



Beyond Congestion:

Sex, Neuroscience, and Walkable Urbanism

Jeffrey Tumlin





I like to ride
on the train

Are you the engineer?

Subaru is a registered trademark of Fuji Heavy Industries, Ltd. © 1994
Subaru is a registered trademark of Fuji Heavy Industries, Ltd. All rights reserved.
Model Year '94. Price as shown. Dealer price may vary.

Subaru. Inexpensive. And built to stay that way.

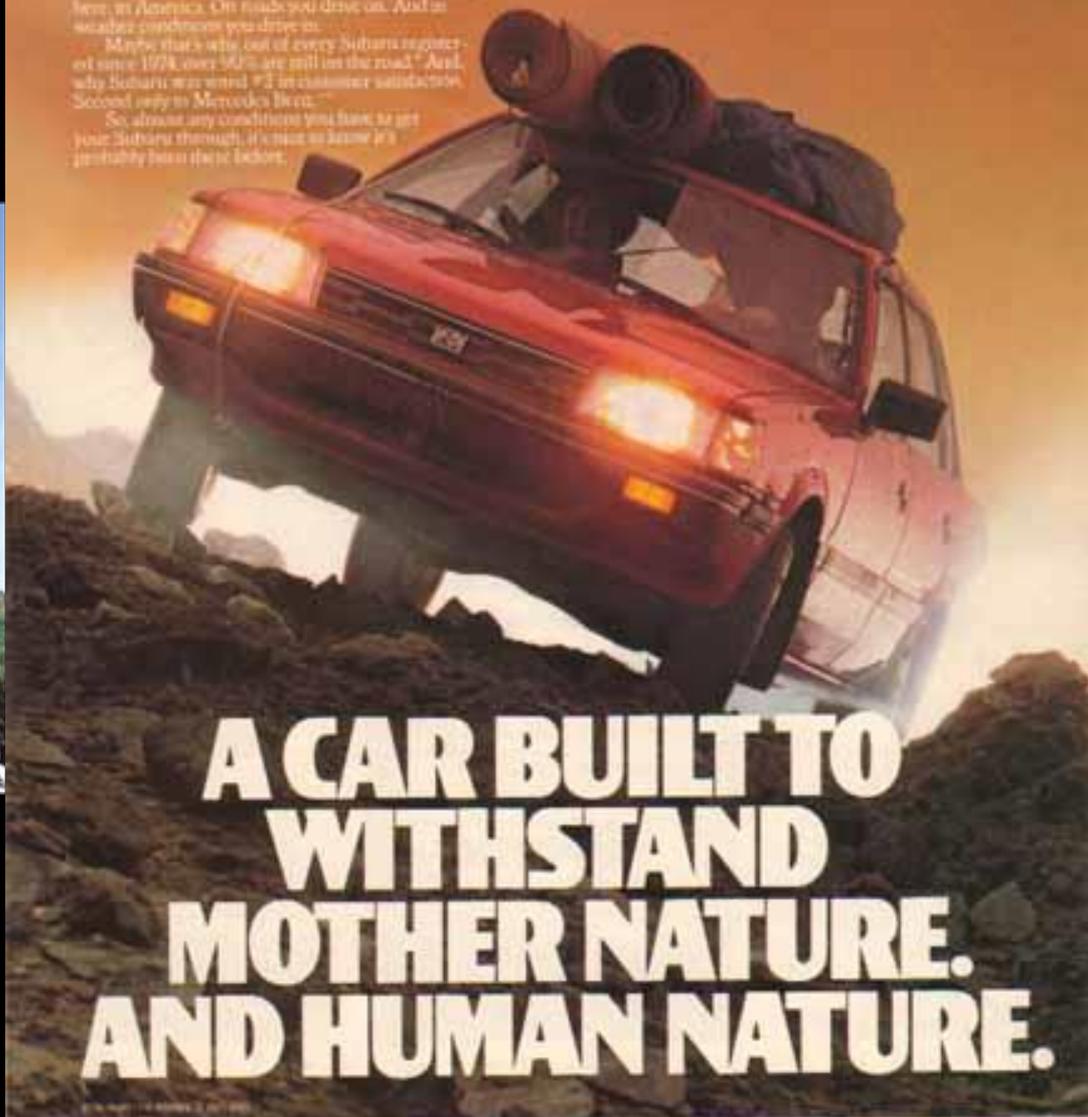
Mother Nature doesn't go out of her way to pum-
per a car. And neither do most car owners.

That's why Subaru builds and tests its cars to meet
the demands of everyday driving situations.

In fact, Subaru undergoes extensive road testing
here in America. On roads you drive on. And in
weather conditions you drive in.

Maybe that's why out of every Subaru regis-
tered since 1974, over 94% are still on the road.* And
why Subaru was voted #1 in customer satisfaction.
Second only to Mercedes-Benz.

So, almost any conditions you have to get
your Subaru through, it's not so hard if it's
probably been there before.



**A CAR BUILT TO
WITHSTAND
MOTHER NATURE.
AND HUMAN NATURE.**

© 1994 Subaru of America, Inc.

SUBARU.

Inexpensive. And built to stay that way.



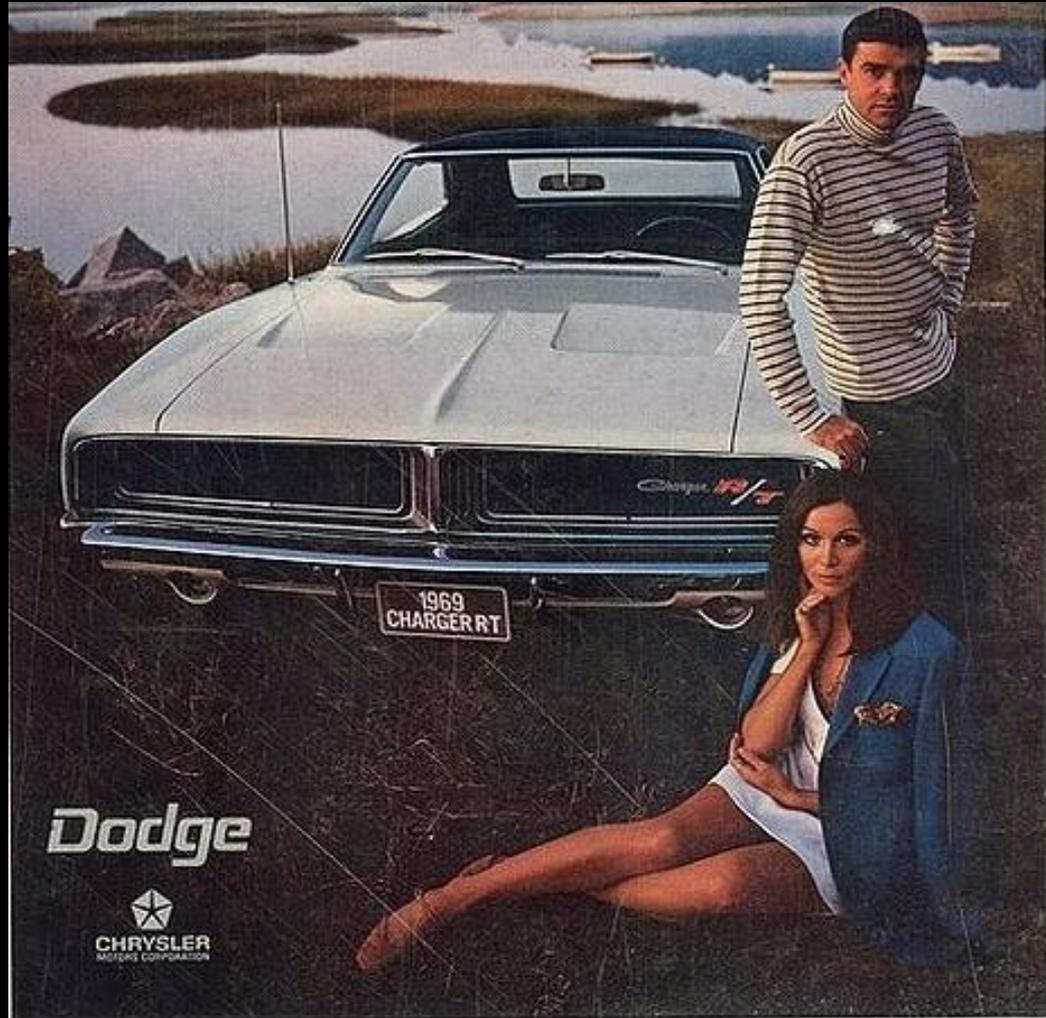
Top Performance

 in your car
means **Texaco Fire-Chief**

You can always count on **FIRE-CHIEF** gasoline
to act like a champion . . . to respond in a
jiffy in traffic . . . to tip your car up hills . . . to
pack plenty of emergency power in a pinch.
FIRE-CHIEF is the famous regular-priced gasoline
sold by your Texaco Dealer, the
best friend your car ever had.



THE TEXAS COMPANY
TEXACO DEALERS IN ALL 48 STATES



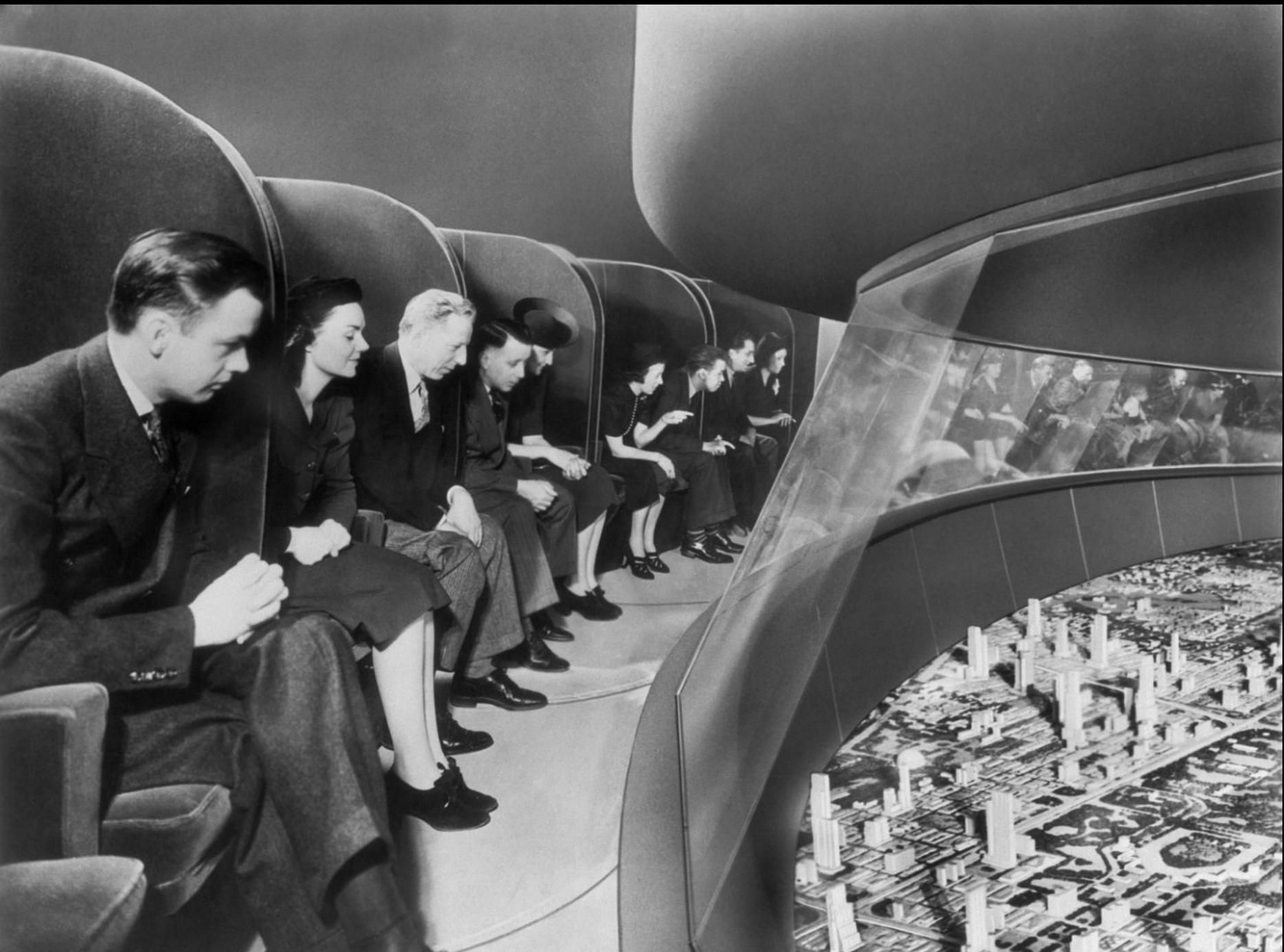
The Eternal Triangle.

You'd think Ralph's new love would have been curtains for me. I mean, it was all he talked about. Well, I learned to live with it. As it turned out, I think his new Charger R/T really

brought us closer together. He's taught me how to shift the 4-speed synchromesh. He lets me pick out the stereo tapes. And clean the vinyl buckets. It's not all bad. He even mentioned marriage once.

DODGE fever
The Catch of The Year







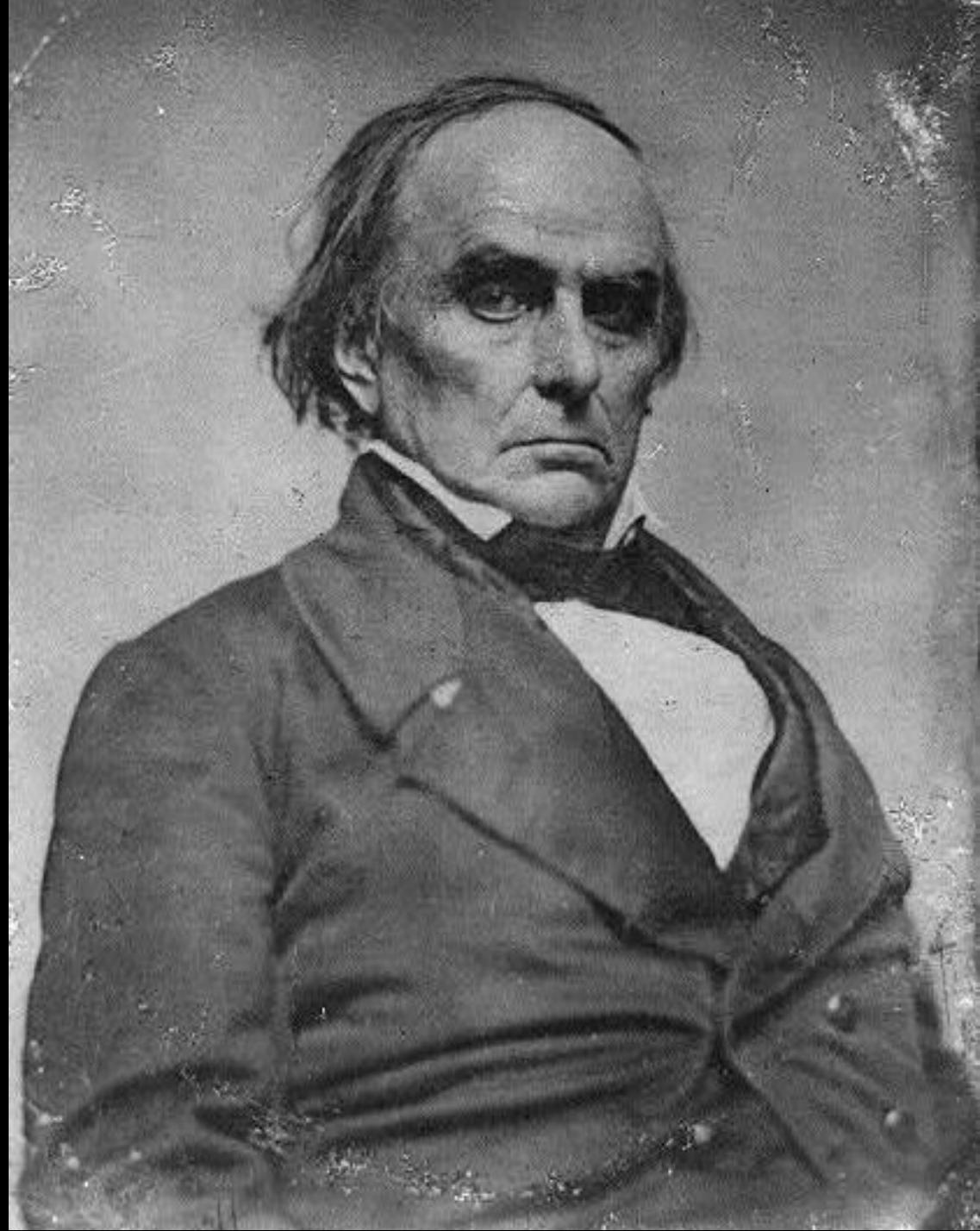
Dallas Morning News http://www.dallasnews.com/incoming/20111016-highfive_main.jpg.ece/BINARY/w620x413/HighFive_MAIN.jpg

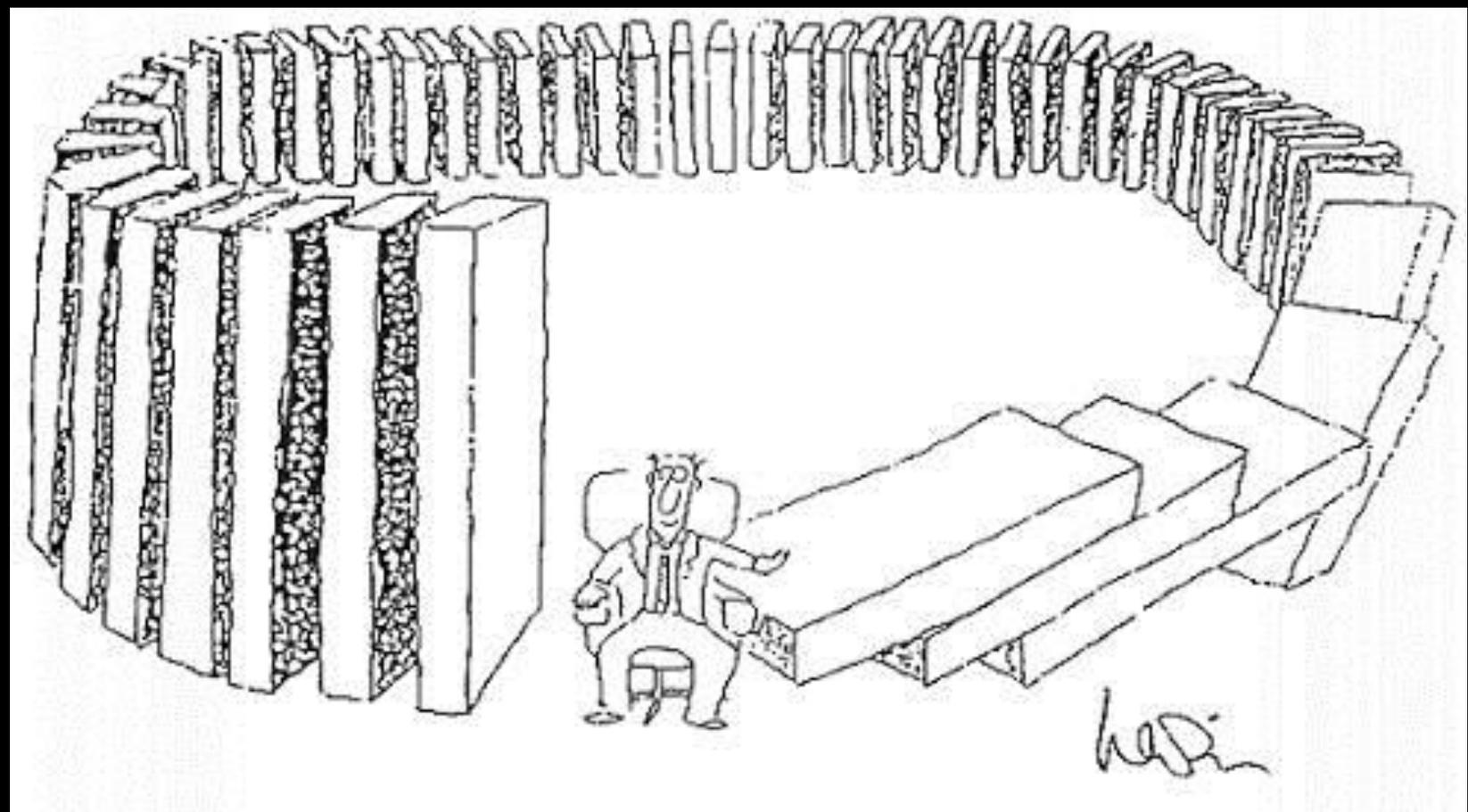


Dallas Morning News <http://www.dallasnews.com/news/transportation/20121125-plan-ahead-then-navigate-lbj-freeway-construction.ece>

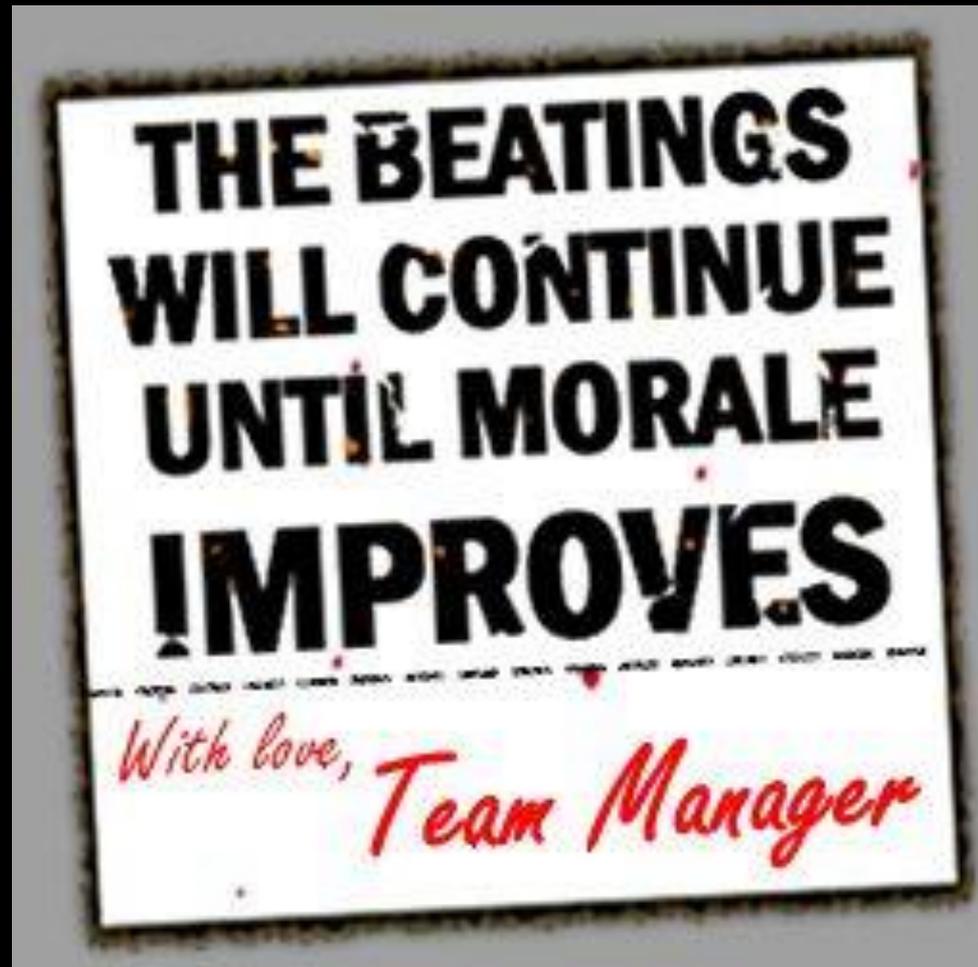
A strong conviction that **something must be done** is the parent of many bad measures

Daniel Webster

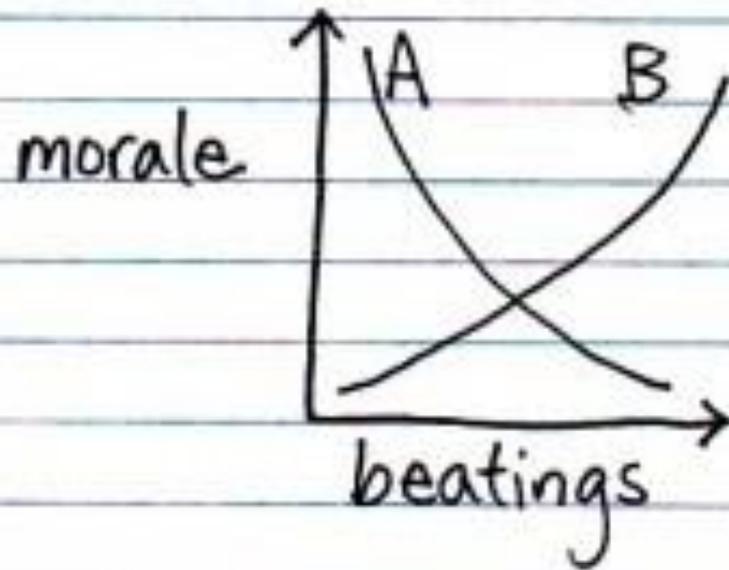




Object Thinking



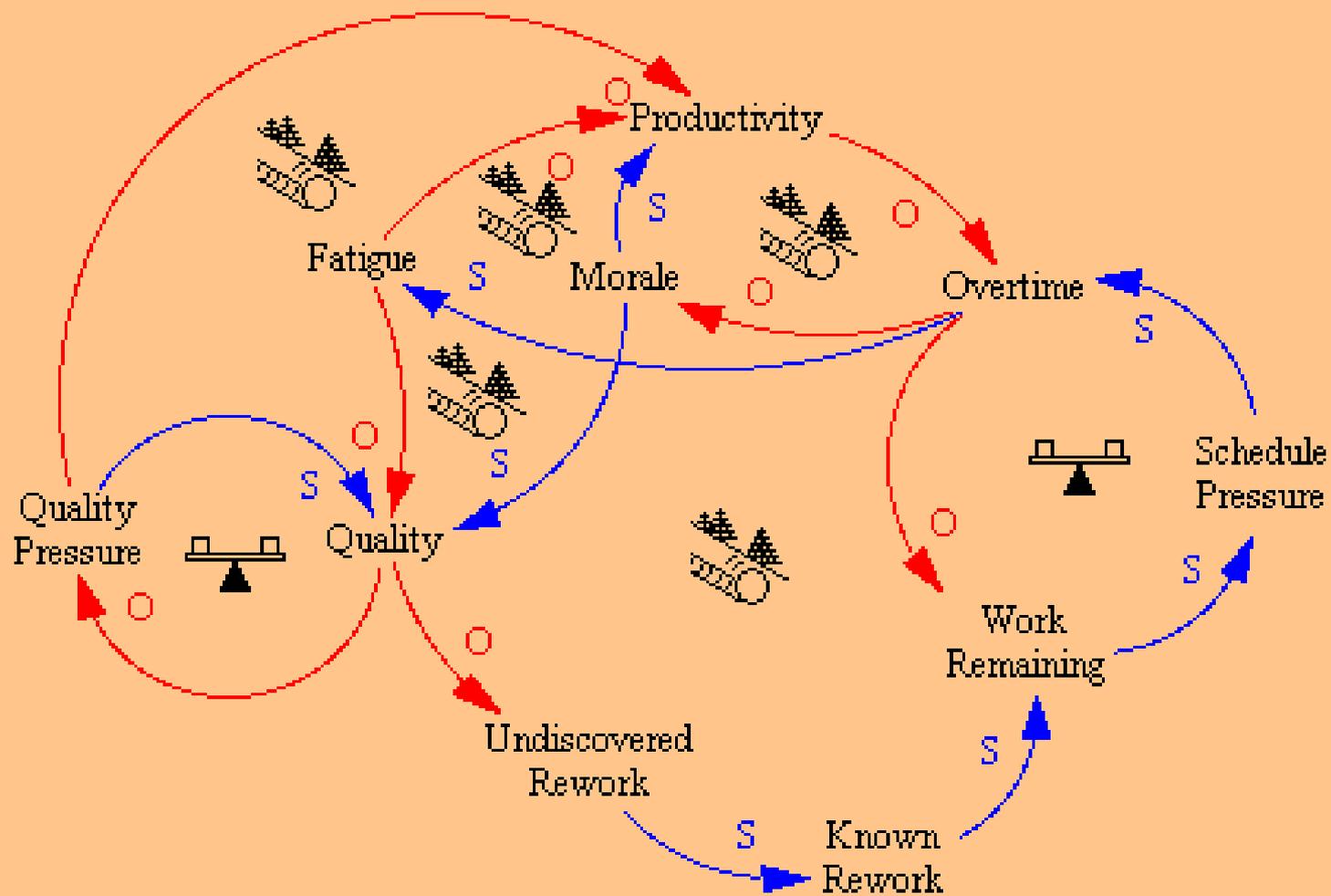
Systems Thinking



A = Actuality

B = Corporate
policy

Systems Thinking



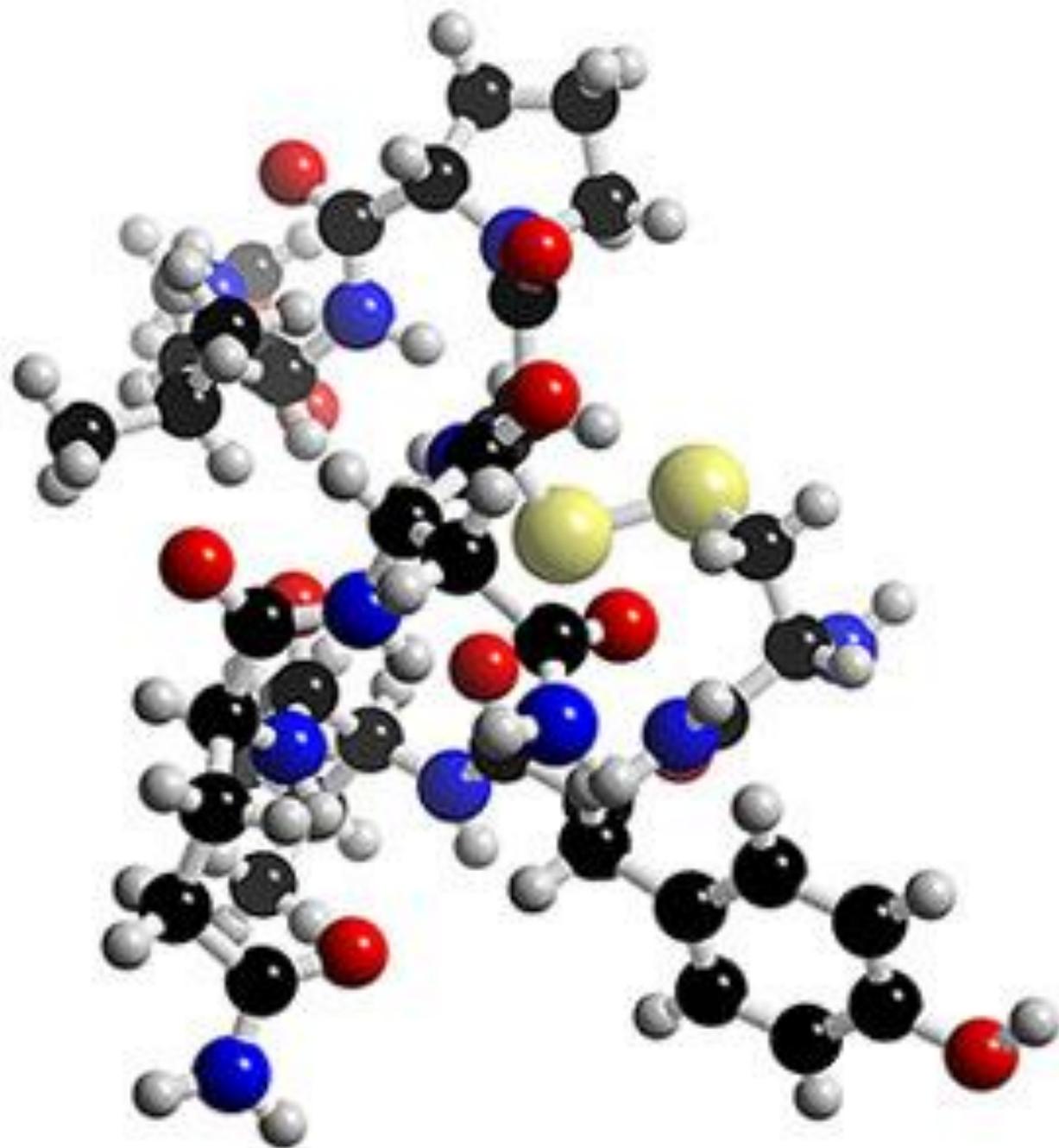












Image source: Dan Burden



Image source: Dan Burden



Image source: Diabetes Daily

Mixed message?



Image source: Diabetes Daily



Image source: Carbolic Smokeball

1. Measure What Matters

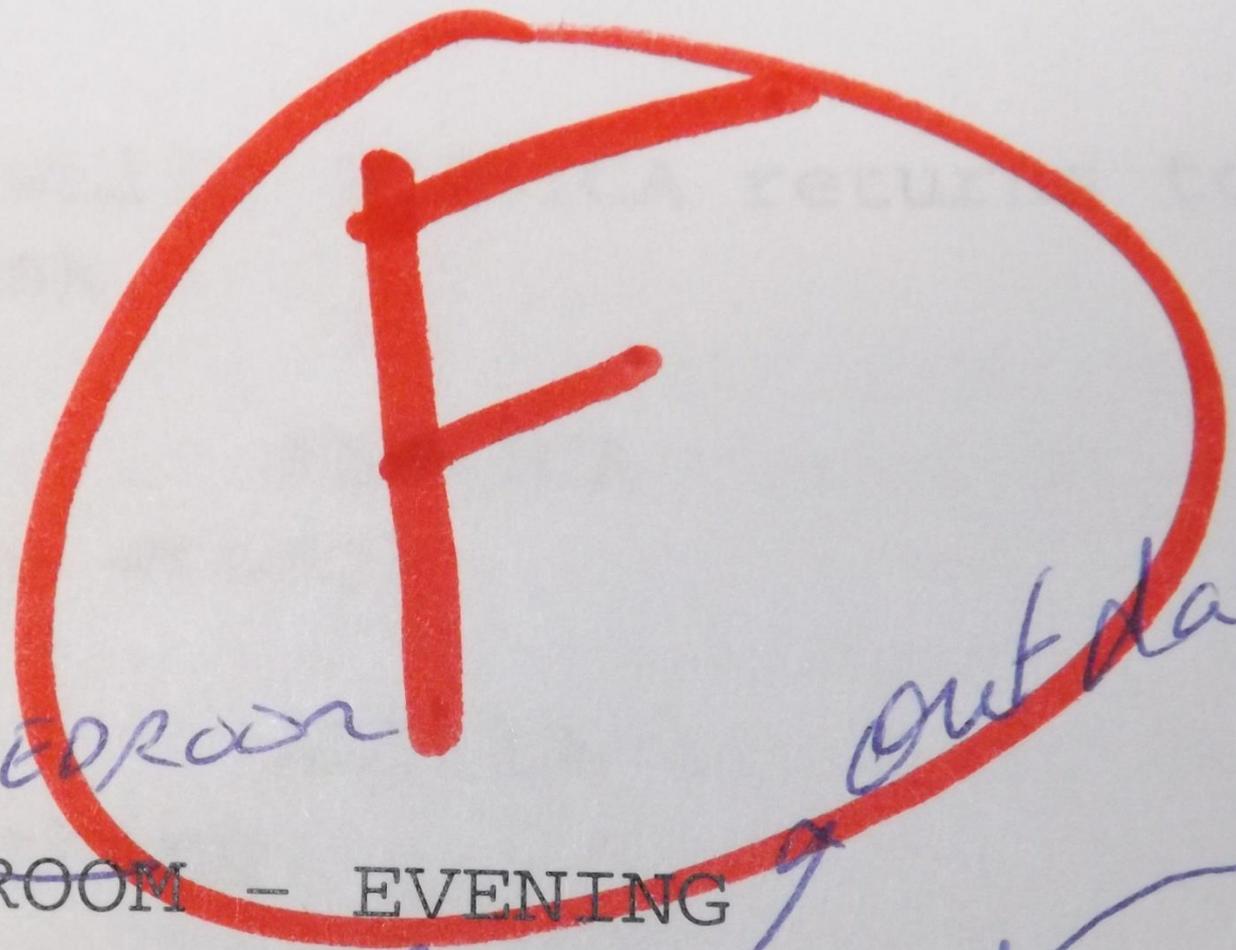
Old Speed Paradigm -> Roadway LOS

LOS	Average delay in seconds per vehicle	Description of motorist perception
A	< 10	Free-flow traffic: "Good" LOS
B	10.1 – 20	Reasonable free-flow
C	20.1 – 35	Stable but unreasonable delay begins to occur
D	35.1 – 55	Borderline "bad" LOS
E	55.1 – 80	"Bad" LOS: long queues
F	> 80	Unacceptable: very high delay, congestion

ia

IN:

BEER can



out dated

ALICIA'S ROOM - EVENING

CAP

A, a Mexican American teen, out of room. She slams the door and throws which is covered with worn purple sl



Level of Service A



Level of Service, F



Level of Service F

What's important depends upon perspective



Traffic engineer:

F

A

Economist:

A

F

Expanding an iconic space: Union Square North (Manhattan)

Speeding decreased by **16%**, while median speeds increased by **14%**

Injury crashes fell by **26%**

49% fewer commercial vacancies *(compared to 5% more borough-wide)*

74% of users prefer the new configuration



Protected bicycle path

Pedestrian plaza

Simplified intersections

Transforming an underused parking area: Pearl Street (Brooklyn)

172% increase
in retail sales (at
locally-based businesses,
compared to 18%
borough-wide)

BID held 27 public
events in 2012

**Maintenance
partner agreement**

**Pedestrian
plaza**

Creating a seating area out of curb lane: Pearl Street (Manhattan)

77% increase in
seated pedestrians

14% increase in
sales at fronting
businesses

**Striping and
planters**

**Seasonal seating
platform in
curbside lane**

Measure what matters

Why not Consider...

- Economic Development
 - Job creation
 - Real estate value increase
 - Retail sales
- Quality of Life
 - Access to jobs
 - Access to shopping
 - Residential property value impact
- Social Justice
 - Do benefits accrue equitably?
 - Are investments spread equitably?
- Ecological Sustainability
 - VMT per capita (=CO₂, NO_x, runoff, etc.)
 - Land use/transportation connection

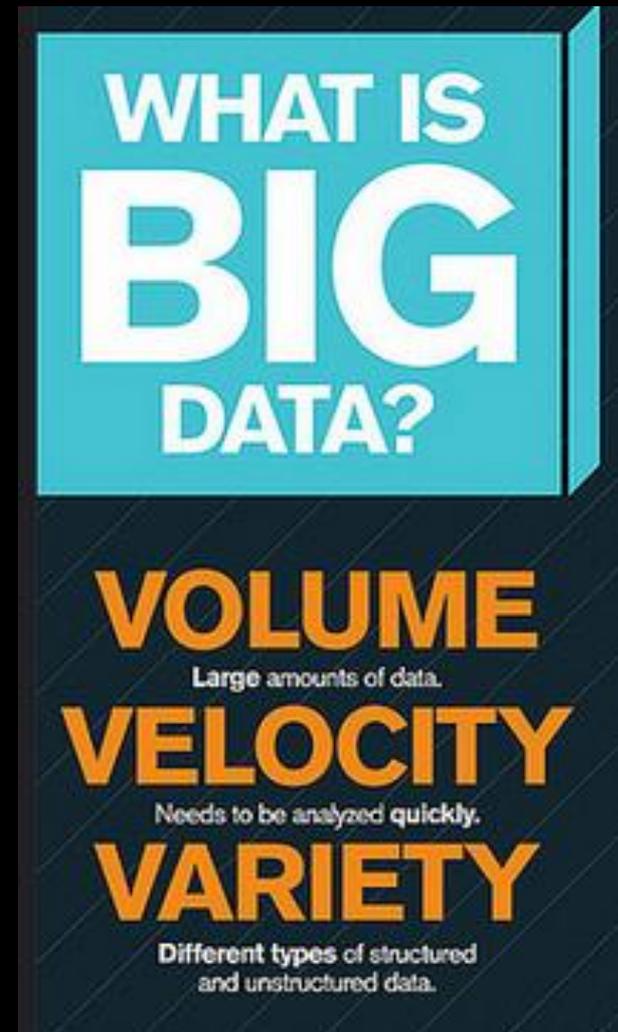
Benefits of VMT in Environmental Review

- Removes barriers to infill
- Easier to model
- Already used (e.g. for GHGs)
- More accurate
- Sees the big picture
- Mitigation doesn't undo itself by inducing more car travel
- Mitigation reduces long run maintenance burden
- Mitigation forwards other environmental and human health factors

Chris Ganson, California Governor's Office of Planning and Research

Using Big Data to Measure What Matters

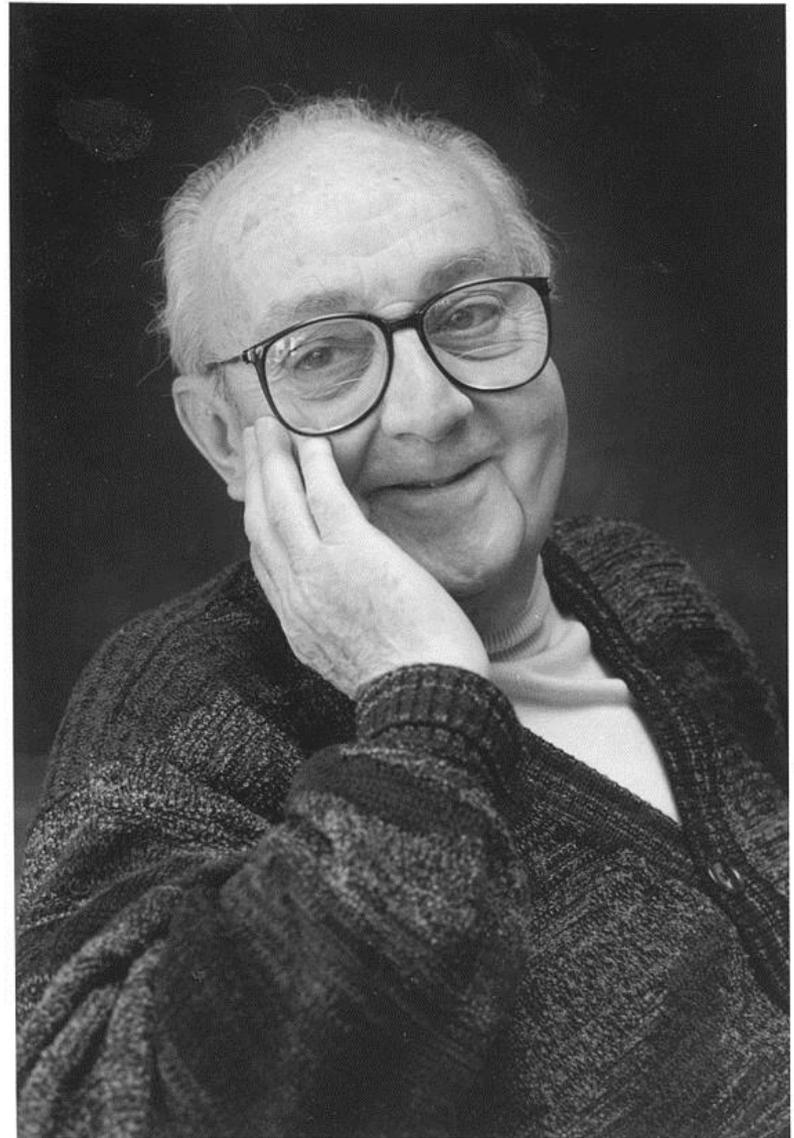
- Bluetooth and cellular signal data
 - Where people are traveling to and from
 - Number of people who live and work in specific locations
 - Traffic volumes
 - Travel time between two points
 - Time/day/seasonal variation
 - Trends over time



**2. Use the Right Tools,
and Use them Correctly**

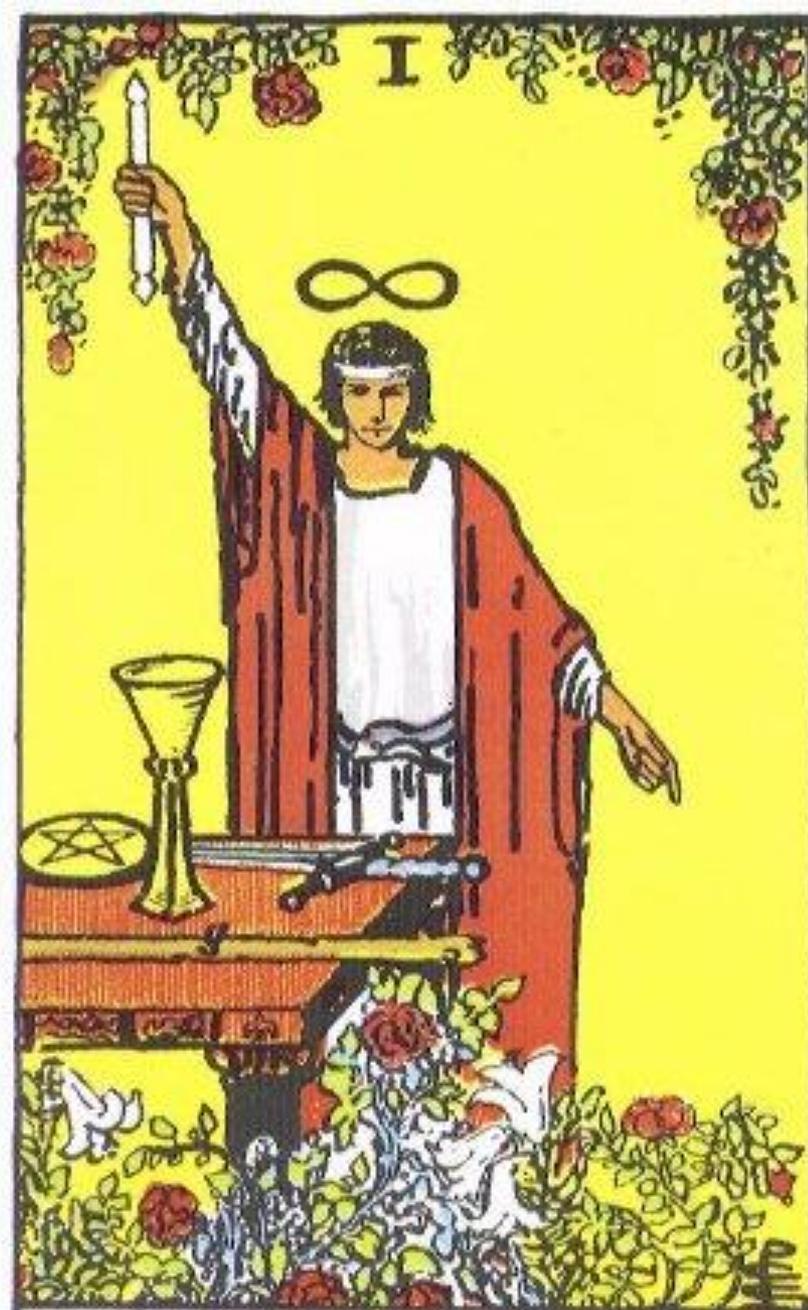
**“All models are
wrong, but some
are useful.”**

**George E. P. Box,
*Empirical Model-Building
and Response
Surfaces* (1987)**





THE FOOL .



THE MAGICIAN .

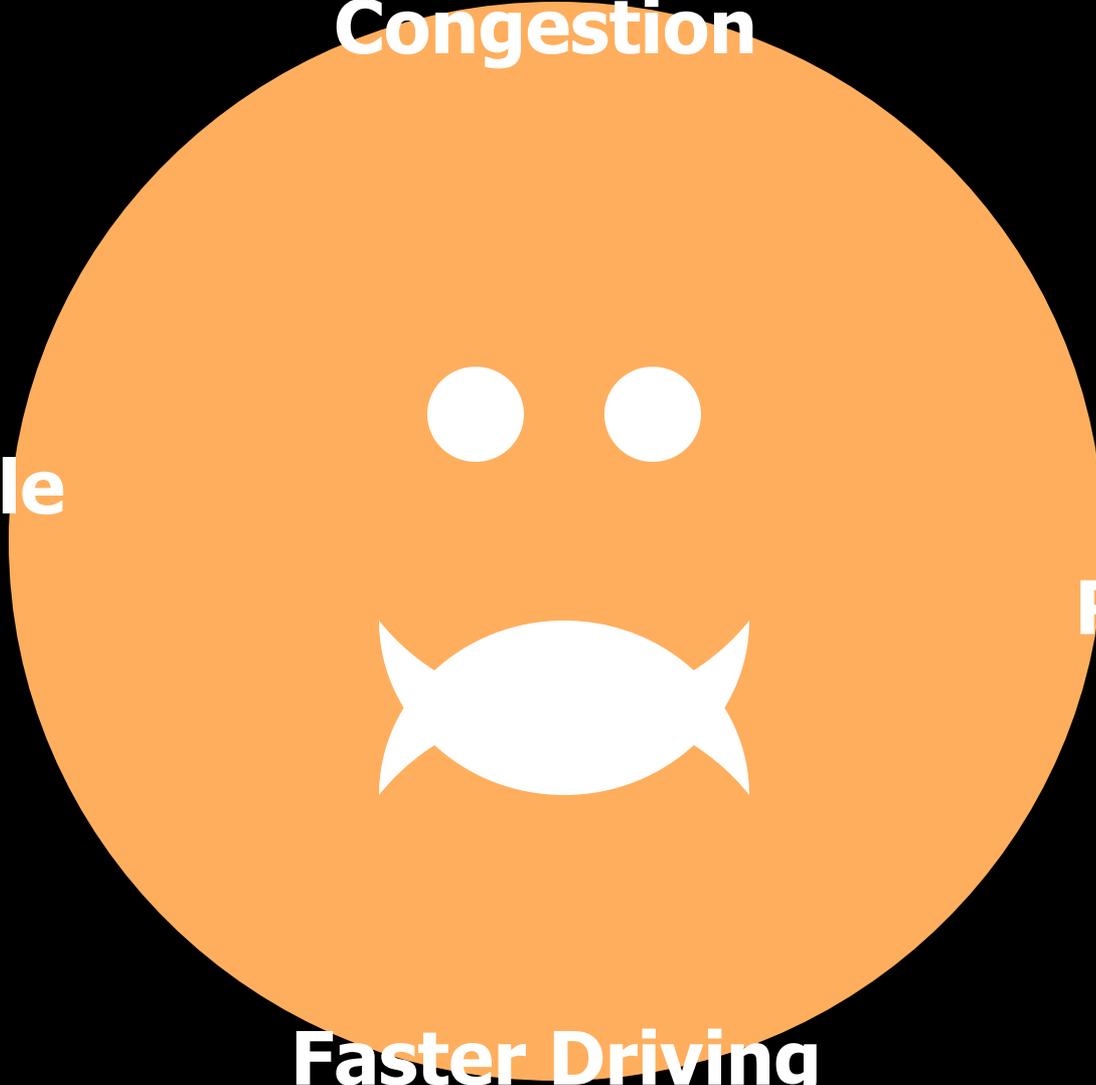
Induced and Latent Demand

Congestion

**More People
Drive**

**Widen
Roadway**

Faster Driving



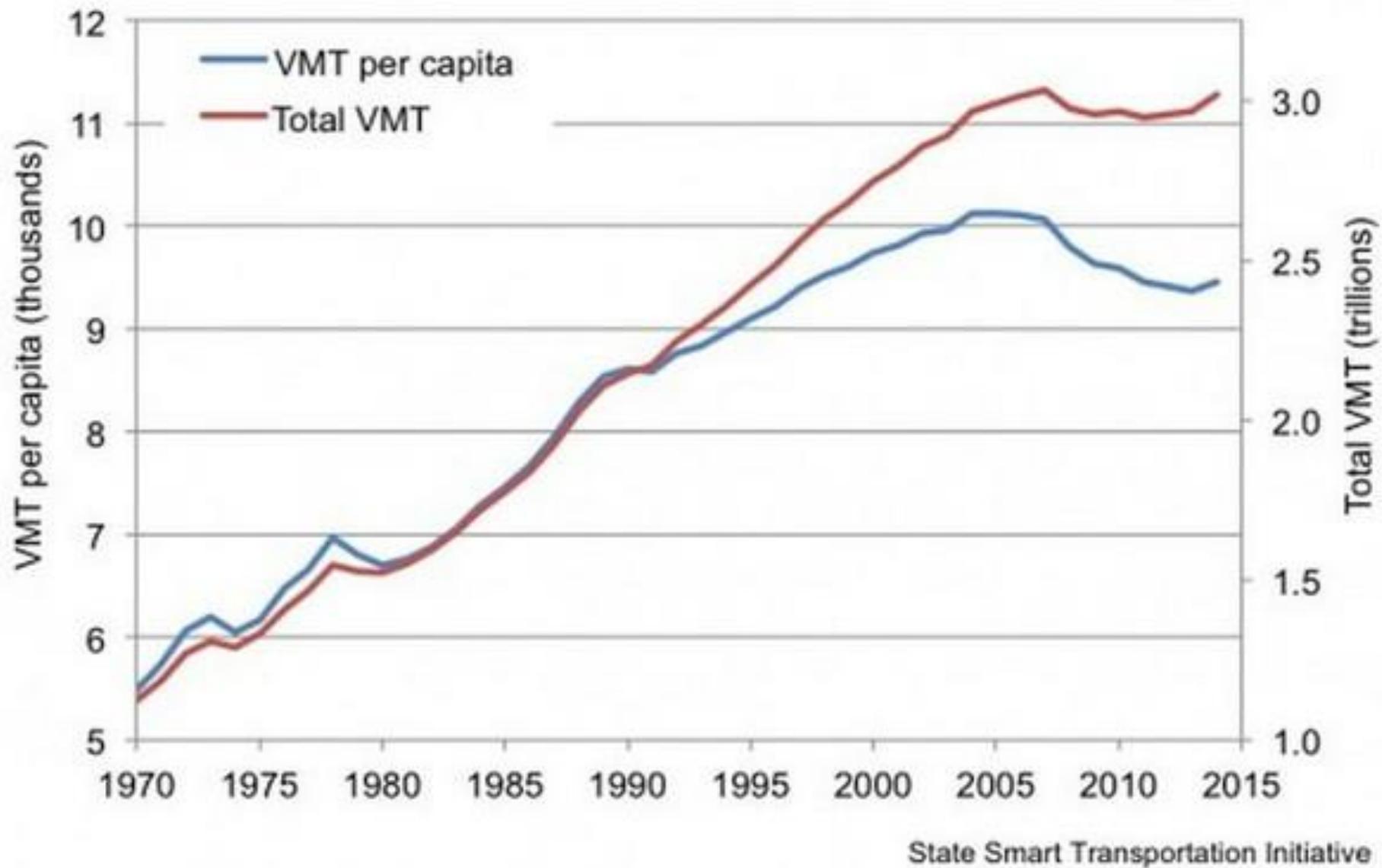


Figure 1. Annual vehicle-miles traveled (VMT), total and per capita, in United States. Data source: FHWA and Census Bureau.

**3. Put the Needs of Daily
Life within Walking
Distance**

**...and make the walk
*delightful***

San Mateo, CA

El Camino Real and 3rd Avenue looking south



San Mateo, CA

El Camino Real and 3rd Avenue looking south



Urban *Advantage*

San Mateo, CA

El Camino Real and 3rd Avenue looking south



Urban *Advantage*

San Mateo, CA

El Camino Real and 3rd Avenue looking south



Urban *Advantage*

San Mateo, CA

El Camino Real and 3rd Avenue looking south



Urban *Advantage*

4. Balance Jobs & Housing

Match Jobs and Housing

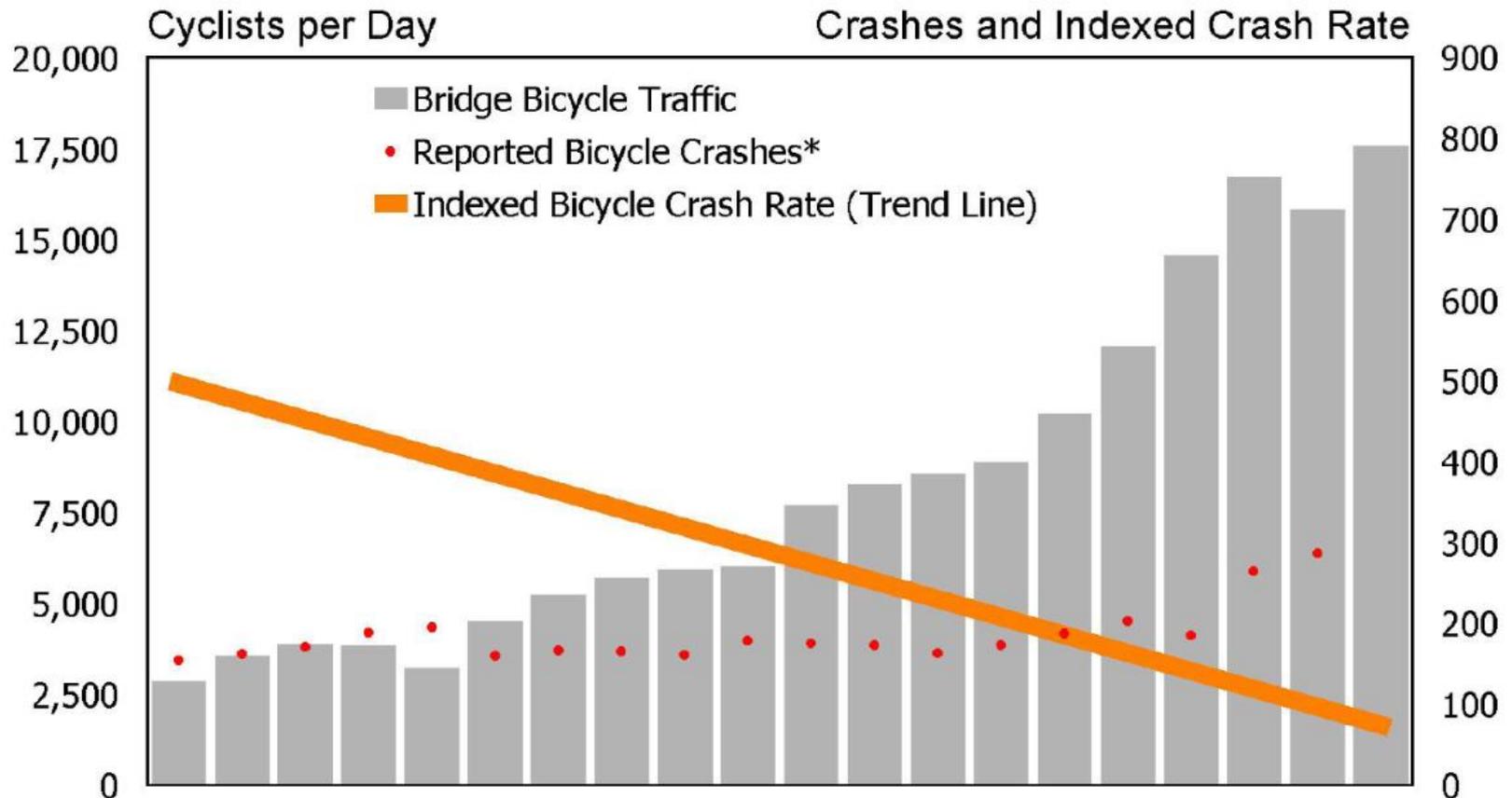
- Reduced driving and congestion
- Less air pollution
- Lower costs to commuters and businesses
- Lower public expenditures on facilities and services
- Greater family stability
- Higher quality of life
- Improved health

And...
Provide
housing
for the
right mix
of
income
levels

5. Make Cycling Safe and Pleasant for All Ages



Combined Bicycle Traffic over Four Main Portland Bicycle Bridges Juxtaposed with Bicycle Crashes



1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010

Bridge Bicycle Traffic 2,850 3,555 3,885 3,830 3,207 4,520 5,225 5,690 5,910 6,015 7,686 8,250 8,562 8,875 10,192 12,046 14,563 16,711 15,794 17,576

Reported Bicycle Crashes* 155 163 171 189 195 160 167 166 161 179 175 173 164 174 188 203 186 265 287 *

Indexed Bicycle Crash Rate (Trend Line) 544 459 440 493 514 354 320 292 272 298 230 210 192 196 184 168 128 159 182 *

Bicycle Fatalities 2 0 4 3 2 1 5 3 0 0 5 0 4 1 4 0 6 0 4 *

Source: Roger Geller

Strong & Fearless

Will ride regardless of facilities

Trip distance not an issue

Interested but Concerned

Not attracted by bike lanes

Not comfortable in traffic

Will ride in low-volume, low-speed conditions (boulevards, off-street)

No way No How

Enthusied & Confident

Comfortable in traffic with appropriate facilities

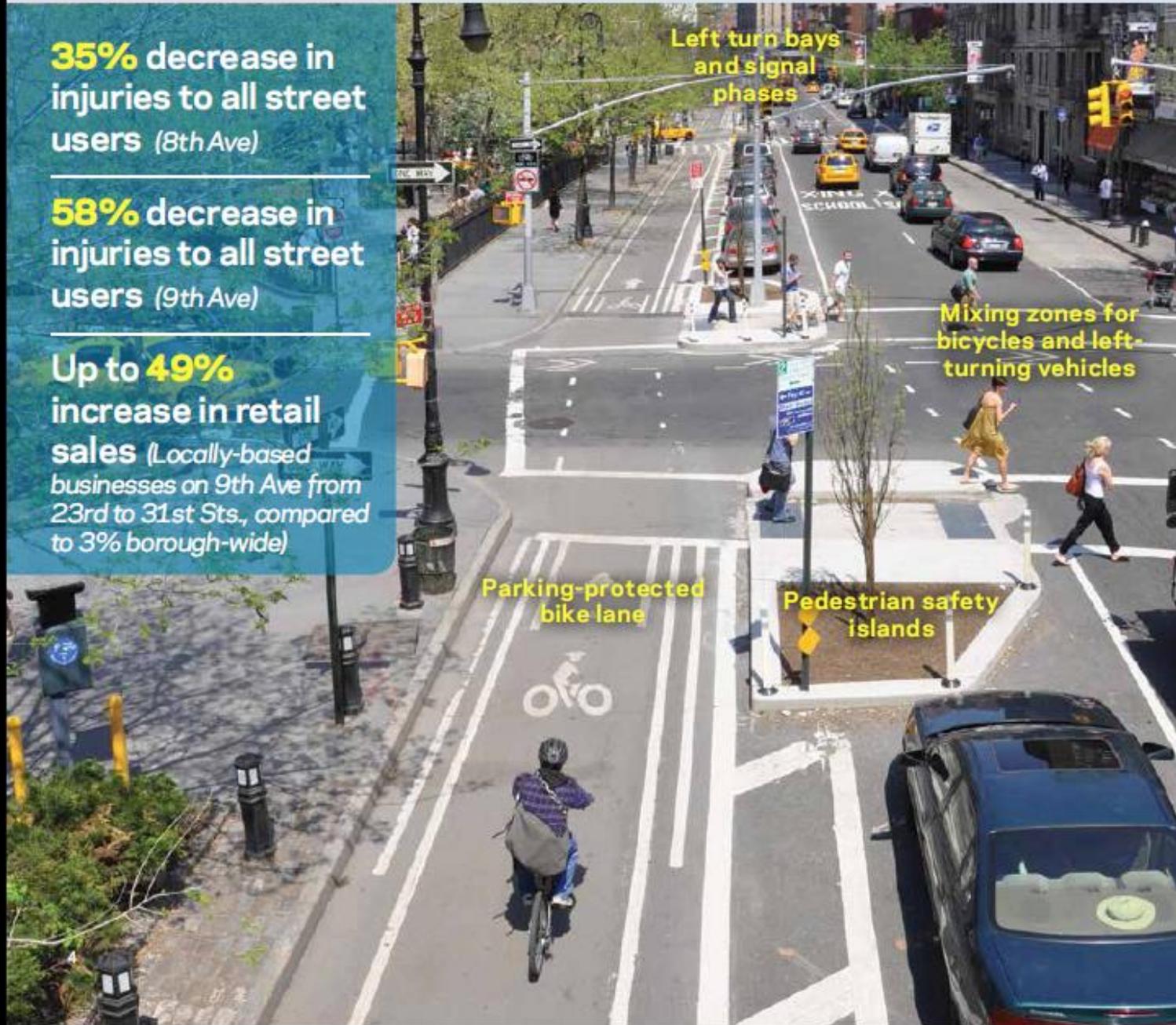
Prefer shorter trip distances

First protected bicycle lane in the US. 8th and 9th Avenues (Manhattan)

35% decrease in injuries to all street users (8th Ave)

58% decrease in injuries to all street users (9th Ave)

Up to 49% increase in retail sales (Locally-based businesses on 9th Ave from 23rd to 31st Sts., compared to 3% borough-wide)



Left turn bays
and signal
phases

Mixing zones for
bicycles and left-
turning vehicles

Parking-protected
bike lane

Pedestrian safety
islands

**6. Make Transit
Fast, Frequent, Reliable
and Dignified**

Dumbarton Corridor



7. Adopt the Right Street Design Manual

Urban



Street



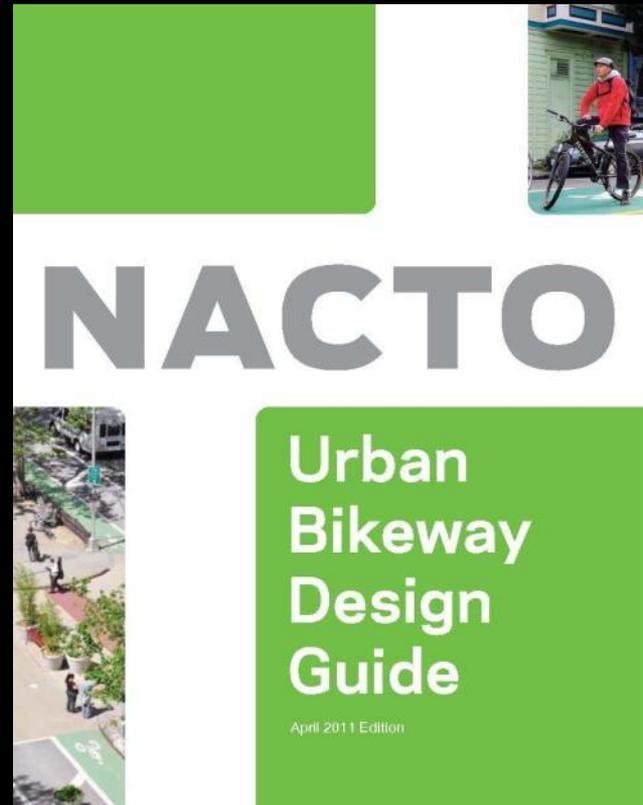
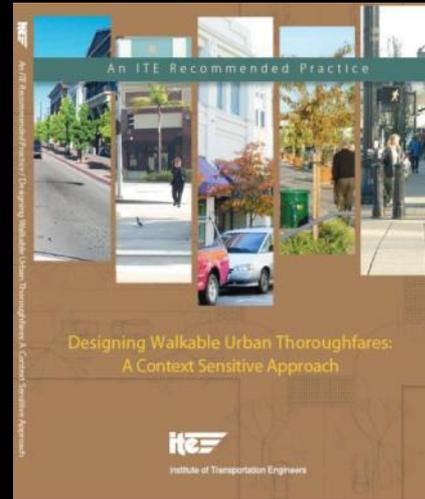
Design



Guide

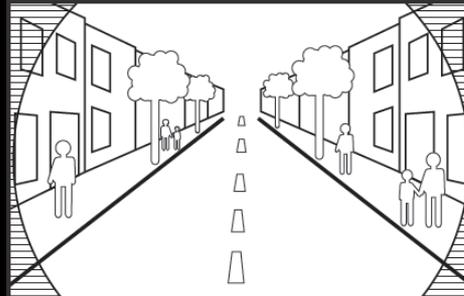


National Association of City Transportation Officials

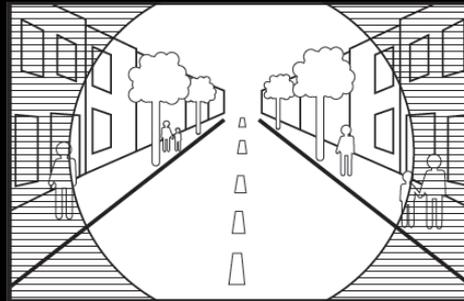


Tunnel Vision:

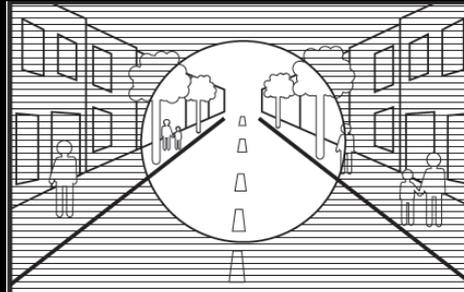
As Speed Increases, Peripheral Vision Decreases



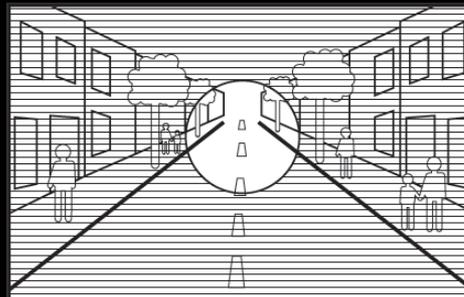
10-15 mph



20-30 mph



30-40 mph



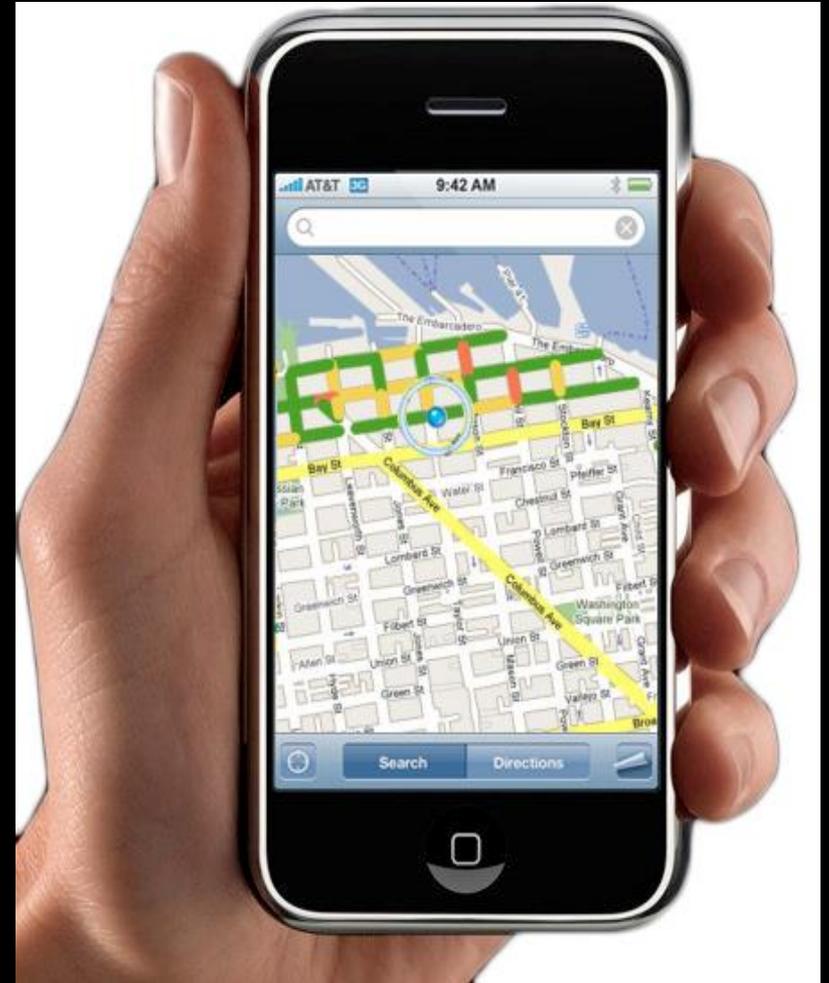
45+ mph

8. Be Smart About Parking

Smart Meters

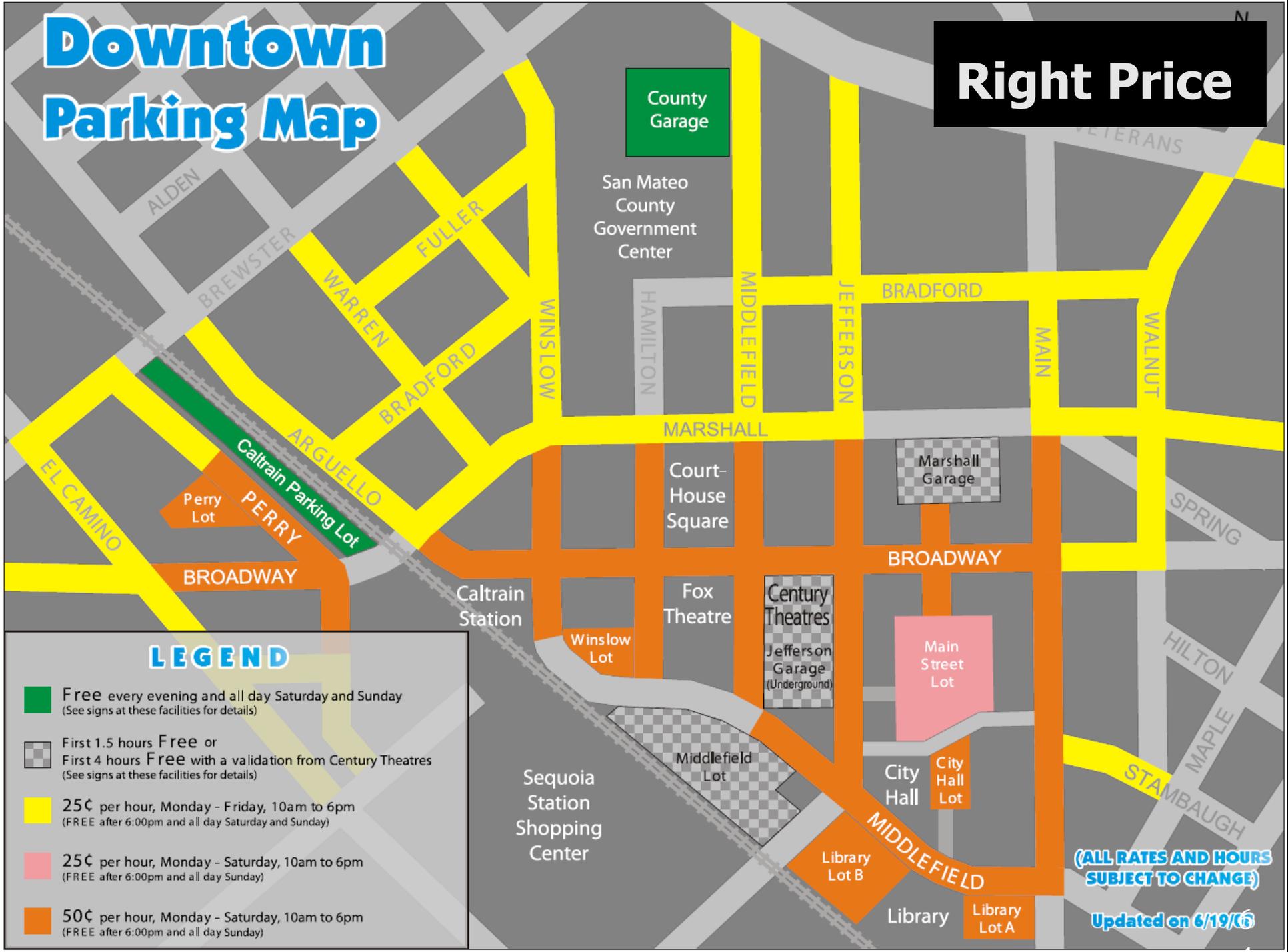


Smart Technology



Downtown Parking Map

Right Price



LEGEND

- Free every evening and all day Saturday and Sunday
(See signs at these facilities for details)
- First 1.5 hours Free or
First 4 hours Free with a validation from Century Theatres
(See signs at these facilities for details)
- 25¢ per hour, Monday - Friday, 10am to 6pm
(FREE after 6:00pm and all day Saturday and Sunday)
- 25¢ per hour, Monday - Saturday, 10am to 6pm
(FREE after 6:00pm and all day Sunday)
- 50¢ per hour, Monday - Saturday, 10am to 6pm
(FREE after 6:00pm and all day Sunday)

(ALL RATES AND HOURS SUBJECT TO CHANGE)

Updated on 6/19/16

Right Time

Hours of Operation

Sunday - Thursday

11 AM to 8 PM

Friday - Saturday

11 AM to 12 midnight

Except Holidays

Invest Revenue

**A NEW
OLD PASADENA
COMING SOON**

STREET AND ALLEY WAY IMPROVEMENTS:

- LIGHTING
- REPAVING
- TRASH RECEPTACLES
- SIGNS AND BENCHES
- DIRECTORY MAPS
- TREES AND GRATES
- NEWSRACKS
- MAINTENANCE
- SAFETY

**YOUR METER MONEY IS
MAKING A DIFFERENCE**

THE OLD PASADENA RENAISSANCE CONTINUES

CITY OF PASADENA

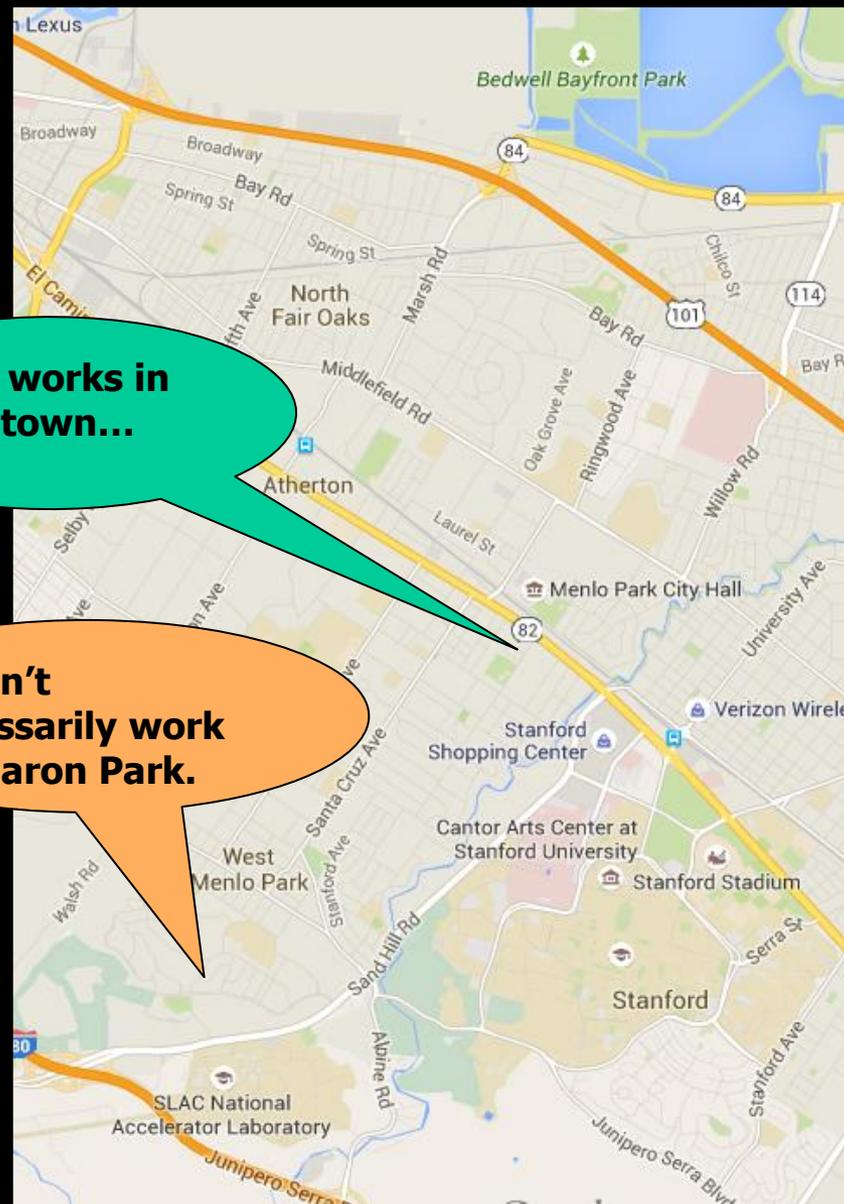


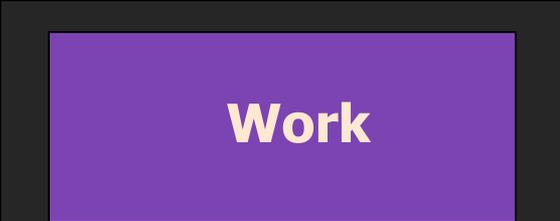
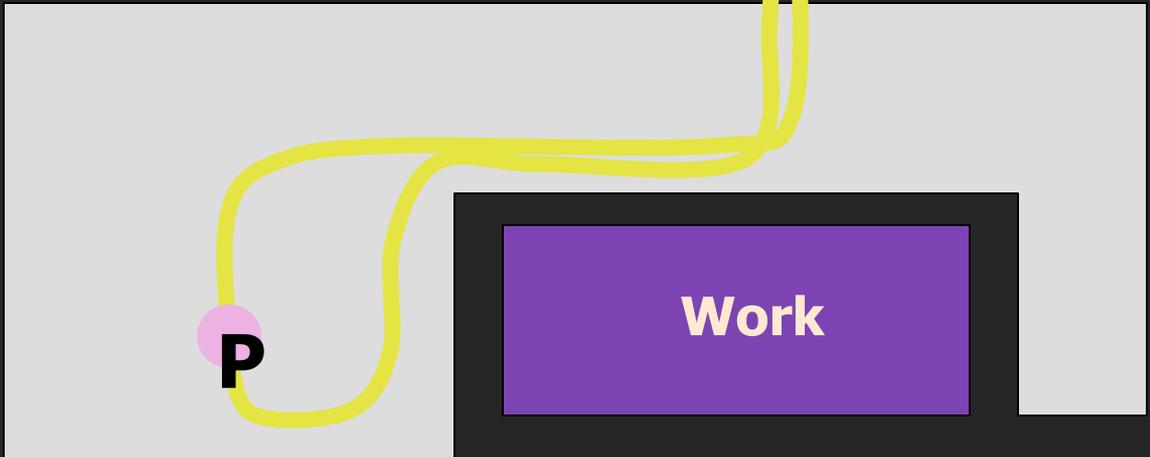
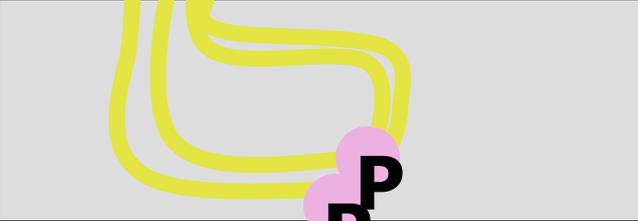
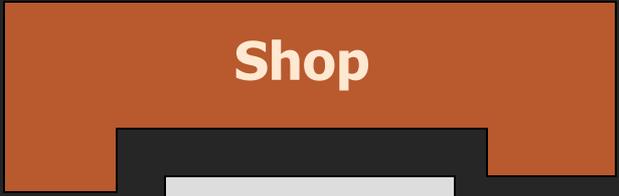
Smart Requirements

- Tailor to the location
- Consider removing minimums
- Maximums instead of minimums
- Encourage shared parking

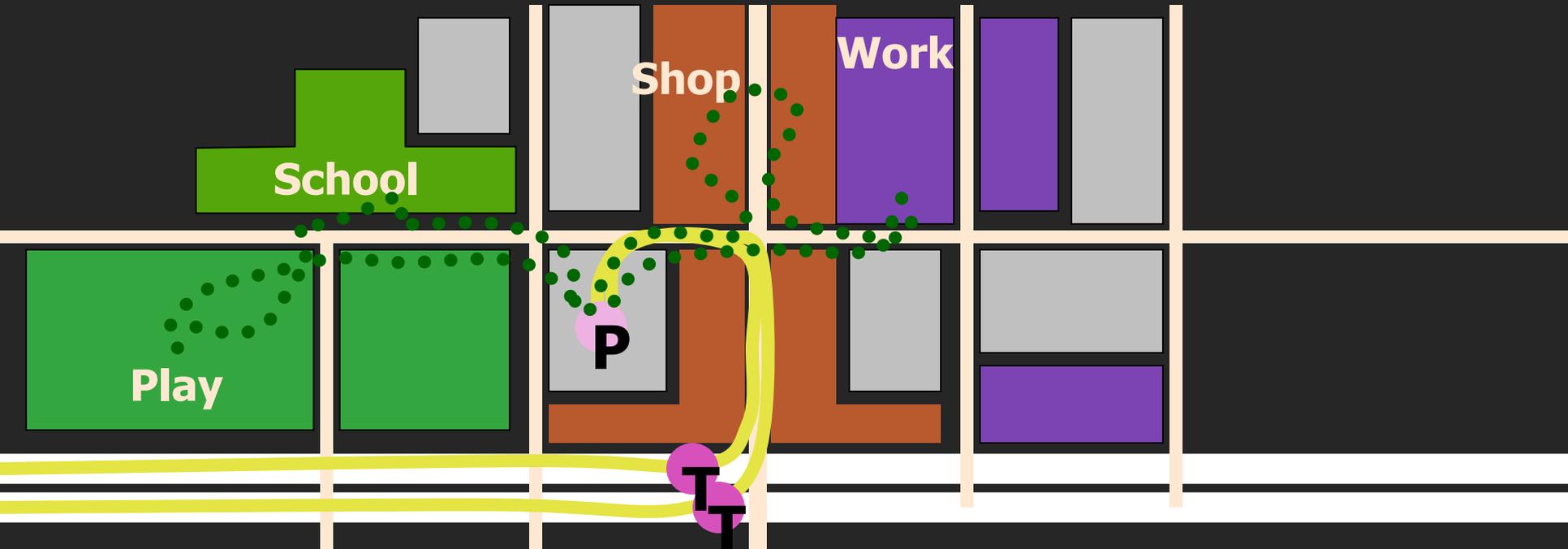
What works in downtown...

Doesn't necessarily work in Sharon Park.





Mixed Use, Park Once District



Results:

- $< \frac{1}{2}$ the parking
- $< \frac{1}{2}$ the land area
- $\frac{1}{4}$ the arterial trips
- $\frac{1}{6^{\text{th}}}$ the arterial turning movements
- $< \frac{1}{4}$ the vehicle miles traveled

9. Invest in Transportation Demand Management

Transportation Demand Management (TDM)

Long list of
strategies that
improve
transportation
options

- Financial incentives to walk, bike, take transit (cash, passes, prizes)
- Shuttles, short- and long-distance
- Bike parking, all kinds!
- Carsharing and bike sharing
- Alternative work schedules
- Guaranteed Ride Home
- Outreach and education
- Parking fees, showing the true cost of parking
- Reduced and managed parking supply

Transportation Management Associations (TMA)

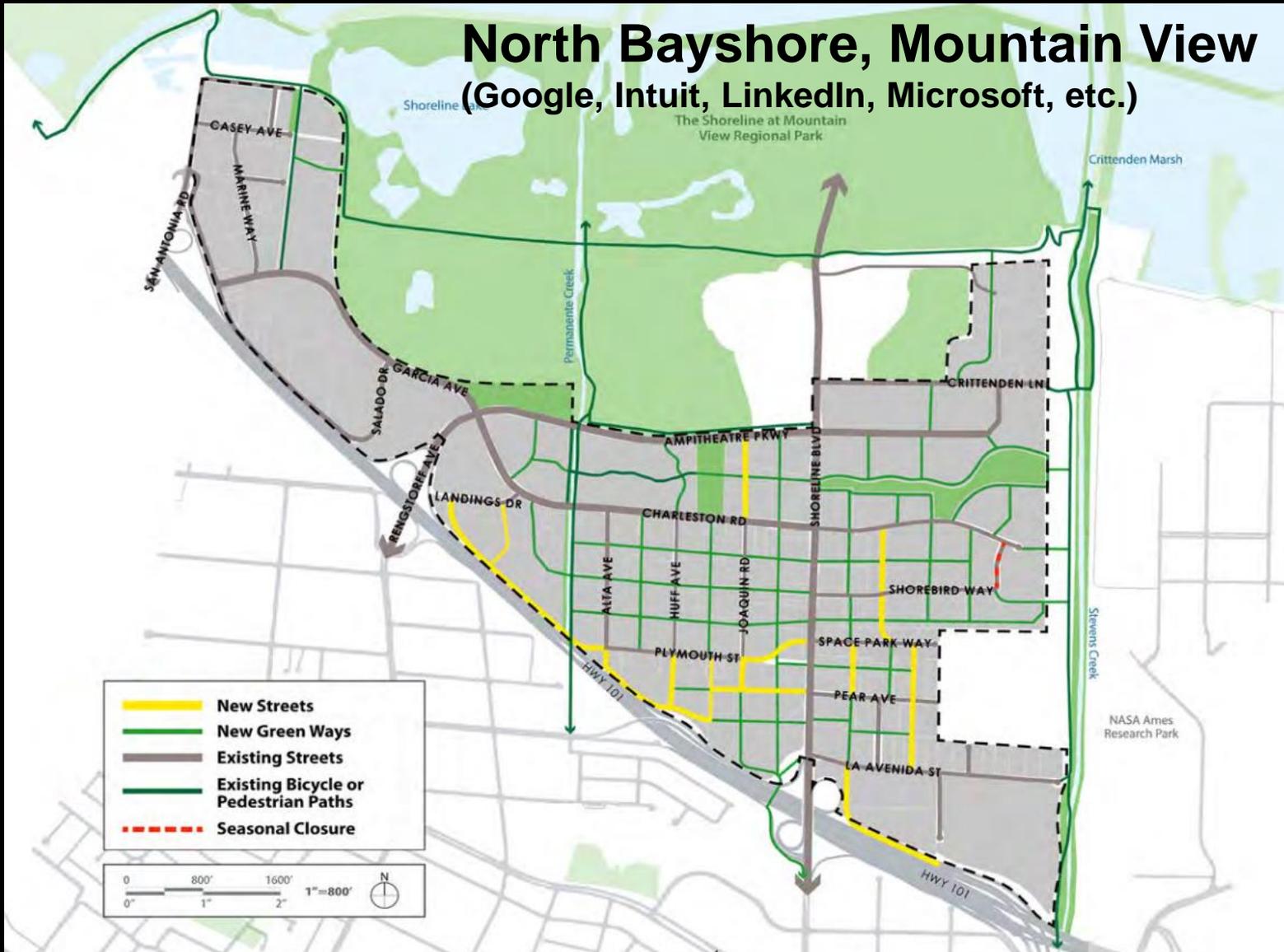
- Pool of funding rather than piecemeal employer programs
- Coordination of programs
 - Shuttles
 - Transit passes
 - Ridesharing platform
 - Walk/bike platform
 - Marketing
- Bulk purchase possible
 - Caltrain Go Pass program
 - Other incentives



A screenshot of the Palo Alto TMA website. The header includes the title 'PALO ALTO TMA' and navigation links for 'Document Library' and 'TMA Steering Committee'. Below the header, there are sections for 'LATEST NEWS' with three articles, a main announcement 'The Palo Alto TMA is coming' with a list of goals, and a 'STAY INFORMED' section with three sub-sections: 'Transportation Options in Palo Alto', 'What is the TMA?', and 'Meeting Calendar'. The website uses a blue and white color scheme with various images of transit options like a train, a shuttle, and a bicycle.

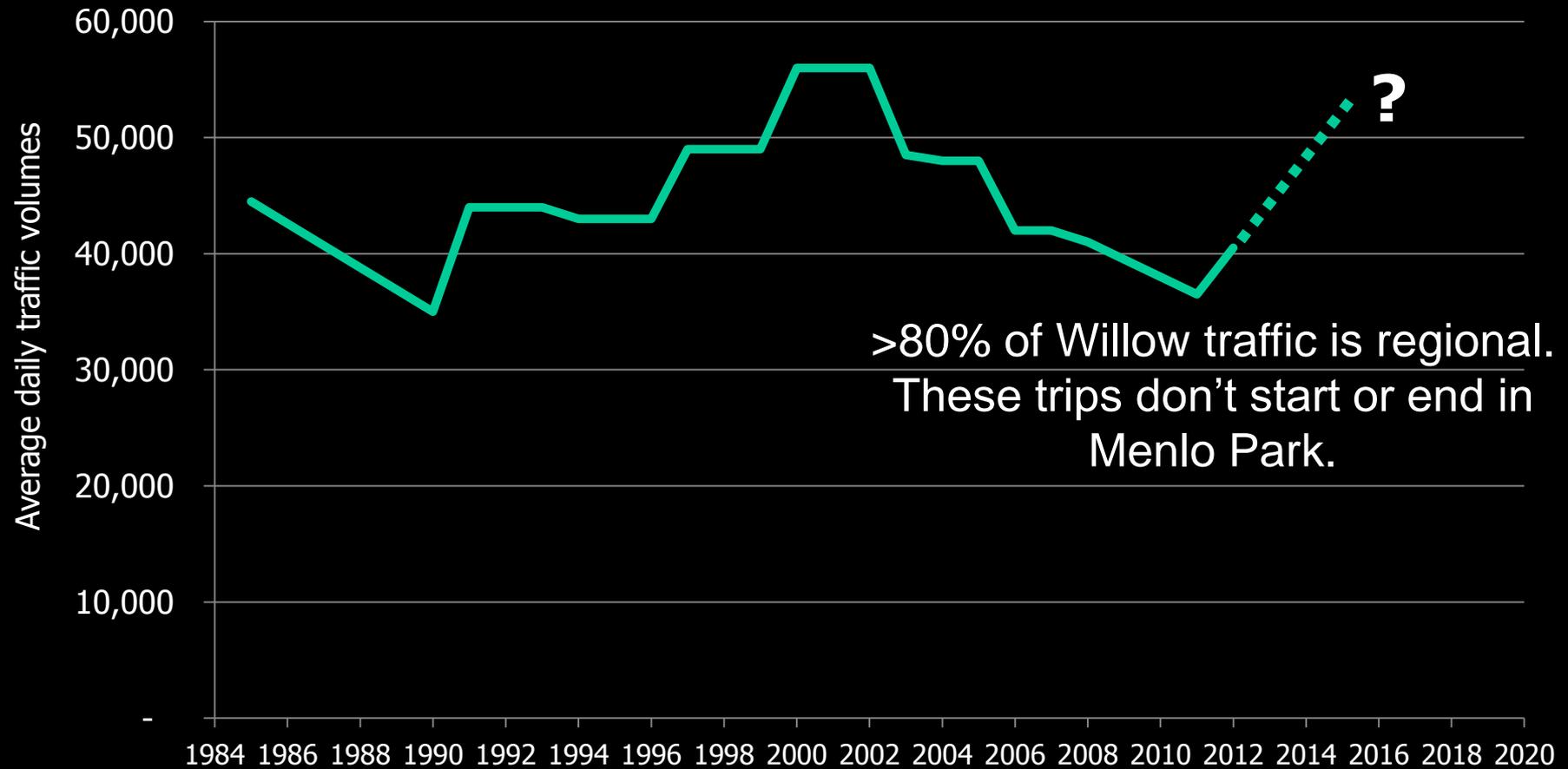
Trip and Parking Caps

North Bayshore, Mountain View (Google, Intuit, LinkedIn, Microsoft, etc.)



9. Don't Forget the Region

Willow Road Traffic Volumes over Time



>80% of Willow traffic is regional.
These trips don't start or end in
Menlo Park.

Is Congestion Pricing Part of the Solution?

London



Stockholm, Sweden



Is Congestion Pricing Part of the Solution?

Dumbarton Bridge Peak Toll



Bayfront Expressway Improvements

Intelligent Transportation Systems

Traffic signal coordination

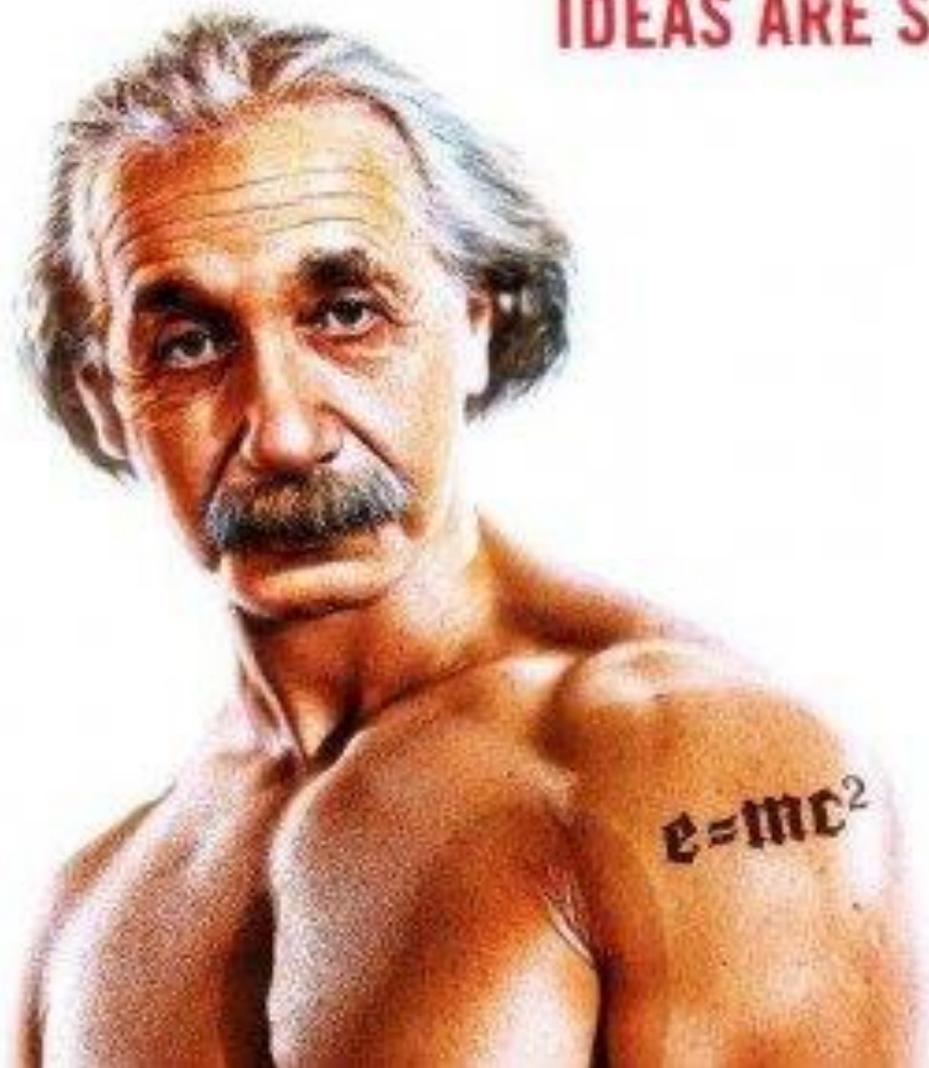
Signage to guide traffic through Marsh

Express lanes, toll lanes



10. Create a New Vision

IDEAS ARE SEXY TOO.



It's not sustainable if it's not beautiful





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For More Information

Jeffrey Tumlin

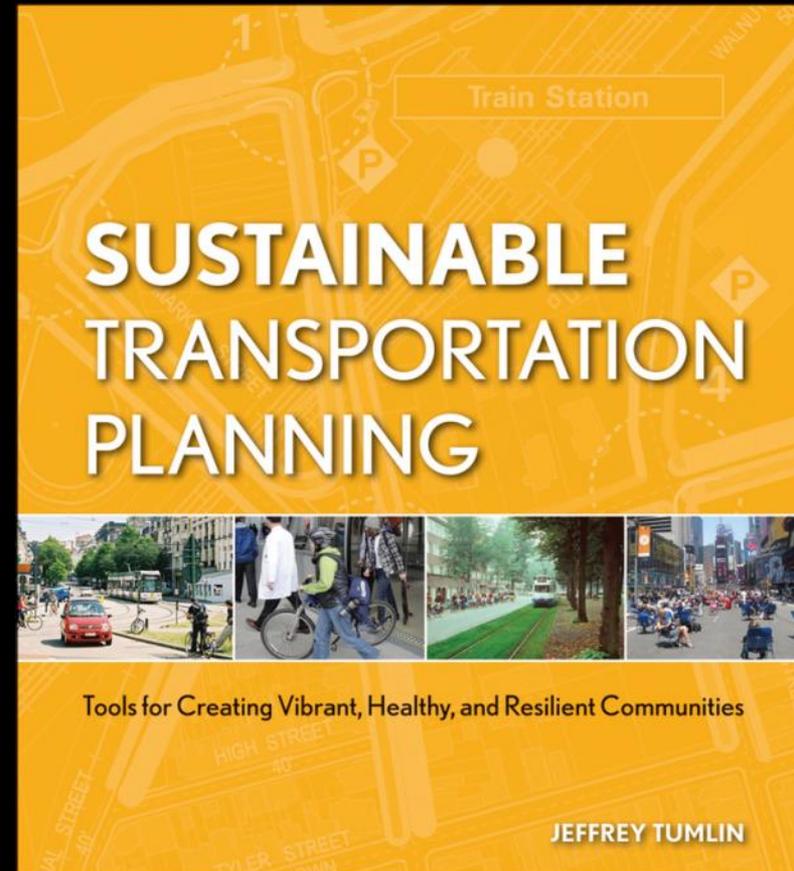


Mobility Accessibility Sustainability

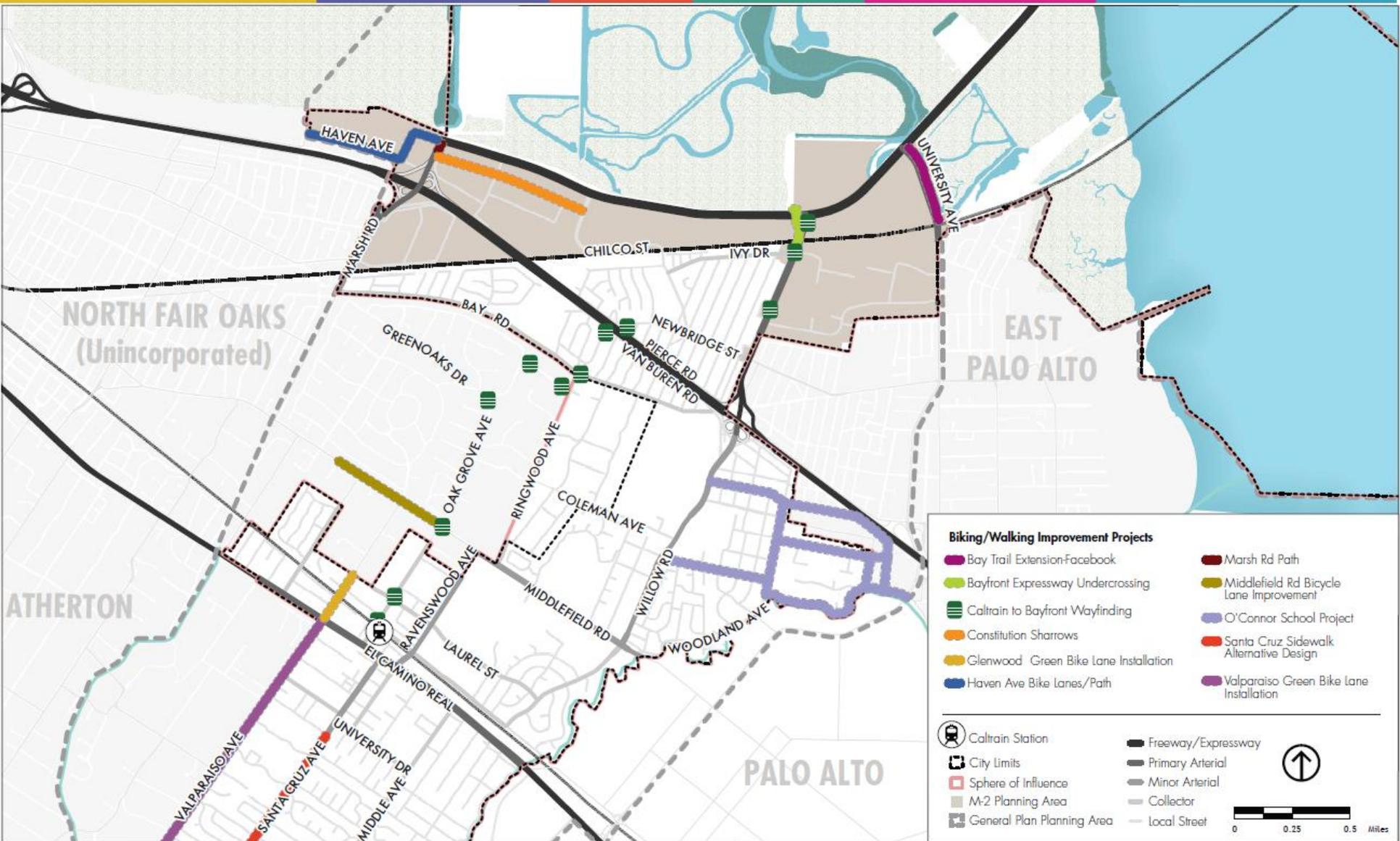
116 New Montgomery St, Ste 500
San Francisco, CA 94103

Tel: 415-284-1544

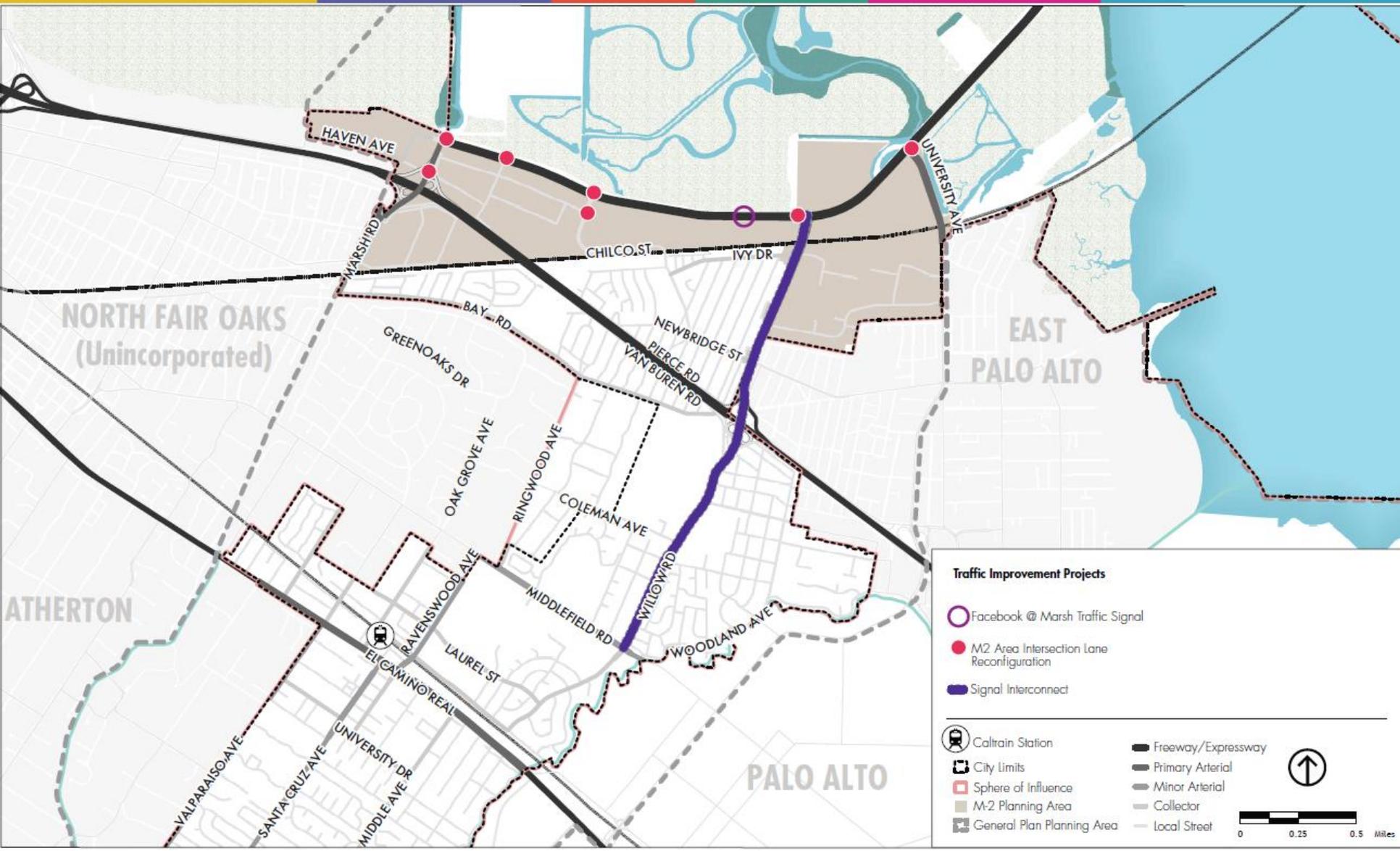
jtumlin@nelsonnygaard.com
www.nelsonnygaard.com



Projects Underway



Projects Underway



Projects Underway

