

# Undoing a Great Planning Disaster

Parking Policies for  
Today & Tomorrow

Presented by Patrick Siegman  
NCTCOG Parking Symposium  
August 2, 2017



Definition: *Minimum parking requirements* are government regulations that specify the *minimum* number of parking spaces that must be provided for every land use.



They are intended to ensure that cities have *more parking spaces* than they would if the matter was left up to individuals choosing freely.

# Palo Alto, CA – parking requirements adopted in 1951



# What is the *purpose* of minimum parking requirements?



## According to the zoning codes:

- *Palo Alto: “to alleviate traffic congestion”*
- *Dallas, Texas: “essential to the reduction of congestion in the streets and to the encouragement of the most appropriate use of land.”*
- *San Diego: “to reduce traffic congestion and improve air quality”*

# What is the *purpose* of minimum parking requirements?



## Dallas zoning codes:

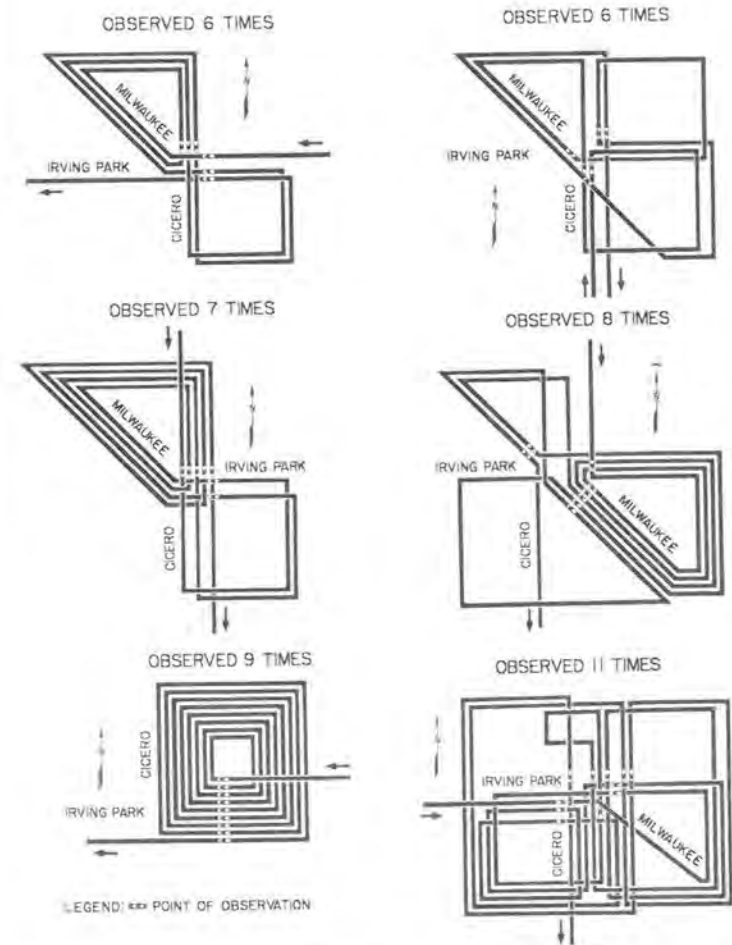
- “essential to the reduction of congestion in the streets”
- Requires minimum # of spaces *and...*
- “In all districts except a central area district, **required off-street parking must be available as free parking** or contract parking on other than an hourly or daily fee basis”
- Generally, to prevent spill-over parking problems

# Cruising for parking, 1939

The pattern of “cruising for parking” was observed in Chicago by recording the license plate numbers of vehicles that repeatedly passed through a busy intersection during the morning rush hour.

ROUTES OF CERTAIN CRUISING VEHICLES IN THE VICINITY OF CICERO, MILWAUKEE, AND IRVING PARK CONSTRUCTED FROM OBSERVATIONS MADE ON THE SIX APPROACHES TO THE INTERSECTION OF THESE STREETS


7:00 PM. TO 9:30 PM.-THURSDAY, MARCH 30, 1939



From the Report: "A Plan to Relieve Traffic Congestion in the Portage Park Retail Shopping Center." A Survey by City of Chicago, Chicago Motor Club, Chicago Surfata Lines, April 1939

FIGURE 4—Observed Routes of Cruising Vehicles

# An economically illiterate theory for addressing traffic congestion

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1. Set minimum parking regulations to ensure that virtually all destinations have excess spaces, even when parking is given away free, even at isolated locations with no transit.
  2. Prohibit or discourage charging for parking.
  3. Prohibit curb parking.
  4. Convert curb parking into more traffic lanes.

Result: no more cruising for parking, more auto capacity...but there were unintended consequences

# Minimum Parking Requirements - Source



## Example: Office Parks

*ITE Parking Generation Report*

Peak Occupancy Rates, in  
spaces per 1000 sf of building  
area:

Lowest: 0.94 spaces

Average: 2.52 spaces

Highest: 4.25 spaces

**Typical requirement:**

**4.0 spaces/1000 sf**



Typical office: 4 parking spaces per 1000 sq.ft.  
1.3 sq. ft. of asphalt per sq. ft. of building area




# Typical Minimum Parking Requirements (Milpitas & San Jose, CA)

Office: 4 spaces / 1000  
square feet of built space

High-speed arterial

Hotel: 1 space / room

Retail: 4 spaces / 1000 square  
feet of built space



There's a light rail station just beyond the left edge of this photo.

...It's one of the worst-performing light rail systems in North America.

...And the nearby freeway is one of the most congested.

Office: 4 spaces / 1000 square feet of built space

Hotel: 1 space / room

Retail: 4 spaces / 1000 square feet of built space

1100 Wilshire  
Boulevard, Los Angeles  
15 levels of parking  
21 floors of offices



Source: Shoup, Donald.  
*The High Cost of Free  
Parking*, 2005.

What does it cost to increase  
parking supply?



\$40,000

\$40,000

\$40,000

\$40,000

\$40,000

\$40,000

\$40,000

\$40,000

\$40,000

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\$40,000

\$40,000

\$40,000

How much revenue is needed to break even on the cost of building and operating a \$40,000 parking space?





# Unintended Consequences of Minimum Parking Regulations

Minimum parking regulations require excess spaces even when parking is free, even at isolated locations with no transit

Cost of parking is hidden in the price of other goods & services

Higher rents

Pricier goods

Higher Taxes

Parking appears free, resulting in higher parking demand, more driving, more congestion, more pollution

We all pay for more parking and bigger roads



**Unintended Consequences of  
Minimum Parking Regulations**



# Unintended consequences: less housing, more expensive housing & lower land values

1961: Oakland's first parking requirement

- One space per unit for apartments
- Construction cost increased 18% per unit
- Units per acre decreased by 30%
- Land value fell 33%



# Unintended Consequences of Minimum Parking Requirements: a Texas example

Austin, Texas



Austin, Texas











HOFFBRAU STEAKS

Hoffbrau

STEAKS

RESTAURANT









**PARK**

**\$7.00**

SALES TAX INCLUDED

# RATES

**30 MINUTES** **FREE**

**30 MIN - 1 HOUR** **\$3**

**EACH ADDITIONAL HOUR** **\$4**

**MAXIMUM FEE** **\$15**

**2** HOUR  
PARKING

7AM-7PM



WING ROW  
BUILDING

200







## Austin's Unintended Consequences

- Curb parking was full, private lots were underused
- Drivers circled in search of free curb parking
- Neighborhoods still complained about spill-over parking
- Perceived parking shortages persisted
- Redevelopment was hindered by parking requirements

# MANAGING CURB PARKING & REMOVING MINIMUM PARKING REQUIREMENTS

# Berkeley Downtown Parking & TDM Study

First impressions:

Saturday night in downtown  
Berkeley (January 30, 2010)





ARPEGGIO

5

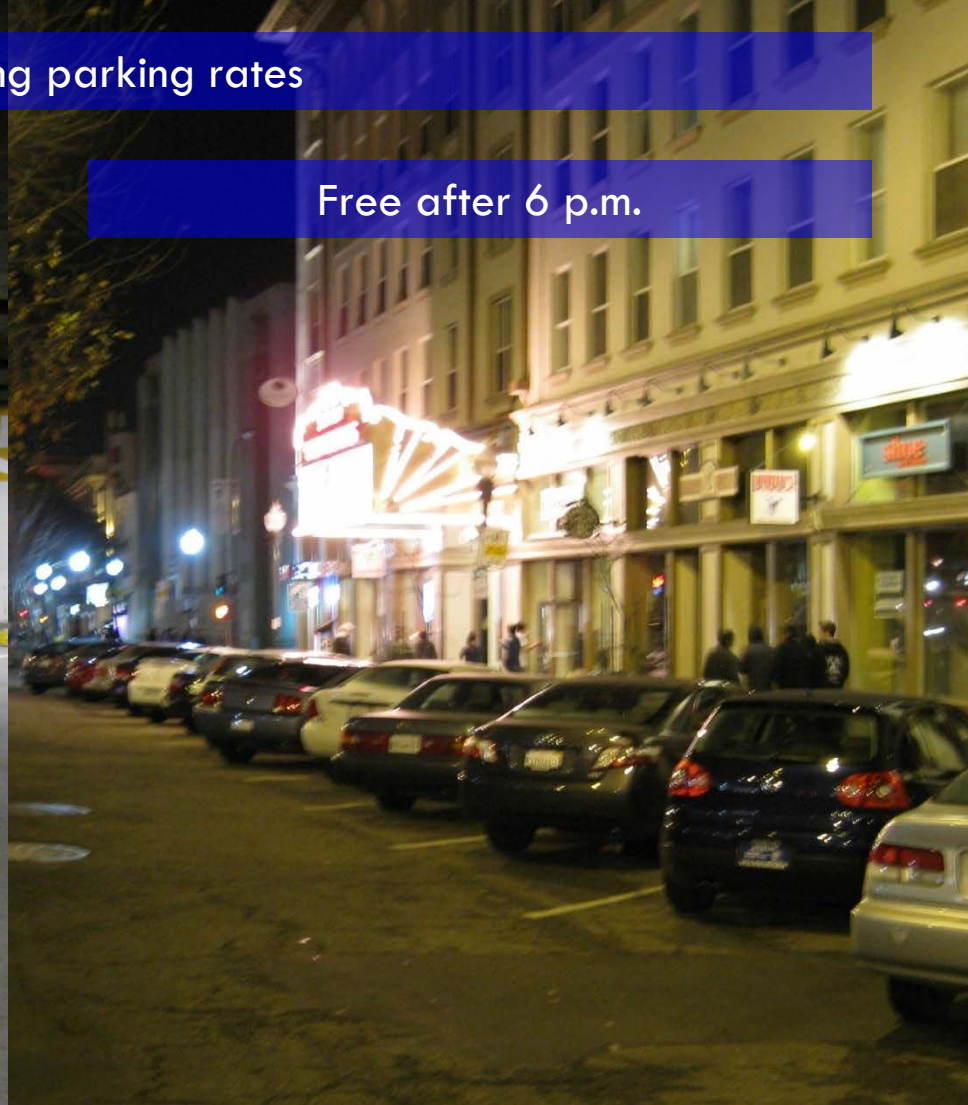
STAIRS  
5

ELEVATOR  
5

## Saturday evening parking rates

\$5 flat rate

Free after 6 p.m.



Conclusion: Building more spaces cannot solve the perceived parking shortage

# Three Reforms

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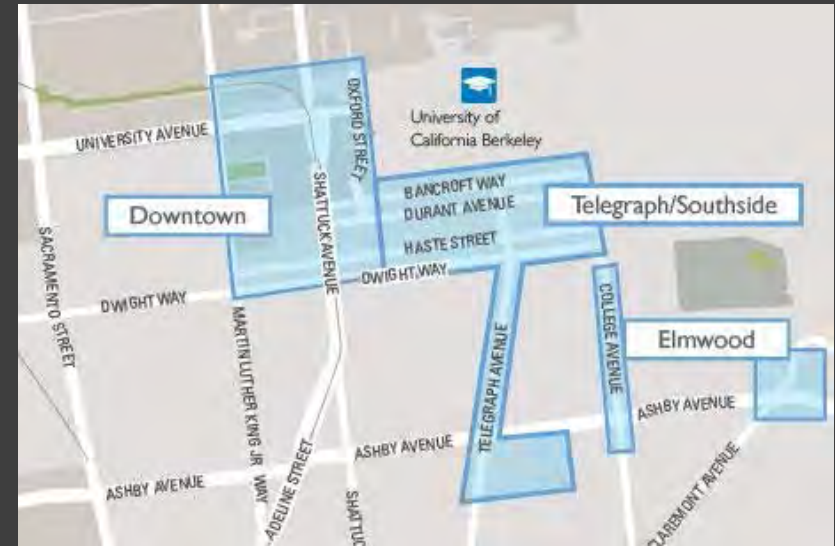
- 1. Charge the right prices for curb parking**
- 2. Return the parking revenue to the blocks where it is generated, to pay for public services**
- 3. Remove minimum parking requirements**

# Berkeley - goBerkeley



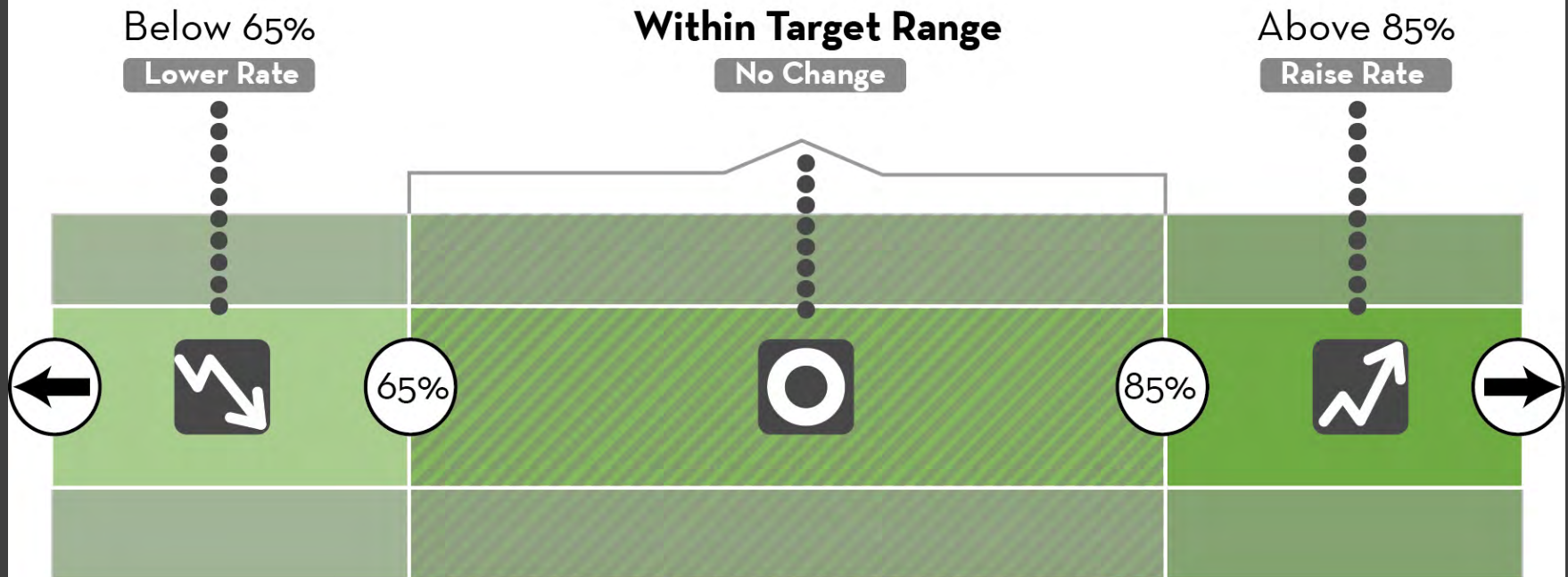
Charge the lowest price needed to achieve 65-85% occupancy on each block

- Currently \$1.50 - \$2.75/hour
- Revenues help fund public services for the blocks where the revenue is collected
  - Security
  - Cleaning
  - Help for the Homeless

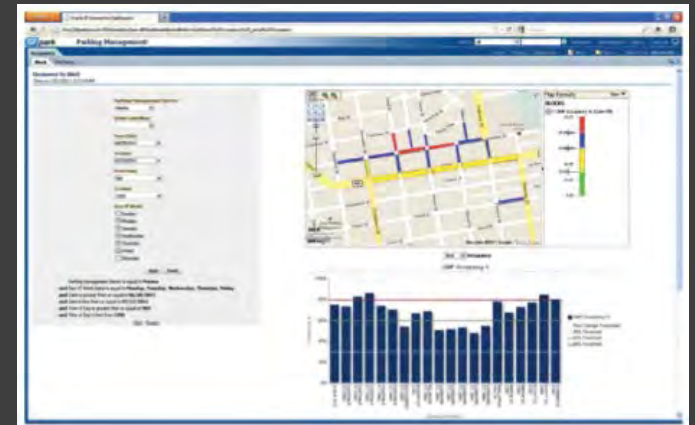




# Performance-Based Pricing at Work



- Automated License Plate Recognition (LPR) for enforcement & measuring occupancy
  - LPR on 5 enforcement vehicles
  - Automatically generates parking occupancy maps
  - Open-source software!
- 
- Xerox: \$500K contract to act as "system integrator"
  - PCS Mobile: \$450K contract to provide 5 Genetec LPR systems

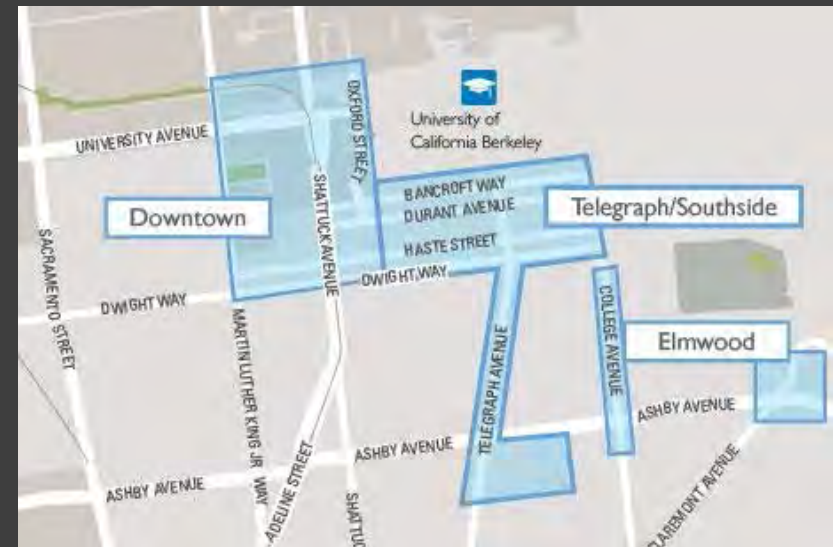


# Berkeley - goBerkeley



## Results

- Most drivers surveyed say “finding parking is easy.”
- More drivers use previously underused off-street garages
- Less circling for underpriced curb parking
  - Eliminated 693,000 vehicle miles of travel per year



## goBerkeley performance-based parking pricing program

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“I think goBerkeley is one of the greatest ideas that we’ve had for many, many years...The anecdotal evidence that I hear ... is that there have been a few minor glitches, but the overwhelming sentiment is that this has been really successful.”

-- Councilmember Kriss Worthington

*Source: <http://www.dailycal.org/2016/06/01/city-council-discusses-potential-changes-to-parking-policies-at-special-meeting/>*

# MANAGING CURB PARKING IN RESIDENTIAL AREAS

# Managing curb parking - Errors to avoid

## Boston's Beacon Hill neighborhood

- 3,933 resident permits issued - free
- 983 curb spaces available
- Lesson: *limit # of permits issued to less than the spaces available*



*Parking on local streets is limited to 2 hours on weekdays, unless an "H" permit (for residents) is obtained.*

# Residential Parking Benefit Districts

- Implement where warranted by demand
- Existing residents park free or cheaply
  - Limit permits issued to available curb space
- Non-Residents pay regular parking fees
  - Revenues fund neighborhood improvements
  - Payment options: pay by phone, pay stations, meters, or “scratcher” paper permits



# Residential Parking Benefit District Examples

- Laguna Beach, CA
  - Regular parking fees: \$1-\$3 per hour
  - Resident permit: \$40/year
- Oceanside, CA
  - Regular parking fees: \$2 / hour
  - Resident permit: \$100 / year
- Other Examples
  - Ventura, CA
  - Washington DC
  - Santa Cruz, CA
  - West Hollywood, CA
  - Austin, TX
  - Boulder, CO





# Managing curb parking allows removal of minimum parking requirements

Example: The Gaia Building, Berkeley, CA





Parking costs are “unbundled”

Parking fee: \$150/month



citycarshare

The Freedom of  
*Driving* WITHOUT  
The Hassles of *Ownership*



UPPER	4.1
MIDDLE	3.5
LOWER	2.8



2A



1A

# The Gaia Building – Parking Demand

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- 91 apartments, theater, café & office space
  - 42 parking spaces supplied
- Result: 237 adult residents with just 20 cars

# Great Britain: national parking policy reform

- Planning Policy Guidance 13: Transport
- Enacted March 2001
- New policy: **“Local authorities should...not require developers to provide more spaces than they themselves wish...”**
- Previously: as in the US, local minimum parking requirements were common



# Communities that have Eliminated Parking Requirements

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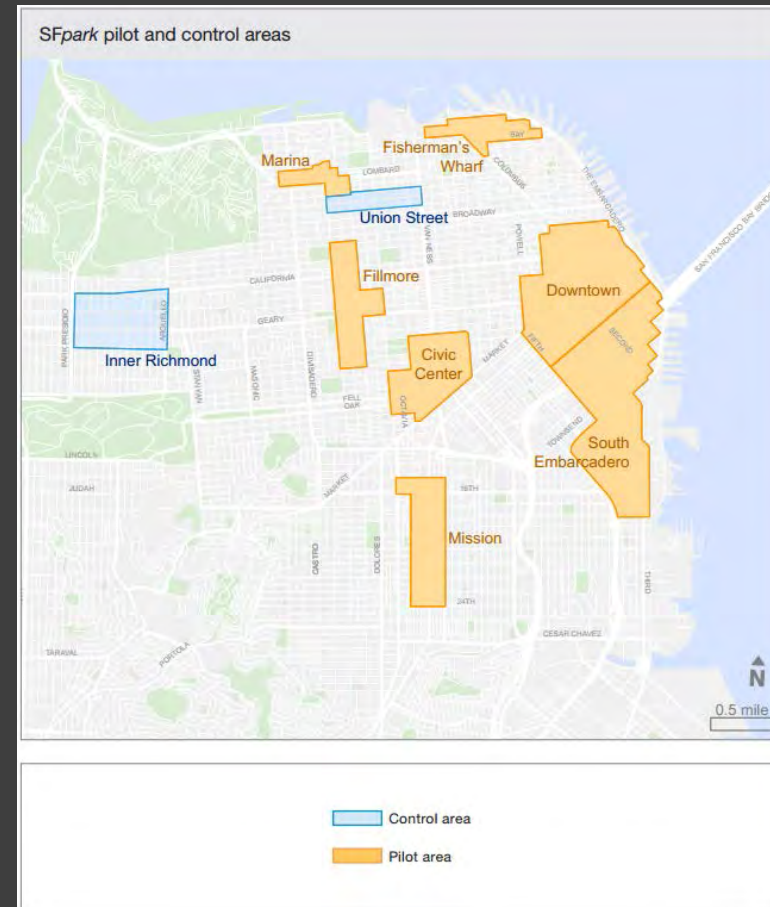
- Buffalo, NY (citywide)
- Coral Gables, FL
- Eugene, OR
- Fort Myers, FL
- Fort Pierce, FL
- Great Britain (nationwide)
- Hayward, CA
- Los Angeles, CA
- Mexico City (citywide)
- Milwaukee, WI
- Nashville, TN
- Oakland, CA
- Olympia, WA
- Portland, OR
- Sacramento, CA
- San Francisco, CA
- Santa Clarita, CA
- Santa Monica, CA
- São Paulo, Brazil (citywide)
- Stuart, FL
- Seattle, WA
- Spokane, WA

# San Francisco's *SFpark* program



# San Francisco - SFpark

- Demand-based pricing at 6,000 curb spaces and 12,250 spaces in City-owned garages
- Policy: achieve occupancy target of 60%-80%
- On-street price maximum \$6, minimum \$0.25
- Price changes by blockface and time of day
- Time limits: 4 hrs or no limit





# Technologies: measuring occupancy & adjusting rates

*Meters provide real-time data*



*Coin & Card ("Smart") meters*

*Occupancy Sensors (no longer used in SF)*



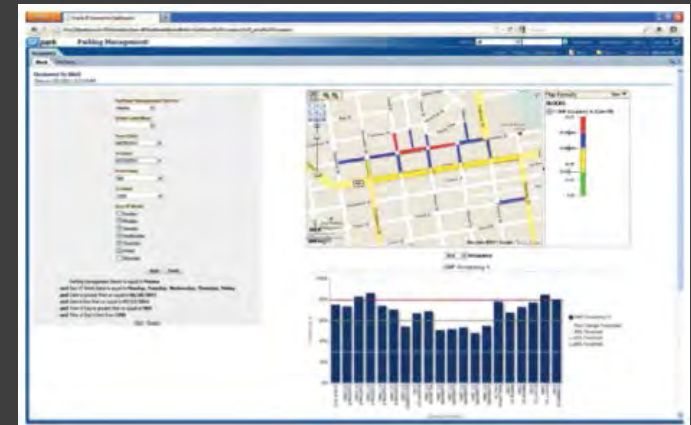
*Sensors & real-time data*



*Pay-by-phone*



*Data warehouse/  
business intelligence tool*



# San Francisco Sfpark Results



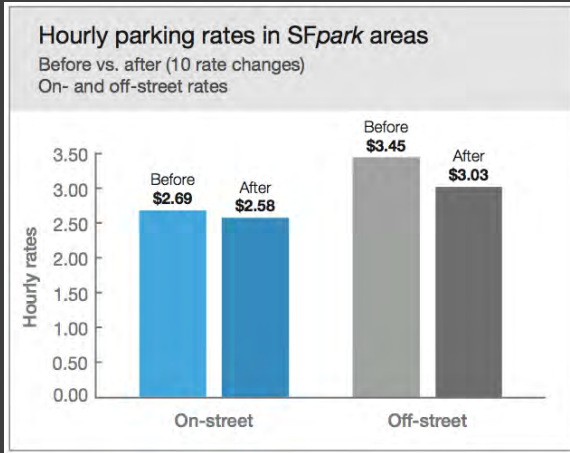
## SFpark Pilot Project Evaluation

The SFMTA's evaluation of the benefits of the SFpark pilot project

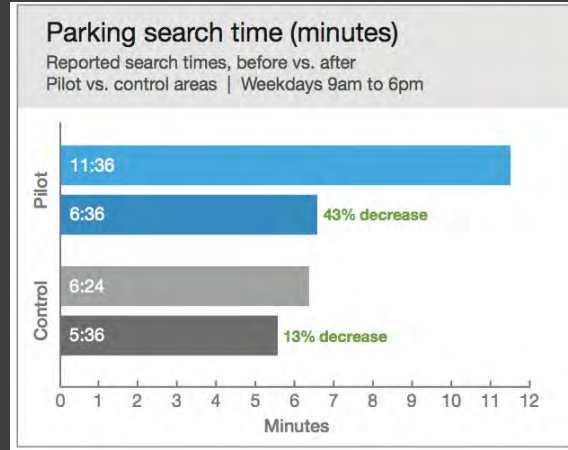


June 2014

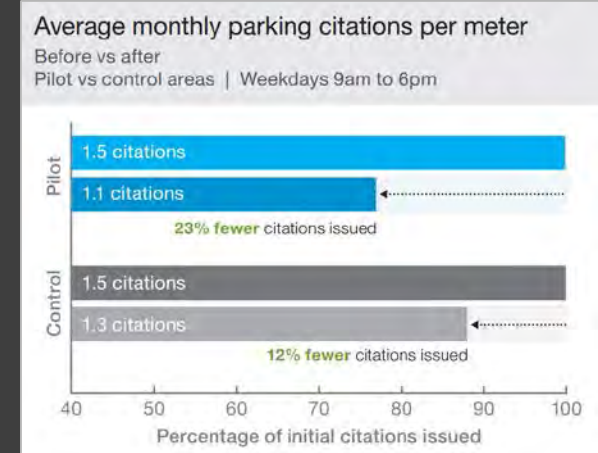
# San Francisco Sfpark Results



**Cheaper**



**Easier**



**Fewer Tickets**

# San Francisco – Removing Minimum Parking Requirements

Since 2005, minimum parking requirements have been abolished in many neighborhoods:

- Downtown
- SoMa
- Chinatown, North Beach
- Telegraph Hill
- Mission Bay
- Tenderloin
- Hayes Valley, Duboce Triangle
- parts of the Mission and Potero Hill

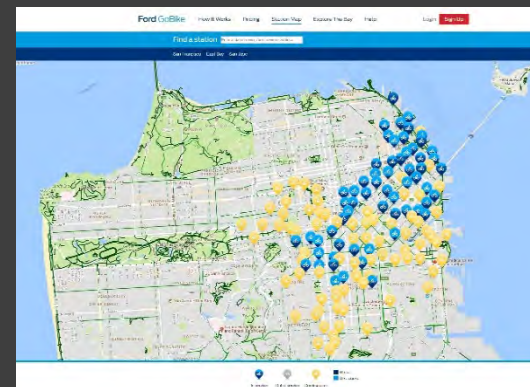


# Removing Minimum Parking Requirements Sparks Innovation



Ford GoBike bike sharing  
7000+ bicycles in SF Bay Area

Source: Ford GoBike



## Removing Minimum Parking Requirements Sparks Innovation

JUMP dockless electric  
bike sharing



# Removing Minimum Parking Requirements Sparks Innovation



Scoot electric scooter sharing

# Removing Minimum Parking Requirements Helps Spark Carsharing

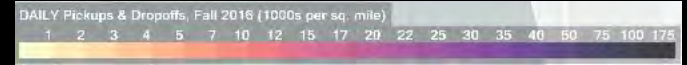
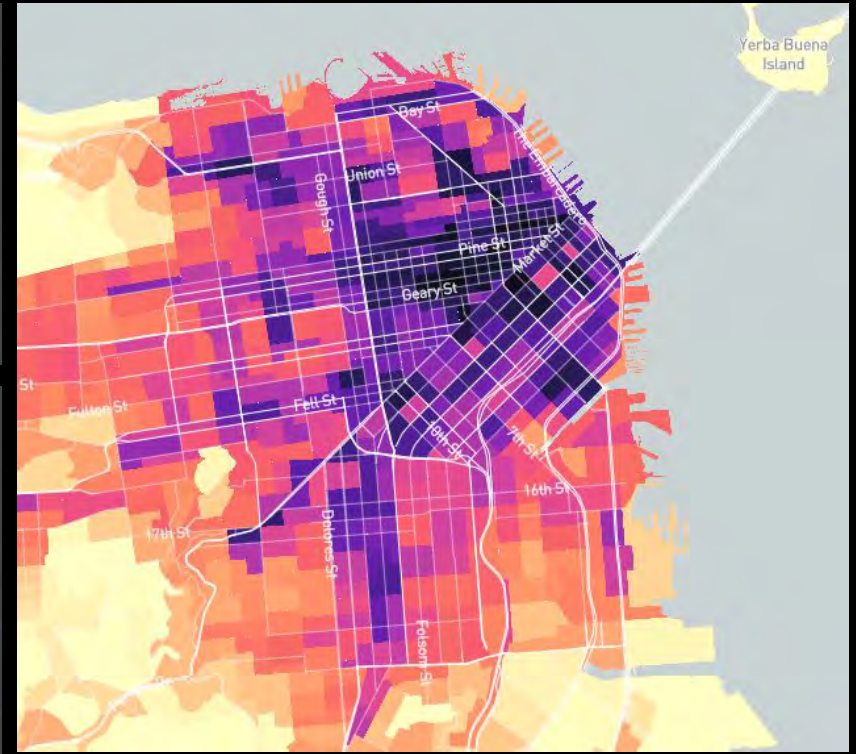
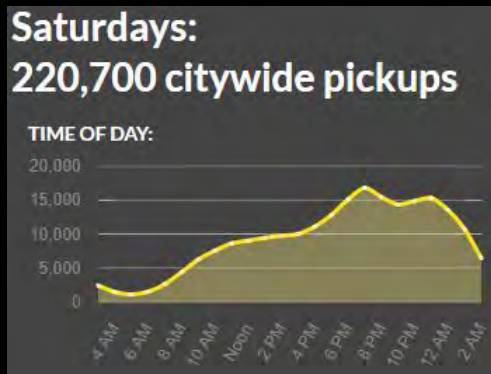
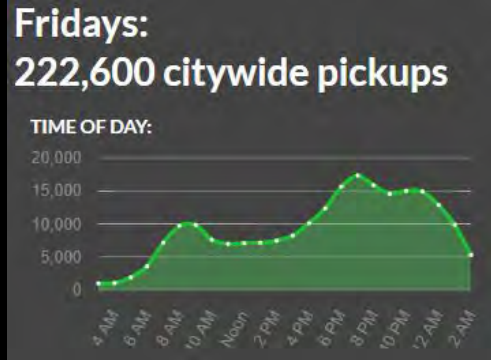


Source: Martin, Shaheen, Lidicker, 2010  
<https://www.slideshare.net/susanshaheen/carsharing-trends-and-research-highlights>



# Removing Minimum Parking Requirements Sparks Innovation

## RIDE HAIL: 15% of all intra-San Francisco vehicle trips



Source: <http://tncstoday.sfcta.org/>

# TRENDS: THE FUTURE WITH AUTONOMOUS VEHICLES



Source: <https://mcity.umich.edu/driverless-shuttle-service-coming-u-ms-north-campus/>

# “MOBILITY AS A SERVICE” MODEL



Massive decline in parking  
demand

# TRADITIONAL CAR OWNERSHIP MODEL



Right Image Source: Michigan Radio

Less dramatic decrease in  
parking demand  
*Relocation or densification?*

## EFFECT ON PARKING DEMAND?

Source	Estimate
Academic: Zhang et al	~90% reduction 50% of fleet shared
OECD International Transport Forum	80% reduction 100% of fleet shared
Academic: Kockelman	Each shared AV replaces 12 private vehicles
McKinsey	5.7 billion square meter reduction in parking

# Five Reforms

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- 1. Charge the right prices for curbside parking**
- 2. Return the parking revenue to the blocks where it is generated, to pay for public services**
- 3. Remove minimum parking requirements**
- 4. Set maximum parking requirements**
- 5. Adopt additional traffic-reducing reforms**

# MAXIMUM PARKING REQUIREMENTS & ADDITIONAL TRAFFIC-REDUCING REFORMS

# Maximum Parking Requirements

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- Determine available street capacity
- Limit commuter parking supply to available roadway capacity
- Examples: London, Portland, San Francisco
- Establish maximums by project use, parking type or district-wide



## How do maximum parking requirements affect traffic?

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1. Maximum requirements are set low enough so that if parking is given away for free, there will be a shortage.
2. Parking is then rented/leased to motorists for a price that covers its costs
3. *Or*, employers provide strong subsidies for walking, bicycling & transit (e.g., a parking cash-out program).
4. Removing parking subsidies (or providing equal subsidies for other modes) brings travel choices back into balance.



# San Francisco's Maximum Parking Requirements

## San Francisco 1968-1984:

- 250,000 new jobs
- Little or no private parking
- 11,000 spaces in City-owned garages
- Prices set to discourage commuter parking
- No increase in congestion



# Regulating Parking in Private Developments

## Traffic-reducing reforms:

- Remove parking minimums
- Establish parking maximums
- Require unbundled parking
  - Rental & for-sale residential
  - Commercial space
  - *and other uses*
- Require car-sharing spaces
- Require parking cash-out
- Require provision of free transit passes



1900 Broadway development, Source: Brick LLP

# Unbundling parking costs → Greater affordability

Cost of parking “unbundled” from other goods & services

Hourly & daily fees

Monthly parking fees

Parking condominiums

Cost of parking is revealed to the user

People save money by using less parking, resulting in less parking demand, less driving, less congestion, less pollution

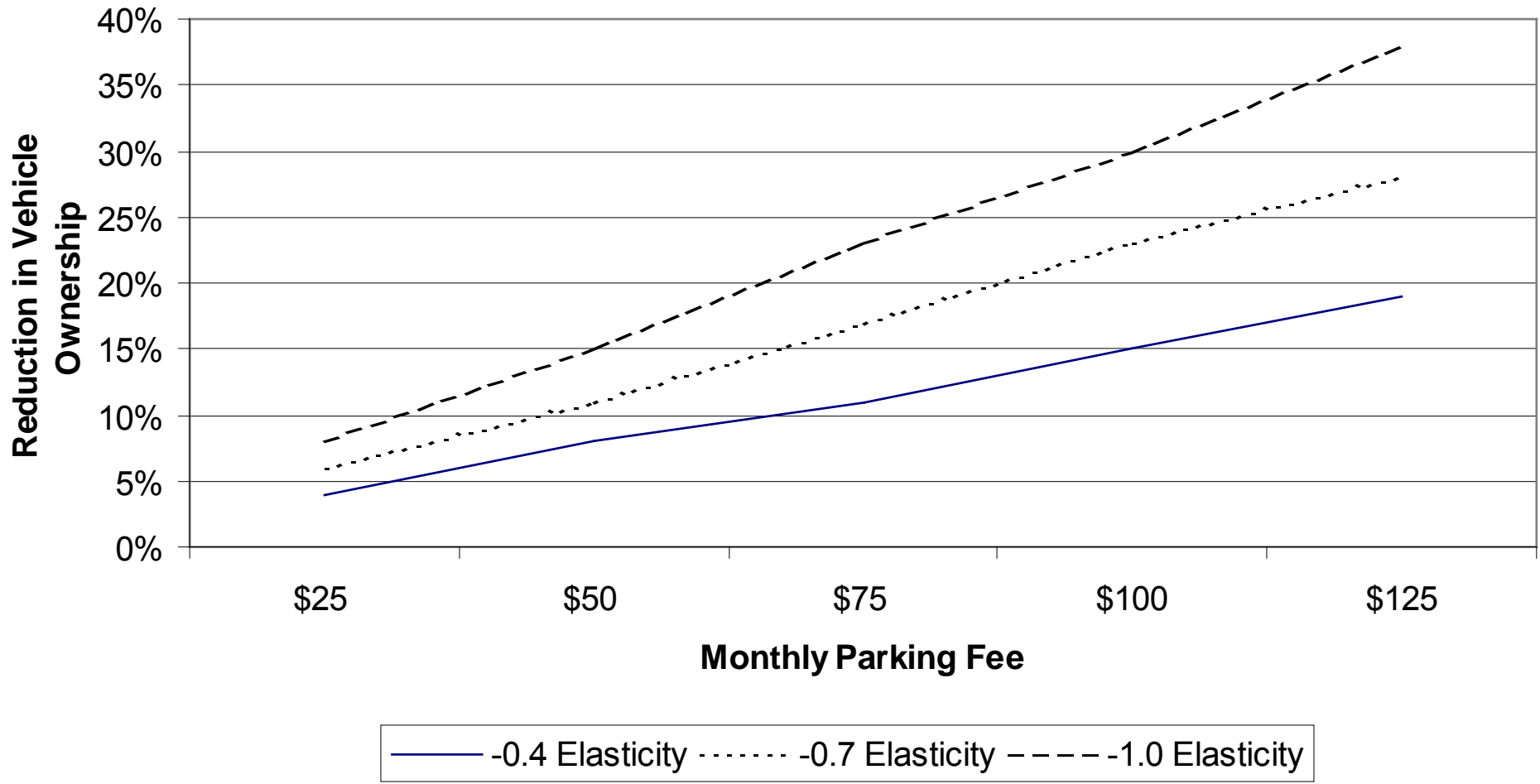
Less parking needs to be funded and built

More housing, less expensive housing

Less homelessness

# Unbundling parking costs at residences

## Reduction in Vehicle Ownership from Unbundling Parking Costs



# Unbundling parking costs from commercial leases

- Example: Downtown Bellevue, WA
- Requires building owners to include parking costs as a separate line item in leases
- Minimum rate for monthly long-term parking:  $\geq$  twice the price of a bus pass
- Minimum rate in 2003: \$144/month
- *Maximum* parking requirements: 2.4 spaces / 1000 sf GLA

**Results: drive alone commute rate fell by 30%, from 81% driving alone to 57%**

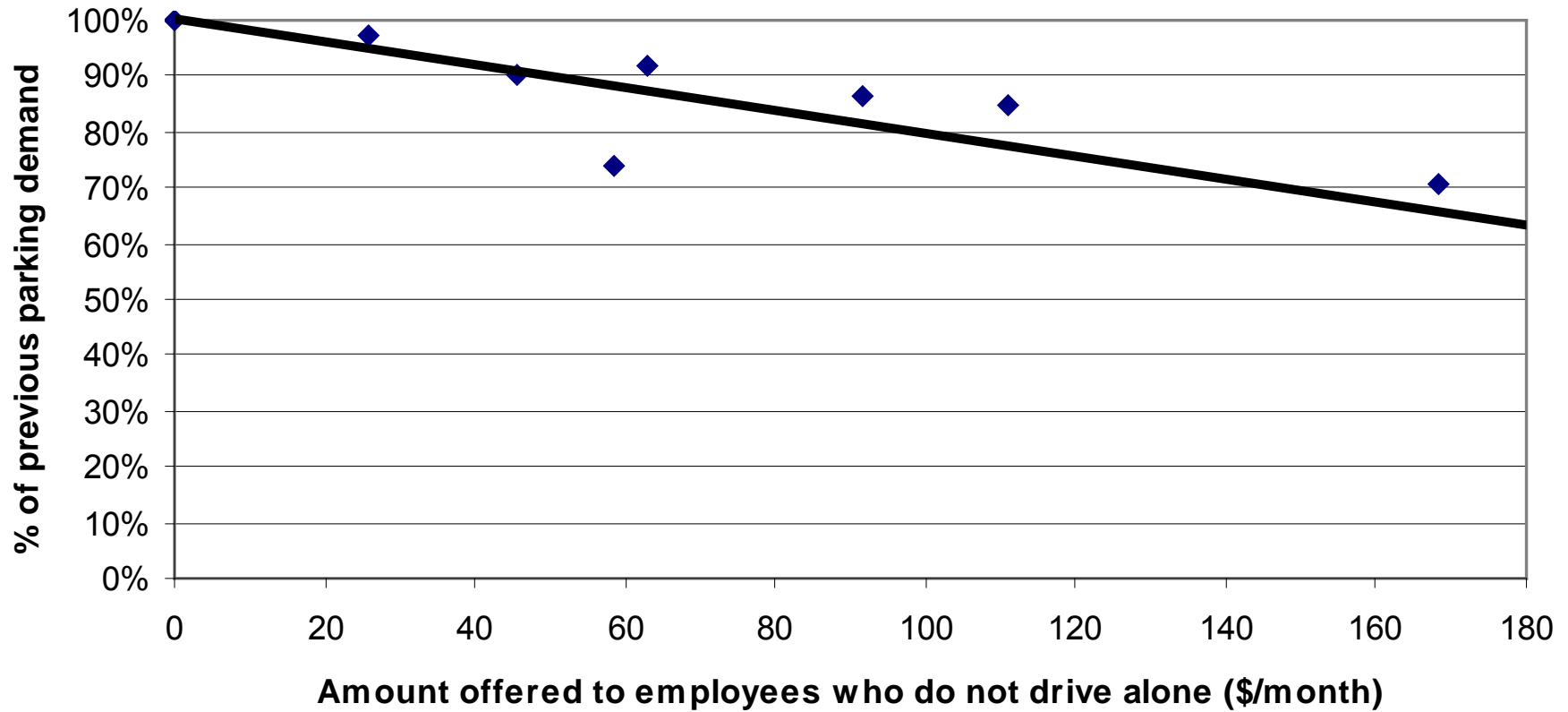


# Require Parking Cash-Out

- Politically/financially not feasible to charge for parking? *Offer cash value of parking to those who don't drive*
- Consider it part of a cafeteria-style employee benefits package, like health benefit choices
- Example: Santa Monica
- Tenants must make cost of parking visible to employees
  - Full-cost parking fees, OR
  - Full parking cash-out



# Parking Cash Out reduces vehicle trips



Source: adapted from Shoup, Donald. *Parking Cash Out*, 2005.

# Traffic Reduction Case Studies – Lessons Learned

10 cities that have increased prosperity & reduced traffic

Place	Parking Cash-Out Required	Congestion Pricing	Unbundling of Parking Costs Required	Universal Transit Pass Program	Parking Tax	Low Minimum Parking Requirements	Eliminated Minimum Parking Requirements	Set Maximum Parking Requirements	Priced Parking	Shared Parking/Park Once	Residential Parking Districts	Carpool/Ride Matching Services	Car Sharing	Bicycle Parking Requirements	Rail Transit	Bus Rapid Transit
Arlington County, VA				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Bellevue, WA (Downtown)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Boulder, CO (Downtown)			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Cambridge, MA					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Lloyd District, Portland, OR			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
London, Great Britain	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Portland, OR (Downtown)						✓	✓	✓	✓	✓		✓	✓	✓		
San Francisco, CA (Downtown)		✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Stockholm, Sweden	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Vancouver, B.C.			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



# Parking: High & Low Traffic Strategies

	<u>Conventional Minimum Requirements</u>	<u>'Tailored' Minimum Requirements</u>	<u>Abolish Minimum Requirements</u>	<u>Set Maximum Requirements</u>
<b>Typical Tools</b>	<ul style="list-style-type: none"> <li>❖ Requirement &gt; Average Demand</li> <li>❖ Hide all parking costs</li> </ul>	Adjust for: <ul style="list-style-type: none"> <li>❖ Density</li> <li>❖ Transit</li> <li>❖ Mixed Use</li> <li>❖ 'Park Once' District</li> <li>❖ On-street spaces</li> <li>❖ ...etc.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Market decides</li> <li>❖ Parking funded by parking revenues</li> <li>❖ Manage curb parking with parking benefit districts</li> </ul>	<ul style="list-style-type: none"> <li>❖ Limit parking to road capacity</li> <li>❖ Manage on-street parking</li> <li>❖ Market rate fees required</li> </ul>





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