Transportation Planning to Move Communities Forward, not Cars Faster

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What Are We Aiming For?
What are Streets For?

Movement and Storage
Connections

Retail
Recreation

Interaction
What are We Aiming For?

- Transportation is not an end in itself.
- It is merely a means by which we support the community.
- Your community = your goals.

Transportation is a Means to an End

**Goals** = Priorities from the community to become its best self

**Objectives** = Actions to reach goals

**Performance Measures** = Metrics to measure progress towards goals
What are We Aiming For?
Level of Service depends on Who’s Asking

Engineer’s LOS: F A
Economist’s LOS: A F
What are We Aiming For?
Level of Service depends on When We’re Asking

What are We Aiming For?
Level of Service depends on Who’s Asking When

A ➔ D

D ➔ E
Results: Induced and Latent Demand

What are We Aiming For? Vehicle or Person Delay?

- Vehicle delay measures assume a carpooler is only half as worthy a citizen as a single occupant vehicle driver.
- Are bus riders only 1/30th as valuable drivers?
- Instead of vehicle delay, look at person delay and person capacity.

Person Throughput by Mode

<table>
<thead>
<tr>
<th>Mode</th>
<th>Number of People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Automobile</td>
<td>1,000</td>
</tr>
<tr>
<td>Bicycle</td>
<td>1,000</td>
</tr>
<tr>
<td>Bus</td>
<td>2,000</td>
</tr>
<tr>
<td>Walking</td>
<td>3,000</td>
</tr>
<tr>
<td>Bus Rapid Transit or Light Rail</td>
<td>7,500</td>
</tr>
</tbody>
</table>

Number of people traveling in one-lane in an urban environment during a one-hour period.

Note: The numbers represent a daily average throughput per hour. They are calculated as daily demand divided by the number of operating hours for each facility. Data source: city and transit agency data on rail facilities from U.S. and Latin American cities.
Consider All Modes

Establish performance measures for all modes

What Defines Communities

Moving
• Can I travel freely and easily to where I want to go?
  – Answer: Reduce roadway congestion

Connecting
• Can I get the things and services I want?
  – Answer: Bring people, goods, & services closer together
Why not Consider…

<table>
<thead>
<tr>
<th>Economic Development</th>
<th>Social Justice</th>
</tr>
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<tbody>
<tr>
<td>– Job creation</td>
<td>– Do benefits accrue equitably?</td>
</tr>
<tr>
<td>– Real estate value increase</td>
<td>– Are investments spread equitably?</td>
</tr>
<tr>
<td>– Retail sales</td>
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<table>
<thead>
<tr>
<th>Quality of Life</th>
<th>Ecological Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Access to jobs</td>
<td>– VMT per capita (=CO₂, NOₓ, runoff, etc.)</td>
</tr>
<tr>
<td>– Access to shopping</td>
<td>– Land use/transportation connection</td>
</tr>
<tr>
<td>– Residential property value impact</td>
<td></td>
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Break Out #1

<table>
<thead>
<tr>
<th>What are your community’s goals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Be as specific as you can.</td>
</tr>
<tr>
<td>– How do they match with your community’s vision of its best self?</td>
</tr>
<tr>
<td>– Role play with your table:</td>
</tr>
<tr>
<td>• Identify 3-4 goals</td>
</tr>
<tr>
<td>• Identify 1-2 performance metrics that support those goals</td>
</tr>
</tbody>
</table>
Key Components of Transportation Goal Setting (not always what you think)

Remember Community Priorities?

- **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, NOₓ, runoff, etc.)
  - Land use/transportation connection

Do Transportation Metrics Achieve these Priorities By Themselves?
The best transportation plan is a good land use plan.

Land Use Mix

Diversity of uses create different travel behaviors:

- Jobs/housing balance (ideal = 1.5 jobs per household)
- Availability of services within walking distance
- Mix of residential generates different trips at different time
Design Places that Attract People

- Active uses for the first 1-2 stories
- Smaller blocks with more frequent intersections are safer (and feed curiosity!)
- Bring buildings up to the sidewalk
- Public space/green space in any breaks of building line

Zoning & Design

- Conventional zoning's intent:
  - limit height & density
  - segregate uses
  - require setbacks
  - provide ample free parking

- Starting to be addressed well in form-based codes

- Solution: To provide assurance to developers and reduce risk:
  - Codes must allow transit-oriented development AS OF RIGHT
How Do People Walk without Being Hit By a Car?

Walkability:
- Interconnected streets and neighborhoods
- Buildings that define the public realm
- Neighborhood retail within 10 minute walk
- Access to transportation choice
- Safe and green streets

Pedestrian improvements are:
- Simple
- Isolated
- Site-specific
- Human scale

Walking: Safe + Attractive

- Principles
  - Make walking not just safe, but attractive
  - Encourage staying

- Produces
  - Induces walking
  - Improves health
  - Less auto reliance
Planning Golden Rule = 10 Minute Walk

6 Keys to Walkability: Safety (no death trumps speed)
Vehicle Speed v. Pedestrian Injury

6 Keys to Walkability: Security (real and perceived)
6 Keys to Walkability: Direct

Walkers Don't Wait
Don’t add more than 30 seconds of delay

<table>
<thead>
<tr>
<th>Pedestrian Delay (seconds)</th>
<th>Likelihood of Non-Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10</td>
<td>Low</td>
</tr>
<tr>
<td>10-20</td>
<td>Low</td>
</tr>
<tr>
<td>21-30</td>
<td>Moderate</td>
</tr>
<tr>
<td>31-40</td>
<td>High</td>
</tr>
<tr>
<td>41-60</td>
<td>High</td>
</tr>
<tr>
<td>&gt;60</td>
<td>Very high</td>
</tr>
</tbody>
</table>

Source: Highway Capacity Manual 2000 (Transportation Research Board)
Complete Networks

- **Intersection Density:** Well-connected grid encourages pedestrian travel.
  - Ideal intersection density = four-way intersections every 300 feet or 1,300 legs per square mile.

- **Sidewalk completeness**
  - Percentage of streets with sidewalks on both sides
6 Keys to Walkability: Easy

6 Keys to Walkability: Comfortable
Make Walking a Pleasure

6 Keys to Walkability: Aesthetics
Example: Multimodal to Meet Community Goals

**Goal: Healthy Community**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Calories Burned Per Minute per Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving a Car</td>
<td>3.125</td>
</tr>
<tr>
<td>Carpooling</td>
<td>1.625</td>
</tr>
<tr>
<td>Riding a bus</td>
<td>1.625</td>
</tr>
<tr>
<td>Bicycling (leisure)</td>
<td>8.5</td>
</tr>
<tr>
<td>Walking (leisure pace)</td>
<td>4.375</td>
</tr>
<tr>
<td>Walking (brisk 3.5 MPH)</td>
<td>5.375</td>
</tr>
</tbody>
</table>

https://sites.google.com/site/compendiumofphysicalactivities/Activity-Categories

Walking is Very Healthy

THE BENEFITS OF PHYSICAL ACTIVITY THROUGHOUT THE LIFE CYCLE

- Save $2,741 per year in health care costs due to reduced risk of heart disease, stroke, cancer, and diabetes.
- Live 5 years longer.
- More energy increases in body mass index (BMI) over time compared to inactive peers.
- Can achieve 40% higher test scores than inactive peers.
- Take fewer sick days from work.
- More time with family and social interactions.
Walking is Healthy for Our Economy

**Residential**

- Disconnected Network: Poor access to goods and services decreases home values.
- Connected Network: $$$ High walkability increases home values.

**Commercial**

- Disconnected Network: Poor access to goods and services reduces commercial property values.
- Connected Network: 56% increase in commercial property values.

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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 8th Ave from 23rd to 31st Sts. compared to 3% borough-wide.
Parking

The Same Space Can Only Do So Much

Restaurant Table
5’ x 5’ = 25 ft²

Office Cubicle
8’ x 9’ = 72 ft²

Parking Space
10’ x 20’ = 200 ft²
How Much Parking is Enough Parking?

- No right answer; every place is different
- No such thing as set "demand" for parking:
  - Pricing
  - Availability
  - Transportation choices
- Don't confuse supply and availability
- Supply is a value judgment based on community goals

Why is Parking So Important?

Parking is an important part of the transportation network, but:

- Parking consumes land
- Parking is expensive
- Parking can work for or against the pedestrian
How Much does Parking Cost?

Surface: +/- $10,000 or $60/month

Garage: $20,000 or $120/month

Underground: $40,000 or $240/month

Don’t Allow Parking to Scare People Away
## Vary Parking by Your Town’s Goals

<table>
<thead>
<tr>
<th>Typical Tools</th>
<th>Typical Minimum Requirements</th>
<th>‘Tailored’ Minimum Requirements</th>
<th>Abolish Minimum Requirements</th>
<th>Set Maximum Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>❖ Requirement &gt; Average Demand</td>
<td>❖ Adjust for: Density, Transit, Mixed Use, ‘Park Once’ District, On-street spaces</td>
<td>❖ Market decides Garages funded by parking revenues, Manage on-street parking, Residential pkg permits allowed by vote</td>
<td>❖ Limit parking to road capacity, Manage on-street parking, Market rate fees encouraged/required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traffic</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Costs</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Pollution</td>
<td>High</td>
<td>Low</td>
</tr>
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### (shockingly easy) Results
10% reduction is often all it takes

Theoretical Capacity
Free flow condition

Performance Measures: Indicator Species

- Walking to school
- Recreational walkers
- Aging in place/retirees
Success

Thank You

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