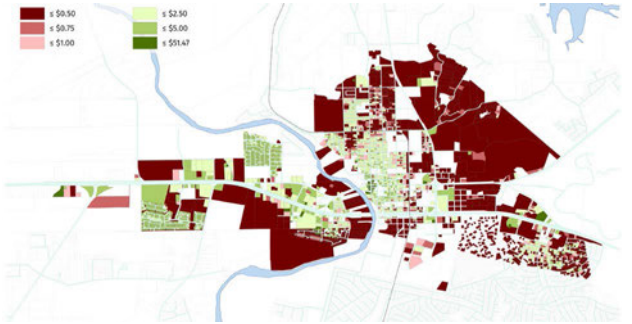

PROHIBIT OR LIMIT
THESE PATTERNS
INCENTIVIZE
THESE PATTERNS
COSTS OF SERVICE & INFRASTRUCTURE
REVENUE GENERATION

VERDUNITY

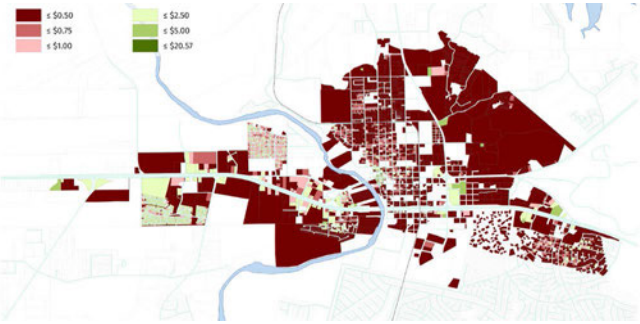

COSTS of SERVICE & INFRASTRUCTURE
REVENUE GENERATION
VERDUNITY

Development Modeling Methodology

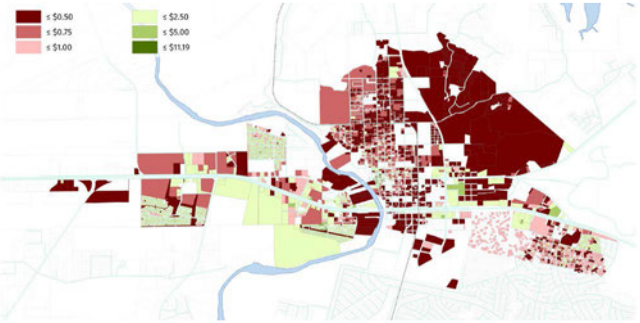
Scenario A: Existing property tax levy revenue $ minus current operating budget costs (Baseline/existing conditions)



Scenario B: Added projected general fund costs and unfunded street replacement costs spread over 20 years (2020-2040) ($144M deficit ~ $7.2M annually)



Scenario C: Projected ROI of adopted FLUP with street costs spread over 30 years (2040-2070) ($4.6M annual deficit)



City of Bastrop, TX

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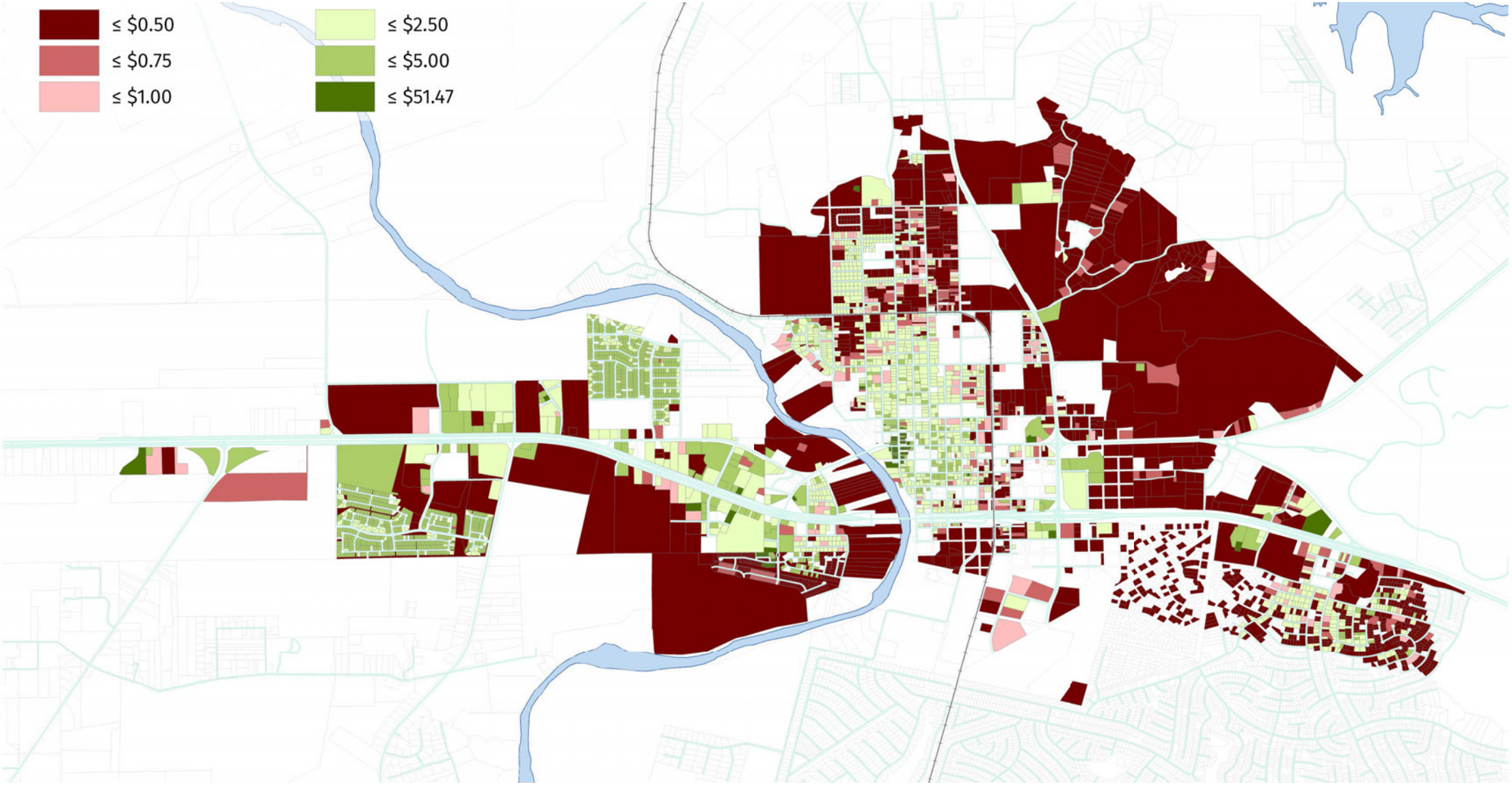
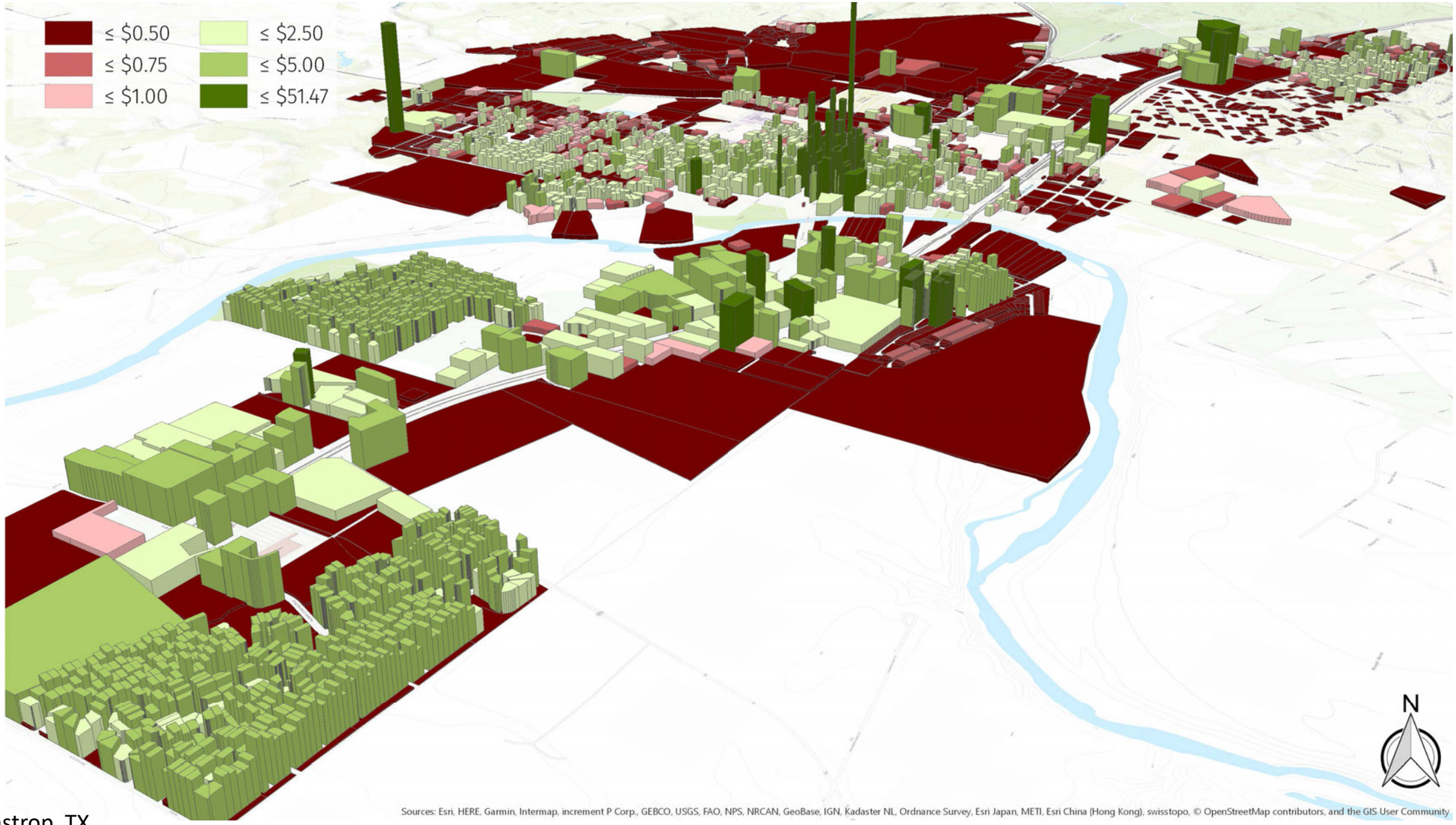
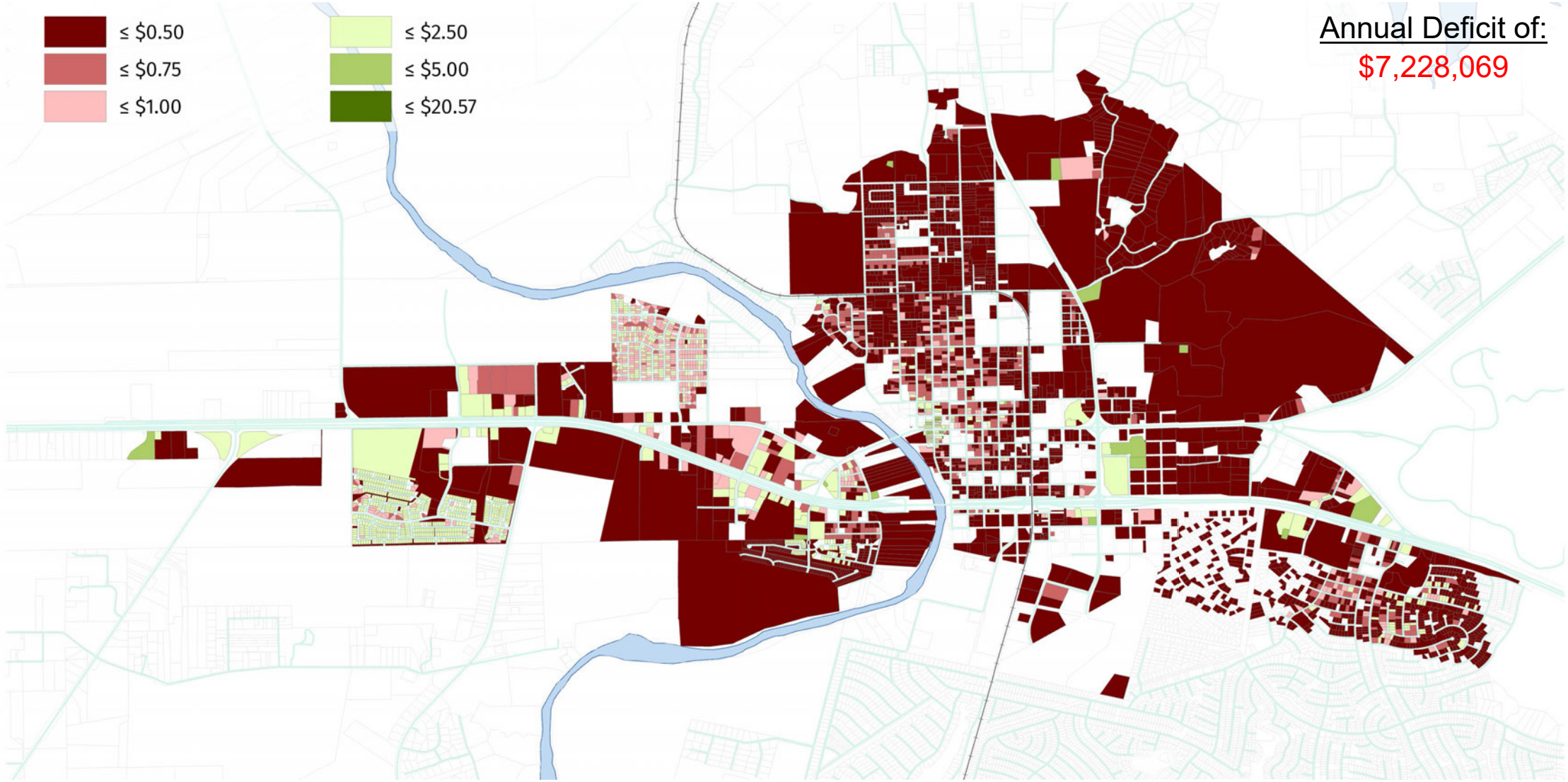
Scenario A: Current Operating Budget



Scenario A: Current Operating Budget



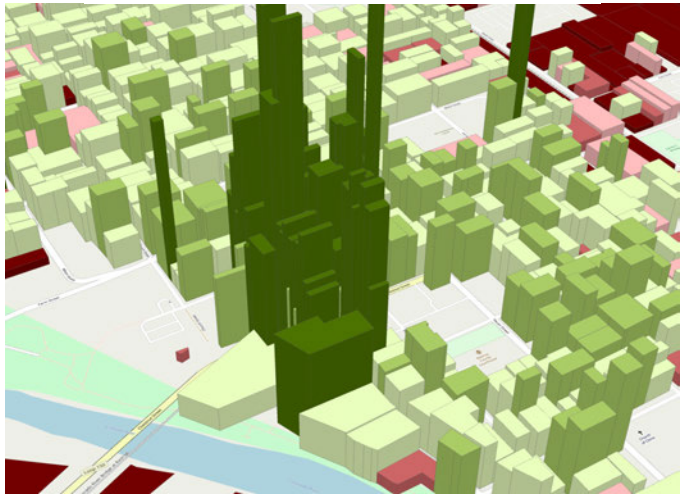
Scenario B: Budget + Estimated Deficit (2040)

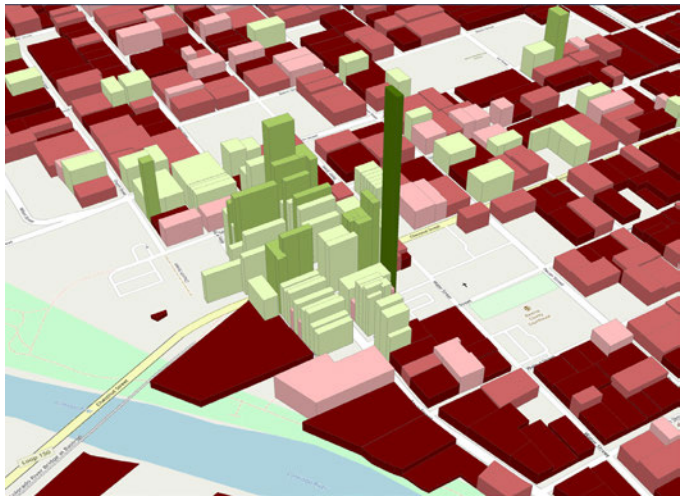


Scenario B: Budget + Estimated Deficit (2040)

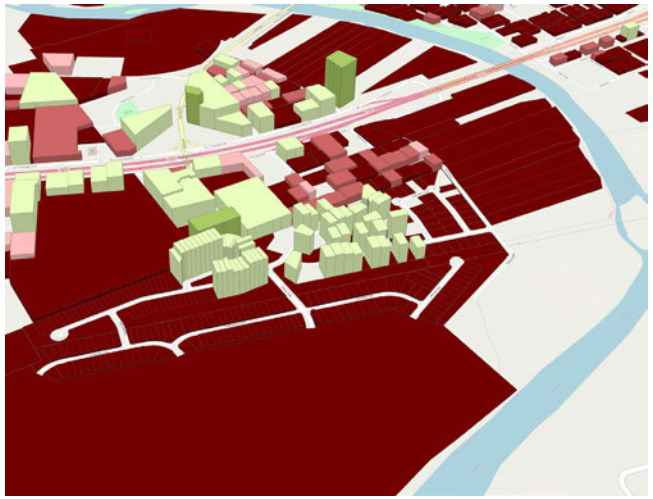
Development Pattern Comparisons (Scenario A vs B)

Historic Downtown

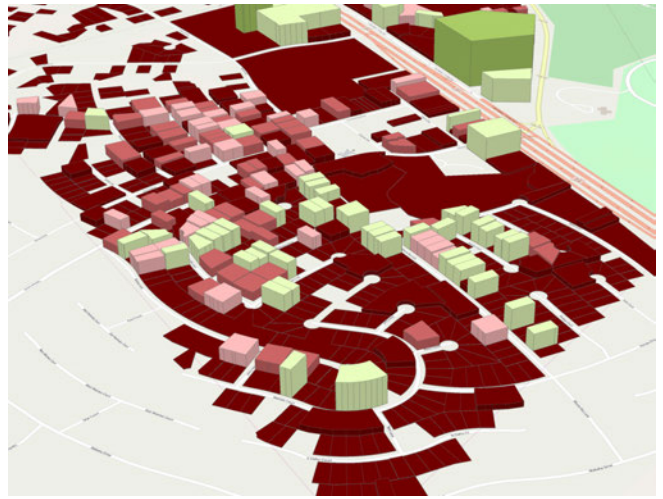




Small Lot Residential



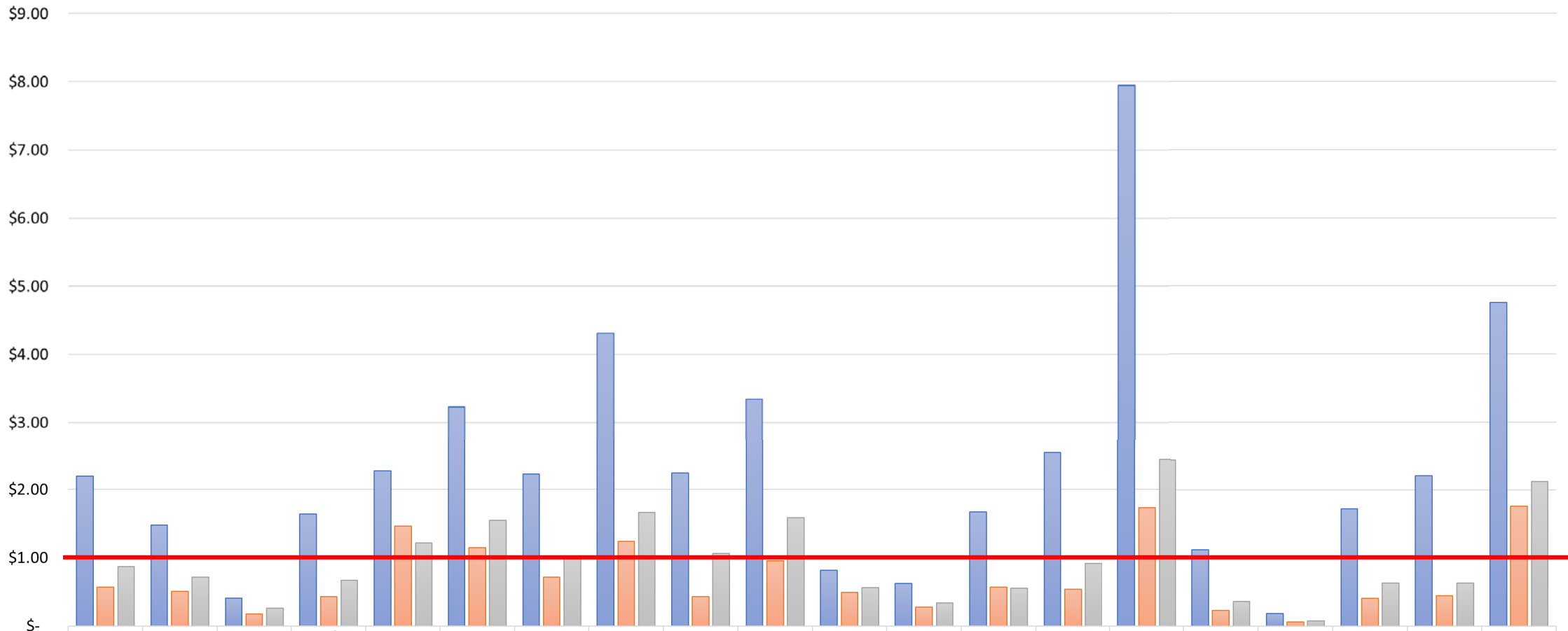
Large Lot Residential



ROI Performance of Existing Land Use

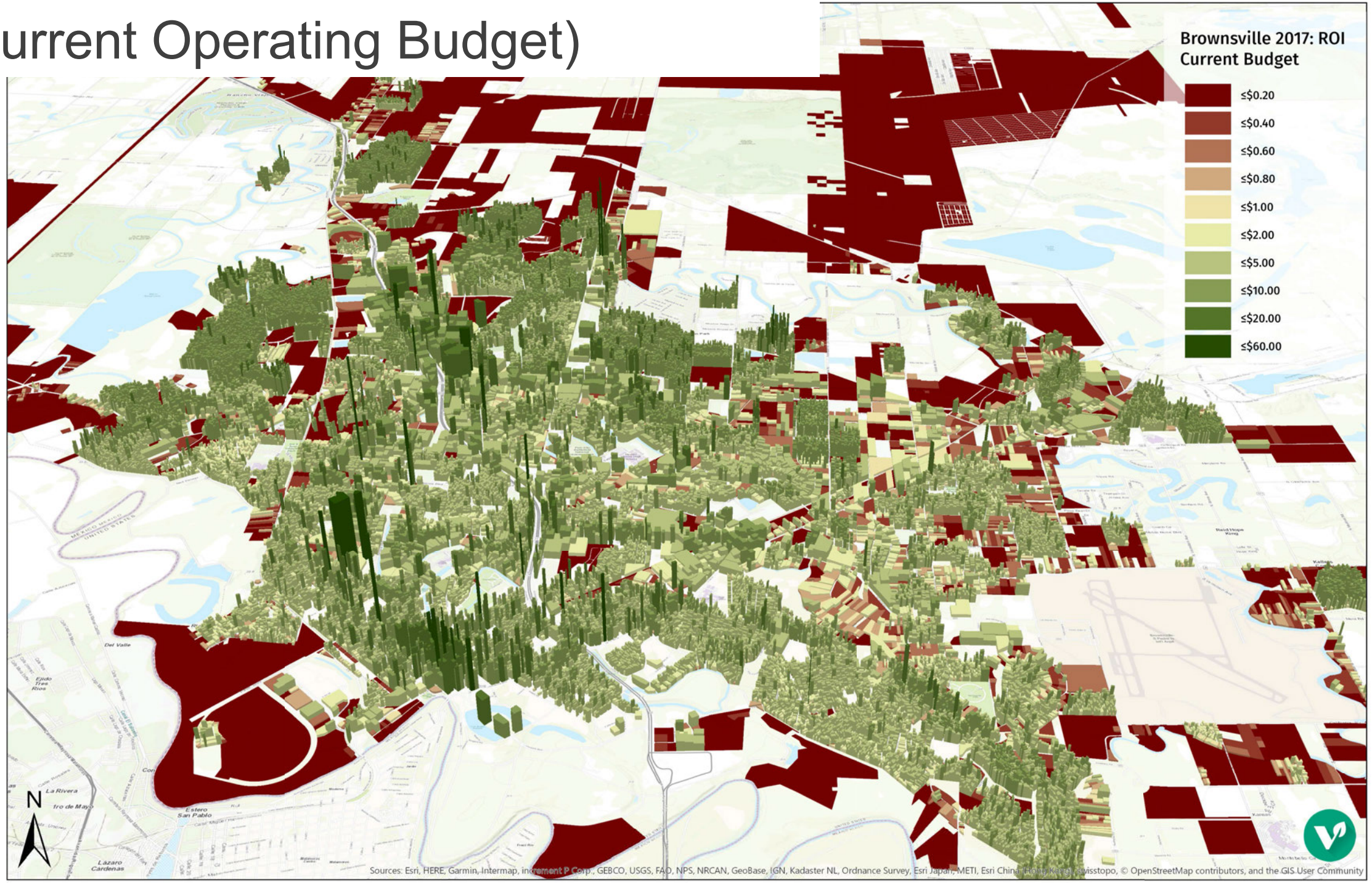
State Land Use Code	Metrics	Land Value Per Acre	Improvement Value Per Acre	Improvement Value Per SqFt Structure	Average Improvement Value per Structure	Average Tax Value per Lot	Levy Per Acre	FAR	Net Weighted Current Per Acre (Scenario A)	Net Weighted Deficit Annual Per Acre (Scenario B)	ROI Weighted (Scenario A)	ROI Weighted Deficit Annual (Scenario B)
Single Family	Total	$ 73,709.07	$ 377,234.13	$ 85.30	$ 148,430.42	$ 171,605.02	$ 2,459.78	$ 0.11	$ 594.08	$ (2,611.84)	$ 2.16	$ 0.76
Acreage Sizes	0.02 - 0.2	$ 88,931.65	$ 934,545.79	$ 90.08	$ 154,686.55	$ 164,437.41	$ 5,603.09	$ 0.23	$ 3,734.26	$ 85.86	$ 3.02	$ 1.07
	0.2 - 0.3	$ 97,191.60	$ 532,153.27	$ 82.77	$ 131,314.47	$ 150,883.65	$ 3,448.62	$ 0.15	$ 1,579.79	$ (2,281.17)	$ 1.87	$ 0.64
	0.3 - 0.4	$ 127,272.32	$ 407,079.90	$ 80.19	$ 141,248.16	$ 180,529.89	$ 2,934.44	$ 0.12	$ 1,065.61	$ (3,013.31)	$ 1.58	$ 0.52
	0.4 - 0.5	$ 100,531.91	$ 326,836.11	$ 82.60	$ 148,034.97	$ 184,651.07	$ 2,299.31	$ 0.10	$ 430.47	$ (3,151.22)	$ 1.23	$ 0.43
	0.5 - 0.75	$ 99,184.98	$ 278,716.10	$ 82.77	$ 167,797.19	$ 217,067.75	$ 2,033.54	$ 0.08	$ 176.25	$ (3,402.25)	$ 1.22	$ 0.40
	0.75 - 1.0	$ 66,327.77	$ 177,162.39	$ 77.89	$ 155,292.00	$ 205,592.00	$ 1,322.84	$ 0.05	$ (511.06)	$ (3,785.20)	$ 0.79	$ 0.32
	> 1.0	$ 129.00	$ 70,181.40	$ 79.12	$ 162,005.78	$ 220,512.12	$ 538.77	$ 0.02	$ (1,330.06)	$ (3,592.92)	$ 0.42	$ 0.19
Mobile Homes		$ 44,234.21	$ 39,664.32	$ 38.67	$ 35,618.03	$ 63,581.52	$ 399.34	$ 0.04	$ (1,469.49)	$ (4,403.59)	$ 0.48	$ 0.16
Apartments		$ 123,605.38	$ 1,078,176.34	$ 65.00	$ 4,121,628.56	$ 4,594,144.44	$ 6,778.05	$ 0.38	$ 4,909.22	$ 2,922.89	$ 2.81	$ 1.53
Duplexes		$ 77,688.07	$ 613,971.47	$ 78.06	$ 142,884.01	$ 159,038.65	$ 3,854.31	$ 0.18	$ 1,985.48	$ (681.32)	$ 3.20	$ 1.23
Commercial	Total	$ 198,854.88	$ 402,804.37	$ 257.45	$ 589,541.30	$ 878,748.68	$ 3,386.29	$ 0.11	$ 1,549.42	$ (1,852.89)	$ 3.14	$ 0.96
Acreage Sizes	0.023 - 0.25	$ 378,274.66	$ 948,344.23	$ 73.17	$ 128,059.30	$ 174,223.05	$ 7,276.79	$ 0.42	$ 5,883.94	$ 510.07	$ 5.24	$ 1.35
	0.25 - 0.5	$ 308,648.79	$ 397,033.10	$ (73.83)	$ 141,451.31	$ 251,413.88	$ 3,980.05	$ 0.25	$ 2,111.21	$ (2,099.05)	$ 2.12	$ 0.68
	0.5 - 1.0	$ 330,727.06	$ 477,000.31	$ 154.09	$ 351,830.54	$ 595,771.42	$ 4,555.58	$ 0.16	$ 2,725.37	$ (1,123.14)	$ 2.42	$ 0.90
	1.0 - 5.0	$ 225,353.35	$ 450,705.54	$ 554.06	$ 1,025,652.08	$ 1,538,479.44	$ 3,812.97	$ 0.09	$ 1,956.26	$ (1,120.28)	$ 2.16	$ 0.81
	> 5.0	$ 115,640.82	$ 296,397.53	$ 359.12	$ 2,765,479.17	$ 3,838,350.39	$ 2,320.21	$ 0.05	$ 451.38	$ (2,670.30)	$ 1.28	$ 0.46
Industrial		$ 43,383.67	$ 47,778.44	$ 41.71	$ 183,027.25	$ 349,219.25	$ 514.15	$ 0.28	$ (1,354.68)	$ (5,294.54)	$ 0.32	$ 0.10
Agricultural		$ 172,602.90	$ 669.05	$ 47.62	$ 4,248.62	$ 54,853.93	$ 48.72	$ 0.00	$ (399.50)	$ (1,056.08)	$ 0.36	$ 0.16
Vacant		$ 57,508.29	$ 673.26	$ 62.30	$ 68,632.00	$ 31,588.59	$ 324.02	$ 0.08	$ (1,515.47)	$ (4,189.86)	$ 0.21	$ 0.07

ROI Performance of Existing Zoning Districts



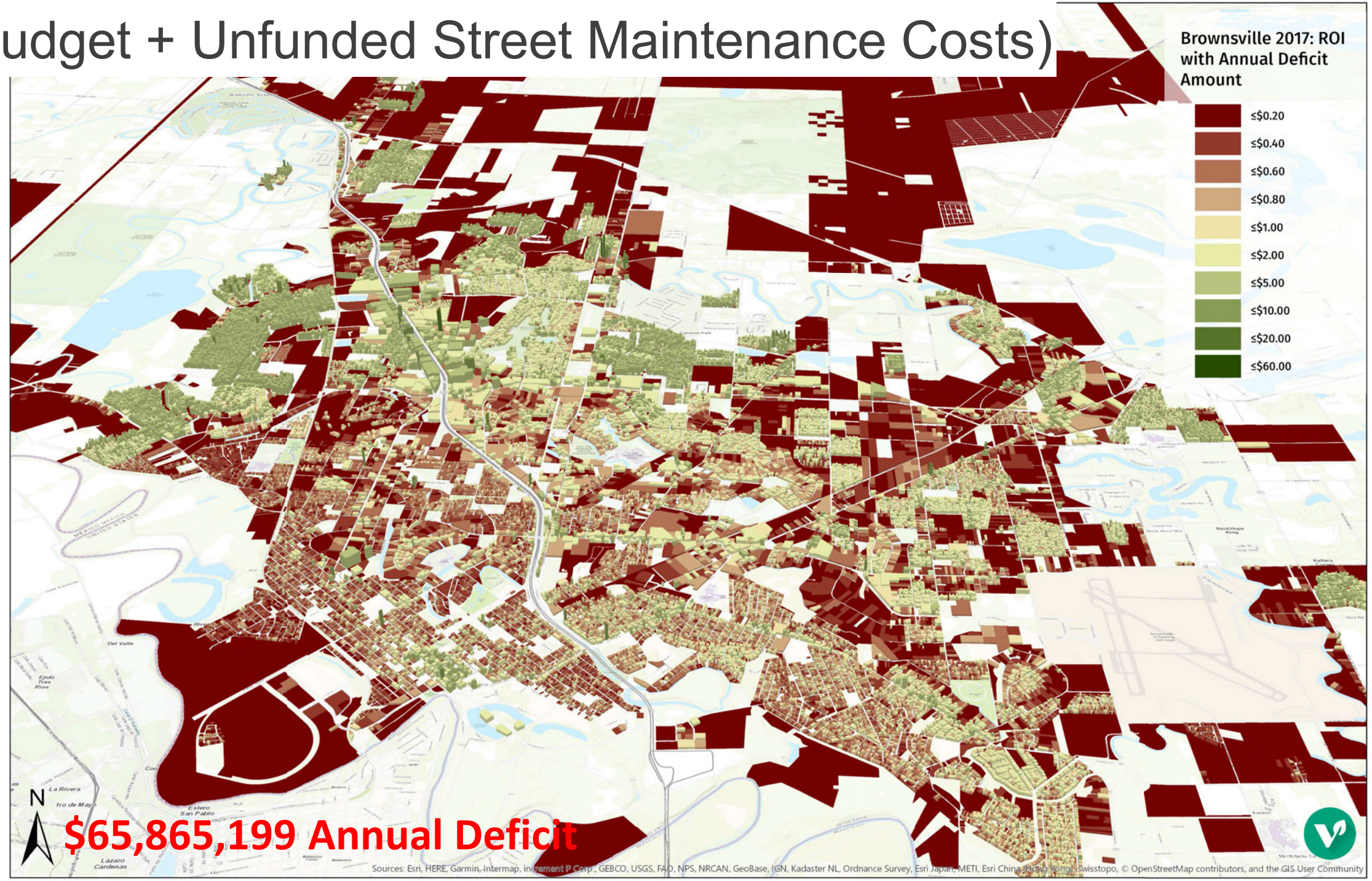
	SF Res 7 *	SF Res 9	SF Res 20	Multi Fam 1 (incl. SF)	Multi Fam 2 *	Com. 1	Com. 2	General Retail	HC PD Com.	HC PD Res.	Indust. Park	Light Indust.	Com. Mxd Use	Dwntwn Mxd Use	Historic Dwntwn	Live Work	Mnfctrd Housing	Nghbrhd Services	Office	Pecan Park PD
ROI Weighted (Scenario A)	$2.19	$1.48	$0.41	$1.64	$2.27	$3.23	$2.22	$4.31	$2.24	$3.35	$0.81	$0.62	$1.67	$2.54	$7.95	$1.13	$0.18	$1.72	$2.21	$4.75
ROI Weighted Deficit Annual (Scenario B)	$0.57	$0.51	$0.17	$0.43	$1.46	$1.15	$0.71	$1.24	$0.43	$0.96	$0.49	$0.27	$0.57	$0.54	$1.73	$0.23	$0.06	$0.41	$0.45	$1.76
ROI Projected (Scenario C)	$0.87	$0.71	$0.26	$0.67	$1.21	$1.55	$1.02	$1.67	$1.06	$1.58	$0.56	$0.34	$0.55	$0.92	$2.44	$0.36	$0.07	$0.63	$0.63	$2.13

ROI (Current Operating Budget)



Brownsville, TX

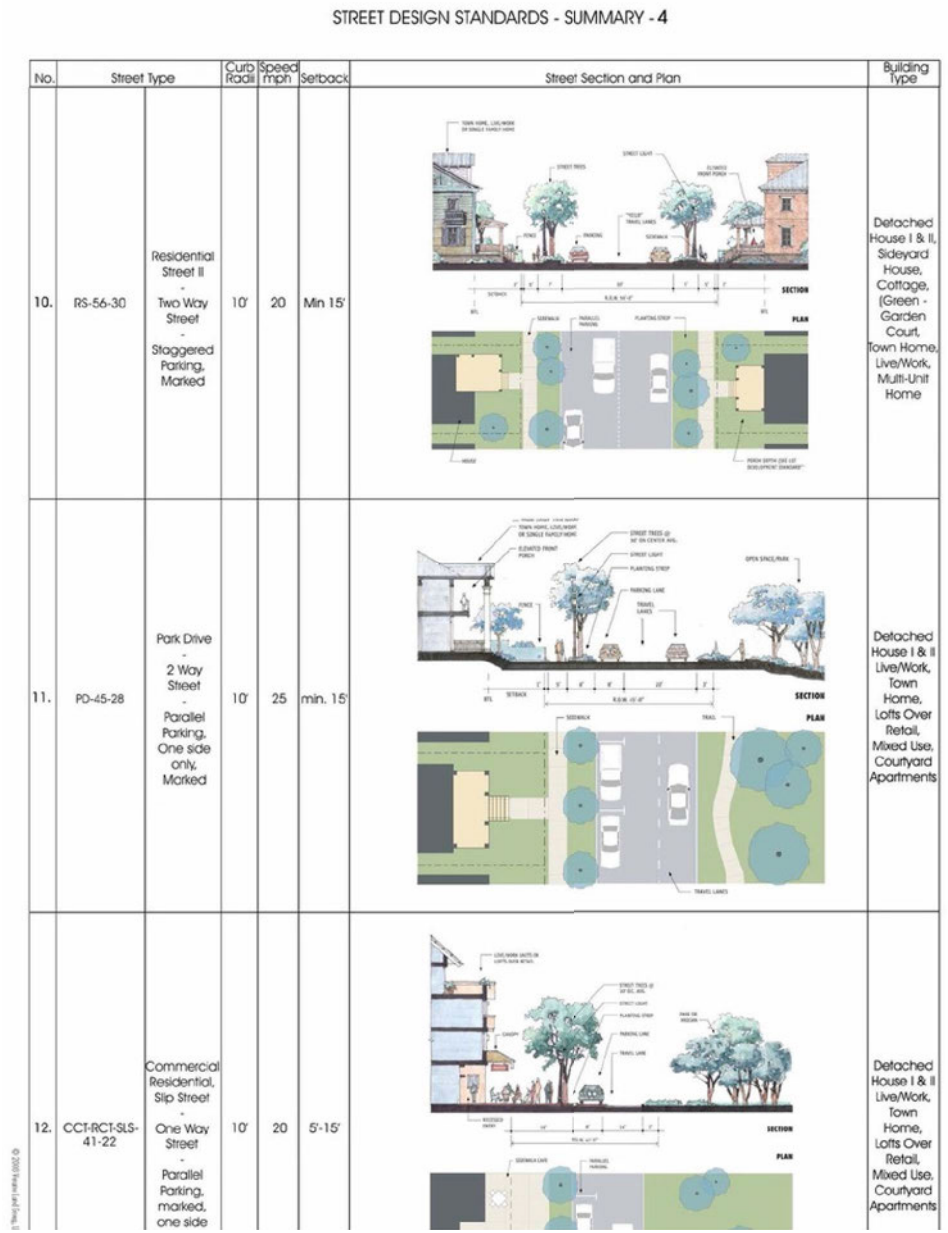
ROI (Budget + Unfunded Street Maintenance Costs)



Brownsville, TX

Applications of Fiscal Modeling

- Provides a language and process to back up the desired outcome of a “fiscally resilient community”
- Align development pattern, infrastructure and services with what citizens are willing and able to pay for now and in the future
- Inform land use, annexation and growth management decisions to balance revenues, costs and debt obligations over time
- Create zoning and design guidelines that encourage financially sustainable development patterns
- Inform infrastructure and economic development investments



STREET DESIGN STANDARDS - SUMMARY - 4

No.	Street Type		Curb Radii	Speed mph	Setback	Street Section and Plan	Building Type
10.	RS-56-30	Residential Street II - Two Way Street - Staggered Parking, Marked	10'	20	Min 15'		Detached House I & II, Sideyard House, Cottage, (Green - Garden Court, Town Home, Live/Work, Multi-Unit Home
11.	PD-45-28	Park Drive - 2 Way Street - Parallel Parking, One side only, Marked	10'	25	min. 15'		Detached House I & II Live/Work, Town Home, Lofts Over Retail, Mixed Use, Courtyard Apartments
12.	CCT-RCT-SLS-41-22	Commercial Residential, Slip Street - One Way Street - Parallel Parking, marked, one side	10'	20	5'-15'		Detached House I & II Live/Work, Town Home, Lofts Over Retail, Mixed Use, Courtyard Apartments

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3 Takeaways

1. Our current pattern of development is not aligned with what citizens are willing and able to pay. We must accept resource constraints and work within them to build more resilient communities and infrastructure.

2. Where, when and how you add people and development has a direct relationship to your city's fiscal health and resiliency.

3. Fiscal resilience can be the common language to bring perspectives together, frame discussions and inform decisions for land use, growth management, infrastructure and economic development.

Want to Dig Deeper and Connect with Others?

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- Pre-register for our exclusive online community (launching June 2019!!)

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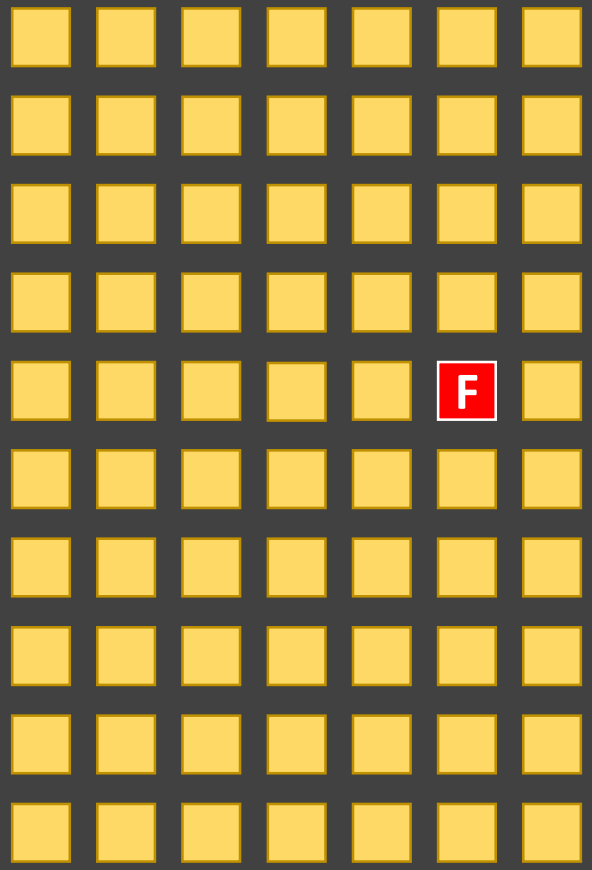
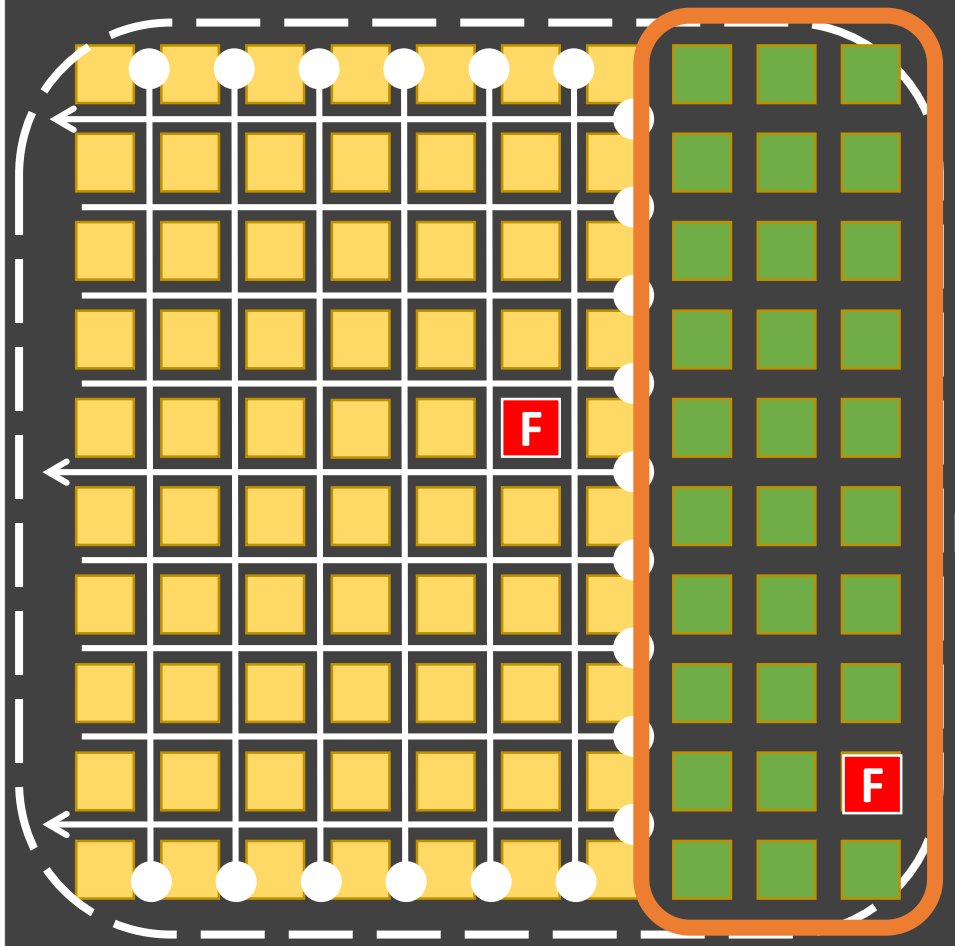
Maximizing Service Investments



Blocks:	69	69
Block Size:	300 x 300	300 x 300
Homes:	621	887
Lot Size:	10,000 sf	7,000 sf
Call Volume:	100	143
Call Capacity Per Station:	400	400
Fire Station Annual Costs:	$ 1,000,000	$ 1,000,000
Avg Value of Home:	$ 300,000	$ 260,000
Total Value of Homes:	$ 186,300,000	$ 230,620,000
Property Tax Rate:	0.5	0.5
Total Revenue:	$ 931,500	$ 1,153,100
Budget Hit:	$ 68,500	$ 153,100

VERDUNITY

Maximizing Service Investments



Blocks:	90	90
Block Size:	300 x 300	300 x 300
Homes:	810	810
Lot Size:	10,000 sf	10,000 sf
Call Volume:	130	130
Call Capacity Per Station:	400	800
Fire Station Annual Costs:	$ 1,000,000	$ 2,000,000
Avg Value of Home:	$ 300,000	$ 300,000
Total Value of Homes:	$ 243,000,000	$ 243,000,000
Property Tax Rate:	0.5	0.5
Total Revenue:	$ 931,500	$ 931,500
Budget Hit:	$ 1,215,000	$ 1,068,500

VERDUNITY

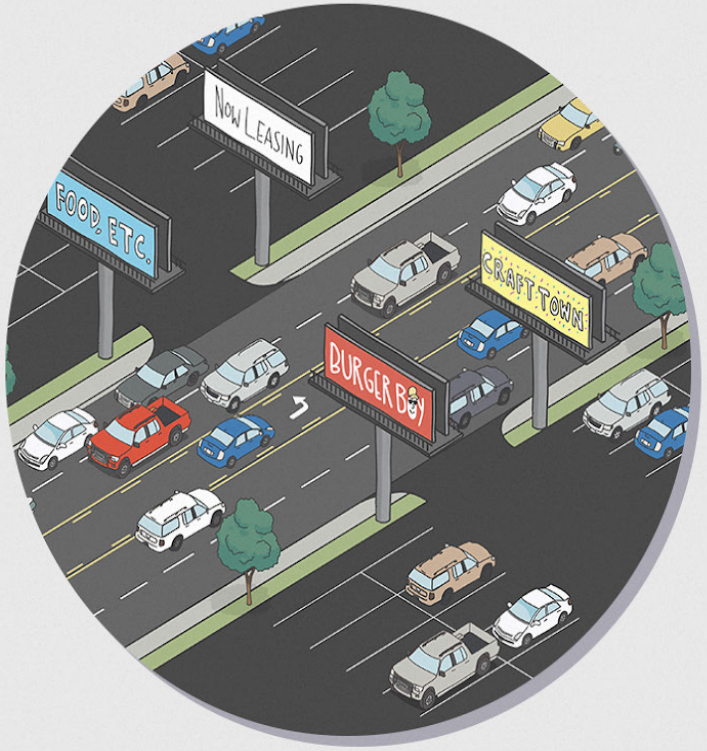
Streets, Roads and STROADS

VERDUNITY

Comparing Costs & Benefits

STREETS ⟵ VS. ⟶ STROADS

STREETS		STROADS
$$	Initial infrastructure cost	$$$$$
$$	Maintenance cost	$$$$$
• •	Right-of-way required	• • • • •
• •	Land used for surface parking	• • • • •
$$$$$	Property tax revenue (/ac)	$
• • • • •	Flexibility to repurpose	•



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