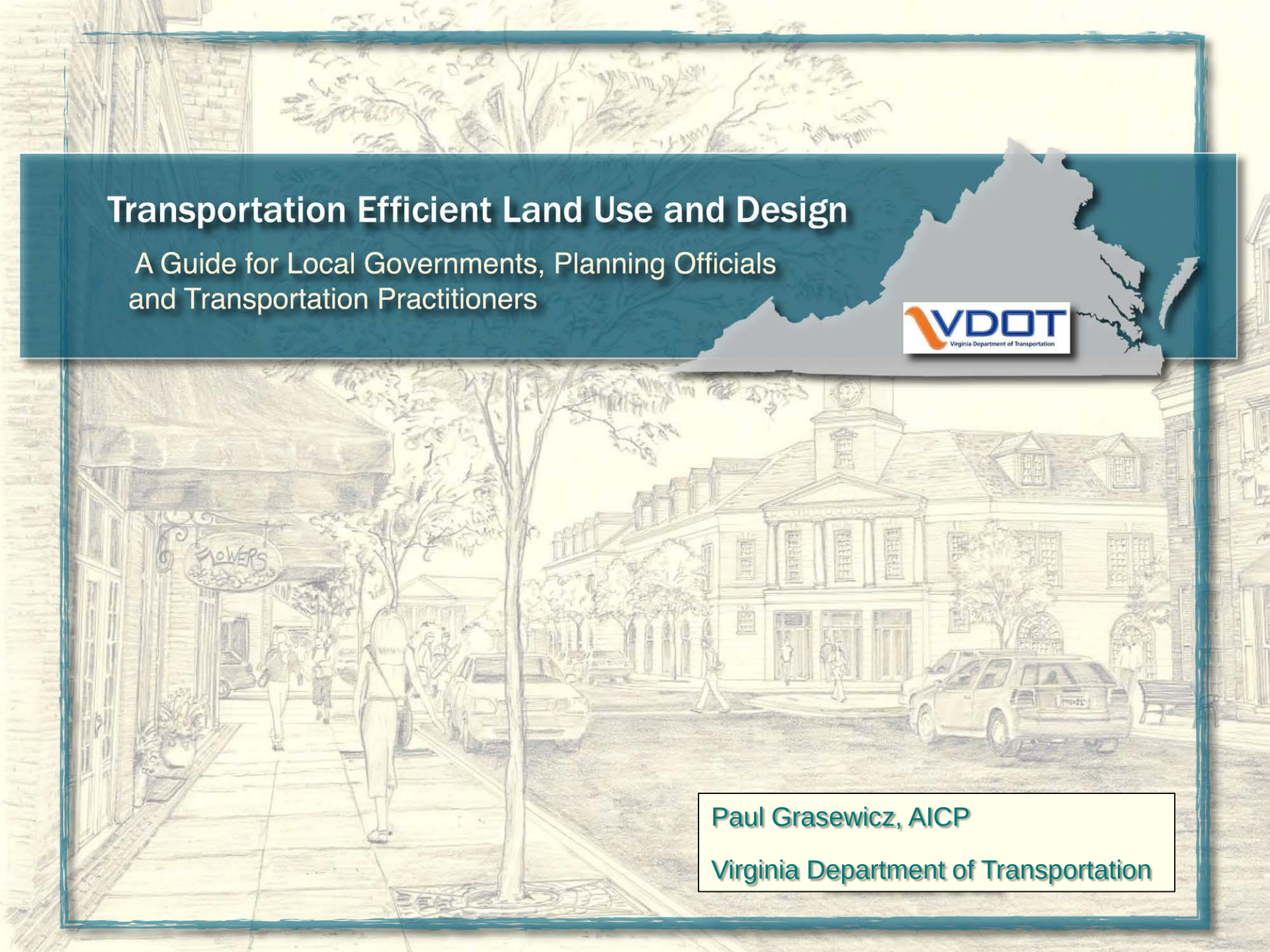
Transportation Efficient Land Use and Design

A Guide for Local Governments, Planning Officials and Transportation Practitioners



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Virginia Department of Transportation

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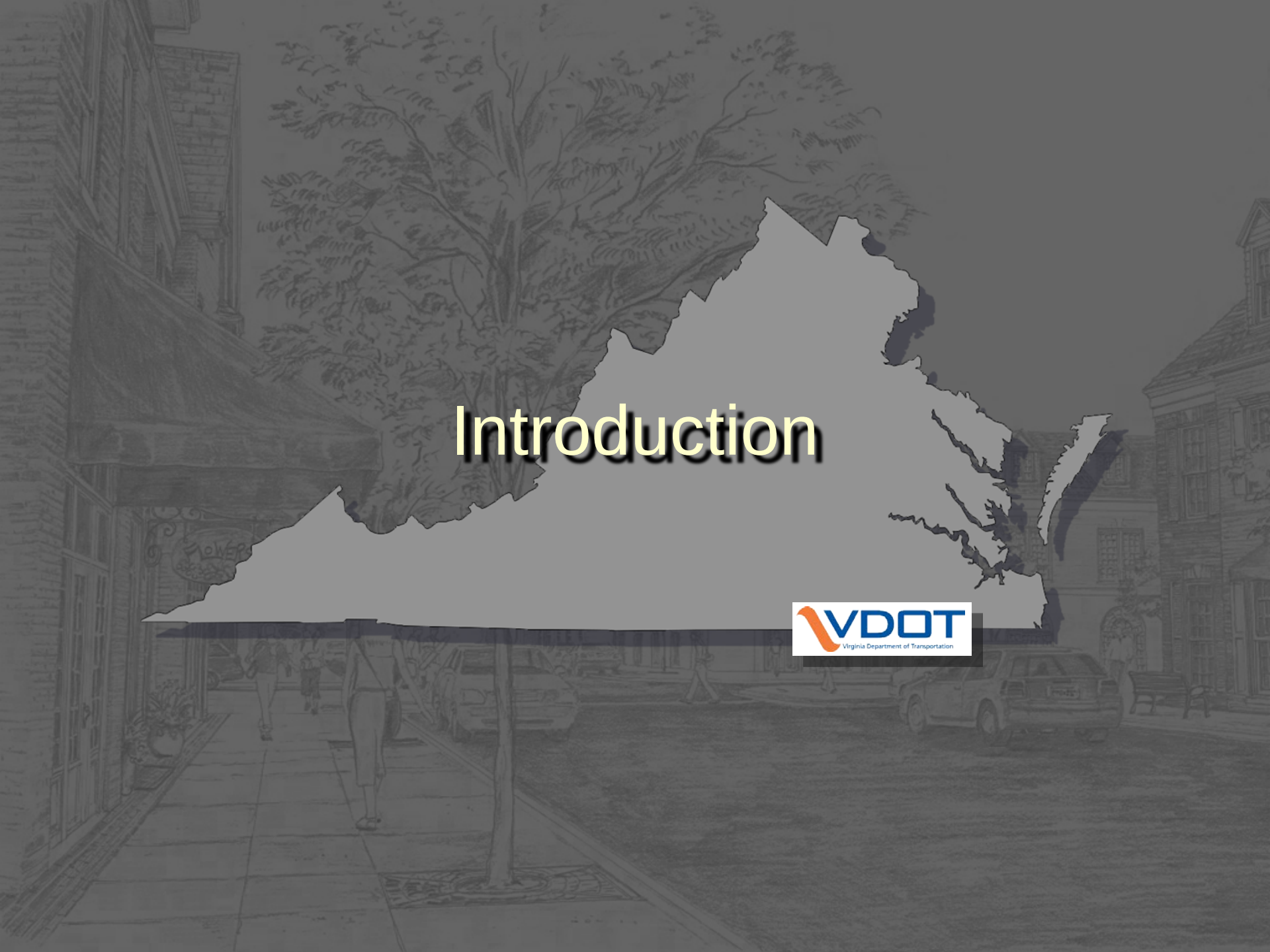
This Powerpoint presentation is based on **"Transportation Efficient Land Use and Design"**, a Guidebook that was prepared under a contract for the Virginia Department of Transportation and the Office of Intermodal Planning and Investment. The authors are responsible for the facts and the accuracy of the information presented herein. The contents do not necessarily reflect the official views or policies of the Virginia Department of Transportation or the Commonwealth of Virginia Transportation Board. The Guide does not constitute a standard, specification, or regulation.

based on the document prepared for VDOT by:

The Cox Company
Renaissance Planning Group
Rhodeside&Harwell

Introduction



Planning for our Communities in the 21st Century

Town planning pre-WW2

Suburban planning post-WW2

Traditional neighborhood design

What is Transportation Efficient Land Use?

- Mix of Uses – retail, office, housing
- Variety of Housing – town homes, apartments, condos, single family houses.
- Encourages economic development

What is Transportation Efficient Land Use?

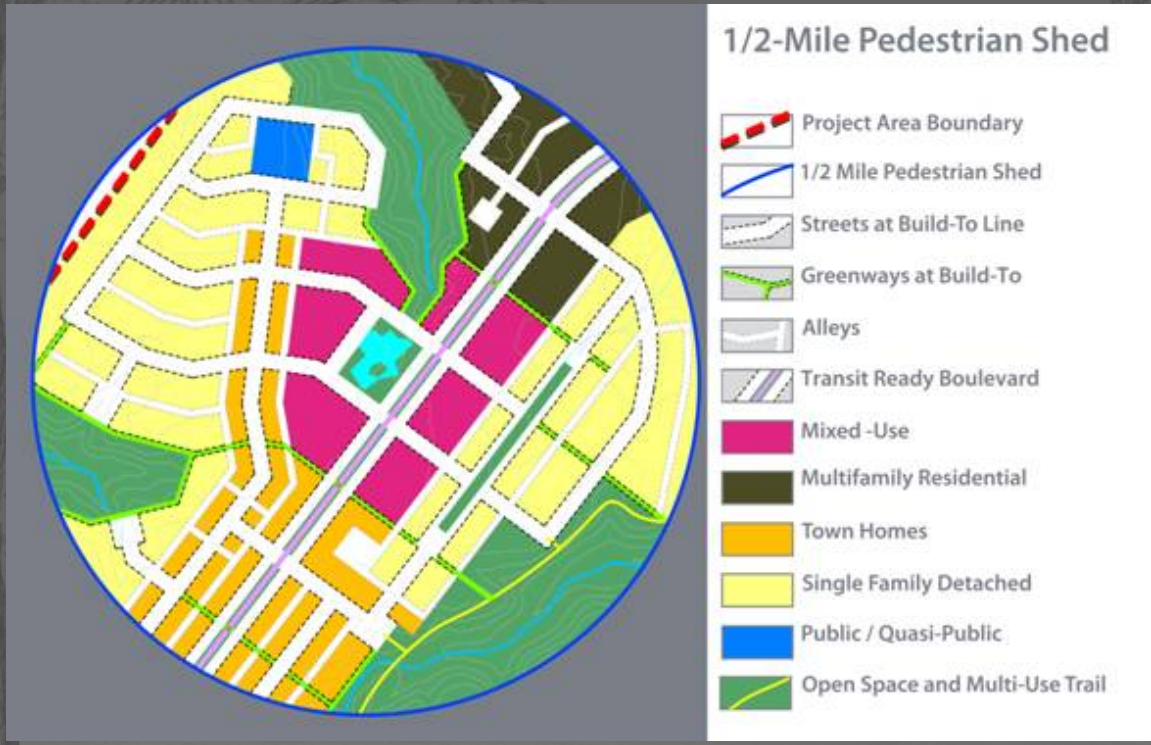
- A grid pattern street system – narrow streets, lower speeds
- A variety of destinations in walking distance
- Parks, accessible open space, public squares
- Preservation of natural areas

What is Transportation Efficient Land Use?

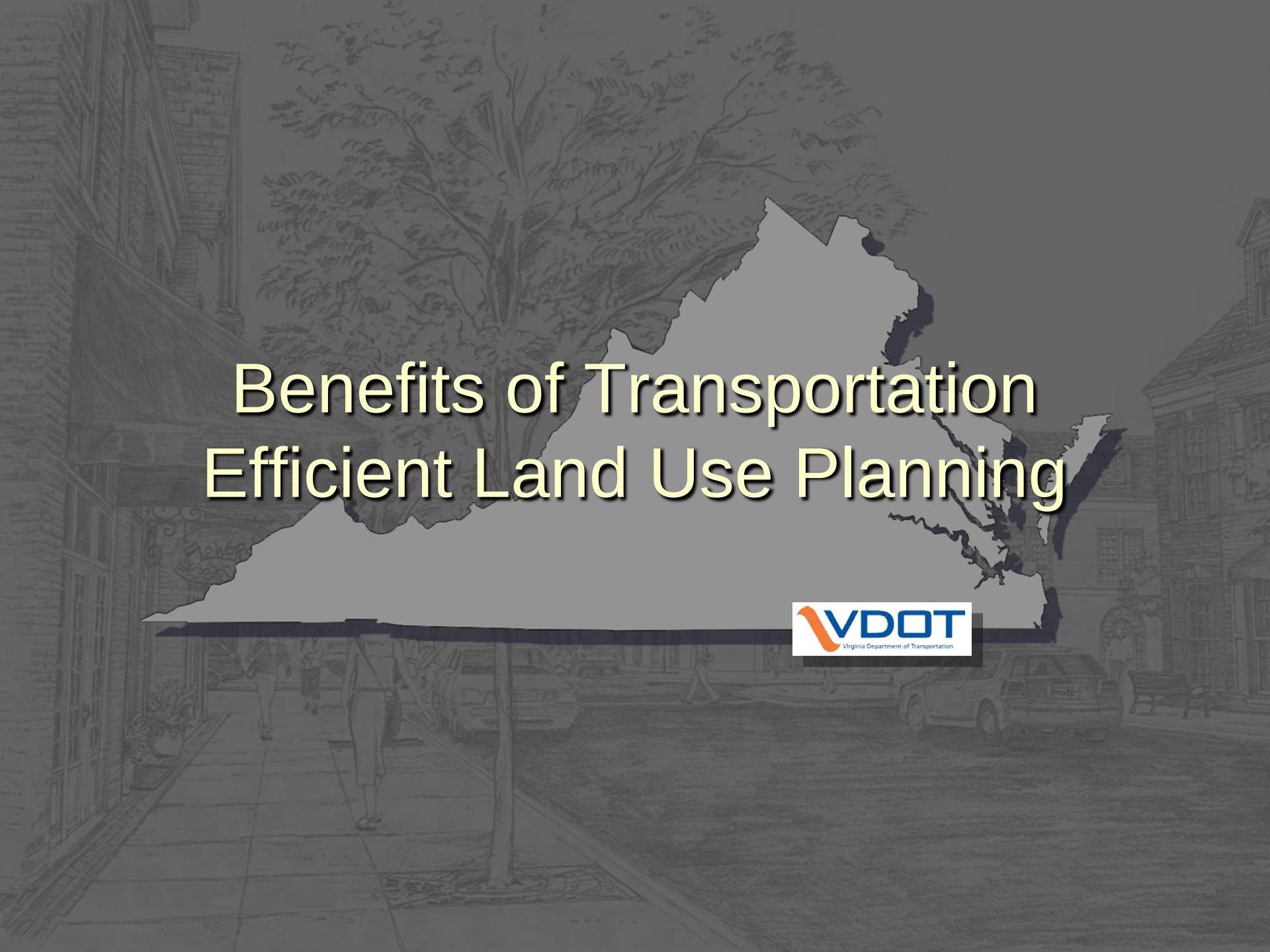
- Buildings close to the street – reduced setbacks
- Emphasis on sidewalks
- Bicycle friendly
- On street parking and to the rear and sides of buildings

The TND/TED Neighborhood

- **Walkability**
  - Anything within ½ mile is considered walkable
  - About a 10 minute walk
- **Center**
  - A neighborhood has a discernable center
  - A commercial area, park, or civic place like a school



Benefits of Transportation Efficient Land Use Planning



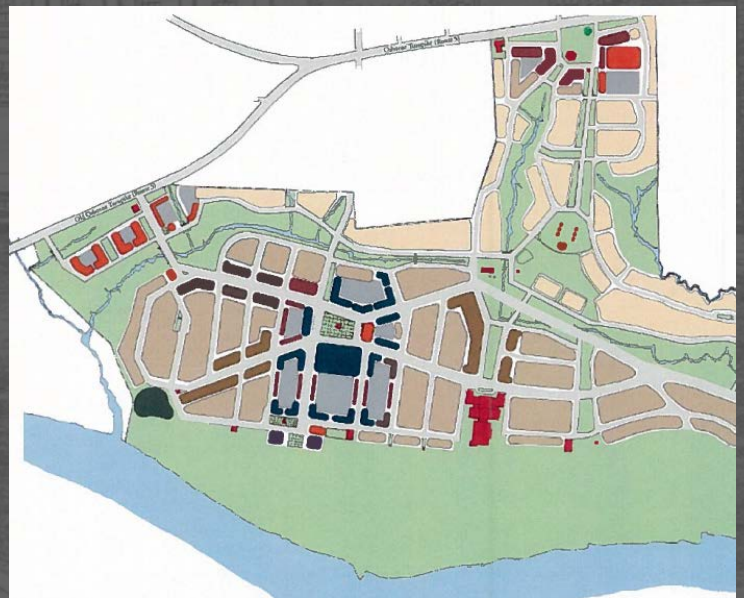
Suburban vs. Transportation Efficient Land Use

Suburban Patterns:

- Disconnected Streets
- Cul-de-sacs
- Separated Uses
- Spread Out
- Single-Entrance
- No sidewalks, walking paths

Traditional Neighborhoods:

- Connectivity
- Grid of Streets
- Mix of Uses
- Compact
- Multiple entrances - safety
- Sidewalks - pedestrians, bicyclists



Suburban vs. Transportation Efficient Land Use

Transportation Efficient Development can . . .

- Reduce traffic
- Reduce distances traveled
- Reduce time spent driving, costs
- Reduce road area that must be publicly maintained
  - Less roads to maintain = Less impact on the taxpayer




The Grid – Benefits of the Neighborhood Street System

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

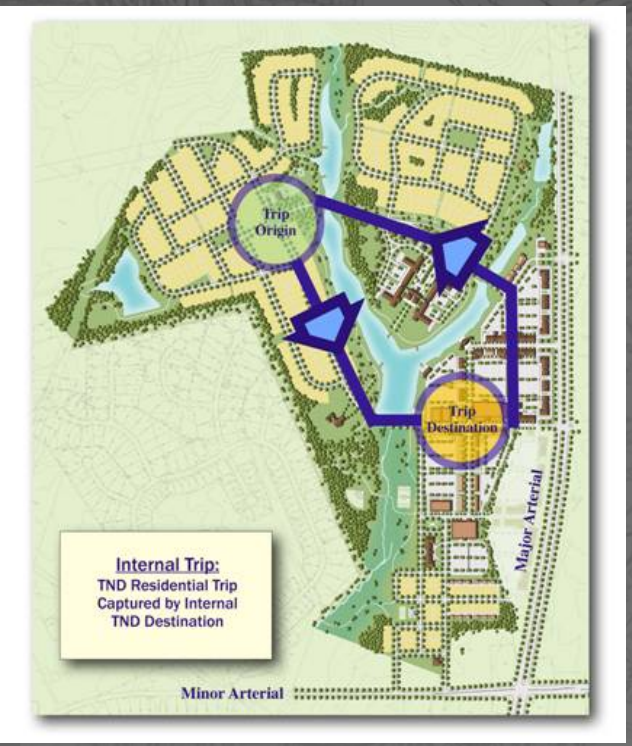
System Benefits:

- Provide more and safer transportation options
- Take trips off of congested arterial roads

How do we measure this?

- Internal Capture
- Diverted Trips
- Pass-by Trips
- Intersection Capacity
- Traffic Calming
- Accident Records
- System Mileage
- Consumer Satisfaction

Traffic Distribution Benefits



Inter- and intra- neighborhood interconnectivity benefits both local and regional traffic patterns

Internal Capture

Diverted Trips

The Result:
Transportation efficient land use provides more transportation options and reduces traffic on arterial roads.

TND Residential Lots: Benefits of Design Flexibility

- Market-based mix of dwellings
- Options for smaller lots: ¼ acre or less
- Houses located close to the street
- Small side and rear yards

- Reduced lot infrastructure
- Reduced lot development costs/dwelling
- Rear alley garages or at rear of lot

What to Avoid to get Buildings Close to the Street!

The lack of coordination by and between builders, engineers, architects, road builders, and public officials….

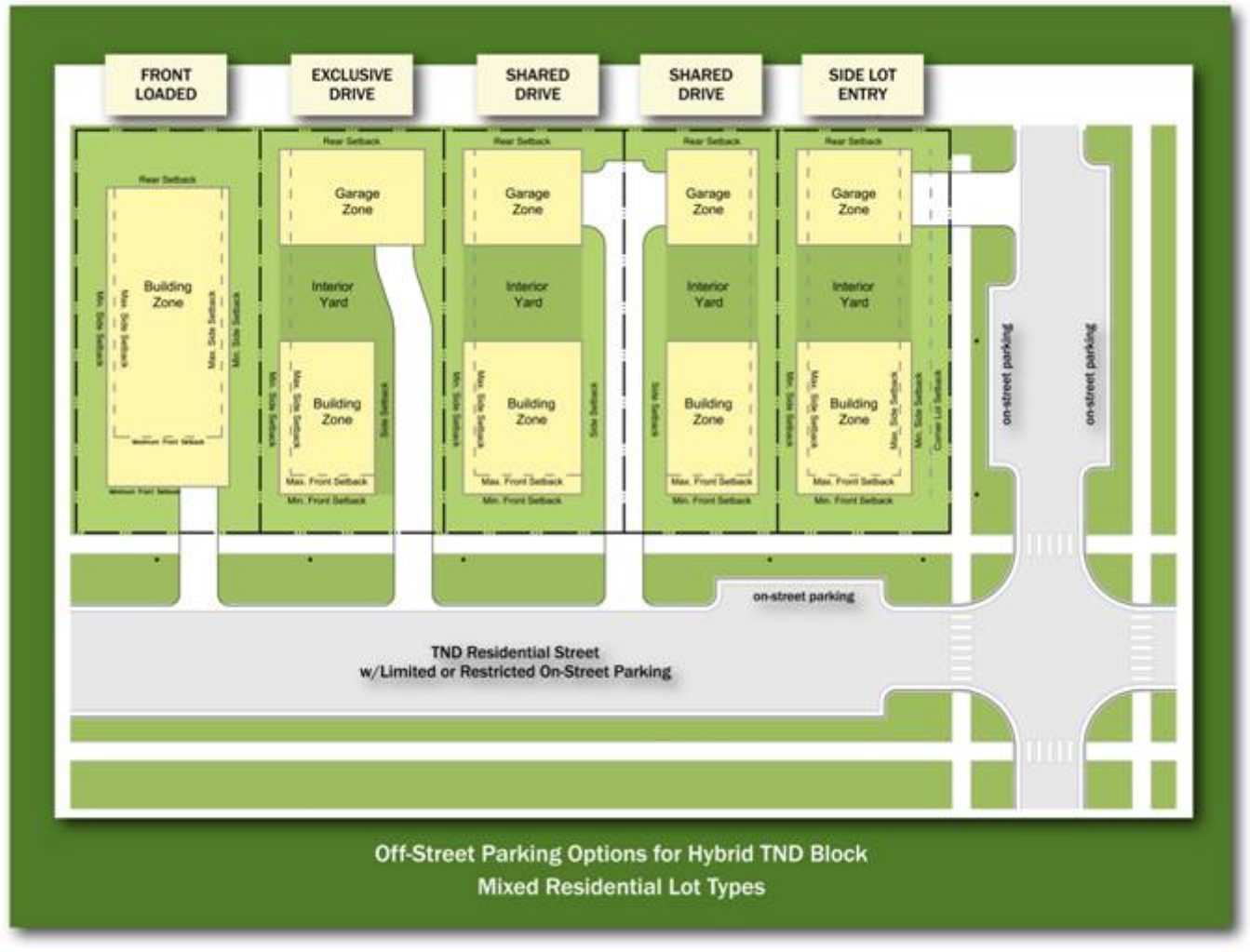
can lead to:

Benefits of TND Blocks with Alleys

Blocks with alleys offer:

- A variety of housing types and lots sizes on the same block.
- Access to garages and other services.
- Additional provided parking on the street.
- Location for utility service.

TND Blocks without Alleys: A Design Option

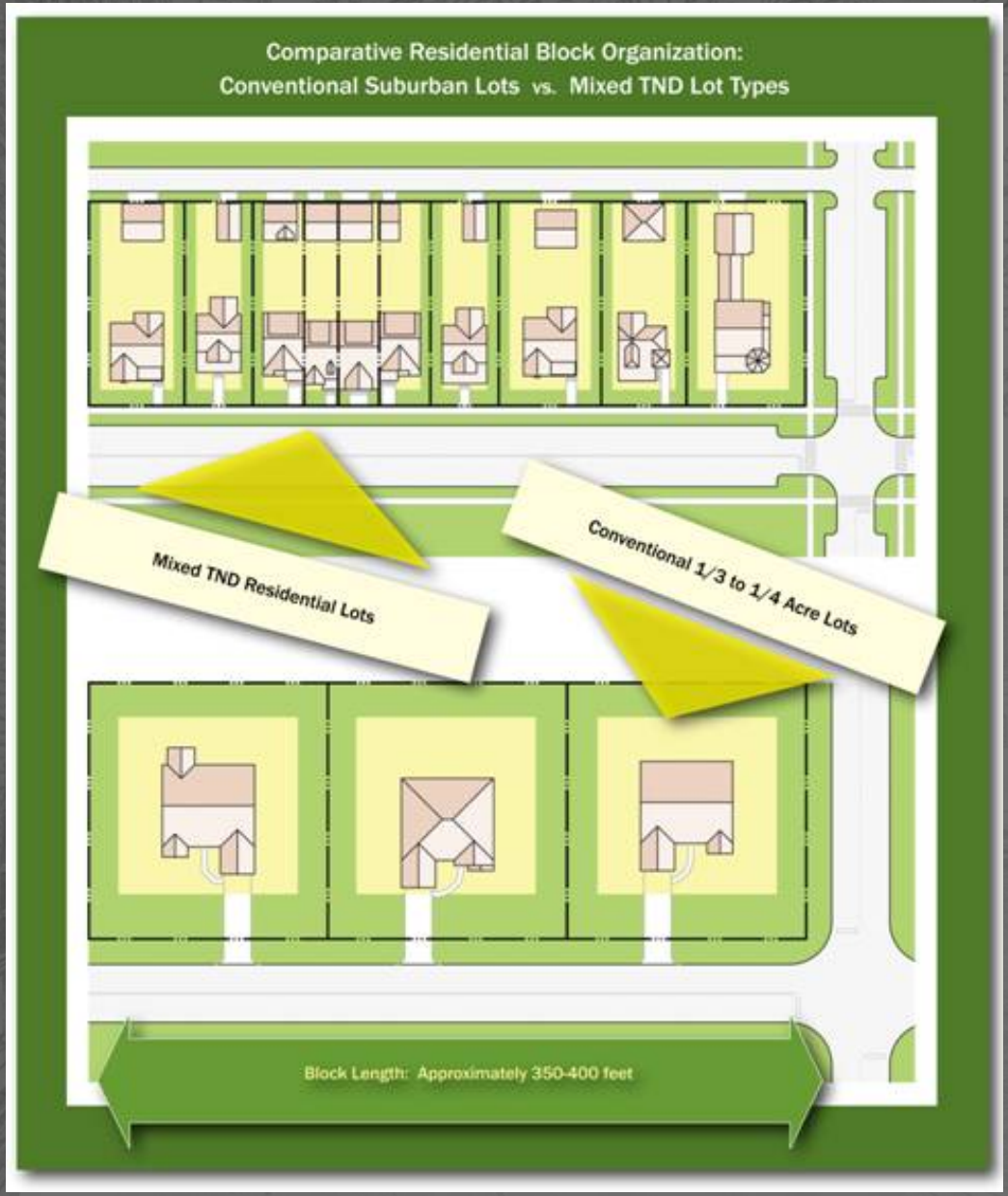


Off-Street Parking Options for Hybrid TND Block
Mixed Residential Lot Types

Alleys may not be feasible due to market and terrain considerations:

- Options for lot access.
- Lot access should maximize available on-street parking opportunities.

Land and Infrastructure Benefits



- Compact residential development conserves land
- Lower per-unit expenses for street infrastructure
- Shorter and more efficient utility systems
- In walkable places, 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

Fiscal Benefits for Localities

- **Shorter travel distances**: school buses, trash pickup, other public services
- Compact infill projects **maximize existing infrastructure**
- **Higher market value** of TND real estate: increased property tax revenue
- TND rezoning typically **include improvements** that would otherwise be publicly funded: e.g. parks, open space, bike lanes.
- **Reduced maintenance costs** for street and other infrastructure networks

Housing Market Benefits

- Market based mix of housing types
- Apartments, condos, town homes - affordable housing options
- Condominium & town homes ownership makes entry into the market easier
- Living in a walkable or bikeable community can lower transportation costs
- Being able to walk to stores, public squares, parks, and open spaces is a powerful amenity to attract buyers




Other TND Benefits

Safety:

- Shorter, more direct routes improve **emergency response**
- Smaller, lower speed TND streets are **safer** for drivers and pedestrians

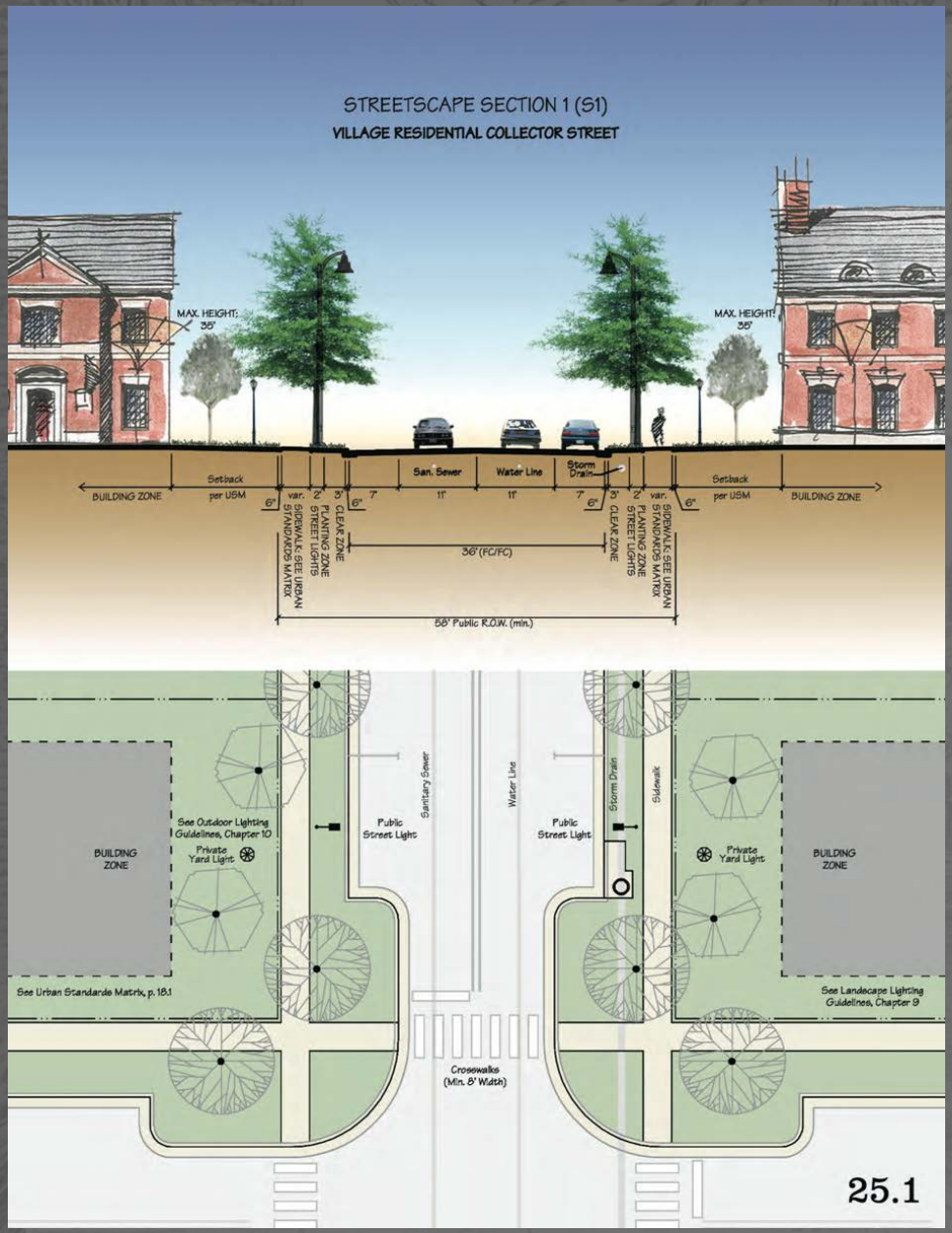
Quality of Life:

- **Health benefits** of walkability
- **Less time** spent driving

Public transit, mixed-use, and residential development can be compatible with proper planning.

TND Street Types

TND Residential Street Design



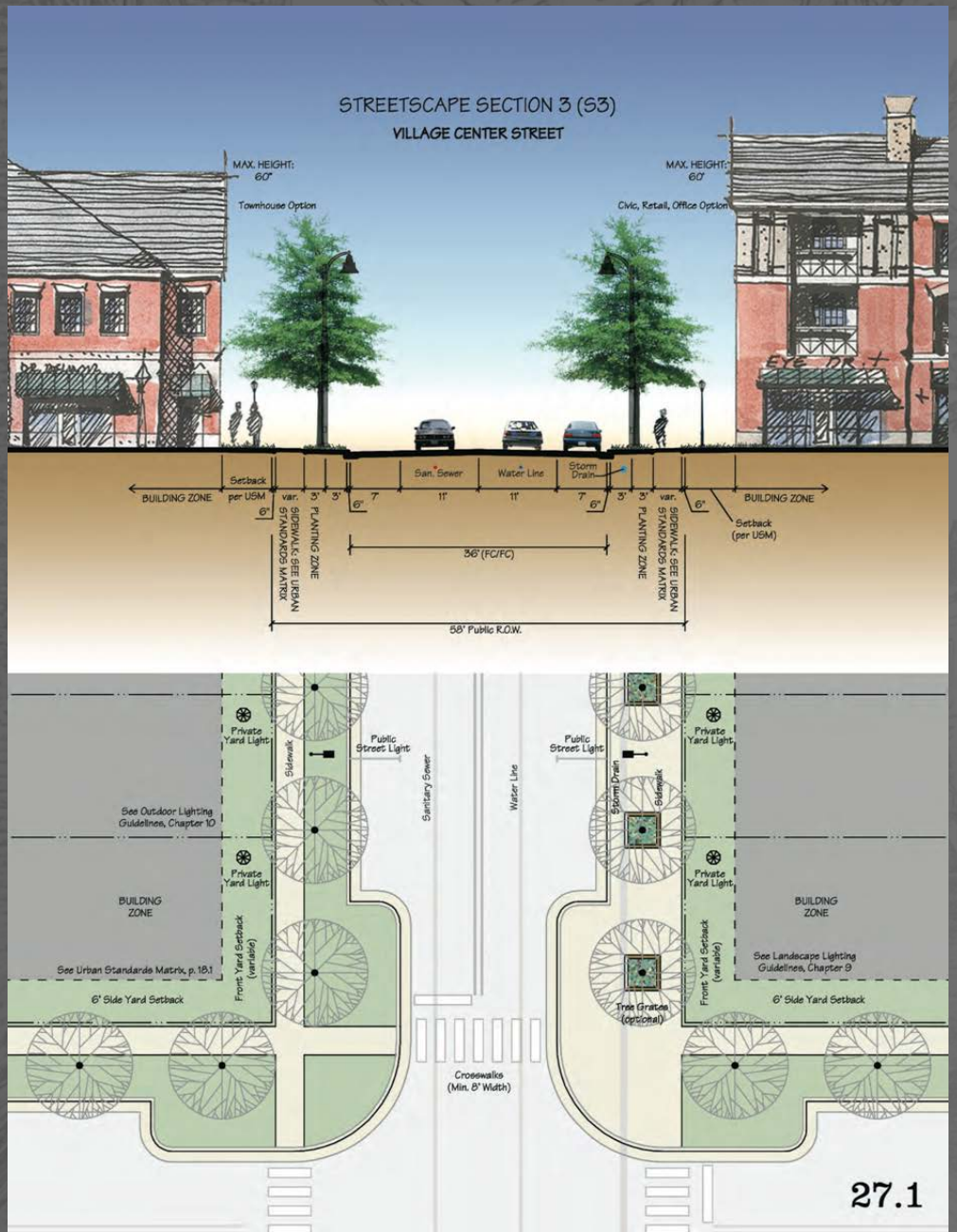
"Complete Streets" serve cars as well as pedestrians and bicyclists. Traffic calming is emphasized.

Residential Collector Streets have:

- Relatively short blocks: 350' - 500'
- Narrower lanes: 10' – 12'
- On-street parking: 7' – 8'
- Sidewalks: 4' – 6'
- Trees and other landscaping
- Street lights
- Buildings close to the street
- Benches, other pedestrian amenities
- Reduced curb returns
- Delineated crosswalks
- Efficient rights of way

Residential Collector

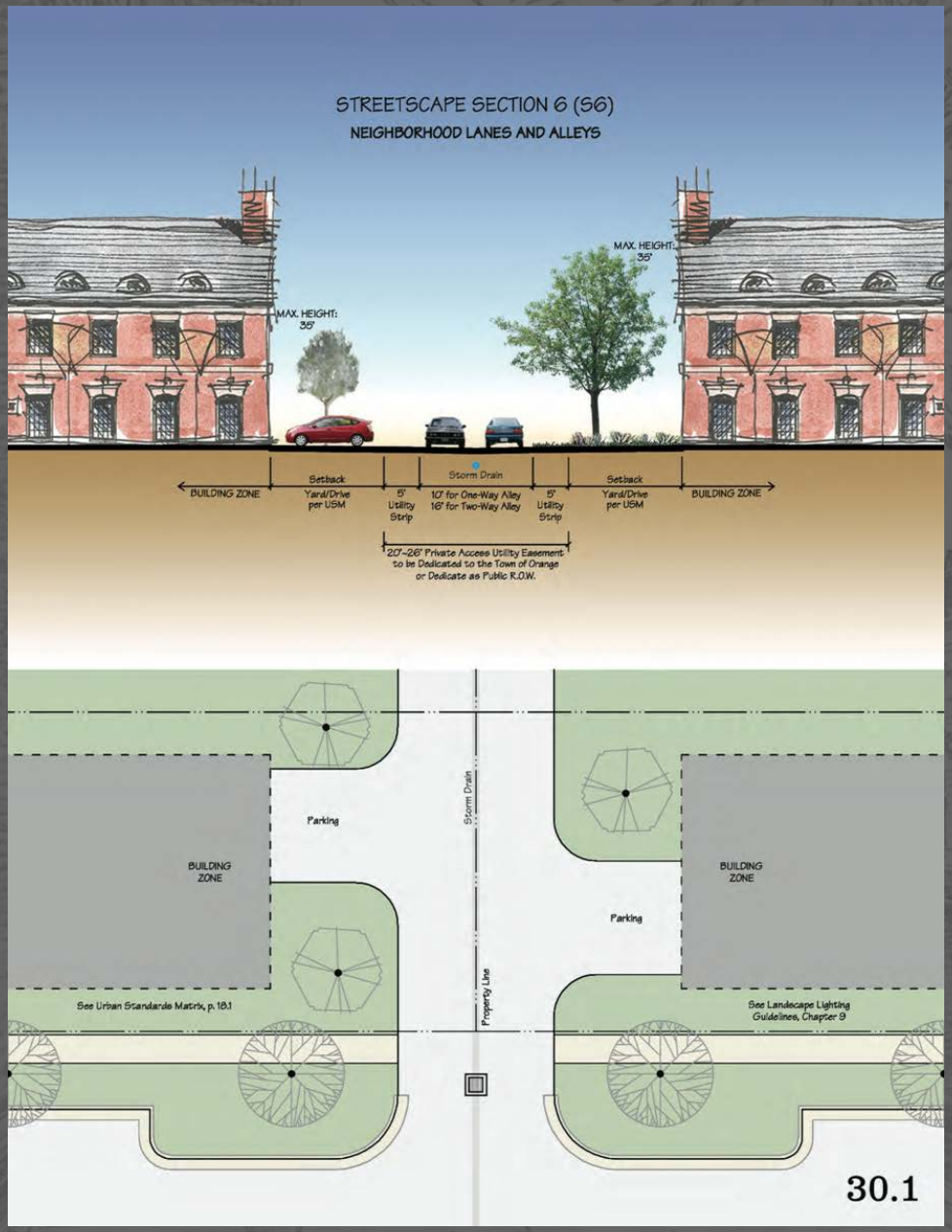
TND Commercial Street Design



Village Center Streets have:

- Scaled grid blocks: 250’ to 400’
- 11 - 12’ travel lanes
- On-street parking coordinated with supplemental off-street parking.
- Variable width sidewalks
- Trees w/tree grates
- Street lights coordinated with commercial development
- Buildings close to the street
- Civic spaces and other pedestrian amenities integral to right of way improvements
- Pavers and delineated crosswalks at intersections

TND Street Design: The Alley



Alleys complement TND Streets.

- Narrow widths: 9' – 14'
- Utility & service access
- No sidewalks or C&G
- Limited landscaping
- Street lights
- Access to rear garages
- Reduced engineering details

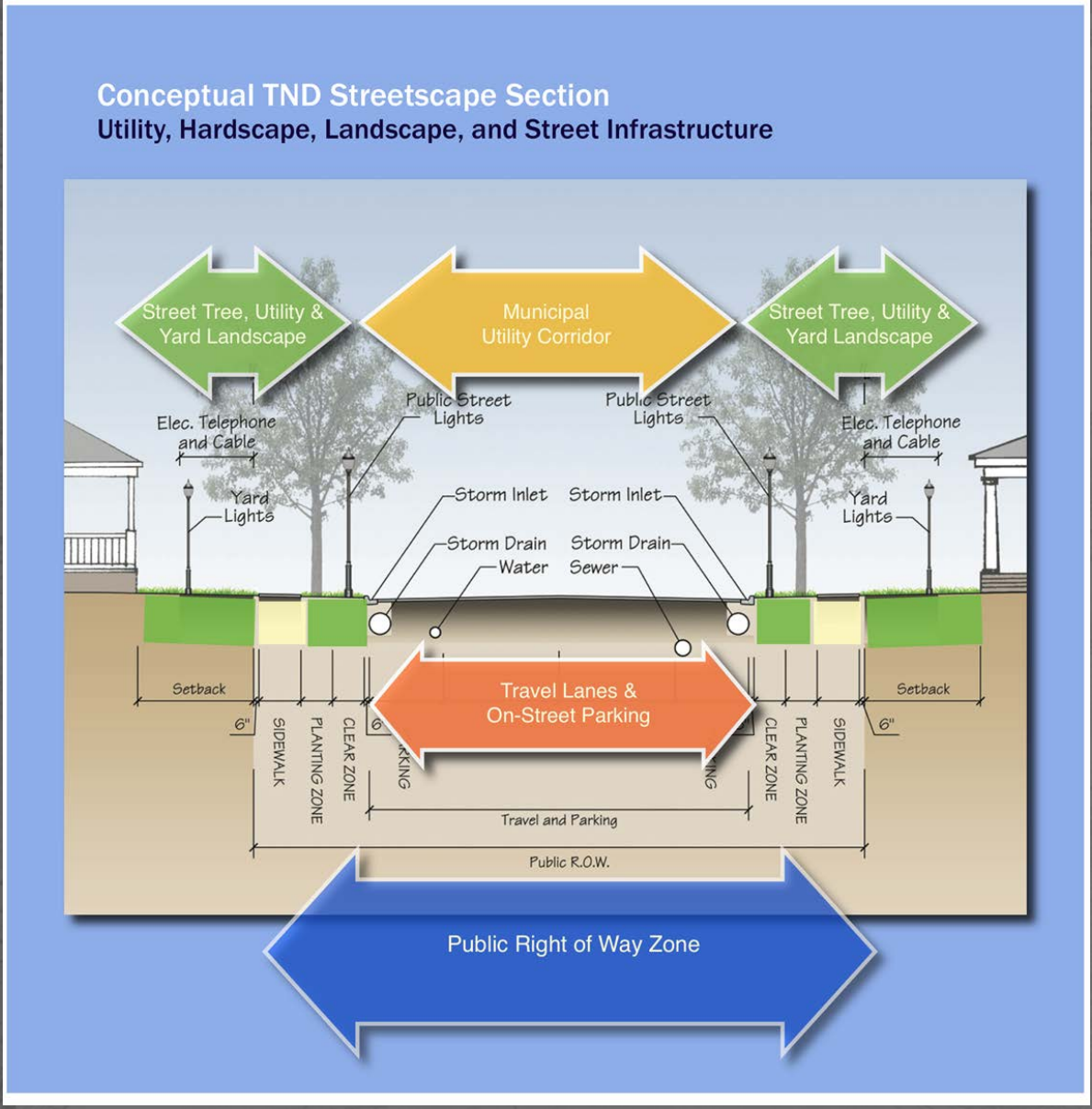
BUT no state maintenance

Private Alley

Alleys in TND Neighborhoods

…have a place..

TND Street Engineering: The Need for Compromise



TND streets require inter-agency cooperation:

- Utilities within Public ROW
- Shared utility easements
- Landscaping within ROW
- Sidewalks w/variable widths
- Street lights within ROW
- Compromises on clear zones
- Reduced curb returns
- Smaller curb pans – 1’ to 1.5’
- Flexibility in off-street parking
- Traffic calming to achieve safe average operating speeds.
- Planners and engineers must compromise on traditional suburban and rural design conventions

Development Phasing & Density

Phasing Opportunities

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

Phasing: Public Improvements

2. Enhanced Right-of-Way and Streetscape Improvements

Phasing: Adaptive Reuse

3. Private Sector Improvements – Adaptive Reuse

Phasing: Future Infill

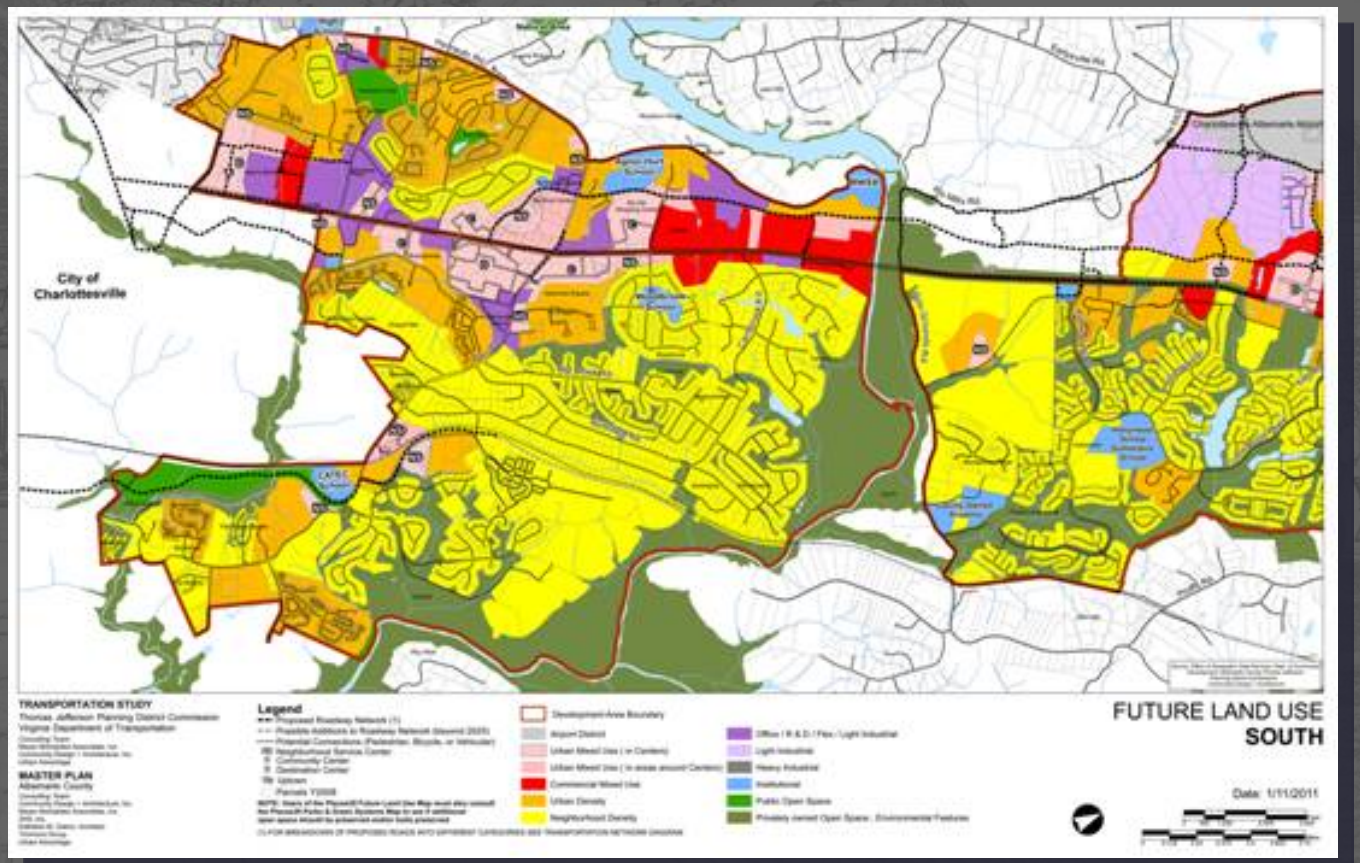
4. Increased Density in Latter Phases

Phasing in Urban Areas

Planning for Growth

The Comprehensive Plan

- Emphasis should be placed on locally designated Growth Areas where utilities and public infrastructure are available and planned.
- Identify appropriate areas for concentrated growth on the Future Land Use Map.



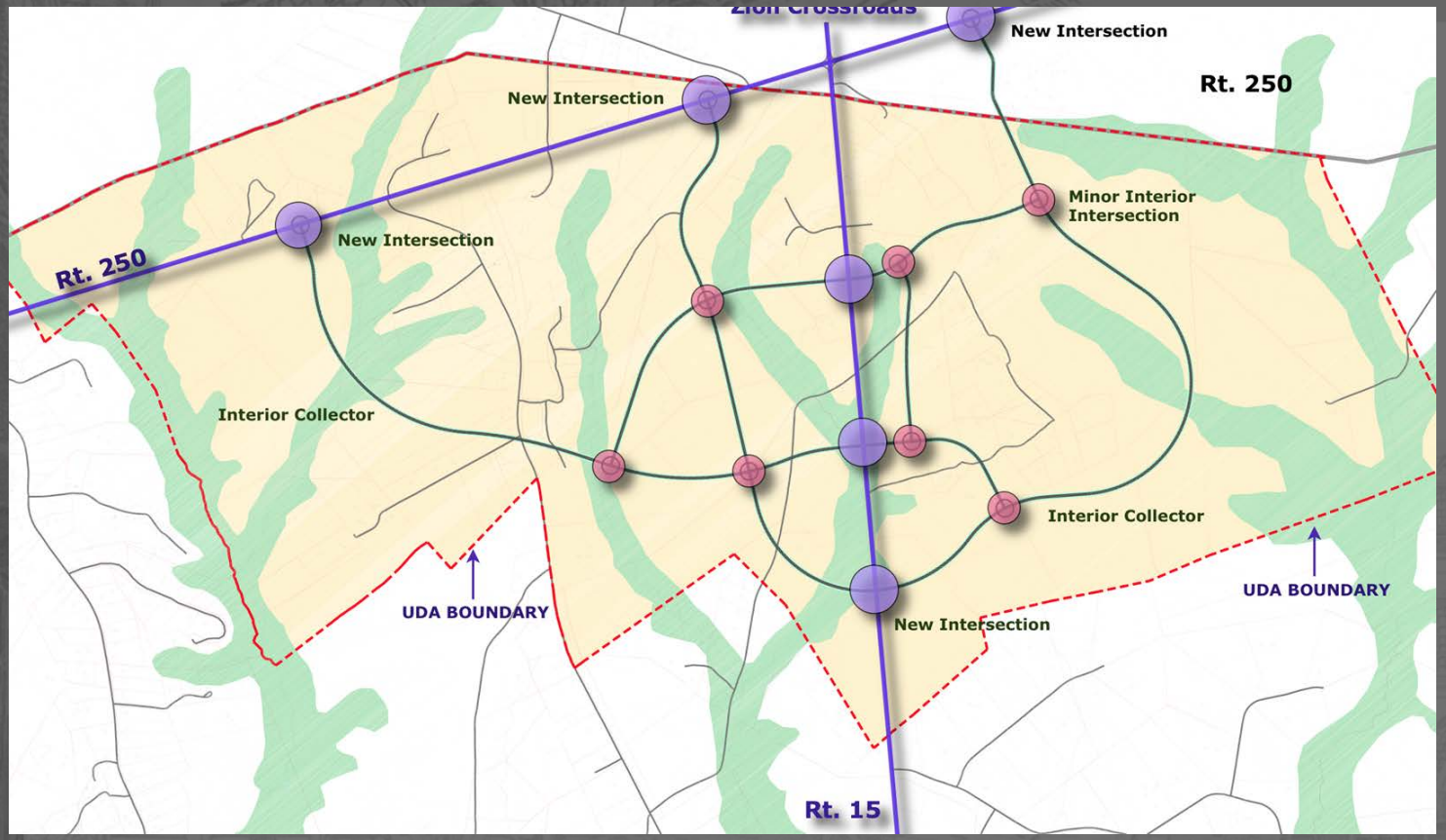
The Future Land Use Plan: Growth Area Designation

12 Steps to Designating Areas for Growth

1. Consider the overall planning policy framework within your community.
2. Inventory existing population and employment conditions and analyze future trends:
3. Calculate population, housing and employment demand.
   - Compare demand with estimated development outlined in the plan
   - Identify land use patterns and densities established in the planning framework
   - Assess infrastructure capabilities
4. Calculate gross and net acreage based on future population and employment projections
5. Develop goals and objectives to guide transportation efficient land use.
6. Prepare a set of alternative locations for the future land use map.
7. Evaluate future land use map alternatives.
8. Conduct public workshops and/or meetings with stakeholders
9. Select the preferred locations for community growth areas.
10. Prepare Small Area Plan for each designated growth area.
11. Adopt future land use map and comprehensive plan amendment.
12. Monitor and periodically update the growth area plans – during five-year comprehensive plan updates, etc.

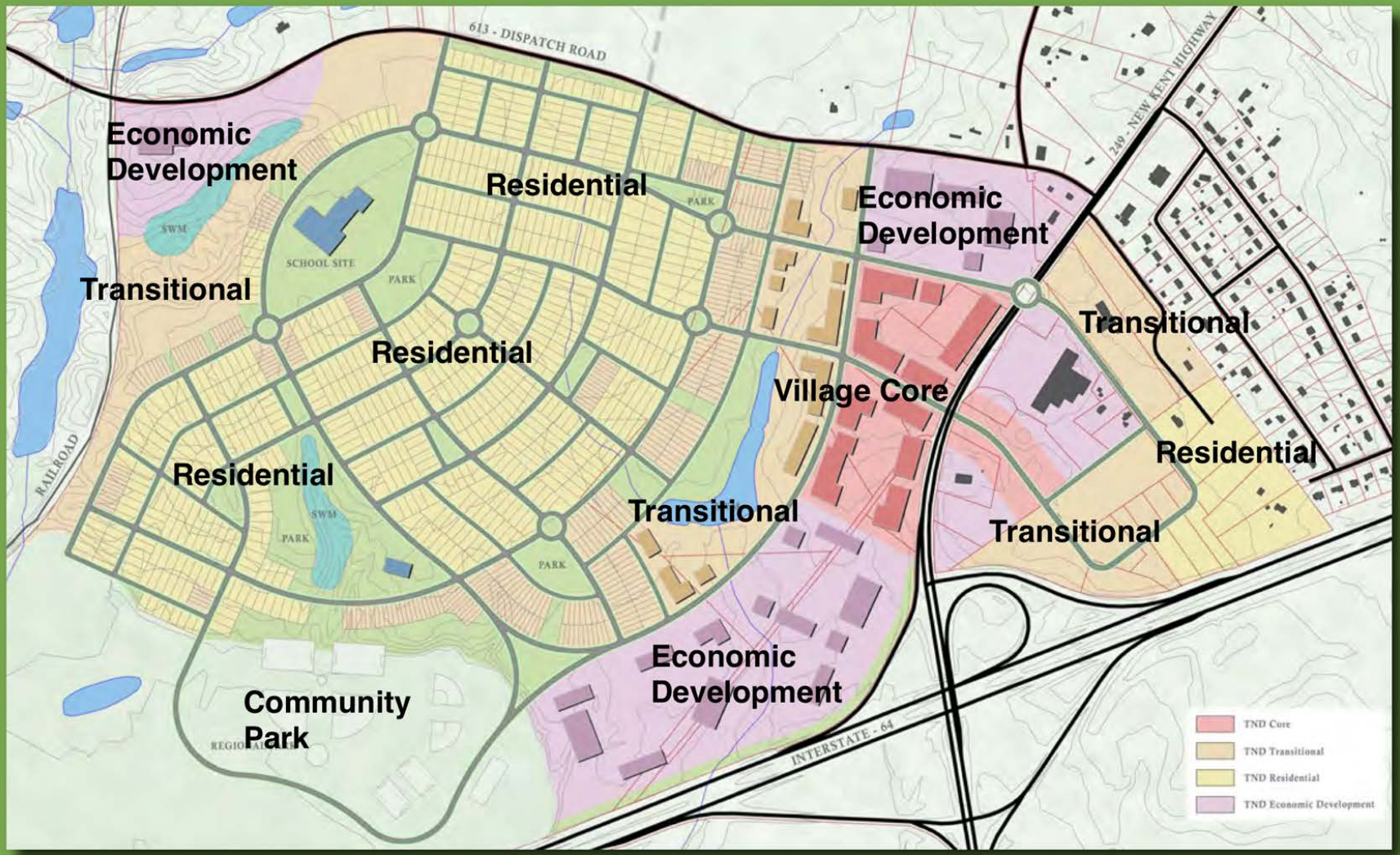
Primary Focus on Town & Village Planning Areas

Establish the Transportation Plan for Designated Growth Areas



- Assess deficiencies in existing system
- Establish traffic demand levels dictated by future growth projections
- Coordinate with property owners & agencies to select street alignments

Example: Small Area Plan for an Undeveloped Area



Engaging the Public

Public Engagement Principles

- Engage Stakeholders at all Levels
- Include multiple venues –
  - Stakeholder interviews
  - Education sessions
  - Surveys
  - Community workshops
  - Joint Commission/Governing body sessions
  - Draft plan open houses
- Educate and Learn From Stakeholders, Including:
  - General Public
  - Real Estate Community
  - Major Landowners
  - Major Industry
  - Key Civic Groups
  - Elected Officials

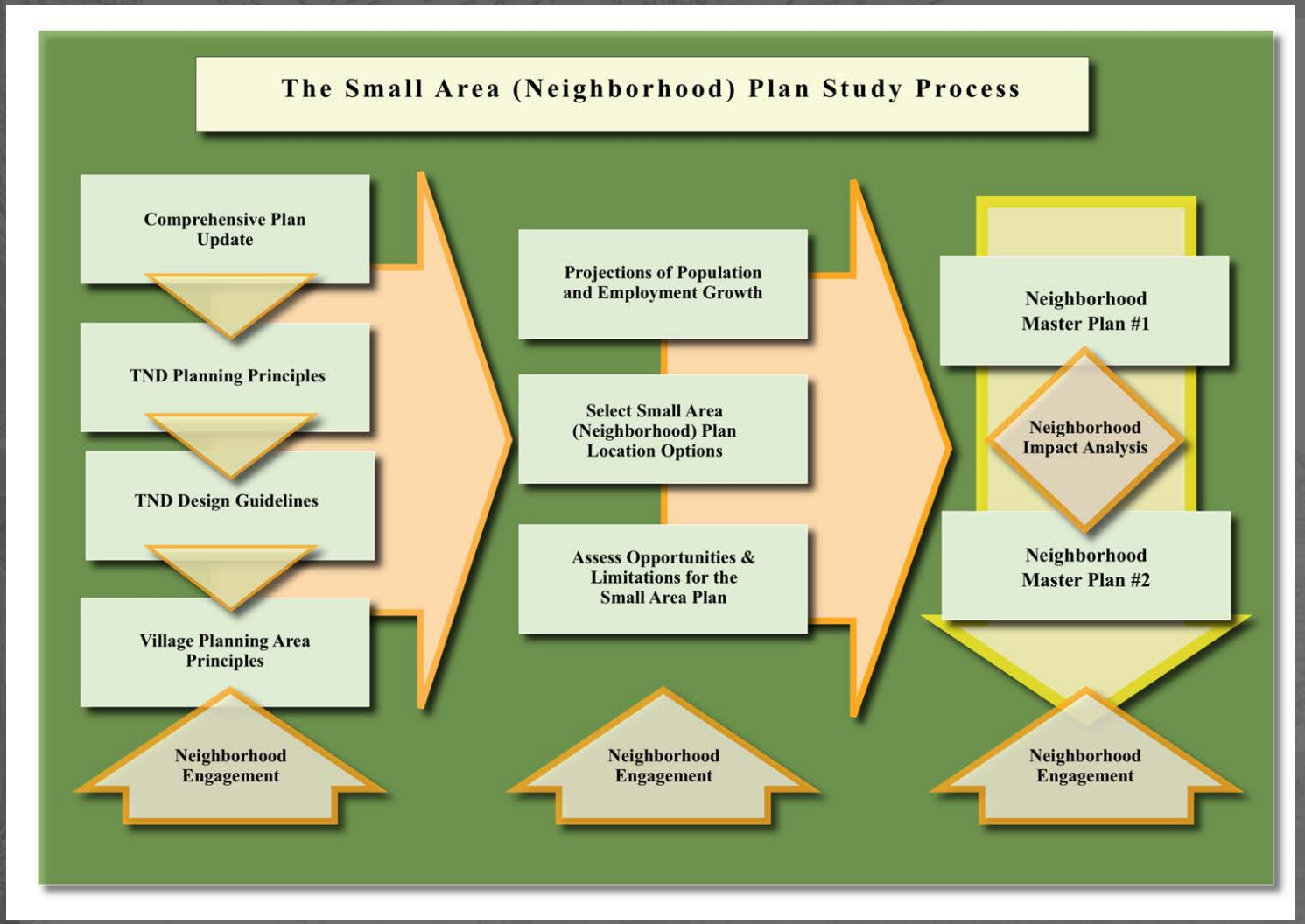
Keep communicating during planning process

Opposition to Compact Mixed Use Development Design

The facts about Transportation Efficient Land Use:

- TND development offers **more choices** & flexibility **to property owners** than conventional suburban zoning.
- By reducing traffic and the size of infrastructure networks, TND can **reduce taxpayer funded maintenance**.
- TND **responds to free market demands** for traditional and walkable communities.
- **The option** should be available to those who want it.

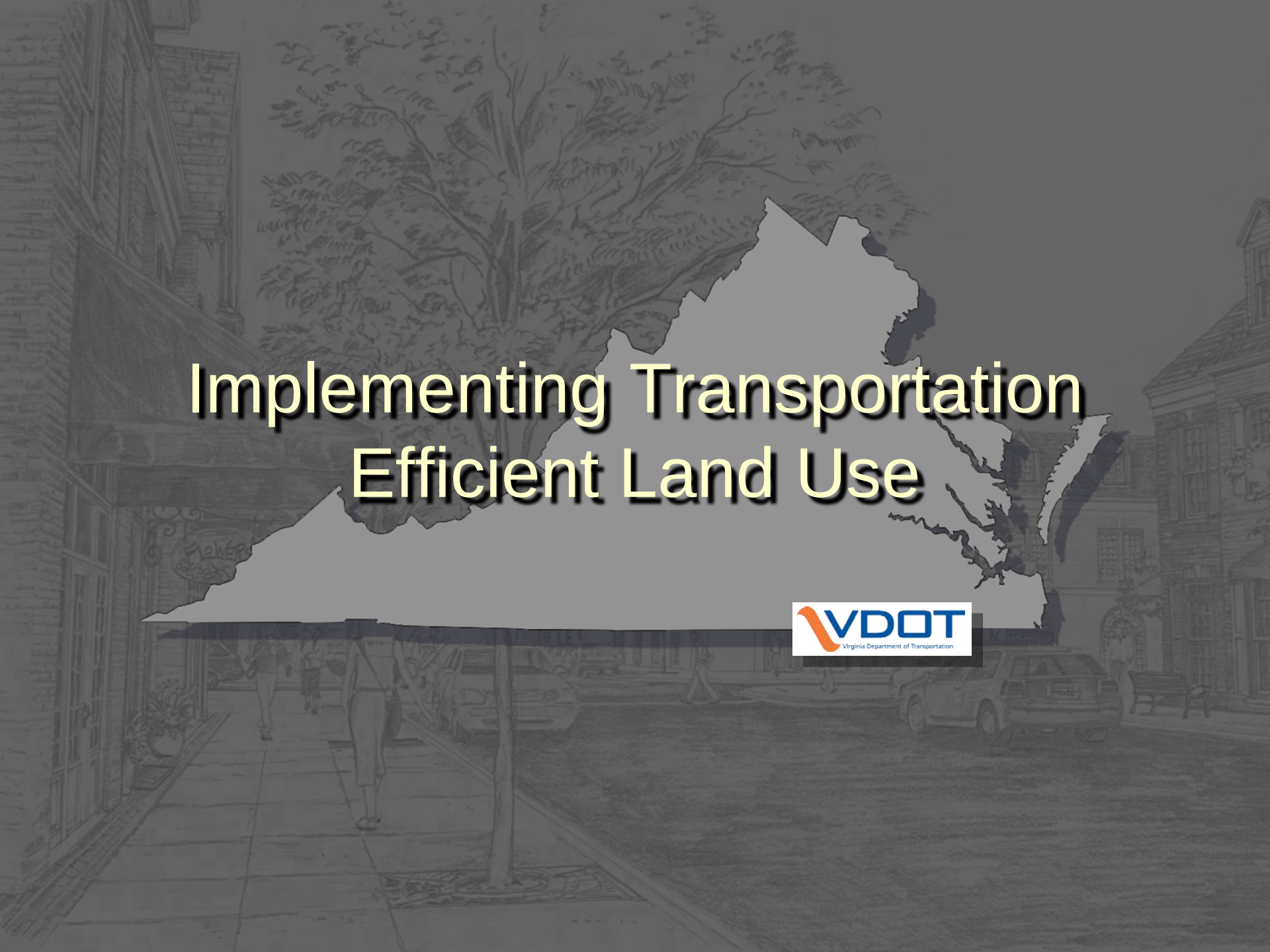
Public Engagement Principles



The public engagement process should:

- **Create multiple opportunities for public input.**
- **Tackle tough issues head-on.**

Implementing Transportation Efficient Land Use



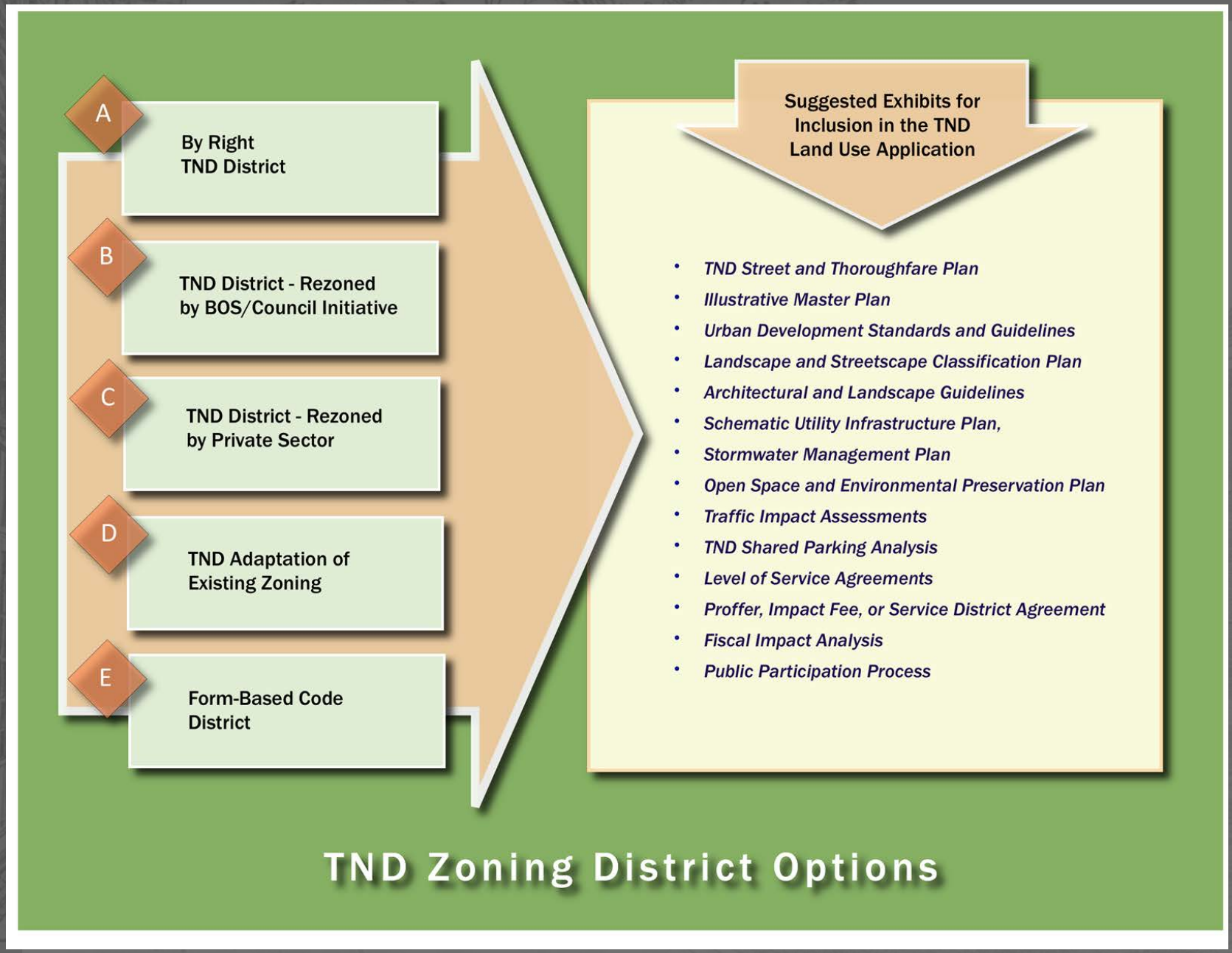
Conventional Zoning

Zoning regulations can preclude transportation efficient development - communities designed like historic small towns in Virginia - due to:

- **Zoning that separates residential and commercial uses**
- **Large minimum lot size requirements**
- **Large minimum building setbacks and side yards**
- **Street standards that require wide streets**
- **Emphasis on parking lots**
- **No standards for connectivity**




Zoning Approaches for TNDs

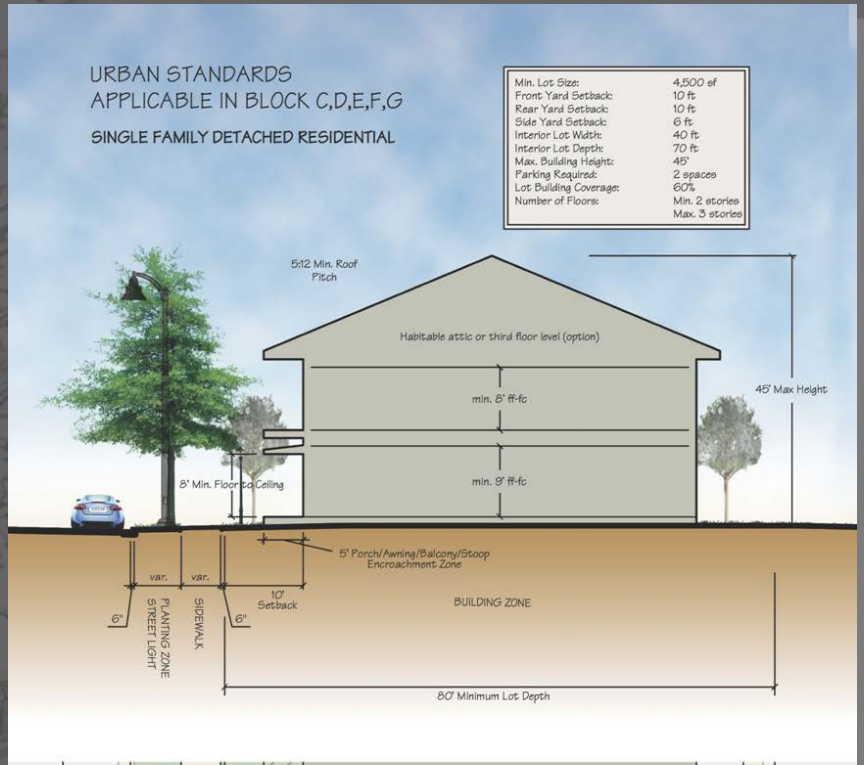


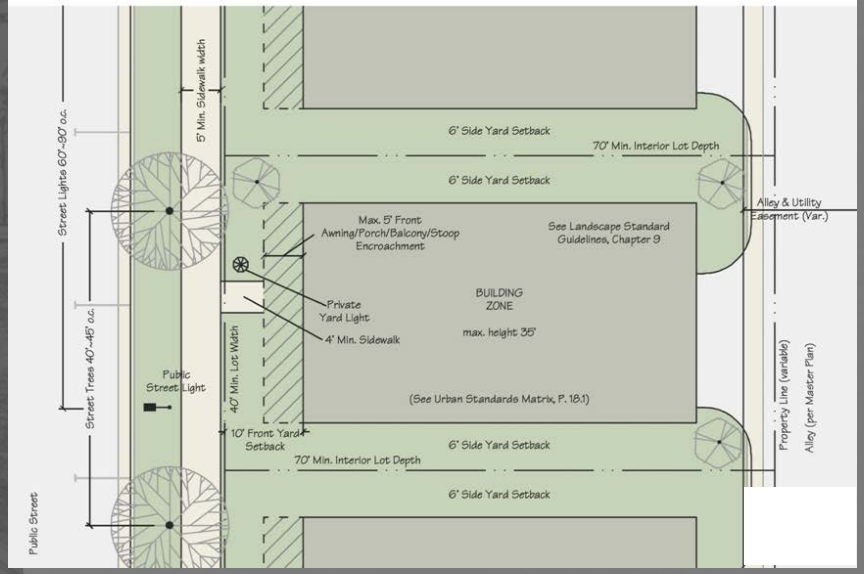
Form-Based Development Codes

A **form-based zoning approach** focuses on scale, proportion, setbacks, floor area ratio, and other physical characteristics more than the uses contained in buildings.

TND Form-Based Zoning Codes

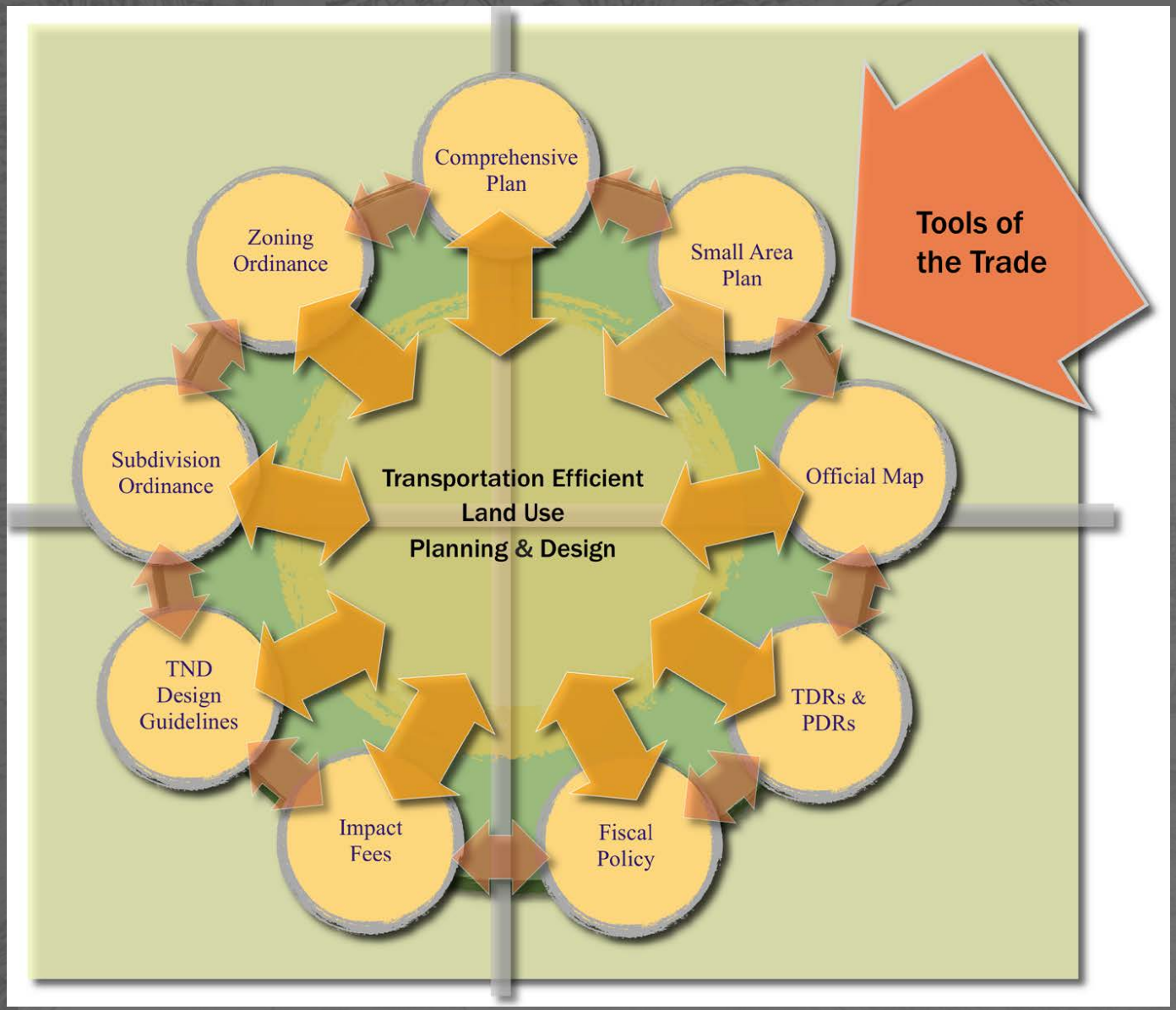
- Form-based zoning takes the approach that *"a picture is worth 1000 words."*
- **Codes of Developments** for specific projects establish flexible regulations and guidelines for lots, buildings and neighborhood groupings.
- **Neighborhood Design Standards** coordinate transportation, civic and recreation uses, and landscape improvements.





Supplemental Planning Tools

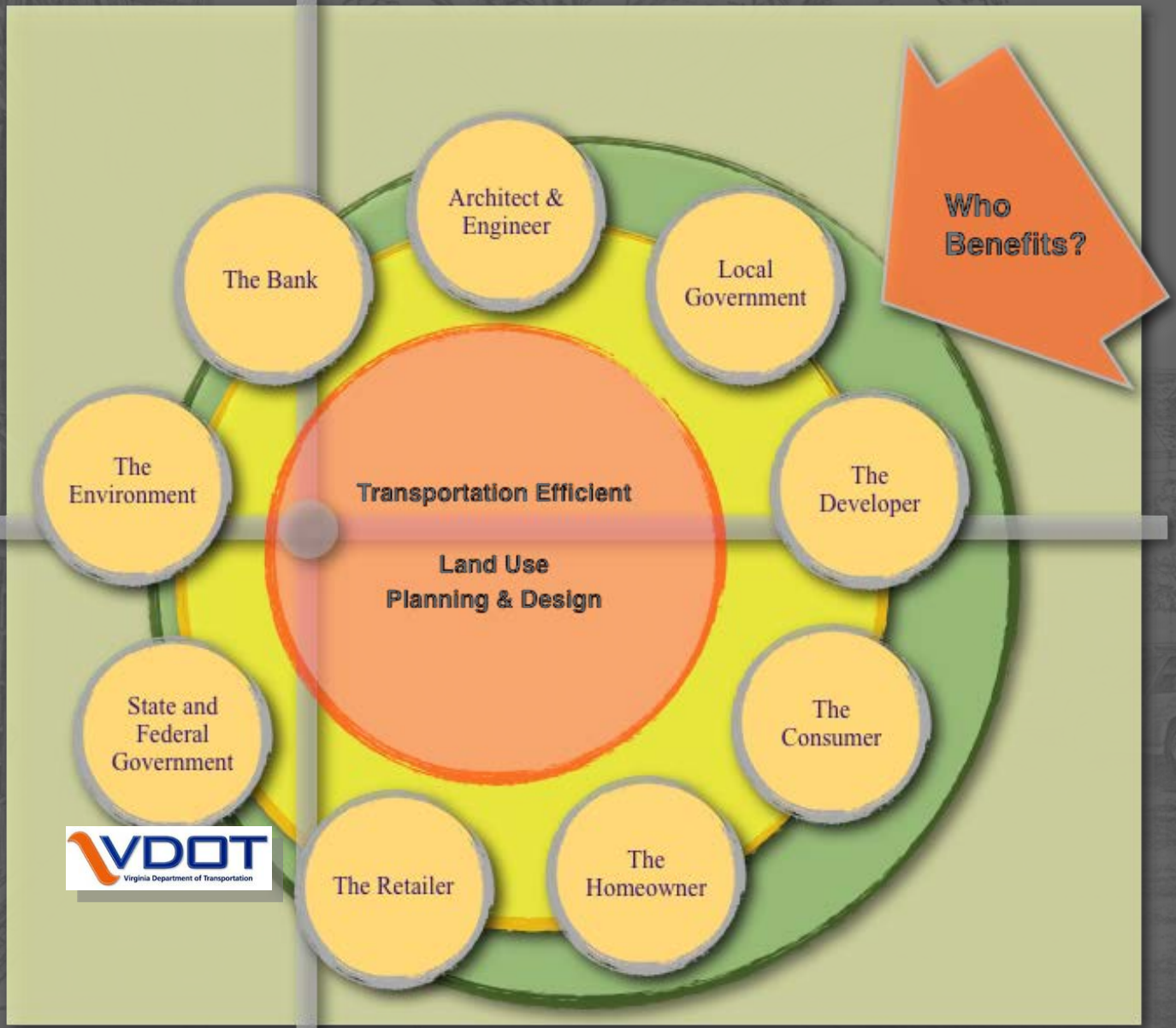
The Tools of the Trade



are readily available to both the public and private sector to achieve Transportation Efficient Land Use

Wrapping things up……..

Everyone Needs to Work Together for Successful Transportation Efficient Development



How Do We Get There?

It will take some effort to address the key issue: *“Why is it hard for local governments, landowners, and developers to come together to achieve cost effective, highly profitable transportation efficient land use?”*

How Do We Get There?

Comprehension

this is not a new idea....it's the conservative foundation upon which Virginia's historic settlements–villages, towns, and cities–have been built....

How Do We Get There?

Commitment

There needs to be a willingness by all entities to consider the application of transportation efficient land use practices....

How Do We Get There?

Coordination

The concepts behind successful TND design is within the easy grasp of planners, engineers, architects, and builders–as long as planning and development efforts are coordinated...

The results ….

The results …..

for **commercial**

The results ….

for **mixed-use**

The results ….

safe, pedestrian friendly streets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