TRANSPORTATION & HEALTH RELATIONSHIP

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OUTLINE

1. Transportation Components

2. Basic Concepts in Transportation
   - Benefits
   - Externalities
3. Transportation & Public Health Pathways
4. Recommendations

TRANSPORTATION COMPONENTS

1. Infrastructure:
   - Guideways/Roadways/Causeways/Runways
   - Terminals/Ports
   - Stations
2. Vehicles
3. Equipment
4. Power Systems
5. Fuels
6. Controls/Communications/Location

Joseph Sussman (2000(Introduction to Transportation Systems

BASIC CONCEPTS IN TRANSPORTATION

- Essential component of a functioning society
- Provides access to goods and services,
- Offers opportunities for individual mobility and for better quality of life,
- Plays an important role in economic development

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BASIC CONCEPTS IN TRANSPORTATION

We are all pedestrians.

All journeys start as pedestrians

Paradox of free transportation: People do not travel "*in vain*"

Communication is a form of transportation

Purpose of Transportation : Fulfill demand for Mobility
Transportation is outcome of derived demand (economic activities)

Transportation can not exists alone
Transportation can not be stored

BENEFITS OF TRANSPORTATION

Ideal Transportation:

Would be free, unlimited capacity, always available

Purpose of Transportation: Overcome space

- Space/Distance/administrative divisions/time
- Cost

Transportation:

Transform geographical attributes freight, people, information from origin to destination: Value

Jean P. Rodrigue et al (2009) The Geography of Transportation Systems.

BENEFITS OF TRANSPORTATION

- Everyone benefits from using roadways, streets, sidewalks, trails, and public transportation for everyday needs.

- People use these facilities to get to and from work, school, and play, and to access basic necessities, such as health services and grocery stores.

- Transportation systems can also have harmful effects. These range from decreased air quality to a lack of safe places to walk, bike, and engage in physical activity without unnecessary risk.

FOCUS ON TRANSPORTATION ISSUES: EXTERNALITIES

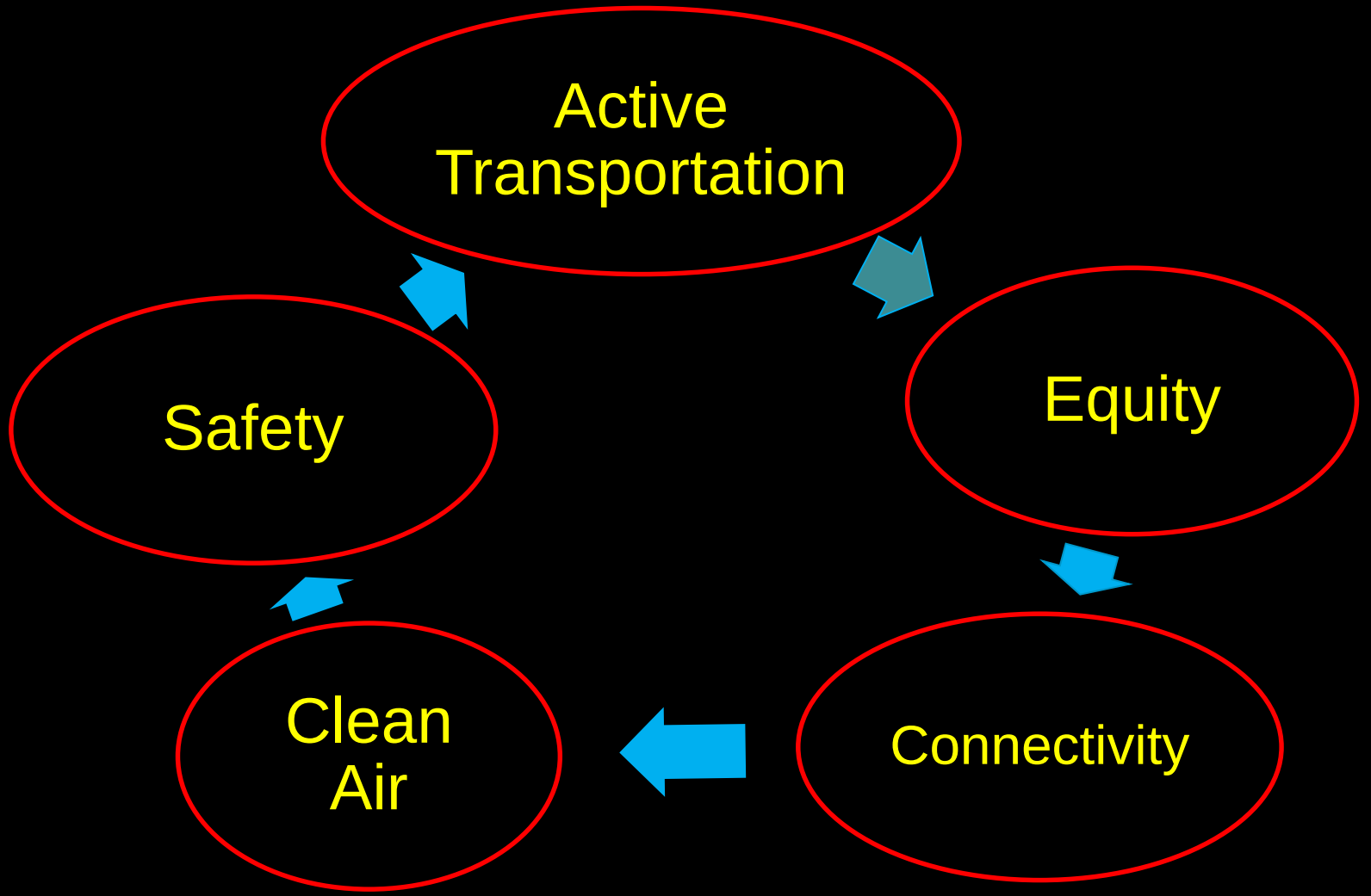
To date, the costs of public health impacts have been "externalized"—

that is,

they are not accounted for in the current framework of planning, funding and building highways, bridges and public transit

THE HIDDEN HEALTH COSTS OF TRANSPORTATION. A report prepared for the American Public Health Association by UrbanDesign 4Health, Inc. March, 2010

TRANSPORTATION & PUBLIC HEALTH: 5 PRIMARY PATHWAYS



FOCUS ON TRANSPORTATION ISSUES: EXTERNALITIES

- Economic
- Environmental: (Waste Management, Water, and Fauna)
- Air Quality
- Noise and Vibration: (Day-Night Restrictions)
- Traffic and Safety: (Street-Hwy Connectivity, Access, Mobility, and Accessibility)
- Aesthetics: (Visual Quality, Zoning and Development)
- Socio-Cultural Aspects

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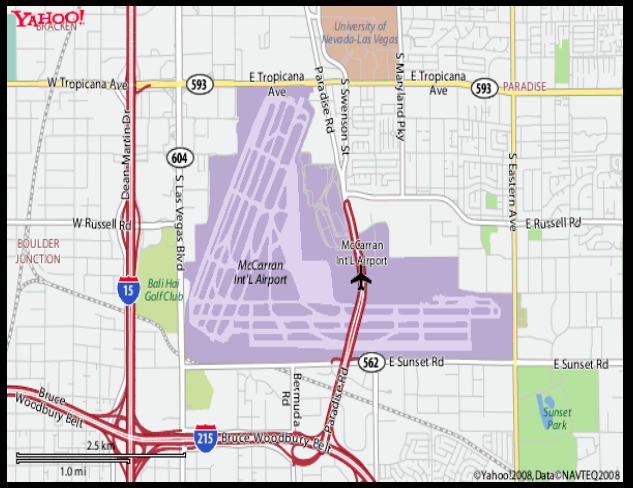
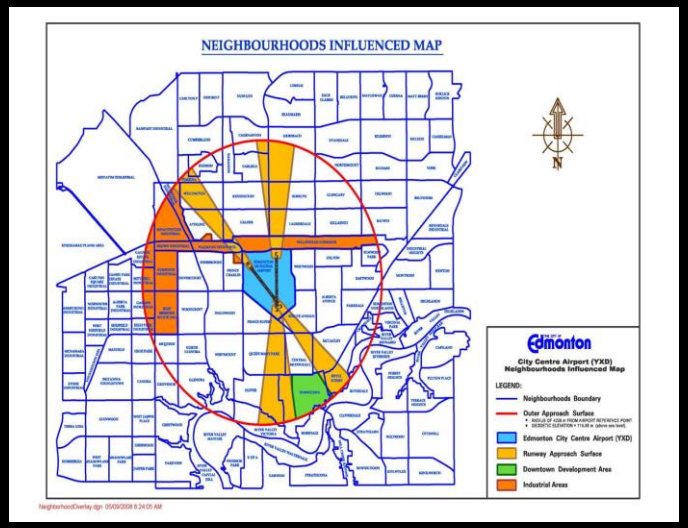
PROXIMITY ISSUES: AIRPORTS

NOISE

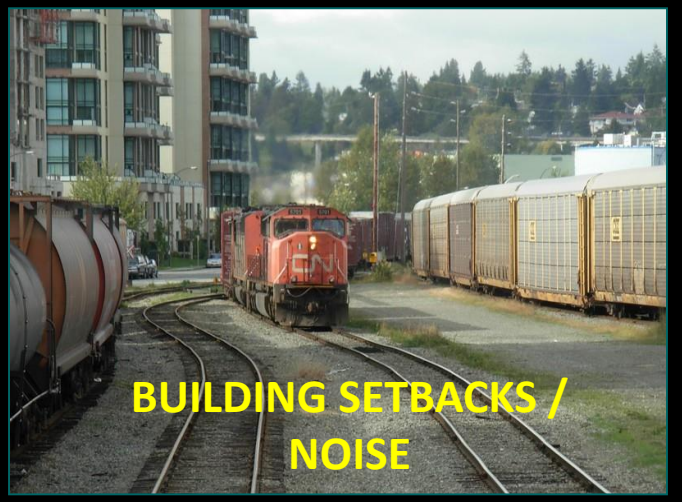
BUILDING HEIGHTS



RUNWAY APPROACH



PROXIMITY ISSUES: RAIL/MARSHALLING YARDS



CONTEXT FOR TRANSPORTATION & HEALTH DEVELOPMENT

- USDOT, CDC, and APHA partnership
- Recognition of transportation and health intersections
- Establishment of vision and goals
- Product outcomes defined:
  - Paper-based tool
  - Web tool
  - Testing and tool refinement

- **http://www.transportation.gov/transportation-health-tool**.

TRANSPORTATION SYSTEM:

Provide affordable, safe and equitable access to work, education, nutritious food, health services and social activities.

Link people to these goods and services, but also helps communities achieve public health benefits.

Increased physical activity, reduced pollution, reduced fatalities and injuries on our transportation networks and greater community cohesion.

A “HOLISTIC” APPROACH TO HEALTH, INCLUDING CONSIDERATION OF:

For a long time, transportation policy, program, and funding decisions gave little attention to public health effects and benefits. That has begun to change. Many state officials, metropolitan planning organizations (MPOs), and partners now include public health goals and health criteria in transportation planning and policies and transportation project selection. The public health community has also begun to partner with transportation planning agencies to integrate health considerations in transportation work.

A "HOLISTIC" APPROACH TO HEALTH, INCLUDING CONSIDERATION OF:

Air pollution: Focus on transportation-related air pollution emissions and their impacts on human health, such as asthma or bronchitis, and transportation planning processes that consider improved air quality as part of a holistic approach to health, in addition to meeting Federal air quality requirements.

Access to opportunities for healthy lifestyles: Community design and transportation systems can support or inhibit residents in their pursuit of health-related activities.

A “HOLISTIC” APPROACH TO HEALTH, INCLUDING CONSIDERATION OF:

Active transportation: Walking or bicycling can help people to increase their levels of physical activity, significant potential health benefits and disease prevention.
Increase opportunities for active transportation --that are safe, convenient, affordable, and attractive for system users.

Safety: The critical step to move from traditional measures of reduced injuries and fatalities to a more holistic approach is to include safety as part of an overall goal for transportation plans and projects that lead to a “healthier community.”

TRANSPORTATION & HEALTH INDICATORS

Transportation	Health	Policy
• Commute Mode Share • Person Miles Traveled by Mode • Public Transportation Trips per Capita • Vehicle Miles Traveled per Capita • Housing & Transportation Affordability • Land Use Mix • Proximity to Major Roadways	• Alcohol-Impaired Fatalities • Road Traffic Fatalities by Mode • Road Traffic Fatalities Exposure Rate by Mode • Physical Activity from Transportation	• Seat Belt Use • Complete Streets Policies • Use of Federal Funds for Bicycle and Pedestrian Efforts

SYSTEM PRESERVATION & PERFORMANCE

What Do DOTs Commonly Measure?

- Mobility and Congestion
- Safety
- Quality of Life
- Environment
- Economic Development
- System Preservation
- Project Delivery
- Maintenance

- What Measures Do They Often Use?
- Delay
- Extent of Congestion
- Incident Duration
- Speed
- Throughput
- Travel Time
- Travel Time Reliability

RECOMMENDATIONS

Growing pressure on designers and planners to balance societal goals and community values with transportation

- Land Use Controls to deal with transpo
- Highway Flexible Design
- Design Multi-Modal Transportation Facilities
- Incorporate Bicycle and Pedestrian Facili
- Context Sensitive Design and Solutions
- Traditional Neighbourhood Design
- Revitalization of Rail yards/abandoned lin
- Incorporate Freight in Development Plan(s)

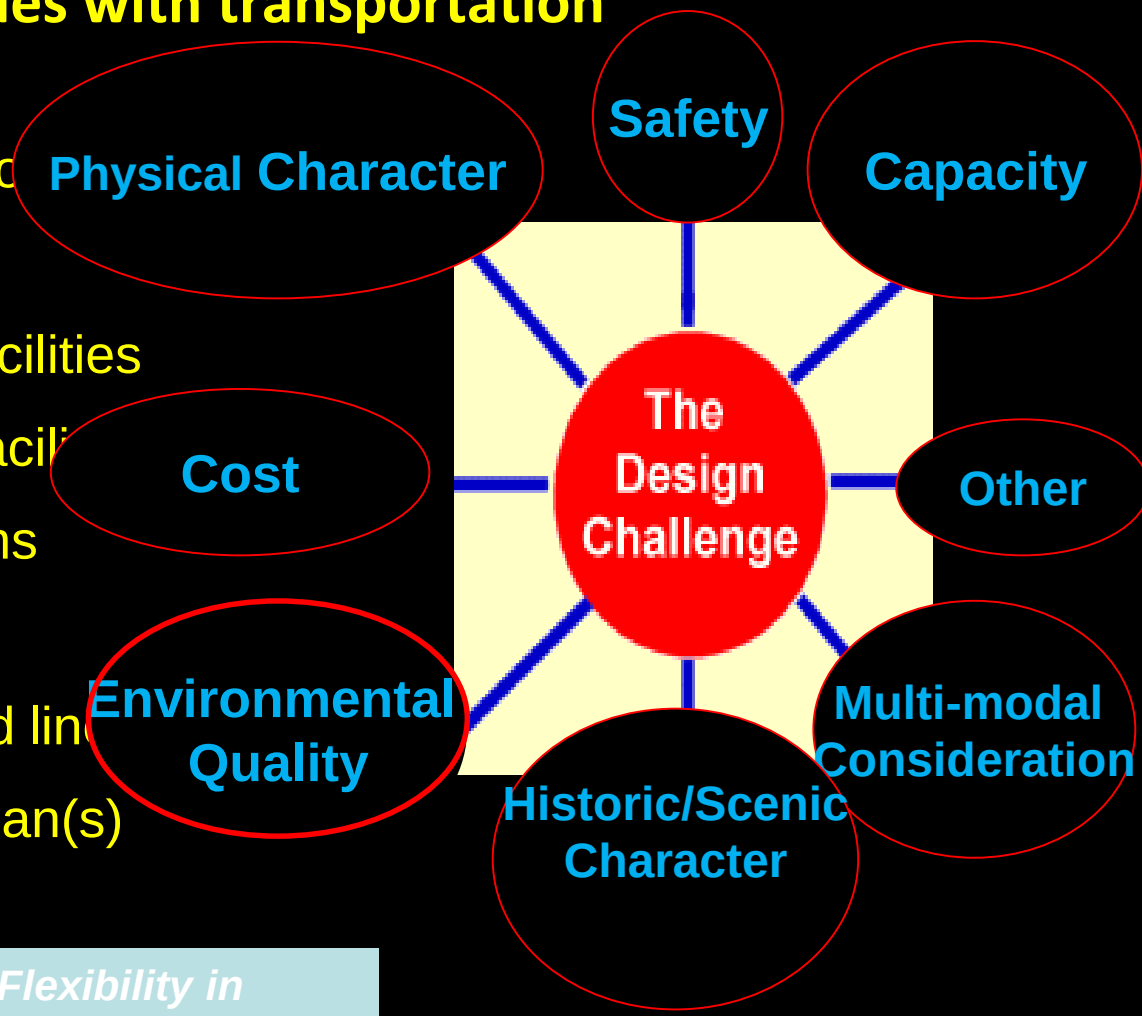


Figure 1.2 Factors to consider in planning Flexibility in Highway Design, Flexibility in Highway Design, FHWA

RECOMMENDATIONS

Offer balanced and affordable modes of transportation (including driving, biking, walking, and public transit)

Help to decrease reliance on automobiles

Improve connectivity so that residents can safely walk or bike to work, school, home, play, public transit, and services

RECOMMENDATIONS

Ensure public transit can be reached safely without needing to drive

Increase opportunities for residents in sprawling communities to be physically active;

Improve injury prevention and installing safety and protective measures where needed;

Sustain and improve motor vehicle safety

RECOMMENDATIONS

- Increase US energy independence and investing in identification of alternative fuels sources;
- Educate residents about the health benefits of walking, biking, and safe transportation behaviors; and
- Assess the potential health impact of all major transportation, land-use decision, or planning activities.

AT THE INTERSECTION OF PUBLIC HEALTH AND TRANSPORTATION Promoting Healthy Transportation Policy (2009) American Public Health Association

Questions?