Walkability

Designing and Retrofitting Neighborhoods to Improve Safety

Encourage Your Hopes Not Your Fears

Dan Burden, Executive Director of Walkable Communities, Inc.
And Partner with Glatting Jackson
In the past fifty years transportation planners/engineers have:

- Removed parking for safety
- Removed trees for safety
- Added lanes for safety
- Widened lanes for safety
- Taken out sidewalks for added capacity
- Widened intersections for safety

In the next fifty years transportation planners/engineers will:

- Add parking for safety
- Add trees for safety
- Remove lanes for safety
- Narrow lanes for safety
- Narrow intersections for safety
- Add sidewalks for added capacity

In the past traffic planners and engineers have been seen as villains leading to the decline of cities and quality of life.

In the future traffic planners and engineers will be seen as heroes and heroines leading to the rise of cities and quality of life.

The Only Constant is CHANGE
By Trip Type
----------
18.0% Work
2.6% Work Related
20.2% Shopping
24.2% Doctors & Dentist
8.8% Family & Personal
24.5% Church & School
24.5% Social Recreational
0.2% Other
100.0%
100.0%

Trip Purpose – Percentage of Total Trips

Mix Use?


“Errandsville” approximately 70% of all trips occur within 3 miles of the household.
Household Expenditures

- Shelter 19%
- Transportation 17.9%
- Food 13.7%
- Insurance & Pensions 9.6%
- Other Household 7.5%
- Utilities 6.8%
- Health Care 5.4%
- Entertainment 5%
- Apparel & Services 4.8%
- Education 2.1%
- Misc. 3.2%

Source: Surface Transportation Policy Project: Driven to Spend

<table>
<thead>
<tr>
<th></th>
<th>housing costs</th>
<th>transportation costs</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York City</td>
<td>37.1%</td>
<td>15.1%</td>
<td>52.2%</td>
</tr>
<tr>
<td>Tampa</td>
<td>31.1%</td>
<td>25.1%</td>
<td>56.4%</td>
</tr>
</tbody>
</table>
**Conventional Approach**

- More Lanes
- More Roads
- More Cars
- More Pavement
- More Car-Carrying Capacity

**Lateral Approach**

- Move Less People, Fewer Miles
- Shift Policy
- Lane Limits
- Change Standards

**A Balanced Transportation Approach**

- Transit
- Bicycling
- Walking
- HOV/HOT Lanes

- More Car-Carrying Capacity
- Increase Quality of Travel
- User View and Comfort
- Context-Sensitive Design
- Traffic Calming
- Personal Security

- Intensify land use densities
- Promote Mixed Use Development
- Transit Supportive Development
- Demand Management – Pricing, e-commerce, telecommuting, etc…
Chain of Impacts

FIRST ORDER
- Widen Road
  - Reduce Delay
  - Reduce Cost

SECOND ORDER
- Move Home
- Range Farther
- Drive Home
- Own More Cars
- Move Business
- Move Jobs
- Mega Boxes
- More Strip
- More Lane Miles
- New Construction

THIRD ORDER
- Keep Business
- Keep Jobs
- Main Street
- Less Strip
- Less VMT
- Community Reinvestment

Accept Congestion
- Increase Delay
- Increase Cost
  - Drive Less
  - Own Fewer Cars
Turning Radius must also accommodate overhang

Proper application of rollover curbing
Narrow Lanes and Safety

"Unlike previous papers, Noland's is not a localized study or one reflecting unusual roadway types. It is specific to collectors, and it applies to all roads of this category throughout the US.

Noland states bluntly,

'as more arterial and collector lane widths are increased up to 12 ft or more, traffic fatalities and injuries increase....'

These results are quite stunning as it is general practice to 'improve' the safety of roads by increasing lane widths.\(^1\)

Evidence that showed narrowing traffic lanes reduce motorist speeds. The journal Accident Analysis and Prevention (http://www.sciencedirect.com/science/journal/00014575) has this article 'In-Press.'
What is the Purpose of Cities?

Cities are an invention to maximize exchange (goods, culture, friendship, knowledge) and to minimize travel.

The role of transport is to maximize exchange.

David Engwicht
This street was formerly a strip street. This street and surrounding blocks once had a housing density around 6-7 du/acre. This neighborhood is now one of the most sought after places to live, shop, work or play. This neighborhood has tripled its density. Property values increased ten fold. Most of the original homes are still in place.

This is Broadway, in Vancouver, B.C.
Fig. 1. U.S. gross national product (GNP) and mean life satisfaction from 1945 to 1980.
Such places do not sprout by happenstance. Driven by irresistible economic forces and shaped by subtly shifting social patterns, they are being created, down to the tiniest detail, by a handful of major developers with a master plan for the new America.

...NY Times, August 15, 2005

People are happiest when there are many others around.

Victoria, British Columbia
Like newborn animals, children are genetically predisposed to move, to explore the space around them, and to discover its contents. All streets and parks offer physical activity and free-range learning.

The richer the street and park environment, the richer the learning will be.
Well designed streets and public spaces offer children a sense of belonging as an antidote to social violence.

If children participate in the design and cleanliness of spaces in their neighborhood, they will value and respect them more fully.

I shopped for a house, but I forgot to shop for a community to live in...

...Cheryl

from a suburban Edmonton, Alberta, Canada Neighborhood
Such places do not sprout by happenstance. Driven by irresistible economic forces and shaped by subtly shifting social patterns, they are being created, down to the tiniest detail, by a handful of major developers with a master plan for the new America.

... NY Times, August 15, 2005

Five keys to Success of Place

Security
Convenience
Efficiency
Comfort
Welcome
West Lafayette, Indiana  (Home of Purdue University)

Welcoming Eatery and Defensible Space

Los Altos, California
What are the problems here?

- Lack of Security
- Auto dependence
- Lack of people
- No place to buy a popsicle
- Lack of investment
- Lack of diversity
- Lack of diversity
- Lack of activity
What is the primary function of this building?
It is a car wash

Port Townsend, Washington

Which building looks most like Southern Texas??
McAllen, Texas

The Power of Networks
William Phelps Eno was nine years old in 1867 when he went to New York City with his mother. When the performance at the New York Opera House let out, their horse and carriage got involved in the subsequent traffic jam which required two hours to untangle, even though only a dozen carriages were involved. Eno never forgot the experience, and devoted the rest of his life to improving traffic control. This became increasingly important as horses were replaced by cars on the streets of the nation. In 1903 he published “Rules of Driving” which became a primer for drivers. He invented such rules of the road as slow traffic keep right and passing allowed on the left only. He invented one-way streets, safety islands, rotary traffic, pedestrian crosswalks, the stop sign, the taxi stand, and traffic cops. Still, Eno felt that stoplights would never work and traffic cops would always be needed at intersections. Eno lived long enough to see his ideas implemented throughout the country. He also made many trips to Europe and Asia to help them with their traffic control problems. William Eno died in 1945 at the age of 86. Throughout his life, William Eno, known today as “the father of traffic safety,” hated to drive. His chauffeur drove him everywhere.
Many of our suburban and country highways are being improved for motorists. Most of them are now unfitted for all other users. It is no longer safe to walk, ride or bicycle on roadways, especially at night when it is extremely perilous. The entire width of some highways is taken up by the roadway and on others what is not needed for roadway is left ungraded or so rough that it is useless for pedestrians, equestrians or cyclists.

No highway should be permitted to be without due provision for pedestrians and where practical for equestrians or bicyclists.

There should be a sidewalk or reasonably well made foot-path on one side at least of every highway. There should of course be two sidewalks or foot-paths on important highways.
Design speed has long been a prime factor in the design of roadway geometric elements, such as vertical and horizontal alignment and cross section. The current design process does not always result in the desired consistency in roadway alignment or driver behavior along these alignments. The desired product of good geometric design is a roadway alignment and cross section that will encourage the driver to operate safely and consistently with the function of the facility. Further, an ideal geometric design is both consistent with the context of the setting and cost-effective.

http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+15-25
Capacity of Streets

Complete Streets
New Port Village, Port Moody

New Port Village, Port Moody
New Port Village, Port Moody

City Making
Infill Mixed Use

Vacant lots and under-used spaces become active centers. New and added “eyes” on our important parks, corners and principle streets. Attractive new features and a way to pay for upgrades to our intersections. Convenient places to have coffee or simply hang out in a quasi public-private place.

Davis, California
Two Lane Roundabout -- Olympia, Washington  (Pair of two two-lane roundabouts used on this hillside entry to the Capitol area)

Bike lane (exit shown)  Two Lane Roundabout -- Olympia, Washington
La Jolla Boulevard, Bird Rock, San Diego, California. With 21,23,000 ADT five lanes are being reduced to 2 lanes. Five roundabouts are being used to manage traffic. Time savings to motorists and improved town economics.

Pedestrians formerly crossed 76 feet, waiting about 2-3 minutes for a signal. Now they cross 14 feet with little or no delay.
La Jolla Boulevard, Bird Rock, San Diego, California. Two roundabouts are in place, while three more are funded and will be placed soon.
Santa Barbara, California
Before

Clearwater Beach, Florida 2-lane roundabout (57,000 ADT, 10,000 pedestrians)
From one fatal each 15 months, to 1 personal injury crash in six years)
Two Lane Roundabouts and Pedestrians

Pedestrians cross two lanes (and possibly an additional single lane) instead of up to 12 lanes.

In a well-designed two-lane roundabout a pedestrian has no delay, or up to 6 seconds of delay. At a signal delays can take 3 minutes.

Pedestrians cross 24 feet on their longest leg of crossing (versus 125-190 feet in one crossing).

Pedestrians encounter speeds of 15-20 mph instead of 30-45 mph.
This illustration demonstrates how pedestrians cross a two-lane roundabout (with an added right turn channel).

The intersection to the right side would be an equivalent to the Genesee and La Jolla Village Drive condition. Proper design would slow the motorist to a 15 to 22 mph entry speed.

The Genesee and La Jolla Village Drive intersection has a slight skew, not as extreme as this intersection. This right turn lane is not designed correctly ... it has a design speed 10 mph too high.

Similar to a right-only added lane. Motorists are slowed to 15-20 mph for their entry ... resulting in a near 100% yield rate.