sustainability by design

LEED · Energy Star · Incentives

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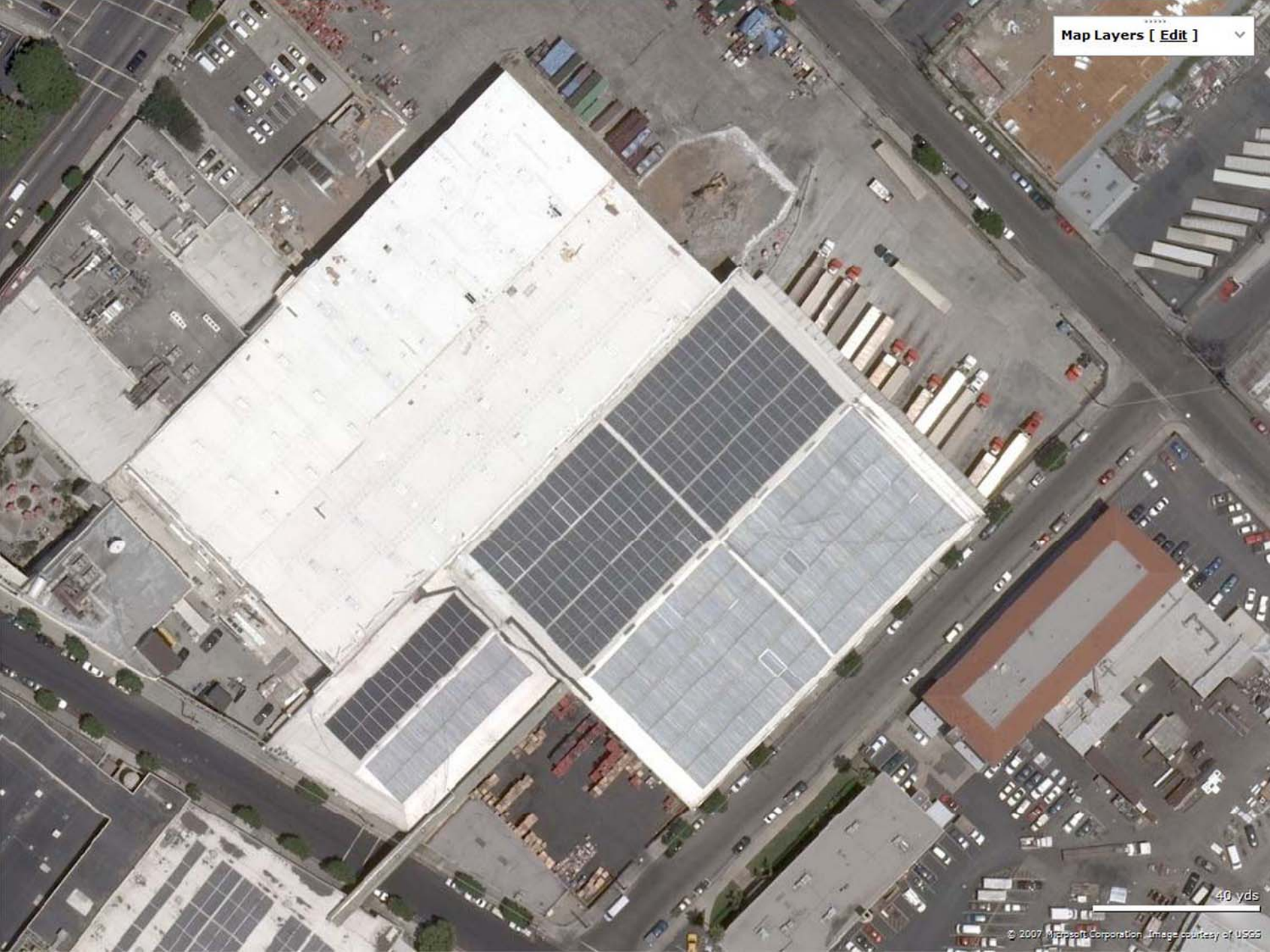
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40 yds
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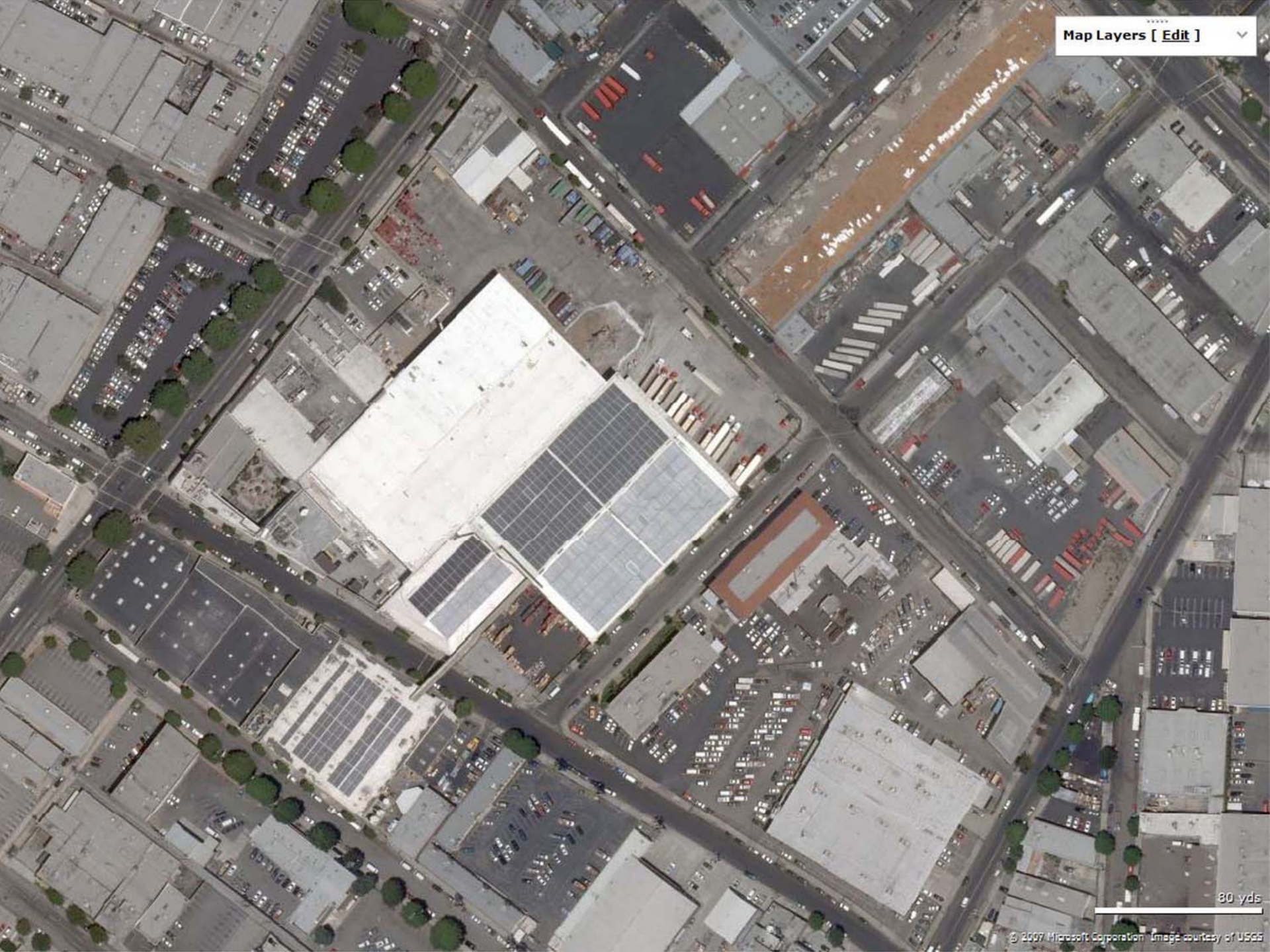
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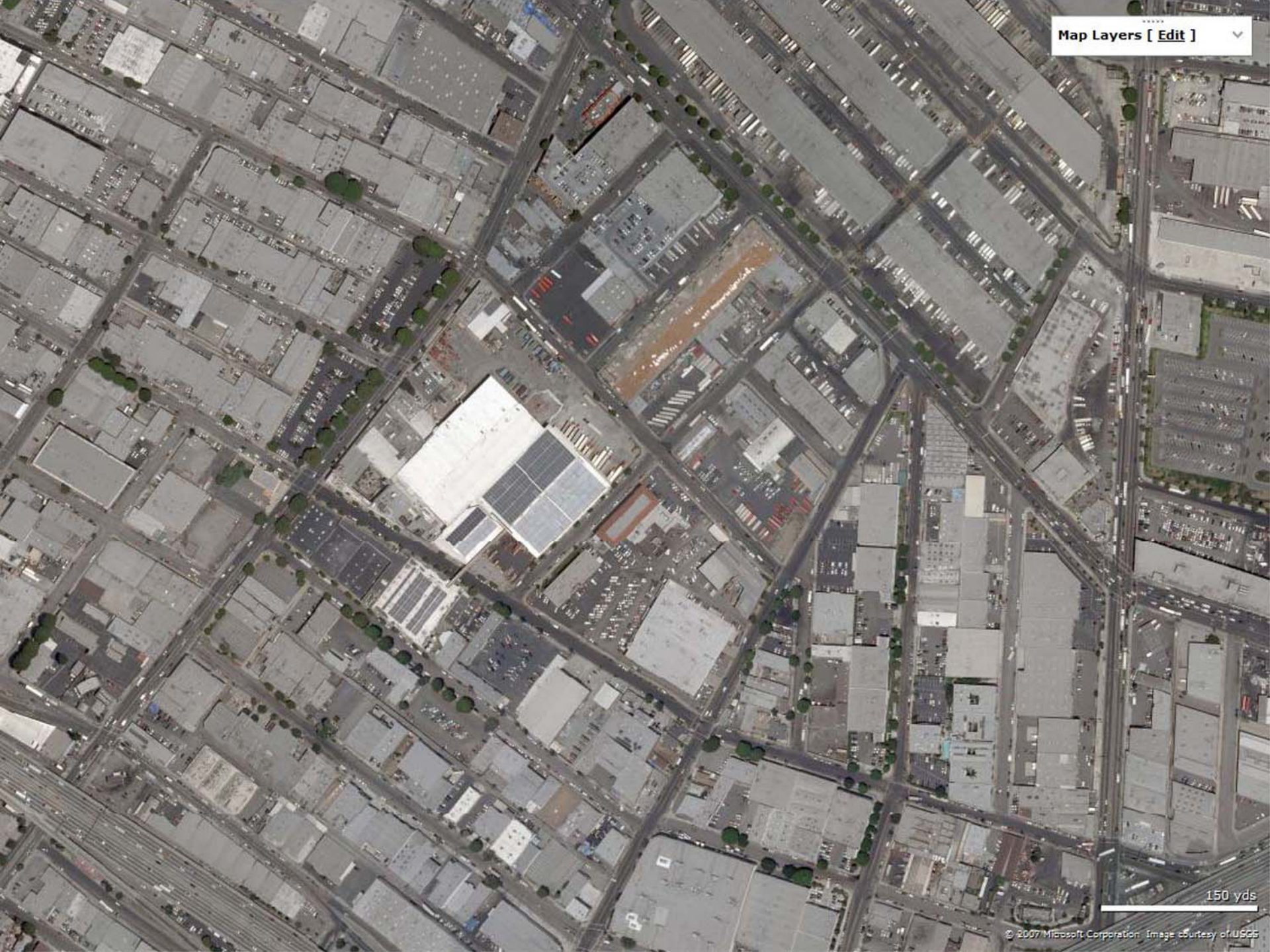
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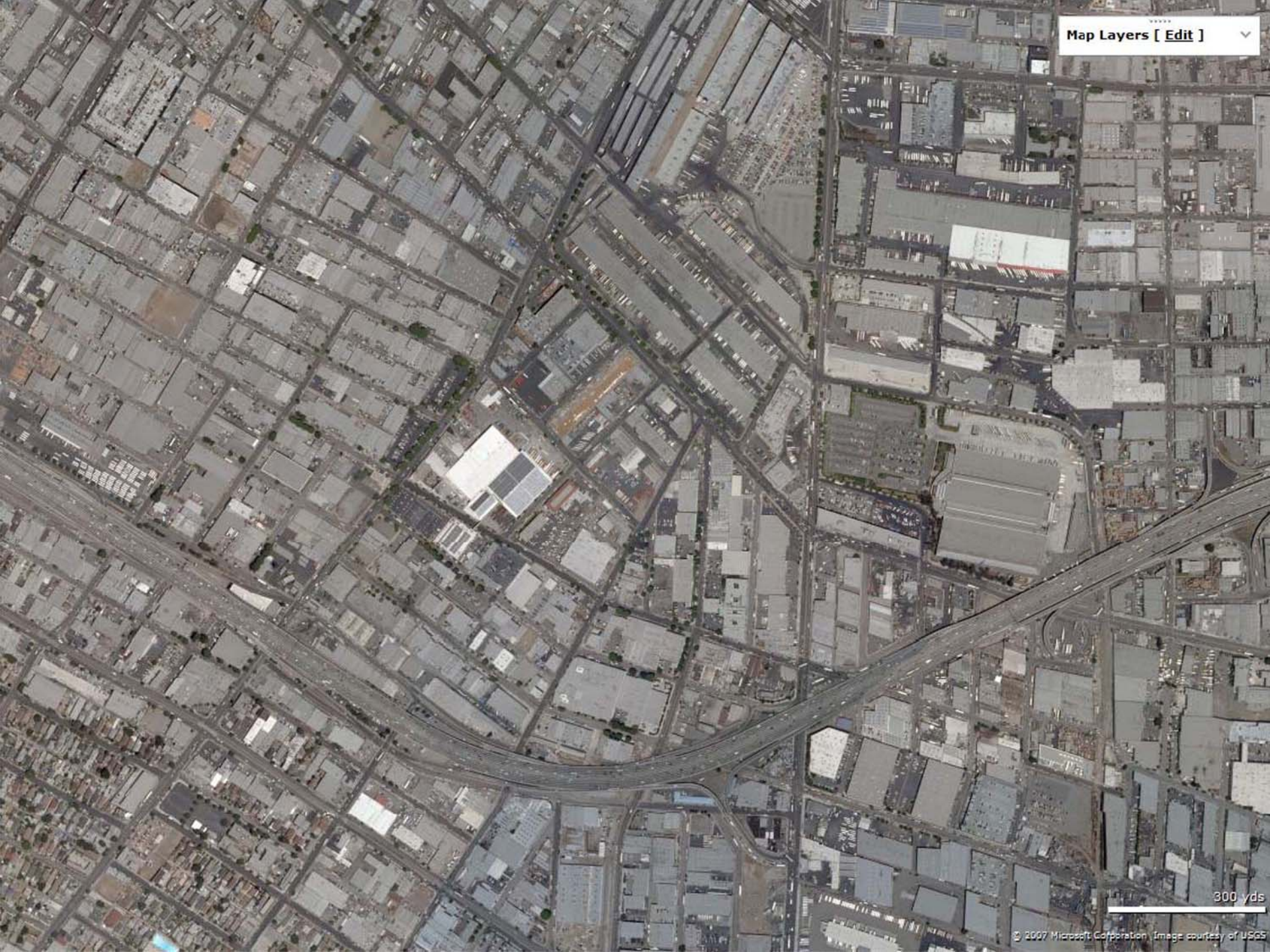
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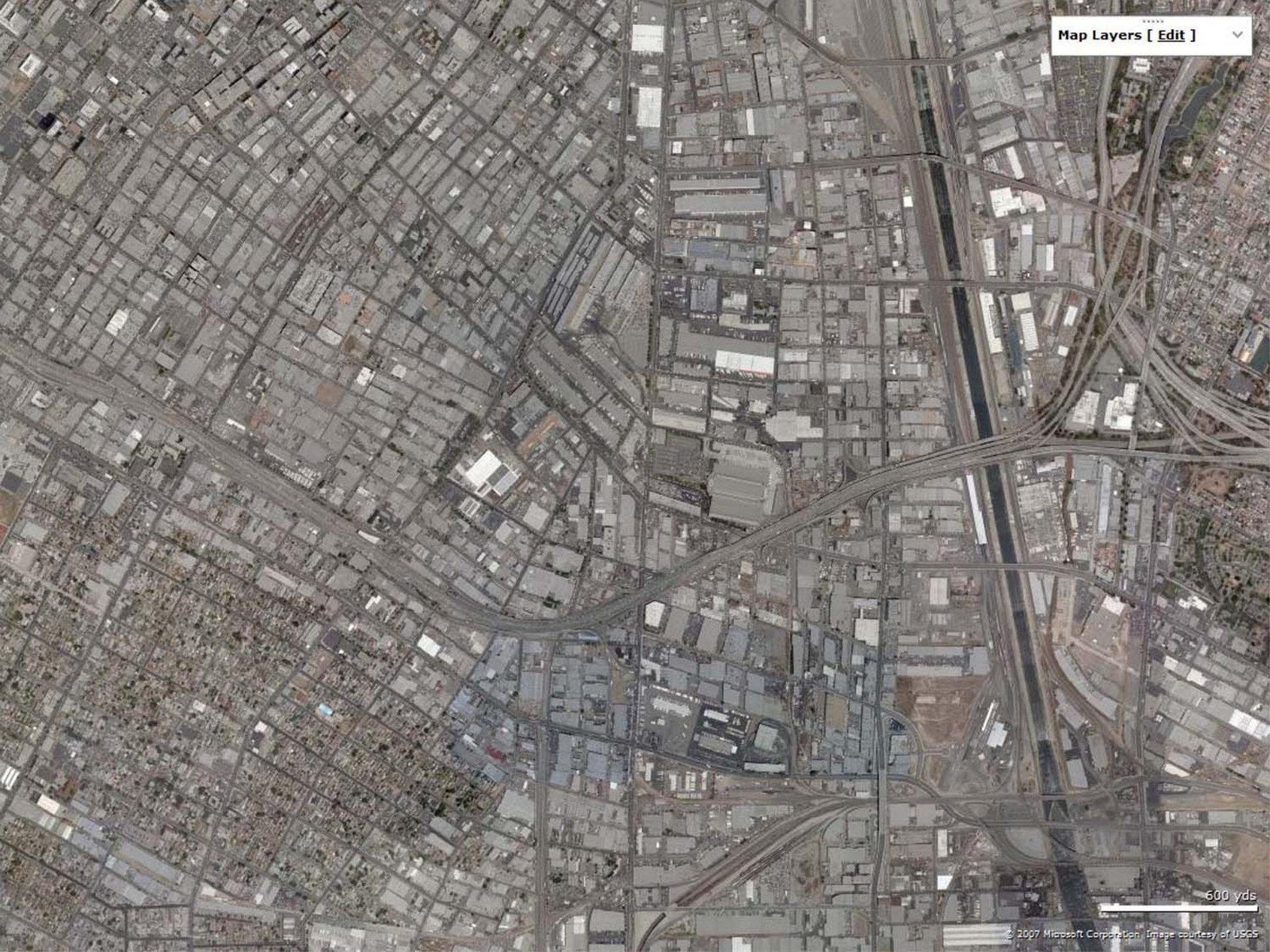
Map Layers [Edit]
600 yds
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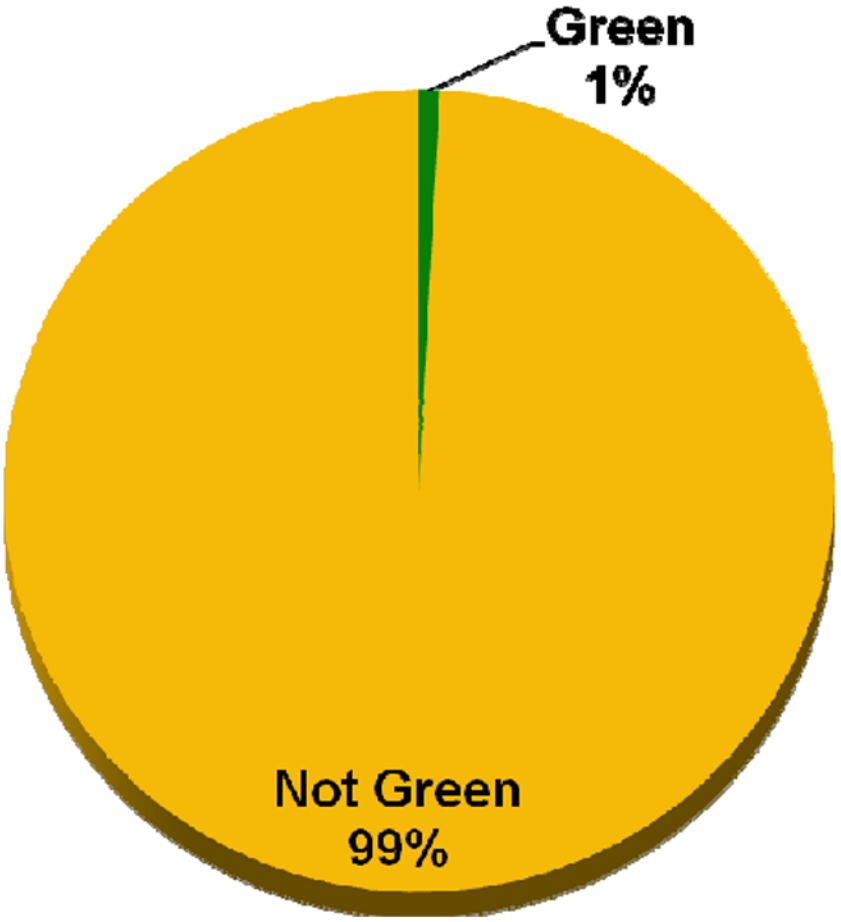
Map Layers [Edit]
118,000 Commercial Properties in L.A.
1 in 1,000 are Green
0.7 miles
© 2007 Microsoft Corporation, Image courtesy of USGS

An Infinitesimal Percentage of US Building RBA is Green



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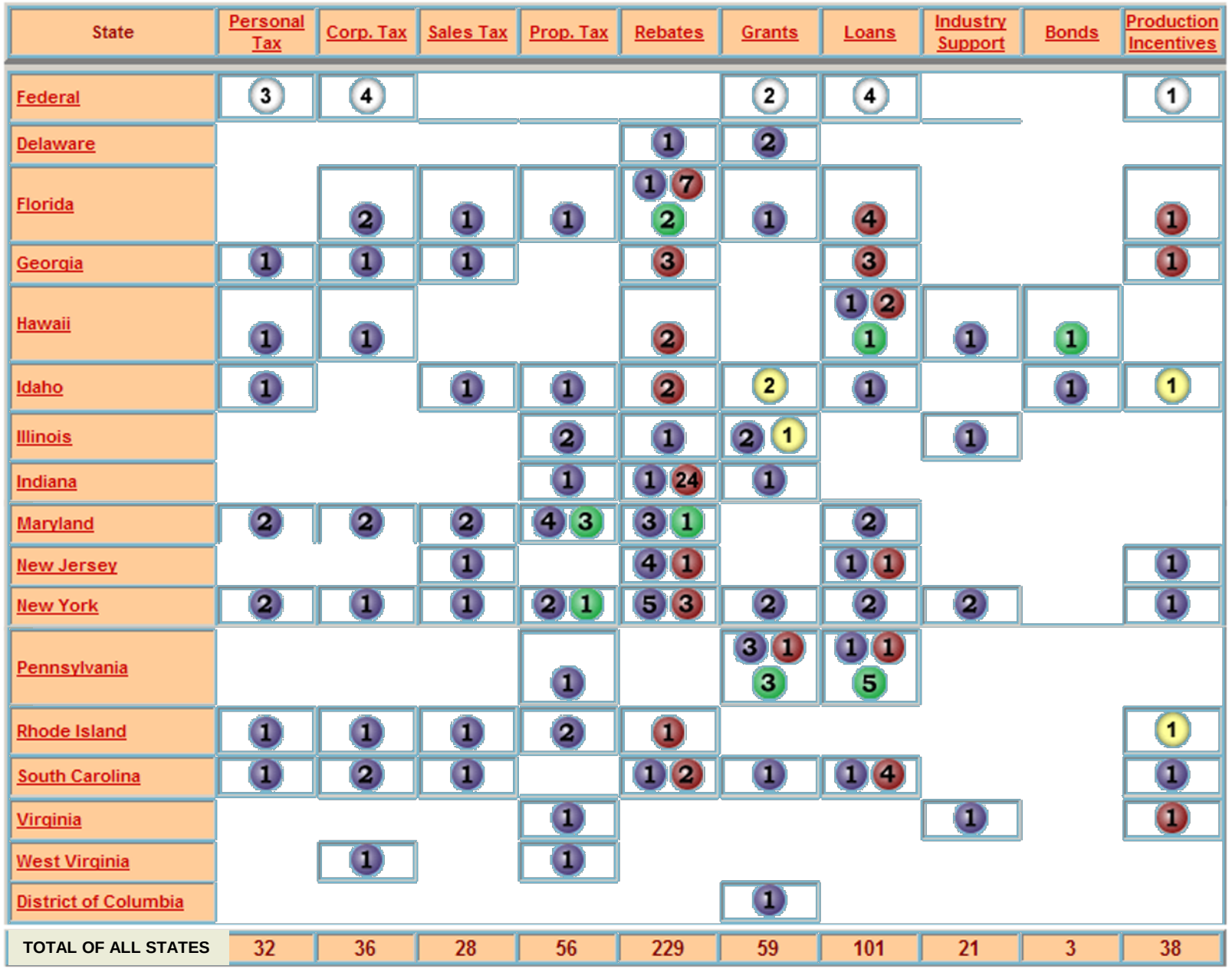
CoStar GROUP
Real Estate Information

FINANACIAL INCENTIVES FOR RENEWABLE ENERGY

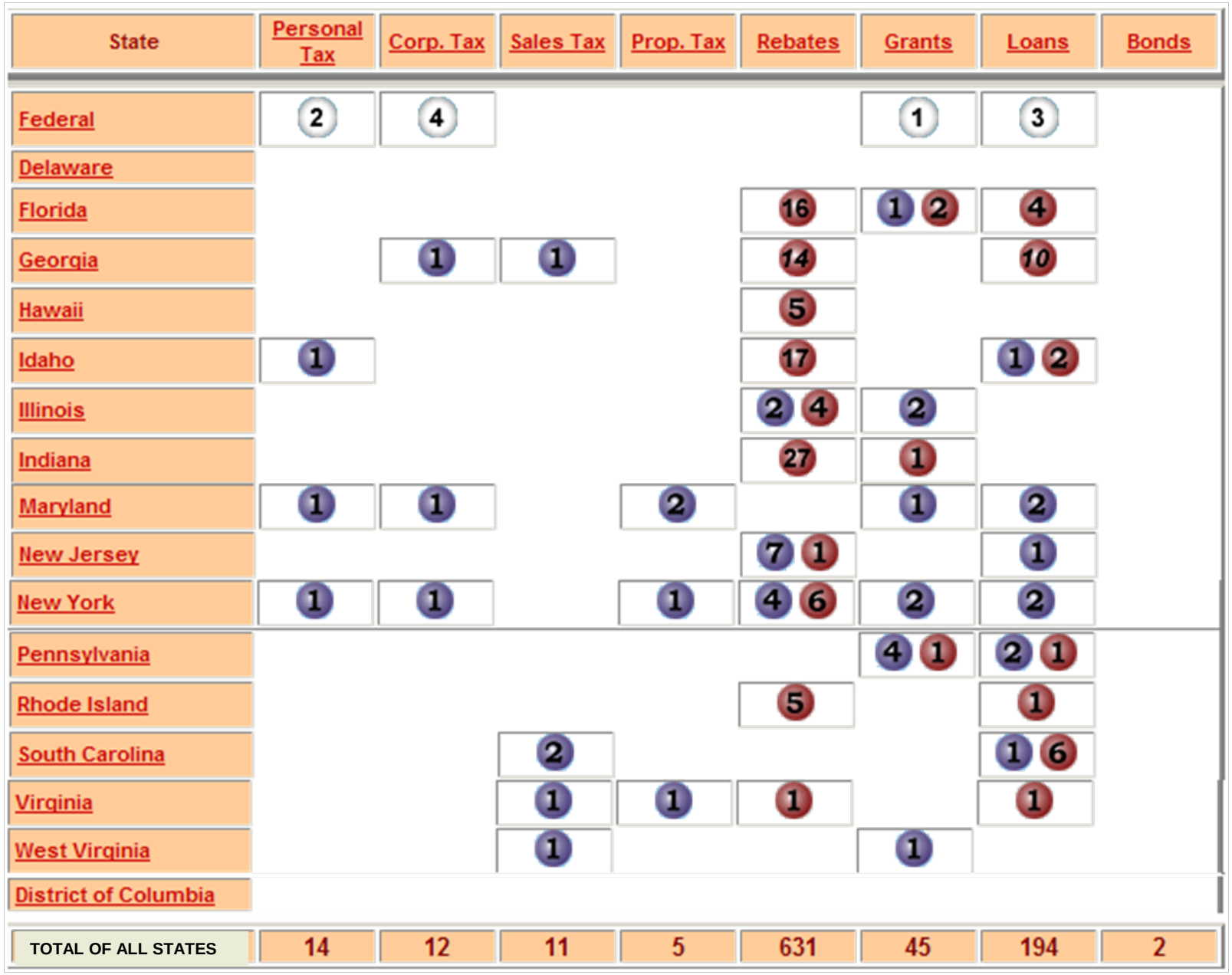


State	Personal Tax	Corp. Tax	Sales Tax	Prop. Tax	Rebates	Grants	Loans	Industry Support	Bonds	Production Incentives
Federal	3	4				2	4			1
Delaware					1	2				
Florida		2	1	1	1, 7, 2	1	4			1
Georgia	1	1	1		3		3			1
Hawaii	1	1			2		1, 2, 1	1	1	
Idaho	1		1	1	2	2	1		1	1
Illinois				2	1	2, 1		1		
Indiana				1	1, 24	1				
Maryland	2	2	2	4, 3	3, 1		2			
New Jersey			1		4, 1		1, 1			1
New York	2	1	1	2, 1	5, 3	2	2	2		1
Pennsylvania				1		3, 1, 3	1, 1, 5			
Rhode Island	1	1	1	2	1					1
South Carolina	1	2	1		1, 2	1	1, 4			1
Virginia				1				1		1
West Virginia		1		1						
District of Columbia						1				
TOTAL OF ALL STATES	32	36	28	56	229	59	101	21	3	38

Federal =
Non-Profit =
State =
Utility =
Local =

DSIRE
Database of State Incentives for Renewables & Efficiency

FINANACIAL INCENTIVES FOR ENERGY EFFICIENCY



State	Personal Tax	Corp. Tax	Sales Tax	Prop. Tax	Rebates	Grants	Loans	Bonds
Federal	2	4				1	3	
Delaware								
Florida					16	1 2	4	
Georgia		1	1		14		10	
Hawaii					5			
Idaho	1				17		1 2	
Illinois					2 4	2		
Indiana					27	1		
Maryland	1	1		2		1	2	
New Jersey					7 1		1	
New York	1	1		1	4 6	2	2	
Pennsylvania						4 1	2 1	
Rhode Island					5		1	
South Carolina			2				1 6	
Virginia			1	1	1		1	
West Virginia			1			1		
District of Columbia								
TOTAL OF ALL STATES	14	12	11	5	631	45	194	2

Federal =
State =
Utility =

DSIRE
Database of State Incentives for Renewables & Efficiency

Federal - Energy Efficient Commercial Buildings Tax Deduction

- Eligible Efficiency Technologies:
  - Equipment Insulation, Water Heaters, Lighting, Controls/Sensors, Chillers, Furnaces, Boilers, Heat pumps, Air conditioners, CHP/Cogeneration, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation, Windows, Doors, Siding, Roofs
- Applicable Sectors: Commercial, Construction
- Amount: $0.30-$1.80 per square foot, depending on technology and amount of energy reduction
- Maximum Incentive: $1.80 per square foot
- Expiration Date: 12/31/2013

Federal - Business Energy Tax Credit

- Eligible Renewable/ other Technologies:
  - Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaic, Wind, Biomass, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, CHP/Cogeneration, Solar Hybrid Lighting, Direct Use Geothermal, Micro turbines
- Applicable Sectors: Commercial, Industrial, Utility
- Amount: 30% for solar, fuel cells and small wind;
  10% for geothermal, micro turbines and CHP reduction
- Maximum Incentive: $1,500 per 0.5 kW for fuel cells; $200 per kW for micro turbines; $4,000 maximum credit for small wind. No maximum specified for other technologies.
- Expiration Date: 12/31/2017

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CoStar Goes Green

- LEED information added to CoStar database in 2006.

- Energy Star information added to CoStar database in 2007.

- Searching and prominent placement of LEED and Energy Star buildings added to CoStar products in 2007.

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Real Estate Information

The Clean and Affordable Energy Act of 2008 (Washington D.C.)

- Washington D.C., will be the first U.S. city to require annual energy benchmarking in buildings.

- Beginning in 2009, commercial property owners of buildings over 250,000 S.F. to generate an Energy Star "score" for their buildings using free online tools provided by the Energy Star program.

That score would be made available to the public by the District Department of the Environment

- By 2013 most buildings will be phased in, according to size.

ENERGY STAR

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EXISTING

818 K Street, Washington DC

RENOVATED

818 K Street, Washington DC

1. Energy Star Benchmarking:

Statement of Energy Performance
FACILITY SUMMARY REPORT
818 18th St NW

For 12-month Period Ending: April 30, 2008
Date Generated: July 25, 2008

This document was generated using EPA's Portfolio Manager system. All information shown is based on data provided by the Portfolio Manager account holder. Depending on the use of the SEP Facility Summary, building owners or managers may want to have a professional engineer (PE) verify that the underlying data is accurate. Blank space has been left intentionally on the SEP Facility Summary for a PE stamp.

818, 18th St NW
Washington DC, DC 20006

Year Built: 1964
Gross Floor Area: (ft^2) 52,417

Facility Space Use Summary

Office

Space Name	Gross Floor Area (ft2)	Operating Hours/Week	Workers on Main Shift	Number of PCs	Office Air-Conditioned	Office Heated
OFFICES	52,417	60	223	223	50% or more	50% or more

Energy Performance Comparison

Results	Current (04/30/2008)	Baseline (04/30/2008)	Delta	Target	Industry Average	ENERGY STAR
Energy Performance Rating	**54**	**54**	**0**		**50**	**75**
Energy Intensity (kBtu/ft2)						
Site	94	94	0		99	73
Source	252	252	0		266	196
Energy Cost						
$/year	168618	168618	0		177760	131478
$/ft2/year	3.22	3.22	0.00		3.39	2.51
CO_2 Emissions (tons/year)	676	676	0		713	527

More than 50% of your building is defined as Office. Please note that your rating accounts for all of the spaces listed. If you cannot see a rating, you will be compared to the national average of Office.

EPA
United States
Environmental Protection
Agency

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- We used Energy Star to establish a baseline and energy goal for the project.
- The below information from the Energy Star report gives clear indication of
  What's the current energy cost and how much could be saved with upgrade

Energy Cost						
$/year	168618	168618	0		177760	131478
$/ft2/year	3.22	3.22	0.00		3.39	2.51

Current Energy Cost

Energy Cost with Upgrade (with rating of 75)

Target (1-100 Rating)	Baseline Rating (1-100)	Baseline Energy Use (kBtu/year)	Target Energy Use (kBtu/year)	Energy Cost Savings ($/year)	Target Reduction (%)
75	50	5,186,643	3,844,569	$43,841	26 %

- With Energy Star Rating of 75, a minimum savings of $43,841 per annum.
- A five year payback would mean $ 219,205 available.

Target (1-100 Rating)	Baseline Rating (1-100)	Baseline Energy Use (kBtu/year)	Target Energy Use (kBtu/year)	Energy Cost Savings ($/year)	Target Reduction (%)
90	50	5,186,643	2,880,510	$74,192	44 %

- With Energy Star Rating of 90, a minimum savings of $74,192 per annum.
- A five year payback would mean $ 370,960 available = $7.00 per S.F.

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2. Design Considerations:

- Increase in Rentable Area to off set some upgrade costs.
- New stairs to be added to the rear to bring it to current code standards and increase safety.

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3. Exterior Envelope:

- Canopy
  - Canopy off Penthouse shades roof.
- Glass
  - Existing stone facing on the front façade to be removed and replaced with Efficient low-e glass curtain wall system.
  - Shading devices to be added at the curtain wall system.
  - Rear punched window opening single pane glass to be removed and replaced with 1” insulated low E glass
  - Extensive glass aids in day lighting
- Exterior wall
  - Insulation to be added to the wall on the interior side
  - increasing the R-value
- Roof

  Option A
  - Recoat existing black ballasted roofing material with liquid coating to apply highly reflective white to reduce the heat island effect.
  - Option B
  - Green roof to be added at the main roof level with a tray system, over the existing concrete supported roof.
  - Batt insulation to be added underneath the roof deck to increase the R-value.

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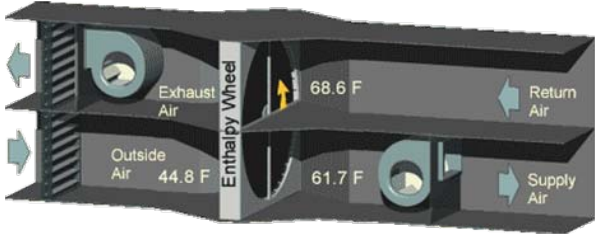
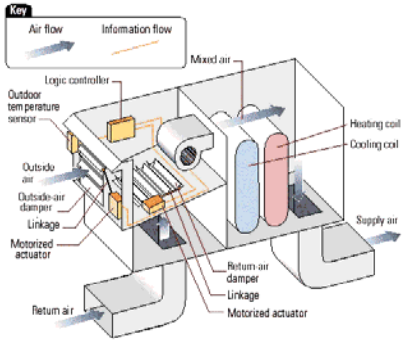
4. Mechanical System:

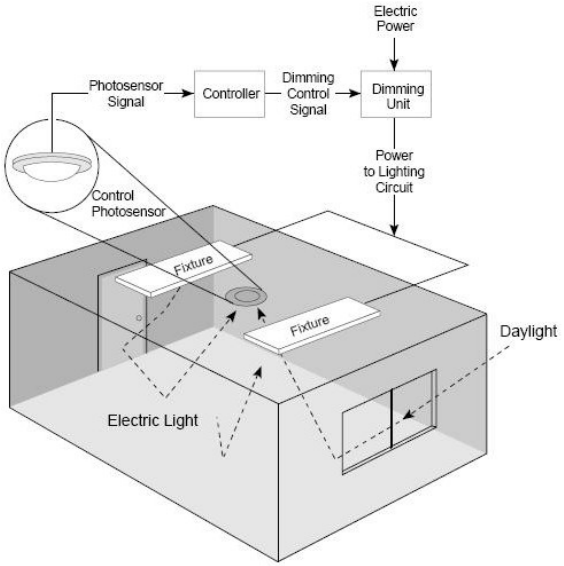


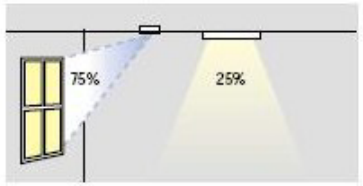
- Add Energy Recovery unit to supply 100% outside air and increase ventilation to occupants combined with CO_2 monitors for demand control.
- Systems to accommodate MERV 13 air filters.
- Upgrade Existing Equipment with staged compressors and variable frequency drives
- Airside economizers were added
- Design with a DDC Building Automation System control
- Commissioning will be done on all systems and equipment.
- Hard cast spray duct sealant to eliminate wasted energy.

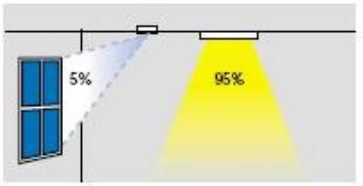


5. Electrical System:

- Tenant sub meters to be added to monitor and report each tenants energy use and possible future tenant billing.
- EMS system to be upgraded to monitor and trend-log the on going operations of the building and to turn off lights during non business hours.
- Dimmable ballasts and occupancy sensors with wireless controls to be added. Open office areas adjacent to windows, to have daylight harvesting controls.







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6. Plumbing and Water Conservation:

- Fixtures to be changed to waterless urinals, low flow and dual flush toilets & add aerators on the faucets
- Low flow showers to be installed.

7. Renewable Energy:

- Consider Rooftop Photovoltaic array.
- Purchase Green Power.

8. Other Green Measures:

- Green Housekeeping & Pest Control.
- Electronic Recycling.
- Provide Zip cars & Bicycle Racks.

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immediate & measurable

PERCEIVED ADVANTAGES OF BUILDING GREEN

8-9% decrease in operating costs

7.5% increase in building values

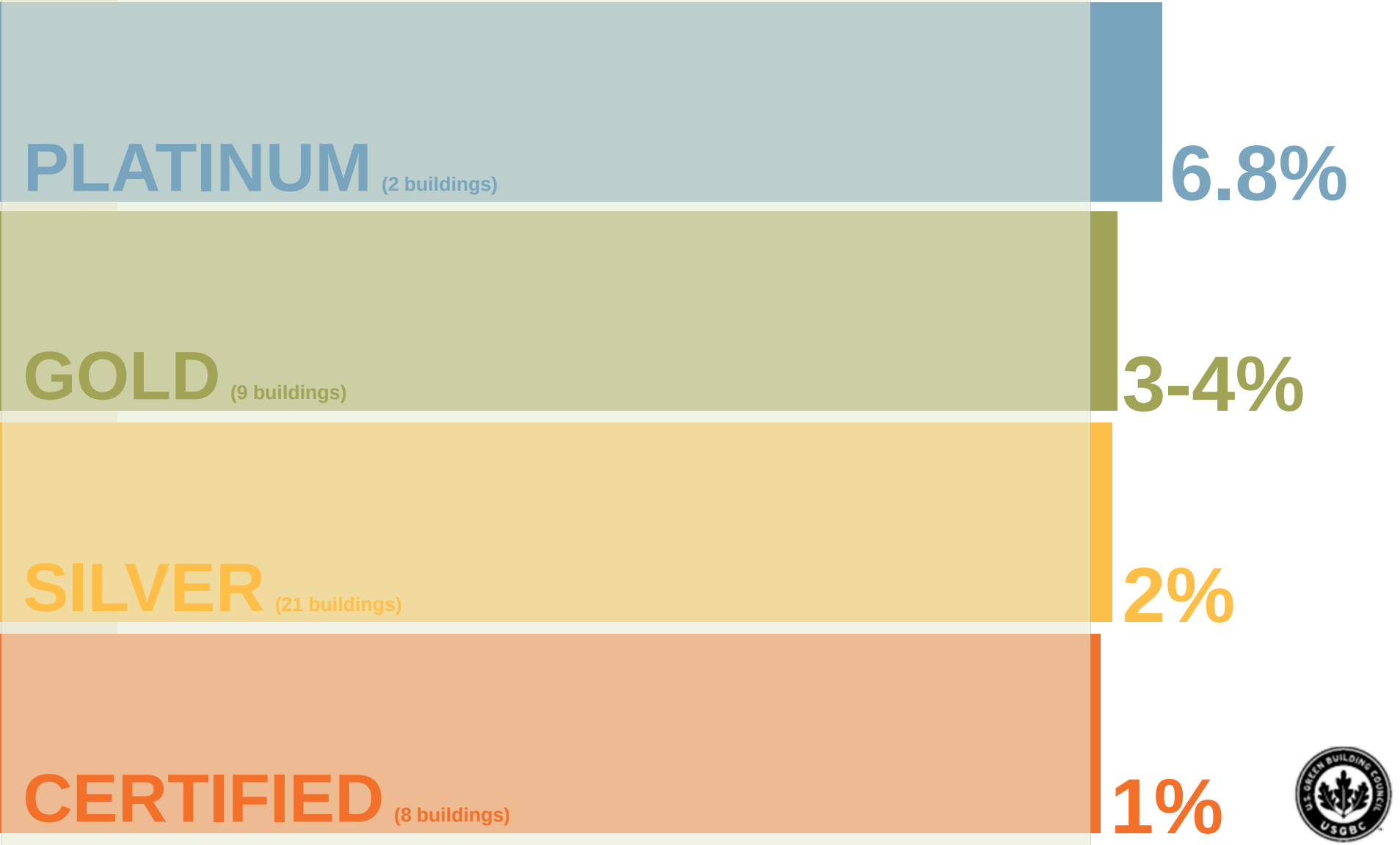
6.6% improvement in roi

3.5% increase in occupancy

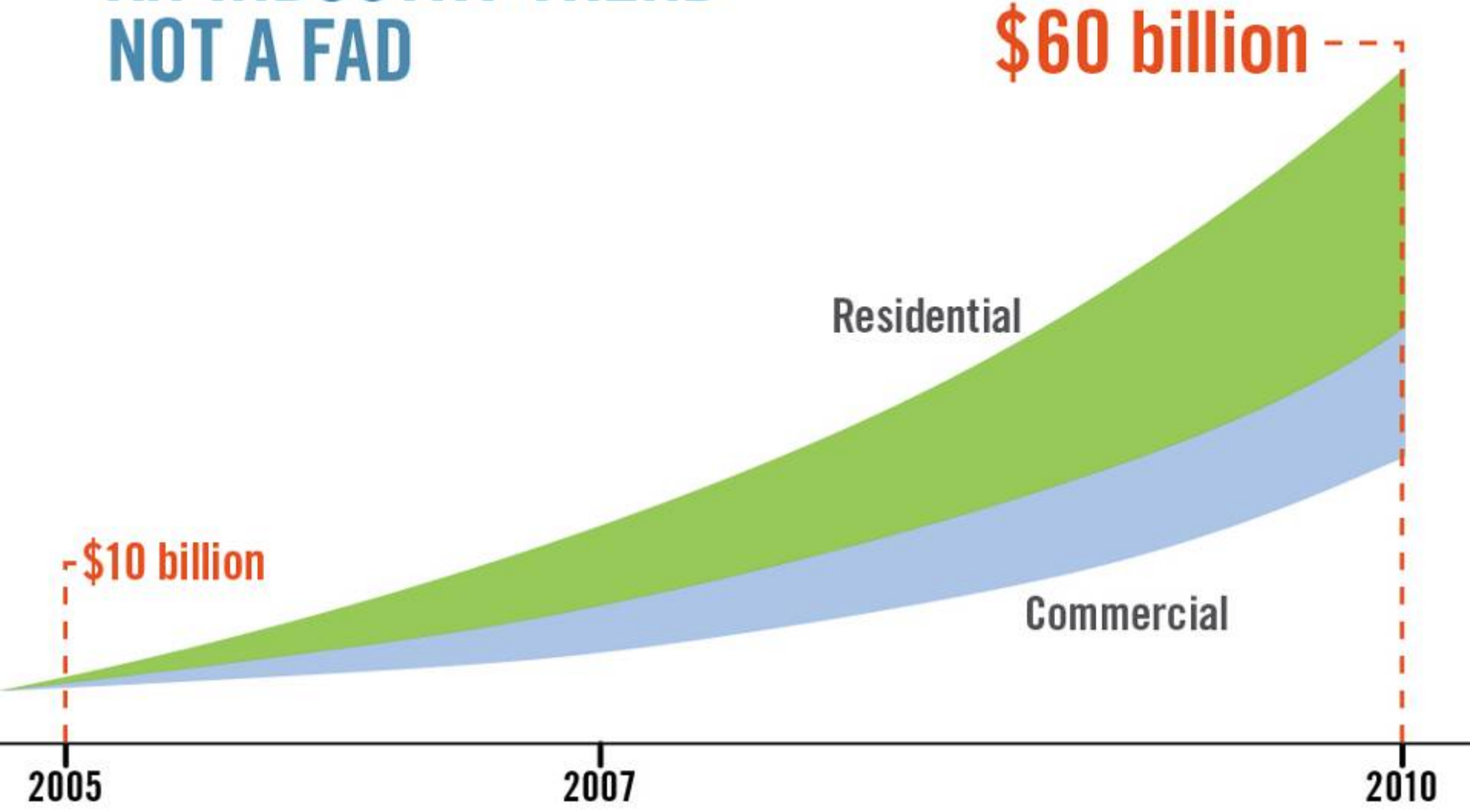
3% rent increase

Additional Construction Costs for LEED-certified buildings

Average for offices and schools, based on 40 buildings



GREEN BUILDING IS AN INDUSTRY TREND NOT A FAD



PERCEPTION


REALITY
Bank of America Tower
at One Bryant Park
The Durst Organization
Cook+Fox Architects
New York NY
LEED-NC Registered:
Platinum Certification goal