Use of Public Space for Shared Mobility

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Presented
Carsharing Conference
Vancouver, Canada
22 September 2015
Automobiles make wonderful servants but terrible masters.

Design your community for people, and then accommodate motor vehicles. Don’t design communities for vehicles and then try to accommodate people.
Cities Require Density

• Cities are places where many people and activities locate close together. This increases efficiency by reducing the distances that people and goods must travel to reach destinations.

• Urban space is always scarce and valuable. To be efficient and equitable, urban roads must be managed to favor higher value trips and space efficient modes over lower value trips and space intensive modes.
Urban efficiencies can provide various economic, social and environmental benefits:

- Transport cost savings for households and businesses.
- Reduced costs of providing public infrastructure and services.
- Improved economic opportunity to disadvantaged people.
- Lower traffic risk and improved public health.
- Reduced per capita land consumption, which preserves farmland and wildlife habitat.
- Increased economic productivity.
- Energy conservation and emission reductions.
Sprawl Costs – Smart Growth Benefits

The report, Analysis of Public Policies that Unintentionally Encourage and Subsidize Sprawl, for the New Climate Economy, describes and quantifies the costs of sprawl and benefits of smart growth policies, and identifies specific policy reforms for more efficient development.
# Recipe for Successful Cities

<table>
<thead>
<tr>
<th>Factor</th>
<th>Un-Constrained</th>
<th>Semi-Constrained</th>
<th>Constrained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth pattern</td>
<td>Expand as needed</td>
<td>Expand less than population growth</td>
<td>Minimal expansion</td>
</tr>
<tr>
<td>Optimal regional density</td>
<td>20-40</td>
<td>40-100</td>
<td>80 +</td>
</tr>
<tr>
<td>(residents / hectare)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimal vehicle ownership</td>
<td>300-400</td>
<td>200-300</td>
<td>&lt; 200</td>
</tr>
<tr>
<td>(motor vehicles per 1,000 residents)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing types</td>
<td>A majority can be small-lot single-family and adjacent</td>
<td>Approximately equal portions of small-lot single-family, adjacent, and multi-family.</td>
<td>Mostly multi-family</td>
</tr>
<tr>
<td>Private auto mode share</td>
<td>20-50%</td>
<td>10-20%</td>
<td>Less than 10%</td>
</tr>
<tr>
<td>Portion of land devoted to roads and parking</td>
<td>10-15%</td>
<td>15-20%</td>
<td>20-25%</td>
</tr>
</tbody>
</table>
Road and Parking Space Requirements

<table>
<thead>
<tr>
<th>Mode</th>
<th>Parking Area</th>
<th>Travel Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bus Transit</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bicycling</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Motorscooter</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Automobile</td>
<td>130</td>
<td>30</td>
</tr>
</tbody>
</table>
Streets Are Valuable Public Assets

Streets are most cities most valuable assets.

The should be shared by all residents.
Many people cannot or should not drive:

- Youths 8-18 (about 20% of total population).
- Seniors over 70 who do not or should not drive (about 10% of total population and increasing).
- Adults who cannot drive due to disability (3-5%).
- Households with low incomes that want to minimize automobile expenses.
- People impaired by alcohol or drugs.
- People who walk or bike for enjoyment and health.
- Pets who walk or bike for enjoyment and health.
- Motorists who want to avoid chauffeuring non-drivers.
Sustainability emphasizes the integrated nature of human activities and therefore the need to coordinate planning among different sectors, jurisdictions and groups.
Sustainable Transportation?

Is a transport system sustainable if all vehicles are electric powered?
Electric Power Does Not:

- Reduce traffic congestion
- Reduce accidents
- Reduce roadway costs
- Reduce parking facility costs
- Reduce vehicle purchase costs
- Improve mobility for non-drivers
- Improve social equity
- Improve public fitness and health
- Reduce sprawl
- Protect threatened habitat
Win-Win Solutions

More comprehensive planning helps identify “Win-Win” strategies: solutions to one problem that also help solve other problems facing society.

Ask:

“Which congestion-reduction strategy also reduces parking costs, saves consumers money, and improves mobility options for non-drivers.”
## Comparing Benefits

<table>
<thead>
<tr>
<th>Planning Objectives</th>
<th>Expand Roadways</th>
<th>Efficient and Alt. Fuel Vehicles</th>
<th>Improve Efficient Modes and Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce traffic congestion</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Improved travel experience</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Roadway cost savings</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Parking cost savings</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Consumer cost savings</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Improve mobility options</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Improve traffic safety</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Energy conservation</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pollution reduction</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Land use objectives</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Public fitness &amp; health</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Motor Vehicle Travel is Peaking

- Motor vehicle saturation.
- Aging population.
- Rising fuel prices.
- Increased urbanization.
- Increased traffic and parking congestion
- Improved transport options
- Changing preferences
- Health Concerns
- Environmental concerns

Vehicle travel grew steadily during the Twentieth Century but stopped about 2003.
“Governments may find that changes in driving habits force them to rethink infrastructure. Most forecasting models that governments employ assume that driving will continue to increase indefinitely. Urban planning, in particular, has for half a century focused on cars.

If policymakers are confident that car use is waning they can focus on improving lives and infrastructure in areas already blighted by traffic rather than catering for future growth.

By improving alternatives to driving, city authorities can try to lock in the benefits of declining car use.
<table>
<thead>
<tr>
<th>Definition of Transportation</th>
<th>Old Paradigm</th>
<th>New Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility (physical travel)</td>
<td>Accessibility (people’s overall ability to reach services and activities)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport planning goals</th>
<th>Maximize travel speeds and minimize user costs</th>
<th>Optimize transport system efficiency and equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modes considered</td>
<td>Mainly automobile</td>
<td>Multi-modal: Walking, cycling, public transport, and automobile</td>
</tr>
<tr>
<td>Performance indicators</td>
<td>Vehicle traffic speeds, roadway Level-of-Service (LOS), distance-based crash and emission rates</td>
<td>Quality of transport options. Multi-modal LOS. Land use accessibility. Quality of accessibility for disadvantaged groups. Various costs to users and society.</td>
</tr>
<tr>
<td>Favored transport improvement strategies</td>
<td>Road and parking facility expansion.</td>
<td>Improve transport options. TDM. More accessible land development.</td>
</tr>
<tr>
<td>Health impacts considered</td>
<td>Per-kilometer traffic crash and pollution emission rates</td>
<td>Per capita crash, emission and physical activity rates, and basic access 17</td>
</tr>
</tbody>
</table>
Automobile Dependency and Sprawl

During the last century many transport and land use development practices tended to favor automobile dependency and sprawl. Many of these trends are now reversing, resulting in a new cycle of growing demand for multi-modal transportation systems and more compact communities.
Valuing Multi-Modalism

An efficient and equitable transportation system is diverse and has suitable incentives for users to choose the best mode for each trip, considering all impacts (benefits and costs).

Current planning does a poor job of valuing this diversity.
An efficient urban transport system encourages people to use the most efficient mode for each trip:

- Walking and cycling for local travel.
- Public transit for travel on busy corridors.
- Driving only when necessary.
Menu for Reducing Vehicle Ownership

- Good walking and cycling conditions.
- Efficient public transit.
- Compact, mixed land use, (neighborhood services).
- Carsharing (vehicle rentals that substitute for private vehicle ownership)
- Efficient parking pricing (charging motorists for using parking facilities)
Sustainable Transport Hierarchy

1. Walking
2. Cycling
3. Public Transit
4. Service & Freight
5. Taxi
6. HOV
7. Private Automobile
A Complete Street is designed for all activities, abilities, and travel modes. Complete Streets provide safe and comfortable access for pedestrians, cyclists, transit users and motorists, and a livable environment for visitors, customers, employees and residents in the area.
Roadway Uses and Users

Mobility
- Motorists
- Bus passengers
- Freight and service vehicles
- Pedestrians (passing through)
- Cyclists

More than 30 km/hr traffic speeds

Destination (Livability)
- People standing, sitting, walking
- Customers
- Businesses and their employees
- Property owners
- Residents

Less than 30 km/hr traffic speeds
Carsharing

Automobile rental services intended to substitute for private vehicle ownership:

- Located in neighborhoods, and sometimes in buildings.
- Priced by hour and day.
- Convenient to rent.
Carsharing Roles

- Provides affordable mobility for motorists who cannot afford to own a car but want to use them occasionally.
- Substitutes for vehicle ownership. A typical shared vehicle replaces 5-15 private cars.
- When households own a car, they have an incentive to use it, in order to get their money’s worth from the high fixed costs. Carsharing has minimal fixed costs, and variable costs 4-10 times higher than private automobiles. Shifting from owning to renting vehicles typically reduce drivers’ annual vehicle travel 40-60%.
• Private auto ownership has high fixed costs, low variable costs. This results in economically-excessive motor vehicle travel.

• Carsharing and taxis have minimal fixed costs, high variable costs.

• Public transit has no fixed costs, and moderate variable costs which plateau if a user purchases a monthly or annual pass.
Households can save thousands of dollars annually by reducing their vehicle ownership.

This requires:

- Good walking and cycling conditions and convenient public transit and taxi services.
- Compact, mixed neighborhoods with services and activities near homes.
- Convenient vehicle rental services (such as carsharing).
Smart Growth

- Compact (higher density)
- Mixed use
- Diverse housing types
- Connected roads
- Multi-modal
- Good walking and cycling conditions
- Good public transit services
- Efficient parking management
- Emphasis on the public realm (public places where people interact)
Parking Management

Various strategies that result in more efficient use of parking supply
Parking Management Strategies

- Share spaces, within a parking lot and between destinations
- Use of off-site parking, particularly for occasional overflow
- Reduced and more flexible requirements
- Regulate and price to prioritize use of the most convenient spaces
- Encouraging use of alternative modes, particularly during peak periods
- Improved walking conditions, to allow more convenient use of off-site parking facilities
- Improved user information, so travelers can determine their travel and parking options.
- Improved design of existing parking facilities
Affordable-Accessible Housing

- Locate affordable housing in accessible areas (near services and jobs, walkable, public transit).
- Diverse, affordable housing options (secondary suites, rooms over shops, loft apartments).
- Reduce parking requirements and unbundle parking.
- Reduce property taxes and utility fees for compact infill housing.
## Carsharing Benefits

<table>
<thead>
<tr>
<th>Category</th>
<th>Improved Mobility Option</th>
<th>Reduced Vehicle Ownership</th>
<th>Reduced Vehicle Travel</th>
<th>Support for More Compact Development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicators</strong></td>
<td>Carsharing Availability and Use</td>
<td>Per Capita Vehicle Ownership</td>
<td>Automobile Travel Reductions</td>
<td>Portion of Development in TODs</td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td>Affordable mobility option – increased mobility by people who cannot afford an automobile</td>
<td></td>
<td></td>
<td>Improved accessibility, particularly for non-drivers</td>
</tr>
<tr>
<td></td>
<td>Option value (value of having options that may sometime be useful)</td>
<td></td>
<td></td>
<td>Additional vehicle travel reductions (“leverage effects”), such as a shift to walking</td>
</tr>
<tr>
<td></td>
<td>Equity benefits (since existing users tend to be disadvantaged)</td>
<td></td>
<td></td>
<td>Reduced infrastructure costs from more compact development</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td>Any public costs to support carsharing, including financial and parking subsidies.</td>
<td></td>
<td></td>
<td>Openspace preservation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduced convenience.</td>
<td>Reduced automobile business activity</td>
<td>Various problems associated with denser development</td>
</tr>
</tbody>
</table>
Discussion Questions

• What are Carsharing’s most important roles and benefits? Is there consensus on this?

• What are the best ways to support Carsharing (financial subsidies, free or discounted public parking, reduced parking requirements for developments that include them)?

• To what degree should developments, private companies and local governments be willing to support and subsidize carsharing? How much would be excessive?

• How can we best communicate the benefits of Carsharing to various stakeholder groups (potential users, developers, transportation practitioners, public officials, the general public)?
“Analysis of Public Policies That Unintentionally Encourage and Subsidize Urban Sprawl”

“Affordable-Accessible Housing in a Dynamic City”

“Transportation Cost and Benefit Analysis”

“Evaluating Transportation Affordability”

“Evaluating Carsharing Benefits”

“Online TDM Encyclopedia”

and more...

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