

# Transportation Efficient Land Use and Design

A Guide for Local Governments, Planning Officials  
and Transportation Practitioners

The background of the slide is a detailed architectural sketch of a town street scene. On the left, there is a sidewalk with a shopfront that has a sign that says "Flowers". Several people are walking on the sidewalk. In the middle ground, there are trees and a car. On the right, there is a large, multi-story building with a clock tower and a car parked in front of it. The sketch is done in a fine-line, cross-hatched style.

**Paul Grasewicz, AICP**  
**Virginia Dept. of Transportation**  
**April 2014**

# Planning our Communities

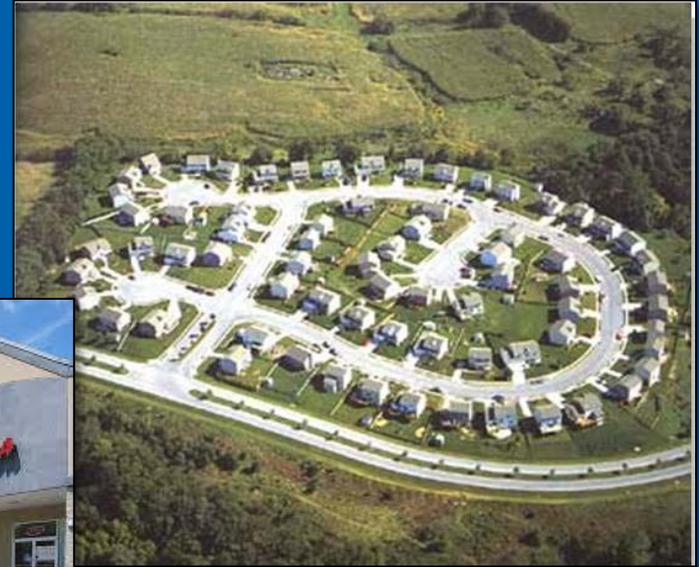


**Town  
planning  
pre-WW2**



**Traditional  
neighborhood  
Transportation  
Efficient Design**

**Suburban  
planning  
post-WW2**



- Mix of Uses – business, housing, recreational
- Variety of Housing types
- Retail, offices, restaurants, professional services.



- A grid pattern street system
- Multiple destinations in walking distance
- Parks, open space, public squares
- Preservation of natural areas.



# What is Transportation Efficient Land Use?

- Buildings close to the street
  - Reduced setbacks
- Emphasis on sidewalks, trails
- Bicycle friendly
- On street parking, to the rear and sides of buildings.



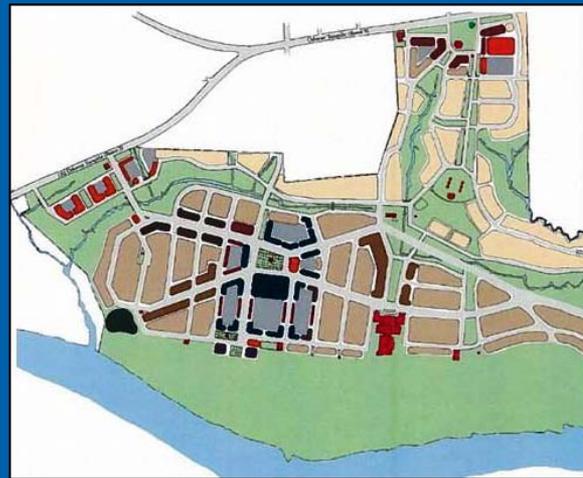
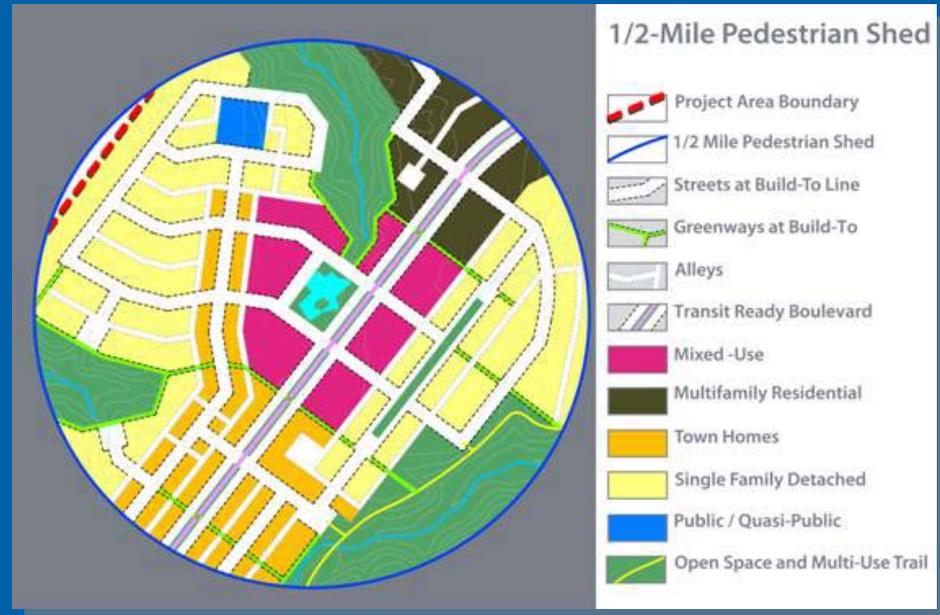
# The TND/TED Neighborhood

## ■ Walkability

- About ½ mile
- About a 10 minute walk

## ■ Center

- A neighborhood has a identifiable center
- A commercial area, park, or civic place.



Design does not have to be complicated

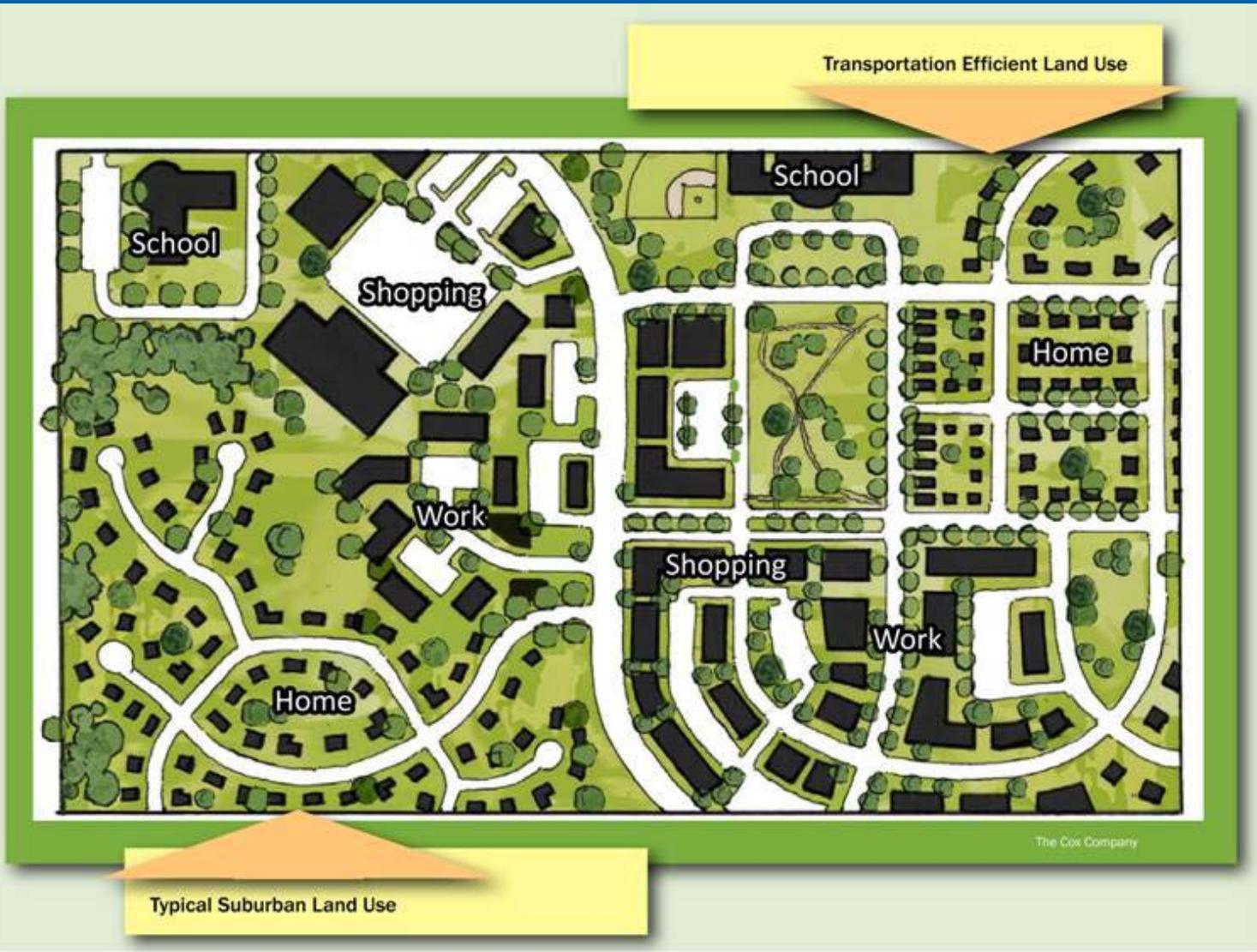


LEGEND

	Existing Building
	Single Family
	Mixed Use/Commercial

This concept plan represents just one possibility for infill development in downtown Loganville and is for illustrative purpose only. Furthermore, this plan assumes that any future development will occur when willing landowners

# Benefits of Transportation Efficient Land Use Planning



## Reduce

- Distances traveled
- Driving time, costs
- Car use: alternate travel modes.



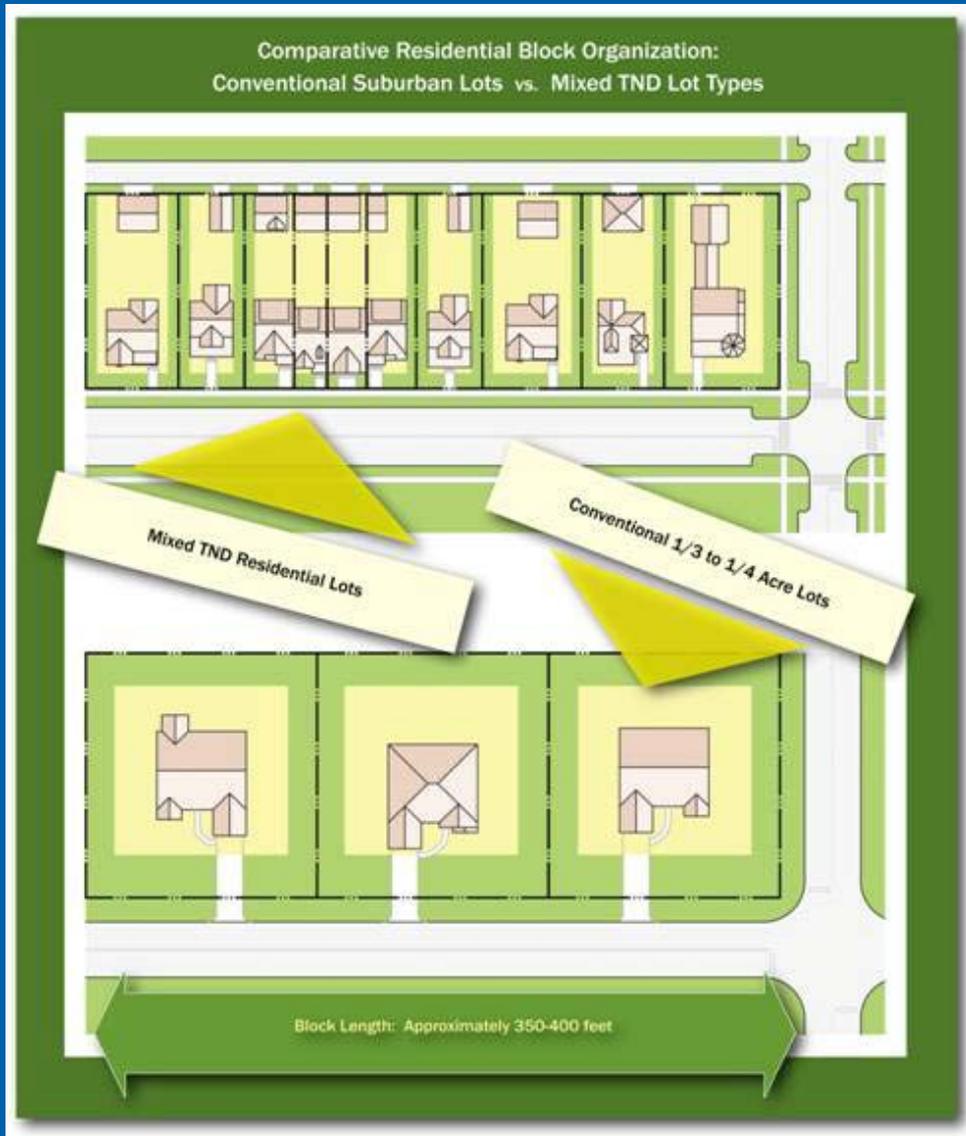
*The design of the "grid" neighborhood street system must respect the lay of the land while affording internal connectivity.*

**TND Design: Less traffic produced**

- Internal Capture
- Non-car trips

**Example: TIA Regulations:**

- 5% - 15% internal capture trip reduction
- Trip reduction:
  - Pedestrian 1.5%–4%;
  - Bicycle 1%–3%.



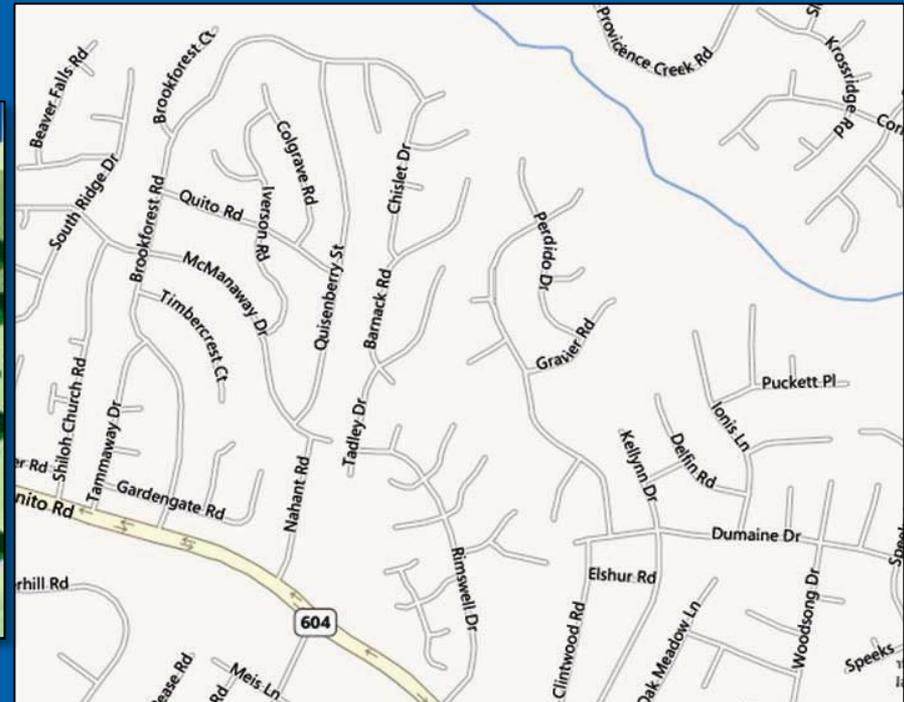
- Less land - more units
- Lower per unit expenses for street infrastructure
- Shorter/more efficient utilities
- Walking, bicycling, transit - less parking is needed in commercial areas.

*Reductions in infrastructure costs due to TND development patterns range from 32 to 47%, with the extent of TND cost savings based principally on density.*

EPA 2009

Fewer road lane miles to maintain = Less cost to the taxpayer

Savings from shorter distances - school buses, trash pickup, mail delivery



Business uses in TND: produces tax revenue.

# Housing Market Benefits

- Apartments, condos, townhomes - affordable housing options
  - Purchase first home – condos and townhouses
- Add single family detached – housing for a range of incomes
- Mix of housing - multi-generational, types of households
- Lower transportation costs – less auto use
- Small “town like” setting attractive to buyers.



## Safety:

- Shorter, multiple routes improve emergency response
- Lower speed TND streets - safer for drivers, bicyclists, pedestrians

## Quality of Life:

- Health benefits of walkability
- Less time spent driving

## Public Transit

- Higher density housing, businesses – public transit a viable option.





# TND Street Design & Development Phasing

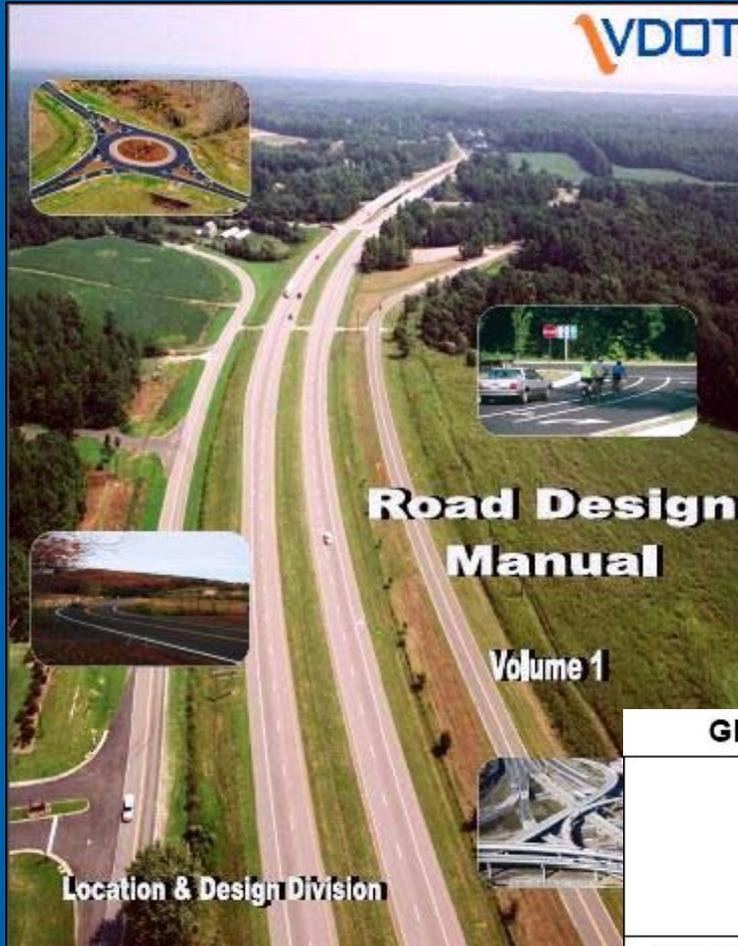




“Complete Streets” serve cars as well as pedestrians and bicyclists

## TND Streets can have\*:

- Short blocks: 300' - 500'
- Street lanes: 10' – 12'
- On-street parking
- Sidewalks
- Delineated crosswalks
- Bicycle lanes
- Roundabout options for intersections
- Trees, streetlights, benches.



- **Appendix A: Geometric design standards for urban local streets**
  - Context Sensitive Solutions Guidelines
- **Appendix B(1): Subdivision street design guide**
  - Sect 6 TND design
  - Sect 7 Innovative design proposals.

GEOMETRIC DESIGN STANDARDS FOR URBAN LOCAL STREET SYSTEM (C)										
	DESIGN SPEED (MPH)	MINIMUM RADIUS		(1) MAXIMUM PERCENT OF GRADE	(10) MINIMUM STOPPING SIGHT DISTANCE	(2) MINIMUM WIDTH OF LANE	(3) STANDARD CURB & GUTTER	BUFFER STRIP WIDTH	(5) MINIMUM SIDEWALK WIDTH	(6) SLOPE
		U	ULS							
STREET WITH CURB & GUTTER	30	251'	273'	15	200'	10'	CG-6	(4)	5'	2:1
	25	155'	167'		155'					
	20	92'	92'		125'					



## 1. Existing Conditions with Basic Right of Way Improvements



## 2. Enhanced Right of Way and Streetscape Improvements

# Phasing: Adaptive Reuse



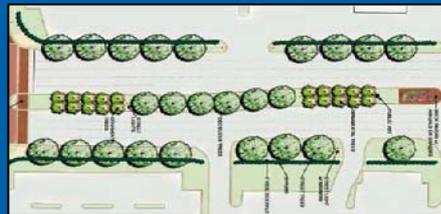
## 3. Private Sector Improvements – Adaptive Reuse

# Phasing: Future Infill



## 4. Increased Density in Latter Phases

**Chesterfield County – impressive example of public investment to redevelop a blighted site into a TND.**



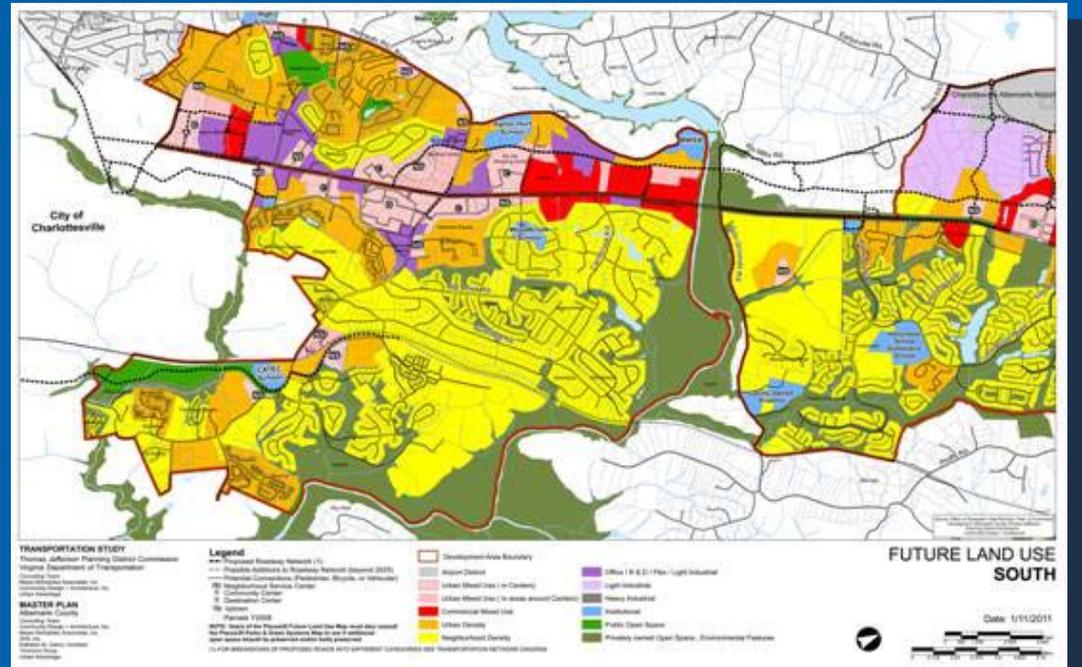
A grey silhouette map of the state of Virginia is centered on the slide. The title text is overlaid on the map.

# Implementing Transportation Efficient Land Use

## Determine appropriate locations in community for TE development

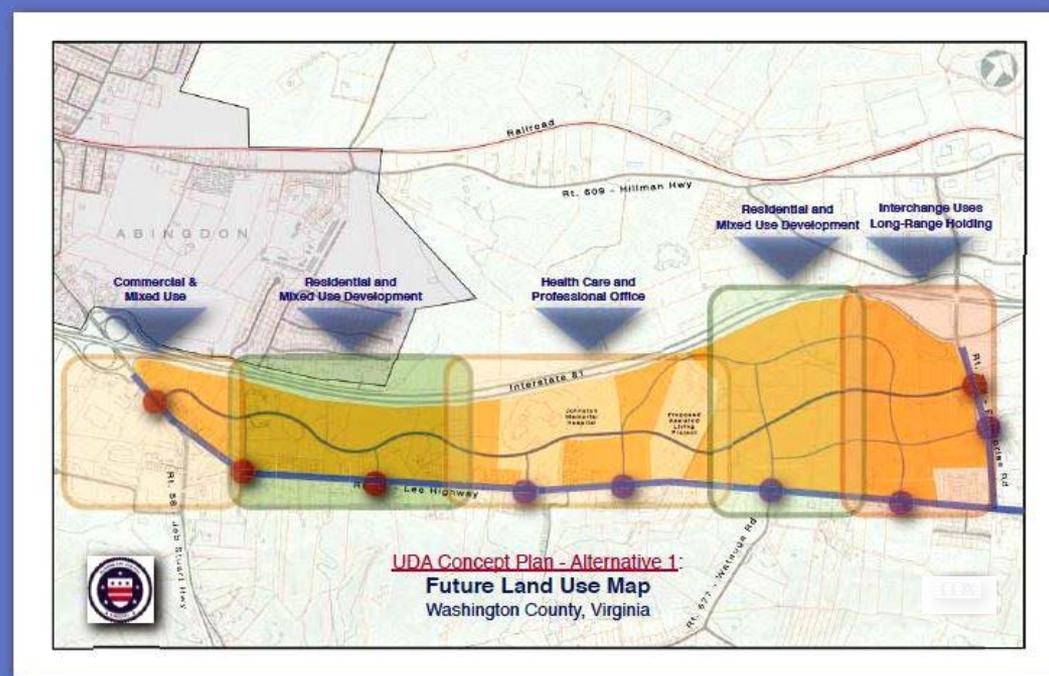
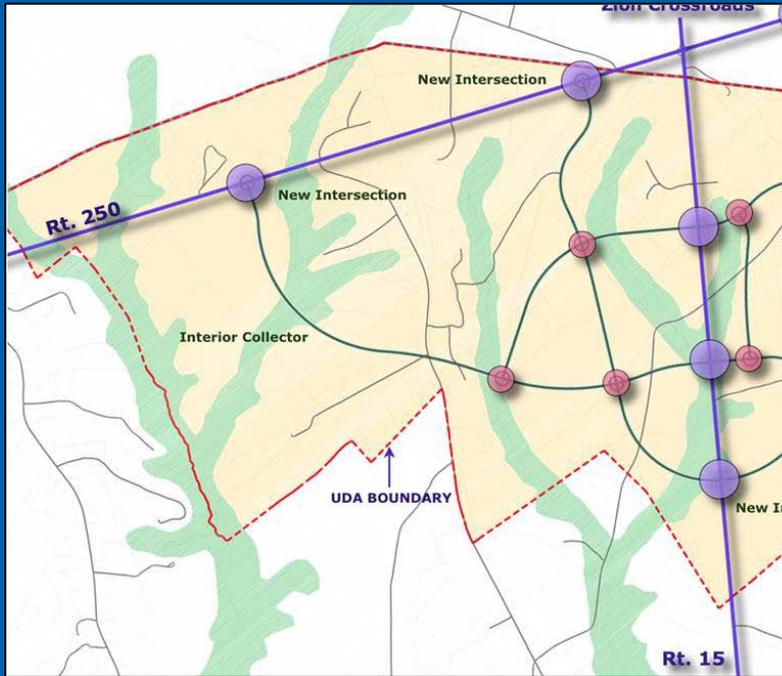
- Evaluate where utilities, schools, fire/EMS, roads, other public infrastructure are available and planned

- Identify areas for concentrated growth on Future Land Use Map



- Plan provides local officials, residents, property owners, developers guidance on where compact mixed use development is appropriate.

# A Transportation Plan for Designated Growth Areas



Future Land Use Plan for Developing Corridor

- Assess deficiencies in existing system
- Establish traffic demand levels dictated by future growth projections
- Identify new/expanded transportation facilities to support planned growth (see § 15.2-2223 B.4 of the Code)

# Conventional Zoning

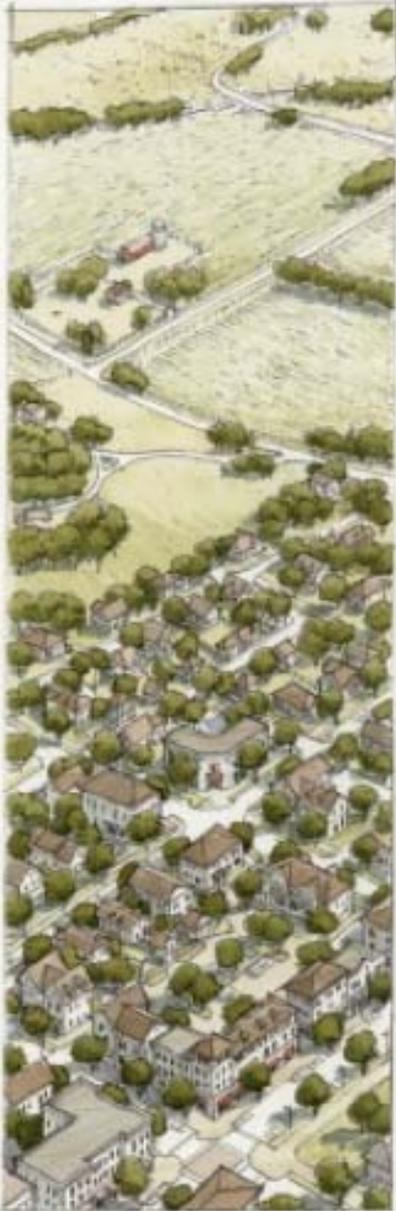
Zoning regulations can discourage communities designed like historic small towns due to:

- Zoning that separates residential and commercial uses
- Large minimum lot size requirements
- Large minimum setbacks and side yards
- Emphasis on parking lots
- No standards for connectivity.



# Zoning Strategy - provide . . .

- Creativity & flexibility for the developer  
*and*
- Necessary & sufficient regulatory controls for the locality on:
  - Mix of uses
  - Densities
  - Lot and building types
  - Development phasing
  - Infrastructure / amenities
  - Community association.



# Zoning Approaches for TNDs

**1. Add a TND Zoning District to the Ordinance**

*or*

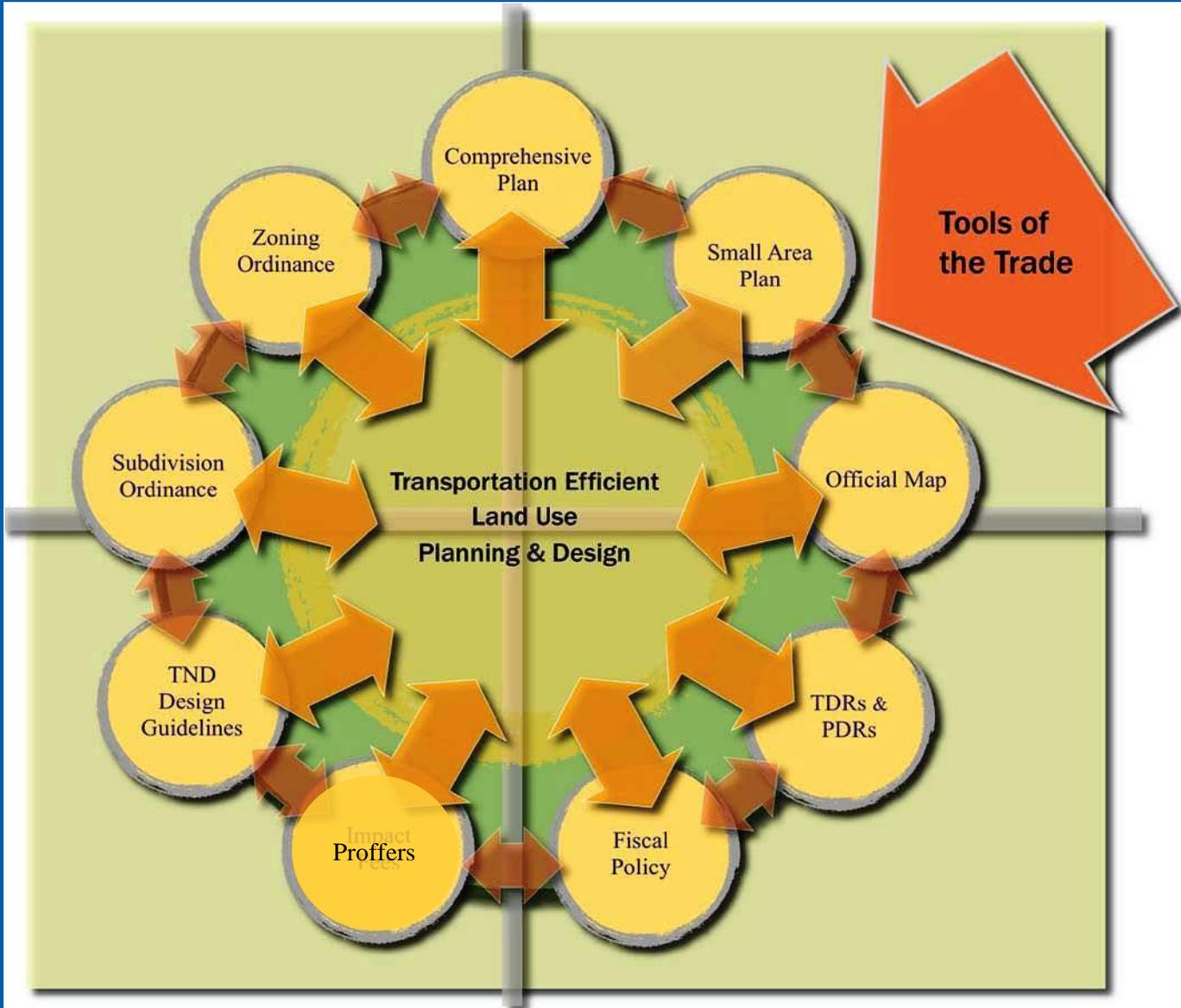
**2. Revise existing PUD District for TND development**

*or*

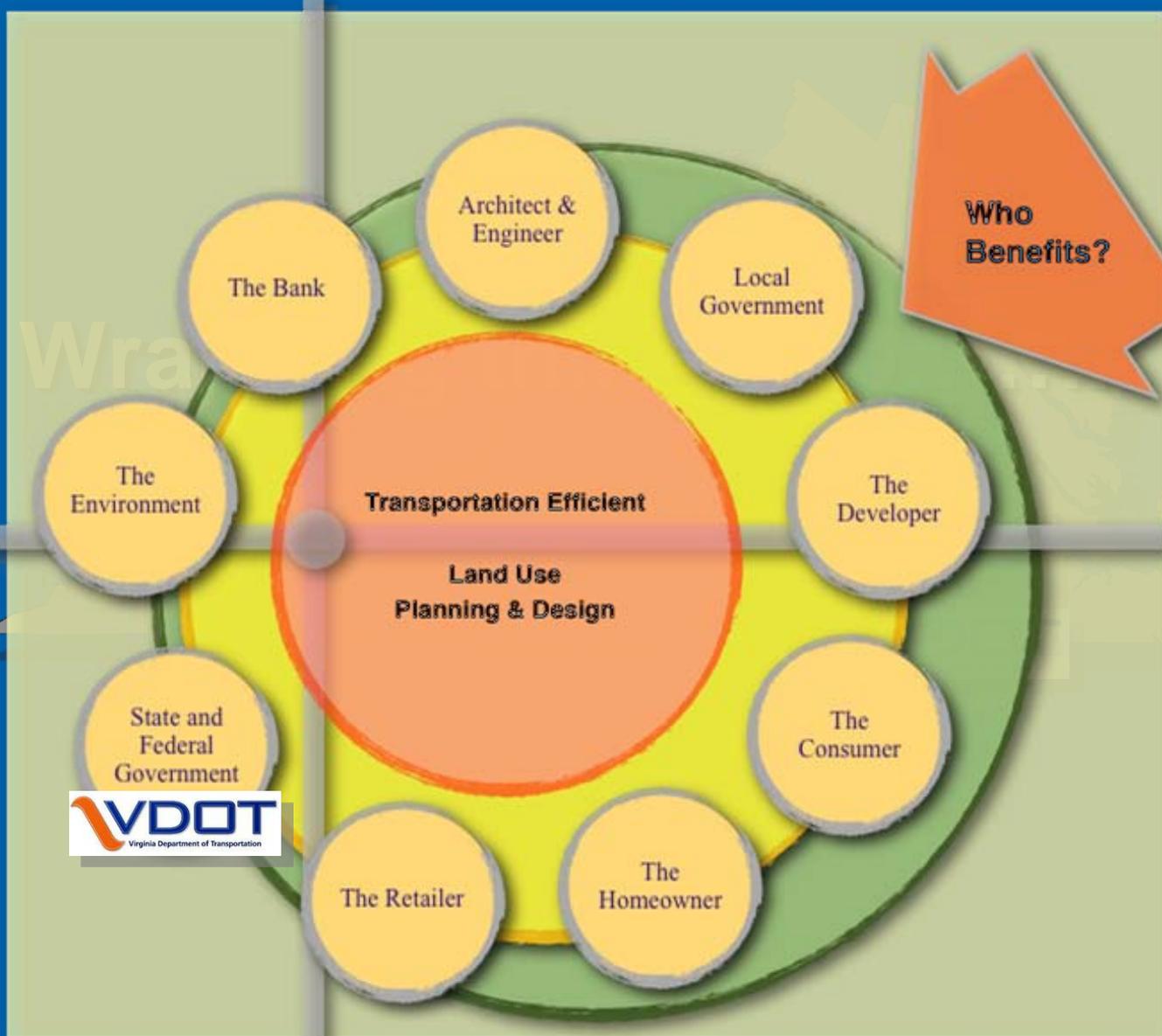
**3. Add a CUP for TND development**

Suggested Exhibits for Inclusion in the TND Land Use Application

- **Concept master plan\***
- **Mix of uses; types**
- **Building design standards**
- **Transportation plan**
- **Traffic studies**
- **Streetscape details**
- **Landscape guidelines**
- **Open space plan**
- **Business sq ft**
- **Development phasing.**

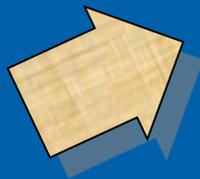


Available to  
achieve  
Transportation  
Efficient  
Land Use



**The lack of coordination between builders, engineers, and public officials....**

**can lead to:**



# The results ....

for residential



# The results ....



**for mixed-use**



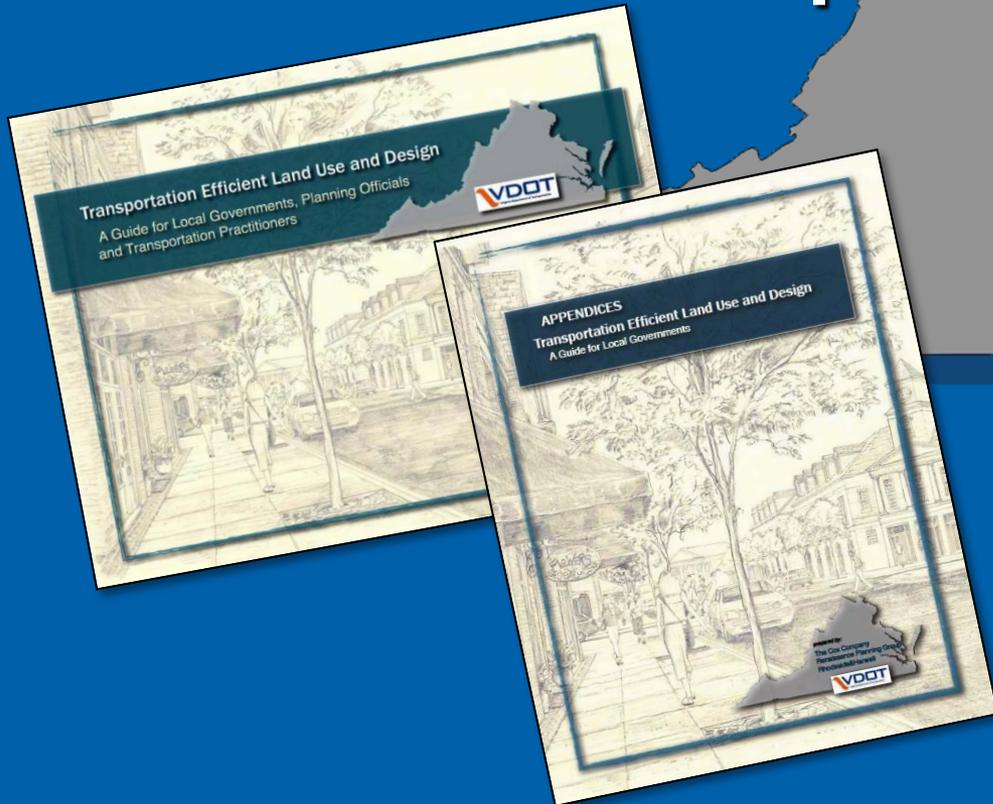
# The results ....



for safe, pedestrian friendly streets



# See VDOT Website “Transportation and Land Use” for publications\*



. . . and contact  
information for questions