

## LINKING LAND USE AND TRANSPORTATION TO CREATE A LEGACY

Presented by:

**Brad Strader, AICP**  
*Managing Partner* *LSL Planning*


**Barbara Arens, PE, PTOE**  
*Vice President* *PB Americas Inc.*




Linking Land Use & Transportation

## Benefits to Linking Land Use & Transportation

- Health
  - greener communities
  - more walking & biking, less pollution
- Safety
  - fewer crashes
  - lower auto speeds where appropriate
- Welfare/Economics
  - cost effective decisions
  - provide traveler's choices
  - stimulate desired development
- **Result will be better communities!**







Linking Land Use & Transportation

## Land Use Changes Can Impact Transportation



- More people living closer to work
- Fewer driveways along a commercial corridor
- Locating commercial and schools close to residential
- Increased residential and employment densities to promote transit options

Linking Land Use & Transportation

## Transportation Changes Can Influence Land Use

- Design of street width
- Apply design treatments
- Locate new interchange
- Add HOV or toll lanes
- Add walking/biking paths
- Add or enhance transit

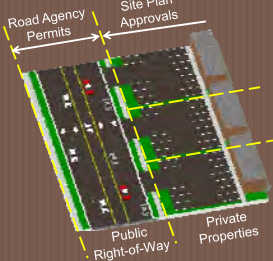
Washnew Access Management Plan:  
One-Way 3-to-2 Road Diet Concept

Charlotte, NC  
Light Rail

Linking Land Use & Transportation

## Transportation – Land Use Decision-Making Gap

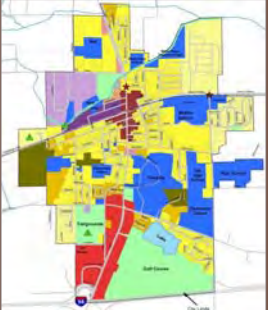
- Different agencies or departments
- Different educational background
- Different time horizons
- Misunderstanding importance of data
- Separate planning processes
- Funding
- Public interest & politics



Linking Land Use & Transportation

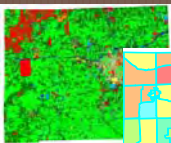
## Traditional Comprehensive Plan

- Land Use
- Community facilities
- Parks & natural features
- May or may not consider market & infrastructure capacity
- It's a guide
- Adopted by city or county
- Transportation



Linking Land Use & Transportation

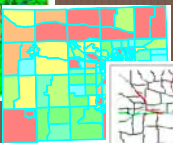
## Long Range Transportation Plan



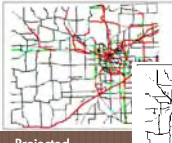
Local Future Land Use Plans

- Adopted by agency
- Tied to funding
- Fiscally constrained

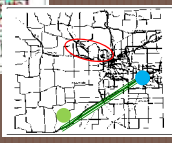
- Assumes community will develop per its plan
- Analyzes macro & micro level



Employment & Household Projections



Projected Deficiencies (congestion) and Alternatives Analysis





Recommended Changes - typically to add capacity

Linking Land Use & Transportation

## Macro vs Micro Analysis


- Macroscopic
  - Travel Demand Forecasting Models
- Static Intersection Assessment
  - HCS
  - Synchro
- Microscopic Simulation
  - SimTraffic
  - CORSIM
  - VISSIM

Linking Land Use & Transportation

## The Land Use ↔ Transportation Connection

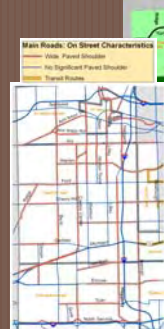

- How can we meet user expectations?
- How can we better coordinate land use & transportation decisions?
- How can land use and transportation professionals bridge the gap?



Linking Land Use & Transportation

## Tools to Link Land Use & Transportation

- Land Use Tools
- Transportation Tools
- Refined Regulations
- Transportation as an Economic Catalyst

Linking Land Use & Transportation

## Land Use



- Land use arrangement & design
- Mixed uses
- Transit Oriented Development (TOD)




Linking Land Use & Transportation

## Land Use Tools to Reduce # and Length of Auto Trips

- Compact walkable design
- Direct development to locations where road/transit capacity exists or is programmed
- Street connections
- Density, nodes and design to support transit (TOD)




Linking Land Use & Transportation




## Analysis Tools

- Crash
- Roadway and Intersection Assessment
  - ▣ Travel Forecasting Models
  - ▣ Isolated intersection analyses
  - ▣ Microsimulation of network



Linking Land Use & Transportation

## Tying Land Use to Roadway Character



Bluffton, SC

New street typology blends functional classification with desired character of land uses and environment (CSS)

**CORRIDORS**

- RESIDENTIAL CONSERVATION CORRIDOR  
CORRIDORS APPROPRIATE FOR MODERATE DEVELOPMENT COMPATIBLE WITH RESIDENTIAL CHARACTER
- PRESERVATION CORRIDOR  
CORRIDORS IN NEED OF MINOR IMPROVEMENTS TO PRESERVE EXISTING CAPACITY, SUCH AS SIGNAGE MANAGEMENT, INTERSECTION IMPROVEMENTS OR INSTALLATION OF MEDIAN
- CORRECTION CORRIDOR  
CORRIDORS FACING CONGESTION, CRASH AND DESIGN PROBLEMS & IN NEED OF MULTIPLE ACTIONS TO RESOLVE EXISTING & PROJECTED TRAFFIC PROBLEMS
- EXPRESSWAY VIEWED CORRIDOR  
CORRIDORS TO BE TREATED AS A "FRONT DOOR" TO CREATE AESTHETICALLY PLEASING VIEWSHIPS BY UTILIZING HIGH QUALITY ROAD DESIGN AND MATERIALS

Portage, MI

Linking Land Use & Transportation

## Context Sensitive Solutions



Rural/Natural

Flexibility in Highway Design

Roundabouts

Suburban

Motorized & Non-Motorized

Linking Land Use & Transportation

## Different Treatments

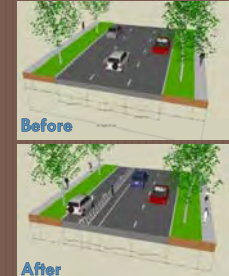
- Medians – size & width
- Intersection control
  - ▣ Roundabouts
  - ▣ Stop signs
  - ▣ Signals
- Urban design (streetscape)
- Road diets
- Traffic calming



Linking Land Use & Transportation

## Road Diets – Reduce # of Lanes

- Consider:
  - ▣ Function & environment
  - ▣ Traffic volumes (consider for 8,500 – 24,000 vpd)
  - ▣ Peak hour operations
  - ▣ Crash types, all modes
  - ▣ Impact on parallel roads
- Space for amenities
  - ▣ On-street parking
  - ▣ Bike lanes
  - ▣ More green space



Before

After

Washtenaw County Access Management Plan: One-Way 3-to-2 Road Diet Concept

Linking Land Use & Transportation

## Street Design & Width



24 ft

26 ft

30-32 ft

- Ingredients:
  - ▣ Pavement width
  - ▣ On-street parking
  - ▣ Streetscape
  - ▣ Setbacks

Linking Land Use & Transportation

## Traffic Calming

When traditional methods do not work...

- Complement character
- Slow vehicle speeds
- Discourage cut through traffic
- Improve pedestrian environment
- Retrofit or street design

Linking Land Use & Transportation

## Making Places Walkable & Bikeable

- Locate schools where kids can walk - safe routes to school
- Buildings closer to street
- Limit driveway conflicts
- Continuous bicycling and walking paths, amenities
- Give pedestrians same attention as autos (harmonize)
- Balance pedestrian and auto Level of Service (LOS)

Linking Land Use & Transportation

## Complete Streets

- Streets should be designed and operated for all users
- Tools:
  - Street design guidelines
  - Street hierarchy - different functions for different needs & context
  - Link transportation investments to land use and site design changes

Linking Land Use & Transportation

## Refined Regulations

- Access Management
- Form-Based Codes
- Transportation Impact Studies
- Transit Oriented Design

Linking Land Use & Transportation

## Access Management

Cost effective traffic management methods to:

- Promote the flow of traffic
- Improve safety of pedestrians & vehicles
- Improve aesthetics of roadway areas

...by managing the location, quantity, type & design of access to a roadway

Linking Land Use & Transportation


## Form-Based Codes

- Regulates physical form, with a lesser focus on use
- Defines the streetscape to ensure proper building : street relationship
- Combines zoning regulations and street design standards into one code

Linking Land Use & Transportation

## Case Study: Birmingham Triangle Plan

- Street redesign and parking to stimulate change
- Urban Plan and Form-Based Code
- Within two days of plan approval, submittal of plans for \$25-million development and major mixed-use building

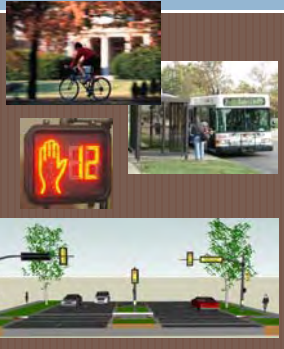


City of Birmingham Triangle Plan

Linking Land Use & Transportation

## Transportation Impact Studies

- Evaluation of all modes (autos, biking, walking, transit)
- Set minimum standards (LOS) for each
- Adjust development to improve performance
- Mitigation to offset impacts
  - HAWK, PELICON, Countdown Signals
- Incentives for other modes



Linking Land Use & Transportation


## TOD Corridor Overlay Zoning

**Transit-Oriented Should Have**

- 5-7+ Units per acre (bus)
- 25-40 employees + residents per acre\*
- Compact development
- Appropriate mix of uses

**Transit-Oriented Should NOT have**


- Low density residential
- Deep building setbacks
- Auto related uses



Linking Land Use & Transportation

\*Zupan and Pushkarev, 1997, Public Transportation and Land Use Policy

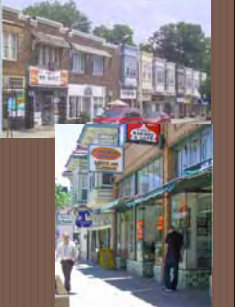
## Transportation to Stimulate Development



Linking Land Use & Transportation

## New Approaches to Energize Communities


- More than traditional plans and codes needed to stimulate desired development
- Strong partnerships between philanthropy, local/regional government, market actors and community
- Think corridor and neighborhood, not site
- Consider broader thinking: master developer agreements



Linking Land Use & Transportation

## Transportation as an Economic Catalyst

- Assess one-way vs. two-way
- Add on-street parking
- Reconstruct / redesign streets
- Add or enhance transit
- New roadway



City of Birmingham Triangle Plan and Form-Based Code

Linking Land Use & Transportation

### Provide Traveler Choices

- Options for all modes are provided
- Walking and biking for more viable, safe and healthy communities
- Regions with transit are better positioned to attract growth

Linking Land Use & Transportation

### Transportation to Preserve/Ignite Downtown Vitality

- Circulation
- On-street parking
- Wayfinding
- Pedestrian amenities
- Appropriate speeds
- Road & streetscape redesign

Linking Land Use & Transportation

City of Crown Point  
Downtown Parking & Circulation Study

### Increase in Property Values Due to Transit and Land Use

- Washington, DC - + \$2 to \$4 per foot for commercial
- San Jose - + 23% for commercial
- Portland - + 10% rent premiums
- Dallas - + 39% for residential, +53% for office values

Linking Land Use & Transportation

### Case Study: TOD Catalytic Transportation Projects

- City of Dallas used transit as economic stimuli
- Shifting planned density to transit corridors
- Both transit and economic tools were reviewed where TOD overlays were used
- Public-Private Partnerships were sought in an innovative fashion

Linking Land Use & Transportation

### Case Study: Arlington Heights, Illinois

- Downtown Redevelopment
- Performing Arts Center
- Structured Parking
- Main Street Retail
- High Density Condos
- Retail below New Station
  - McDonalds
  - Newsstand

Linking Land Use & Transportation

### Case Study: North Texas Mockingbird Station

Linking Land Use & Transportation

RESTAURANTS	ENTERTAINMENT	CLOTHING & ACCESSORIES
1 Cafe Espresso	11 Memphis Pop Center & Cafe	11 American Apparel
2 Cold Stone Creamery	12 Wood Box	12 Ann Taylor Loft
3 Italian Trattoria	13 Specialty	13 Oldemark
4 Pizzeria	14 Bank & Body Works	14 Designer Collection
5 Pizzeria	15 Concession	15 Designer's Collections
6 American Southern Grill	16 Retail (Personal Services)	16 The Gap
7 Coffee	17 Personal Care	17 Specialty Services
8 Deli	18 Pet Care/Beauty	18 Shoe Retail
9 Bakery	19 Salon	19 Shoe Retail
10 Bakery	20 Salon	20 Shoe Retail
		21 Retail (Personal Services)

## Next Steps

- Who are the Players?
- Creating a Legacy

Linking Land Use & Transportation

## Who are the Players?

- Land Use Planner
- Transportation Planner
- Traffic Engineer
- Agency Staff
- Local Officials
- Local Staff
- Urban Designer
- Public & Interest Groups

Linking Land Use & Transportation

## Creating a Transportation & Land Use Legacy

- ☑ Understand current policies & procedures
- ☑ Identify ways to integrate decision-making
- ☑ Compare land use and transportation plans to identify inconsistencies
- ☑ Emphasize importance of data accuracy in analysis
- ☑ Evaluate current street design standards
- ☑ Audit regulations and update
- ☑ Invest equally in all modes
- ☑ Ultimate goal: Integrate Land Use and Transportation

Linking Land Use & Transportation

## Contact Information

Brad Strader	<a href="mailto:strader@lsplanning.com">strader@lsplanning.com</a> 248.586.0505
Barbara Arens	<a href="mailto:arens@pbworld.com">arens@pbworld.com</a> 313.963.4651
On the web	View a copy of this presentation at <a href="http://www.lsplanning.com/firm/links.html">www.lsplanning.com/firm/links.html</a>

Linking Land Use & Transportation