Ten Easy Directions for Sustainable Transportation

April 2013

Jeffrey Tumlin
Presentation Outline

- What’s wrong with this picture?
- Do try this at home:
  1. Measure what matters
  2. Make walking a pleasure
  3. Put the needs of daily life within walking distance
  4. Make biking safe and easy for everyone
  5. Make transit fast, frequent, reliable, dignified
  6. Adopt good street design manuals
  7. Make traffic analysis work
  8. Price it Right
  9. Manage & price parking
  10. Create a better vision
Obesity Trends* Among U.S. Adults
BRFSS, 1985

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1986

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1987

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1988

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1989

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1990

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1991

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1992

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1993

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1994

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1995

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1996

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1997

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1998

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 1999

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2000

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2001

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2002

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2003

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2004

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2005

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2006

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2007

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2008

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Obesity Trends* Among U.S. Adults
BRFSS, 2009

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
Typical city polices....

- Create mixed-used neighborhoods
- Add appropriate density near transit
- Reduce vehicle travel
- Promote bicycling and walking
- Build complete streets
- Honor motherhood
- Enjoy apple pie

*Image source: Diabetes Daily*
Mixed message?
Transportation = Community Health

Light Traffic
2000 vehicles per day
3.0 friends per person
6.3 acquaintances

Heavy Traffic
16,000 vehicles per day
.9 friends per person
3.1 acquaintances

Fig. 1.1. Lines show where people said they had friends or acquaintances.
(Adapted from D. Appleyard, Livable Streets.)
Green Exercise = Mental Health

• Short periods of outdoor exercise =
  – More self esteem
  – Better mood
  – Particular self esteem improvement in young and mentally ill.

Oxytocin

• The “cuddle chemical”

• Lowers blood pressure and other stress-related responses

• Increases positive social behaviour such as friendliness

• Creates trust, generosity and empathy.

*Nature* 435, 673-676 (2 June 2005) | doi:10.1038/nature03701; Received 20 April 2005; Accepted 5 May 2005

Oxytocin increases trust in humans. Michael Kosfeld, Markus Heinrichs, Paul J. Zak, Urs Fischbacher & Ernst Fehr
Now only $49.95 for a two month supply!

ORDER NOW!
Click here to order
Oxytocin increases trust in humans. Michael Kosfeld, Markus Heinrichs, Paul J. Zak, Urs Fischbacher & Ernst Fehr
Oxytocin release

Source: http://teachingmedialiteracy.pbworks.com/AnalyzingPrintAds
Oxytocin increases trust in humans. Michael Kosfeld, Markus Heinrichs, Paul J. Zak, Urs Fischbacher & Ernst Fehr
Anger, Will Robinson!
Driving makes us:
- Fat
- Sick
- Die early
- Poor
- Dumb
- Angry
- Mistrustful
• Walking makes us:
  – Fitter
  – Smarter
  – Able to handle complex reasoning
  – Sexier
  – More loving
  – More trustful
What can you do?
(Do try this at home)
1. Measure what matters

We use transportation performance measures for:

• Improving efficiency of system operations
• Managing a given road or corridor
• Prioritizing funding
• Reporting on achievement of various goals
What is transportation for?

- Transportation is not an end in itself
- It is merely a means by which we support individual and collective goals and objectives
How Transportation Meets Goals

**Mobility:**
- Can I travel freely and easily to where I want to go?
- Reduce roadway congestion
- Increase transit frequency, reliability and speed
- Create bicycle lanes and complete sidewalks

**Accessibility**
- Can I get the things and services I want?
- Bring people, goods and services closer together
- Mix uses
- Technology, delivery
Level of Service A
Level of Service F
What’s important depends upon perspective

Traffic engineer: $\mathcal{F}$

Economist: $\mathcal{A}$
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 (\(=\text{CO}_2, \text{NO}_x, \text{runoff}, \text{etc.}\))
  - Land use/transportation connection
Some performance measures

- Eliminate *vehicle* delay and substitute *person* delay
- Eliminate *Level of Service* and substitute *Quality of Service* ...*for all modes of travel*
2. Make Walking a Pleasure
Plant Trees
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
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

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

77% increase in seated pedestrians
14% increase in sales at fronting businesses
3. Put the needs of daily life in walking distance
• About 80% of trips are non-commute
• In PM Peak, only 40% are commute
• About same share are errands, visiting, etc.

Most traffic isn’t commute
4. Make cycling comfortable for all ages
First protected bicycle lane in the US: 8th and 9th Avenues (Manhattan)

35% decrease in injuries to all street users \( (8\text{th Ave}) \)

58% decrease in injuries to all street users \( (9\text{th Ave}) \)

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

Left turn bays and signal phases

Mixing zones for bicycles and left-turning vehicles

Parking-protected bike lane

Pedestrian safety islands
5. Make Transit Fast, Frequent, Reliable, and Dignified
Rules for Transit Success

- Follow the density
- Make routes simple and memorable
- Prioritize corridors where transit competes with car
- Run every 10 minutes or better all day long
- Make vehicles and stops urbane and dignified
- Use low floor vehicles
- Make it easy to pay, but don’t make driver check fares
- Optimize stop spacing
- Focus on *person* delay for managing intersections

*Cervero, R (1997)*
Making bus routes work better:
Fordham Road (Bronx)

20% increase in bus speeds

10% increase in bus ridership

71% increase in retail sales
(at locally-based businesses, compared to 23% borough-wide)

Delivery windows (curb dedicated to trucks at key times)

Curbside red bus lanes
5. Adopt the right street design manual

**Arterial Streets**
- Vehicular mobility, transit stops, sidewalks, bike lanes, crosswalks, ADA curb ramps and signals

**Local Streets**
- Sidewalks, bike lanes, pedestrian permeability, access to transit, ADA curb ramps

**Downtown Streets**
- Vehicular mobility, parking, sidewalk amenities, transit stops, sidewalks, bike lanes, crosswalks, ADA curb ramps and signals
Adopt *urban* street guidelines

- **ITE Context Sensitive Solutions**
  - Free at ite.com/css
  - Best for arterials

- **ITE Residential Streets**
  - Best for residential streets

- **NACTO**
  - Free at nacto.org
  - Bikeways available now. Urban Street Design Manual out soon.

- **Steal from other cities**
  - SF, Boston, Indianapolis, NYC
7. Make traffic analysis smart

• To be “conservative,” transportation analyses typically use ITE trip generation rates, data from isolated, single-use projects with no access except by car.

• TODs typically generate ~50% fewer vehicle trips than predicted by ITE. (“Effects of TOD on Parking, Housing and Travel,” TCRP 128, 2008)

• Guidelines focus on localized traffic impacts and ignores regional impacts.
Typical transportation analysis

- To mitigate a negative transportation impact:
  - Reduce density
  - Widen roadways
  - Transportation Demand Management
  - Add parking
  - Move the project to a more isolated location with less existing traffic congestion

- Traffic analysis makes it a lot easier to do sprawl and a lot harder to do infill and TOD.
Induced and Latent Demand

Congestion

More People Drive

Widen Roadway

Faster Driving
8. Price it right

- Peak period pricing is common in many US industries
Pricing

…but not in the transportation sector
HOT lanes are popular

Minneapolis: What do you think of allowing single drivers to use the carpool lanes by paying a toll?

- Lower-Income:
  - Good Idea: 62%
  - Bad Idea: 15%
  - No Opinion: 13%

- Mid-Income:
  - Good Idea: 60%
  - Bad Idea: 28%
  - No Opinion: 12%

- Higher-Income:
  - Good Idea: 71%
  - Bad Idea: 23%
  - No Opinion: 6%

After 6 months of operation
Source: NuStats Presentation
But full congestion pricing is more effective

- Toll per trip as low as $1.50
- 9% to 26% reduction in traffic at cordon locations
- 10% to 14% reduction in inner city emissions
- 40,000 increase in transit trips per day

Source: IBM
9. Manage Parking

1. Eliminate minimum parking requirements
2. Create a “Park Once,” shared parking environment
3. Charge the right price for curb parking
4. Manage parking in order to achieve development and congestion management goals context and goals
Parking Produces Traffic Congestion

- Every parking space is a magnet for cars. Why provide more parking than you have traffic capacity to access that parking?

- Poorly managed parking results in motorists circling for a parking space, from 8 to 74% of traffic in many downtowns.

- Eliminating just 10% of vehicles from any congested location makes traffic free flowing.

Smart Technology
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 crates
- Newsracks
- Maintenance
- Safety

YOUR METER MONEY IS MAKING A DIFFERENCE

THE OLD PASADENA RENAISSANCE CONTINUES

CITY OF PASADENA

YOUR METER MONEY WILL MAKE THE DIFFERENCE IN OLD PASADENA
- Signage
- Lighting
- Benches
- Paving

The City of Pasadena
Unbundle and Share
Results:
- <½ the parking
- <½ the land area
- ¼ the arterial trips
- 1/6\textsuperscript{th} the arterial turning movements
- <¼ the vehicle miles traveled
10. Create a New Vision
Somewhere West of Laramie

SOMEWHERE west of Laramie there's a broncho-busting, steer-roping girl who knows what I'm talking about.

She can tell what a sassy pony, that's a cross between greased lightning and the place where it hits, can do with eleven hundred pounds of steel and action when he's going high, wide and handsome.

The truth is—the Playboy was built for her.

Built for the lass whose face is brown with the sun when the day is done of revel and romp and race.

She loves the cross of the wild and the tame.

There's a savor of links about that car—of laughter and lift and light—a hint of old loves—and saddle and quiet. It's a brawny thing—yet a graceful thing for the sweep o' the Avenue.

Step into the Playboy when the hour grows dull with things gone dead and stale.

Then start for the land of real living with the spirit of the lass who rides, lean and rangy, into the red horizon of a Wyoming twilight.
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

1969 CHARGER RT

Chrysler Motors Corporation

Dodge Fever
The Catch of the Year
Mother Nature doesn't go out of her way to pamper a car. And neither do most car owners. That's why Subaru builds and tests 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 on.

Maybe that's why out of every Subaru registered since 1974, over 90% are still on the road. And why Subaru was rated #1 in customer satisfaction. Second only to Mercedes-Benz.

So, almost any condition you have to get your Subaru through, it's neat to know it's probably been there before.

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

Inexpensive. And built to stay that way.
Toward a Better Vision?

IDEAS ARE SEXY TOO.
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