

Chapter 47 - *Bacon's Rebellion* Backgrounders

BACKGROUNDERS

-2007-

BG9: **GLOSSARY: The Online Edition**. The first step in creating a sustainable society is to use words that precisely describe the world as it is. Today, we update the glossary of those words. (13 August 2007)

BG8: **Vocabulary Supplement**. Notes on the precise meanings of words used in *The Shape of the Future*, *TRILO-G* and HANDBOOK. (13 August 2007)

-2006-

BG7: **Quantificaton of Land Resources and the Impact on Land Conservation Efforts**. A root cause of the lack of support for comprehensive, Commonwealth-wide land conservation efforts is failure to understand the scope and depth of the current status of land vulnerability to scattered urban land uses. (28 August 2006)

-2005-

BG6: **Geographic Illiteracy**. Americans cannot function effectively as citizens until they master the six components of their geographic surroundings. (11 April 2005)

-2004-

BG5: **It is Time to Fundamentally Rethink METRO and Mobility in the National Capital Subregion**. The future of civilization depends upon evolving a fundamentally different human settlement pattern. A first step is to create citizen understanding of the importance of human settlement patterns. A critical part of that effort is coming to grips with the relationship between human settlement patterns and transport systems, especially shared-vehicle systems. (HTML version: 18 October 2004)

-2003-

BG4: **Five Critical Realities the Shape the Future**. Ed Risse boils down his comprehensive theory of human settlement patterns to view core tenets that shape the future of development in the Washington-Baltimore New Urban Region. (15 December 2003)

BG3: **Anatomy of a Bottleneck**. The U.S. Route 29/Interstate 66 Interchange at Gainesville, Virginia. (16 June 2003)

BG2: **Affordable, But No Bargain.** “Affordable” housing is often a code word for opening up cheap land for development. But home owners pay a price fr the perpetuation of dysfunctional human settlement patterns. *(17 February 2003)*

BG1: **The Role of Municipal Planning in Creating Dysfunctional Human Settlement Patterns.** The process of creating and implementing municipal comprehensive plans has evolved over the past 80 years. This process has become a prime cause of dysfunctional human settlement patterns within New Urban Regions and Urban Support Regions in the United States. *(23 January 2002)*

Wonks on the Web: E M Risse

The Shape of the Future



The Role of Municipalities in Creating Dysfunctional Human Settlement Patterns

The process of creating and implementing municipal comprehensive plans has evolved over the past 80 years. This process has become a prime cause of dysfunctional human settlement patterns within New Urban Regions and Urban Support Regions in the United States.

Current reality does not reflect the intent of the participants in the process, but it is the cumulative result of their actions. It is not a case of bad planners. It is, however, very bad planning and has resulted in evermore dysfunctional human settlement patterns. These practices prevent the evolution of communities with a balance of jobs/housing/services/recreation/amenity in sustainable New Urban Regions. This is how it happened.

In the Beginning -- A Short History of the Urban Form

Location is fundamental, and context is important. It is critical to start from a common perception of the past. (See End Note.)

Urban settlements first agglomerated—and later were intentionally planned—where the exchange/transfer/marketing of goods and services was most safe and efficient. Frequently, early urban agglomerations were located where trade goods were transshipped. Water was the mass shipping medium before roads, rails and air travel, and so the prototypical 'city' evolved at a port. Ports were where cargos carried on water were made up, broken down or stored and secured in preparation for the next leg of a journey. Urban settlements—the important ones became 'cities'—provided a safe place for exchange, fabrication and manufacture.

As civilization evolved and was leveraged by science and technology, there were more location options for potential urban settlements and larger urban

agglomerations. Over 6,000 years, urban fabric components became more diverse and urban systems larger. The range of forces shaping human settlement patterns was expanded exponentially by the Industrial Revolution. The result was the chaos of the 'industrial center' that eclipsed the traditional 'city' after 1850.

The Comprehensive Plan

Urban planning (aka, 'city' planning) is as old as urban settlements. The complexity of the emerging industrial era urban centers resulted in the need for more sophisticated planning. The intent of the new generation of urban planning activity was to achieve better settlement patterns in the context of wildly escalating forces impacting the evolution of the economic, social and physical spheres of human existence.

For many reasons, the planning of urban fabric has never become a federal or state responsibility in the United States. Municipal 'comprehensive' planning evolved to become a recommended—and now often a required—activity of the lowest tier of the existing governance structure.

By the 1920s, there were a number of important innovations in the planning of places for urban and nonurban activities:

- Recognition of the role of the 'region' —the Regional Plan Association, et al.
- Understanding the importance and scale of comprehensive plans for states —Henry Wright's Plan for New York State, et al.
- Identifying the importance of maintaining a distinct demarcation between urban and nonurban places —Benton Mackaye, et al.
- Understanding the impact of the automobile on human settlement patterns —Lewis Mumford, et al.
- Understanding the importance of the economic, social and physical ramifications of specific components of human settlement patterns —Clarence Perry and his 'neighborhood,' et al.
- Creation of innovative plans for projects at the cluster, neighborhood and village scales — Clarence Stein, John Nolen, et al.

These possibilities for evolution of planning practice were eclipsed by The Great Depression, World War II and the Post War Boom. They did not become major themes of municipal planning practice in the United States. There are traces of these insights and innovations, but by-in-large, they were ignored, marginalized and honored in the breach. Some were deemed to be communist plots. A few of the actions to quash these insights were taken with malice of forethought; most were done in ignorance.

Without a fundamental understanding of the scale, composition or function of human settlement patterns, the process of municipal planning has unintentionally evolved to reflect the economic and political interests of two groups:

- The Driving Force—Some landowners and others who benefit from land development, land speculation and real-estate transactions (aka, churn).
- The Resistance to Change—Citizens (aka, residents) who want stability and protection from unwanted change.

The Driving Force

The Driving Force coalition has as a foundation landowners who became amateur speculators based on unfounded expectations about the extent of demand for future urban land uses. There are, of course, also professional land speculators.

The Driving Force includes developers and developer-builders who buy land without knowing what they plan to develop/construct on the site. It also counts as core members lawyers, engineers, surveyors, real estate agents and allied professions. At a separate level, The Driving Force is supported by the entire building and automobile industry sectors.

The Driving Force is aided by governance practitioners who receive political contributions and other favors from the above named participants. The motto of The Driving Force is "the jurisdiction that issues the most building permits, wins."

The operatives of The Driving Force are following a tradition established by `the founding brothers' that became national policy after the election of Andrew Jackson to the Presidency:

Short-term speculative gain was installed as the prime motivating factor in determining human

settlement patterns in the United States. Speculative gain retains this position today, supported by municipal planning.

The Resistance to Change

The Resistance to Change coalition is, of course, primarily identified with NIMBY's—citizens and their organizations who are afraid that a change of human settlement patterns may not benefit them individually and/or collectively. If one does not understand functional human settlement pattern, every change is a threat, and so more and more NIMBYs have become BANANAs (Build Absolutely Nothing Anywhere Near Anyone).

Business As Usual and the evolution of Municipal Comprehensive Plans as a Least-Common-Denominator Compromise

The Driving Force and The Resistance to Change have evolved to constitute the foundation of Business-as-Usual. 'Business-as-Usual' is the term used by S/PI to describe the public and private activities that result in dysfunctional human settlement patterns. (Professors William H. Lucy and David L. Philips term this force 'the tyranny of easy development decisions' in *Confronting Suburban Decline: Strategic Planning for Metropolitan Renewal. Overcoming Business-as-Usual and catalyzing Fundamental Change* is the focus of Stark Contrast in Section II. of the Handbook.)

Over the past 80 years, municipal 'comprehensive' plans have become a least-common-denominator compromise between The Driving Force and The Resistance to Change. The configuration of the comprehensive plan in any municipality is a reflection of the relative strengths of the two sides in a particular jurisdiction. There is no analytical subregional or regional evaluation of, or counterbalance to, the cumulative impact of these municipal plans.

In every region of the United States, the collage of municipal plans that bear no resemblance to a rational regional distribution of land uses has become a constraint on prosperity, stability and sustainability of urban fabric. These plans are also a dramatic contributor to the centrifugal forces destroying the countryside.

The results of dysfunctional municipal comprehensive plans were clear by the early 1960s. During the 1960s and 1970s, the Federal 701 Planning Assistance Program spread the virus of bad municipal planning with cookie-cutter zoning and

scatteration-inducing subdivision regulations. The disease now infects most municipal jurisdictions within 100 miles of every significant urban agglomeration in the United States.

As noted above, the negative impact of least-common-denominator municipal plans has been exacerbated by the failure of states and regions to develop quantifiable subregional and regional plans. The negative impact of municipal plans has also been leveraged by the misuse of environmentalism, new urbanism and citizen participation.

The Emergence of Environmental Concerns

The presentation of images of dead fish, oiled birds and flaming rivers by the media in the early 1960s documented that all was not right in a world driven by industrialization, globalizing competition and speculative land and development markets. Color photos from airplanes illustrated the extent and dramatic impact of 'sub'urbanization. The study of Ecology suggested that everything was tied to everything else. With respect to the environment, things could be shown to be 'going to hell in the trunk of a car.'

Enter Ian McHarg and colored overlays as a technique to illustrate the character of land and where not to build. This methodology has proven helpful in analyzing the suitability of land for extensive uses. Without an understanding of the 95%-5% Guideline One or the application of Regional Metrics to help guide the evolution of functional human settlement patterns, McHarg's overlay technique has been applied in ways that separate and scatter intensive urban land uses. It has become 'good planning' to scatter the components of urban fabric across the countryside as long as the buildings are hidden from view and are not built in floodplains, on steep slopes, etc.

Ecology became an excuse to spread out and, in fact, wipe out orders of magnitude more natural resources than would be the case with compact, efficient human settlement patterns. 'Green' plans that rely on inventories of 'sensitive natural resources' led to a scattering of urban land uses in the 'blank spots.' The overlay technique, in the hands of the uninformed, can even lead to the best agricultural soils becoming prime targets for septic-tank subdivisions.

With scattered urban land uses, the automobile has become ever more dominant because there is no alternative way to provide access to the dispersed origins and destinations of urban travel. This has

brought the automobile industry and its advertising and lobbying into full partnership in The Driving Force.

In a perverse way, Ecology has come to leverage the commonly-documented centrifugal forces acting on urban systems—Interstate expressways, mortgage interest deductions for low-density housing, Euclidian zoning, 'gold-plated manhole cover' subdivision regulations, land speculation and intermunicipal tax-base competition. Mainly it has given a moral basis for both raw and refined subsidies to extend urban infrastructure and thus insure the scatteration of urban land uses.

Without an agreed-to vocabulary or shared conceptual framework, components of human settlement pattern have been scattered across the countryside. 'Hide-em-in-the-bushes' has become 'rural by design.' 'Good planning' has resulted in isolated units, orphan dooryards, cluster fragments and dysfunctional neighborhoods. 'Good planning' has come to have nothing to do with the creation of balanced and sustainable communities. The American Planning Association now gives awards to municipal plans and programs, as well as to individual projects, having no correlation to viable village-scale and community-scale components of human settlement patterns.

Collectively, municipal comprehensive planning has increased the dysfunction of New Urban Regions, Urban Support Regions and the organic components of these regions.

The New Urbanism

Vincent Scully's Afterward in The New Urbanism hits the nail on the head. The roots of the 'new urbanism' is really the mid-20s new 'sub'urbanism. It is not, however, a problem of 'sub'urbane design that is the primary cause of the new urbanism's negative impact. It is the scattered location of many new urbanists' projects. The attractiveness of porches and other unit-scale and dooryard-scale features is used to sell development projects in dysfunctional locations.

The failure to understand the organic structure of sustainable urban fabric creates dysfunctional regional and subregional settlement patterns by scattering new urbanist projects in inappropriate locations. This is in spite of the fact that the pallet of neotraditional designs includes many good ideas and can produce attractive projects.

The supporters of neotraditional design and the

Charter of New Urbanism have struggled with vocabulary as well as geography. They have not come to grips with the need for a comprehensive conceptual framework and a vocabulary to articulate this framework.

The history of the neotraditionalists' struggle with vocabulary and conceptual frameworks provides useful insights. New urbanists started with 'neighborhood,' 'district' and 'corridor' as the components of human settlement patterns. They subdivided the first two into 'streets' and 'blocks,' but this was not enough to create a comprehensive system. They added 'region' and then worked for years on perfecting a complex 'Lexicon' reflecting unit-, dooryard-, and cluster-scale design parameters.

The Lexicon has now been abandoned in favor of 'The Transect.' The Transect identifies parts of the human settlement pattern with the terms 'core,' 'center' and 'general' along with 'edge,' 'reserve' and 'preserve.' The limitations of the application of The Transect are demonstrated by constructs where the 'neighborhood' template is seen as the universal human settlement pattern component. What are the components of 'neighborhood'? What do two, three or four 'neighborhoods' create?

The Deceptive Excuse -- Citizen Participation

With increasing frequency, municipal planners and their consultants wrap themselves in the mantle of 'citizen participation' when discussing planning that impacts human settlement patterns. This is counterproductive since the citizens do not have a clue about the topic upon which they are providing input. The nature and function of viable and sustainable human settlement patterns is complex as documented by *The Shape of the Future*. That is the reason the Handbook's Three-Step Process was developed.

Blind preference polls result in black holes of misinformation. Without an understanding of the cumulative consequences of their choices, citizens usually choose detached (sic) McMansions with three Mercedes in every garage. Homebuilders have been using this technique for forty years to demonstrate the popularity of 'sub'urbane, least-common-denominator projects.

If, like the citizens, the professional planners leading the processes also have no clue about the function of human settlement patterns, 'citizen participation' is nothing more than an expensive way for 'the blind to lead the blind.'

If the first step in the planning process is not to carry out comprehensive, substantive educational efforts, the result is a shallow justification for whatever municipal comprehensive plan compromise would have been struck without the elaborate process.

Frequently, the processes that most loudly claim that they are 'participatory' and following the wishes of the citizens are really responding to the interest groups. A check of the participants often finds that the people who were paid to be at the meetings (and/or will get some direct benefit from a specific outcome) far outnumber those not paid or not directly benefiting. Only a few of those who participate are not staff, consultants or representatives of vested interests—usually spokespersons for The Driving Force and The Resistance to Change (aka, Business-as-Usual supporters).

The Need to Recognize the Organic Structure of Human Settlement Patterns

The problem with the green overlays, neotraditional neighborhoods, participatory sector plans and municipal planning in general is that none of this reflects the organic structure of human settlement patterns. One may choose to apply the New Urban Region and the organic components, which are introduced in *The Shape of the Future*, or they may decide to develop a new conceptual framework. Either way, the framework must be comprehensive. It must match the organic structure of human settlement, and it has to be made clear to those whose decisions shape the pattern and density of land use.

To move beyond these problems, the planning profession needs to begin to plan for balanced communities and their organic components, not just respond to projects proposed by speculators, developers and builders.

The application of Regional Metrics is a way to understand the impact of creating dysfunctional spacial relationships between components of human settlement pattern. It is also a way to demonstrate the importance of Next Larger Component Planning and The Cordon Line Technique of project design and review outlined in *The Shape of the Future*. They are valuable resources for the planning of balanced communities in sustainable New Urban Regions. The Four Action Tools in Section XIII. (Step Three) of the Handbook can be instrumental in shifting away from simply approving 'projects' and moving toward 'creating balanced communities.'

End Note: This brief summary is not intended to supplant or even summarize the scholarly work in the history of urban form. There is an expanded review of the historical context of human settlement patterns in *The Shape of the Future Part One* (Chapters 1-4), as well as in the references cited in the Endnotes for Part One and in Appendix Three—Readings.

-- **December 2002**

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The Shape of the Future

E M Risse



Affordable, But No Bargain

"Affordable" housing is often a code word for opening up cheap land for development. But home owners pay a price for the perpetuation of dysfunctional human settlement patterns.

It is now widely agreed that "affordable housing" is a primary rhetorical obstacle to more intelligent human settlement patterns. Nationwide, major initiatives to improve the pattern and density of land use have been derailed by claims that the proposed action to make human settlement pattern more functional will "wipe out affordable housing."

While nearly everyone favors affordable housing as a theoretical goal, there is much more that needs to be understood about it. The core issues have to do with location/spacial distribution and with confusing "affordable housing" with "low-quality housing."

If a community is to have affordable housing (as opposed to poor-quality housing), the most effective strategies are:

- Raise the income of the households without adequate housing;
- Lower the price of the existing housing stock by introducing competition.

The problem with the first approach is that the range of housing options now being offered does not meet the needs of the majority of those in search of more suitable housing. A companion problem with the first approach is that subsidy and income redistribution have staunch ideological opponents -- "I have mine; let them earn theirs."

The problem with the second approach is that the majority of existing homeowners do not want to have the value of their existing homes driven down due to affordable (aka, less expensive) housing coming on the market in their dooryard, cluster or neighborhood.

HOUSING, A COMPLEX ISSUE

It is clear from these two points that achieving an affordable range of housing options is a complex issue. Upon further review, it gets more convoluted very quickly:

- Policies and programs at federal, state and municipal levels have established multi-billion-dollar subsidies (e.g., the mortgage interest deduction on income tax) that are intended to lower an individual's cost of housing. However, the great majority of the subsidy goes to those at the top of the economic food chain.

Increasing home ownership is a positive goal for society as the ads by Fanny Mae and Freddie Mac espouse. However, owning a home in a dysfunctional location is not a benefit to the occupant or the community.

- Both the land for housing and the dwelling units themselves are sold in transactions involving agents. This means there is a third party in whose interest it is to see that the price is ratcheted up as high as the market will bear.
- Housing is supplied by a speculative, profit-driven competitive process. Because of the municipal control mechanisms now in place, the housing units being built are the ones that yield the highest profit per unit for the builder, not the ones in greatest demand in the market.
- Trickle-down housing supports the entrepreneurial goals of a market-driven society, but it does not work any better than socialized housing in providing 'decent and affordable' housing for all the citizens of a community.

The last two issues are related to the larger issue that in the United States -- as contrasted with all other nation-states in the First World -- speculative gain is the primary driving force in creating human settlement patterns.

CHEAP LAND AND AFFORDABLE HOUSING

The goal of affordable housing is often raised by those who argue that making more land available for development will create affordable housing. Those who gain monetarily from housing in scattered locations advocate the extension of highways to provide access to "cheap land."

Cheap land does not yield affordable housing.

If land is cheap, it is because it is not worth as much when compared to other land in the region. This "cheapness" is no "bargain" because it yields no socially desirable benefit for the future occupant. There is no "bargain" to be had except to the project developer.

Dwelling units are sold by builders for the highest price that the market will bear (i.e., the prospective homebuyer will pay) in that location. The homebuyer does not get a "good deal" on the price of his home because the developer bought the land on which the house sits at a low cost. The builder does not pass on the land-cost savings.

Bargains can be found in the retail trade where, due to a relatively well-informed market, the law of supply and demand can operate. True bargains can almost never be found in land within New Urban Regions or Urban Support Regions in the First World . Land in remote locations may be priced based on its value for extensive (non-urban) land uses -- e.g., forestry or agriculture. This land is not a "bargain" because it is not appropriate for urban land uses like housing. These sites result in scattered units, dooryards or clusters of urban housing. They are, by definition, dysfunctional human settlement patterns.

Cheap land does not yield "affordable housing"; it yields "lower-quality" housing. Housing that is dramatically less expensive per square foot is almost always housing in bad locations relative to jobs, services, recreation and amenities. This poorly located, lower-quality housing is subsidized by the taxpayers in the municipality, the state and the region.

Less expensive but lower-quality housing is also subsidized by the homeowner. How do the owners subsidize their own housing? By spending their time in travel to jobs and services, by paying the transport costs to and from the home's dysfunctional location and by doing without quality services, recreation and amenity. Also, when these owners decide to sell, their homes are on the market longer and they appreciate less than well-located dwellings. The Surface Transportation Policy Project has documented the costs for housing that is badly located in a report titled *Driven to Spend*, STPP, 2000. "The \$100,000 Difference" explores the difference in price and value of identical houses in two different locations in the Virginia Subregion in the report titled *The Shape of Loudoun County's Future*, SYNERGY/Resources, 1998.)

QUALITY VERSUS AFFORDABILITY

Quality housing is a prerequisite of a stable society. Quality housing for all is a critical goal in a democracy. Affordability is only one requirement for quality housing. Another important one is accessibility. Location is as important as sound construction or affordability. A good dwelling unit in a bad location will not provide a quality home.

Sound, affordable and accessible housing cannot be created by "Business as Usual." It requires fundamental change.

The best way to achieve affordable and accessible housing is not to try to stop change. Critics of "gentrification" complain that residents in the National Capital Subregion are being "priced out of their neighborhood" as in Georgetown in the '50s, McLean in the '60s, Old Town in the '70s, Capital Hill in the '80s and Reston in the '90s. The "enemy" that the critics of gentrification need to attack is not change but the driving force now controlling civilization -- unbridled economic competition.

The more useful path to expanding the opportunity for affordable and accessible housing is to rebuild every community -- and all the components within those communities. The goal should be to make every place where there is housing into a desirable place to live. This will require rebuilding, revitalization and renewal of the components of human settlement to create balanced communities within sustainable regions.

The current level of public subsidy for housing would be more than sufficient to assure there was affordable and accessible housing for all citizens if this subsidy were directed toward building better components of human settlement pattern. At the present time, the vast majority of these resources are used to subsidize the individual units of well-to-do citizens, along with developers, their agents and other stakeholders in the development process.

Finally, it must be understood that the problem is not a shortage of land devoted to urban land uses including housing. There is already more land devoted to the built environment than could be efficiently and effectively used to house and serve the projected population through 2050.

SUMMARY

Creating affordable and accessible housing is one of the key challenges to achieving functional human settlement patterns. Citizens must understand the role of housing location and the occupant's accessibility to jobs, services, recreation and amenity in the formula for creating quality housing. Building balanced communities in sustainable regions is the only feasible path to creating affordable and accessible housing.

-- February 17, 2003

Wonks on the Web: E M Risse

The Shape of the Future



Anatomy of a Bottleneck

**The U.S. Route 29/Interstate 66 Interchange
at Gainesville, Va.**

SUMMARY

This document analyzes the transportation bottleneck at the U.S. Route 29/Interstate 66 Interchange (the 29/66 Interchange) caused by the failure to match transportation-system capacity with land-use travel demand. The material highlights the status of one ramp on one interchange in Prince William County, Virginia.

The intent is not to single out one county or suggest that 29/66 is the only location where the breakdown of planning is leading to gridlock. The Gainesville Interchange is not an isolated case: The planning failure there will be repeated over and over unless citizens and their leaders start to consider the regional, sub-regional and community impact of an individual jurisdiction's land-use decisions. My purpose is to show how far the existing public agency processes are from "balancing" land use and transportation and from reality.

THIS INTERCHANGE PROVIDES CITIZENS WITH A WINDOW ON THE MUNICIPAL/STATE COORDINATION OF TRANSPORTATION AND LAND USE IN VIRGINIA

It is hard for citizens to grasp the enormity of the ongoing land-use/transportation dysfunction that is "planned" by municipal jurisdictions (towns, cities or counties) on the one hand and the Virginia Department of Transportation (VDOT) on the other. But this gross malfeasance has a direct daily impact on their lives and they must do something about it before it reaches the point of no return.

The following description of the 29/66 Interchange and its land-use context provides a window on the chaos resulting from the lack of meaningful coordination of land use and transportation throughout the Commonwealth.

Let us assume you want to drive from Warrenton to a destination in the core of the National Capital Subregion -- Tysons Corner, Arlington, a Smithsonian Museum or the National Capitol. The shortest route would take you north on US Route 29 to Gainesville and then east on Interstate 66.

In the following paragraphs, we examine the 29/66 Interchange in Gainesville between U.S. Route 29 and Interstate 66 and specifically the ramp from northbound US Route 29 to eastbound Interstate 66. We also profile the land-use context in which this interchange and ramp exist.

THE 29/66 INTERCHANGE PLANS

VDOT has been planning to "improve" the 29/66 Interchange for more than 20 years. However, the most recent plans developed in 2000 and 2001 actually did not change the number of lanes or the ramp configuration in the interchange itself -- despite the fact that planned land uses served by the interchange could not be accommodated by the present configuration.

The most recent VDOT plans proposed to improve traffic flow on highways adjacent to the interchange and make driving in the vicinity of the interchange safer. Specifically the 2000/2001 plans called for an elevated railroad crossing -- eliminating the at-grade Norfolk-Southern Railroad crossing. The plans also provided for a grade-separated interchange between Linton Hall Road and U.S. Route 29 just south and west of the existing 29/66 Interchange.

We use the past tense in describing the most recent plans because it turned out that the Gilmore administration vastly over promised road improvements and failed to identify the funds necessary to build most of the 20-year backlog of highway "plans." This project, along with many others in the Commonwealth, is now in limbo for lack of funds.

Those who use the 29/66 Interchange in Gainesville when traveling to the core of the Sub-region are in for bad news: Even the proposed modest improvement in the highway interconnections in Gainesville described above has been put off indefinitely

THE LAND-USE CONTEXT

This, however, is just the beginning of the story. While VDOT was planning only to modestly improve traffic flow and safety -- and not increase the capacity

of the interchange itself -- Prince William County was planning not to lower the density of the planned adjacent land uses. As a result, the county's land-use plans conflict with the 29/66 Interchange and surrounding infrastructure that it relies upon for access and mobility.

The future land uses in that part of Prince William County between Manassas and Gainesville have been vastly "over planned" and "over zoned" for nearly 40 years. By "over planned," I do not intend to imply that the area was planned too often or too well. I mean that the area was planned (and zoned) for far more intensive urban land uses than the market could possibly absorb. Consequently the uses which have been built (and will be built) are (and will be) scattered over the entire area. Of critical importance is the fact that there is no infrastructure -- including highways -- to support these planned and zoned land uses.

To understand the land-use/transportation conflict, it is necessary to examine the root causes of the land-use planning excess. In West Prince William, as is the case elsewhere, over planning and over zoning is a reflection of the unfounded hope that if a great deal of land is officially designated for "tax base" land uses (office, retail, repair service, warehousing, fabrication and manufacturing, etc.), then someone will build these uses. "Zone it and they will come" is the basis for this fantasy.

Some 14,000 acres of West Prince William has been planned and/or zoned for intensive urban land uses. That is enough land area for 10 Tysons Corners, not just the mall, but the whole 1,500-acre Tysons Corner urban complex. The "planned" intensity in West Prince William is much higher than Tysons Corner. A study in the mid-90s found that the existing planning provided for up to 20 times as much building area as Tysons Corner's 35 million +/- square feet of non-residential space.

Most of this land is now vacant, and the rest is currently devoted to scattered industrial, commercial and residential uses. The area in question is a triangle bounded on the east by Manassas and Manassas Park. To the south of this area is the extensive residential development -- existing and planned -- along Linton Hall Road between Gainesville and Manassas. To the north is Manassas National Battlefield Park and Conway Robinson State Forest. The 29/66 Interchange is in the western apex of the triangle.

The over planning and over zoning have been the focus of attention before. You may recall the specter

of "Disneyopolis." This was the name given by *The Washington Post* architectural critic Ben Forgey to the huge urban agglomeration that would have developed on this over-zoned land if Disney's America had been developed at Haymarket just West of Gainesville.

It is also in this area where Prince William County approved Nissan Pavilion (nee Cellar Door) in 1994 on the site of a mostly vacant "industrial park." When the Cellar Door proposal surfaced, this industrial site was home to a plumbing shop and an OverNite truck depot. At the time of the rezoning, Prince William professional staff and supervisors were provided with proof in the form of testimony and a report (*Traffic Gridlock Will Arrive in West Prince William Through The Cellar Door. S/PI, 1994*) that the site was not suitable for a major, auto-dependent recreation venue because of the lack of access. Cellar Door/Nissan Pavilion was approved by all but one supervisor in spite of the fact that there was no creditable basis for such action.

Without Disney's America as a catalyst, little has happened in the last eight years to the land planned and zoned for industrial and commercial uses around the 29/66 Interchange with the exception of projects -- like Nissan Pavilion -- which were initiated after Disney announced its intent to build and before it pulled out.

While the employment uses have not materialized, the residential land that was to provide housing for the job holders in the projects located in West Prince William has been developed and expanded. Residential development has taken place along Linton Hall Road to the south as well as north of I-66 and west of Conway Robinson State Forest and west of Gainesville. This puts more and more long-distance commuters on the 29/66 Interchange because the job and service base in the Gainesville area has not materialized.

MATTERS ARE MADE WORSE

In an attempt to breathe life into stagnant, speculative commercial land investments in the Gainesville area, the supervisor representing the Gainesville Magisterial District formed a sector-plan task force and appointed its members. The majority owned vacant and underutilized land or represented owners of such land in the area.

The Gainesville Sector Plan study area was limited to the western apex of the West Prince William triangle and area to the west of the 29/66 Interchange south of Interstate 66 and north of U.S. Route 29. Because

of the proliferating agglomeration of "strip" development and related uses, some Gainesville residents hoped that the task force would provide a "new vision" for the Gainesville area. The over planning and over zoning described above had already attracted scattered, incompatible projects.

Instead, the task force shuffled the deck chairs to make some parcels, such as ones owned by task force members, more profitable in the short run. By and large, they left unchanged the plans for millions of square feet of commercial and industrial land in the area around the 29/66 Interchange. In addition, they planned more intensive residential land uses in the area south of Haymarket and added a "town center." The town center idea begged for an answer to the question: Of what "town" would this be the "center"?

While the task force added a "town center," they left the rest of the intensive retail and commercial land uses immediately adjacent to the 29/66 Interchange as previously planned. The retail commercial square footage in the Gainesville task force's plan for the "town center" and the "regional center" would accommodate about four Tysons Corner Shopping Centers. They did not address what would happen to access and mobility if even some of this intensive retail and related commercial development materialized.

It is clear that development as planned would precipitate a repeat of the traffic conflicts created by Springfield Mall and the adjacent uses being sited near the I-95/I-495 Interchange. Much less intensive development exists in Springfield than is planned for Gainesville. The Springfield agglomeration of retail and service uses which is one intersection away from the I-95/I-495 Interchange is contributing significantly to the half-billion dollar price tag for the current reconstruction of the Interchange.

Prince William County planners offered their own version of the plan for the 29/66 Interchange area which made only minor changes to the existing plan. In addition, a group of concerned residents developed a "resident's plan" with significantly less commercial development, lower residential densities and a realistically scaled village center instead of the mammoth "town center" and "regional center." The more modest and more realistic resident's plan was largely ignored by the official County process.

On August 6, 2002, the Prince William Board of Supervisors approved the "replanning" of the Gainesville area by the citizen task force. Some of the regional press coverage suggested that this was a

new plan. In fact, it was a warmed over plan that compounded past mistakes and failed to bring the land use into balance with the transportation facilities.

Again, on October 15, 2002, the Prince William County Board of Supervisors totally disregarded the balance of land use and transportation when it approved the rezoning of two major parcels to allow for intense urban development in the interchange area without addressing the cumulative mismatch with existing or planned transportation facilities.

The Gainesville Interchange is not the only one that will grind to a halt in the I-66 Corridor in Prince William County. On 18 March 2003, the Prince William County Board of Supervisors in what was termed by the *Prince William Times* as "a Classic 5-3 land use vote" rezoned land at the next interchange west of the U.S. Route 29/I-66 Interchange. The US Route 15 Interchange at Haymarket is a simple diamond interchange that already operates at unsatisfactory levels of service due to drivers who avoid the US Route 29/I-66 Interchange backup by driving west and following U.S. Route 15 south to reach U.S. Route 29 south.

Again missing an opportunity to bring land use into balance with transport capacity, the Prince William Board by approving the request of landowners in three quadrants of the interchange to reshuffle preexisting zoning to make it "more marketable." The land at this interchange will be marketable, not because there is a demand for even a fraction of the land use zoned for commercial use in West Prince William. It will be marketable only because the area near the Gainesville Interchange is inaccessible due to the Gainesville Interchange becoming gridlocked. Thus the cancer spreads.

UNBALANCED TRANSPORTATION AND LAND USE

To summarize, while the municipal (county) planning process was grinding forward without concern for the transportation impact, VDOT was proposing interchange area changes without regard to the planned land uses. The VDOT 29/66 Interchange area plans, which have been shelved, would not have accommodated traffic from the then current Prince William County Comprehensive Plan nor would it have accommodated the traffic from the task force's revised plan that was adopted to replace it.

During the plan review process, the County staff asked a traffic consultant how many traffic lanes would be required on the ramp from US Route 29 North to I-66 East to accommodate the County's

existing or proposed plans for adjacent land use. (The task force plan, the staff plan and the existing Comprehensive Plan all had traffic generation potential that was of approximately the same magnitude.)

The answer is "five." That is a five lane on-ramp. How many lanes would I-66 have to be to accommodate a five lane on-ramp? No one knows for sure, but in all likelihood, it would be more than 10 lanes in each direction. A few years ago in a study of the I-66 corridor, a VDOT consultant found that if unconstrained by roadway capacity, the land-use planned by municipal jurisdictions along I-66 would require 16 travel lanes in each direction.

The ramp in question now consists of two lanes merging to one before drivers get to I-66. A five lane on-ramp is unheard of, but that is what the land use contained in the existing plan, in the Task Force plan or in the staff proposal would require.

What is going on here? There is no money for even modest safety improvements to handle current traffic. Yet Prince William County recertifies, via the official planning process, a completely inconsistent and unsustainable land-use configuration.

Even if the November 2002 sales tax increase had passed, there would have been only \$300 million to improve I-66 and extend rail transit in the corridor. The corridor stretches from the Beltway to U.S. Route 15 west of Gainesville. Many of the larger projects within the corridor, including a major upgrade of the 29/66 Interchange, would each consume more than the total amount promised. Many of the other projects -- widening I-66 from the Beltway to US Route 50 or extending METRO to Centreville -- would cost more than the total available from the bond issue and would have higher priorities. The defeated sales tax measure is cited to emphasize that the chances of there ever being funds to improve the 29/66 Interchange to carry the traffic generated by the adjacent land uses that are planned is slim to none.

This is not an isolated case – it is but one ramp on one interchange. My intent is show how far the existing public agency process is from balancing land use and transportation and from reality.

The good news is most of the "planned" land uses around the 29/66 Interchange will never be built. The bad news is that because of the large area that is planned and zoned for these uses, it will ensure that the projects which are built will be scattered across the entire area. When even a fraction of the planned

and/or zoned commercial and residential uses are built, they will be disaggregated in such a way as to generate travel demand that will overload the 29/66 Interchange. This means citizens served by the U.S. Route 29 and I-66 west of the 29/66 Interchange will be cut off from the core of the National Capital Subregion for extensive periods each day.

-- June 16, 2003

The Shape of the Future

E M Risse



Five Critical Realities

Ed Risse boils down his comprehensive theory of human settlement patterns to five core tenets that shape the future of development in the Washington-Baltimore New Urban Region.

The following five parameters must be understood and intelligently addressed if there is to be a prosperous, stable and sustainable future for the Washington-Baltimore New Urban Region (NUR). These realities are relevant in all NURs in the United States. The data presented below relate specifically to the National Capital Subregion of the Washington-Baltimore NUR.

1. There is already too much land devoted to, and held for, urban land uses in the National Capital Subregion.
2. The National Capital Subregion's jobs are center-weighted now and will be center-weighted for the foreseeable future.
3. Scattered urban land uses cause an irrational and untransportable distribution of trips which is the root cause of gridlock.
4. There must be an equitable distribution of the costs of services, not subsidies for those who create and profit from dysfunctional human settlement patterns as is the case now.
5. Without Balanced Communities within a sustainable New Urban Region, the future is bleak.

Each of these realities is documented on the following pages and in the material cited in the End Notes and the General Bibliographic Note. Programs that attempt to guide citizens toward a better future must reflect these realities. The NUR and the Subregion can change course and achieve a prosperous, stable and sustainable future, but only if these realities are understood and if there is **Fundamental Change** from **Business-as-Usual**.

(Resource Note: This material is intended to be read without the interruption of footnotes. There are End

Notes with references for each of the five sections. There is also a general bibliographic summary of resources.)

1. There is already too much land devoted to, and held for, urban land uses in the National Capital Subregion.

There is already too much land devoted to, and held for, urban uses to support efficient, sustainable or transportable settlement patterns for the foreseeable future. The evolution of Balanced Communities within a sustainable NUR will take up much less land than is currently devoted to, and planned for, urban land uses.

The Region's citizens do not need to develop more land. Individuals, enterprises, institutions and agencies need to renew, revitalize, recycle, refill and more intelligently use the land already devoted to urban use. Urban land uses should be located either within the Clear Edge that surrounds the urbanized area at the core of the Subregion, or within the Clear Edges around the urban enclaves which exist in the Countryside.

Facts documenting the first reality:

- Within the area with a radius $R=10$ miles from the National Capital Subregion's core with a center point at the Virginia end of Memorial Bridge (200,000 acres), there is enough vacant and underutilized land within two miles of existing METRO stations ($500 \times 75 = 37,500$ acres) to meet the foreseeable demand for urban development (jobs, housing, services, recreation and amenities), if the station areas are developed and redeveloped at the same densities planned for the Rosslyn-Ballston Corridor in Arlington County.

In fact, the capacity far exceeds the Metropolitan Washington Council of Government's 25-year population and job projections for this area using the same densities. These are not Manhattan densities. Single-family detached housing exists at the edges of these 500-acre METRO station areas, and this housing is valued much more highly by the market than similar units in scattered locations that have only automobile access.

- Likewise, there is enough vacant and underutilized land within radius $R=20$ miles from the core (800,000 acres) at the same density as green, leafy Reston (10 persons per acre at the Alpha Community scale) to meet all the demand for

urban development (jobs, housing, services, recreation, amenities) for the next 25 years in the National Capital Subregion even if there were very little shared-vehicle (aka, transit) related development.

This means there are two alternatives for accommodating all the projected development within the Clear Edge around the core of the Subregion without ever "developing" another acre of greenfield. The intelligent strategy is to plan for a combination of these two alternatives to create Balanced Communities in the urbanized area that surrounds the National Capital Subregion's core.

In addition, there is extensive vacant and underutilized land within the Clear Edges that surround the urban enclaves (aka, towns, villages and hamlets) that now exist within the Countryside. The goal here must be to create disaggregated Balanced Communities that are within and support a healthy Countryside. To achieve this goal, those enclaves will require additional development to facilitate their evolution to relatively balanced components of human settlement.

The "frontier" of speculation on land for intensive urban land uses has moved well beyond radius $R=30$ miles from the National Capital Subregion's centroid (1,800,000 \pm acres). In fact, the frontier for speculation on scattered urban land uses is well beyond radius $R=70$ miles (4,000,000 \pm acres in the Northern Virginia Subregion. At minimum sustainable densities, there is enough land in the Virginia Subregion alone for 40 million residents. Within the $R=70$ frontier, urban land include power plants, server farms, and campus-layout office parks, in addition to sites for retirement villages, golf-course housing developments, orphan cluster-scale subdivisions and other scattered urban housing. (Only Virginia acreage is used in this calculation for the reason noted below.)

Radius $R=70$ miles from the National Capital Subregion's centroid when including both Virginia and Maryland encompasses over 9,850,000 acres. Because of the existence of the Baltimore Subregional core and the National Capital Subregional core within the Washington-Baltimore NUR, it is not possible in Maryland to go much beyond 30 miles from either of these regional cores except in far western Maryland, northeastern Maryland and on the DelMarVa Peninsula. For this reason, only the Northern Virginia Subregion area number for beyond $R=70$ miles (4,000,000 acres) is used in the "frontier" calculation above. The application of Regional Metrics for the entire Washington-Baltimore NUR indicates that even with half the Region preserved as open space, there is

already over five times the land committed to urban land uses as will be required by the year 2050.

2. The National Capital Subregion's jobs are center-weighted now and will be center-weighted for the foreseeable future.

Most of the jobs are now located in the National Capital Subregion's core and the intensively urbanized area out to R=10 miles. They are projected to be center-weighted 25 years from now according to municipal and MWCOG projections. The critical need is to stop scattering orphan housing units, dooryards and clusters, as well as isolated employment "campuses," across the Countryside. The objective must be to create Balanced Communities by locating housing, services, recreation and amenity in a synergistic relationship with existing and future job locations.

3. Scattered urban land uses cause an irrational and untransportable distribution of trips which is the root cause of gridlock.

There is no way to have a sustainable region if everyone is encouraged to live anywhere they can afford a house, work anywhere they can find a job, seek services and participate in leisure activities anywhere they want. This unsustainable distribution of activities generates a market for development anywhere a short-term profit can be achieved.

The dysfunctional distribution of activities (trip distribution) is compounded by the expectation that "the government" can provide transport facilities that allow citizens go wherever they want whenever they want to travel and arrive in a timely manner. Ubiquitous mobility is a physical impossibility when there are such scattered origins and destinations of vehicle trips, period!

This fundamental flaw in transport and mobility strategy is termed the "Private Vehicle Mobility Myth." There must be a balance on a regional basis between the travel demand generated by the human settlement pattern and the capacity of the transport system.

Even with extensive new transit investment, the total cost of any system that meets the expectations of the Private Vehicle Mobility Myth would be prohibitive for even the top one-fifth of the economic food chain, much less for the total population. Serving the total population is an imperative in a stable democracy.

4. There must be an equitable distribution of the costs of services, not subsidies for those who create and profit from dysfunctional human settlement patterns as is the case now.

The costs of most services which make contemporary civilization possible vary depending on location. Under the current system, those individuals and organizations that create added service costs through dysfunctional land-use location decisions do not pay those costs. Those who create and/or profit from the agglomeration of dysfunctional human settlement patterns should be required to pay the true prices for their costly actions. Instead, these costs are now being subsidized by all taxpayers.

There must be a process to intelligently allocate resources and equitably account for the location-related costs created by public and private actions. This process will fundamentally restructure the market for land, goods and services, and thus will change **Business-as-Usual**. The total cost to provide the same services varies. In outlying, scattered locations, the costs for services are far greater than the costs for services that support sustainable patterns and densities of land use. Charging the full cost of services in dysfunctionally scattered locations to those who create them and then profit or benefit in other ways from this pattern will be a catalyst to create Balanced Communities throughout the Baltimore-Washington NUR. This must be a goal of **Fundamental Change**.

5. Without Balanced Communities within sustainable New Urban Regions, the future is bleak.

If the organizations, citizens and their representatives in the Region continue **Business-as-Usual** and do not support **Fundamental Change**, the Region will:

- Lose the Countryside and the Chesapeake Bay ecosystem.
- Lose competitive advantage over other Regions.
- Continue to degrade each citizen's quality of life.
- Squander economic prosperity, erode social stability and accelerate environmental degeneration in the Region.

These points are difficult to put in more simple language than the text above. This is because reality runs counter to so many myths and misconceptions upon which citizens now rely to make location decisions. However, that is what the images and words of educational programs for citizens and their government representatives must accomplish in order to create Balanced

Communities within sustainable New Urban Regions.

-- December 15, 2003

END NOTES FOR REALITIES 1 THROUGH 5:

1. The data to support Reality 1 are derived by applying Regional Metrics to the data gathered for Metropolitan Washington Regional Activity Centers: A Tool for Linking Land Use and Transportation Planning, Metropolitan Washington Council of Governments, July 2002, and the 1990 and 2000 US Census. Also see: ***Stark Contrast*** (SYNERGY/Resources, May 2001, also included as Section II of the ***Handbook***); ***It Is Time to Fundamentally Rethink METRO in the National Capital Subregion*** (SYNERGY/Resources, January 1999); ***Priority Transportation Improvements*** (SYNERGY/Resources PowerPoint, April 2003); [The Myths That Blind Us](#) (Bacon's Rebellion, 20 October 2003).

2. The data to support Reality 2 are derived by applying Regional Metrics to the data gathered for Metropolitan Washington Regional Activity Centers: A Tool for Linking Land Use and Transportation Planning, Metropolitan Washington Council of Governments, July 2002, and the 1990 and 2000 US Census. Also see: ***Understanding the Current and Future Distribution of Jobs in the National Capital Subregion*** (SYNERGY/Planning, Inc., Dec 2000, also included as Section X. (2) of the ***Handbook***); ***Priority Transportation Improvements*** (SYNERGY/ Resources PowerPoint, April 2003).

3. The data to support Reality 3 are based on the annual survey of urban traffic congestion prepared by the Transportation Research Center at Texas A&M University . For a derivation of the physics supporting this analysis, see: ***The Physics of Gridlock*** (SYNERGY/ Resources PowerPoint, April 2003); [Smoke and Shadows](#) (Bacon's Rebellion, 13 January 2003); [Access and Mobility](#) (Bacon's Rebellion, 30 June 2003).

4. The parameters used to establish Reality 4 are based on the Five Natural Laws articulated in ***The Shape of the Future***. (SYNERGY/Resources, 2000). Also see: [Beyond the Clear Edge](#) (Bacon's Rebellion, 26 May 2003); [Scatteration](#) (Bacon's Rebellion, 25 Sept 2003); [Slow Growth Isn't Smart](#) (Bacon's Rebellion, 17 Nov 2003).

5. The basis for Reality 5 is outlined in ***Handbook: Three-Step Process to Create Balanced***

Communities in Sustainable New Urban Regions.

The forces that erode the potential to create Balanced Communities are described in [Wild Abandonment](#) (Bacon's Rebellion, 8 Sept 2003). [Affordable, But No Bargain](#) (Bacon's Rebellion, 17 Feb 2003). [The Housing Dilemma](#) (Bacon's Rebellion, 14 July 2003). [Fire and Flood](#) (Bacon's Rebellion, 3 Nov 2003).

GENERAL BIBLIOGRAPHIC NOTE:

In addition to these specific references, this summary of the Five Critical Realities relies on a number of sources.

The conceptual framework for these parameters can be found in ***The Shape of The Future*** and the sources cited there-in.

Risse, E M. ***The Shape of the Future: (Vol I) The Critical, Overarching Impact of Human Settlement Pattern on Citizens' Economic, Social and Environmental Well-Being; (Vol II) Prospering in 21st Century New Urban Regions;*** Warrenton , VA : SYNERGY/Resources, 2000.

Three Special Reports Published by Bacon's Rebellion during 2003 articulate overarching forces impacting human settlement patterns.

Abandoning Potentially Great Places ("[Wild Abandonment](#)," Bacon's Rebellion, 8 Sept 2003).

"Sub"country: Scatteration of Urban Land Uses in the Countryside ("[Scatteration](#)," Bacon's Rebellion, 25 September 2003).

Doom: Citizen Perspectives That Condemn the Urbanside and the Countryside ("[The Myths that Blind Us](#)," Bacon's Rebellion, 20 October 2003).

A number of reports and columns are cited below each point. Those cited as SYNERGY/ Resources are available from SYNERGY/Planning, Inc, and those cited as Bacon's Rebellion can be downloaded at (www.baconsrebellion.com).

There are also references to a how-to manual.

Handbook: Three-Step Process to Create Balanced Communities in Sustainable New Urban Regions.

As the title suggests, the ***Handbook*** outlines a strategic plan for creating Balanced Communities. Several chapters and readings within the ***Handbook*** address specific issues raised in this summary of Critical Realities. First published in 2001 by SYNERGY/Resources for a specific subregion, this volume is currently being revised.

A PowerPoint program titled ***The Five Critical Issues*** by SYNERGY/Planning, Inc. addresses the Critical Realities addressed in this report. It provides maps and graphics to help citizens understand current conditions. ***The Five Critical Issues*** is part of a suite of three PowerPoint programs which also includes ***The Physics of Gridlock*** and ***Priority Transportation Improvements*** which are the first three of 12 PowerPoints now under development to support the application of The Third Way process in the ***Handbook***.

The Shape of the Future

E M Risse



It is Time to Fundamentally Rethink METRO and Mobility in the National Capital Subregion

OVERVIEW

The future of civilization as we know it depends upon evolving a fundamentally different human settlement pattern. A first step is to create a broad citizen understanding of the importance of human settlement patterns (aka pattern and density of land use). A critical part of that effort is coming to grips with the relationship between human settlement patterns and transport systems, especially shared-vehicle (aka transit) systems.

In this context, the following report examines METRO, its future and the future of transport and mobility the National Capital Subregion. This document is an expanded version of a "discussion draft" circulated in December 1998 under the same title. The current version reflects input from a range of perspectives represented by those who reviewed the prior "discussion draft." This report is based on principles articulated in the forthcoming book ***The Shape of the Future: Citizens Handbook for Understanding and Prospering in New Urban Regions*** and reflects research sponsored by clients concerned with mobility, access and quality of life in the Washington-Baltimore New Urban Region.

EXECUTIVE SUMMARY

Mobility is a critical regional issue impacting economic prosperity, social stability and environmental sustainability. That mobility is at or near the top of citizens' list of concerns was reflected in the signs, promises and positions of politicians during the 1998 Fall elections and since that time. Now that the election results have been tabulated, it is time to examine the reality of the Region's mobility needs and the potential strategies that can be employed to avoid the transport gridlock which is projected.

The future viability of the National Capital Subregion depends upon building on the transport system that exists and making it much better. Of all the transport

options now in operation, only METRO rail offers the possibility of making a significant contribution to the improvement of future regional mobility and access. This is because it has the power to positively change the human settlement pattern throughout the Region. The recent discussion of "induced traffic" in the I-270 Corridor and recent data from the Metropolitan Washington Council of Governments tells a simple story. Building new or widened expressways and beltways will not improve the Subregion's mobility or its citizens access to the goods, services and places necessary to create a quality life.

This report documents the importance of METRO in solving the National Capital Region's transport crisis. It summarizes the issues that citizens must understand and address if there is to be a comprehensive strategy to improve regional mobility and access.

NOTE: Throughout this report "METRO" is used to describe the 100+ mile "heavy rail" transit system operated by the Washington Metropolitan Area Transit Authority (WMATA). WMATA also operates a bus system and other services. The terms "shared-vehicle system," "transit system," and "mass transit system" are used interchangeably to describe public mobility systems including guideways, vehicles and operating facilities.

I. METRO IS THE LYNCHPIN OF SUBREGIONAL MOBILITY

Part I takes a fresh look at METRO, the "heavy rail" shared-vehicle (aka transit) system created to serve the National Capital Subregion. The importance, strengths and weaknesses of the system are articulated.

II. USING THE CURRENT ARRAY OF SUGGESTED METRO ENHANCEMENTS AS A WAY TO VISUALIZE FUTURE MOBILITY OPTIONS

Part II surveys some of the proposals to expand, extend and modify METRO and offers insight into how some of these proposals could be improved by applying an understanding of functional human settlement patterns.

III. EXCESS CAPACITY AND WASTEFUL SUBSIDY

Part III articulates the core reason why most of the proposals for METRO enhancement will not be realized. No matter how attractive or politically popular, many of the proposals cannot be achieved over the next half century, unless there are fundamental changes in the Region's projected population, economic activity and/or system subsidy.

IV. THE EXAMINATION OF NEW SHARED-VEHICLE

SYSTEMS TO SERVE THE SUBREGION

Part IV briefly surveys the characteristics of new shared-vehicle innovations that may be applied to overcome the mismatch between the existing mobility systems, the existing human settlement patterns and the future need to create a prosperous, stable and sustainable region.

V. RETHINKING MORE THAN JUST METRO AND OTHER SHARED-VEHICLE SYSTEMS

Part V raises issues related to mobility and access beyond METRO and shared-vehicle systems. These topics need to be addressed in the context of a comprehensive review of METRO.

I. METRO IS THE LYNCH PIN IN SUBREGIONAL MOBILITY

METRO rail is the only existing transport resource with unused capacity of a sufficient scale to positively impact regional mobility in the short term. In the long run, METRO — and other shared-vehicle systems (aka transit) — are the only feasible way to provide effective and efficient mobility and access in a large, prosperous New Urban Region.

Rethinking METRO is critical because:

- METRO has the potential of making a significant contribution to regional mobility.
- There is a clear need to better utilize the \$10-billion capital investment in the existing METRO system.
- There must be better service to justify the current \$300-million a year WMATA subsidy.
- There needs to a rational basis to support the multi-billion dollar additional capital reinvestment that will be needed to keep the METRO tracks, trains, computers, escalators and other components of the system working.
- There are currently a plethora of politically driven proposals to expand and reconfigure METRO that have the potential to result in escalating subsidies and decreasing functionality for METRO well into the 22nd century.

All these current, critical issues make rethinking METRO the lynch pin of the subregion's transport future. In fact, a more efficient use of METRO and other shared-vehicle systems is the only effective weapon to use in attacking the region-wide transport gridlock predicted by the Metropolitan Washington Council of Governments [MWCOG] and others.

Perhaps most important, many of the basic assumptions upon which the METRO system was designed — especially those related to human settlement pattern — were shortsighted, wrong or are now obsolete. These basic parameters need to be recycled along with aging track, cars, computers, escalators and other infrastructure.

Reevaluating all of the mobility options — other shared-vehicle systems, air travel, roadways and highways — must be part of the comprehensive review of the entire METRO system and its role in the National Capital Subregion. A well-functioning METRO can better feed commuter and high-speed interregional rail systems and help relieve the overburdened highway/expressway system. Improved ground transportation can cut the demand for short-haul air travel and thus reduce noise and pollution from aircraft.

Some Key Facts About METRO

Comprehensive rethinking of transport starts with understanding critical issues pertaining to the existing METRO rail system:

1. **METRO is now woefully underutilized.** This is documented by the fact that most of the trains leave most of the stations most of the time essentially empty. While some trains are crowded at some times of the day, this overall assessment of capacity utilization is empirically correct.

2. **METRO's underutilization is primarily caused by a mal-distribution of land uses in the station areas.** There is an imbalance between demand for METRO use and capacity of the METRO trains. The root cause of that imbalance is the distribution and concentration of land uses (aka trip demand) in the METRO rail station areas.

The mid-60s commitment to land-use patterns and densities that would have supported the federal investment in METRO has been abandoned by state, municipal and federal district governance agencies. Human settlement patterns have agglomerated in the Subregion as if METRO was a pork-barrel happenstance, not a regional mobility strategy.

3. **Vacant and underutilized land around METRO stations (aka METRO station areas) have the capacity to meet all the foreseeable future demand for new employment land uses in the Region.** The MWCOG Joint Cooperative Forecast 6a suggests that between the year 2000 and 2020 there will be 824,900 new jobs in the National Capital Region. That sounds like a lot, and it does portend significant economic expansion.

It may not be feasible or even desirable for all this new development to be located in close proximity to METRO stations. However, it is important to understand that at Rosslyn-Ballston Corridor densities, the projected new workers could be accommodated by one 10-acre site located at each of the 75 existing stations now served by the \$10-billion METRO system. There are 220 acres of land within one-third mile of each METRO station. Less than five percent of this land could meet the total theoretical land demand for all new employment uses. Seen from a regional perspective, the Region's employment projections are very manageable using the potential capacity of the existing METRO system with no expansion of the urban area.

4. In addition to providing the land needed for new employment, METRO station areas have the land capacity to accommodate the future residential and service development potential in the Subregion.

Looking beyond jobs and considering the full walking radius of transit stations (one-half mile or 500+ acres), the growth absorption capacity of METRO station areas is impressive. There are over 100 stations on the currently-approved METRO system. There is enough vacant and severely underutilized land within one-half mile of these stations, if developed at Rosslyn/Ballston Corridor densities, to serve all the future employment, residential and service needs projected by MWCOG to the year 2020. In round figures, that projection is 900,000+/- jobs and 550,000+/- households between now and the year 2020.

As with the employment/tax-base land uses under 3. above, it may not be feasible or desirable to place all new development in the station areas. The point is that it is theoretically possible with no expansion of the urban area and no extension of METRO lines. In Part III., there is a discussion of the market for METRO-related development. How the potential for METRO-supporting development is optimized must be the subject of detailed analysis.

5. METRO-related density does not need to be "high" density as in "Manhattan is high density."

METRO-supporting density does not require that everyone who rides METRO must live and/or work in skyscrapers. When many hear "transit-supporting density," they think skyscrapers. Rosslyn-Ballston density as planned by Arlington County is close to optimum for a transit system of METRO's capacity. The Rosslyn-Ballston Corridor is not Manhattan .

In fact, METRO-supporting density is made up of just the sorts of buildings and uses that are now being built all across the Region. The Region need not build different buildings, but instead must intelligently locate the ones

already being build. Transport dysfunction results from many causes but inappropriate locational choice is a primary one.

New urban land uses are now being scattered in non-viable locations across the Subregion. Development projects located outside METRO station areas do not support METRO ridership since they do not place trip demand near METRO system capacity. Scattered land uses in outlying areas also do not support the creation of viable communities since the origins and destinations of these trips make it difficult for citizens to assemble a quality life.

6. METRO stations and METRO riders are walled off from the places transit riders want to go. A quick look at an air photo of METRO stations confirms that most station areas are surrounded and constrained by acres of asphalt in surface parking lots and surface highways. The Region has spent \$10 billion in capital costs and spends \$300 million in subsidy every year to provide citizens with prime access to parking lots and highway rights-of-way at many stations.

This station isolation exacerbates the fact that the station architects failed to give high enough priority to putting the METRO car door as close to where riders want to be as possible. Poor station and station-area designs create barriers between the METRO car door and the places riders originate from and where they want to go. Citizens want access to jobs, housing, stores, day care, cafes, parks and play fields — not to parking lots or across lane after lane of roads filled with cars and trucks going to places unrelated to the METRO system or its riders.

Running METRO down the I-66 median and building stations between uncovered traffic lanes and adjacent to surface parking lots and transit-only parking garages is a classic example of misuse of the METRO investment and capacity.

From the empirical facts outlined in these six points, it can be easily deduced that the problems related to METRO are not solved by more or longer METRO lines, but by better land use at the existing and planned/committed stations.

The talk of expansion and reconfiguration of METRO must be considered in light of the fact that the Subregion is projected to grow at about one percent a year. Even at much higher rates of growth, there would not be enough market for METRO-related development to fully utilize the existing and committed system, much less extensions and expansions. This topic is further explored

in Part III.

Limitations of METRO Expansion and Capacity

There is a second set of realities having to do with METRO capacity and configuration that exacerbates the solution to the Region's mobility needs. These conditions make the better utilization of METRO more complex. They also require fundamental rethinking of all the mobility parameters for the Region as a whole.

1. Some parts of the METRO system are overused.

Overcrowding of some segments of both the Orange and the Red Lines discourage not only daily use but also long-term decisions to locate jobs, housing, services and recreation venues near METRO stations.

The Orange Line serving the Rosslyn-Ballston Corridor in Arlington County is heavily utilized during peak hours in the peak direction. This condition exists in spite of the fact that the Corridor is presently less than one-half "built out." The Corridor now has over 30-million square feet of office and other employment space. Arlington County's plans call for over 80-million square feet of these uses. Although less than half built out, the METRO line serving it is crowded during peak hours. This crowding discourages METRO-related development. It is also true that the Orange Line does not yet serve a high percentage of the work-related trips generated in the Rosslyn-Ballston Corridor. This is due to the scattered location of the "home" end of the "home-to-work" and "work-to-home" trips.

2. There are critical design shortcomings in the current METRO system. A good example is again, the Orange Line in Virginia. The crowding on the Orange Line in the Rosslyn-Ballston Corridor is, in part, the result of this line having been designed to operate at only one-half capacity because the Orange Line must share tracks and tunnel through the Federal District with the Blue Line.

If the Orange Line were divided and a new leg created to serve the Washington-Dulles Airport/Dulles Toll Road Corridor, this new portion would operate at only one-quarter the theoretical line capacity of the METRO system. This is a fundamental flaw in the system design. Additionally, with the Orange Line extension to Dulles Airport in place, the Orange Line along I-66 now terminating at Vienna/Fairfax, instead of operating at one-half capacity as it does currently, would operate at only one-quarter capacity.

3. There is a practical, physical limit to the expansion of METRO. The third METRO ridership-related problem that is a function of the current design

has to do with time and distance. The extension of METRO to Washington Dulles Airport is the most logical and longest-championed METRO extension of the original 103-mile system. If the Dulles extension were to function as METRO currently operates, a rider would have to sit through a butt-numbing, 24-station stops to get from the airport to the South Capitol Station. During most of the 24-hour period, a taxi ride would win hands down with respect to time and convenience. This is why transit ridership to Chicago's O'Hare and Atlanta's Hartsfield Airports does not approach the ridership of interregional arrivals in Munich, Paris or London.

These three points when taken with the first six key facts strongly suggest the need for a fundamental rethinking of the entire regional transport system, including the design and function of METRO.

Viewed from a systemic perspective, METRO does not match the subregion it is intended to serve. It did not match the regional projections at the time it was designed, and the municipal, state and federal agency decisions and market forces have evolved a regional human settlement pattern over the past three decades that does not match the METRO system that was constructed.

Applying the laws of physics, psychology and economics to the METRO system places a limit on the length of a transit line on which all trains stop at all stations. The system capacity and efficient function of METRO dictate a location and distribution of station-area land uses vastly different than now exist.

Either the METRO system must be fundamentally restructured, or it needs to be supported by new station area land-use patterns and densities and by a system of shared-vehicle services that meet the needs of those parts of the Region not now served.

II. USING THE CURRENT ARRAY OF SUGGESTED METRO ENHANCEMENTS AS A WAY TO VISUALIZE FUTURE MOBILITY OPTIONS

One way to visualize the ideas that might prove useful in reexamining METRO is to consider some of the current proposals to augment METRO. Discussion of concepts in this Part is not an endorsement of specific projects nor does omission suggest rejection. The merits of all proposals must be considered in a comprehensive regional context.

There are a number of plans for improving the function of the METRO system — such as implementation of the Purple Line, the Turquoise Line and connecting the urban nodes missed by METRO with something that might be called a "Gold Line." These concepts are in addition to the proposals for radial extensions. The plans sketched out in this section may not all be feasible, but they help articulate the range of options that should be considered.

One of the primary reasons to take a comprehensive look at METRO at this point is to create a regional approach to mobility before billions of dollars more are spent on METRO expansions as well as expressways and bridges that would be unnecessary under a comprehensive new plan.

1. A Purple Line around the Beltway. Among the most frequently suggested changes in METRO is the development of a "Purple Line." This would be a new METRO line that would generally follow the alignment of the Beltway. Since both Maryland and Virginia DOTs are looking at the future of the Beltway, it is very appropriate to look at this issue.

The first phase of the current VDOT study of the Beltway in Virginia indicated that transit service would carry more passengers for less money than adding automobile lanes to the Beltway. For reasons unrelated to improving the Region's mobility, shared-vehicle systems have, for the present, been dropped from consideration in the on-going Beltway studies by VDOT.

Most of the advocates of a Purple Line focus on the Maryland segment of the Beltway. Public agencies in Maryland have studied a number of Purple Line alignments inside, on and outside the Beltway. The current Maryland DOT Beltway studies include transit options. The problems with Purple Line configurations include:

- Neighborhood opposition to any above-ground tracks
- Cost of underground tracks
- Potential opposition to METRO-related development in every new station area

The solution may be to put the track in or over the Beltway and locate the stations in areas already polluted by Beltway noise and interchange congestion.

Critics suggest it would be inappropriate to put the capacity of a METRO Line right on top of the capacity of the existing (or expanded) Beltway. In some contexts, overlaying a METRO line on an existing expressway is not desirable and could be counterproductive. For example, it was much more intelligent for Arlington County to route METRO through what became the Rosslyn-Ballston Corridor than to put it in the median of I-66. This is usually the case unless a large platform is built over the roadway to support 220 +/- acres of prime METRO-served land uses at each station.

The approach taken by Arlington County — but not by the City of Falls Church or Fairfax County — was to put the METRO line under Wilson and Clarendon Boulevards and Fairfax Drive . In this way, they were able to provide the new transport capacity necessary to support the redevelopment of first generation "sub"urban strip development through the post Civil War crossroads of Rosslyn, Courthouse, Clarendon and Ballston. These nodes attracted much of the pre-Tysons Corner retail and business activity in the inner "sub"urban areas of Virginia.

While this routing strategy made sense in the Arlington County context, that may not be the case for the area to be served by the Purple Line. The primary problem with the development of land use adjacent to METRO stations is opposition from those living near the site. Transit-related land use is, however, necessary to support the ridership of the METRO trains. The noise and fumes from the at-grade Beltway has already blighted the area immediately adjacent to the right-of-way. Noise and air pollution plus local street congestion are problems in the areas around Beltway interchanges. Under these conditions, the "solution" may well be to put the METRO tracks in the Beltway alignment and to locate the station and station-area development — but not the track between station areas — on platforms.

With a platform strategy, each of the major arterials, expressways and METRO crossings would be supported by a station on a large platform (220 acres +/-) over the Beltway. The METRO-related development would take place on the platform. This would provide for a direct interconnection with activities on the radial road system, as well as with the radial METRO lines at New Carrollton, Greenbelt , Forest Glen, Grosvenor, Tysons Corner, Dunn Loring/Merrifield, Van Dorn, Eisenhower Avenue , Branch Avenue and for any Blue Line extension beyond Addison Road .

By burying the Beltway under a platform, the noise pollution created by the Beltway could be muffled. The adjacent neighborhoods and villages might be more receptive to METRO-related development in trade for getting rid of some of the noise pollution from the

Beltway and the neighborhood traffic from the beltway interchanges. A comprehensive plan that serves regional needs might coalesce citizen and enterprise support that offset NIMBYism. As Chicago architect Daniel Burnham suggested: "Make no small plans." Small plans do not have the power to generate regional support.

There may be a place to test the platform strategy. The configurations which have been discussed over the last 40 years for the METRO extension along the Dulles Corridor have focused on tracks and stations in the median. More recently, there has been consideration of a "detour" out of the median at Tysons Corner and Reston. This makes sense only if one wants to fundamentally reconfigure existing development in Tysons Corner and on one side or the other of the Dulles Toll Road through Reston. Perhaps a better alternative for one of the Tysons Corner stations and for some or all of the Reston stations would be to apply the platform solution. This idea has been articulated and championed by citizens and professionals in Reston. The platform design in the Dulles Corridor could be a prototype for the Purple Line along the Beltway.

2. The Turquoise Line to improve the Orange and Blue Lines and to serve Columbia Pike and Baileys Crossroads. The Turquoise Line was first suggested in 1984. It could be implemented with a lesser effort and a relatively small cost compared to the Purple Line. The Turquoise Line would double the capacity of the Orange Line from West Falls Church to Courthouse providing needed capacity in the Rosslyn-Ballston Corridor. In addition, it would utilize the track capacity on the Blue Line between Rosslyn and the Pentagon and provide METRO service along Columbia Pike to Baileys Crossroads.

3. The Gold Line in the urban core. In the urban core, the site most frequently pointed out as being in need of improved shared-vehicle service is Georgetown. What transport and access congestion related to Georgetown needs most is a "second Georgetown" in another part of the Federal Core. Such a retail/entertainment/recreation venue has been suggested for the 8th Street Corridor. As an alternative, a "second Georgetown" might be part of the revitalization of South Capitol Street proposed by the NCPC, or perhaps it could be an element of the comprehensive reconstruction of the New York Avenue Corridor. This "second Georgetown" would siphon off some of the hyper-activity that currently congests Georgetown. A "second Georgetown" would bring the Federal Core into a better balance with Old Town Alexandria, Chevy Chase Circle and other urbane retail/service/entertainment venues.

Even in this more sane subregional context, Georgetown

would need better shared-vehicle service. This new facility in the urban core might create a "Gold Line" loop. Such a loop could tie together Georgetown; the Georgetown Waterfront; Foggy Bottom; the Mall with its monuments and Smithsonian facilities; the South Capitol revitalization; the Anacostia Waterfront; the Eastern Market; Capitol Hill; New York Avenue (including a second Georgetown-like venue); Union Station; North of Massachusetts (aka NOMA); Massachusetts Avenue (including Dupont Circle); Upper Georgetown and back to Georgetown. The Gold Line would interchange with all the existing METRO lines at many locations.

The Gold Line characteristics suggest a need for the development of a second shared-vehicle system serving the inner area of the National Capital Region. Alternatives are considered in Part IV.

4. Radial extensions of existing METRO lines. A number of radial extensions have been proposed for METRO. Two extensions that have recently gotten considerable media and governance agency attention are:

- Creating a "Y" and extending half of the present Orange Line to Tysons Corner, Reston, Washington Dulles International Airport and Eastern Loudoun County
- The extension of the existing Orange Line from the current terminus at Vienna-Fairfax to Centreville via Fairfax Center.

Decades of discussions, over a dozen studies and the compelling logic of linking the best airport runways in the eastern United States with the National Capital by rail have resulted in ever more feasible concepts for METRO extension from West Falls Church to Washington Dulles International Airport via Tysons Corner, Reston, et. al. At least two private-sector teams are competing for the public subsidy to construct (and perhaps operate) the extensions to Dulles.

Ever increasing congestion and growing travel demand projections for trips in the I-66 Corridor (similar to the conditions in the I-270 Corridor) have energized efforts to extend METRO out I-66.

The phasing-in of station-area density with a "first bus and then rail service" strategy for the Dulles Corridor is compelling to some. Linking the employment and service land uses at Tysons Corner to the METRO system is a desirable goal.

The current schemes to achieve these goals have not been developed in a regional context. When they are evaluated in this context, they will be found to be lacking in a critical ingredient — market for station-area

development. This is a very significant problem and is addressed in following section.

III. EXCESS CAPACITY AND WASTEFUL SUBSIDY

As attractive as ideas for better and expanded service may be, these proposals collectively dramatize an overarching problem facing the Subregion. In sum, these new proposals create much more capacity for new METRO-related development than there is any conceivable demand given current growth projections for the next five decades.

The proposed new METRO lines and METRO extensions discussed above would add a huge potential development envelope for which there is no foreseeable station-area market. Without METRO-supported station area land uses, these projects would exacerbate the existing off-peak direction capacity problem outlined in Part I. There is no conceivable source of the needed ridership to utilize the resulting METRO system capacity created by these proposals.

It is probable that, as part of a comprehensive Region-wide review, METRO-related development could be allocated among existing, committed and some new station areas. Given the existing conditions, it is foolhardy to assume that it is prudent to "build it and they will come." A full understanding of future station-area support for METRO is necessary before funding is allocated. Just as it proved to be inappropriate to assume 1.5 million square feet of new office development each year for 30 years to support the Virginia Route 28 improvement bonds, so would it be for any current METRO extension or expansion proposals.

For instance, applying the "platform station strategy" (outlined for the Purple Line in Part II above) to just eight of the Orange Line stations of the Dulles extension would adsorb twice the Round 6a 2020 employment projections for all of Fairfax County. Sorry, Fairfax Center, Merrifield, Springfield, Baileys Crossroads and Route One Corridor, there is no new development for you until after 2040.

These stations in fact would have the potential to adsorb all the employment demand for the northern part of Virginia to the year 2020 and over one-third of the demand for development in the entire National Capital Region for that timeframe.

Without the platform strategy or some other solution to

get jobs, housing, services and recreation close to the transit vehicle doors, the METRO subsidy would skyrocket. Any substantial expansion of METRO under current plans would make the VA Route 28 bond fiasco look like penny ante.

The major problem with significant improvements or extensions of METRO and other shared-vehicle systems is that they collectively would result in a transport system for a regional population of 20- to 30-million inhabitants (i.e., Paris) not the 5.6-million projected in the National Capital Region by 2020.

In order to achieve functional patterns and densities of land use, such major expansions of shared-vehicle systems would require, four or five times the amount of new employment, service and residential uses anticipated in the next half century. For example, all the METRO system enhancements described in Part II would have the capacity to absorb all the new growth projected to occur between the Hudson River and the James River over the next 20 or 30 years.

The ideas for splitting and extending the Orange Line and other lines exacerbate the capacity-limiting flaw in the original radial-only METRO-system design. As noted above, there are potential solutions to the "half-line" problem, but most involve creating even more stations. More METRO stations mean there is more transit-served but unused station-area land. This translates to more empty METRO car seats and higher subsidies unless the capacity expansions and station-area land use is carefully balanced.

Without intelligent, transit-supporting land uses in the station areas, the total long-term cost of METRO and other shared-vehicle systems is simply prohibitive. It is a scientific and economic certainty that no region can support the resultant cost of goods and services in the Global Marketplace. It is unlikely that any current or future nation-state or subcontinental trading coalition (i. e., NAFTA) will provide the subsidy necessary to offset a grossly inefficient mobility system in any given region.

The current crop of METRO expansions and extensions, absent an agreed-to regional plan for the allocation of future tax-base land uses, will exacerbate the continuing zero-sum-game inter-municipal and interstate political battles.

IV. THE EXAMINATION OF NEW SHARED-VEHICLE SYSTEMS TO SERVE THE SUBREGION

To this point, this report has examined the existing METRO system, recent and current proposals for METRO expansion and extension and the overarching economic constraint on massive METRO-system expansion. It does not take much deliberation to realize that it would be prudent to examine, in addition to fundamental METRO system improvements, a second — or perhaps several — shared-vehicle (aka transit) systems to support the basic METRO system.

There are inherent flaws in METRO's conceptual design. In addition, there are new forces that exist due to the growth of the Subregion over the past 30 years. These facts dictate that METRO as currently structured will not be able to meet many of the Region's mobility demands. At the same time, it is equally clear that a system of private automobiles cannot provide mobility and access in a region the scale of the National Capital Subregion. Through a fundamental change in METRO and support from new systems, there can be an efficient and effective shared-vehicle complex serving an urban agglomeration the size and complexity of the National Capital Subregion.

When one considers, as one must, the National Capital Subregion's siamese twin, the Baltimore Subregion, the case is even stronger. Together these two regions form a Consolidated Metropolitan Area that is the heart of the fifth largest New Urban Region in North America.

METRO was designed to carry workers and visitors to the core of a small urban region. That was the 1960s. The 21st century will find METRO in a very different context. Many of the unmet mobility needs are related not to regional core access but to community, village and neighborhood mobility and to what are called "sub"urb to "sub"urb or "cross-county" trips.

Urban regions like Vienna, Stockholm and Toronto have solved the need for multiple shared-vehicle systems to serve a complex region by optimizing the use of their 19th century systems — ferries, trolleys, trams, streetcars and other conventional "light" systems. In the Paris Region, the venerable Paris Metro system has been supplemented by a completely new heavy rail system called RER. This combination provides true regional system capacity. Regional mobility in Paris is

also enhanced by interregional high-speed rail, as well as other systems. New York and London have added lines and express routes to expand the capacity of their rapid rail systems.

In considering a second system (or systems) for the National Capital Region, it would not be appropriate to reintroduce 19th century systems — i.e., traditional light rail — on a region-wide basis. Toronto , Stockholm and Vienna saved and now utilize older transport technology to help support the core Subway/Metro/Ubahn systems. This is not an option for the National Capital Region since its original shared-vehicle systems were scrapped in the 50s and 60s.

Based on the popularity of systems in smaller regions such as Portland , San Diego and elsewhere, it is frequently suggested that new "light rail" lines are the "answer" to the National Capital Region's shared-vehicle mobility needs. Twentieth century versions of multi-car trams are often called "conventional light rail transit systems." These "light-rail" systems generally operate at street level and have less platform capacity than "heavy rail" systems such as METRO.

In practice, many conventional light-rail systems do not provide enough platform capacity to support viable village-scale diversity at most stations. For this reason, there is not enough density nor a sufficient mix of land uses in the station area. This means there is not a critical mass of destinations which can be served by pedestrian trips. A significant part of the trip demand generated by station-area land uses must be amenable to service by pedestrian trips, or there is a need for an automobile. This defeats the purpose of shared-vehicle-served station areas.

When the design capacity of a conventional light-rail system approaches that required to serve a station area with contemporary marketable land uses in a large, complex region, the "light" system is very often indistinguishable from a "heavy" system.

Conventional bus applications that serve "stops" or kiosks have not proven to be a viable substitute for a system with substantial fixed stations. Exclusive right-of-way bus systems function much like fixed-station (aka "rail") systems or morph into such systems as demonstrated by the experience in Seattle , Ottawa-Carlton and Curitiba .

Regardless of the type of guideway, no cost-effective conventional shared-vehicle system can serve a corridor with alpha community-scale densities of less than 10-persons per acre. Much of the urbanized area in the National Capital Region is now less than 10-persons per

acre at the alpha community scale. This again focuses attention on the importance of METRO station area development and on the need to seek new innovations in shared-vehicle systems.

Beyond the conventional transit systems outlined above, there are new systems on the drawing boards that could be called "Advanced Rapid Transit" — state of the "ART" as it were.

The core of an ART system is a small vehicle on a light, automated guideway that can be switched to bring passengers directly from origin to destination without intermediate stops.

A system with ART characteristics would allow rational shared-vehicle-system expansions to match demand capacity, both inside and outside the Beltway. It would allow for private investment in incremental additions to a comprehensive regional-serving, shared-vehicle system. ART systems are "light" in footprint or impact but can be anything from "very light" to "quite heavy" with respect to system carrying capacity and platform capacity.

New "light vehicle" ART systems are still in the design/feasibility stage and there are questions yet to be answered. However, ART systems offer a number of important advantages over conventional systems. They provide a very feasible way to incrementally add new capacity as land uses change including the redevelopment of urban areas. In addition, ART systems can provide an easy way to implement transport on demand without a private vehicle (i.e., private car or taxi).

Enumeration of the attributes of ART systems is not an endorsement of a specific system but a suggestion that the attributes of ART systems make them worthy of careful consideration. Among the key characteristics to consider with respect to ART systems are:

1. A shared vehicle that goes "from where you are to where you want to be" with no intermediate stops.
2. Very low relative passenger-per-mile costs, greater safety and less noise as compared to conventional systems due to lower design speeds that still achieve shorter total trip times.
3. The flexibility of capacity expansion and contraction on a minute-by-minute basis can meet changing ridership demands with few empty seats. Conventional transit systems serve a "route." All the vehicles (trains or buses) go from one end of the route to the other end hauling any empty seats the entire distance. In an ART system,

empty seats move only to marshal for anticipated demand.

4. Since all vehicles do not stop at every station, small, relatively inexpensive and widely-distributed "stations" bring passengers close to their destination even in lower density areas. At the same time, large destinations (i.e., a sports stadium) can have large, high-capacity stations on the same system.

5. Because of this variable character of stations, the station-area land uses can also vary. ART systems can be supported by station-area uses that are not economically feasible in METRO-station areas.

6. All shared vehicle systems, including METRO and ART offer advantages for those too young, too old or otherwise incapable of driving an automobile. ART systems can bring this service to a far wider range of patterns and densities of land use.

7. ART systems offer the potential of privately-owned vehicles running on the system. This would provide access to lower density human settlement patterns without extension of the automated guideway. This is what guideway-in-the-core bus systems do now, but small, light ART vehicles could efficiently support much lower densities.

8. Privacy can be provided if the user is willing to pay for it. This is similar to conventional HOT lanes and congestion pricing in core areas. Privacy (or is it "security" that is being called "privacy") could be provided at very low cost in off peak hours.

9. The reasons for avoiding light, energy efficient private vehicles (crashworthiness in collisions with heavy SUVs) is illuminated with an automated guideway.

10. ART systems provide a way to serve existing and new lower density areas that cannot be served effectively by conventional heavy rail, light rail, bus or other systems.

The biggest obstacle to ART systems is not design or concept: It is the winner-take-all competitive economic context of First World civilization. Big organizations make greater profits building and operating big, expensive (aka "heavy") systems. In a democracy, it is the role of citizens to evaluate the options and set the parameters for competitive provision of mobility and access. One potential strategy would be for a light ART system guideway to accommodate the vehicles of a number of different "automakers."

The ART-like systems that have been designed and

tested to date are not end-all and be-all solutions. However, the tests do prove that the concepts are viable in a supportive market and regional context.

Bus systems like the Curitiba "tube station" concept that has been proposed for the Dulles Corridor, the guideway bus systems like Ottawa-Carlton and modern light rail may also play a role in a regional system.

Cable cars, inclines, gondolas, monorails and horizontal elevators might have a role on steep hills, traveling over parking lots, under runways and through recreation and entertainment venues. However, these shared-vehicle options are not as potentially effective in regional applications as systems that have ART characteristics.

Commuter rail (VRE and MARC) can play an important role so long as they support station-area land uses and do not just create an excuse for scattering urban housing across the very low density countryside.

Station-area design, system capacity and system operating characteristics are the most critical factors in selecting shared-vehicle systems. ART systems provide many options for creative station-area design, transit user safety and user comfort.

New communications and processing technology i.e., Intelligent Transportation Systems (ITS), can make a significant contribution but do not change basic function of shared-vehicle or private-vehicle systems.

The key, of course, is to first design the human settlement pattern to optimize economic, social and physical objectives of civilization (aka, quality of life) and then match the shared-vehicle systems to the desired pattern and density of land use. The other half of the equation is to maximize the use of existing systems — primarily METRO — in which there is already a huge investment.

V. RETHINKING MORE THAN JUST METRO AND OTHER SHARED-VEHICLE SYSTEMS

Effective regional transport requires intelligent regional planning and allocation of resources. These resources must be distributed in a way that meets the reality of the existing and planned future human settlement pattern in the Region.

One way to adsorb some of the excess capacity and relieve a major source of on-street congestion in urban cores

would to be to add goods (mail, parcels and small quantity deliveries) to the METRO-system capacity. Parcel delivery is not the business it used to be, and congestion-based rates for parcels might just be the thing that gives the capital investment in shared vehicle systems something to do at night.

There are exciting mobility possibilities generated for both radial and circumferential METRO lines to carry not only people but also transport goods. Each of the interchanges between the Purple Line and the radial METRO lines or expressways could be a place for transferring goods from rail to short-haul low emissions delivery vehicles. Trucks that haul U.S. Mail, United Parcel and Federal Express, as well as most other deliveries upon which contemporary civilization now relies, could be downsized and made less polluting under a strategy that provides for rail distribution of goods in off peak hours.

While the Region is thinking about changes to the METRO system and other shared-vehicle systems, there should also be consideration of the related transportation needs.

Expansion of both Washington Dulles and BWI Airports are being planned with 21st century air-travel demands in mind. The billion-dollar mistake of expanding Reagan National Airport is now more broadly understood. The core of the National Capital Region will never be a world class place to live and work so long as there is a busy airport in the middle of it. Like Midway (Chicago) and Love (Dallas), National Airport is a dinosaur on life support awaiting an accident to pull the plug.

A high-capacity, shared-vehicle system to Washington-Dulles and BWI Airports could bring the travel time into a comparable range with the existing Reagan National. Interregional, high-speed ground transport could replace most short-haul air traffic. This shift in demand from air to ground would have significant beneficial energy and environmental consequences. The new terminal at National would make a splendid, next generation Air and Space Museum .

And then there are roadway and highway expressway needs to be considered. Obviously roads and highways will continue to be important. Most citizens will rely on rubber tires and private vehicles for the indefinite future. They will stay with automobiles that provide privacy and convenience as long as they can afford it. The first priority should be to improve the maintenance of the roadway/highway system that exists; the second should be to add facilities that improve and intelligently support the existing roadway/highway system and the shared-

vehicle system.

There are many road improvements that should have been made in the 1960s which must be completed. These are not the infamous expressways that were taken off of municipal plans. These roadway and highway improvements — many of them inside the Beltway — have been on state and municipal plans since the early 1960s. These roadways would help provide the network to support circumferential and community-building mobility and access. Some of the most effective improvements are neighborhood-to-neighborhood interconnections. The failure to build these improvements are a primary cause of the outward expansion/scatterization during the 70s, 80s and 90s.

The next important aspect of roadway and highway/expressway improvements must be to evolve a system for: (a) fairly allocating the cost of the road to the users and (b) equitably distributing the limited capacity during peak demand times through congestion pricing. High Occupancy Toll (HOT) lanes are only the first step in this process.

There may be the need for new roadways, new highways and perhaps even new transport corridors, but those should be provided only where a comprehensive, rational plan for sustainable human settlement pattern -

It must be kept in mind that it is a physical impossibility to provide mobility and access to an urban region as large as the National Capital Region with single-occupant automobiles and parking lots. This fact is underscored by the current work by the MWCOG staff on accessibility measures.

The Subregion is considering the expenditure of billions on projects such as Dulles Corridor bus/rail and other METRO extensions and expansions, a wider draw-span Woodrow Wilson Bridge and a wider Beltway. Before action is take on these projects, much less new radial expressways and new highway corridors, there should be a comprehensive and thorough review of the Region's transportation needs and potential solutions. METRO is the most important element in this consideration.

-- January 25, 1999

Wonks on the Web: E M Risse

The Shape of the Future



Geographic Illiteracy

Americans cannot function effectively as citizens until they master the six components of their geographic surroundings.

Understanding the existence of "Geographic Illiteracy", the lack of spacial and geographic orientation, is an important step in comprehension of human settlement patterns.

The existence of pervasive Geographic Illiteracy (citizens do not know where they are) is the second of the Nine Fundamental Theses presented in Chapter 1, Box 1, of *The Shape of the Future*. In Chapter 2, the book pinpoints Geographic Illiteracy as a prime cause for citizens' failure to understand human settlement patterns. All of Chapter 16 is devoted to the causes of Spacial and Geographic Illiteracy (Chapter 16). There are 16 references to the phrase throughout the book, however, Appendix One, The Lexicon, does not include a definition. Here is a definition plus a description of the understandings (tools) necessary to overcome Geographic Illiteracy.

Geographic Illiteracy is the inability to comprehend, understand and make intelligent decisions at all scales of human settlement patterns. Geographic Illiteracy is an individual and collective malady that limits the ability of individuals and groups to function in the economic, social and physical spheres of contemporary human activity.

The larger the number of citizens and organizations who cannot comprehend the location, pattern and scale (unit/family, dooryard, cluster, neighborhood, village, community and region), the worse the economic, social and physical impact.

There are six understandings (or tools) that must be mastered by individuals and groups to eliminate Geographic Illiteracy:

- Basic Orientation
- Urban Context
- Regional Context
- Critical Spatial Relationships
- Regional Metrics
- Vocabulary

The following is an outline of the components needed to overcome Geographic Illiteracy.

1. **Basic Orientation:** Citizens, whether living in the Urbanside or in the Countryside, needs a basic orientation to their context and the sites they visit. Citizens must be able to intuitively answer locational questions such as:

- What direction is North (and East, South and West) from this location?
- In what watershed is this site? Which direction is "down stream"? And, if one were to go downstream, where would they end up?
- From what direction do the prevailing winds blow?

Informed navigation in the Countryside requires this information. This information is also useful in the Urbanside. It is required to have a working knowledge of climate, weather and, in fact, all fundamental ecological relationships.

2. **Urban Context.** Citizens need a functional system for "finding their way around" in urban areas. Even those who live most of their lives in the Countryside need a way to navigate in the Urbanside. Application of Countryside navigation skills such as those learned in scouting, orienting, hiking or backcountry hunting are valuable in urban navigation.

MIT's Kevin Lynch studied and documented humans' perceptions of their urban surroundings. His 1960 book *The Image of the City*, is a classic examination of how humans relate to their urban environment and how they see and use buildings, spaces and landmarks to navigate.

3. **Regional Context.** The title of Lynch's book is a clue to the scope of the third tool needed to overcome Geographic Illiteracy. Citizen's urban context is now the region, not the "city." Much of Lynch's work related to foot travel. Moving to the regional scale means that there must be an

understanding of the Basic Orientation and the Urban Context, but these skills must be applied in settlement pattern context that is spread over a vastly larger area and with a lower intensity of identifiable landmarks.

An understanding of regional context is clouded by differing modes of travel. The sequencing of travel by different modes at different speeds and using different nomenclature is baffling to most. Chapters 8 and 9 of *The Shape of the Future* examine the role of Zip Codes, Area Codes, municipal borders, school service areas, postal addresses, subdivision names and other arbitrary borders and terms in creating confusion about one's cluster, neighborhood and village much less the location of other destinations spread over millions of acres. (See "[Where is Northern Virginia?](#)," Aug. 11, 2003.)

To make matters worse, much of the region looks just the same—three blocks east of *which* Starbucks? Tony Hiss's 1990 book, *The Experience of Place* added important insights about understanding specific landscapes and urban contexts. Many authors have decried the banality of the "suburban" experience. The level of tourism is a guide to the quality and uniqueness of places. Almost no one intentionally vacations in Springfield, Short Pump or Chuckatuck. Superficial attacks on the "suburban" landscape mask the important malady of Geographic Illiteracy.

The Regional Context is the most difficult Geographic Literacy tool for citizens to master.

Among the relationships that are most complex to grasp are those that reflect the First Natural Law of Human Settlement Patterns: $A = \pi R^2$. The power of $A = \pi R^2$ is demonstrated in "[Land Conservation Quandary](#)", March 28, 2005.

4. Critical Spatial Relationships. In order to understand Regional Context, it is useful to have a set of Basic Relationships or "elements of regional reality" to anchor an understanding of spatial distribution. These Basic Relationships differ from region to region. This is an area to which S/PI has devoted considerable attention. For the National Capital Subregion, S/PI has identified five critical spatial relationships that are particularly important. They can be found in "[Five Critical Realities That Shape the Future](#)", Dec. 15, 2003. Depending upon one's interest, there may be many Critical Spatial Relationships that help create an understanding (aka, cognitive map) of one's region and subregion.

5. Regional Metrics. The next important tool necessary to overcome Geographic Illiteracy is a set of ratios and relationships that can be used to relate one set of data (e.g. the number of dwellings projected for the next decade) to another (e.g. the number of acres at minimum density that these units will occupy).

It is essential to have "guidelines" or "yardsticks" to test and put into context the ratios and relationships of Regional Metrics. Yardsticks have been developed by S/PI for Subregional and Regional Tours in the United States and for those visiting urban areas in Western Europe.

Among the most useful yardsticks are the overall parameters of Planned New Communities (e.g. Reston, Columbia, Fairfax Center, The Woodlands and Irvine, as well as Planned New Communities in Great Britain and France). These places were designed to have a balance of jobs/housing/services/recreation/amenity and have a community-wide minimum intensity of 10 persons per acre.

For areas served by a shared vehicle system (aka, public transit) the Rosslyn-Ballston corridor in Virginia provides a good yardstick for station area density of 100 person per acre.

Also important is a clear understanding of the units of scale and relationships such as density including gross and net densities.

6. Vocabulary. The final tool needed to overcome Geographic Illiteracy is a robust and consistent vocabulary. Chapter 3 of *The Shape of the Future* documents the need for a comprehensive and consistent vocabulary to understand human settlement patterns. Appendix One (LEXICON) and Appendix Two (CORE CONFUSING WORDS) establishes a common basis for communicating about the human settlement pattern. One key is to avoid using words that have several meanings or which have been intentionally distorted or are used to confuse locational relationships. Core Confusing Words include "rural," "suburban," "city" and "local." The use of new phrases or capitalization to indicate a specific meaning is intended often help.

Overcoming Geographic Illiteracy and achieving Geographic Literacy is one of the most important objectives of education programs intended to prepare citizens to support Fundamental Change. It is made more difficult and more important by the intentional use of terms and maps to confuse or

obfuscate—e.g. home-builder maps of context and location of projects. One of the primary objectives of publishing *The Shape of the Future* is provide citizens with references to other resources they need to overcome Geographic Illiteracy.

-- **April 11, 2005**

Wonks on the Web: E M Risse

The Shape of the Future



Quantification of Land Resources and the Impact on Land Conservation Efforts

A root cause of the lack of support for comprehensive, Commonwealth-wide land conservation efforts is failure to understand the scope and depth of the current status of land vulnerability to scattered urban land uses.

The need for more extensive land conservation is obscured by Geographic Illiteracy and Spacial Ignorance in the general population. It is exacerbated by the lack of quantification that clouds the perception of conservation professionals and concerned citizens.

An abysmal lack of meaningful quantification results in the pervasive obliviousness to reality and hobbles land conservation efforts in the Commonwealth of Virginia.

Disclaimer

The following material is not:

- A condemnation or critique of any current land conservation effort
- A recommendation that any current conservation effort should be changed or abandoned

Summary

The following material demonstrates beyond a shadow of a doubt that:

Taken together, all the current conservation efforts are ineffective in creating a balance between Open Land and urban land. A balance between the Urbanside (including Openspace) and the Countryside is essential to a prosperous, stable and sustainable society.

The current trajectory of urbanization will cause the Commonwealth to evolve a profoundly unsustainable distribution of urban and nonurban land uses. The principal culprits include:

- **Failure to establish a Clear Edge between the Urbansides and the Countryside**
- **Scatteration of urban land uses across the Countryside**
- **Collective failure of land conservation efforts to address this pattern of urban disaggregation**

These facts might be thought of as "The Really Inconvenient Truth."

The Big Picture

There are about 25 million acres of land in Virginia. (The acreages and percentages in this document are rounded for ease of understanding.)

20 Percent: Perhaps 20 percent (5 million acres) of the land area in Virginia is "conserved" in relatively large (200 acres +/-) contiguous agglomerations – the National Forests, National Parks, National Wildlife Refuges, State Forests, State Parks, State Wildlife Management Areas, large municipal and subregional agency parks and agglomerations of private holdings with permanent conservation restrictions.

10 Percent: There is now perhaps 10 percent (2.5 million acres) of the 25 million acres in Virginia devoted to or actively held for intensive urban land uses.

There are three fundamental problems illustrated by these numbers:

- **The 20 percent number is far too low to provide an Open Land context and support for urban land uses in the Commonwealth.**
- **The 10 percent number can be demonstrated to be far too high to support sustainable urban activities given the current projected population for the Commonwealth.**
- **20 percent plus 10 percent = 30 percent**

and that leaves 70 percent of the Commonwealth as neither urban nor nonurban.

That equation may not seem alarming until one considers the numbers more closely.

Urban Virginia

The Commonwealth of Virginia is a vital part of the most dynamic and prosperous urban nation-state in history. Over 95 percent of the population of Virginia is engaged in urban activities, so it is reasonable to start with the land needed for Virginia citizens' every day urban activities.

The citizens of the Commonwealth can efficiently use (at minimum sustainable density at the Alpha Community scale of 10 persons per acre) only about three percent (700,000 acres) of land for intensive urban land uses. These are maximum areas (minimum densities) and much of the urbanized land is already developed at higher densities. Old Town, The Fan and other very desirable components of Urban Virginia have density ranges from 50 to 100 persons per acre at the village scale. Much of the affordable and accessible housing averages from 30 to 50 persons per acre throughout the Commonwealth. For this reason, 700,000 acres is a good working number for the amount of land realistically needed for all the intensive urban activities of all Virginians.

It is important to understand that this 700,000 acres is not the ecological footprint of Virginia's citizens but rather is the amount needed for daily activity. There is a profound difference between the area for daily activity and the ecological footprint. Most of the ecological footprint covers areas in the Countryside (food and fiber) and in other regions and other continents. These two numbers are discussed elsewhere in *The Use and Management of Land*.

The bottom line is that there is more than three times more land already devoted to urban uses (or held/planned/zoned for intensive urban land uses) than for which there is a foreseeable need.

To achieve a sustainable trajectory, it is imperative to shrink the amount of land devoted to and held for urban land uses. In the following discussions we use a generous four percent (one million) acres as the target for urban land. This area would accommodate intensive urban activities for the foreseeable future in

the Commonwealth.[\(1\)](#)

Nonurban Virginia

With respect to the nonurban lands – the focus of this discussion – the 20 percent number should raise alarm bells among those concerned with land and water conservation: If 20 percent is protected for open land (Countryside land uses) and four percent is needed for urban land uses, then 76 percent is unprotected from conversion to scattered urban land use.

The bottom line is that 19 million more acres (76 percent) of the Commonwealth needs to be protected from further scatteration of urban land uses. The unprotected 19 million acres of land in the Commonwealth, including most of the land within 100 miles of the three New Urban Regions that fall all or in part in the Commonwealth, is becoming a checkerboard of conserved and urbanized/exploited/mined land.

If current trends continue, at best it will be a 50/50 split instead of a the 4 percent/96 percent ratio that is the basis for a sustainable Urbanside and sustainable Countryside in the Commonwealth. (For a overview of the amount of land subject to the most intense pressure from scattered urban land uses see "Stark Contrast: Two Views of the Road Ahead," May 2001, S/PI.)

Under the Hood

The maximum land area needed (minimum functional urban intensity at the Alpha Community scale) for the daily activities of 95 percent of the citizens (the urban residents) of the Commonwealth is around 700,000 acres. Rounding this number up to 1,000,000 provides a very generous upper bound for the amount of land for urban uses needed within Clear Edges. (For a discussion of Clear Edges see: "[Beyond the Clear Edge](#)," May 26, 2003, and the three-part special report starting with "[Wild Abandonment](#)," Sept. 8, 2003.)

Between two and four times that amount of land (let us take three times as a conservative estimate) is already committed to, or held for, urban activities. Even worse, vastly more land is speculatively held for future urban land uses by those that advocate, and benefit from, scattering urban land uses outside Clear Edges.

The VA GAP analysis found that there were about

2,225,000 acres of public and private land managed for conservation purposes in Virginia. The U.S. Forest Service holdings accounts for two thirds of this acreage. The vast majority of this land is along the western boundary of the Commonwealth, far from the Cores of the three New Urban Regions that fall all or in part in the Commonwealth.

An optimistic estimate is that there may be five million acres of land already "conserved" in large federal, Commonwealth, municipal and private holdings.

There is additional land that is "completely unsuitable for urban land uses." The fact that land is "completely unsuitable for urban land uses" is not slowing down the pace of land subdivision for second home/retirement home/hobby farms/ "off-the-grid- living" and other forms of urban development. Land suitability is not a useful metric for considering the potential for scatteration of urban land uses. (For a further exploration of the issues raised in this section see the Outside the Clear Edge section of the Appendix One.)

The Relevance of a 400,000-Acre Goal

In late April of 2006 Gov. Timothy M. Kaine committed to "conserve" 400,000 additional acres of land in the Commonwealth by 2010. In response we posted at Bacon's Rebellion blog, "[400,000 ACRE FOOLISHNESS](#)." The following is an edited version of that posting:

For those concerned with conservation, to conserve 400,000 acres over the next four years sounds like a major step in the right direction. It might be for one county, but not the entire Commonwealth which is roughly 25 million acres. It may be a "politically realistic" goal but not an ecologically functional goal.

Let us be clear about the value of "saving" 400,000 acres: If citizens of the Commonwealth could be assured that the 400,000 acres of land will be used in the future for agriculture & forestry/air & water recharge/hunting & gathering/passive recreation and other extensive land uses, then the conservation of 400,000 acres could be an economic, social and physical benefit to the land owners and to the public in general -- but only if, all 400,000 acres of conserved land are *in the right locations*. (See Appendix One for a discussion of "right" and "wrong" locations of land conservation actions.)

It is just as clear that if the 400,000 acres are

conserved *in the wrong locations*, they will have the opposite results. (See Appendix One.)

Preserved/conserved acres in the wrong locations could and often does:

- Raise the speculative value of adjacent land for urban uses, as in “no one can build next to your five-acre lot.”
- Cause urban development to leapfrog to unprotected land in even more dysfunctional locations.
- Waste the public investment that has already been made to serve urban land uses on the newly “conserved” land.

The list goes on. Underlying the “location” problem is the fact that there are no region-wide, much less Commonwealth-wide, strategies or plans to provide a context for conservation actions of 40,000, 400,000 or 4,000,000 acres. A survey of past actions documents that many of the “conservation” efforts – especially high-profile “rescues” by municipal and state action – are in the wrong locations. (See Appendix One.)

A compounding problem is that the announcement of a 400,000-acre goal without a context to evaluate it generates a false impression that something really meaningful is being done to rationalize human settlement patterns – in the Urbanside or in the Countryside. A total of 400,000 acres is an inconsequential percentage (1.6 percent of 25 million acres) of the land area of the Commonwealth.

The Bottom Line

Even if five million acres are now “conserved,” that means the Commonwealth needs to “conserve” 1 million acres of land a year, every year, for the next 19 years for there to be a suitable framework for functional human settlement patterns. That is 10 times the pace of the Governor’s 400,000 acres in four years. Even spending 19 years to remove land from the potential of urban scatteration may not be rapid enough, given the rising cost of settlement pattern dysfunction.

The impact of not fairly allocating location-variable costs of goods and services is sapping individual, family, enterprise and agency resources. Settlement pattern dysfunction is best illustrated in the lack of

access and mobility and the lack of affordable and accessible housing. The broadly publicized 400,000 acre "goal" illustrates a systemic problem with land conservation efforts, as well intended as such efforts may be. No one has yet addressed:

1. The scale of the land conservation problem.
2. The reality that there is already far more land committed to urban land use than will be needed in the foreseeable future.
3. Fair and equitable ways to transition to more functional human settlement patterns.
4. The dramatic impact of land conservation in the "right" and the "wrong" locations explored in the Appendix One.

PROPERTY DYNAMICS provides a strategy to bring these critical issues into the arena of public discussion.

Quantification Appendix One: Misguided Conservation Efforts

Our comment on a history of inappropriate locations of "conservation" efforts is based on a survey for an S/PI client several years ago. A request for examples of land conservation initiatives in the wrong locations is relevant but not easy to provide. The original list needed to be updated but quickly grew quite long. In addition, a list of examples without context raises more questions than it answers. The following is an attempt to put in perspective the locational dysfunction of several "conservation" efforts since 1972 in the northern part of Virginia.

Some caveats:

First, in reviewing these examples, recall that what happened in Radius Band R=6 Miles to R=12 Miles (about 70,000 acres of land in Virginia) in the 1970s is now happening to land in R=20 Miles to R=50 Miles (about 1.5 million acres of land in Virginia).

Second, there is profound difference between "conservation" inside the Clear Edge and "conservation" outside the Clear Edge. This is the difference between "Openspace" in the Urbanside

(urbanized area within a Clear Edge) and "Openland" in the "Countryside". We will not try to sort out all the differences at this time. We have divided the Appendix into two sections – one discussing conditions inside the logical location for Clear Edge, the second addressing land outside the Clear Edge.

Third, what happens inside the Clear Edge around any urban enclave determines the need to add to or remove land from within a Clear Edge. Also recall that dysfunction within the Clear Edge drives families, enterprises and institutions to scatter urban land uses across the Countryside outside the Clear Edge.

If you are familiar with examples cited below, you may recall some were positioned by MainStream Media in terms of lowering density to protect the "character" of the "neighborhood." Even if not on the front burner, each initiative had a strong conservation rationale.

The author was directly or indirectly involved in each of these examples. Each case has a long, complex history. In the real world, there are no short stories. These examples are brief summaries from memory, and we may have omitted some important details.

I. Inside the Clear Edge

We address the examples in three categories concerning Balanced Communities, Shared-Vehicle System Station-Areas and Large-Acreage Initiatives.

Conservation Initiatives Trumping the Evolution of Balanced Communities

Huntley Meadows Park was a surplus World War II Navy radio-antenna field that was used by the Federal Highway Administration to test asphalt paving after the war. Beavers started to dam up Barnyard Run on the site, recreating "wetlands" that pre-revolutionary farmers had drained to make the land useable for agriculture.

Residents with lots that backed up to the site lobbied for the surplus federal property to become a park to thwart planned roadways from being extended through the site. Huntley Meadows Park is now a nice place for bird watching and nature education. There is a need for parks and useable Openspace throughout the urban fabric, but ...

There was (and is) no plan for the Balanced Community that should (and eventually will have to) evolve in southeastern Fairfax County. This asphalt

test site, along with the surplus Belvoir Proving Grounds, the recycled Lorton Reformatory site and Ft. Belvoir itself, together with the gravel pits that became Kingstowne and the existing development along U.S. Route 1 plus major parts of 'Greater Springfield/Franconia' should have been viewed as an opportunity to create a Balanced Community and not be chopped up into what Jim Bacon correctly called "pods" in his April 3, 2006, column, "[Pod People](#)."

Why bother to reconsider this "conservation" decision?

You may recall the Pentagon is planning to move 20,000 or more military jobs to Ft. Belvoir. It is widely agreed that a loss of mobility and access in southeastern Fairfax County will be a result of this shift in jobs. It would help considerably if Fairfax County Parkway and Van Dorn Street had been extended to US Route 1. Construction of these planned improvements was thwarted by creating Huntley Meadows Park.

It would be even better to evolve a settlement pattern that supported more fuel-efficient mobility systems than private-vehicles for citizens to get to the new jobs. It would have been even better to have a Balanced Community in southeastern Fairfax so there would be housing, services, recreation and amenity to balance with the relocated military jobs and other jobs that would be a natural fit in the community but for congestion and high prices due to imbalance.

Now a few of the families that could be living in a Southeastern Fairfax Balanced Community are living in "pods" like the ones Jim Bacon describes. Some are really nice pods; some not so nice, but all are pods. The rest are living in eastern Prince William, Stafford and Spotsylvania Counties and are now spreading to Caroline County and beyond.

As documented by the 87½ Percent Rule, almost all the scattered urban residents are now living in exactly the same pattern at the Unit-scale and the Dooryard-scale as they would if their home was in the sustainable pattern of a Balanced Community. The difference is that the Units and Dooryards of which the Clusters, Neighborhoods and Villages of the Balanced Community would be composed are instead scattered over half a million acres.

The Southeastern Fairfax Balanced Community of 60,000 +/- acres could be home to over 600,000 people with nearly every family having access to the 40 percent of the land in the Community that could be

openspace if intelligently planned. Now openspace is available to some pod residents – primarily those who live on lots that back up to a park – and to those who drive to the park. Did someone say gas prices are going up?

Traffic in the I-95 Corridor south of the Occoquan River would be dramatically reduced if 400,000 fewer people who derive their livelihood north of the Occoquan River were not scattered in Prince William, Stafford, Spotsylvania, and beyond.

As much as 500,000 acres of land south of the Occoquan would have been “conserved” because there would be no need to develop it in the first place. It will cost millions of dollars to retrofit settlement patterns so that Southeastern Fairfax can evolve to become a Balanced Community. It will require new roadways, new rails and new sewer lines through backyard parks.

Huntley Meadows is not a unique case. There are approximately 16 potential Balanced Communities inside the Clear Edge in the northern part of Virginia. There is a “conservation” story in every one of those potential Balanced Communities, not all as clear as Southeast Fairfax but all bad.

Shared-Vehicle System Station-Areas

No land is more important in the evolution of functional human settlement patterns than the 500 to 1,000 acres nearest the station platform of any high-capacity shared-vehicle system. Shared-vehicle systems like METRO are very expensive and must have a balance of ridership and system capacity to work efficiently.

We briefly reviewed the history of the Vienna-Fairfax-GMU station area in our 28 March posting “[METRO WEST – 22 Years Too Late.](#)” Nottoway Park and Oakton High School were carved out of the 800 acres of vacant land near the station. The existence of vacant and underutilized land was the reason the METRO station was located there and not in Tysons Corner. However, as soon as the station location decision was made, the Fairfax supervisors moved to take as much land as possible out of play. (East Blake Lane Park came along later and was a trade-off to secure approval of a pod of townhouses off of U.S. Route 29 in the station-area.)

With intelligent planning in the station-area, nearly all the 50,000 to 80,000 residents could have had access to openspace, not just those who back up to a park or

get in a car to drive there. They could have walked to jobs and services as well.

You may have heard that gas prices are going up, and that METRO costs are rising each year because of unbalanced ridership?

From 1973 through 1990, we worked on five projects in the Vienna-Fairfax-GMU station-area.

"Conservation" was a theme in both governance practitioner and resident opposition to functional settlement patterns in the station-area.

This has been the case in many other station-areas. METRO-West is a step in the right direction, but think how much better the Vienna-Fairfax-GMU station area and all the other station areas might have been with a more intelligent view of "conservation."

Large-Acreage Conservation Initiatives

The "preservation" of part of the watershed on the Fairfax (north) side of the Occoquan Reservoir (a potable water resource) was sold as a "conservation" measure. This is what we called at the time "The 83,000-Acre Occoquan 5-Acre Lot Lifestyle Strategy."

We documented the context and foolishness of this action at the time but will spare you the details. It really helped a lot of speculative land owners who could sell off five-acre lots rather than wait for the market to develop for smaller lots that would become Dooryards and Clusters in functional components of settlement.

In summary, there would have been less polluting runoff into the water supply and a place for 800,000 citizens to call home and find work, services and recreation if planned and developed in an intelligent, balanced and more sustainable manor. That is more citizens than the total now living in Loudoun and Prince William Counties combined.

We will address the issue of five- and 10-acre horse farms in our forthcoming Use and Management of Land.

Had the 1965 plan for the distribution of land uses for the northern part of Virginia been followed, all the urban development supporting the National Capital Subregion in Virginia would have been inside Radius=20 Miles. There would also have been Countryside-supporting urban enclaves which we call "Disaggregated but Balanced Communities" inside their own Clear Edges. (See "[Regional Rigor Mortis](#),"

June 6, 2005, and "[Reality Based Regionalism](#)," Oct. 17, 2005.)

Had the National Capital Subregion expanded in a sustainable manner, there would be no need for other large-acreage "conservation" initiatives such as the "Rural Crescent" in Prince William County. The "Rural Crescent" is well on the way to becoming 80,000 acres of 10-acre lots with a generous scattering of one-, three- and five-acre subdivisions and 7-11s (aka, low-density pods).

In 20 years, it will be closer to "lunar crescent" than "rural crescent." Or perhaps lunatic crescent? On both sides of the logical location of the Clear Edge around the Core of the National Capital Subregion, there are both large and small conservation-excused inappropriate actions taking place. One of our favorites is the attempt to "save" a former farmstead that the recently deceased owner explicitly wanted developed. The site is next to the RV sales lot not far from Wal-Mart and Home Depot in the southwest quadrant of I-66 and VA 234 Business in Greater Manassas.

The site in question is right across I-66 from a new million-square-foot +/- big box center. This new center backs up to Manassas National Battlefield Park. The vast majority of those who go to the new big box center must:

- Drive through Manassas National Battlefield Park.
- Drive under I-66 and take a left turn against two lanes of traffic.
- Use the constrained I-66/VA Business 234 interchange.

If Greater Manassas/western Prince William County needed another big box center (most would suggest the answer is "no"), the "conservation" site behind the RV sales lot would make a lot more sense than the site that was developed. A better idea would be to redevelop the entire Greater Manassas urbanized area into a West Prince William/Greater Manassas Balanced Community.

This vignette suggests that Greater Manassas/western Prince William is well on the way to becoming another Southeastern Fairfax. (For a view of the other end of the 15,000 acre West Prince William triangle, See "[Anatomy of Bottleneck: The US Route 29/](#)

[Interstate 66 Interchange at Gainesville.”](#)

In summary, these inside-the-Clear-Edge examples are not unique cases. They are the norm. See “[The Role of Municipal Planning in Creating Dysfunctional Human Settlement Patterns.](#)”

II. Outside the Clear Edge

The prior section documents the growing dysfunction inside the logical location for a Clear Edge around the Core of the National Capital Subregion. Much of this dysfunction is rooted in misunderstandings concerning the role of “conservation.” The following examples document why “conserving” a parcel here and a parcel there outside the Clear Edge is foolishness – or worse.

An overview of how to understand this reality starts with the First Natural Law of Human Settlement Pattern: $A = \pi R^2$. Recall that, as noted above, “what happened in Radius Band $R=6$ Miles to 12 Miles (about 70,000 acres in Virginia) in the 1970s is now happening in $R=20$ Miles to 50 Miles (about 1.5 million acres in Virginia).”

While the logical location of the Clear Edge around the Core of the National Capital Subregion has now moved out to between $R=22$ Miles to $R=25$ Miles, most of the 1.5 million acres between $R=20$ Miles and $R=50$ Miles is land that should not be devoted to urban land uses.

Preventing urban scatteration and thus dysfunctional human settlement patterns in this area is critical if citizens are to achieve functional, sustainable places to work, live, seek services and participate in leisure activities (aka, work and play).

All of the 1.5 million acres outside the Clear Edges around the components of the Balanced but Disaggregated Communities in the Countryside needs to be “conserved” in order to:

1. Create a market sufficient to support the evolution of a viable Urbanside inside the Clear Edge around the National Capital Subregion’s Core, and
2. Provide the context for viable components of Countryside throughout the Washington-Baltimore New Urban Region.

We noted in the original post "[The 400,000 ACRE FOOLISHNESS](#)" that "preserved/conserved" land in the wrong locations can:

1. Raise the speculative value of adjacent land for urban use ("no one can build next to your five-acre lot"),
2. Cause urban development to leapfrog to unprotected land in even more dysfunctional locations and,
3. Waste the public investment that has already been made to serve urban land uses on the newly "conserved" land."

At this point, the parcels that are candidates for "conservation" are awash in a vast area that is a checkerboard of interests and expectations. There are 1.5 million acres inside R=50 in Virginia alone. There are up to 10 million acres in Virginia, West Virginia, Maryland and Pennsylvania around the Washington-Baltimore New Urban Region.

There are at least 14 million acres Commonwealth-wide in Virginia outside the three New Urban Regions and the other urban enclaves where over 85 percent of the population resides.

The Virginia Outdoors Foundation (VOF) uses municipal "comprehensive" plans to determine the appropriateness of parcels for conservation. Other groups, especially land trusts, set up to preserve a specific parcel or interest, are said not to follow such criteria. The municipal "comprehensive" plan may not be a useful guide. (See "[The Role of Municipal Planning in Creating Dysfunctional Human Settlement Patterns.](#)")

Note that every one of the problems listed in the Inside the Clear Edge review above was done in conformance with a municipal comprehensive plan – although in some cases the "comprehensive" plans were amended to "conform" after the political decision was made. VOF leaders are aware of the issues outlined here and are doing as much as they can without broader public understanding and therefore political support.

Are there threshold criteria that can be applied? Of course!

New conserved land should be located next to existing protected land or be of a scale and in a location that

the land can become the anchor for a major new agglomeration of conserved land. It is, however, the holes in the donut near these preserved places where the greatest negative impact from raising the value for scattered urban land use comes home to roost. Our experience as a member of the Board of the Maryland Environmental Trust (MDET plays the role of the Virginia Outdoors Foundation in the Commonwealth) suggests that only when the three major issues noted in our original post (and rephrased below) are addressed can sound and rational principles and criteria be articulated.

Major Countryside resources such as the Appalachian Trail, or a major viewshed, can be anchors of land conservation efforts. Our experience as the Vice Chair for Stewardship of the Maryland chapter of the Nature Conservancy when the chapter Board was faced with finding a context for 11 "ecological gems" that had been donated to the Conservancy over the prior 30 years sharpened our appreciation for the problems encountered.

In this discussion, we lay aside the entire issue of who benefits from actions to conserve land and who pays the ultimate costs. (See Jim Bacon's [April 21, 2006, post](#) on purchase of development rights and easements.)

A recent study by Resources for the Future (RRF) titled "The Value of Open Space: Evidence From Studies of Nonmarket Benefits," documents how far the "state-of-the-art" is from establishing a fair value for "open space."

The first paragraph of the Executive Summary of the RRF report includes this sentence: "And in rapidly growing urban and suburban area, any preserved land can offer relief from congestion and other negative effects of development." That sort of misinformation is the cause of the Huntley Meadows Park problem.

(The entire first paragraph of the Conclusion in the RRF study noted above is a dictionary of error with respect to understanding human settlement patterns. It will be the subject of further review in "Use and Management of Land." Also see four columns on Vocabulary starting with "[The Foundation of Babble](#)," Nov. 28, 2005.)

Conservation of land a few acres here and a few acres there in the 1.5 million acres within R=50 Miles, or within the 19 million acres of land Commonwealth-wide that need protection will not solve any known problem. There must be a recognition of:

1. The scale and scope of the problem and the difference between and the role of "Openspace" and the role of the "Countryside."
2. The reality that there is already far more land committed to urban land use than will be needed in the foreseeable future.
3. The need to establish fair and equitable ways to transition to functional human settlement patterns.

A first step is to develop a "Wright Plan" for Virginia that provides a rational basis for defining Clear Edges for the urban development in the New Urban Regions and the Urban Support Regions of the Commonwealth. This will help citizens understand the difference between Openspace and Countryside.

It goes without saying that efforts inside the Clear Edge to "lower densities" of urban uses result in the scatteration of urban land uses outside the Clear Edge. The same is true for those outside the Clear Edge around the Core of the Region or Subregion.

These actions scatter urban land uses whether they are inside or outside the Clear Edges around the components of Disaggregated but Balanced Communities.

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(1). The area for intensive urban use does not include uses such as multi-regional airports, regional facilities such as landfills but does include all Community-scale and smaller urban activities.

Wonks on the Web: E M Risse

The Shape of the Future



Vocabulary Supplement

Notes on the precise meanings of words used in *The Shape of the Future*, *TRILO-G* and the **HANDBOOK**.

The importance of a robust, comprehensive Vocabulary to facilitate understanding human settlement patterns is documented in Chapter 3 of *The Shape of the Future* and reinforced throughout the text. To support the evolution of a comprehensive Vocabulary, *The Shape of the Future* includes two appendices: **APPENDIX ONE - LEXICON** and **APPENDIX TWO - CORE CONFUSING WORDS**.

In the seven years since the publication of *The Shape of the Future*, the overall structure of the New Urban Region Conceptual Framework and the majority of the words and phrases used to articulate this framework has not changed. However, the Vocabulary has continued to evolve and be refined.

- Some words and phrases in **APPENDIX ONE-LEXICON** have morphed and one is no longer used.
- Many words are now capitalized when they were not in the first publishing of *The Shape of the Future*. Capitalization is used to indicate that a specific meaning is intended by words such as in "Region," "Community," "Village," "Neighborhood" and "Cluster" and other key words and phrases.

A primary reason for many of the refinements and additions was the creation of the first edition of **HANDBOOK: Three Step Process to Create Balanced Communities and Sustainable New Urban Regions** published in 2001. **HANDBOOK** is Part II of **ACTION PROGRAMS** which is Book Three of *TRILO-G*. **HANDBOOK** is, as the subtitle suggests, a manual to be used to help citizens create Balanced Communities. During the drafting and editing of the first edition of **HANDBOOK**, it was found that a number of words and phrases needed to be sharpened and even more had to be added to

accomplish the goals of the ***Three Step Process***.

TRILO-G is organized so that the latest refinements in Vocabulary can be found in Section IV. Glossary of **HANDBOOK**. This Glossary will be continually revised and updated as necessary. The following lists of words and phrases will assist in making the transition from the Vocabulary originally introduced in ***The Shape of the Future*** to the one employed throughout the other two books that comprise **TRILO-G**.

I. Words and phrases clarified or modified since the publication of *The Shape of the Future* are listed below.

The meaning of these words did not substantially change but they now contribute to a more comprehensive Vocabulary:

Agency
 Agency Capacity
 CMSA
 Community
 Conceptual Framework Dooryard
 Dysfunctional
 Enterprise
 Governance
 Human Settlement Pattern
 Industrial Agglomeration
 Institution
 Mobility
 Neighborhood
 New Urban Region
 Nonurban
 Organic
 Region / region
 Ruralaphilia
 Subregion / subregion
 Unit
 Urbaphobia
 Urban Form
 Village

Note: In the review and editing of ***The Shape of the Future*** to create the fourth edition that is the Alpha book of **TRILO-G**, only the word "Agency" was clarified in the text of ***The Shape of the Future***

APPENDIX ONE - LEXICON

II. Words and phrases added since publication of *The Shape of the Future*.

Many of these words and phrases were used in ***The Shape of the Future*** but were not defined in

APPENDIX ONE - LEXICON:

Affordable and Accessible Housing
Amenity
Autonobile
Balance
Border
Boundary
Cambium Layer
Centroid
Charrette
Clear Edge
Community Zentrum
Component Zentrum
Components of Human Settlement – The Geographic
 Descriptors
Core
Core Confusing Words
Countryside
Disaggregated but Balanced Community
Domains of Human Experience
Goals
Growth
Highway Capacity Expansion
Household
Housing
Housing Development
Housing Project
J / H / S / R / A
Job Development
Mixed Use Development
Multi-Household
Municipalism
New Urban Region Conceptual Framework
Natural Laws of Human Settlement Patterns, The
 Five
Open Land
Open Space
Organization
Percentage Guidelines / Percentage Rules of Thumb
Planned New Community
Property Rights
Recreation
region
Regional Metrics
Service
Single Household Attached
Single Household Detached
Smart Growth, Smarter Growth
subregion
Sustainable Development
Tax Base Expansion
Third Way, The
Three Step Process, The
Town Center
Transit-Oriented Development

Urbanside
Viable / Viability
Visioning
Visual Preference
Visualization
Zentrum

III. Use of the following words and phases are avoided per APPENDIX TWO - CORE CONFUSING WORDS.

City
Ex-Urban
Local
Rural
Sprawl
Suburb / Suburban

In addition to the words listed in **APPENDIX TWO-CORE CONFUSING WORDS**, use of the word "family" is avoided whenever possible for reasons that will be noted in **GLOSSARY** - Section IV. of **HANDBOOK**. When this word is used, it is employed in such a way as to clearly identify the meaning.

Although "Community", "Neighborhood", "Organic" and "Urban" are discussed in **APPENDIX TWO - CORE CONFUSING WORDS** they are also used in **TRILO-G** - usually capitalized - because no better substitute has been found. In the case of "family," the word "Household" is used as a replacement in the discussion of human settlement pattern.

The Shape of the Future

E M Risse



SHAPE OF THE FUTURE GLOSSARY

A draft of the Bacon's Rebellion online edition.

This is the long promised "Draft **GLOSSARY**" to help readers understand *Bacon's Rebellion* columns. This **GLOSSARY** will become Section IV. of **HANDBOOK**. **HANDBOOK** is one of the two Volumes that make up *ACTION PROGRAMS*. **ACTION PROGRAMS** is the Omega Book of *TRILO-G*. This **GLOSSARY** is in draft form. Comments and suggestions are welcome.

OVERVIEW AND INTRODUCTION

Creating and using a robust, consistent, intelligent Vocabulary is critical to understanding human settlement patterns. Such a Vocabulary is essential for any attempt to create Balanced Communities in **Sustainable** New Urban Regions. The **GLOSSARY** is an integral part of The **Three-Step Process**. It is also a resource for the use in all three volumes of *TRILO-G*.

The importance of an intelligent Vocabulary is introduced in *The Shape of the Future*. There is discussion of Vocabulary in Chapter 3 of *The Shape of the Future* and consideration of what comes first: A Comprehensive Conceptual Framework for human settlement patterns (the New Urban Region Conceptual Framework) or; a Vocabulary with which to discuss the Framework. The conclusion? Both come first.

There are references to the critical role of Vocabulary throughout both volumes of *The Shape of the Future*. In addition, the book includes two Appendices devoted to Vocabulary: **APPENDIX ONE: LEXICON** and **APPENDIX TWO: CORE CONFUSING WORDS**. This material provides a starting point for considering Vocabulary. The fourth edition of *The Shape of the Future*, the Alpha Book of *TRILO-G*, includes *The Shape of the Future - Fourth Edition Vocabulary Supplement* which outlines the evolution of the Vocabulary introduced in 2000 up to the publication of *TRILO-G*.

BRIDGES is the second book of *TRILO-G*. Chapter 7 of **BRIDGES**, "Gibberish: The Vocabulary of Babel" provides a link between the strategic perspective on words and

phrases found in *The Shape of the Future* and their application in the tools found in **ACTION PROGRAMS**. Chapter 7 of **BRIDGES** demonstrates the need for a robust and consistent Vocabulary. The chapter summarizes several *Bacon's Rebellion* columns that link misuse of common words like "city," "suburban" and "rural" to misunderstandings of the nature and function of human settlement patterns.

This Section of **HANDBOOK** provides refinements to the definitions of key words and phrases outlined in *The Shape of the Future* and adds additional words and phrases and cross referencing that will be useful in carrying out **The Three-Step Process**.

As readers of *Bacon's Rebellion* know, the use of capital letters, typeface, and in some cases the unique spelling of words, is important. There is a vast difference between "community" and "Community." **GLOSSARY** is prepared with, and must be used with, attention to capitalization, typeface and spelling. Bold face of individual words indicates they are defined in **GLOSSARY**.

The **HANDBOOK** outlines a process to create **Balanced Communities** within **Sustainable New Urban Regions** and **Urban Support Regions** in three steps. Section IV. is a companion to Sections V. through VIII. The current section reflects the importance of Vocabulary which, along with the **New Urban Region Conceptual Framework**, are essential to understanding human settlement patterns.

A working knowledge of the key words used in The Three-Step Process is critical to its success. Without a consensus on the meanings of the pivotal words used in Step One - Goal Setting, it is not possible to agree on an intelligent compendium of First-Tier and Second-Tier Goals. Unless there is constant use of words throughout the process - not just the articulation of goals but in every step - the work to establish sketch plans becomes meaningless due to confusion about what is actually intended.

Section IV. is intended to make **citizens** aware of words and phrases that can facilitate an understanding of **human settlement pattern** issues. These words and phrases are critical in creating common ground and clarity through out the process. This section identifies words and phrases that can be misunderstood and provides a basis for recognizing specific words which may be used in ways that are intentionally or unintentionally misleading and should be avoided.

HANDBOOK readers may also wish to refer to Chapters 2 and 3 as well as **APPENDIX ONE - LEXICON** and **APPENDIX TWO - CORE CONFUSING WORDS** of *The Shape of the Future*. The material in these sources supplements those found in this and following sections of **HANDBOOK**.

KEY WORDS AND PHRASES DEFINED AND EXPLAINED

Listed below in alphabetical order are the definitions of key words and phrases. Definitions are often followed by a discussion of key words used throughout the **HANDBOOK**. **GLOSSARY** includes words to avoid when discussing human settlement patterns. There is also a summary listing of the **CORE CONFUSING WORDS** at the end of this section.

Many words and phrases can be confusing. During the goal-setting process in every application of the **Three-Step Process**, it will be desirable to set down key definitions and emphasize words and phrases that should be avoided in the context of that process. If these words and phrases are not avoided, they must be defined and, if applicable, quantified so that there is no question as to their meaning.

Additional words may be added to those listed in **GLOSSARY** during any Three-Step Process. The overarching goal is that the definitions of all key words and phrases be broadly agreed-to and consistent. During any **Three Step Process**, if a question is raised about the meaning of any word or phrase it needs to be defined. Often, rather than arguing over the use of specific words and phrases, it is better to agree on a new word or phrase that describes exactly what everyone can agree on. The process of agreeing on alternative words and phrases itself will often expose the complexity of a proposed goal, objective or concept that is obscured by overused or misused words or phrases.

'A'

Access

Access is used in its emerging meaning of obtaining **Access** to goods, **Services**, information, data, entertainment, etc. It is critically important to distinguish this from **Mobility**. The ramifications of this difference is a primary subject of Chapter 13 of *The Shape of the Future*. The **Access** to money, information and entertainment via electronic communications and the inability to **Access** food, water, shelter and close personal relationships over a wire is a main topic of

Chapter 14 of *The Shape of the Future*.**Affordable and Accessible Housing**

As noted in Section V., every **Community** scale urban agglomeration must have a "relative" **Balance of Jobs/Housing/Service/Recreation/Amenities**. We use the term "relative" to indicate that it is not necessary to have a complete **Balance** however, each **Community** must contribute to a **Regional Balance of Jobs, Housing, Services, Recreation and Amenities** which is the definition of **New Urban Region**. A **Balance of Jobs and Housing** means there should be a range of **Housing** opportunities available and that these **Units** are suitable for those who work and seek **Services** in the Community.

"**Affordable and Accessible housing**" does not mean everyone who works or seeks **Services** in a **Community** must live there but that there is a reasonable opportunity to do so if they choose. Housing resources should be available so citizens have a choice. To meet this criteria, **Housing** must be both **Affordable** and **Accessible**. The term "**affordable housing**" is commonly used in discussions of human settlement patterns. This term avoids the issue of the dysfunctional location of **Housing**. The right house in the wrong location may be "**affordable**" from the perspective of initial **Housing** costs but not when the total costs associated with living in a location that is remote from **Jobs** and **Services** are added. A house that is not readily **Accessible** is also not "**Affordable**" from a quality-of-life perspective.

One must be careful not to confuse "**Affordable and Accessible housing**" with "cheap **housing**." For an in-depth description of this issue, see Section II. (3) "Without Shelter: The **Affordable and Accessible Housing Crisis**" at baconsrebellion.com.

Agency

Agency is one of three forms of **Organization** beyond the scale of the **Household**. The other two are **Enterprise** and **Institution**. **Enterprise** is an **Organization** created to generate profit, a monetary return on investment of time, effort and resources.

Institution is an **Organization** created to achieve some purpose other than profit. An **Agency** is an **Organization** created to carry out a governance function. The use of the phrase '**Enterprise, Institution and Agency**' is intended to encompass all human **Organizations** beyond the scale of the **Household**.

See **Enterprise, Institution, Organization** and **Household**.

Agency Capacity

Agency capacity is the ability of an **Agency** to carry out its intended function. Many **Agencies** enjoy geographical monopolies. Failure to recognize the existence of and role of organic components of human settlement pattern deprives **Agencies** of effective tests of **Agency** capacity due to the lack of quantifiable measures of **Agency** performance. Fundamental Change of **governance** structure will provide a basis for establishing and testing **Agency capacity**.

Alpha

The adjective "**Alpha**" is placed before a noun when used to describe an **organic** component of **human settlement**. **Alpha** indicates that the component has a **density**, pattern, location and mix of uses which allows this geographic entity to meet its full potential as an **organic** component of human settlement pattern. Also see **Alpha** under **Community, Village, Neighborhood, Cluster** and **Dooryard**. Also see **Beta**.

[Note: The final version of **GLOSSARY** will include a set of diagrams that identify the components of organic human settlement patterns and the tools to delineate the components of such as **Boundary** and **Clear Edge** and the reference terms of **Regional Metrics - Centroid, Core, Zentrum, Etc.**]

Amenities

The attribute of **Balance** that makes a place attractive and enjoyable.

Autonomobile

The term **autonomobile** is used to counter the subliminal message that "private cars" are a way to create **mobility** automatically.

See "The Private Vehicle Mobility Myth" in Section III of **HANDBOOK**.

'B'

Balance

Balance is the appropriate mix of **Jobs/Housing/ Service/Recreation/Amenities** for the scale and function of a component of **human settlement pattern**.

Beta

The adjective "**Beta**" is placed before a noun when describing an **organic** component of **human settlement**. **Beta** indicates that the component has not yet achieved the density, pattern or mix of uses which will allow this geographic entity to meet its full potential as an **organic** component of **human settlement pattern**. The term **Beta** is used to clarify and amplify descriptions of places that are not yet **Alpha** components but which, due to size and location, have the potential to achieve **Alpha** status. **Beta** components may evolve to reach **Alpha** status.

See **Beta** under **Community, Village, Neighborhood, Cluster** and **Dooryard**. Also see **Alpha**.

Border

"**Border**" refers to the line that separates adjacent municipal jurisdictions and the demarcation between adjacent states.

Also see **Boundary**.

Boundary

"**Boundary**" refers to the demarcation between **organic** components of **human settlement pattern**.

'C'

Cambium Layer

The **Cambium Layer** of **human settlement** is that area where the change from extensive, nonurban land uses - forestry, agriculture, etc.- to intensive, urban land uses takes place. One of the primary causes of dysfunctional human settlement pattern is that over the past 100 years, the **Cambium Layer** has expanded to occupy vast spaces. In a large **New Urban Region** this area may characterize areas scattered across a radius band 30 to 50 miles wide.

That is why a **Clear Edge** must be established around all **urban** agglomerations. Because much of the area inside the logical location of any **Clear Edge** would not yet have a functional distribution of land uses, the **Cambium Layer** should be for the foreseeable future inside the initial location of the **Clear Edge**.

Also see **Clear Edge**.

Centroid

The **Centroid** is the economic, social and physical center of gravity of the area within the **Clear Edge** around the **Core** of a **New Urban Region**. The **Centroid** is inside the **Clear Edge** and frequently in or near the **Zentrum**.

When the **New Urban Region** is large, the **Zentrum** may be complex. For example, parts of the Federal District of Columbia, of Arlington County and of the **City** of Alexandria all contribute to the center of gravity of the National Capital **Subregion**. For this reason the **Centroid** falls at the Virginia end of the Memorial Bridge when the entire area within the Clear Edge is considered.

Charrette

A **charrette** is an intensive, participatory exercise that frequently focuses on the planning and design of a single facility, a specific site or seeks to provide the solution to a specific problem. Section VII. of **HANDBOOK** addresses the use of **charrettes** in creating Step Two - Sketch Plans outlined in Section VI. and in Step Three - Creating **Balanced Communities** described in Section VIII.

Citizen

A **citizen** is an individual who has the right and responsibility to participate in the **governance** process of the jurisdictions in which he/she lives. A fundamental goal of democracy is that all humans become **citizens**.

The term **citizen** originally was limited to those with residency in a **city**. Citizenship is currently assumed to be a birthright for those who are born in a **nation-state**. In the future, society may establish obligations and responsibilities for continuing citizenship. There may also evolve a basic right of citizenship at the level of the **New Urban Region**, rather than at the **nation-state**.

City

Because this word is loaded with obsolete and emotionally charged interpretations, it is best to avoid its use whenever possible except as part of the name of a specific municipal entity (such as the **City** of Alexandria).

See further discussion in **APPENDIX TWO - CORE CONFUSING WORDS** in *The Shape of the Future* and **List of Core Confusing Words Best Avoided in Discussions of Human Settlement Patterns** at the end of this **GLOSSARY**.

Clear Edge

The **Clear Edge** is the demarcation between the **Urbanside** and the **Countryside** within **New Urban Regions** and in **Urban Support Regions**.

See **Cambium Layer**, **Countryside**, **New Urban Region**, **Urbanside** and **Urban Support Region**.

Cluster

A **Cluster** is an **organic** component of **human settlement pattern**. The **Cluster** is the largest **organic** component of the **New Urban Region** where direct, participatory democracy is a practical way to resolve issues of **governance**. An **Alpha Cluster** is composed of **Alpha Dooryards**, **Alpha Neighborhoods**

are composed of **Alpha Clusters**. A **Beta Cluster** may evolve into an **Alpha Cluster**. Also see **Alpha, Beta, Dooryard, Neighborhood** and **Components of Human Settlement - The Geographic Descriptors**.

A Home Owner's Association (HOA) is sometimes created by the builder - rarely by residents - at the **Cluster** scale. A **Cluster** scale **governance** entity is formalized as part of an umbrella association in some **Planned Unit Developments** and **Planned New Communities**. A **Cluster** scale component is almost never included as an element of municipal **governance** structure.

Clustermate

Clustermates are persons who live in the same **Cluster**.

community

In common usage, "**community**," with a small "c" refers to any agglomeration of plants or animals that have at least one identifiable characteristic in common. This common characteristic may or may not have anything to do with location.

Community

"**Community**" is an **organic** component of **human settlement pattern**. To insure clarity, it is frequently used with the prefix **Alpha** or **Beta**. **Alpha Community** and **Beta Community** are defined below.

The use and definition of **Community** represents a difficult choice. On the one hand, the word "**community**" is grossly overused as suggested by the definition above. At the same time, "**community**" elicits strong positive feelings among citizens - thus the gross overuse.

Attempts by settlement pattern scholars to substitute the Latin (*communitas*), French (*commune*) or the creation of a Greek term (*anthropopolic*) have not been widely accepted. In the future, it may be desirable for **citizens** to reach consensus on a new word or phrase to replace **Community**.

Community is capitalized to indicate a urban agglomeration that meets the **Alpha Community** definition. Use of the word "**community**", with a small "c", is sometimes necessary but always with quotation marks or modifiers.

One simple way to envision a **Community** is a place that is large enough to support a **Community** hospital, a **Community** college, a **Community** library, **Community** Theater and **Community** focused media. The only sure way to determine if it is a **Community** is if it has a relative **Balance of Jobs/Housing/ Services/ Recreation/ Amenities**.

Alpha Community or (**Community**) is an important **organic** component of the **human settlement pattern**. An **Alpha Community** contains a range of economic, social and physical attributes necessary to support a relative **Balance of Jobs/Housing/ Services/ Recreation/Amenities**. Functional **New Urban Regions** are composed of **Alpha Communities**. They include **Disaggregated but Balanced Communities** where components are dispersed in the **Countryside**.

Alpha Communities are composed of **Alpha Villages**.

The scale of an **Alpha Community** varies with the scale of the **Core** and the distance from the **Centroid** of the **Region**. An **Alpha Community** can be inside the **Clear Edge** around the **Core** or outside the **Clear Edge** around the **Core**. In the later case it is a **Disaggregated but Balanced (Alpha) Community**.

Beta Community is the phrase used to identify those places that have the geographical area and location attributes that will allow them to become **Alpha Communities**.

See **Components of Human Settlement - The Geographic Descriptors**.

Community Zentrum

Every **Alpha Community** has a center or **Zentrum** just as every cell has a nucleus and every solar system has at least one sun. In fact, every **Alpha organic** component of

human settlement above the **Dooryard** scale should have a **Zentrum** or in some cases **Zentrums**. A **Community Zentrum** is critically important because the **Community** is the smallest component of **human settlement** with a relative **Balance of Jobs/Housing/ Services/Recreation/Amenities**.

Unless the **boundaries** of a **Community** are articulated, finding a **Zentrum** is difficult. The converse is also true. **Community Boundaries** and **Zentrums** are issues addressed in **HANDBOOK** Section VI. Step Two - Sketch Planning. Because of the ways that **settlement patterns** have evolved, some **Beta Communities** may have more than one **Zentrum**. This condition, if identified, may be accommodated in **Alpha Communities**. See note on the identification of **Communities** in **HANDBOOK** Section V. Step One - Goal Setting and **HANDBOOK** Section VII. Step Two - Sketch Planning under Community.

See **Boundary, Zentrum** and **Town Center**.

Component Zentrum

See **Zentrum, Centroid** and **Settlement Pattern Component Graphic**.

Components of Human Settlement – The Geographic Descriptors

Nothing is more critical to developing to an understanding of **human settlement pattern** than clear, precise and comprehensive descriptors of the geographic components. *The Shape of the Future*, especially **APPENDIX TWO - CORE CONFUSING WORDS**, explores this issue in the discussion of "**Community**," "**local**" and "**Neighborhood**."

As a result of work through the Year 2000 and the publishing of *The Shape of the Future*, several guidelines were established:

Use of the term "**local**" is to be avoided. That remains good practice.

The words **Community** and **Neighborhood** are capitalized and each has a specific place and role in the organic structure of **human settlements** that make up **New Urban Regions, Urban Support Regions** and the

New Urban Region Conceptual Framework.

The word "**community**" with a small "c" is used only when the context makes it clear that the use is not a reference to **Community**, **Alpha Community**, **Beta Community** or **Balanced Community**. Examples of such use would be: "the **community** of nation-states" or "the **community** of one-eyed snake handlers." The word "**neighborhood**" with a small "n" is avoided even in such obvious references as "within the Sun's neighborhood of the Milky Way Galaxy."

Since 2000, it has become clear that "**village**" is over used in the same confusing ways as "**community**" and "**neighborhood**." Village has been defined in **GLOSSARY** and is used in the **BRIDGES** and **ACTION PROGRAMS** Books of **TRILO-G** in the same manner as **Community** and **Neighborhood**. **Village** refers to a specific scale of **human settlement** component and the use of "**village**" is avoided. See **Village**.

There is less confusion generated by **Unit**, **Dooryard** and **Cluster**. The word "**cluster**" (small "c") is avoided, especially to indicate a grouping of items. That left two other common geographic descriptors that needed to be more articulately defined: "**region**" and "**subregion**." The definitions of **New Urban Region** and **Urban Support Region** are clear and have survived careful scrutiny over more than a decade but what about "**Region**," "**region**," **Subregion**," and "**subregion**?" There is no possibility of avoiding all use of these four terms in discussing **human settlement patterns**. At the same time there is no end of the confusion that murky understandings of the words can cause.

In the **BRIDGES** and **ACTION PROGRAMS** Books of **TRILO-G**, the use of "**region**" and "**subregion**" are avoided when ever possible. When any of the four terms are used, they are used in a way that makes it clear exactly which "**Region**," "**region**," **Subregion**," or "**subregion**" is being identified. In **GLOSSARY**, all four words are defined with the uncapitalized version defined first.

Changes in **settlement patterns** over time

may require redesignation of geographic descriptors.

Consolidated Metropolitan Statistical Area (CMSA)

Consolidated Metropolitan Statistical Area (CMSA) is any one of about 20 large **urban** agglomerations defined by the Federal Office of Management and Budget. CMSAs are composed of two or more **Metropolitan Statistical Areas (MSAs)**. **CMSAs** are home to over 100 million citizens. The identification of **CMSAs** is subject to definitions created and amended over the past 50 years. The **boundaries** can change after each Census. Due in part to the fact that the final designations are subject to a political process, the areas designated often lag from 10 to 30 years behind economic and social reality which is reflected in **New Urban Regions**. See The American Almanac 1994-1995: Statistical Abstract of the United States for definitions, qualifications and limitations of use of data related to **CMSAs**.

In addition to **CMSAs**, other authors have coined an ever growing range of terms for large **urban** agglomerations. They include Megalopolis (Gottmann), Mega Politician (Lang) and half a dozen terms coined by Doxiadis. These terms are avoided in **TRILO-G**.

See **New Urban Region** and **Metropolitan Statistical Area**.

Conceptual Framework (New Urban Region Conceptual Framework)

When the word "**conceptual**" is used in **TRILO-G** and in the **Three Step Process**, it does not mean "theoretical" or "abstract." "Conceptual" refers to a tool to assist in understanding reality. In this case, it establishes a framework for citizens to use in organizing and understanding the facts related to the **human settlement pattern**. The **New Urban Region** is the fundamental building block of the **Conceptual Framework** used in **TRILO-G** and in the **Three Step Process**.

Core

Core is the area within the **Clear Edge** around

the **Centroid** of a **New Urban Region (NUR)**. There may be two or more **Cores** in a **NUR** where there are more than one **Centroid**. For example, in the **National Capital Subregion** and the **Baltimore Subregion** in the **Washington-Baltimore NUR**. In many cases a single continuous line defines the **Clear Edge** around the two **Cores** as in Minneapolis-St. Paul. If there is a significant distance between the two **Clear Edges** around two **Centroids** this suggests there may be two adjacent **NURs**.

Core Confusing Words

1. The **Core Confusing Words** found in **APPENDIX TWO** of *The Shape of the Future* include: **City**, **Community**, **Ex-urban**, **Local**, **Neighborhood**, **Organic**, **Rural**, **Sprawl**, **Suburb/Suburban** and **Urban**. In addition, the word **Family** has been added since *The Shape of the Future* was first published in 2000.
2. Why these words are confusing is spelled out in *The Shape of the Future* **APPENDIX TWO - CORE CONFUSING WORDS** and **LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS** at the end of this **GLOSSARY**. The words that are underlined (**Community**, **Neighborhood**, **Organic** and **Urban**) have no useful substitutes so are used in **TRILO-G** frequently with a modifier and as in the case of **Community** and **Neighborhood**, capitalization is very important.
3. The best way to avoid confusion is to not use the words **City**, **Ex-Urban**, **Family**, **Local**, **Rural**, **Sprawl** and **Suburb/Suburban**.

Countryside

The **Countryside** is made up of land areas devoted to non-urban land uses - agriculture, forestry or large natural areas.

Countryside outside the **Clear Edge** and **Open Space** inside the **Clear Edge** make up **Open Land** .

Within large areas of **Countryside** there are **urban** enclaves that are components of the **Communities** that support the economic and social activities of the **Countryside**. There are also individual dwelling

Units dispersed in the **Countryside**. Some of these **Units** are accessory uses that support agriculture, forestry and other extensive (non-urban) land uses. Because of past development practice, many of the widely disbursed (a.k.a., scattered) **Units** are **urban** dwellings. As noted in **STARK CONTRAST** Section II Part 3, "Focused Tactics to Support Immediate Action Inside and Outside the **Clear Edge**," any new **urban** use should be within 1/4 mile of daily **Services** and **Jobs**. This means new **urban Units** will almost always fall within the **Clear Edge** around **urban** enclaves of the **Dooryard**, **Cluster** and **Neighborhood** scale.

'D'

Density

Density is a measure of the intensity of human use and activity.

Disaggregated but Balanced Community

Disaggregated but Balanced Community is an **Alpha Community** that exists outside the **Clear Edge** around the **Core** of a **New Urban Region** where the components (**Villages**, **Neighborhoods** and **Clusters**) are separated by **Countryside**.

Disaggregated but Balanced Communities can also be found in **Urban Support Regions (USR)** outside the **Clear Edges** of the **Community** or Multi-Community scale **Urban Enclaves** in the **USR**.

Domains of Human Experience

The lives and activities of **citizens**, **Households** and their **Enterprises**, **Institutions** and **Agencies**, is a rich mosaic of events, relationships and resources. Taken together, they are the "**human experience**." How satisfying this experience is for **citizens** is summarized by reference to "quality of life."

To help analyze the **human experience**, scholars recognize activities into categories. One useful set of categories is:

- Economic
- Social
- Physical

These three overlapping **domains of human experience** are reflected in, and have impact on, **human settlement patterns**. For further information on the "**domains of human experience**," refer to Chapter 4 of *The Shape of the Future* and to Chapter 4, Box 2 .

Dooryard

Dooryard is an **organic** component of **human settlement pattern**. An **Alpha Dooryard** is a functional grouping of **Units**. The **Dooryard** has historic roots as housing for an extended **family** or an intentional grouping of **Households**. The **Dooryard** is the next larger scale of physical (spacial) orientation and proximity beyond the **Unit**.

In contemporary **settlement patterns** the **Dooryard's** identity and functionality has atrophied while the need for social cohesiveness at this scale has grown. Much of what is attributed to "a great **neighborhood**" actually happens at the **Dooryard** scale. One way to think of a **Dooryard** is to consider the front doors a person can see from his or her front steps. Another perspective is that a **Dooryard** is comprised of the **Units** one could easily get to in an emergency. Another image of the **Dooryard** is the group of **Units** that one would first consider going to "borrow a cup of sugar."

Alpha Clusters are composed of **Alpha Dooryards**. **Beta Dooryards** may evolve into **Alpha Dooryards**.

Also see **Alpha** and **Beta** as well as **Unit** and **Cluster**.

Dysfunction and Dysfunctional

The terms **dysfunction** and **dysfunctional** are used extensively in *TRILO-G*. The use is consistent with the primary dictionary definition:

"Abnormal (disordered) or impaired functioning, especially of a bodily system or organ."

These terms are used often because no other synonym conveys an appropriate meaning for most applications.

'E'

Enterprise

Enterprise is one of three forms of **Organization** beyond the scale of the **Household**. **Enterprise** is an

Organization created to generate profit, a monetary return on investment of time, effort and resources. The use of the phrase "**Enterprise , Institution and Agency**" is intended to encompass all **Organizations** beyond the scale of the **Household**.

See **Agency, Institution and Household**.

Enterprise Capacity

Enterprise capacity is the ability of an **Enterprise** to carry out its intended function and show a profit. **Enterprises** that lack **enterprise capacity** are subsidized or declare bankruptcy. See **Institutional Capacity** and **Agency Capacity**.

Expanding the Tax Base

See **Tax-Base Expansion**.

Ex-urban

This word is used in a broad range of confusing ways and is avoided in **TRILO-G** and the Three Step Process.

See **APPENDIX TWO - CORE CONFUSING WORDS** and **LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERN** at the end of this **GLOSSARY**.

'F'

Family

Since publication of ***The Shape of the Future***, the use of the word "**family**" has been recognized as a source of misconceptions concerning **human settlement patterns** and thus becomes a **Core Confusing Word**. In **TRILO-G** and the **Three-Step Process of HANDBOOK**, "**family**" has been replaced by "**Household**." Avoiding the use of the word **family**, unless it is further described or put in context, is suggested.

There have always been a number of uses of the word "**family**." The word **family** has been overused and caused confusion when discussing **human settlement patterns** but recent data indicates that it is time to recognize the problem in a formal way. The reason to drop the use of the word "**family**" at this time is the confusion caused by referring to the

occupants of a single dwelling **Unit** as a **family** because of the assumptions that citizens draw from what they assume "**family**" to mean.

The general assumption is that a **family** is a husband, a wife and their children unless the description includes a modifier such as "extended" as in "extended **family**." Consideration of a typical **Dooryard** suggests that "**family**" is an inappropriate way to describe the occupants of the majority of the dwelling **Units**.

The sample **Dooryard** profiled below is made up of **Single Household Detached (SHD)** dwellings with a 2006 assessed value ranging from \$525,000 to \$625,000. The demographic profile of the occupants is somewhat older but otherwise mirrors the **New Urban Region** profile. If the following data applies to what municipal comprehensive plans typically call "a stable single **family** neighborhood," consider the occupant profile of **Units** in other contexts.

Here is the data for one 10-Unit **Dooryard**. In this **Dooryard** there are **Units** with the following occupants:

1. A mother, a father and their young children
2. A mother and father with one minor child plus minor children of the mother from a previous marriage
3. A mother, father and a grandchild
4. A mother, father, an adult child and her daughter (a grandchild)
5. A mother and father and two adult children
6. A father with minor children and a new companion
7. A mother with adult children but none living in the **Unit**
8. A mother and father with an adult child but not living in the **Unit**
9. Two empty nest couples where both husband and wife have children but no children in common and none living in the **Unit**

Out of the 10 **Units** how many are occupied by a "**family**"? One, two, three, seven? All the **Units** are occupied by **Households** and thus the use of the term in discussing **human settlement patterns**.

Beyond the complexity of relationships in the **Units** within a specific **Dooryard**, it is well documented that a mother, father and minor children - blended **families** or not - make up less than 25% of the **Households** in the United States . In spite of this, most houses are designed as if they are going to be occupied by a "traditional **family**."

There is nothing "wrong" with any of these living arrangements, the majority are just not what comes to mind when the word "**family**" is used and, as suggested below, skew the discussion of functional **human settlement patterns**.

Even more important, the categories into which the 10 **Units** in this **Dooryard** can be classified have changed significantly over a short period of time. Over the last five years, of the 10 **households**, four have completely changed with a new set of occupants. One **Unit** has been home to three separate **Households** in five years. In five of the other **Units**, persons within the **Household** have changed, thus shifting the **Unit** from one of the nine categories listed above to another. The occupants of one **Unit** have changed categories seven times in nine years. Over a 5 year period, only one **Household** has stayed the same with the same individuals and the same status. Ninety percent turn over in 5 years is a huge rate of change and is far more flux than is usually thought of as "turnover." Most "turnover" calculations are based on "sale-of-**Unit**" data. That metric, and most other perceptions of the **family**, are archaic.

Yes, there are **Dooryards**, especially ones with **Units** that were built recently, where a majority of the **Units** are occupied by a mother, a father and their children. That will change in time. When the **Units** in the profiled **Dooryard** were sold about 10 years ago five **Units** were occupied by a mother, a father and minor children and one **Unit** by a mother and minor children.

See **LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS** at the end of this **GLOSSARY**.

Five Natural Laws, The

See **Natural Laws, The Five.**

Floor Area Ratio (FAR)

The ratio between the land area and the building area on a given site or in a given area - i.e., Floor Area Ratio (FAR) of 2.5 within a half mile of transit station platform. **FARs** are abstract numbers unless related to a specific geographical area or **organic** component. For instance the **Alpha Village** that forms the **Core** of a minimum **density Alpha Community** (10 persons per acre) will range from .25 to .50.

'G'

Goals - First Tier and Second Tier

First-Tier Goals are simple, general **goals** upon which almost everyone can agree. They are sometimes called "principles."

Second-Tier Goals are equally important, but far more complex, and therefore need to be established by a consensus and within a framework of well-articulated **First-Tier Goals** and with an agreed to Vocabulary.

The description of these two sets of **goals** and the differentiation between them is a major subject of **HANDBOOK** Section V. Step One - **Goal** Setting.

Governance

Governance is the intentional process to organize and manage society. **Governance** is the responsibility of **Agencies**.

Governance Practitioners

Governance practitioners are those who are elected, appointed, employed or retained by **Agencies** responsible for **governance**.

Governments

Governments are groups of **Agencies** created on behalf of **citizens** of **nation-states**, states and sub-state "**political** subdivisions" - counties, municipalities. **Governments** are intended to meet societies need for **governance**. In democratic societies, the creation, the grouping and relationships between **Agencies** is established by a constitution or

similar popularly adopted and amendable agreement among **citizens**.

Growth

In the context of changes in **human settlement pattern, growth** is often equated with "**prosperity**." In the long term, the opposite is the case. This topic is examined in **BRIDGES** Chapter 11 "Fundamental Change or Collapse: There is No Time But the Present," and the resources cited therein.

A threshold knowledge of physics leads one to understand that in **organic** systems there is no **Sustainable** future prospect for annual percentage **growth** in the consumption of any tangible, material parameter. Food, shelter, water, air - in fact every resource humans depend on for life other than safety and happiness - involves consumption or use of finite resources.

Perpetual **growth** is not possible in the long term. Here is a paraphrase of an exercise to illustrate the impact of **growth** distributed by Advocates for a **Sustainable** Albemarle Population (ASAP), a group that advocates a limit to population **growth** in Greater Charlottesville / Albemarle , VA :

"Consider a resource that would last 100 years if **citizens** consumed it at a constant rate.

If the rate of consumption increased 5 percent each year, the resource would last only 36 years.

A resource supply that is adequate for 1,000 years at a constant rate would last 79 years at a 5-percent rate of **growth**.

A 10,000-year resource supply would last only 125 years at the same rate". This example illustrates the power of geometric or compound **growth** rates. Just as no trees grow to the sky, no **growth** rate is ultimately **Sustainable**.

Creating functional **settlement patterns** at the **nation-state, Regional, Subregional, Community, Village, Neighborhood, Cluster** scales (all of them, not just the levels with existing **governance** structures) is a first step towards a **Sustainable** future.

Ultimately however, **citizens** must find an alternative to **growth**. The Introduction to **PROPERTY**

DYNAMICS, the first Volume in **ACTION PROGRAMS**, documents the need for a "A New Metric for **Citizen Well Being**."

Smart **Growth** is better than dumb **growth** but compounding **growth**, as Edward Abby noted, is the mentality of a cancer cell. See Daniel M. Warner, "'Post-Growthism': From **Smart Growth** to **Sustainable Development**", *Environmental Practice* 8 (3) September 2006: 169-179. Warner states that in **human settlement patterns**, **growth** is a dead end.

As noted in *The Shape of the Future*, the top 1/10 of one percent of the economic food chain lived quite well in 1492. The evolution of an **urban** society, the Industrial Revolution and technology gave humans the chance to loosen their belt and improve the quality of life for those farther down the economic food chain but there are limits.

Nation-state or **regional** population **growth** and per capita consumption **growth** cannot be sustained. Those in the top 80 percent of the economic food chain are not near the limit (holding capacity) in most **New Urban Regions** at this time but to preserve democracy and market economies, **citizens** must start adjusting expectations and actions to reflect physical reality and not rely on continued **growth** to generate **prosperity**

The supply of land is not the problem, misuse and misallocation of land resources is the problem. **Citizens** of **New Urban Regions** will run out of other resources long before they run out of land even at minimum **Sustainable** densities. Water and energy for **Mobility**, which the bottom half of the economic food chain can afford, are two good candidates for near term exhaustion. Social Capital is in even shorter supply. Stress and time to assemble a quality life are useful measures of resources in short supply.

The **Three-Step Process** is designed to help overcome Geographic Illiteracy and Spatial Ignorance and allow **citizens** to realize that **growth** is not a **viable** long-term strategy.

'H'

Highway-Capacity Expansion

The carrying capacity of a specific segment of a highway (or roadway) may be expanded by design, construction and/or management. The expansion of a highway or increasing a transportation corridor

capacity does not, however, insure that **Mobility** or **Access** is improved on a corridor, **Subregion** or **Regional** basis. For this reason, the phrase "highway-capacity expansion" or "highway improvement" is best avoided as a "goal." The **goal** should be to bring the trip generation (travel demand) of the **settlement pattern** into **Balance** with the capacity of the **Mobility** and **Access** systems.

Also see **Mobility**.

Household

A **Household** is composed of the occupants of a single dwelling **Unit**.

Housing

Residences or dwelling places that covers, protects or supports the occupants.

Housing Development

A group of similarly designed housing **Units**.

Housing Project

A publicly funded and administered **housing** development, usually for low income **Households**.

Human Settlement Pattern

"**Human settlement pattern**" encompasses all of the tangible manifestations of human economic, social and physical activity on and immediately above and below the surface of the earth.

The **human settlement pattern** - the mix and distribution of human construction and destruction - has a controlling impact on the economic, social and physical well-being of **citizens**, **Enterprises**, **Institutions** and **Agencies**. **Human settlement pattern** is sometimes referred to as "the pattern and **density** of land use."

∩

Industrial Agglomeration

An **industrial agglomeration** is the **human settlement pattern** that replaced the **city** as the

dominant **urban** form. The **industrial agglomeration** reflected the impact of the Industrial Revolution in the First World after 1850. See Chapter 1 of *The Shape of the Future* for discussion of the evolution of **urban** forms. Industrial Agglomeration has been replaced by **New Urban Regions** in the past 50 years as the fundamental building block of **urban** civilization.

Institution

Institution is one of the three forms of **Organization** beyond the scale of the **Household**. **Institution** is an **Organization** created to achieve some purpose other than profit. An **Agency** is an **Institution** created to carry out a **governance** function. The use of the phrase "**Enterprise , Institution and Agency**" is intended to encompass all **Organizations** beyond the scale of the **Household**.

See **Agency, Enterprise , Organization** and **Household**.

Institutional Capacity

Institutional capacity is the ability of an **Institution** to carry out its intended function. **Institutions** that lack **institutional capacity** lose membership and support.

See **Agency Capacity** and **Organizational Capacity**.

'J'

J/H/S/R/A

This is shorthand for **Jobs/Housing/Services / Recreation/Amenities**. An **Alpha Community**, or **Balanced Community** will have a relative **Balance** of the critical elements that **citizens** require to meet their everyday needs. A proper **Balance** will greatly reduce the need for **citizens** to drive their cars long distances to meet these needs, thus reduce the strain on the transportation system. **New Urban Regions** are defined as having a **Balance** of **J/H/S/R/A**.

See **Jobs, Housing, Services, Recreation** and **Amenities**.

Job

Job is defined as a regular activity performed in exchange for payment i.e. occupation, profession or a trade.

Job Development

The idea of adding new **jobs** to improve **tax base** and achieve **J/H/S/R/A Balance** it is easy to grasp, but the cumulative impact of this tactic is not easy to understand. Creating new **jobs** in a **Community** is not a panacea to achieve **prosperity, Balance** or stability. The creation of the wrong **jobs** in any location or the creation of the right **jobs** in the wrong location has a detrimental impact on any attempt to create an **Alpha Community** and on all the **citizens** in that component.

Also see **Tax-Base Expansion**.

'L'

Local

The word "**local**" is used to refer to many different spacial relationships depending on the perspective of the user. They range from **local** electrons in an atom to **local** galaxies near the Milky Way. Local is sometimes amplified as "**local, local**" or "hypher **local**". The further obscures recognition of the **organic** components of **human settlement**.

The word "**local**" is best avoided in the discussion of **human settlement pattern**, and instead, a specific geographical reference should be used to make clear the territory and/or scale of concern.

See *The Shape of the Future* APPENDIX TWO - **CORE CONFUSING WORDS**. Also see **LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS** at the end of this **GLOSSARY**

'M'

Metropolitan Statistical Area

Metropolitan Statistical Area (MSA) is any one of 250 geographical areas defined by the Federal Office of Management and Budget. These areas are home to over 210-million **citizens**, over 80 % of the population of the United States . The identification of the areas is subject to definitions created and amended over the past 50 years. The **boundaries** frequently change after each Census. Due in part to

the fact that the final **boundary** designations are subject to a **political** process, the areas designated often lag from 10 to 30 years behind the economic and social reality which is reflected in the **New Urban Region**. See *The American Almanac 1994-1995*; *Statistical Abstract of the United States* for definitions, qualifications and limitations of use of data related to **MSAs**. Also see **New Urban Region** and **Consolidated Metropolitan Statistical Area**.

MSAs are frequently confused with **Region** and with "metropolitan area," "metro area" and other informal designations which have **boundaries** and characteristics that vary depending on the focus of the user.

Mixed-Use Development

Development and redevelopment of components of **human settlement** should have a synergistic mix and **Balance** of land uses. This mixture and **Balance** of land uses is essential to establish functional and **Sustainable human settlement patterns**. What is a desirable mix of uses in a specific case depends upon the scale of the component, the component's context and its location. Building a project that has several different land uses is not a useful activity if it does not contribute to **Balance**.

Also see **Smart Growth** and **Smarter Growth**.

Mixed-use is touted by developers when trying to gain approval for their projects. If the site is near **Clear Edge**, what often happens to the commercial portion after approval is obtained for the project, is that the developer files a later application to replace the commercial uses by building additional residential **Units**. This happens because there is not (and in most cases never was) a market for commercial development in the location of the project.

If the retail portion of the mix is ever built, the appropriately scaled retail which was approved for the project is often replaced with Big-Boxes serving a larger area than originally proposed. The end result is that the mix and **Balance** of uses disappears.

If the project is in the **Zentrum**, the opposite can occur. Commercial development is substituted for residential land uses. The result is again a monoculture. The objective of all new development should be to evolve **viable Balanced** components of **urban** fabric. In this context, a mix of land uses is often a key ingredient.

Mobility

Mobility is a measure of the ease of **Access**.

Citizens frequently state that they want a **Community** where everyone can to live wherever they want, work wherever they want and seek **Services** and **Recreation** where they want at whatever time they want to go. They, of course, add that they want to arrive in a timely manner. This is a laudable theoretical **goal** for **Mobility**, but it is not achievable in reality. See "Myths That Blind Us" at *baconrebellion.com*.

It is clear that a random distribution of land uses is not feasible when one adds a second, even more absurd assumption. This is the myth that "**government** 'can (or should) build a transport system that will get **citizens** wherever they want to go whenever they want to get there.'" This is a physical impossibility in any contemporary **New Urban Regions**.

See **Region** and **Regional Metrics**.

It is widely agreed that transportation and land use need to be planned together. Transport (including highways) must be planned to serve desired land-use patterns and densities. This axiom is, unfortunately, honored in the breach. Within a corridor the phenomenon of "build a road and they will fill it" is now well documented. The technical term for this phenomenon is "induced traffic." At the **Regional** scale extending and expanding highways lead to added congestion.

See **Highway Capacity Expansion**.

As documented in Chapter 13 of *The Shape of the Future*, there are almost no solutions to transport **dysfunction** that involve only building new transport facilities. Changes in land use (the origins and destinations of travel demand) are the most effective strategies to deal with congestion in **New Urban Regions**.

Very often "**highway-capacity expansion**," "congestion reduction" and "transportation improvement" are code words for building roads to **Access** remote land that furthers the speculative interests of landowners, not to improve **Access** or **Mobility**.

Next to "**Affordable and Accessible Housing**,"

improvement of **Mobility** and **access** is the most complex issue facing most **Communities**.

See Chapters 13 and 26 of *The Shape of the Future*.

Mobility and **Access** are important **goals** for a **Community**. They are best achieved by the process outlined in Section VI. Step Two - Sketch Planning and Section VIII. Step Three - Creating **Balanced Communities** of the **HANDBOOK**, not by just building roads or other transport facilities.

Multi-Household

Multi-Household is otherwise known as an apartment.

See **Single Household Attached, Single Household Detached, Unit** and **Components of Human Settlement - The Geographic Descriptors**.

Municipalism

Acts by municipal **Agencies** or practitioners that reflect and serve short term interests of municipal **Agencies** or practitioners but do not serve the interest of the **citizens** of one or more **organic** components of **human settlement patterns** and which actions would not be carried out if functional **governance** structures existed.

'N'

Nation-State

Nation-state is used for "nation" in *TRILO-G* and follows the primary dictionary definition of "nation."

"A relatively large group of people organized under a single, usually independent **government**; a country.

Nation-state is used to remind the reader of the relatively recent origin of present **nation-states** and of the rapid change in function and number of these entities. Examples of these changes are the agglomeration of the European Union, the dissolution of the Soviet Union and the conflicts in Africa , the Middle East and the Balkans.

Natural Laws of Human Settlement Pattern

Human settlement is a complex **organic** system. As with any **organic** system, **human settlement** and those within it are subject to "**natural laws**" ranging from gravity to thermodynamics. To help understand **human settlement patterns**, *The Shape of the Future* identifies five **Natural Laws** (from among the many that have been identified and even more that need to be identified) to assist **citizens** in understanding **human settlement patterns**.

The **Natural Laws of Human Settlement**

include:

- One simple geometric formula
($A=Br^2$)
- One Cost/**Service** Relationship Curve (The Cost of **Service** Curve)
- The two "scaling laws" (The 10X Rule and The 10 Pn Rule)
- One proof (87 1/2% rule)

The definition of these relationships or **Natural Laws** can be found in *The Shape of the Future*. Chapter 4 Box 5 summarizes these laws and provides references to complete discussions of these laws.

Each of the laws is derived from an analysis of **human settlement patterns** created over the past 60 years.

neighborhood

The word **neighborhood** (with a small "n") is avoided for the reason noted in the definition of **Neighborhood**.

Neighborhood

A **Neighborhood** is an **organic** component of **human settlement pattern**. The **Alpha Neighborhood** is the smallest component of **human settlement pattern** which requires representative democracy - as opposed to participatory democracy which is possible at the **Cluster** scale.

An **Alpha Neighborhood** is composed of **Alpha Clusters**. An **Alpha Village** is composed of **Alpha**

Neighborhoods. A **Beta Neighborhood** has the potential to evolve into an **Alpha Neighborhood**.

Like "**Community**", the word "**Neighborhood**" is overused and misused in advertising and literature. The word "**neighborhood**" is frequently used to connote a friendly place. It is frequently (and correctly) referred to as a smaller place than a "**Community**". However, media's overuse and abuse of the term has included references to an entire continent as a **Neighborhood**. For this reason "**neighborhood**" is avoided however, the word **Neighborhood** is useful to indicate a specific component of **human settlement pattern**.

Of all the **organic** components of **human settlement pattern**, **Neighborhood** has had the most consistent supportive use by planning and design professionals as in "**Neighborhood school**."

Also see **Alpha** and **Beta** as well as **Cluster**, **Village**, **Components of Human Settlement - The Geographic Descriptors**, and *The Shape of the Future* APPENDIX TWO - CORE CONFUSING WORDS as well as LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS at the end of this GLOSSARY.

New Urban Region

A **New Urban Region (NUR)** is the smallest **organic** component of **human settlement** with an agglomeration of social, economic and physical activity which is **Sustainable**. A **NUR** is defined by an area with a **Balance of Jobs/Housing/Services/ Recreation/ Amenities**.

The **New Urban Region (NUR)** replaced the **Industrial Agglomeration** as the primary social, economic and physical component of contemporary First World civilization as articulated in Chapters 1 and 3 of *The Shape of the Future*. The anatomy (make up) of **NURs** is examined in Chapter 15 of *The Shape of the Future*.

Also see **Boundary**, **Community**, **Urban Support Region** and **Components of Human Settlement - The Geographic Descriptors**.

An **Alpha NUR** would be composed of **Alpha Communities**. The **NUR** is the fundamental building block of contemporary First World society. Drawing the **boundaries** within **NURs** is outlined in Section

VI. Step Two - Sketch Plan.

New Urban Conceptual Framework

See **Conceptual Framework**.

Nonurban

Nonurban is the term used to describe areas where the predominant economic and social activity is related to the extensive uses of land, for instance, forestry and agriculture. **Nonurban** areas can be identified by the market value attributed to the land. Where the land value is directly related to the income from surface products of the land, the land is **nonurban**.

Sub-surface or extractive use - mining, quarrying and petroleum production applications - are **urban** uses of land.

Recreation is sometimes provided at extremely low **density**. Even some low-**density** recreation areas, including wilderness areas, do not meet the criteria for being **nonurban** because the primary economic activity is recreation for **urban citizens**. All **nonurban** areas in **New Urban Regions** are in the **Countryside** that makes up the areas outside the **Clear Edges**. There are larger **nonurban** areas in **Urban Support Regions** in the United States .

Nonurban is used in place of "rural" because of confusion caused by the use of **rural**. The word **rural** is found in **TRILO-G** primarily when it appears in quoted material. When the use of **rural** cannot be avoided, **rural** is followed by the modifiers sylvan, bucolic, pastoral or rustic.

See **Rural, Core Confusing Words** and **LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS** at the end of this **GLOSSARY**.

'O'

Open Land

Open Land includes **Openspace** within the **Clear Edges** around **urban** enclaves and the **Countryside** outside the **Clear Edges**. The **Countryside** components of **Open Land** may be devoted to extensive, non-urban economic uses such as agriculture, forestry as well as non-intensive natural areas managed for watershed protection, air shed

recharge, wildlife habitat, hunting and gathering, extensive recreation and other extensive land uses.

Open Space

Open Space is green and blue. It is land and water inside **Clear Edges** that is not devoted to **urban** land uses. **Open Space** includes parks, stream valleys, natural areas and other public, common or private land that is devoted to for **recreation** both passive and active.

Organic

The concept of **human settlement patterns** being **organic** is central to understanding the **New Urban Regions** and the **New Urban Region Conceptual Framework**

See Chapter 15 as well as Chapters 10, 11 and 16 in *The Shape of the Future*. Also see **organic** in *The Shape of the Future APPENDIX TWO - CORE CONFUSING WORDS* and **LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS** at the end of this **GLOSSARY**.

Organization

Organization is a term that includes **Enterprise**, **Institution** and **Agency** and is integrated to encompass all intentional groups beyond the scale of a **Household**.

Organizational Capacity

Organizational capacity is the ability of an **Organization** to carry out its intended function.

See **Agency Capacity**, **Institutional Capacity** and **Enterprise Capacity**.

'P'

Pattern

Pattern is the distribution, arrangement or "mix" of human activities.

Pattern and Density of Land Use

See **Human Settlement Pattern**.

Politics/Political Activity

Politics or **political activity** is the action of **Institutions** established to secure the privileges of power and control over the **governance** structure (**Agencies**) for members of the **Institution**.

Percentage Guidelines/Percentage Rules of Thumb

Frequently, in *TRILO-G* and throughout **The Three-Step Process**, **Percentage Guidelines** are employed. These guidelines are not **Natural Laws**.

Natural Laws have been derived from **settlement patterns** that have evolved over the past 60 years. **Percentage Guidelines** are broad generalities to help **citizens** grasp "order of magnitude" relationships. The exact numerical value of **Percentage Guidelines** will vary from **Region** to **Region** and from condition to condition. To make the issue even more complex there are several of the **Percentage Guidelines** that have the same numerical values but are completely different in subject.

The Percentage Guidelines are presented as a way to illustrate overarching ideas and to stimulate discussion, not as hard and fast mathematical certainties.

20%/60%/20% Guideline. With fascinating frequency and across a wide range of economic social and physical issues, it has been observed that if one asks a broad cross section of the population if they agree, disagree or have no opinion with a specific idea or proposal about which they have essentially no prior knowledge or experience, 20% will be favorably inclined, 60% will have no opinion and 20% will be negatively inclined.

Note: Any one individual does not always fall in the "pro," "no-opinion" or "con" camp on every issue.

Note: For this guideline to apply, the question must be stated in a neutral way. Pollsters are paid to spin the answers to favor the view of those paying for the poll (e.g. "Do you favor building the X Bypass to relieve congestion and improve air quality?").

In a democracy with a market economy, both **political** actions and market success depend on securing the strong support of the pro 20%, gaining passive support or acquiescence of the undecided 60% and not riling up the negative 20%.

An important corollary of the guideline is that after extended debate and discussion there are few issues about which there is 100% support. However the 20% "con," see they are outnumbered and may not be visible in what appears to be a unanimous decision. One way to demonstrate this reality is that about 20% of the population believes the world is flat and that the Apollo Astronaut's Moon landing was staged in Hollywood.

The **20%/60%/20% Guideline** is more than a curious fact about human interaction and group dynamics. The **20%/60%/20% Guideline** means that in a democracy to secure consensus on decisions impacting **human settlement patterns** and the evolution of **Balanced Communities in Sustainable New Urban Regions**, it is imperative to frame the issue intelligently and allow for well informed dialogue to proceed to the point of diminishing negative feedback.

The three **95%-5% Guidelines** have to do with **human settlement pattern** relationships that exhibit 95%-5% ratios. They are not interdependent and are not derived from the same basis. Taken together, these three Guidelines provide a fundamentally different view of **human settlement patterns** than conventional wisdom.

95%-5% Guideline One is the guideline for considering the distribution of non-urban and **urban** land uses. This guideline is derived from the application of the **Natural Laws of Human Settlement Pattern** and establishes the approximate ratio of **nonurban** land area to **urban** land area necessary to accommodate the current and immediate future projected population of the United States. See the discussion of this guideline in **HANDBOOK** Section II. **STARK CONTRAST**, and also in the second topic summary "Understanding **95%-5% Guideline One** Relating to the Distribution of **Urban** and **Nonurban** Uses" located in Part 3 of Section II.

95%-5% Guideline Two is the guideline for low-intensity and high-intensity **urban** land uses within the **Clear Edge** around the **Core** of a **New Urban Region**. This guideline reflects land distribution in **Balanced (Alpha) Communities** within the **Clear Edge** that is served by a **Region-wide** shared-vehicle (transit) system. The ratio of the low-intensity land uses ("green leafy" 10 persons per acre) to the high-intensity (transit-served station areas) land uses is typically **95%-5%**-95% low intensity, 5% high

intensity. Also see **Clear Edge**.

95%-5% Guideline Three is the guideline related to **nonurban** land price escalation in the **Countryside**. This guideline is based on the work of author William H. Whyte. Whyte observed that if just 5% of the land in an identifiable territory in the **Countryside** (e.g. a stream valley with widely agreed-to **boundaries**) is converted to **urban** land uses (e.g. scattered **urban Units**), then the **Countryside** in that territory is converted from **Open Land** to land speculatively held for **urban** land uses. This leads to the land becoming dominated by **dysfunctionally low-density urban** activities unless an **urban** enclave with its own **Clear Edge** evolves.

90%-10% Guideline is a rough approximation of the ratio of land outside the **Clear Edge** (**Countryside**) to the land inside the **Clear Edge** (**urbanside** including **Open Space**) on the **New Urban Region (NUR)** Scale. This is comparable to the **95%-5% Guideline One** for the Lower 48. The difference is that outside the **NURs** in the United States, the remainder of the area is in **Urban Support Regions** with less land within **Clear Edges**.

20%/10%/70 % Guideline demonstrates how well a **New Urban Region (NUR)** (target **90%-10%**) or a large **subregion** of a **NUR** in the United States (**95%-5%** target) is doing in establishing a functional ratio. For instance the Commonwealth of Virginia embraces all or part of three **NURs** but is a large state compared to its population and thus as a "**95%-5% Guideline One**" (actually about **96%-4%**.) How is Virginia doing to achieve the **96%-4% Guideline**? It turns out that only about 20% +/- of the land area (instead of 96%) is "protected" from scattered **urban** land uses and 10% +/- (instead of 4%) is held for **urban** land uses leaving 70% +/- open to scattered **urban** land uses.

These **Percentage Guidelines**, although they are "rough," can provide useful insights into **settlement pattern dysfunction**.

Planned New Community

A **Planned New Community (PNC)** is a development that is intended to achieve the status of an **Alpha (Balanced) Community** in a location that would not achieve settlement pattern without implementation of a "plan" - the intentional investment of resources to achieve a specific result.

As documented in ***The Shape of the Future***,

Chapter 18, there are few settlement pattern stratagems with as long a tradition as **PNCs**. **PNCs** were the strategy for colonization of the classical world and settlement of the Roman Empire. The way **PNCs** were Western Europe was redeveloped after the 8th Century and after the Black Death. **PNCs** were the strategy of choice to settle in North America, South America and Africa. Every major urban agglomeration on the Atlantic Coast; except Boston, started as a **PNC**.

The **Planned New Communities** in Europe, Japan and now China built since World War II and these in the United States between 1962 and 2007 offer the most constructive source ideas on evolving functional **human settlement patterns**.

See Chapter 18 of *The Shape of the Future*.

Property Rights

The wish for ubiquitous **mobility** often comes up in the context of statements that "**citizens** should have the right to do whatever they want to with their land." This is, of course, an important objective in a democracy so long as:

- The action does not impinge upon neighbors rights (Common-Law nuisance), and
- Those who benefit from the land use pay the equitable costs of the external consequences of their actions - including the full cost of location variable goods and **Services**.

The cumulative impact of the actions of individual **citizens** with respect to land must be evaluated. What is acceptable for one owner to do may not be accommodated when a large number of owners take the same actions. The cumulative impact of many actions (e.g., relying on septic tanks for sewage disposal over a large area with impervious soils) should result in a limitation on individual actions.

Prosperity

Prosperity and "economic well-being" are used interchangeably in **TRILO-G**. It is common to confuse "progress," "**growth**" and "development" with **prosperity**. Like "**City**," "**urban**," "**rural**" and "progress," "**growth**" and "development" are defined

in terms of one another. Many **citizens** believe that progress, **growth** and development is equal to **prosperity**.

In *TRILO-G*, "economic expansion" is used instead of "**growth**," "progress" and/or "development."

"Economic expansion" is seen by some as the engine of **prosperity**, by some as requiring a **Balance** between **growth** and conservation and by others as an erosion of what **citizens** once enjoyed.

The question is not whether economic expansion is desirable or undesirable, but the optimum location and pace of economic expansion.

'R'

Recreation

An enjoyable leisure activity that provides refreshment of one's mind or body as well as activities that amuse or stimulate.

region

In general practice, the word "**region**" (with a small "r") is used to identify any "large" area that has at least one distinguishing characteristic. The word **region** is frequently used as an alternative to **subregion**, and in this context indicates a larger area.

Places called **regions** can be significant or insignificant depending on the importance of the identifying characteristic. In the *BRIDGES* and *ACTION PROGRAMS* Books of *TRILO-G*, places that have significant identifying characteristics are generally termed **Regions**. In all cases, the other words that make up the title identifies the identifying characteristic.

Also see **New Urban Region**, **Region**, **Urban Support Region** and **Components of Human Settlement – The Geographic Descriptors**.

Region

Region (with a capital "R") is always used in a context that clearly identifies the referenced area. For example the Washington-Baltimore **New Urban Region**, the Denver **New Urban Region**, the DelMarVa **Urban Support Region** or the Northern Rocky Mountain **Urban Support Region**.

In the **BRIDGES** and **ACTION PROGRAMS** Books of **TRILO-G**, use of the term **Region** except when identifying either a **New Urban Region** or an **Urban Support Region** is generally avoided. Indiscriminate use of **Region** as an alternative for **Metropolitan Statistical Area (MSA)** or **Consolidated Metropolitan Statistical Area (CMSA)** is inappropriate and confusing.

Also see **New Urban Region**, **region**, **Urban Support Region** and **Components of Human Settlement – The Geographic Descriptors**.

Regional Metrics

Regional Metrics is a set of analytical tools used to explore the nature of **human settlement pattern**. The **Five Natural Laws of Human Settlement Pattern**: the $A=Br^2$ Rule, the Cost of **Services** Curve, the 10X Rule, the 10-Person Rule, and 87 1/2 Percent Rule provide the tools to understand **human settlement pattern**. Also see **(Five) Natural Laws of Human Pattern**. Taken together, these laws and the guidelines that are derived from them are termed "**Regional Metrics**."

By applying the five **Natural Laws of Human Settlement Pattern**, **Regional Metrics** assists **citizens** and **governance** practitioners in understanding the critical importance of **pattern** and **density** of land uses and in taking well-founded actions to shape **human settlement pattern**.

Also see **Natural Laws of Human Settlement Pattern**. Chapter 4 of *The Shape of the Future* which defines the **Five Natural Laws of Human Settlement Pattern** (Chapter 4 Box 5) and **Regional Metrics**.

Rural

Like "**city**," the word "**rural**" is burdened with many emotional and outmoded interpretations. This baggage makes it best to avoid use of the word. When carefully defined in economic, social and physical terms, it turns out that **rural** is a past condition that has not actually existed since the impact of the industrial revolution became ubiquitous in First World Nation - states.

See **nonurban**. Also see **APPENDIX TWO - CORE CONFUSING WORDS** in *The Shape of the Future* and **LIST OF CORE CONFUSING WORDS BEST**

AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS at the end of this **GLOSSARY** for a detailed explanation of the term "rural."

Ruralaphilia

Ruralaphilia is the fascination for idyllic agrarian environments that, as seen in the "dreams of the beholders," in most cases never existed.

Ruralaphilia is an attachment to what is believed to have once existed. It is frequently related to places that are now devoted to low- or very **low-density urban** uses. **Ruralaphilia** is based on myths of a "small place in more simple times." These are parameters of places that the majority of the former occupants intentionally left seeking an **urban** alternative. The former occupants were forced or elected to relocate to places where there was a greater potential for economic **prosperity** for themselves and their **families**.

Ruralaphilia is primarily used as an excuse to avoid (or to assume a stance of denial with respect to) issues related to 20th and 21st century **urban** existence.

Those concerned with economic revitalization of small **urban** places in low-**density** agricultural **Subregions** document that the majority of economic activity in these places as early as 1900 was **urban** (manufacturing, fabricating and **Services**), not agricultural activity. These areas are frequently referred to as **rural** (sylvan, bucolic, pastoral or rustic) but have not been for up to 150 years.

'S'

Service

"**Service**" includes both PUBLIC (shared-vehicle systems, public rights of way facilities and maintenance, water, sewer, storm water, flood control, fire, safety, rescue, health, education, archives/library, courts, etc.) and PRIVATE (retail, wholesale, storage and warehousing, medical and dental, agents and brokers, insurance, repair, distribution, transportation, etc.) "**services**." **Service** is one of the five elements required for **Balance** in components of **human settlement patterns**.

Single Household Attached (SHA)

An attached dwelling intended for occupancy for one

Household.

Single Household Detached (SHD)

A detached dwelling intended for occupancy for one **Household**.

Smart Growth, Smarter Growth

Everyone is for **smarter growth**. The question is: What is "**smarter growth**?" **Smarter growth** turns out to be "intelligent change that meets the **goals** of the **Community**." **Smart growth/smarter growth** is one result of the process outlined in the **HANDBOOK. Smarter Growth** is a necessary but not sufficient condition for creating **Balanced Communities** in **Sustainable New Urban Regions**.

Also see **Growth**.

Sprawl

Sprawl is a commonly used term for **dysfunctional pattern** and **density of land use**. However, many spacial relationships that are called "**sprawl**" are not **dysfunctional** and many **dysfunctional** land uses are not called "**sprawl**." An examination of the literature yields hundreds of surveys, studies and many detailed taxonomies of "**sprawl**." Taken together they result in confusion.

Because many users of the word do not understand the functions of **human settlement pattern**, they apply **sprawl** to a broad range of conditions. Too often, **sprawl** is the term used to describe "what someone else is doing that the observer does not like." Some applications of **sprawl** are appropriate; some are not. Because of its many interpretations, the word "**sprawl**" is best avoided in **goal** setting and in discussing **human settlement patterns**. Avoiding use of the word forces **citizens** to fully describe the causes and effects of settlement pattern **dysfunction**.

See **APPENDIX TWO - CORE CONFUSING WORDS** in *The Shape of the Future* and **LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS** at the end of this **GLOSSARY** for an extended discussion of **sprawl**.

subregion

The word **subregion** (with a small "s") indicates a

geographic territory where the components have at least one locational characteristic in common. Places called **subregions** are partitions of larger places that also have an identifying characteristic that are called **regions**. Places called **subregions** can be significant or insignificant depending on the importance of the identifying characteristic.

In the **BRIDGES** and **ACTION PROGRAMS** Books of **TRILO-G**, places that have significant identifying characteristics are generally termed **Subregions**. In this case, the other words that make up the title of the **Subregion** identifies the territory.

There is no requirement that **subregions** be coterminous. As many **subregions** can be identified as there are conceivable criteria. Obviously, some **subregional** descriptions would have little or no meaning or purpose.

The use of the word **subregion** can be very confusing: A single site may fall in many different **subregions**. Since **New Urban Regions (NURs)** and **Communities** may not follow **subregional boundaries**, parts of **NURs, Communities** (and all other **components of human settlement**) may fall in many **subregions**. For this reason **subregion** is not an **organic** component of **human settlement patterns** in **NURs** or **Urban Support Regions** although the **subregion** may be an **organic** component of the natural environment e.g., a watershed.

In the **BRIDGES** and **ACTION PROGRAMS** Books of **TRILO-G**, the use of **subregion** is generally avoided in favor of a specific description of the geography of concern.

Also see **Alpha, Beta, Boundary, Border, Community, New Urban Region, region, Region, Urban Support Regions** and **Components of Human Settlement – The Geographic Descriptors**.

Subregion

The word **Subregion** (capital "S") indicates a geographic territory where the components have at least one significant characteristic in common. Places called **Subregions** are portions of larger places that also have important identifying characteristics that may or may not be a **New Urban Region** or an **Urban Support Region**.

In the **BRIDGES** and **ACTION PROGRAMS** Books of **TRILO-G**, **Subregion** often refers to a specific collection of **Alpha** and/or **Beta** components of **human settlement patterns**.

Examples of significant **Subregions** include:

- Part of a **New Urban Region (NUR)** with two or more **Cores** (including **Centroids** and **Zentrums**) that have a significant physical separation such as the Washington - Baltimore **NUR**. Each **Subregion** has a specific name e. g., the National Capital **Subregion** and the Baltimore **Subregion**.
- The area of a **New Urban Region** that falls in a specific state "X" and would be called the "X **Subregion** of the "Y" **New Urban Region**.

Subregions are often confused with **New Urban Regions**, **Urban Support Regions**, and large **Alpha Communities**.

Also see **Alpha**, **Beta**, **Boundary**, **Border**, **Community**, **New Urban Region**, **region**, **Region**, **Urban Support Regions** and **Components of Human Settlement – The Geographic Descriptors**.

Suburb/Suburban

"**Suburban**" has been used in the English language from the 15th century. It means "less than **urban**." When the words "**suburb**" and "**suburban**" are used, it is appropriate to substitute "suburbanside" and "subcountryside" in their place. This puts the application of "**suburban**" in proper perspective. The word "**suburban**" has morphed to refer to a number of **settlement patterns**, activities and even attitudes. Because it is confusing, the term is best avoided.

For an in-depth discussion of "**suburb**," "**suburban**," "**suburbanization**," see **The Shape of the Future**, **APPENDIX TWO - CORE CONFUSING WORDS** and **LIST OF CORE CONFUSING WORDS BEST AVOIDED IN DISCUSSIONS OF HUMAN SETTLEMENT PATTERNS** at the end of this **GLOSSARY**.

Sustainable/Sustainability

The words **Sustainable** and **Sustainability**

are used as defined by the World Commission on the Environment and Development.

Sustainable development "meets the needs of the present generation without compromising the ability of future generations to meet their own needs."

Sustainable Development

Sustainable development is the **goal** of intelligent change. It is ill defined and should be included in any **goal**-setting processes with great care. Sometimes a "**Sustainability** process" is part of **HANDBOOK**, Section VI. Step Two - Sketch Planning or Section VIII. Step Three - Creating **Balanced Communities**. See Chapter 23 of *The Shape of the Future* for a discussion of the topic.

'T'

Tax-Base Expansion

Frequently in the process of **goal**-setting, **citizens** say they want to have the municipality take action to expand the (commercial) "**tax base**" so that there is a way to pay for the **Services** they believe are needed or are missing - schools, sidewalks, parks, fire and rescue **Services**, etc.

The response needs to be clear and unequivocal: It is not possible to simply bring in new **jobs** (employment facilities) and assume that this will expand the **tax base** or that an expanded **tax base** will automatically result in a municipality being able to support more **Services**.

The fact is: Adding employment opportunities in a **Community**, **Subregion** or **Region** with little or no unemployment will result in the attraction of new workers who, in turn, create additional and/or totally new demands. These additional and/or new demands will consume the expanded budget for **Services** or, more likely result in an increase not a deficit. Generally speaking, retail and other **Service** employment has a detrimental impact on the **Community tax base** because of lower wages paid to employees.

In addition, large retail facilities (such as Wal*Mart and other "Big Box" retail centers) moving into new locations where the same or similar products are already sold do little or nothing to add new tax revenue. It only replaces the tax revenue that was already being generated by the existing retail

entities. It also results in many of the existing stores being put out of business. This creates further detrimental impact. These "Big Box" retailers operate from inexpensive facilities and draw customers from long distances. These impacts taken together can result in a negative impact on the municipality's tax base. The core criteria for **tax base expansion** is to create **Balanced Alpha Communities**. Shifting from relying on property tax revenue to **Service** fees is an important strategy. A "buy within the **Community**" program is a beneficial tactic.

It cannot be over emphasized that bringing new **Jobs** into a **Subregion** with essentially no unemployment does not expand the **tax base**. It prompts immigration or mega commutes. If new workers move to the **Community**, the cost may outweigh the benefits. This was demonstrated in the analysis of WorldCom's impact on Loudoun County. From this analysis came a guideline: even with highly-paid, high-tech employment, if over 40% of the workers move to the jurisdiction (i.e., become new residents), then the addition of new residents, even those with high-end **Jobs**, creates a negative economic impact from **Job** creation.

Telework

Telework is moving work to people by telecommunications instead of moving people to work (a.k.a., commuting).

Telecommuting

Telecommuting is replacing the trip from a home to a traditional workplace with telecommunications some or all of the time.

Tenementitis

Tenementitis is the irrational fear of housing for lower income **citizens** and guests - especially the fear of **urban** areas being overwhelmed with high-rise tenements.

See Chapter 2. of ***The Shape of the Future***.

Third Way, The

Section II. **STARK CONTRAST** articulates the conflict between "Business-As-Usual" and Fundamental Change." It also refers to the strategic stalemate that has occurred between these two forces. The **Third Way** is an overarching strategy to use informed

citizens to create a consensus on achieving **Sustainable human settlement patterns** by building **Balanced Communities**.

Three Step Process, The

The **Three Step Process** to create functional, **Balanced Communities** is spelled out in Sections V., VI., and VIII. of **HANDBOOK**. The **Three Step Process** is the way **The Third Way** is implemented.

Town Center

The term "**town center**" is used to help sell development projects that include retail, **Service** and commercial development. Consumers are said to yearn for a **mixed-use town center**. This yearning very often comes after these **citizens** have purchased houses in a **dysfunctional** location and find they do not have **Access** to the **Services** that make contemporary life enjoyable.

Always ask the question; "of what **Neighborhood, Village** or **Community** is the project designed to become the "center?"

A new **mixed-use** "center" can contribute to the creation of an **Alpha Community** or **Alpha Village** , but it must become a **Zentrum** of an **organic** component of **human settlement**. There must be planning strategies to evolve **Balanced**, not projects, no matter what the project is called by the developer.

Also see **Component Zentrum**.

Transit-Oriented Development

Some suggest the answer to traffic congestion, "**sprawl**," and lack of the opportunity to create a quality life is "a light rail line and **Transit-Oriented Development (TOD)**." Like "more roads," a light rail line and **TOD** are not panaceas.

Few locations are suited for the addition of a prototypical light rail line or a light rail system without Fundamental Change in the settlement pattern. First one needs an **urban** area large enough to support a shared-vehicle transport system (a.k.a., transit). Next there needs to be the **density** of activity (origins and destinations of trips) system in the station areas necessary to support the system or a commitment to create those needs.

Transport systems need to be planned to support

desirable **patterns and densities of land use** - not just to build a new facility.

See Chapter 25 of *The Shape of the Future*. Also see **Highway-Capacity Expansion**.

Transportation Capacity Expansion, Transportation Capacity Improvement

See **Highway-Capacity Expansion**.

'U'

Unit

The **Unit** is a dwelling occupied by a **Household**. **Units** provide shelter for cooking, eating, sleeping, hygiene and recreation of the **Household** members. **Units** may be located in buildings that are **Single Household Detached, Single Household Attached** (duplex, town house, quadraplex) or **Multi-Household**.

See **Single Household Attached, Single Household Detached, Multi-household** and **Components of Human Settlement - The Geographic Descriptors**.

Urban

Urban is used in reference to areas with **patterns and densities of land use** that are served, or need to be served, by **urban Services**. Those **Services** - water, sewer and other utilities, as well as transportation, retail and repair and other public and private **Services**, are required to support **Alpha Clusters, Alpha Neighborhoods, Alpha Villages** and **Alpha Communities**.

Even though "urban" is a **Core Confusing Word** and has become a "code" for specific social and cultural groups and for a type of radio programming, it is extensively used in **TRILO-G** because there is not good alternative.

Also see **Core Confusing Words**.

Urbanized Areas

According to the Bureau of the Census and the Office of Management and Budget:

"**Urbanized Areas** comprise one or more places and

the adjacent, densely settled surrounding territory that together have a minimum population of 50,000 persons.”

The basis of “densely settled” is not consistent, but the minimum **density** is in the range of 10 persons per acre. The mapping of **urbanized areas** by the U. S. Geological Survey and the U.S. Department of Transportation confirms that only a small fraction of the land in **New Urban Regions** meets the criteria for **urbanized areas**.

Urbaphobia

Urbaphobia, the fear of things **urban**, is based on a misconception of what **urban** means. Understanding the deep cultural phobia concerning **urban** is fundamental to understanding citizen vies of **human settlement pattern** alternatives.

Most of the resources that document the fact that **citizens** of the United States hate, fear and do not want to be associated with **urban** do not address the fundamental reality - human civilization is **urban**. The market demonstrates that higher intensity **urban** places have far higher value per unit of activity than lower intensity places. **Citizens** may decide to call what is **urban** by some other term, but in the meantime, contemporary human civilization is **urban**.

Urban Form

The phrase **Urban form** is used as an alternative to the **human settlement pattern**. **Human settlement patterns** also include land devoted to **nonurban** uses.

Urbanside

The **urbanside** consists of the **Regional Core**, adjacent contiguous **communities** and the **urban**-area-serving **Open Space** that is within the **Clear Edge**. The **Clear Edge** identifies the **Boundary** between the **Urbanside** and the **Countryside**.

Also see **Boundary**, **Clear Edge**, **Countryside** and **Zentrum**.

Urban Support Region

Urban Support Regions are those areas, not within a **New Urban Region**, that provide substantial economic, social and resource support to two or more **New Urban Regions**.

Also see **New Urban Region** and **Components of Human Settlement - The Geographic Descriptors**.

'V'

Viable/Viability

Human settlement pattern is an **organic** entity. The terms "**viable**" and "**viability**" are used to describe healthy and functional components of **human settlement**. The primary indicator of a **viable** component of **human settlement** is "**citizens** in that component (and in the larger components of which it is a part) are happy, safe and prosperous."

Village

The **Village** is an **organic** component of **human settlement pattern**. The **Alpha Village** is the smallest-scale **organic** component with a significant mix (**Jobs/Housing/Services/ Recreation/ Amenities**) of land uses. The **Village** with a **Village Center (Zentrum)** is the scale of many "large" **Planned Unit Developments (PUD)**- population 10,000 to 30,000 - and the primary subcomponent of many **Planned New Communities** that are of **Community** scale (50,000 to 300,000 population).

Like "**Neighborhood**" and "**Community**," **Village** is broadly used as a marketing ploy to illicit the image of a small, quaint, friendly, development project. For that reason the term **village** (small "v") is avoided in **TRILO-G**.

An **Alpha Village** is composed of **Alpha Neighborhoods**. **Alpha Communities** are composed of **Alpha Villages**. Also see **Community, Neighborhood, Alpha, Beta** and **Components of Human Settlement - The Geographic Descriptors**.

Villager(s)

Villagers are persons who live in the same **village**.

Visioning

Visioning is a first step of many **goal-setting** and planning processes. **Visioning** as currently practiced is often a simple participatory process that involves **citizens** in a process to articulate their collective view of the future. If properly employed, the process

can contribute to an initial set of **First-Tier and Second-Tier Goals**. If not properly employed it can result in a meaningless wish-list that later generates confusion, conflict and disaggregation.

Visual Preference

Visual preference exercises or surveys explore participants' reactions to a sequence of pictures to determine the physical attributes that are attractive to those in attendance. These exercises are explored in **HANDBOOK** Section VII.

Visualization

Visualization exercises are attempts to help **citizens** understand the nature of existing **human settlement patterns** and the impact of new or fundamentally different configurations of land use. These exercises may be used to illustrate the impact of a new shared-vehicle (a.k.a., transit) station and supporting land uses in the station area. These exercises are explored in **HANDBOOK** Section VII

'Z'

Zentrum

"**Zentrum**" or "**Component Zentrum**" is used in the **HANDBOOK** to identify the focus or nucleus of an **organic** component of **human settlement**.

"Downtown" was used to designate this area in the United States during 19th and early 20th Century "**City**." As "**City**" morphed to Industrial Agglomeration (Industrial Center), "Uptowns," Edge **Cities** " and other concentrations of more intensive urban uses evolved. To make clear that the area within the area within the **Clear Edge** has a focus we use the German term so any user of the term knows it has a special meaning.

In Western Europe , the nucleus of an **urban** agglomeration is commonly termed the "Center" (**Zentrum**, centrum, etc.). In many cases, this place was the nucleus of the historic "**city**" around which the **New Urban Region (NUR)** agglomerated. Because of the "multi-nuclear" and "polycentric" nature of **NURs** in the United States , a specific term is appropriate. Section VI. Step Two - Sketch Planning explores the issue of **Zentrum** and its importance in planning **Balanced Communities**. Also see **Centroid and Community Zentrum**.

LIST OF CORE CONFUSING WORDS BEST AVOIDED IN

DISCUSSIONS OF HUMAN SETTLEMENT PATTERN.

For further discussion of these words and phrases see *The Shape of the Future* APPENDIX TWO - CORE CONFUSING WORDS

City

City was once the focus of economic activity but has evolved into a word with many meanings. This word is loaded with obsolete and emotionally charged interpretations. The word is still used in the official name of some forms of municipal **governance** but does not represent an **organic** component of **human settlement pattern**. For this reason it is best to avoid its use whenever possible except as part of the name of a specific municipal entity (such as the **City** of Alexandria. See **City**.

Ex-Urban

Ex-Urban is used to refer to an area of very low **density urban** land uses. This is a misleading way to describe a previously **nonurban** area that has become **urban** through scatterization of **urban** land uses. See **Ex-Urban**.

Family

Family has evolved to become a confusing way to describe the occupants of a dwelling **Unit**. In "**TRILOG**" the word **Household** is used rather than **family**. See **Family**.

Local

Use of the word **local** has been extended far beyond a limited district: "the **local** office", "the **local government**", considering a **local** government can include from 150 to five million citizens. Depending on the context, **local** is used to indicate a proximity or **service** radius from **Dooryard** to continent. See **Local**.

Rural

Rural is used as a catchall substitute for sylvan, bucolic, rustic and pastoral, a reference to a past existence that was close to nature and primitive. These descriptors are often used facetiously. **Rural** once applied to sparsely settled agricultural areas as distinguished from settled, **urban** areas. See **Rural**.

Sprawl

Sprawl or sprawling is overused and misused in describing **dysfunctional human settlement patterns**. See **Sprawl**.

Suburb/Suburban

Suburb/Suburban have morphed from adjectives to

nouns and verbs and have acquired varied confusing meaning and interpretations. "**Suburban**" has been in use in the English Language since the 15th Century. It means "less than **urban**" and was used to describe undesirable persons (pimps, prostitutes, petty thieves, and potential traitors) who could not be trusted to be inside the walls of the "**city**" at night or during times of danger. The common usage has expanded and is now meaningless. See **Suburb/ Suburban**.