History of Bicycle and Pedestrian Planning

Overview

This module will begin by looking at the history of bicycle and pedestrian travel, or active transportation, and ways in which it has been designed and funded in the United States. Active transportation choices have economic, health, and environmental benefits which makes it increasingly relevant to communities across the United States today. Finally, there will be a discussion on different organizations and institutions which are collaborating and working on improving bicycle and pedestrian transportation.

Learning Objective:

- Become familiar with bicycle and pedestrian organizations working today
- Understand the changing patterns of transportation within the United States
- Identify potential relevant benefits to the community by incorporating bicycle and pedestrian planning.

Suggested Use

_x_ Professional Development _x_ Graduate Level _x_ Undergraduate

Time Required

__Less than 1 hour __ 1 hour _x_ 2-3 hours __Half-day Workshop __Full-day Workshop

Instructions

1. Announce purposes and give brief overview of the day
2. Give lecture
3. Break for discussion and questions
4. Assignment
5. Circulate handouts and evaluations

Lecture

"History and Relevance of Bicycle and Pedestrian Planning in the United States"

1. History of Bicycle and Pedestrian Travel in the US
2. Relevance: Why bike and ped planning?
    a. Economic benefits
    b. Health benefits
    c. Environmental benefits
    d. Transportation system benefits
    e. Quality of Life
3. Bicycle and Pedestrian Institutions and Organizations

Suggested Materials and Handouts

- Spreadsheet of Bicycle and Pedestrian Organizations
- America Bikes Talking Points

- America Bikes Top 10 Facts on Bicycling and Walking in the United States
- Bicycle Success Stories: Investment Works
- America Bikes: Project Funding Eligibility
- PBIC 15 Year Status Report, The National Bicycling & Walking Study

Assignment

1. Investigating Bicycle and Pedestrian Organizations
2. Making the Case for Bicycle and Pedestrian Planning

Suggested Readings

Cortright, Joe (2009). Walking the Walk: How Walkability Raises Home Values in US Cities. *CEOs for Cities.* Retrieved from: http://blog.walkscore.com/wp-content/uploads/2009/08/WalkingTheWalk_CEOsforCities.pdf

Litman, Todd (2010). Economic Value of Walkability. *Victoria Transport Policy Institute.* Retrieved from: www.vtpi.org

Krizec, Kevin (2007). Estimating the Economic Benefits of Bicycling and Bicycle Facilities: and Interpretive Review and Proposed Methods. *Essays on Transport Economics* Part IV, 219-248, DOI: 10.1007/978-3-7908-1765-2_14

Rundle, A., Diez Roux, A., Freeman, L. M., Miller, D., Neckerman, K., & Weiss, C. (07 2 12). The urban built environment and obesity in New York City: A multilevel analysis. *American Journal of Health Promotion*, 10(19), 326–334.

Related Modules

- Context of other movements
- Data collection and research

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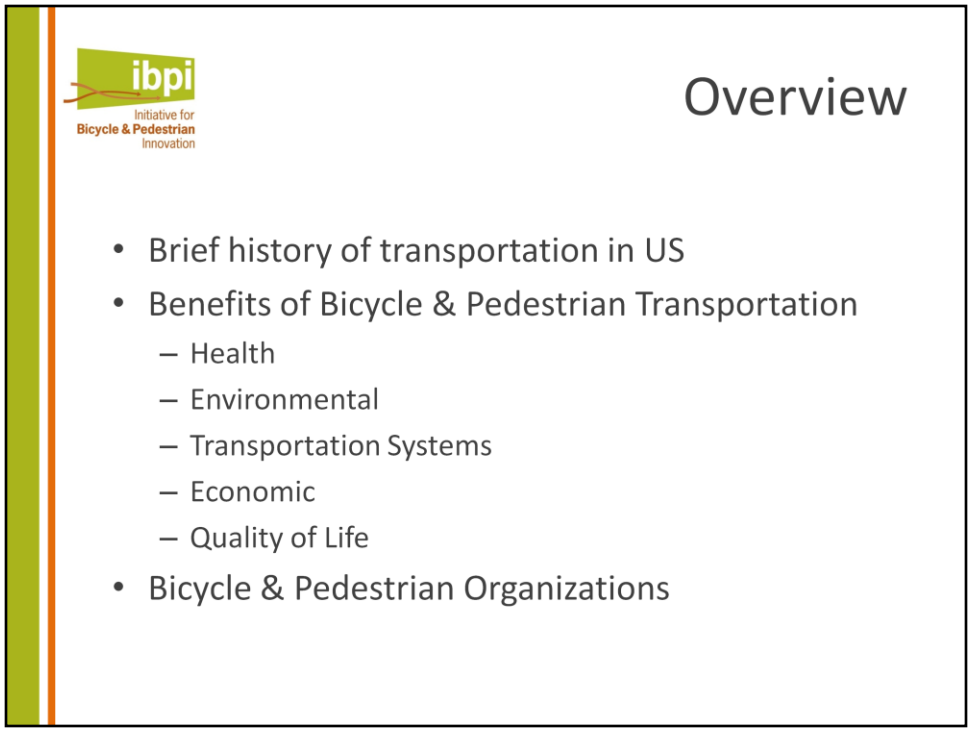
History & Relevance

Bicycle & Pedestrian Planning



Overview of what will be covered in this lecture.

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History

Walking & Horsecar Era

1800-1890

Rapid Transit in 1877 - First Horse Car run in Manchester, N.H.

For most of civilization, people got around on foot or animal.
Cities were compact and limited in size to the distance a person could reasonably walk.

This era was characterized by the absence of urban mass transportation. The city was laid out with short blocks and a mix of uses so there were many opportunities for contact with your neighbors and local commerce was supported. Urban densities were very high as the available space was strongly constrained by accessibility. All economic activities were concentrated in a central node along with residential areas.

The horsecar made its debut in this period, which allowed the development of corridors. From the 1850s, railways enabled radial development adjacent to railway stations, especially in Europe and in older American cities (e.g. New York).

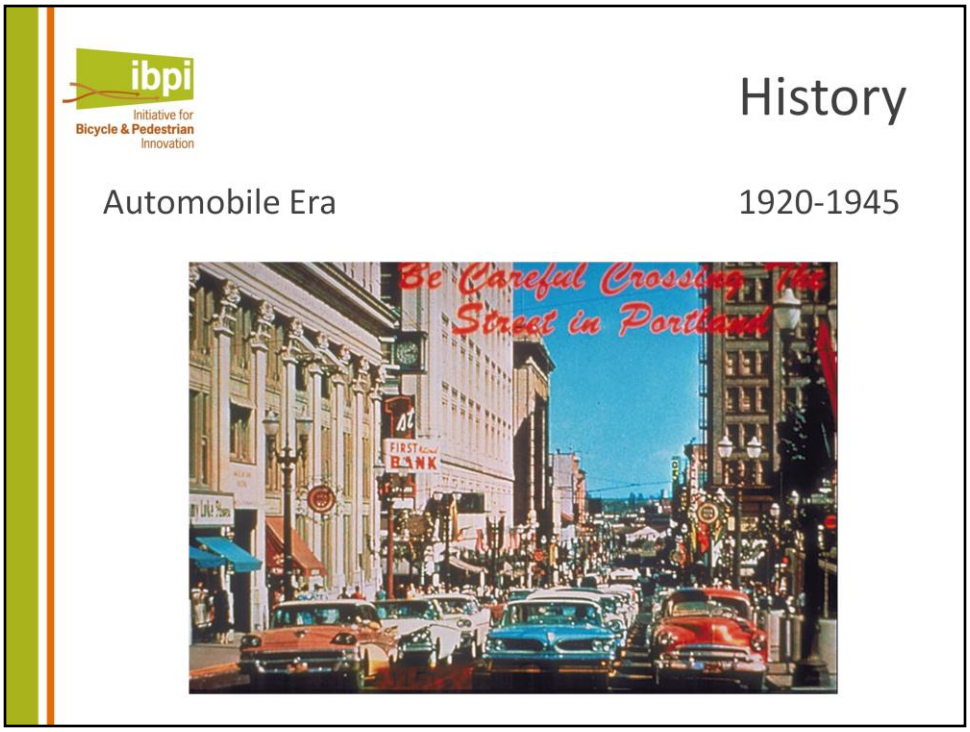
http://people.hofstra.edu/geotrans/eng

The development of urban mass transit technologies allowed cities to expand outwards along major streetcar lines. Streetcars tripled the speed of transit, which reinforced social stratification as "streetcar suburbs" emerged creating neighborhoods of differing socioeconomic status. Lower income residents remained less mobile and remained in the central city.

Less fortunate people, limited in their mobility, tended to remain in central areas while the wealthier class relocated in the first suburbs.

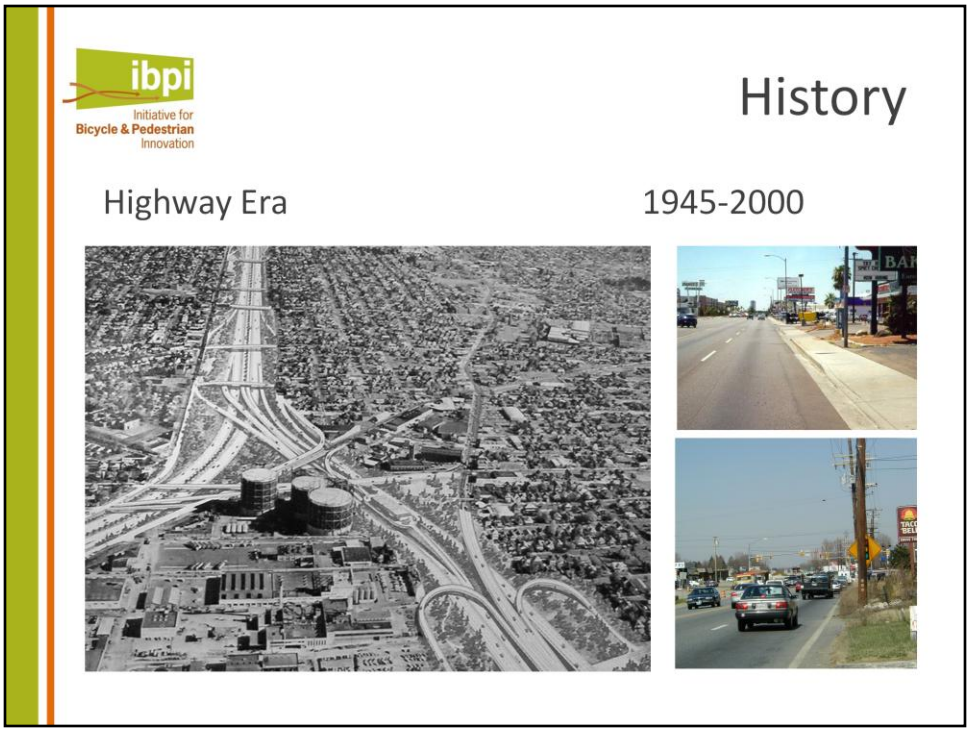
Introduction of the bicycle occurred in the late 1800's and was initially a recreational pursuit of the elite. The "bicycle boom" of the 1890's followed with more than 2 million bikes sold in 1897; at this time the bike was accessible transportation for all classes. The popularity of bicycles for recreation and transportation called for road improvements. At this time, bicycles didn't have to compete with automobiles for road space.

Bicycles also played a role in women's liberation and the suffrage movement. Debate around whether women should be allowed to bike was fierce, many fearing the athleticism and freedom it could provide would be detrimental to the moral character of the Victorian woman. By allowing women the feeling of freedom, mobility and independence, the bicycle helped to fundamentally transform social relations between the sexes.



Motorized transportation further expanded cities. The automobile had an incredible impact on the spatial layout of American cities, allowing for decentralized, low density suburbs (which contributed to racial and economic segregation) away from the central city.

In order to facilitate the diffusion of the road as a mode of urban transportation in the United States, several oil and car companies bought and dismantled tramway systems. For instance, in 1938 General Motors and Standard Oil bought the Pacific Electric Railway of Los Angeles, dismantled it and replaced tramways with buses. Consequently, the influence of streetcars in the urban development in North America was being removed.



Post WWII saw more and more individuals able to afford an automobile, increasing individual mobility. Highways allowed for more suburbs further out on the urban fringe. The accessibility of this transportation mode supported the decentralization of not only residential areas but employment centers.

Instead of clustering development within walking distance of home or a streetcar, we started building things further away from each other. Federal funding for freeways and the desire to separate uses – factories from homes for example – led to the development patterns that became the standard by the mid 1900s.

These photos are from streets built after WWII (or designed to be built, photo on left is of Portland's proposed highway that never happened). You can see it is a streetscape built for automobiles. The speed of arterials has increased, numerous curb cuts make sidewalks (where they are present) dangerous, the width of the street and the length between intersections makes it difficult to cross. Overall, the environment is not welcoming to bicyclists or pedestrians

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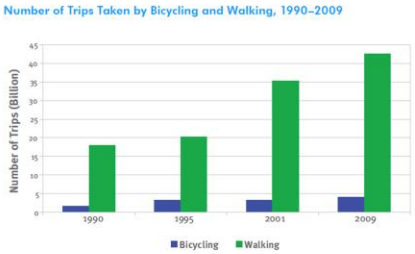
History: Funding

Intermodal Surface Transportation Efficiency Act (ISTEA) 1991

Federal funds more accessible to state & local bike/ped facilities & programs

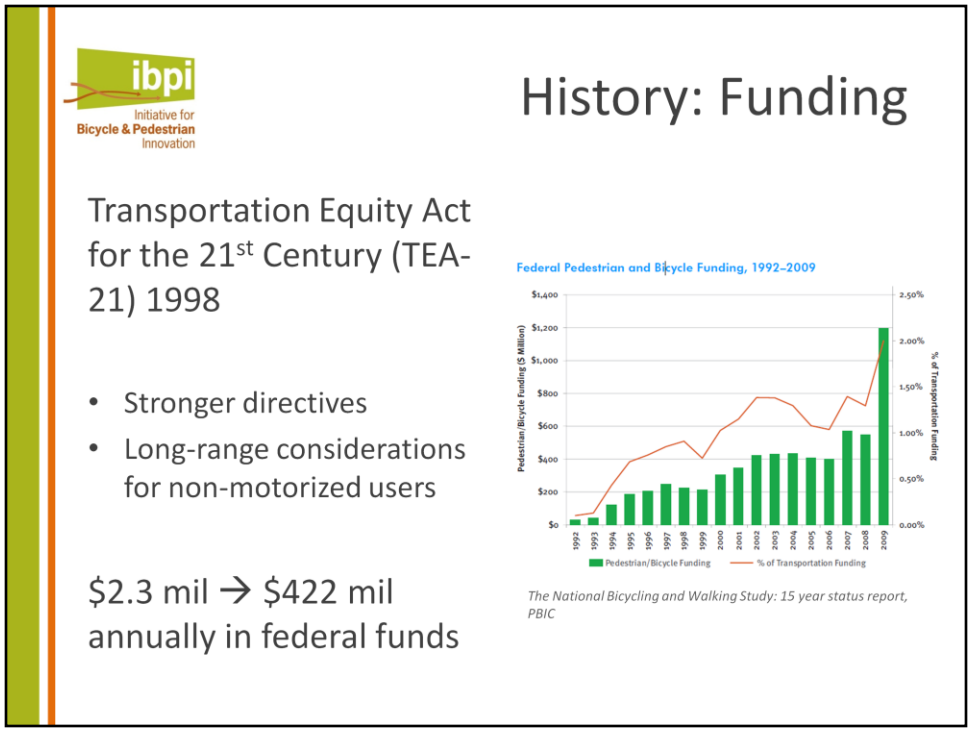
Goal: double % of trips made by foot and bike while reducing number of crashes by 10%.



The National Bicycling and Walking Study: 15 year status report, PBIC

Over time, the negative impacts of having solely auto-oriented development and funding from the federal government gave way to a movement that recognized a need for funding that incorporated bicycle and pedestrian facilities.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 is now viewed as the Federal act that initiated a major policy shift in Federal funding priorities in the United States, making Federal funds much more accessible for State and local bicycling and walking facilities and programs.



Subsequent Federal transportation legislation (the Transportation Equity Act for the 21st Century or TEA-21) has strengthened the emphasis on improving conditions for bicycling and walking. It carried forward the same programs for bicycling and walking established in ISTEA and included several new and stronger directives. TEA-21 amended existing surface transportation legislation by including a number of important policy statements:

- State and metropolitan planning organization (MPO) long-range plans are to "provide consideration of strategies that will increase the safety and security of the transportation system for motorized and nonmotorized users."
- Bicyclists and pedestrians shall be given "due consideration" in State and MPO plans.
- Bicycle and pedestrian facilities are to "be considered, where appropriate, with all new construction and reconstruction of transportation facilities."

TEA-21 also amended Federal transportation law to require the Secretary of Transportation to ensure that bicycle and pedestrian linkages are maintained and improved

As mandated, bicycle and pedestrian coordinators are in place in all 50 States, and some State departments of transportation (DOTs) maintain programs that are staffed with several professionals who focus solely on bicycle and pedestrian planning and design issues.

For the 18 years prior to ISTEA, federal government spent an average of 2.3 million a year for bicycling and walking. By 2003, funding had risen to $422 million which has provided communities with numerous benefits to their health, the environment, and

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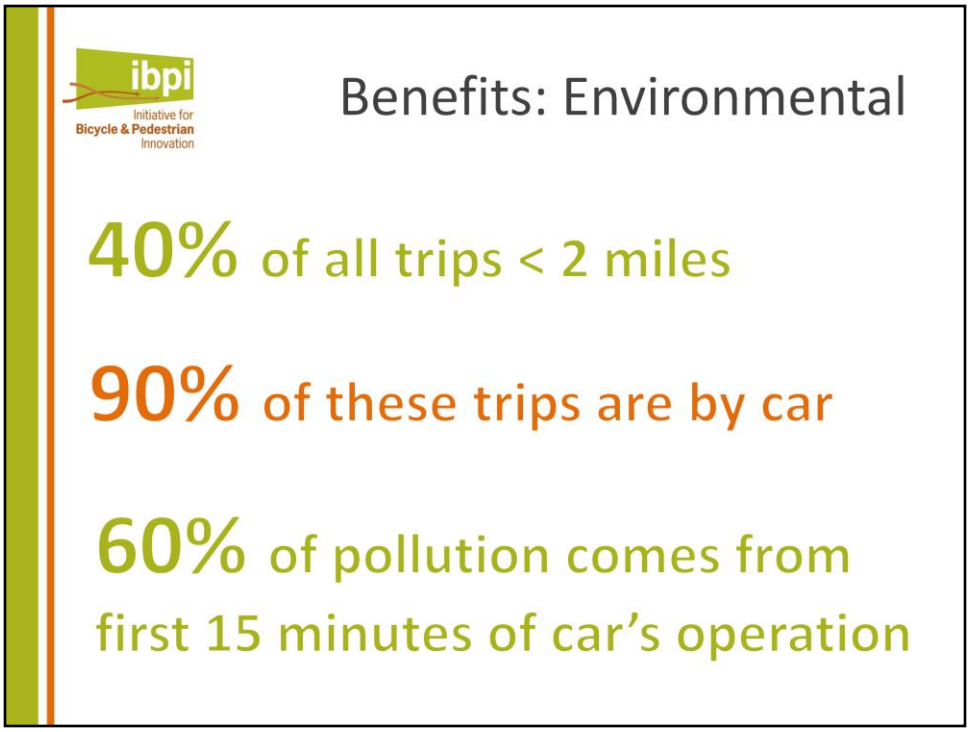
Relevant Benefits

- Environmental
- Economic
- Transportation System
- Health
- Quality of Life

We have discussed the history of bicycle and pedestrian planning in the context of America and design of cities.

Let us now turn to the benefits for a city that focuses on bicycle and pedestrian transportation



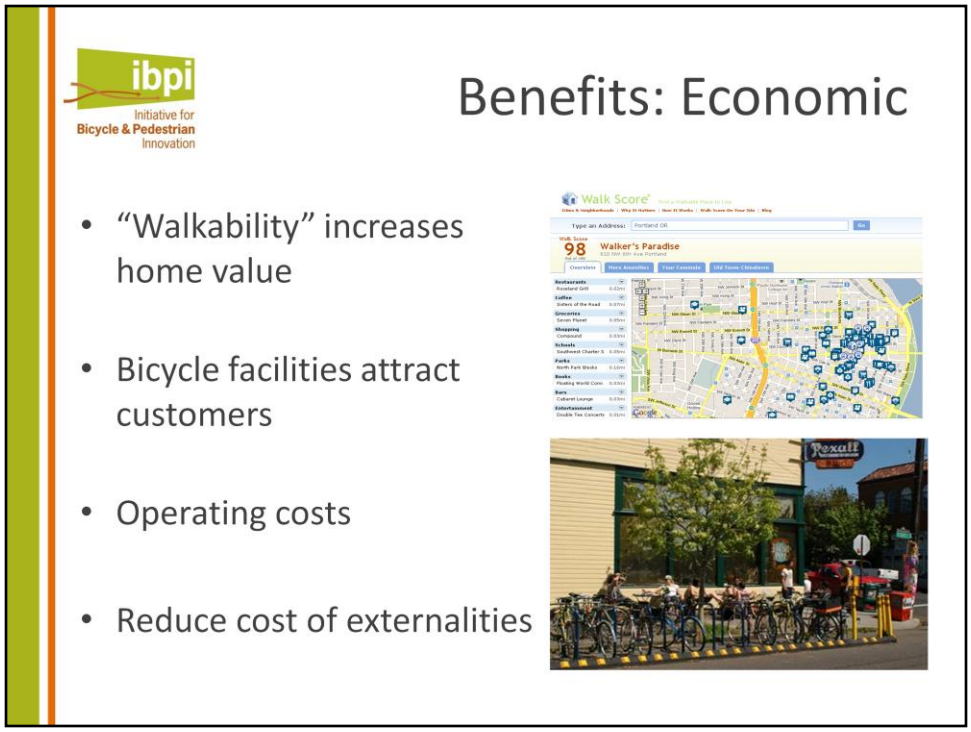
Automobile exhaust is a significant source of nonpoint source pollution in our air and water in the United States.

- 31% of carbon dioxide emissions are from cars,
- 81% carbon monoxide,
- 49% of nitrogen oxides come from cars (Clean Air Council).

A disproportionate amount of these emissions comes from the first few minutes a car is operational, meaning shorter trips produce more pollution.

If you can replace these shorter trips with non-motorized transportation, there is a significant energy savings and emission reduction. It was found that each 1% shift from automobile to non-motorized travel typically reduces fuel consumption 2-4% (Komanoff and Roelofs 1993).

Many programs and plans for bicycle and pedestrian transportation focus on shifting the mode choice for those trips that are less than 2 miles. These are trips that could feasibly be made by active transportation and would have enormous benefits for the environment.



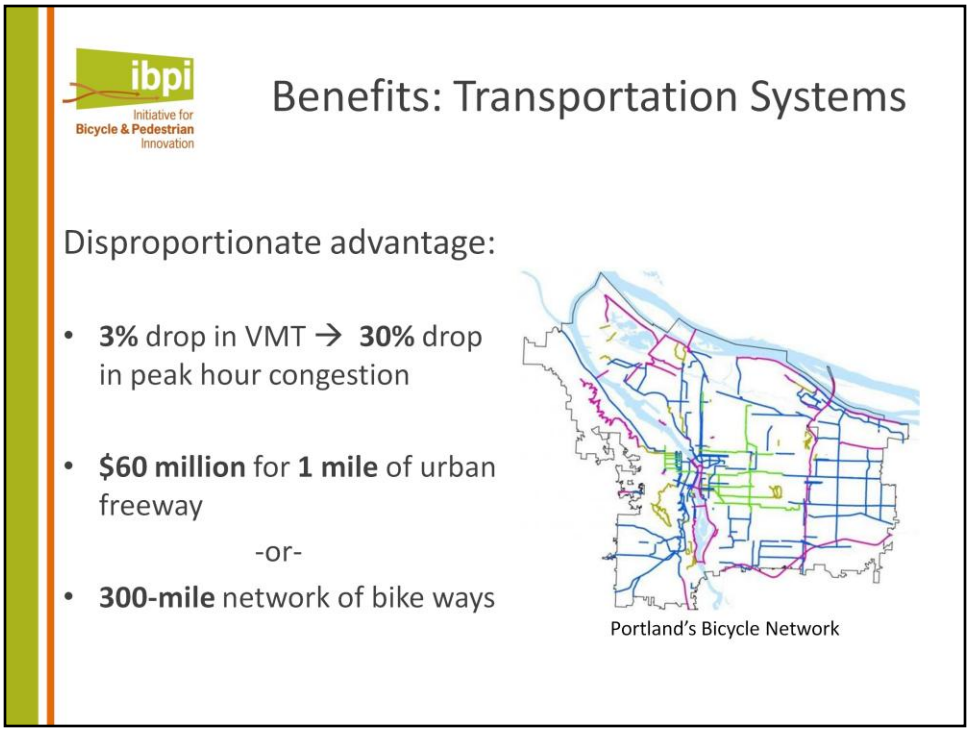
Many are seeing economic benefits of increasing walkability and bikeability in a city.

There is increasing demand for homes that are "within walking distance" to certain amenities. The online tool Walk Score objectively measures the walkability of an address based on proximity to a number of amenities. Research by the organization CEO's for Cities found that each additional one point increase in Walk Score was associated with between a $700 to $3,000 increase in home value.

The benefits don't end for homeowners. Many businesses see the benefit of increased foot traffic or providing facilities for bicyclists. The Portland Bureau of Transportation released a program summary that showed nearly 75 percent of businesses (in their SmartTrips Business program) said promoting walking and biking was good for business.

For the individual, the annual operating costs are much lower for a bicycle than a vehicle which could provide an enormous savings. The median cost for operating a car for a year is $5,140 vs $120 annually for a bicycle. As the cost of fuel continues to increase, this reliance on the automobile will take up more and more of a family's budget.

There are also economic benefits that are associated with environmental impacts. According to *Plan B, The Comprehensive State Bicycle Plan for Minnesota,* the American public saves from 5 to 22 cents for every automobile mile displaced by walking and bicycling through reduced pollution, oil import costs, and costs from congestion such as lost wages and time on the job.



Benefits to the larger transportation system are also noted by advocates for increased bicycle and pedestrian facilities.

It was found that a small reduction in driving causes a large drop in traffic. In 2008, the number of U.S. vehicle miles traveled dropped 3%, translating to a near 30% reduction in peak hour congestion. *INRIX National Traffic Scorecard, [http://scorecard.inrix.com/scorecard/summary.asp]*

Other stats:
In Washington, DC, the Capital Crescent Trail is used by almost 400 bicyclists during the 7-9 a.m. weekday period. This relieves rush hour traffic in one of the most congested metropolitan regions in the United States. *Coalition for the Capital Crescent Trail, www.cctrail.org.*

The cost of construction is also a factor that has a disproportionate advantage for bikes and peds over traditional roads and freeway planning. In the Portland example, the same price it would cost to build 1 mile of urban freeway, the city was able to build its 300 mile bikeway network. This network has been an incredible benefit to active transportation and makes the city known as a "World Class Biking City".

Looking at just one bridge in Portland exemplifies the advantage a strong bike network and community can have for a city's transportation system.

21% of all transportation trips on the Hawthorne Bridge in Portland are made by bike. If those 7,100 daily trips were made by car, Portland would have to build a new bridge (*Portland Bicycle Count Report 2009, Portland Bureau of Transportation.)*

Remember that Portland's 300 miles of bicycle facilities cost the city $60 million? A new bridge that is being constructed in Portland is currently budgeted for $330 million, another example of the relative inexpense and benefit of bicycle and pedestrian planning

The American obesity epidemic is no secret, there are a number of studies that have looked at the health impacts the increasingly sedentary lifestyle is having on Americans.

Research conducted in 1999 by the Centers for Disease Control and Prevention found that "obesity and overweight are linked to the nation's number one killer—heart disease—as well as diabetes and other chronic conditions." The report also states that one reason for Americans sedentary lifestyle is that "walking and cycling have been replaced by automobile travel for all but the shortest distances."[(9)]

Studies have shown a correlation between the built environment and the amount of routine physical activity, such walking and biking trips. A study published in the September 2003 issue of the *American Journal of Health Promotion* titled "Relationship between Urban Sprawl and Physical Activity, Obesity, and Morbidity" found that people living in sprawling counties "were likely to walk less, weigh more, and have greater prevalence of hypertension than those living in compact counties."[(7)] An earlier study published in the *American Journal of Preventive Medicine* showed a direct relationship between the amount of walking and the age of the home in which a person lives, as a proxy for the style of urban residential development that is common in older versus newer communities.[(8)] Thinking back to those streets that were built pre and post WWII we can imagine how this proxy would work, older homes are in neighborhoods that were not planned for with the automobile as the primary means of transportation. Those people who lived in older homes were found to walk more.

The US Surgeon General's recommended daily allowance for physical exercise comes from numerous studies that show the benefits of even brief, but regular, amounts of exercise each day.
Bicycling or walking to the store, school, or work also provides a time-efficient way of attaining the U.S. Surgeon General's recommended daily allowance of physical exercise. Of course, the opportunity to walk or bike must be provided through land use patterns and city facilities.

Quality of Life is a category that is harder to quantify. It has to do with an environmental and social quality that is perceived by residents, businesses, and visitors to the area. It is a more intangible quality, but there are still some commonly identified aspects of what gives an area a higher quality of life. The relationships within this area are also important, usually discussed as the number of interactions and sense of community connections. (Weissman and Corbett 1992; "Livability," VTPI 2008).

Walkability is one way to measure community livability. Since streets are a significant portion of the public realm where people can interact with their community and improve those community connections, more safe and walkable streets can improve the quality of life in the area.

It has been seen that residents on streets with higher traffic volumes and speeds are less likely to know their neighbors, and show less concern for their local environment, than residents on streets with less vehicle traffic.

"Benefits of Walkability", Victoria Transportation Institute, Todd Litman

Numerous national and local organizations are doing great work to encourage more bicycle and pedestrian planning. They have resources that can be used to research on potential projects and plans.

There is a list of organizations in the hand outs for this module with a brief description of their missions and their websites.

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Discussion

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History & Relevance

Bicycle & Pedestrian Planning

Overview

- Brief history of transportation in US
- Benefits of Bicycle & Pedestrian Transportation
  - Health
  - Environmental
  - Transportation Systems
  - Economic
  - Quality of Life
- Bicycle & Pedestrian Organizations

History

Walking & Horsecar Era

1800-1890

History

Streetcar Era

1890-1920

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History

Automobile Era

1920-1945

History

Highway Era

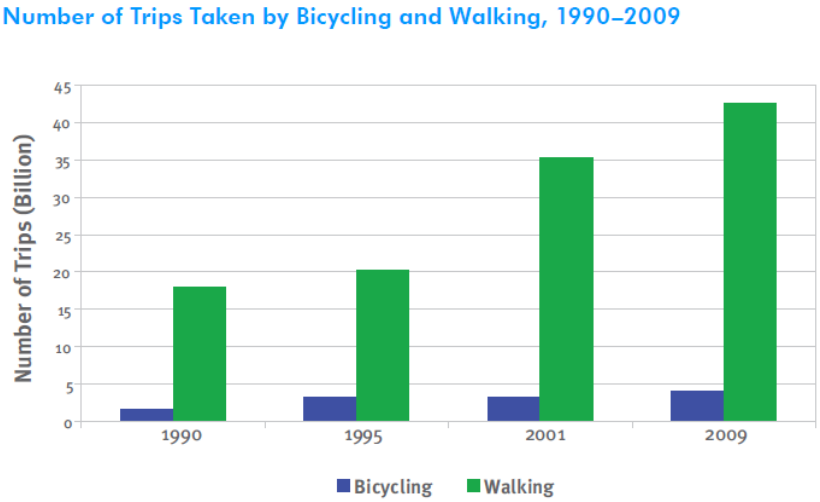
1945-2000

History: Funding

Intermodal Surface Transportation Efficiency Act (ISTEA) 1991

Federal funds more accessible to state & local bike/ped facilities & programs

Goal: double % of trips made by foot and bike while reducing number of crashes by 10%.



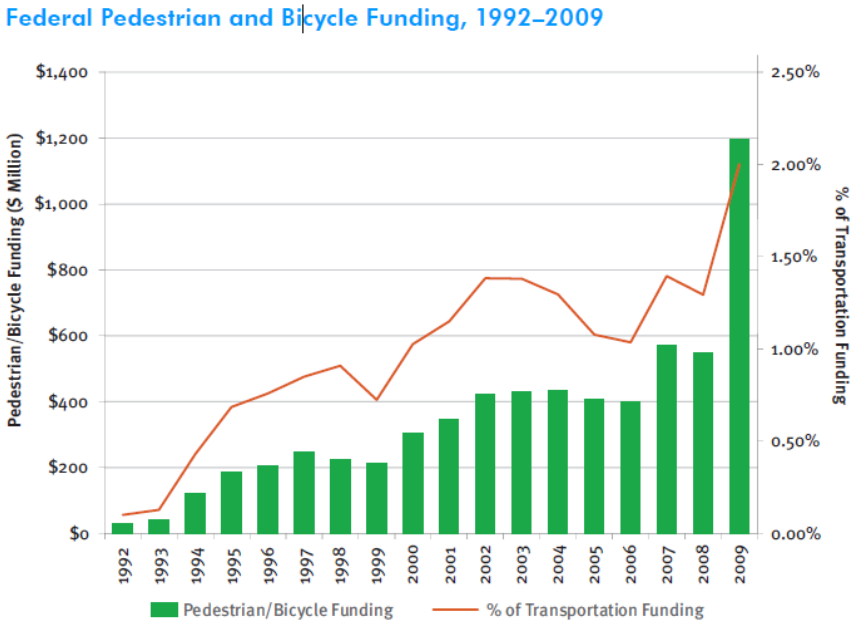
The National Bicycling and Walking Study: 15 year status report, PBIC

History: Funding

Transportation Equity Act for the 21st Century (TEA-21) 1998

- Stronger directives
- Long-range considerations for non-motorized users

$2.3 mil → $422 mil annually in federal funds



The National Bicycling and Walking Study: 15 year status report, PBIC

Relevant Benefits

- Environmental
- Economic
- Transportation System
- Health
- Quality of Life

Benefits: Environmental

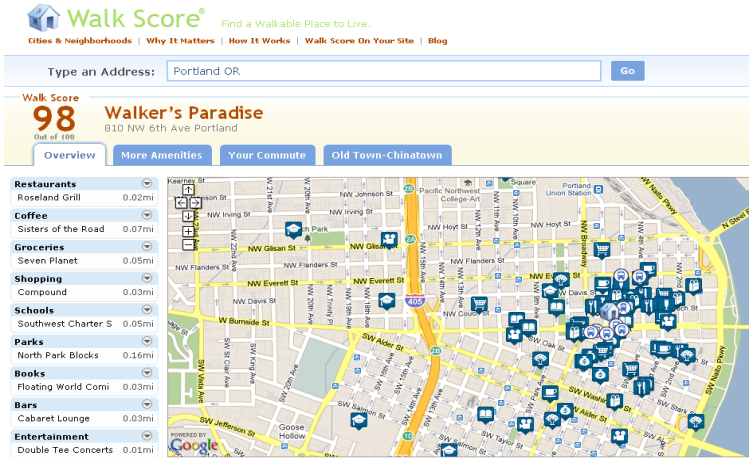
40% of all trips < 2 miles

90% of these trips are by car

60% of pollution comes from first 15 minutes of car's operation

Benefits: Economic

- "Walkability" increases home value
- Bicycle facilities attract customers
- Operating costs
- Reduce cost of externalities



Benefits: Transportation Systems

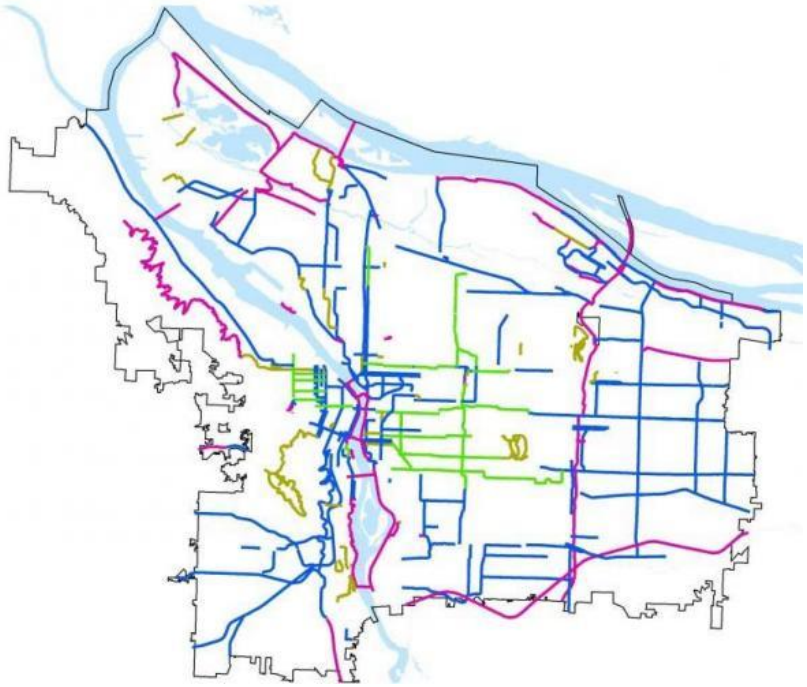
Disproportionate advantage:

- **3%** drop in VMT → **30%** drop in peak hour congestion

- **$60 million** for **1 mile** of urban freeway

-or-

- **300-mile** network of bike ways



Portland's Bicycle Network

Benefits: Transportation Systems

- **21%** of all trips over Hawthorne Bridge in Portland are by bike.
- Replace those trips with cars & the city would need to build a new bridge to handle the capacity

Benefits: Health

- Shift sedentary lifestyle
- Built environment impacts activity
- Small shifts in activity → large benefits

Benefits: Quality of Life

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Bicycle & Pedestrian Organizations

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Discussion

History of Bicycle and Pedestrian Planning

Assignment 1: Investigation of Bike & Pedestrian Organizations

Assignment Description for *Instructor*:

There are numerous national organizations for bike and pedestrian planning that can be tapped for information and support. In this assignment, students will investigate different organizations to see what kind of information and programming they have available to planners and advocates.

Instructor Prep Work:

- Review the spreadsheet of national organizations
- Choose some organizations that may be of interest to the class, enough that each student has their own to investigate
- Ensure there are sufficient studies and publications available for students to review
- Make sure websites and contact information are up to date for organizations

Time Required:

- Out of class time
- In class: 5 minutes for each student to give a brief class review of each organization

Assignment:

Students will write a 2-3 page summary that includes the mission of the organization, resources they offer, and how the organization could help a local jurisdiction expand their bicycle and pedestrian planning or design on encouragement and education programs.

History of Bicycle and Pedestrian Planning

Assignment 1: Investigation of Bike & Pedestrian Organizations

Assignment Description for Students:

There are numerous national organizations for bike and pedestrian planning that can be tapped for information and support. In this assignment, you will begin investigating different organizations to see what kind of information and programming they have available to planners and advocates.

Things to consider

- Types of studies and publications they have available
- Programs that could be replicated or a good resource for a project
- If there is a local chapter or mailing list to join
- Ways to utilize their research or services for a local project

Time Required:

- Out of class time
- In class: 5 minutes for each student to give a brief class review of each organization

Assignment:

Write a 2-3 page summary that includes the mission of the organization, resources they offer, and how the organization could help a local jurisdiction expand their bicycle and pedestrian planning or design on encouragement and education programs. Be able to discuss with the other students the purpose of the organization and how their work can be leveraged by planners or community advocates.

History of Bicycle and Pedestrian Planning

Assignment 2: Making the Case for Bicycle & Pedestrian Planning

Assignment Description for *Instructor*:

After having discussed the benefits of bicycle and pedestrian facilities for communities, students should spend some time thinking how to share the relevance to different community groups and interests. This will be a group activity that focuses on discussion of benefits to a particular audience.

Instructor Prep Work:

Identify some special community interests that are relevant to the community you are working in. Some suggested groups or interests may include:

1. Small, local businesses
2. Car commuters
3. PTA or other family focused groups
4. City Council
5. Real Estate Developer
6. Neighborhood Association
7. Business Association

Time Required:

In class:

- Teams of 3 or 4
- 20 minutes to create an outline for the case they will make to the interest group
- 5 minutes for each team to give a brief class overview

Assignment:

The students should create a brief outline of the points they will make to this audience about the benefits and relevance to their interests as well as how they have tailored their message to meet potential concerns. This should be presented to the larger group. If they have case studies or examples, they should give other students a brief summary of the project or program.

History of Bicycle and Pedestrian Planning

Exercise 2: Making the Case for Bicycle & Pedestrian Planning

Assignment Description for Students:

After having discussed the benefits of bicycle and pedestrian facilities for communities, you will spend some time thinking how to share the relevance to different community groups. This will be a group activity that focuses on discussion of benefits to a particular audience.

Things to consider

- What might be some relevant benefits to each particular group?
- What might their objections be? What are ways to overcome or frame the issue to alleviate these concerns?
- Are there any drawbacks or tradeoffs that will need to be made to incorporate more bike and pedestrian facilities?
- Are there any organizations that might be able to help make the case?
- Are there ways to enlist these interest groups as advocates for bicycle and pedestrian facilities? Specific requests of support you could ask for?
- Are there any examples of bike or pedestrian facilities in other areas you know of that might help make your case?
- What further research would you need to do?

Time Required:

In class:

- 20 minutes to create an outline for the case you will make to the interest group
- 5 minutes for each student group to give a brief class overview

Assignment:

A brief outline of the points you will make to this audience about the benefits and relevance to their community as well as how you have tailored your message to meet their potential concerns should be presented to the larger group. If you have thought of other case studies or examples, give the audience a brief summary of the project or program.