Complete Streets – Some Assembly Required

Walk and Roll: Transformations in Transportation
APBP PDS/Memphis, TN
June 28, 2017
We’ve known how to build great streets…
What Happened???
And Complete Streets are important because?

“I never know where I’m going to cross, so I keep the sign with me.”
The way cities and suburbs are developed could be bad for your health.

By Martha T. Moore
USA TODAY

Why don’t Americans walk anywhere?
Old answer: They’re lazy.
New answer: They can’t.
There is no sidewalk outside the front door, school is 5 miles away, and there’s a six-lane highway between home and the supermarket.

Many experts on public health say the way neighborhoods are built is to blame for Americans’ physical inactivity — and the resulting epidemic of obesity.

The health concern is a new slant on the issue of suburban sprawl, which metro regions have been struggling with for a decade. These health experts bring the deep-pocketed force of private foundations and public agencies into discussions about what neighborhoods should look like.

The argument over whether suburbs are bad for your health will hit many Americans precisely where they live: in a house with a big lawn on a cul-de-sac.

“The potential for actually tackling some of these things, with the savvy of the folks who have tackled tobacco, is enormous,” says Ellen Vanderslice, head of America Walks, a pedestrian advocacy group based in Portland, Ore.

A study by the federal Centers for Disease Control and Prevention is tracking 8,000 residents of Atlanta to determine whether the neighborhood they live in influences their level of physical exercise. The Robert Wood Johnson Foundation in New Jersey.

Please see COVER STORY next page
Obesity Trends Among U.S. Adults 2008 - 2010

Center for Disease Control, 2010
31% of US adults are obese, 65% are obese or overweight -- and gaining 1-2 lbs a year

- Between 10% and 15% of children and teens are overweight/obese -- and more likely to become obese adults

- Overweight/obesity rates highest in low-income and minority populations

- Obesity health and productivity costs exceed $147 billion per year

- 956 Billion in cost 2030
Paradigm Shift for Public Health Research: Community Design and Transportation Matter
Brookings Institute Study
Walkability Adds

- $9 /sqft to office rents
- $7/sqft to retail rents
- $300 more for monthly rents
- $82 /sqft to home values

As neighborhoods step up the walkability ladder, household income increases by some $10,000.
Trends

- **Millennials driving less**
  - Low car ownership
  - Open to multi-modal travel
  - Seeks affordability

- **Changing Parking Direction**
  - Pushing parking to the edges
  - Building parking decks = $$$$$$
  - Highest and best purpose for valuable real estate

- **Growth/Interest in diversity of transportation options**
People are driving less...

Estimated Vehicle Miles Driven on All Roads

- Data Through July 2012
- Nov 2007: Latest down 3.05% from peak
- Nov 2011: trough at 48 months after peak, 3.65% off high
- 39 months below previous peak -3.2% at trough

Since 2007

Trillions

Goal: Move PEOPLE, not just cars
Complete Streets: So what’s next?

- Changing the rules
- Show me the $$!
- Implementation challenges
Conventional Transportation Philosophy

- Capacity
- Operational Efficiency
- Vehicular LOS
- Minimize Vehicular Delay
Holistic Transportation Strategy

- Livability and balance – “Complete Streets”
- Combine land use and transportation improvements
- Full range of seamless multi-modal opportunities – transit, pedestrian, bicycle, and roadway networks
- Context sensitive solutions – utilize inherent flexibility in design
- Collaborative, interdisciplinary, and community-led design
- *Move PEOPLE, not just cars*
Balancing the Expectations

Motorist Travel Time

Small Impacts

Large Gains

Overall Street Livability
Think of the Space between Buildings as an Asset

- Parking
  - Parallel
  - Angled (head in/back in)
  - Bicycle
- Wider Sidewalks
- Street Furniture
- Streetscape
- Stormwater
  - Rain Gardens
  - Bioswales
- Bike Facilities
  - Bike lanes
  - Cycle Tracks
  - Multi-use Paths
- Medians
  - Turn lanes
  - Planting opportunities
  - Access Management

Photo by Dan Gallagher, Charlotte DOT
Parking

- **Parallel Parking**
  - Narrower roadways
  - Parking lane width – 6-8’, length – 20’

- **Angle Parking**
  - Wider roadways, more parking per block
  - 45° Angle – 16’ projection
  - 60° Angle – 18’ projection
  - Back-in angle parking?
Bike Facilities

**Bike Lanes:**
- 5-6' wide
- Between vehicle lanes & parking
- Most appropriate for streets 25-35 mph

**Shared Lanes:**
- Most appropriate for streets ≤ 25 mph
- Typically installed in middle of street

**Cycle Track:** Buffered, 6-11' wide

Images from NACTO Urban Bikeway Design Guide

“Cyclists Spend $$”
Medians

- **Benefits**
  - Aesthetic Improvement
  - Reduces apparent road width
  - Improves pedestrian crossing safety
  - Consolidates left turn movements
- **Minimum Width**
  - 4’ for raised median without landscape
  - 8’ for landscaped median
  - 10’ to accommodate left turn lanes
  - 14’ to accommodate left turn lanes with adjacent median
Midblock Crossings

- 75% of pedestrian fatalities occur away from intersections
- Most appropriate when:
  - High pedestrian volume
  - Intersections > 600’ apart
  - Low-to-moderate speeds (<40 mph)
  - Enforcement
- Visibility is paramount!
  - Crosswalk markings
  - Street lighting
  - Bulbouts, Medians
  - Vehicular warnings (HAWK, etc)
No Road too Big…

Eastern Extension of the Shelby Farms Greenline – Germantown Parkway Crossing
Six lane arterial, state road, 70,000 ADT
Green Streets Techniques

- Stormwater Management
- Bioswales
- Rain Gardens
- Permeable Pavement
Furnishings
Additional Considerations

- Transit Accommodations
- Freight Accommodations
- Emergency vehicles
- Utilities
- Street Transitions
- Access Management
- Maintenance
- Wayfinding

Above: Turning Radii Analysis

Images from Urban Design to Accommodate Trees (Gilman) and City of Oceanside
“The intent of this policy is to provide guidance to the designer by referencing a recommended range of values for critical dimensions. Good highway design involves balancing safety, mobility, and preservation of scenic, aesthetic, historic, cultural, and environmental resources. This policy is therefore not intended to be a detailed design manual that could supersede the need for the application of sound principles by the knowledgeable design professional. Sufficient flexibility is permitted to encourage independent designs tailored to particular situations. Minimum values are either given or implied by the lower value in a given range of values. The larger values within the ranges may be used where social, economic, and environmental impacts are not critical. Engineering judgment is exercised by highway agencies to select appropriate design values.”

From the Forward to the AASHTO Green Book
“These geometric design are intended to provide operation efficiency, comfort, safety, and convenience for the motorist. The design concepts presented herein were also developed with consideration for environmental quality. The effects of the various environmental impacts can and should be mitigated by thoughtful design processes. This principle, coupled with that of aesthetic consistency with the surrounding terrain and urban setting, is intended to produce highways that are safe and efficient for users, acceptable to non-users, and in harmony with the environment.”

From the Forward to the AASHTO Green Book
“Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use. “

“... DOT encourages transportation agencies to **go beyond the minimum requirements**, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of **all ages and abilities**..."
“... DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities...”
“This report has been developed in response to widespread interest for improving both mobility choices and community character through a commitment to creating and enhancing walkable communities.”

From Chapter 1 of the Recommended Practice, 2010
Further Guidance

- ITE Walkable Thoroughfares (2010)
And More Guidance…
North Carolina

- Complete Streets Policy adopted 2009
- Immediately launched context-specific CS Design Guidelines
- Guidelines finalized 2012

Result: CS on state routes where contextually appropriate
**URBAN/SUBURBAN MAIN STREET**

**PLAN VIEW**

- With Shared Vehicle Zone
- With Bicycle Zone

**KEY ELEMENTS**

- May function as an arterial, collector or local street. May function as a collector serving as a primary thoroughfare for traffic circulation in a limited area. May function as a local street for an outlying business district.
- Designed to carry vehicles at low speeds.
- A destination street for a city or town, serving as a center of civic, social and commercial activity.
- Serves substantial pedestrian traffic as well as transit and bicycles.
- Characterized by wide sidewalks, crosswalks and pedestrian amenities, due to emphasis on pedestrian travel.
- Bicycle lanes are allowed but typically not necessary on these streets due to lower speeds and volumes and the desire to keep pedestrian crossing distances to a minimum.

**STREET CROSS-SECTION ZONES**

- **Sidewalk Zone**: The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably. Pedestrians are the priority on a main street.
- **Green Zone**: Consists of the area between the sidewalk zone and curb. Includes street trees and other landscaping, as well as interspersed street furnishings and pedestrian-scale lighting in a hardscaped amenity zone.
- **Parking/Transit Zone**: Accommodates on-street parking and transit stops. Width and layout may vary.
- **Bicycle Zone**: A zone for bicyclists separate from vehicular traffic.
- **Motor Vehicle / Shared Vehicle Zone**: The primary travel way for vehicles. A shared vehicle zone has mixed traffic (cars, trucks, buses and bicycles).
- **Development Zone**: Development should be pedestrian-oriented with narrow setbacks and an active street environment.

Traffic control devices not shown
E. Main Street, Angle Parking

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<td>B. Clear width</td>
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<td>Streetscape</td>
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<td>C. Sidewalk (min)</td>
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<td>D. Planting area (min)</td>
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<td>Angle on 2 sides</td>
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Great Streets, but how do we pay for them?

Images of Alexandria VA courtesy of Code Studio
The OPM Funding Method

Other

People’s

Money
Funding: Key Points

• Municipalities can partner with other groups
• Leverage funding and completed work
  • Diverse and complimentary fund sources
  • Partnerships: NFP, NGO’s, Corporate, Private
  • Phasing/staging/breakdown of projects
• Be innovative—Leverage/match earmarks, brownfields grants, etc.
• Develop planning ahead of time to be on ball when funding sources come available
• May receive less than requested—initially
So you have a plan…now what?
Build it? Not so fast...
Pitfalls AFTER Planning:  
The Usual Suspects

- Doesn’t conform to local/state standards
- Community resistance
- Agency resistance (especially with respect to motorized traffic performance)
- Constructability issues
- Funding constraints (including cost escalation)
Memphis, TN – The Hampline
Jumpstarted with Tactical Urbanism

http://vimeo.com/22106488
Arts District – Broad Avenue
Tillman Street
Challenges

• Funding (or lack thereof)
  – Solution – Crowdsourse and foundation match paid for design; CMAQ grant paid for construction
Design
Challenges

• Funding (or lack thereof)
  – Solution – Crowds source and foundation match paid for design; CMAQ grant paid for construction

• City engineering and state DOT didn’t understand project
  – City has been brought along thru education and is now partner in advocating to TDOT
Hampline – segment opened Fall 2015
Payoffs – Broad Avenue Corridor

$20+ million in properties purchased, built and/or renovated, completed and/or planned

**New Businesses**

- 30 New Businesses
- 40,000+ Art Walk Visitors
- 29 Significant Property Build/Renovations (including 17 blighted locations)
- 5 Public Art Installations

**Revitalizing a Neighborhood**

PLUS Overton Park Conservancy and Shelby Farms Greenline
Water Tower Pavilion

ArtPlace America Grant Winner

- Water Tower becomes beacon
- Street and loading dock area are knitted together via terraced seating
- 500 foot linear park developed
- Community-based programming delivered
Challenges

• Funding didn’t cover ultimate vision
  – Solution: Construct interim phase that could be retrofit later
Russellville (AR) Downtown Master Plan (2011)
Main Street/US 64 Initiative
Challenges

• Construction issues with soils
  – Solution: retrofit base material for crosswalks post-construction
Main Street Bulbouts
Charrette Concept
Challenges

- Construction issues with soils
  - Solution: retrofit base material for paver crosswalks post-construction

- Discovered massive concrete slab under roadway (former state highway)
  - Solution: Modify design concept to keep centerline in place to avoid significant demolition
El Paso Corridor – Refined Concept

One Way Cycle Track
Design (Fall 2012-Spring 2013)
“Though El Paso Avenue has its own design, the concept is similar to the H Street and Parker Road project, with vehicle travel lanes, bike lanes, trees, sidewalks and period lighting.

“It’s going to be one cool street,” Oakes said... He added that capital road projects such as these are paid for with proceeds from the city’s one-cent sales tax.”
Post-construction:

- New businesses along corridor
- New businesses downtown
- Foot and bike traffic
- University pursuing mixed use with housing corridor
Strategies to Overcome Challenges in Implementation

• Use national guidance; change the rules

• Collaborate with community at all stages

• Quantify impacts; accept congestion

• Tap non-traditional funding; know your contracting community

• Be flexible with design, but respect the vision
What YOU Can Do

- Reinforce context sensitive solutions
- Highlight flexibility in standards; compile “best of” for Complete Streets guidelines
- Quantify changing travel trends – no longer “business as usual”
- Compile before and after data
Thank You!

“America . . . conceived many odd inventions for getting somewhere, but could think of nothing to do when they got there”

Will Rogers, 1936
Anatomy of a Complete Street
Think of the space between buildings as an asset

- Parking
  - Parallel
  - Angled (head in/back in)
  - Bicycle
- Wider Sidewalks
- Street Furniture
- Streetscape
- Stormwater
  - Rain Gardens
  - Bioswales
- Bike Facilities
  - Bike lanes
  - Cycle Tracks
  - Multi-use Paths
- Medians
  - Turn lanes
  - Planting opportunities
  - Access Management

Photo by Dan Gallagher, Charlotte DOT
A place beyond the curbs

Note: All dimensions are minimum standards for treatment.

*Step Strip and Shy Zone areas may vary depending upon available right of way widths.
Sidewalk Zone
Sidewalk Zone
Sidewalk Zone
Design Elements: Furnishings
Design Elements: Lighting
Design Elements: Plant Materials