Walking and Cycling for *ALL* New Jerseyans

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Walking and Bicycling: the *MOST* sustainable transport modes

- **MOST environmentally friendly:**
  > Virtually no pollution at all
  > Almost no nonrenewable resources used

- **MOST equitable:**
  > Financially affordable by virtually everyone
  > Physically possible by all but the severely disabled

- **MOST economical:**
  > Minimal private and public costs
  > Although they take more time, they provide exercise that reduces medical costs and greatly extends our healthy life expectancy
WALKING AND CYCLING ARE HEALTHY!

• GREAT source of physical activity:
  • Both for daily travel and for recreation
  • Cheaper, easier, and more dependable than formal exercise routines
  • Can be integrated into daily lifestyle to achieve practical travel needs
Crucial importance of regular physical exercise:

- Obviously, the daily physical exercise of walking and cycling for practical travel helps burn up calories and helps avoid the problems of *overweight and obesity*

- Moreover:

  "*Whether normal-weight, overweight, or obese, physically inactive persons are 2 to 3 times more likely to die prematurely.*"

Huge Health Benefits of Even Small Increases in Physical Activity

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

1990

1999

2009

Source: Behavioral Risk Factor Surveillance System, CDC.
Worsening Obesity Epidemic among American Children and Adolescents, 1963-2002 (% with body mass index of 30+)


SOURCE: CDC/NCHS, NHES and NHANES
Obesity Rate by Country (Body Mass Index ≥ 30)

(percentage of adults)
Does car dependence make us fat? Obesity falls sharply with increased walking, cycling, and transit use!
Share of Trips by Cycling and Walking

*data for commute only
Daily Distance Walked and Cycled Per Person
Lots of Potential for Increased Walking and Cycling in the USA:

Many daily trips in American urban areas are short enough to make by bike!

- 25% of all trips \( \leq 1 \text{ mile} \)
- 40% of all trips are \( \leq 2 \text{ miles} \)
Lots of Potential for Increased Walking and Cycling in the USA:

• Possible at any age, except for very young and very old
• Women as well as men
• Possible for wide range of skills and physical abilities
• Affordable by everyone
Women’s Share of Bike and Walk Trips in Europe and North America

- USA: 25% (Cycling), 52% (Walking)
- UK: 27% (Cycling), 53% (Walking)
- Canada: 30% (Cycling), 56% (Walking)
- Denmark: 49% (Cycling), 55% (Walking)
- Germany: 56% (Cycling), 56% (Walking)
- Netherlands: 56% (Cycling), 56% (Walking)
**Bike and Walk Share of Trips by Age Group**

- **Walking**
- **Cycling**

**Age Group**
- 5-15
- 16-24
- 25-39
- 40-65
- 65+

**USA**

**UK**

**Germany**

**Denmark**

**Netherlands**

Percent of trips by foot and bike.
Cycling can start at a very young age

Foto by Marie Demers
And we can keep cycling all life long!!!
Mother and kids cycling together in Amsterdam
Parents and kids cycling together in Portland
Bikes can be adapted for different abilities and needs

Ann and Mike’s ‘Triple Take Tandem’
Make Walking and Cycling Safe for Everyone!

- Especially important for the young, the old, for anyone with disabilities, for the timid or risk-averse

- Women more sensitive to safety than men

- Safety of walking and cycling in the Netherlands, Denmark, and Germany helps explain high levels of walking and cycling there
Cyclist and Pedestrian Fatality and Injury Rates

- Cyclists killed per 100 million km cycled 2008
- Cyclists injured per 10 million cycled 2008
- Pedestrians killed per 100 million km walked
- Pedestrians injured per 10 million km walked

<table>
<thead>
<tr>
<th>Country</th>
<th>Cyclists Killed</th>
<th>Cyclists Injured</th>
<th>Pedestrians Killed</th>
<th>Pedestrians Injured</th>
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<tr>
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<td>1.6</td>
<td>1.6</td>
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</tr>
<tr>
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<tr>
<td>UK</td>
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<tr>
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<td>5.5</td>
<td>9.7</td>
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<td>9.7</td>
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</table>
Trends in Cyclist Fatalities

- USA
- UK
- Denmark
- Germany
- Netherlands
Trends in Pedestrian Fatalities

Total pedestrian fatalities relative to 1970 (=10)

- USA
- UK
- Denmark
- Germany
- Netherlands
SAFETY IN NUMBERS

• As levels of cycling increase, injury and fatality rates per trip and per km traveled fall dramatically.

• Thus, if we can increase cycling, it will almost inevitably be safer.
Public Policies **Crucial** to Increase Cycling

- Pro-car policies in European cities in 1950s and 1960s caused huge decline in cycling
- Dramatic policy turn-around since 1970s to limit car use and promote cycling, walking, and public transport in Dutch, Danish, and German cities
Bridge in Freiburg BEFORE and AFTER reforms
Typical residential street in Freiburg BEFORE traffic calming reforms

Typical residential street in Freiburg AFTER traffic calming reforms
Cathedral Square in Freiburg BEFORE transport and urban planning reforms

Cathedral Square in Freiburg AFTER transport and urban planning reforms
Transformation of German Urban Planning and Transport Policies since 1950s

In 1953, prior to massive car use

Lots of cycling and few cars in city center

Lörrach, Turmstrasse 1953

Source: Archives, City of Lörrach
In 1972, just before urban planning and transport reforms.
In 2006, after car-restrictive reforms, return to civility, keeping cars completely out of the city center and reserving it for pedestrians and cyclists.

Lörrach, Turmstrasse 2006
## German Cycling Boom Engineered by Explicit Shifts in Transport Policy in 1970s

<table>
<thead>
<tr>
<th>City</th>
<th>Time Period</th>
<th>Change in Bicycle Modal Split Share</th>
<th>Percentage Increase in Bicycle Share</th>
</tr>
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<tbody>
<tr>
<td>Munich</td>
<td>1976 to 1996</td>
<td>6% to 13%</td>
<td>+117%</td>
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<tr>
<td>Nuremberg</td>
<td>1976 to 2001</td>
<td>4% to 9%</td>
<td>+125%</td>
</tr>
<tr>
<td>Cologne</td>
<td>1976 to 1998</td>
<td>6% to 12%</td>
<td>+100%</td>
</tr>
<tr>
<td>Freiburg</td>
<td>1976 to 1998</td>
<td>12% to 19%</td>
<td>+58%</td>
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<td>Stuttgart</td>
<td>1976 to 2000</td>
<td>2% to 6%</td>
<td>+200%</td>
</tr>
<tr>
<td>Bremen</td>
<td>1976 to 1997</td>
<td>16% to 21%</td>
<td>+31%</td>
</tr>
<tr>
<td>Muenster</td>
<td>1976 to 2001</td>
<td>29% to 35%</td>
<td>+21%</td>
</tr>
<tr>
<td>Average for all urban areas in Western Germany</td>
<td>1972 to 2002</td>
<td>8% to 10%</td>
<td>+25%</td>
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</table>

Increase in Bike Share of Trips in Cities Around the World

Increase in Bike Share of Trips in Cities Around the World

Increasing Bicycle Use in Portland

1992: 83 miles of bikeways 2,850 daily trips

2007: 271 miles of bikeways 14,563 daily trips
Portland vs. Dallas

• Bike share of trips in Dallas FELL:
  0.15% in 1990
  0.05% in 2008

• Bike share of trips in Portland ROSE 5-fold:
  1.15% in 1990
  6.20% in 2008

Differences in cycling policies:
• Almost no bikeway facilities in Dallas
• Quadrupling in bikeway facilities in Portland
How to Encourage More Walking and Cycling while Improving Safety

- Better cycling and walking facilities
- Integration of walk/bike with public transport
- Traffic calming of residential neighborhoods
- Mixed-use zoning and improved urban design
- Restrictions on motor vehicle use
- Traffic education and Safe Routes to School
- Traffic regulations and enforcement
Most European cities have extensive car-free districts ideal for walking and cycling.
Lively, safe, pleasant car-free zone in central Copenhagen
Which crosswalk do YOU think is safer?
Best pedestrian crossing in New Brunswick

Roughly 80% of motorists stop for pedestrians in this crosswalk

Pucher: Walking and Cycling for Health
Lousy pedestrian crossing at core of Rutgers University

Only about 20% of motor vehicles yield for pedestrians at this crosswalk on Hamilton Street.
LETHAL pedestrian crossing in New Brunswick: Rt. 18 ‘improvement’

Insanely configured crosswalk is extremely dangerous for cyclists as well.

Motor vehicles **SPEED UP** on this off-ramp and NEVER yield to pedestrians.
What idiot designed this crosswalk?

Accelerating motor vehicles coming from the left who NEVER yield to pedestrians

Good luck making this sharp turn: Non-existent sidewalk at other end

Extremely sharp angles at both ends of crosswalks that force most cyclists to dismount
No provisions of any kind AT ALL for cyclists on this crucial arterial connection between Highland Park and New Brunswick

Why 99% of cyclists ride on the walkway and not on the roadway
Every time it rains, water ponds up on Rt. 27, and pedestrians get DRENCHED with bucketsful of water!
Running the gauntlet across the bridge, dodging masses of filthy water splashed by cars and trucks onto the walkway!

Big decision: Which way to hold the umbrella??

Photo: Ralph Buehler
Unsafe sidewalks in New Brunswick

Photos: Andy Besold
My favorite pedestrian walkway in New Brunswick

Plenty of room for cyclists as well! Perfect mixed-use path!
Bike paths such as these make it safe and comfortable for all to bike: including women, children, and seniors.
55% of all bike trips in Denmark are by women
Denmark: Ubiquitous short-cuts for right-hand turns and full-speed ahead for cyclists at red lights at T-intersections
Bicycle expressway-beltway in Muenster, Germany

• 38% of all trips in Muenster are by bike
• 58% of bike trips are by women
• One injury per 608,000 bike trips
My favorite recreational bike path along the Raritan-Delaware Canal

But this path is recreational and has almost no daily, utilitarian use
Santa Barbara coastal path: Safe and attractive both for cyclists and pedestrians

Conversion of two car lanes to bike path and wider sidewalk
Traffic-protected cycle track on 9th Avenue, NYC

• 250 mi of new bike lanes and paths since 2005
• doubling in bike trips
• halving of cyclist fatalities from 28 to 14
From 1996 to 2006, bike share of trips rose from 25% to 38%; fatalities fell 60%

Typical intersection in Copenhagen, with separate crossings for pedestrians and cyclists
Bike access lane approaching intersection in Dutch city

Netherlands has a cyclist fatality rate only a fifth as high as in the USA
Using special markings to raise visibility and safety of crossing
Improving safety of cycle tracks at road crossings
Contraflow lane in Strasbourg, France
Bike bridge along Yarra River in Melbourne

Bike bridge along Ems River in Muenster
Delaware & Raritan Canal Path:
Ped-bike bridge over Rt. 1 near Trenton

Photo: Andy Besold
Extensive, fully-integrated bikeway network in Freiburg, Germany

CRUCIAL to have full connectivity of cycling facilities! Usually lacking in North America
Special traffic signals and signs give priority to cyclists
Four-way all-green signal for cyclists in Portland

How to Use the New Bicycle Signal

1. TO GET A GREEN LIGHT
Place your bicycle on the marking on the sidewalk, with your wheels directly on the lines.

2. When the bicycle signal here is green...

3. ...cyclists can cross the intersection as shown here.

Bike sensor in pavement
Bike sensors in pavement to trigger green light for cyclists in Richmond, Metro Vancouver, BC
Green wave for *cyclists* in Odense, Denmark

Troels Andersen, “Cycling in Odense, Denmark”
Good bike route signage is crucial
Convenient air pumps for bikes throughout Odense
Traffic Calming of Residential Neighborhoods

• Speed limited *by law* to 30km per hour (19mph) or less

• *Physical measures* that force cars to slow down:
  • Road narrowing, zigzag routing, chicanes
  • Raised intersections and crosswalks
  • Traffic circles
  • Speed humps and bumps
  • Mid-block closures and artificial dead-ends
  • Bulb-outs at intersections and crosswalks, with sidewalk widening
Why Traffic Calming Saves Lives

Speed kills!

Traffic calming in Vancouver that promotes cycling while discouraging car use

One-way for cars, two-way for bikes

Foto: Rich Drdul
Convenient bike cut-thru for cyclists in Melbourne
3,800 km of traffic-calmed streets in Berlin: ideal for cycling
Traffic Calming in Freiburg, Germany

Improves safety and encourages more walking and cycling
Bike Boulevards in Portland

Traffic calming turns these streets into bikeways

Bike Boulevards in Portland
Many neighborhood streets in NJ are perfectly good for cycling even without any special facilities.

I cycle on this street in Highland Park every day and never have any problems.
**Fahrradstrassen** in Germany, *bicycle streets* where cyclists have absolute priority over cars for entire width of roadway.
Over half of NJ Transit buses now have bike racks, 95% by 2015
Bike on LRT in NJ and Minneapolis

Photo: Metro Transit

Photo: John Boyle
Bike on Suburban Rail in NJ

Photo: Leigh Ann Von Hagen
Bikes on Caltrain in San Francisco

Photo: San Francisco Bicycling Coalition
Trend in Percentage of Buses with Exterior Bicycle Racks in the USA, 2001-2008

(Source: APTA, Public Transportation Factbook 2008, Table 23)
Bike and Ride

Convenient and secure parking for 3,500 bikes at main train station in Muenster
Bike Wash at Muenster Bike Station
Bike Parking Corrals in Portland

86 corrals with 1,428 bike parking spaces in 2011
Traffic Education

• Improved motorist training, with *much* more emphasis on how to avoid endangering pedestrians and cyclists

• Compulsory traffic safety lessons for all school children by the age of 10, with testing by traffic police on actual traffic test courses, to ensure safe and defensive walking and cycling by an early age (as in the Netherlands and Germany)
German traffic laws generally favor cyclists and pedestrians over motorists.
Cycling training and testing course in Berlin

Most German and Dutch children take cycling lessons by the 3rd or 4th grade and must pass a police-administered cycling safety test!
Bike Training for Children in NJ
MARKETING CYCLING TO ALL SOCIAL GROUPS

• Very diverse needs of different groups

• Need to tailor cycling facilities, policies, and programs to serve this broad range

• Be as inclusive as possible

• Need good facilities as well as active marketing of cycling, with different approaches to each potential group of cyclists
Cycling Duckie for very young kids in Odense, Denmark
Cycling competitions for somewhat older kids in Odense, Denmark
Bike Training for Adults
GIVE EMPLOYEES FREE BIKES INSTEAD OF FREE PARKING!

The perfect zero emissions vehicles!

Troels Andersen, “Cycling in Odense, Denmark”
Get on a bike and lose weight!

“Get rid of the sack” Campaign aimed at overweight middle-aged men with pot bellies

Troels Andersen, “Cycling in Odense, Denmark”
Guided Bicycle Tours for Seniors

Troels Andersen, “Cycling in Odense, Denmark”
Safe Routes to School: Enable Children to Walk or Bike to Schools!

• Two thirds of American children who live within a mile of their school travel there by car.

• Only 13 percent of children in the USA walked or biked to school in 2001, compared to 60 percent in 1974.

• Most European children walk or bike to school, some ride transit, virtually *none* get chauffeured by their parents or drive themselves.

• Need improved walking and cycling facilities to prevent dangerous conflicts with motor vehicles, especially at crossings and intersections.
Good crosswalks crucial near schools!
Trend in Obese Children vs. Rate of Biking and Walking to School

- % of kids who bike or walk to school
- % of kids who are obese

Walking School Bus in Newark, NJ

These kids are actually having fun and getting good exercise, too!
Walking School Bus in Wharton, NJ

These kids are actually having fun and getting good exercise, too!
In the Netherlands, children can ride safely to school on traffic-protected bike paths.
Bike path leads directly to school in NL
Bike to School Day in California
Mixed-Use Zoning and Better Urban Design

• Inclusion of *sidewalks and bikeways or bike lanes* in all new suburban developments and retrofitting of existing developments, where possible

• *Mixed land use zoning* so that residential units are within easy walking or cycling distance of cultural facilities, shopping, and service establishments

• Encouragement of *compact, mixed-use development around transit stops* to facilitate walking/bicycling communities (transit-oriented development) through subsidies, mortgage bonuses, and zoning.

• *Restrict parking lots* to locations behind buildings rather than between buildings and the street (as with most strip mall development in USA).
Traffic Regulations and Enforcement

• *Revise traffic laws to place burden of proof on motorists*, with the assumption that motorist is guilty unless it can be shown otherwise, especially when children or elderly are involved in crashes (forcing motorists to be extra careful to avoid crashes with pedestrians and cyclists)

• *Enforce existing legal rights of pedestrians and cyclists*, with strict penalties and fines for motorist violations of ped/bike rights of way in crosswalks, bike lanes, intersection crossings.

• *Traffic cameras at intersections to photograph motorists* failing to stop or yield when required to do so, with automatic ticketing for violations
CONCLUSIONS:

• Broad range of public health benefits of walking and cycling have potential to provide widespread political support for more sustainable transport policies

• Almost everyone could walk and cycle more on a daily basis, and thus reap these health benefits

• Many local trips in American cities are short enough to cover by walking or cycling

• Crucial to design ped-bike facilities and programs for everyone! Be as inclusive as possible!

• Public information campaign needed to emphasize both direct and indirect public health benefits of walking and cycling
For any questions or further information, please contact:

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