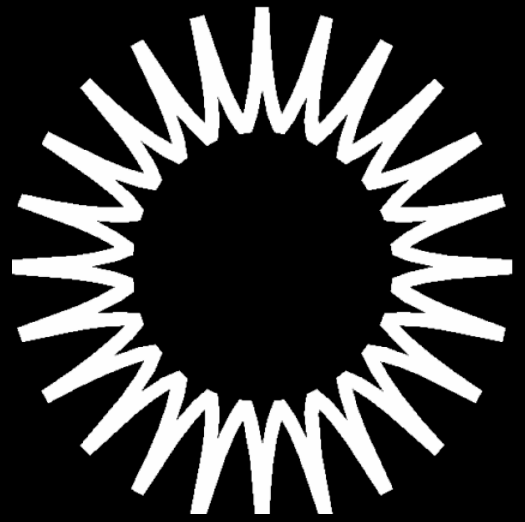


SPUR

Ideas + Action for a Better City

learn more at SPUR.org

tweet about this event:
@SPUR_Urbanist
#TheHighCostofFreeDriving

The future of funding for transportation infrastructure

Alan Jenn, PhD

Institute of Transportation Studies

University of California, Davis

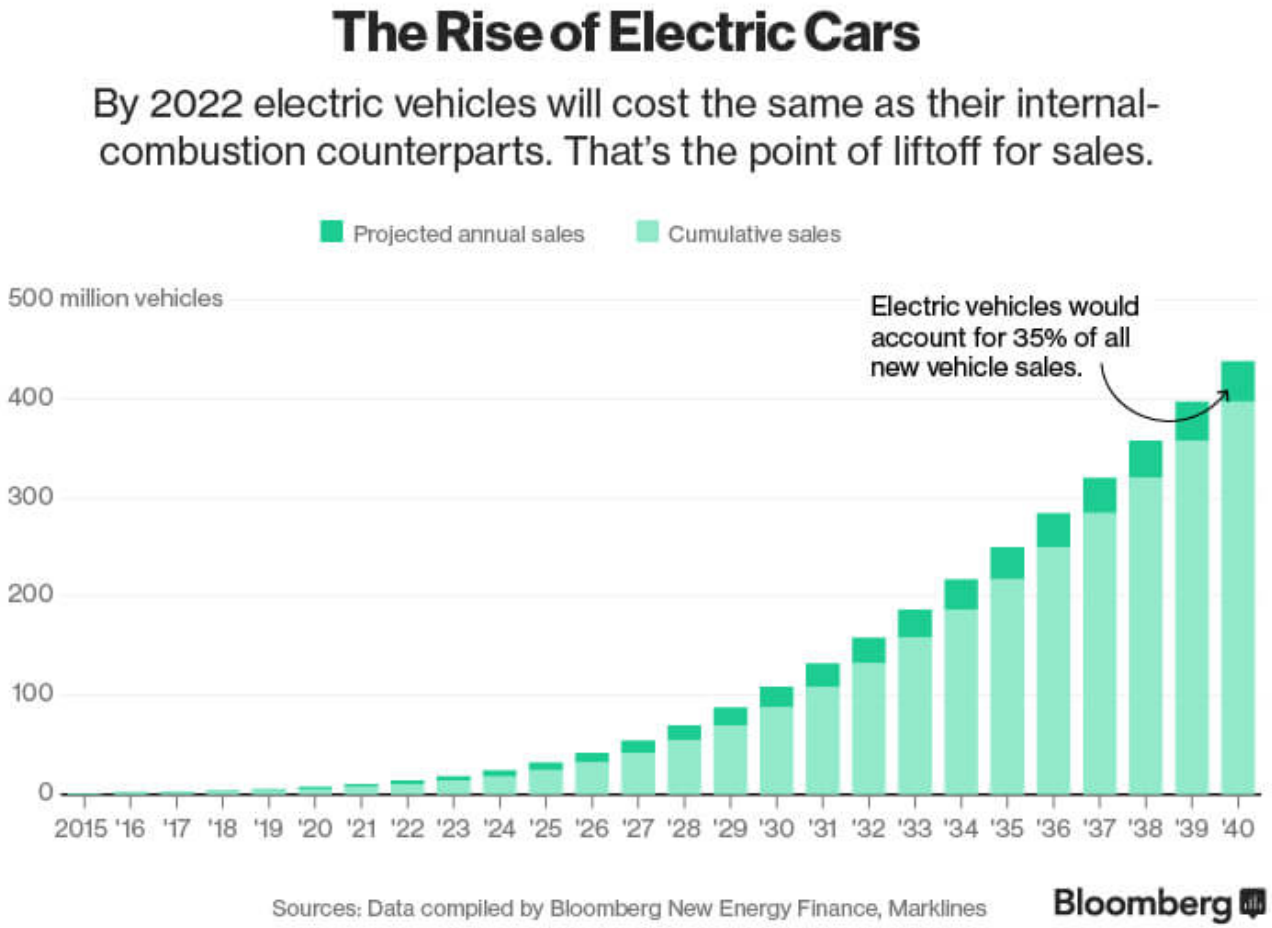
Two large disruptors for funding infrastructure

Much of the road infrastructure in the United States is paid for by the gasoline tax, a “use fee” for driving on the road.

The landscape of transportation has led to shortfalls in funding due to:

1. Improvements in fuel efficiency
2. Increased share of electric vehicles

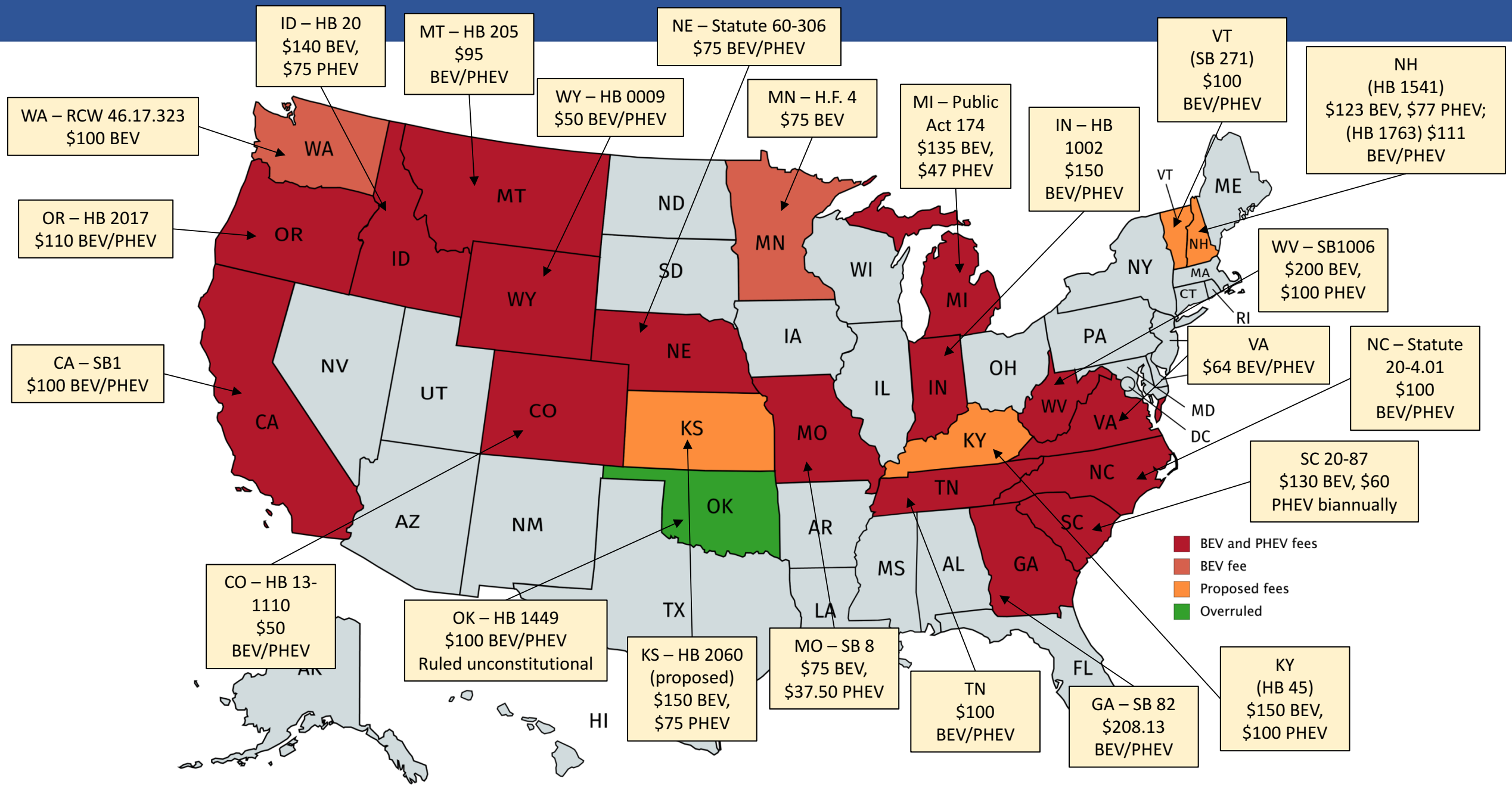
The adoption of electric vehicles



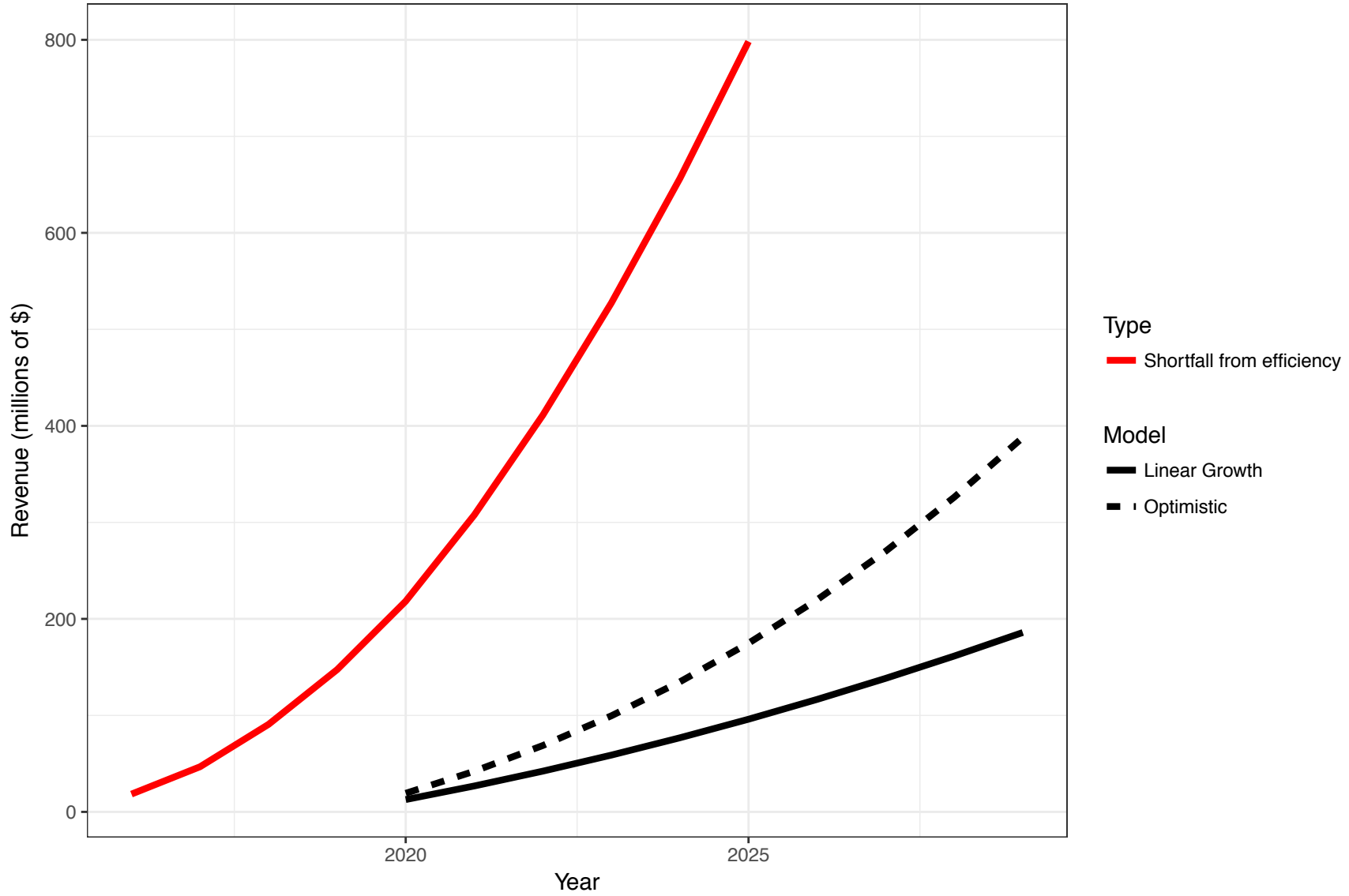
- California's ZEV mandate and governor's goals will mean high adoption of plug-in electric vehicles (PEVs)
- Electric vehicles do not pay any fuel taxes towards funding infrastructure that they use

California's Senate Bill 1

- On April 28, 2017 the California legislature and governor passed SB1:
  - $0.12 per gallon increase in the motor vehicle fuel (gasoline) tax (Nov 1, 2017)
  - $0.20 per gallon increase in the motor vehicle fuel (diesel) tax (Nov 1, 2017)
  - $25-$175 annual transportation improvement fee (Jan 1, 2018)
  - $100 annual registration fee for zero-emission motor vehicles (Jul 1, 2020)
- An additional complicating factor is that there is a repeal measure for SB1 on the ballot this November.


ID – HB 20
$140 BEV,
$75 PHEV
MT – HB 205
$95
BEV/PHEV
NE – Statute 60-306
$75 BEV/PHEV
WY – HB 0009
$50 BEV/PHEV
MN – H.F. 4
$75 BEV
MI – Public
Act 174
$135 BEV,
$47 PHEV
IN – HB
1002
$150
BEV/PHEV
VT
(SB 271)
$100
BEV/PHEV
NH
(HB 1541)
$123 BEV, $77 PHEV;
(HB 1763) $111
BEV/PHEV
WA – RCW 46.17.323
$100 BEV
OR – HB 2017
$110 BEV/PHEV
CA – SB1
$100 BEV/PHEV
WV – SB1006
$200 BEV,
$100 PHEV
VA
$64 BEV/PHEV
NC – Statute
20-4.01
$100
BEV/PHEV
SC 20-87
$130 BEV, $60
PHEV biannually
CO – HB 13-
1110
$50
BEV/PHEV
OK – HB 1449
$100 BEV/PHEV
Ruled unconstitutional
KS – HB 2060
(proposed)
$150 BEV,
$75 PHEV
MO – SB 8
$75 BEV,
$37.50 PHEV
TN
$100
BEV/PHEV
GA – SB 82
$208.13
BEV/PHEV
KY
(HB 45)
$150 BEV,
$100 PHEV
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
VA
NC
SC
GA
FL
PA
NY
VT
NH
ME
MA
CT
RI
MD
DC
HI
AK
BEV and PHEV fees
BEV fee
Proposed fees
Overruled

Expected shortfall from gasoline efficiency gains



What about alternative fuel vehicles?

The Institute of Transportation Studies at UC Davis is current conducting a study to assess the following pricing schemes on the its ability to provide sustainable funding, the complexity of the policy, and how difficult it is to implement:

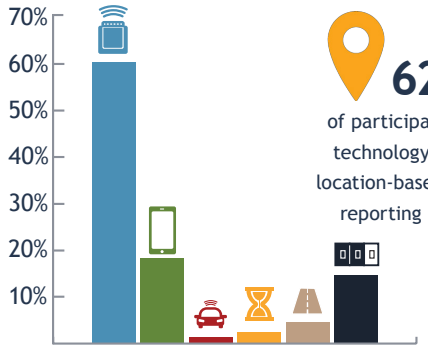
- Electricity charge, $/kWh
- Energy fee, $/gas equivalent
- Road charge, uniform mileage fee, $/mi
- Advanced road charge, incorporating other pricing mechanisms
  - Potential mechanisms include: efficiency, occupancy, congestion, etc.

Pilot program: California Road Charge (SB 1077)

9 month road charge pilot

JULY 2016 ● • • • • • • ● MARCH 2017

6 mileage reporting methods



62% of participants using technology chose a location-based mileage reporting method

Note: The heavy vehicle mileage meter used by our heavy vehicles represented in the pilot makes up 1% of the total of 5,129 enrolled vehicles.

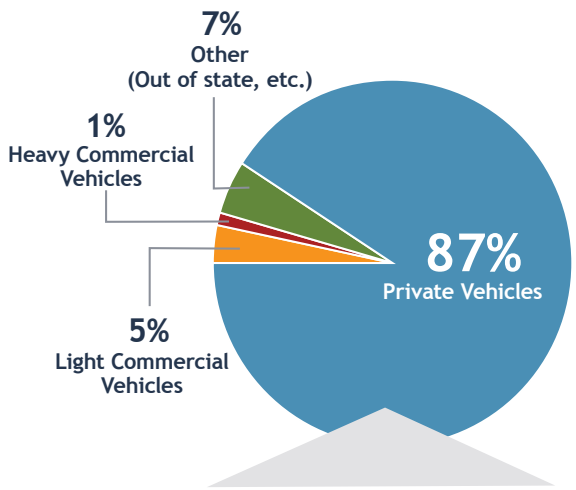
86% *Satisfied with mileage reporting method*

LOW TECH HIGH TECH

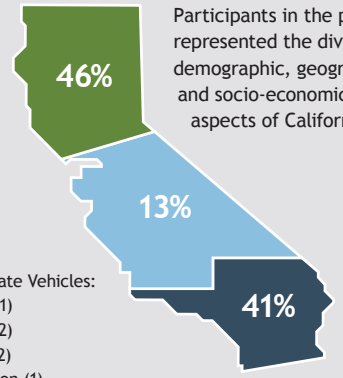
All mileage reporting methods worked:

- Manual options have the highest degree of privacy but are most difficult to enforce and costly to administer
- Higher technology options show great promise but need further refinement

5000+ vehicles statewide



Private Vehicle Enrollment (By Region)



Participants in the pilot represented the diverse demographic, geographic and socio-economic aspects of California.

Out-of-State Vehicles:
Arizona (1)
Nevada (2)
Oregon (2)
Washington (1)

Top 3 Participating Vehicles

290 *Toyota Prius*	231 *Ford F-150*	198 *Honda Civic*

Participant Feedback

73% think a road charge is more fair than a gas tax

- **85%** Satisfied with the overall pilot program
- **87%** Found participating in the pilot easy
- **80%** Satisfied with opportunities to provide feedback
- **61%** Are more aware of the amount they pay for road maintenance
- **83%** Satisfied with clarity of communications

Communications and Acceptance

- Experience and education during the pilot lead to an increase in acceptance among participants
- 60%+ participant response rate for all surveys
- The number of participants agreeing that a road charge is "more fair" than a gas tax increased over the pilot
- Website and newsletters were vital to pilot communications
- 81% think road charge should continue to be researched
- 91% would participate in another road charge program

WHAT'S NEXT?

FAST ACT RESEARCH:
PAY-AT-THE-PUMP
EDUCATION & OUTREACH

Rolling out road charges on a PEV platform

- Road charge only for electric miles (e-miles)
- Our study has constraints of operationalizing pricing exclusively for PEVs, but this actually offers several benefits:
  - No need to get rid of gasoline tax
  - Addresses fuel transition issue
  - Gradual rollout is easier to implement since PEVs are lower volume
  - Lower administrative costs: no need for refund checks

Key Takeaways

- The actual difference between fees (electricity versus energy versus mileage) is relatively marginal, the fees can be structured to provide similar revenues
- Key considerations are political feasibility, complexity of implementation, and costs
- Roll out on the electric vehicle platform can avoid many of the above issues

SFMTA

Demand-responsive parking pricing

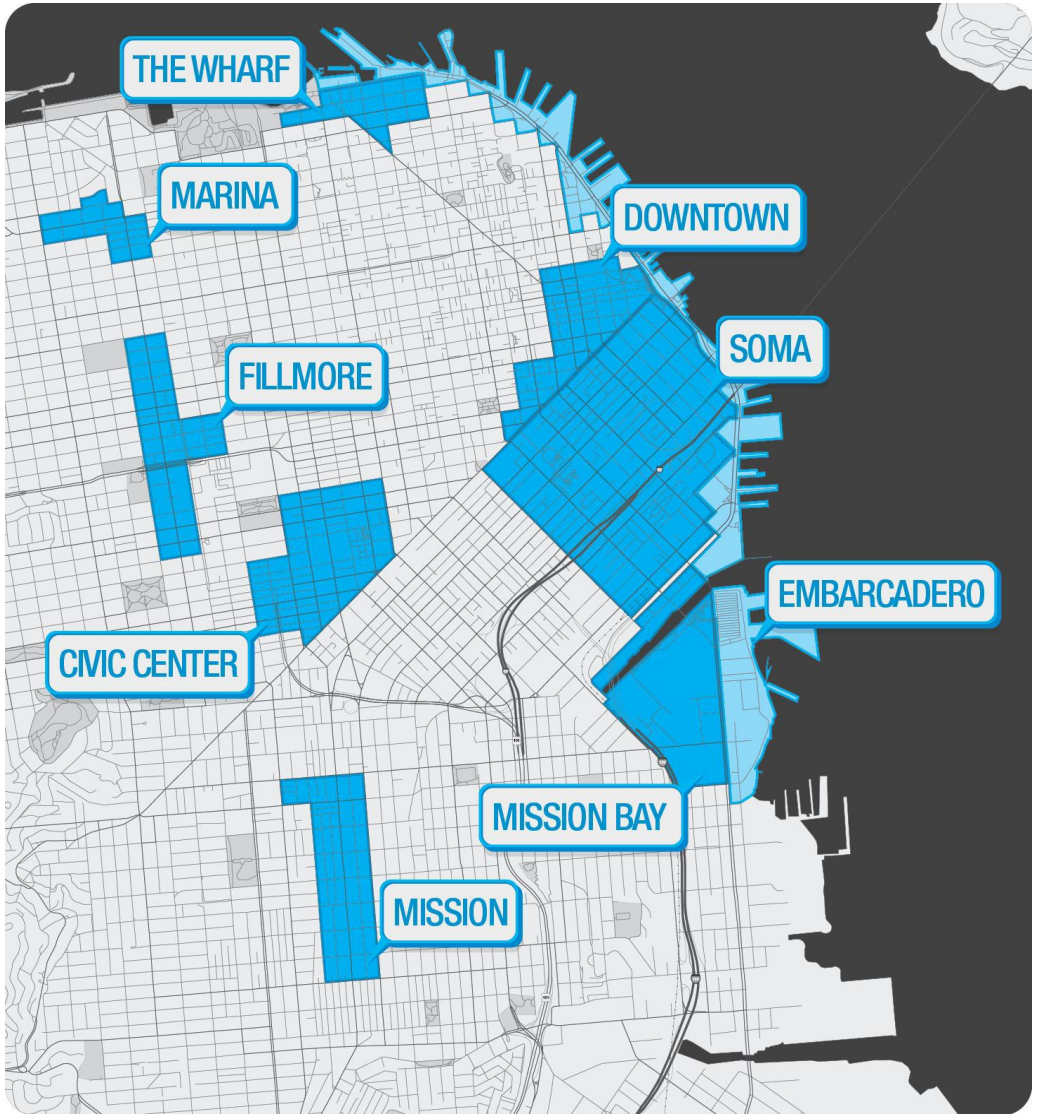
SPUR Forum: The High Cost of Free Driving

July 12, 2018

Goals of project

- Reduce congestion
- Make parking easier to find
- Reduce circling for parking
- Help small businesses
- Transparent, data-driven rate-setting process

SFpark pilot

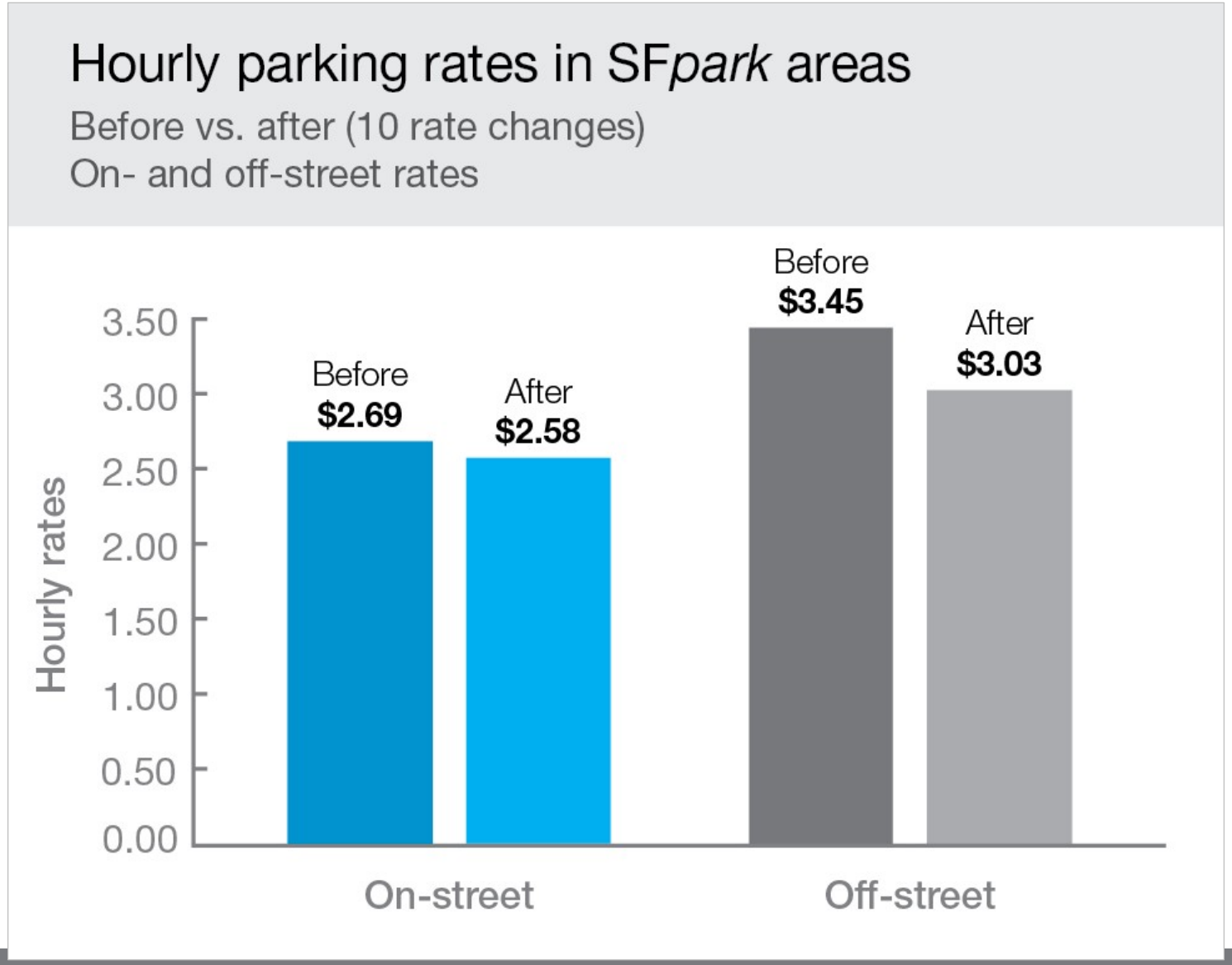


Demand-responsive pricing

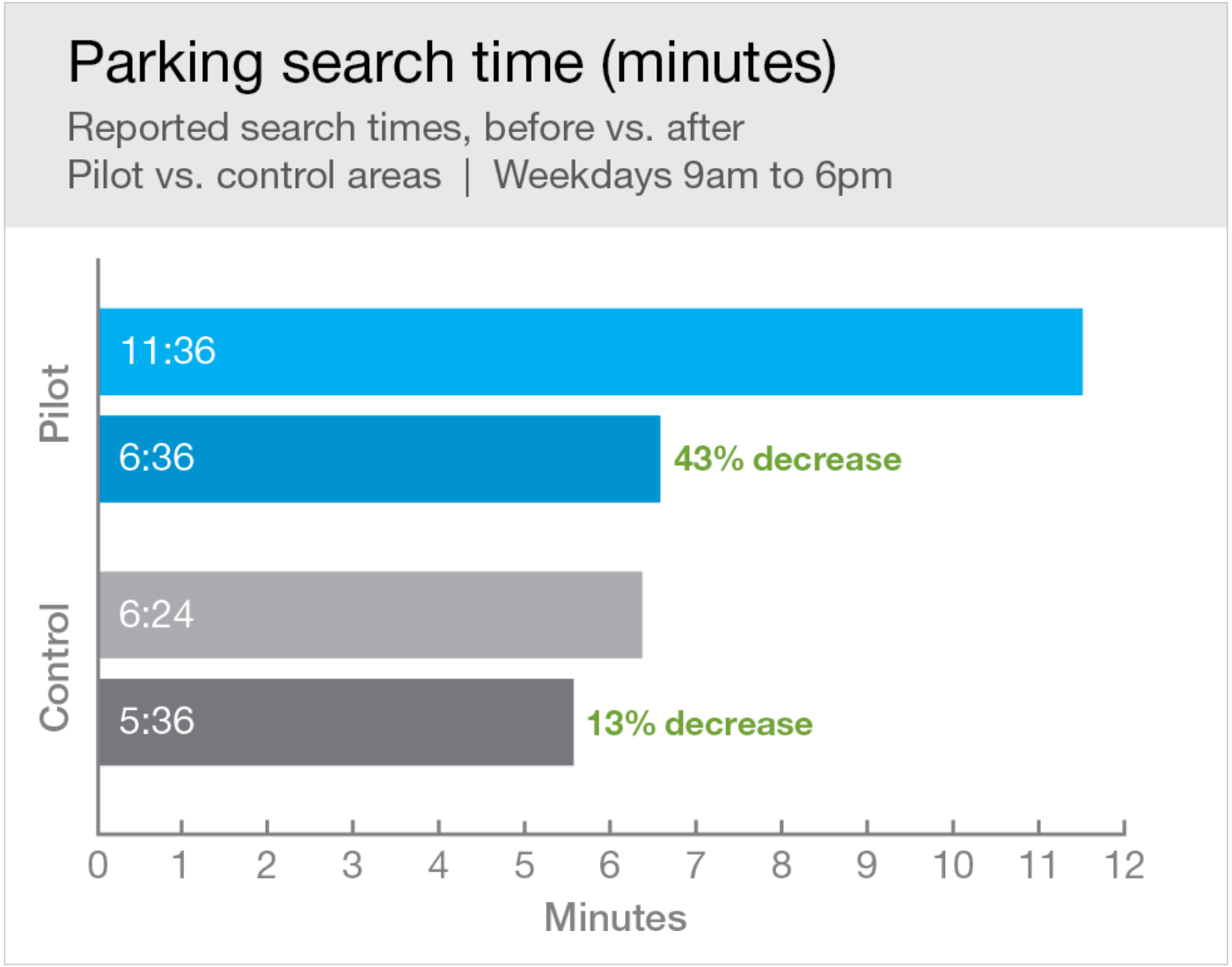
- Transparent, data-driven process
- Adjustments every quarter based on occupancy
  - 80% or above: +$0.25/hour
  - 60-80%: no change
  - Below 60%: -$0.25/hour
- Prices vary by block, time of day, weekday v. weekend

Duration	Price Per Hour
9AM – 12AM	$0.50
12AM – 3PM	$3.50
3PM – 6PM	$2.00

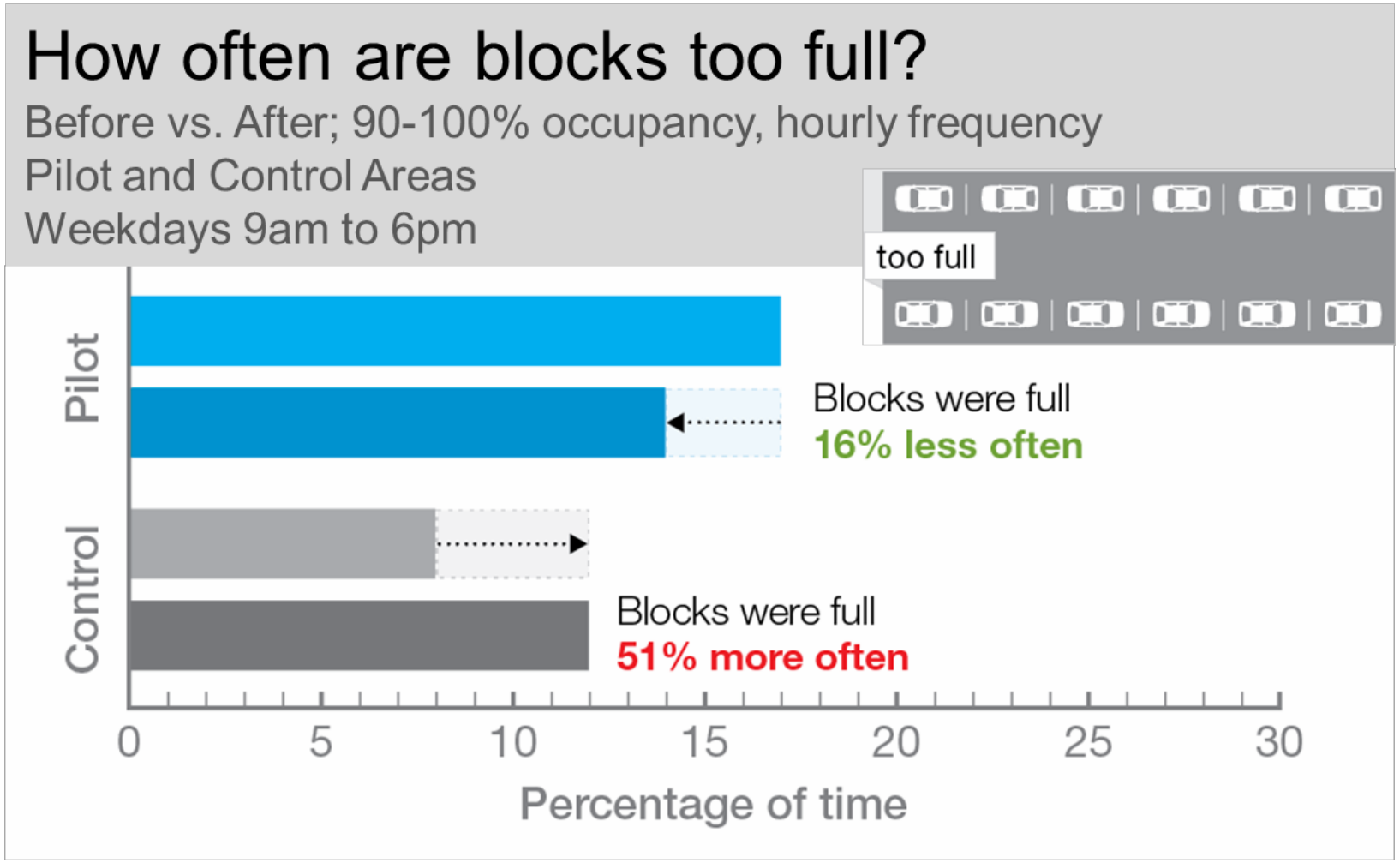
SFpark pilot evaluation



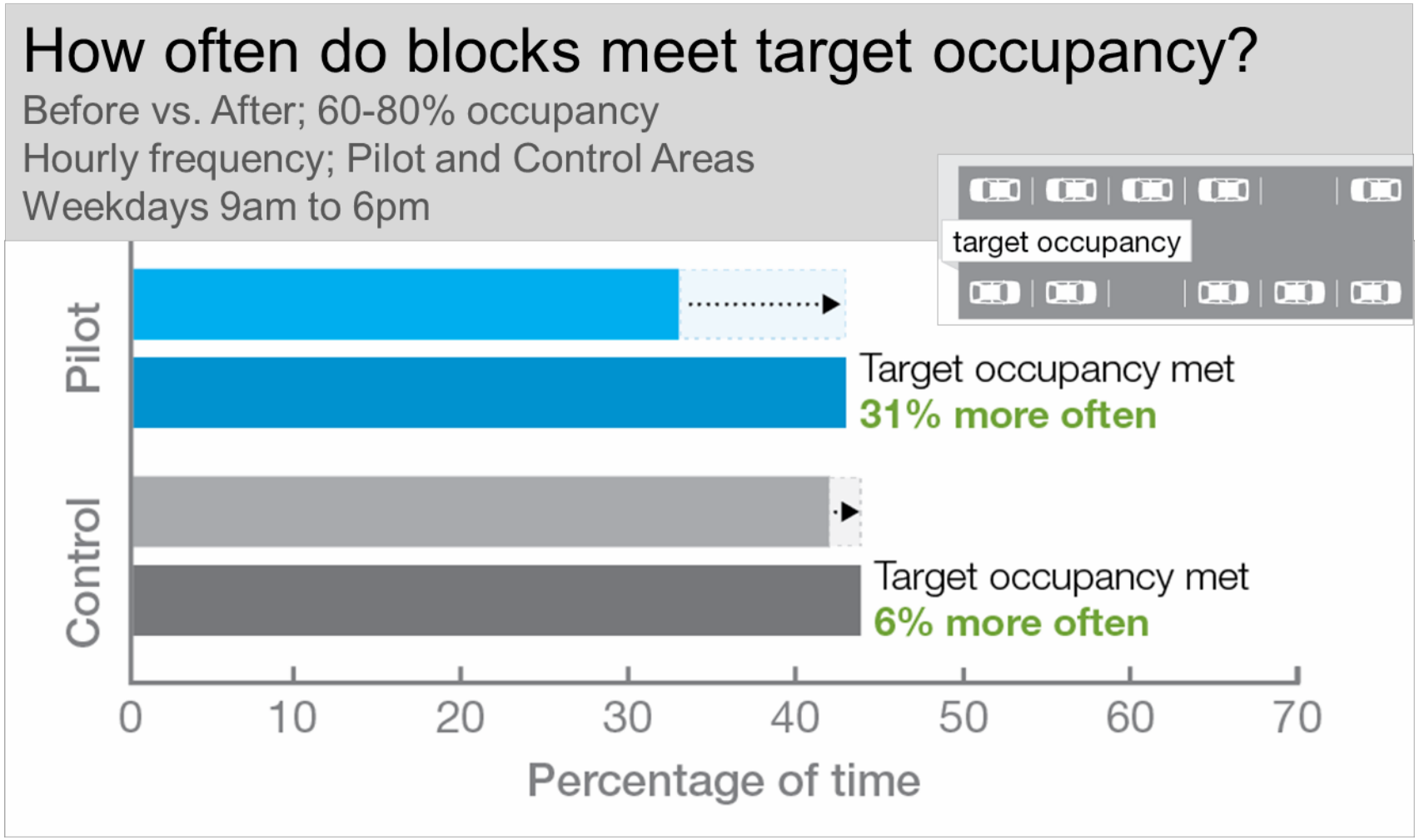
SFpark pilot evaluation



SFpark pilot evaluation



SFpark pilot evaluation



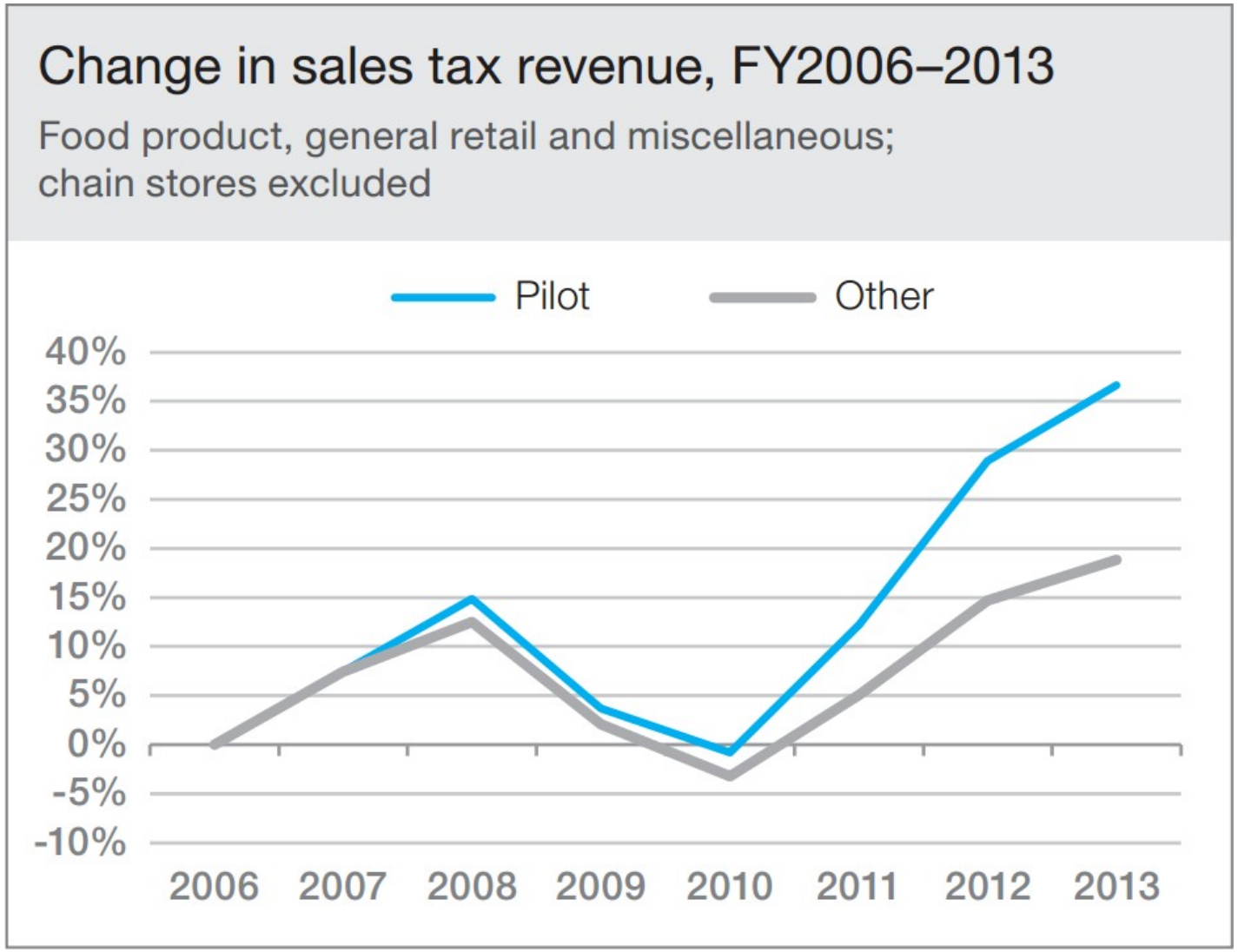
SFpark pilot evaluation

Fillmore District
Weekday Hourly Rates
3PM-6PM

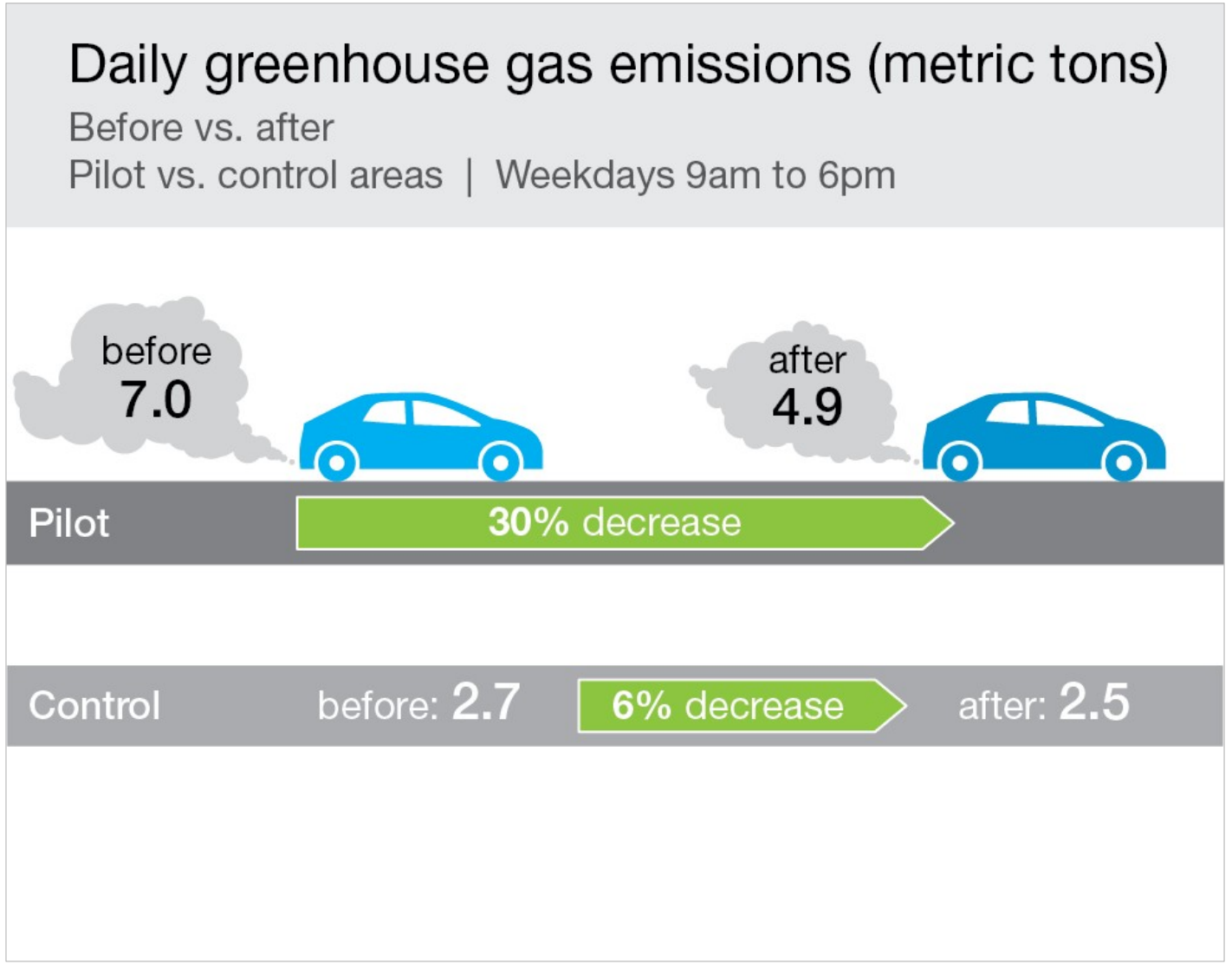
Rate Effective July 2017

- $.50 - $2.25
- $2.50 - $4.75
- $5.00 - $6.75

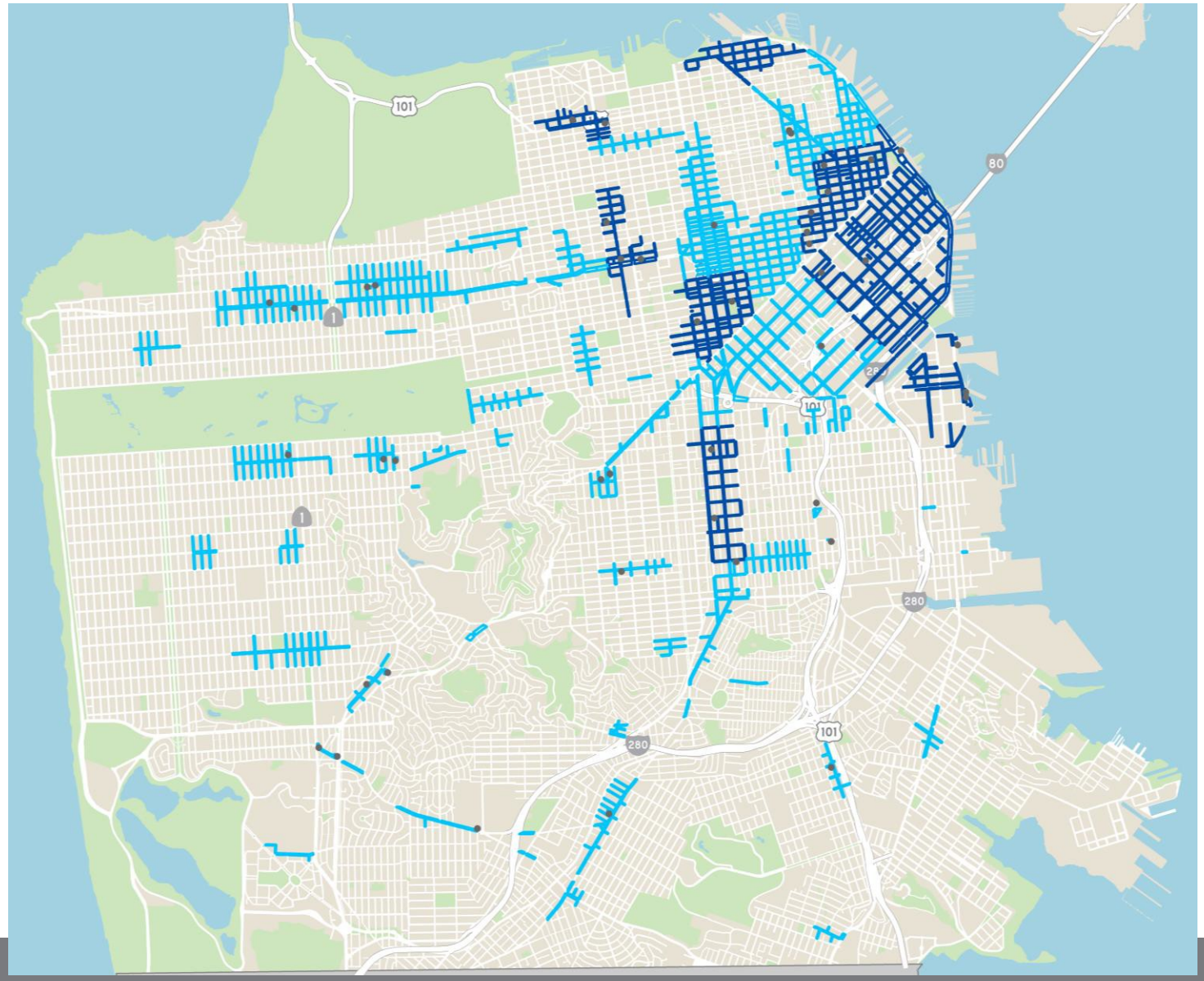
SFpark pilot evaluation



SFpark pilot evaluation



Citywide demand-responsive pricing



Answering important questions

- **Question:** will the City start to charge $8 per hour everywhere?
- **Answer:**
  - No
  - In SFpark areas, no blocks are $8/hour
  - About 11% of rates are at $0.50/hour, < 0.5% have reached $7/hour
  - Average rates went down during the pilot
  - Test of citywide rate adjustment: small overall average reduction in rates

Answering important questions

- **Question:** is this “surge” pricing?
- **Answer:**
  - No
  - Surge pricing only goes up—here, prices go up/down/same depending on demand
  - Surge pricing is a sudden, unexpected change in price—this is regular, gradual price adjustments, announced in advance
  - Surge pricing can be 1.5x or 2x—this is small, incremental price adjustments (no more than $0.25/hour each quarter)

Answering important questions

- **Question:** doesn't this just limit parking to those with more money?
- **Answer:**
  - No
  - Average rates went down during the pilot
  - Usually much cheaper rates within a block
  - Test of citywide rate adjustment: overall average rate will not change

Answering important questions

- **Question:** is this just a way for SFMTA to generate more revenue?
- **Answer:**
  - No
  - Overall average rate will not change
  - Revenue impact expected to be minimal
  - Data-driven, rather than budget-driven, approach to setting rates

Answering important questions

- **Question:** how will people know meter prices before they park at a meter?
- **Answer:**
  - Interactive, mobile-friendly webmap on SFMTA.com shows all rates
  - Regular users will learn where the rates differ

Thank you

Mari Hunter
Principal Planner, SFMTA
mari.hunter@sfmta.com

The high cost of free driving

July 12, 2018

SPUR | Ideas + Action for a Better City

Overview

1. What kind of costs are we talking about?
2. What exactly are the high costs of free driving?
3. What can we learn from grocery bags?
4. How could we make transportation better with pricing?
5. Can pricing be equitable?

SPUR

What kind of costs are we talking about?

The kind where the ones who pay did not create the problem in the first place.

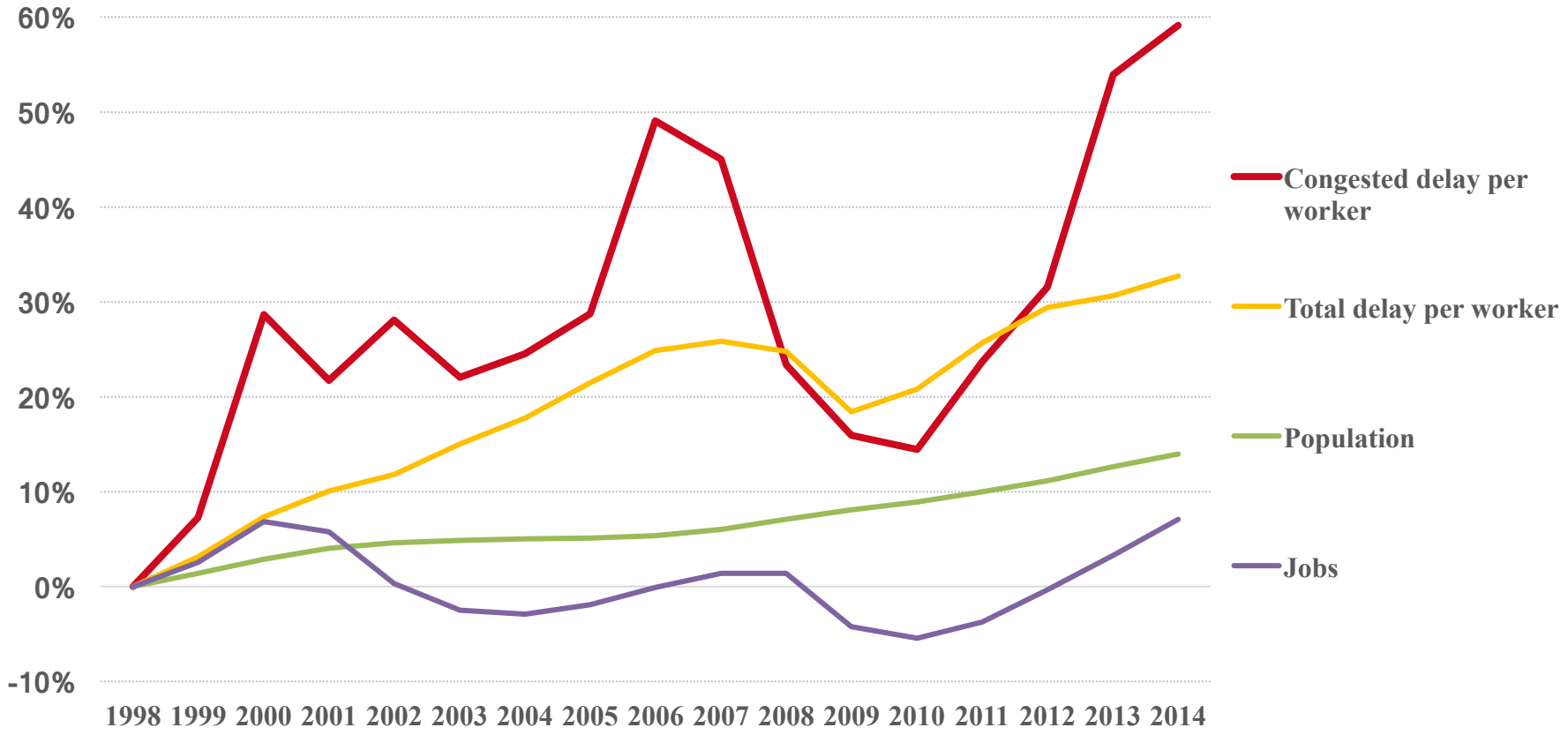
SPUR

Five high costs of free driving

SPUR

1. Congestion in San Francisco costs drivers over $2,000 a year in lost time.

For the whole Bay Area, jobs and population have grown 14% since the late 90's, while congested delays per worker have grown by nearly 60%

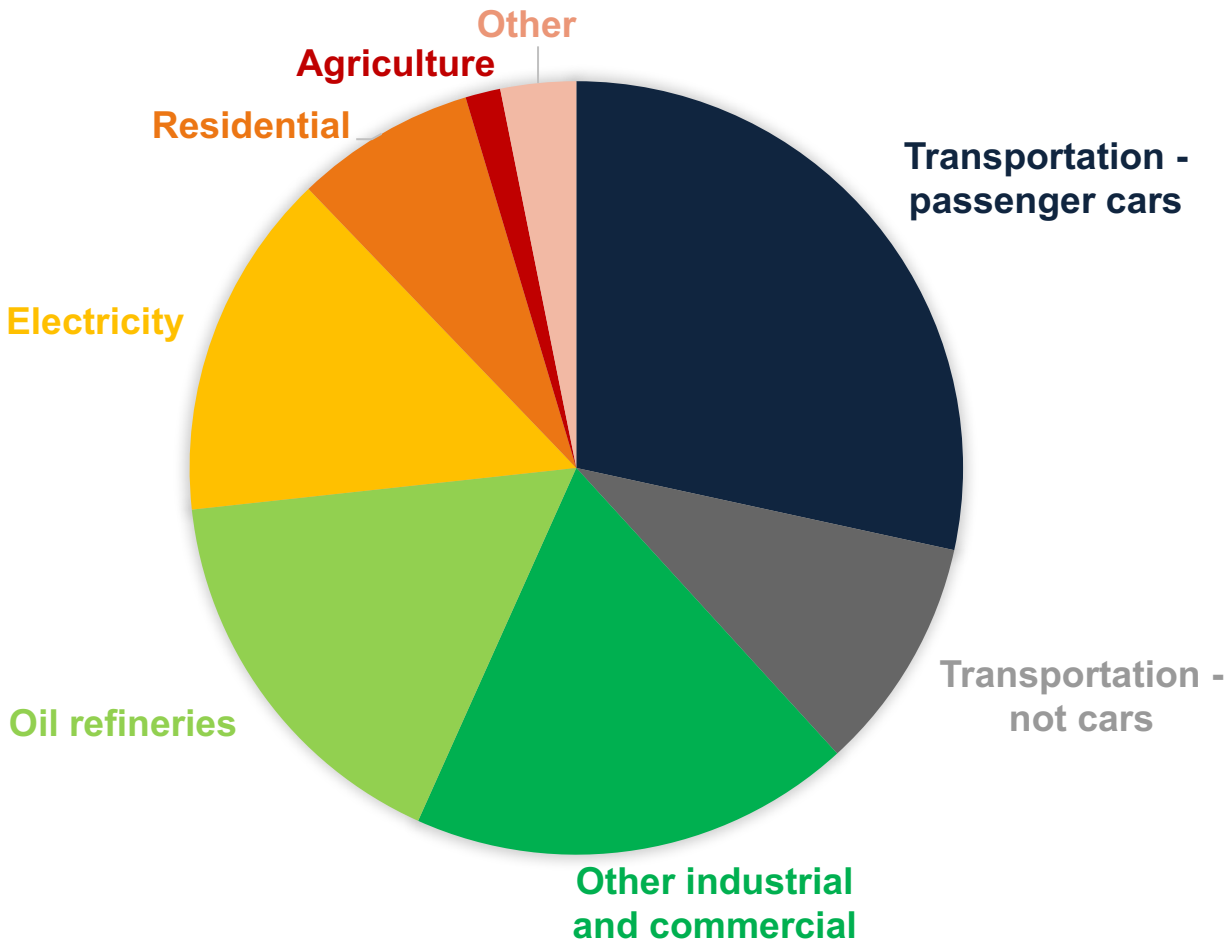


Source: InRIX for congestion estimates: http://inrix.com/press-releases/scorecard-2017
VitalSigns for population and jobs: http://www.vitalsigns.mtc.ca.gov/data-center and for congestion metrics: http://www.vitalsigns.mtc.ca.gov/time-spent-congestion

SPUR

2. Emissions from passenger cars is our region's single biggest contribution to climate change

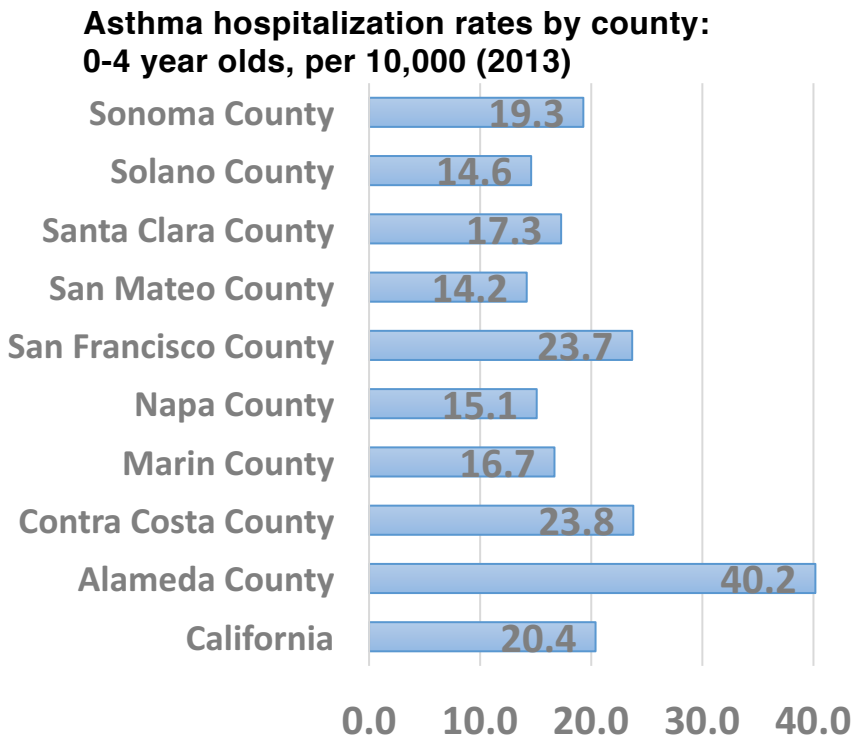
Share of MMTCO2e for the Bay Area in 2014



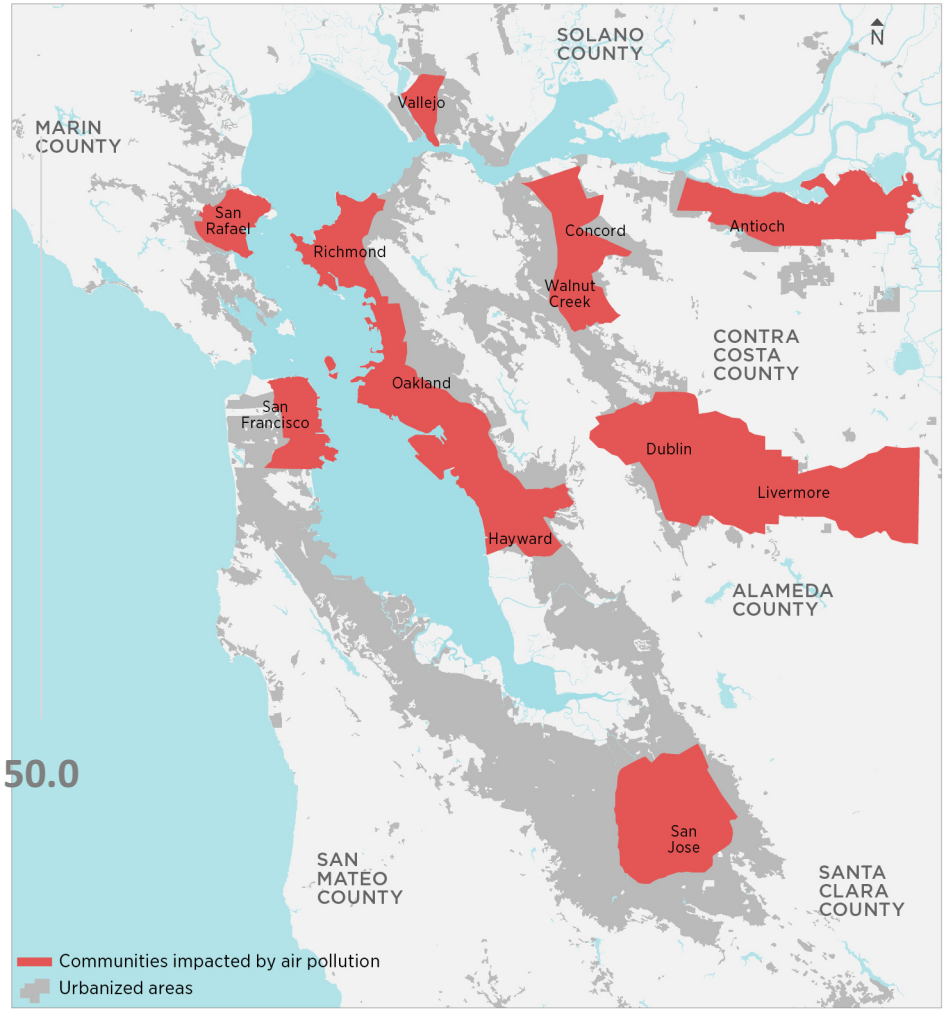
SPUR

Source: Bay Area Air Quality Management District, Table V: Bay Area Greenhouse Gas Emission Inventory Projections : 1990 – 2029: http://www.baaqmd.gov/research-and-data/emission-inventory/maps-data-and-documents

3. Cars contribute to local air quality problems and hospitalizations from asthma

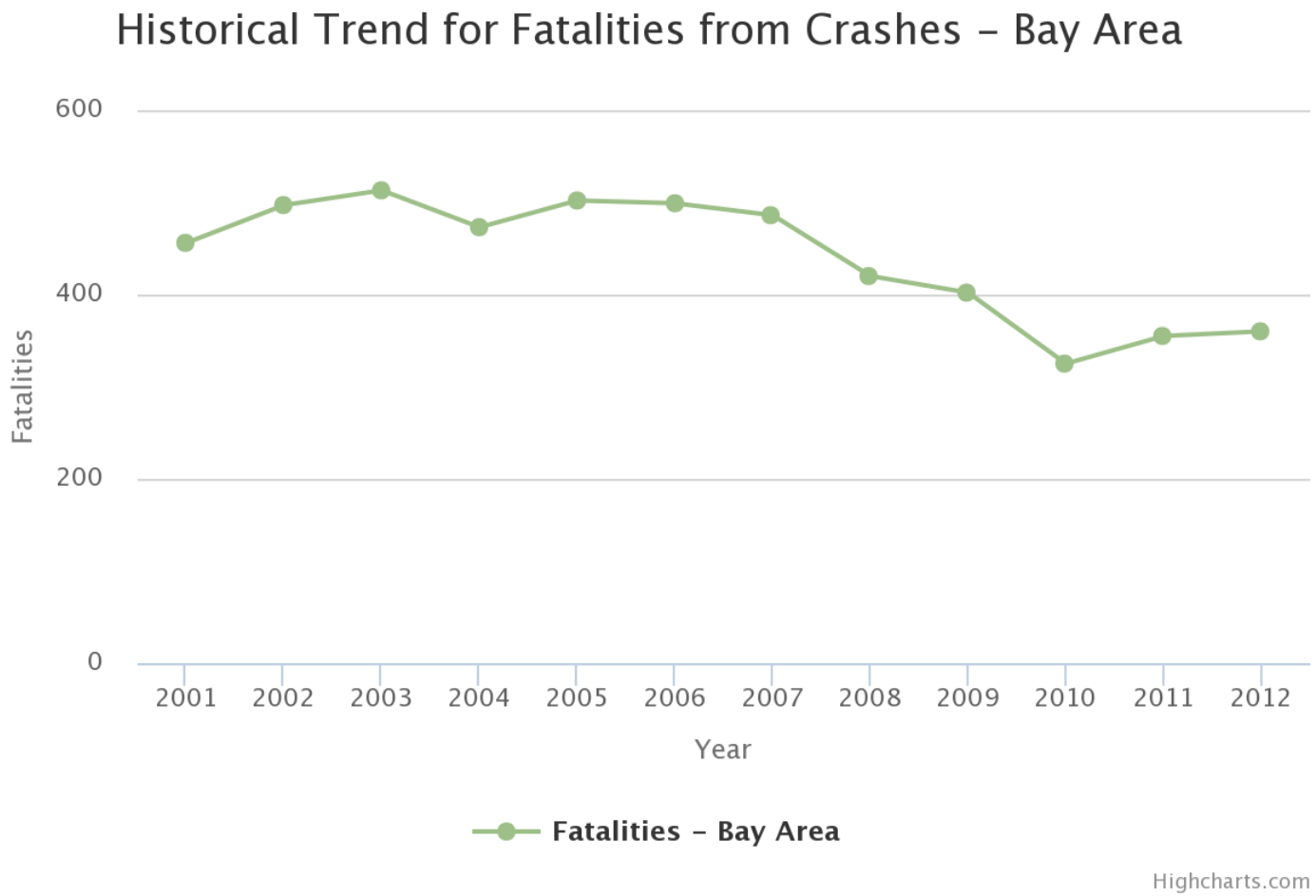


Source: Kidsdata.org



SPUR

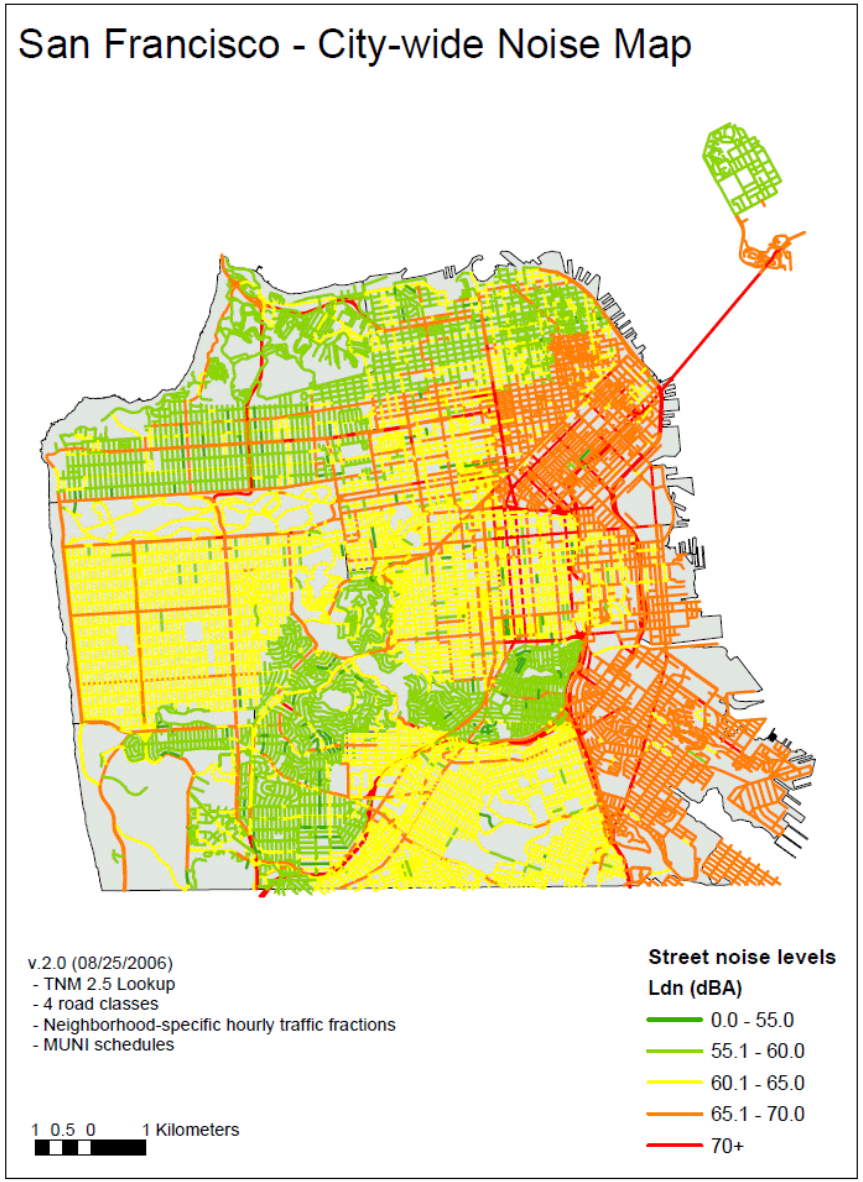
4. The more we drive the higher our collective risk of injury and death from collisions



Source: MTC: http://www.vitalsigns.mtc.ca.gov/fatalities-crashes

SPUR

5. Traffic is noisy



Source: http://bayareanoisecontrol.com/san-francisco-street-noise-map/#lightbox/0/

SPUR

What can we learn from grocery bags?

SPUR

Which part of driving shouldn't be free to drivers? What priding tools do we have so far?

Policy	Description	The margin
Gas tax 	A charge on gasoline paid at the pump	Extra gallon of gas
VMT fee 	A fee on each mile driven	Extra mile
Toll 	A fee to use a piece of infrastructure	Extra trip through a particular place
Cordon fee 	A fee to cross into a congested area, usually a downtown business district	Extra car to enter congested area
Parking fee 	A fee on parking (by the hour)	Extra hour parked

SPUR

Different pricing polices are more suited to different goals

	Reduced congestion	Reduced GHG and pollution	Increased safety	Lower VMT
Gas tax 				
VMT fee 				
Toll 				
Decongestion fee 				
Parking fee 				

- Little to no marginal effect
- Possible effect in some areas
- Possible effect with right policy design
- Positive indirect effect
- Positive marginal effect

SPUR

Asking everyone to pay the full costs of their driving can change how people travel

Driving

- 1 hour
- **$4.60** in gas (+ free parking)

Caltrain

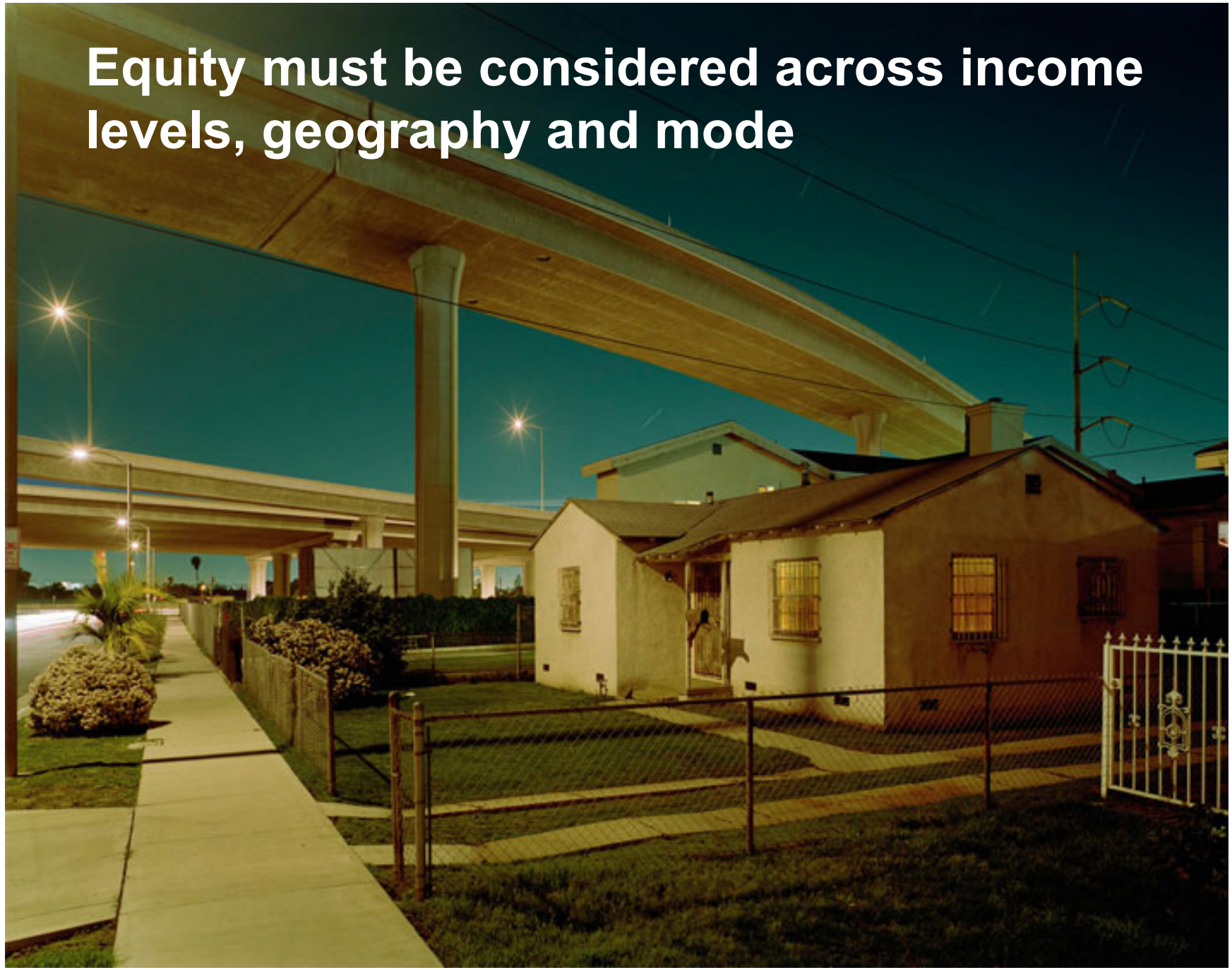
- 1 hour 15 mins
- **$5.75** (+ getting to / from train)

Driving with pricing

- 45 mins
- **$12.60** in gas, toll and charged parking

SPUR

Equity must be considered across income levels, geography and mode



SPUR