This slide deck was originally built for live presentation to a nursing pre-requisite class at a local college. Everyone has a stake in the built environment; this focuses on the public health approach. Topics highlighted in speech have been included and animations have been removed. Please share for educational purposes, but do not edit.
Objectives

• Purpose: Recognize community stake in built environment

• Principles: Learn characteristics of built environment that can improve health outcomes
Defining Health

“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”

-World Health Organization

Constitution of the World Health Organization
Mission

To protect, promote, and improve the health of all people in Florida through integrated state, county, and community efforts.
Chronic Disease

The CDC states

- nearly half of US adults have at least one chronic health condition
- 7 of the top 10 causes of death are chronic diseases
NIH National Cancer Institute: Obesity may increase risk of cancer in breast, colon, rectum, endometrium, esophagus, kidney, pancreas, or gallbladder. However, it is inaccurate to assume that obesity, inactivity, and lifestyle account for all incidences of cancer or related deaths.

From the cited source: It is also important to note that rankings do not necessarily denote the causes of death of greatest public health importance. Some causes of death of public health significance are excluded from the ranking procedure. For example, Malignant neoplasms of the trachea, bronchus and lung (lung cancer) and Motor vehicle accidents are not rankable causes of death (see “Procedures for ranking causes of death”), although they can be identified using the standard mortality tabulation lists. If these causes were included in the current rankings, lung cancer would be placed among the 10 leading causes of death with a rank of 3rd, whereas Motor vehicle accidents would rank 13th. However, each of these is incorporated into broader rankable categories, namely, Malignant neoplasms and Accidents (unintentional injuries), respectively. Although not perfectly suitable in all circumstances, the current framework provides a rankable list of causes of death that has broad appeal and acceptance in the general public health community.
From Procedures for causes of death: As in the past, vaguely defined categories were excluded from selection as rankable causes. These included the category “Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified” and all categories beginning with the words “other,” “all other,” “certain other,” or “unspecified.” Among the remaining cause-of-death categories, decisions were made to select as rankable the causes of death considered most useful from a public health perspective, with the following condition: The rankable causes must be mutually exclusive. If a category containing subcategories (such as Tuberculosis or Malignant neoplasms) is selected as a rankable cause, its component parts are not selected as rankable.

Built Environment

All of the physical parts of where we live and work:
- Homes
- Buildings
- Streets and sidewalks
- Open spaces
Why do we care about the built environment?

Built environment can also be considered community design.
Health Components

Family history

Environment

Lifestyle
Decreasing the prevalence of coronary artery disease (e.g. heart attack) and stroke are strategic priorities of the Florida Department of Health. Obesity has been identified as a risk factor in many chronic diseases that affect the durability and function of blood vessels- high blood pressure and high cholesterol each increase risk of heart attacks and strokes.

**Obesity Consequences: Health**

- Hypertension
- High cholesterol
- Type 2 diabetes
- Coronary artery disease
- Stroke
- Gallbladder disease
- Osteoarthritis

- Sleep apnea
- Several cancers
- Mental illness
- Body pain from poor function

CDC: Adult Obesity Causes and Consequences
Absenteeism - taking time off work
Presenteeism - physically attending work, but with reduced production due to illness, anxiety, distraction, etc.

**Obesity: National Estimated Costs**

- Annual productivity costs of obesity-related absenteeism and presenteeism estimates between $3.38-6.38 billion
  
  Annual US medical cost of obesity?

$147 billion (2008)

CDC: Adult Obesity Causes and Consequences
147,000,000,000 dollars?!

- $68,450 median nurse salary
- 2,147,553 nurses for 1 year
  - 2,751,000 US RNs in 2016

49,943 nurses’ 43-year careers
  in ONE year!

Bureau of Labor Statistics
Obesity trends: Men


CDC/NCHS, National Health Examination Survey
Obesity trends: Women


CDC/NCHS, National Health Examination Survey
Obesity trends: Youth


[Graph showing obesity trends by sex from 1971-74 to 2011-12]
Children with Obesity

- Higher risk of
  - asthma
  - sleep apnea
  - type 2 diabetes
  - factors for heart disease
  - depression, isolation, low self-esteem (bullying)

- Linked to obesity and health risks as adult

CDC Childhood Obesity Facts
Re-emphasis of obesity consequences, giving weight to the tremendous disadvantages children with obesity face.
Audiences tend to underestimate based on the tone of the presentation. Use this to give hope, while also comparing to a letter grade scale where A=90%, i.e. it’s not as bad as you may think, but it could be much better than 1 in 2 meeting recommendations.
The Milken Institute projects that with better wellness choices regarding nutrition, exercise, and tobacco, the US can avoid 40 million cases of chronic disease in 2023.
Family history/genetics are not currently adjustable. Lifestyle is a combination of individual choices, and can be adjusted with proper motivation, consulting (health coach, personal trainer, dietitian, leadership). Environment has elements of design that influence the choices, activities, and lifestyles of the people in it. Contains cues on how to use, regardless of awareness. Intuitive design makes it easier and sometimes accidental to make the healthier and more productive choice. Example: We interact with doors intuitively by their handles. Interactions usually go smoothly with pull handles and push bars showing us how to use them. However, failed interactions may come as a surprise when the handles are installed “incorrectly,” or if no indication of direction to open.
Health Components

Environment
Each kilometer a study participant walked per day was associated with a 4.8% lower chance of that participant having obesity.

Each hour a study participant spent in a car per day was associated with a 6% higher chance of that participant having obesity.
Physical Activity vs Urban Form

Walkability scores
- land-use mix
- residential density
- intersection density

Top 25% walkability scores $\rightarrow$ 2.4x more likely to get $\geq$30 minutes exercise/day
Principles

What makes a good built environment?
4 Tests of Smart Growth

1. Popsicle
2. Date/Halloween
3. Kids
4. Seniors

Adapted from NC Smart Growth Alliance
This highlights accessibility to grocery stores for non-driving populations. Will people without cars be able to transport perishables without having them thaw or reach unsafe temperatures?
Date/Halloween Test

Would you walk with your date or kids?

- Safe
- Visually appealing
- Low traffic noise
Exploring surroundings in a safe location leads to better autonomy.
Is it accommodating to non-driving populations, people using mobility devices, or people who move more slowly than average?
Neither the audience nor I know what city this is.
Highlight the collection of traffic dumping onto major roadways that contain few intersections, where cars are likely to gain speed. Typical of a gated community. On the right, more ways to travel directly to places of interest. Shorter distance and less exposure to elements= more likely to pass the popsicle test while encouraging non-motorized transit.
Parks

Fredrick Olmsted - famous landscape architect
Park in city? → City in park!

- No main gates
- Access from all sides

Central Park, NYC.
Transition: Up to this point, the presentation has been focused on the built environment affecting lifestyles that reduce risk of chronic disease. However, the built environment also influences accidental deaths, including traffic collisions. This is also a public health concern.
• Acceleration at yellow lights
• Misjudging oncoming traffic during left turns
• Cars in oncoming traffic sometimes obscured by other cars
• Multi-directional traffic increasing risk of T-bone and head-on collisions and resulting in more devastating forces and changes of direction
• Timing green lights
• Mistaking signal meanings (unprotected left turn)
• Reading the wrong signal
• Not yielding to U-turn during right on red, etc.
Indicated countermeasures affect intersections
20 Proven Safety Countermeasures

USLIMTS2  Enhanced Delineation and Friction for Horizontal Curves
Longitudinal Rumble Strips and Stripes on Two-Lane Roads  Median Barrier  Safety EdgeSM

FHWA Proven Safety Countermeasures
20 Proven Safety Countermeasures

- Medians and Pedestrian Crossing Islands in Urban and Suburban Areas
- Pedestrian Hybrid Beacon
- Road Diet
- Walkways
- Road Safety Audit

FHWA Proven Safety Countermeasures
Road diet, also known as lane reduction or road rechannelization. Potential collision points highlighted
Road Diet

Four-Lane Undivided

Three-Lane

FHWA Proven Safety Countermeasures
Road Diet

Four-Lane Undivided
(Outside Lane Traffic Hidden by Inside Lane Vehicle)

Three-Lane
(No Hidden Vehicles)

FHWA Proven Safety Countermeasures
20 Proven Safety Countermeasures

Backplates with Retroreflective Borders
Corridor Access Management
Dedicated Left- and Right-Turn Lanes at Intersections
Roundabouts
Yellow Change Intervals

FHWA Proven Safety Countermeasures
Proven Safety Countermeasures

- Roundabouts
- Corridor Access Management
- Backplates with Retroreflective Borders
- Longitudinal Rumble Strips and Stripes on Two-Lane Roads
- Enhanced Delineation and Friction for Horizontal Curves
- Safety Edges
- Medians and Pedestrian Crossing Islands in Urban and Suburban Areas
- Pedestrian Hybrid Beacon
- Road Diet

FHWA Proven Safety Countermeasures
Inset: long pedestrian time in intersection
Turn invites high speed right turns

Color image: increase curve radius, driver more likely to slow before turning
Colorized intersection increasing visibility
Shade trees and places to rest along walkways make environment more inviting
Bi-directional crosswalks
Sharrows clearly indicate cyclist has right to whole lane
No center line, encouraging cars to take more space in order to pass safely instead of crowding cyclists
Wide crosswalks at each direction of intersection
Mercato is exemplary mixed-use. Residences, grocery, entertainment- most needs accessible nearby without car. Wide, comfortable walking space, safe vehicle speeds.
Talk of how it takes a village to raise a child sounds -- and feels -- good but, to make it work, you need a village to start with. Which means you need politicos willing to push it, and developers willing to build it.

-Writer and advocate Scott Doyon

Health educators, community awareness, and...
Changing the landscapes of public health and the built environment need and use multidisciplinary partnerships
Transportation Summit

Courtesy: Blue Zones Project
Naples Mobility Study

Courtesy: Blue Zones Project
What can you do?

EDUCATE

Florida HEALTH

GET INVOLVED
Objectives

- Purpose: Recognize community stake in built environment
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For more information, please visit the Healthy Communities Coalition website at http://collier.floridahealth.gov/programs-and-services/wellness-programs/healthy-communities/index.html, or http://www.healthycollier.org
References

- Ward, Clarke, Nugent, Schiller. Early Release of Selected Estimates Based on Data
References


Special thanks to Deborah Chesna, FDOT Complete Streets, Growth Management Coordinator.