Chapter 2: The Scenario Planning Process

Scenario Planning and Visualization Techniques

To help assess the broad and dynamic array of issues involving land use and transportation, the CVMPO applied a process referred to as "scenario planning." Federal transportation planning regulations and policies included in the current SAFETEA-LU legislation encourage scenario planning as a method to support integrated land use and transportation planning.

Scenario planning can help communities and transportation agencies work together to:

- Articulate community values and preferences;
- Develop evaluation criteria, based on community values, that can be used to help make transportation and land use decisions;
- Demonstrate the long-term impacts of current policies and development decisions on community quality of life;
- Visualize and evaluate alternative land use and transportation scenarios for their potential to balance goals for mobility, accessibility and livability;
- Create a shared vision for future growth; and
- Identify transportation investments and land use policies that are consistent with the shared vision.

Federal transportation planning regulations also call for the use of visualization techniques in MPO planning processes. "To strengthen public participation in the planning and project delivery process and specifically to aid the public in understanding proposed plans, SAFETEA-LU calls for States and MPOs to use visualization techniques. Through visual imagery, the complex character of proposed transportation plans, policies, and programs can be portrayed at appropriate scales -- state, region, local area, project architecture, etc. and from different points of view."* Examples of visualization techniques, many of which were used to develop Plan 2035, include sketches, drawings, artist renderings, physical models and maps, simulated photos, videos, computer modeled images, interactive GIS systems, GIS based scenario planning tools, photo manipulation and computer simulation.

Using Scenario Analyses to Generate New Perspectives and Ideas

To develop the analysis, the planning team used regional growth projections from the MPO's travel demand model to create a computer-generated "trend" scenario map of probable future development patterns given current land use plans. Through a series of meetings and workshops with community members, the planning team generated several alternative development scenarios.

The team used a computer mapping software tool called CorPlan to evaluate the impacts of each scenario on the transportation system, the natural environment, and other factors that affect overall quality of life as defined by the community. Based upon additional public input and discussions with local planners, the team developed a conceptual "Alternative Perspective" map that incorporates the best elements from each

^{*} FHWA 23 CFR Parts 450 and 500 and FTA 49 CFR Part 613, Subpart C Metropolitan Transportation Planning and Programming, Sec. 450.300: Purpose, and 450.306: Scope of the Transportation Planning Process

scenario. The Alternative Perspective map and supporting data will provide guidance to local land use and transportation planners as they seek to advance more efficient, cost-effective, and environmentally sensitive land use patterns and transportation systems.

The transportation recommendations in Plan 2035 are based on the "trend" scenario, since it most closely reflects currently adopted local land use plans. The Alternative Perspectives scenario is not a regional land use plan. But over the next few years, CVMPO member localities will be able to use the "Alternative Perspectives" map and policy considerations as a resource for updating their comprehensive plans. Based on these updated plans, the CVMPO will re-assess future transportation needs and develop an updated set of recommendations for the 2040 LRTP.

The Scenario Planning Process

Originally developed for military and corporate strategic planning efforts, scenario planning techniques and tools have been adapted for the purpose of regional transportation planning by USDOT and a number of leading MPOs over the past 20 years. The approach is typically organized around the four basic questions shown below. The ways in which the Central Virginia MPO addressed each question are described in the remainder of this chapter.



Figure 2-1: The Scenario Planning Process

SCENARIO PLANNING PROCES

Where Are We Now?

Community Vision and Values

The first step in the scenario planning process was to elicit and articulate widely held community values in the form of guiding principles. The principles served as a touchstone for the planning team throughout the process of generating scenarios, evaluating their impacts, and identifying land use and transportation strategies. These guiding principles were identified through the initial focus group sessions and reviews of local plans and policies, and then affirmed in subsequent public workshops and meetings:

Guiding Principles: In the year 2035, Central Virginia will be a place where -

- Our people enjoy a strong sense of community.
- Our businesses thrive and prosper.
- Our natural beauty flourishes.
- Our region is **accessible to businesses** and visitors from around the world.
- Our communities are accessible to people of all ages and abilities.

Transportation Network

Within this planning area, there is a variety of transportation system characteristics and travel demand issues reflecting the different contexts and character of local communities and regional economic engines. Major transportation infrastructure in the region includes several major regional arterial roadways including US Routes 29, 501, and 460; growing urban and rural transit services; newly expanded passenger rail service; a rich bed of freight rail service; a regional airport and numerous private passenger and cargo air services; and a strong and growing network of trail facilities.

Community Development Patterns: The "Four D's"

Based upon extensive studies of the relationships between land use patterns and travel behavior, transportation researchers have identified several specific factors of the built environment that have a direct bearing upon our mobility options and choices. Known as "The Four D's," these factors include key characteristics that are strongly affected by local government land use policies, regulations and incentives: Density, Diversity, Design, and Destination.

Density describes the number of households and jobs within a given location, such as a neighborhood, a central business district, the area within a half-mile of a transit-stop or a traffic analysis zone. It influences the number of trips

Figure 2-2: The "Four Ds"



that are produced by, and attracted to, that location. It also plays an important part in creating a market for transit. To support fixed-route bus transit, for example, a residential neighborhood typically needs a minimum of five to seven housing units per acre.

Diversity describes the variety of origins and destinations within a given location. A more diverse array of activities within close proximity creates opportunities for people who live, work or shop in the area to meet their daily needs through short vehicle trips, or by walking or bicycling. In places where origins and destinations are separated by more than a mile or two, people usually have to rely upon the automobile for every trip they make.





Design refers to the way in which a given place is laid out in terms of street and buildings,

which can "make or break" the option to walk and/or use transit. Walkable communities typically feature short, interconnected blocks (300-600 feet between intersections) lined by a variety of pedestrian-accessible buildings oriented toward the street. Cars can park on the street, in garages, and/or in surface lots behind buildings, but not in large surface lots that force pedestrians to cross expanses of asphalt in order to get from sidewalks to buildings.

Destination refers to the location and accessibility of a given place via roadway, transit, bicycle and pedestrian networks. Places that can be reached easily by a variety of modes are more likely to generate fewer vehicle trips than places located in isolated areas that can be reached only by automobiles.

Community Elements: The Building Blocks of Regional Development Patterns

A "community element" is a prototypical place-type within which the Four D's can be measured and illustrated. Each element is a half-mile square, which represents a ten-minute walking distance from one side to another. The planning team created a computer-based inventory of about a dozen existing community elements that collectively represent the gamut of typical places found throughout the Central Virginia region. Each element features a unique blend of density, diversity and design, and destination characteristics.

By arranging the elements in different patterns, the planning team worked with the community to create and evaluate alternative regional development scenarios that could support a variety of transportation systems, from automobile-oriented places to transit-oriented communities. At the first round of public meetings conducted for the Plan2035 process, local residents were asked to critique the existing community elements and suggest ideas for enhancing them in the future to more closely align with community values and preferences. These "enhanced" elements, described at the end of this chapter, provide small blueprints that can guide local plans, policies and regulations for future development.

URBAN COMMUNITY ELEMENTS

Typical travel modes



The urban core of Lynchburg reflects the highest intensity and mix of all community elements within the region. It includes the central business district core and surrounding high-density residential neighborhoods. The key characteristics of these urban elements include a well connected street network, a mix of housing choices, and opportunities for walking, biking, shopping and recreation all in close proximity. The densities of these places support transit service and structured parking.



Figure 2-4: Downtown Mixed Use Community Element

SCENARIO PLANNING PROCES

VILLAGE/ ENHANCED SUBURBAN ELEMENTS

Traditional villages, such as Amherst, feature connected streets, a mixture of housing types and styles, and a range of densities and intensities. Housing and jobs are close to each other; streets and buildings are scaled to encourage walking and visiting. Enhanced suburban places have a more urbane mix of density, diversity and design, but at lower intensities than cities. Densities approach those necessary to support transit. The close proximity of activities also support shorter commute trips, biking and walking. The new mixed-use development at Wyndhurst is a good example of an effort to create an enhanced suburban place. Although the hoped-for balance of commercial and residential growth has not yet been achieved, and the street network could benefit from a greater variety of connections and access points, the project is a positive example of the private sector's interest in creating more walkable, mixed-use places.

This place type is also found in neighborhoods at the edge of urban centers, such as the area around Randolph College and the Rivermont Corridor. These older residential neighborhoods have characteristics similar to a traditional village or town, with smaller street blocks, a mixture of housing, good proximity to jobs (both downtown and the college), as well as shopping and recreational amenities like parks.





Typical travel modes

Figure 2-5: Village Community Element



Figure 2-6: Enhanced Suburban Community Element



SUBURBAN COMMUNITY ELEMENTS

Typical travel modes



SCENARIO PLANNING PROCES

Typical post-1950s suburban settlement patterns are designed for automobile access, and do not usually encourage walking. They are characterized by single uses, lower densities, and limited road connectivity. Big box, regional malls or strip commercial highways are typical of employment and retail areas. Occasionally residential neighborhoods are found in close proximity to commercial centers, but connections are limited, and reliance is still on the automobile as the primary mode of transport. Housing types are typically single family detached.

Higher intensity suburban place types include industrial centers and campuses located outside of urban areas. These job centers are located in suburban destinations and do not feature the types of diversity or design found in urban centers, but they do have density levels that rival those of the region's urban areas. The location of these high intensity job centers, typically along suburban or rural highways, affect important regional transportation system performance indicators such as average commute distances, and total vehicle miles and vehicle hours traveled (VMT and VHT).



Figure 2-7: Suburban Residential Community Element



Figure 2-8: Suburban Retail Community Element



RURAL COMMUNITY ELEMENTS

Typical travel modes



Rural areas typically are composed of very low density settlement patterns, and are a mixture of working farm land, forests, and open space, with occasional residential. Development patterns in the rural areas tend towards large-lot single family homes or gated subdivisions. A couple of stores and houses at various cross-roads form small hamlets. In general, rural community elements have very low intensities, are primarily residential in nature, and are accessible by car or, where available, by demand -response rural transit.



Figure 2-9: Rural Residential Community Element

Where Are We Going?

Demographic and Economic Trends and Issues

The Lynchburg region has experienced steady growth over the past years and is expected to continue this trend into the future. By the year 2035, the population is expected to increase by approximately 33,000 residents, with the number of households increasing by 13,000. This would bring the total number of people to about 174,000, living in about 72,000 housing units. About 12,000 new jobs are anticipated to be created within the region during the same time frame.

A prolonged global economic recession may slow down this anticipated growth to a degree. But Central Virginia is fortunate to have a stable, diverse array of industries and employers that, collectively, will help to lessen the dramatic economic impacts facing many other regions. Some level of growth is likely here, which means it is important to continue planning to invest in transportation projects and programs that will increase mobility and accessibility for people and goods. These capacity expansions must be made in ways that complement the desired future character and function of local urban, suburban, and rural places, and they must meet the mobility needs of a changing population that is likely to need or want more opportunities to walk, bicycle and take transit.

The Changing Community

In Central Virginia, as in the nation as a whole, the average age of the population is increasing. As the Baby Boomers move into their senior years, mobility options that provide safe, convenient alternatives to driving will become increasingly important. Street design strategies may be needed to improve visibility and slow down traffic in areas with concentrations of older drivers and pedestrians. In addition, there will likely be an increased market for smaller housing units located in compact, walkable, mixed use centers.

The development of more vibrant urban and suburban centers will also help the region attract a demographic group coveted by many up-and-coming cities: the so-called "creative class" of young professionals. Studies by economists such as Richard Florida show that incoming generations of young, well-educated adults who have the resources to choose where they live are seeking cities that offer affordable downtown homes with access to a variety of urban activities as well as nearby natural and recreational areas.

By continuing to invest in the development of urban, enhanced suburban, and village centers that feature complete networks of sidewalks, bicycle paths, gridded streets, and transit services, the Central Virginia region can position itself to attract young professionals and active older adults. In addition, the region's continued commitment to excellent schools and safe neighborhoods will encourage younger adults to settle down and raise their families here, which will in turn attract more older adults seeking to be close to their children and grandchildren.

The Changing Economy

The Central Virginia region is blessed with a variety of stable, growing businesses ranging from health services and universities to energy-based manufacturing and research industries. These employers and services provide a growing market for transportation services and infrastructure. For example, transit ridership on city buses has dramatically increased in recent years with the expansion of routes serving fast-growing Liberty University.

Major employers such as the French-based company Ariva provide clearly defined commuting centers that could be served by a variety of transportation options. They also make Lynchburg a destination for business travelers from around the world, making it important for the region to continue investing in regional roadway, rail and air access for passengers and goods. One of Lynchburg's economic competitors is Charlotte, North Carolina, the closest hub for many of the routes serving the region's airport.

Private development interest in urban redevelopment and infill has been growing over the past few years. Lynchburg has capitalized upon the nationally growing market for urban dwelling by engaging in a number of planning and economic development initiatives to improve the attractiveness and functionality of the urban core and surrounding neighborhoods.

Growth in urban-centered jobs and households can be supported by existing and expanded pedestrian, bicycle and transit systems. This will greatly help to offset the traffic congestion that could otherwise ensue from higher densities and concentrations of activity.

At the other end of the development spectrum, rural residential growth accompanied by small pockets of local commercial activity is occurring in areas such as Forest and other locations close to the Smith Mountain Lake resort region. This type of suburban development pattern, while creating much-needed tax revenues for rural counties, poses increasing stress on regional roadways and, even more so, upon narrow secondary roads. Congestion is growing on larger arterial corridors lined with multiple driveways to shopping centers and other activities, while traffic on rural secondary roads is growing to the point of requiring expensive capacity expansion to keep up with travel demand.

Ironically, many communities have found that the increased capacity gained by making costly investments to widen congested highways is quickly swallowed up by drivers who shift their travel routes from narrower, lower-speed routes to the faster highway. Over a few years, the increased access provided by the higherspeed corridor tends to draw more development, which in turn generates more traffic.

Since congestion grows through an iterative process of changes in land use and transportation capacity, the solutions that can break the cycle of ever-increasing suburban traffic require a coordinated approach Strategies such as those found in the Plan2035 land use policy recommendations (Chapter 6) can help to focus growth into more compact communities. When this kind of strategy is coupled with access management programs and rural preservation policies, it can make a real difference in a community's ability to make the most of its existing transportation network and manage future travel demand.

The Changing Environment

Two important environmental planning factors that have a strong relationship to travel demand and transportation capacity are 1) the amount of open space consumed for the development of buildings, streets, and parking lots (sometimes called the development "footprint"); and 2) the amount of fossil fuels consumed and greenhouse gases emitted by vehicles traveling within the region's roadways, rail lines and airspace.

Like many communities, the Central Virginia region's "development footprint" has increased quickly since the mid 20th century, concurrent with the expanded personal mobility provided by private automobiles. Large-lot subdivisions along secondary roads dot the rural landscape in many places. Low-density growth is generally dispersed across the region. Most new development consists of automobile-oriented residential or commercial centers, although new markets have begun to open up for walkable mixed-use communities such as Wyndhurst and urban infill and redevelopment projects.

Large-footprint development patterns perpetuate a reliance on the automobile because most origins and destinations are too far apart to be reached by walking or cycling, and because places that are not accessible to pedestrians are not good candidates for transit service. The increased vehicle traffic generated by every new subdivision (a typical household generates about nine trips per day) has a cumulative impact on environmental conditions such as greenhouse gas emissions.

In addition, the acres of asphalt taken up by roads and parking lots create expanses of impervious surfaces that shed pollutants into nearby groundwater when it rains. They also absorb the heat of the sun, which, on a large scale, is thought to be one of the factors contributing to the recent and projected trends of global climate change.

The issues associated with fossil fuel consumption are exacerbated by development partners that force people to travel several miles in private vehicles to work, shopping, and other activities. It is well known that the world's supply of oil, while still quite plentiful, is not naturally renewable and will eventually run out. Oil is also becoming more difficult and expensive to extract, as witnessed by the recent catastrophic spill from a damaged well off the coast of Louisiana.

Major oil companies and other public and private sector organizations across the country are working hard to develop alternative energy sources and technologies to reduce our dependence upon fossil fuels. Alternative energy strategies will, it is hoped, gradually cut down on the amount of vehicle-generated pollutants emitted into the atmosphere. However, advances in technology are not likely to solve the problem single-handedly. It is equally important, if not more so, to work toward reducing the overall amount of vehicle miles traveled (VMT) by people and goods as they move about the business of daily life, as well as the congestion that causes idling vehicles to emit pollutants in higher concentrations at roadway chokepoints.

Providing ways for people to take shorter trips and to choose to walk, cycle or use transit for some or all of their daily travel is a proven strategy for reducing VMT. It has the added benefit of helping individuals save money on fuel, which will become a more critical need as gas prices continue to increase over time.

The purpose of the scenario planning process was to help the Central Virginia region explore strategies to sustain the region's "triple bottom line:" economic prosperity, environmental stewardship, and community quality of life. The next section describes the scenarios the community helped the planning team create.

Future Growth Scenarios

Alternative A: Trend Scenario

The trend scenario represents how future development might occur given the continuation of existing policies and past trends. The map below shows a dispersed pattern of growth distributed fairly evenly across the region, with residential uses situated fairly far away from jobs and services.

Density of new development is relatively low, at 1.7 households per acre, and 25% of new housing multifamily (townhouse or condominium/apartments). **Diversity** is relatively low, meaning that nearly all new jobs, stores, and houses are in separate single use areas. Based on current trends, the **design** of the new development will be relatively autocentric, meaning that due to the distances between the future housing and jobs/services residents will be dependent on their automobiles versus having convenient walking or available transit access. The **destination** factor is characterized by long distances between households, jobs and services, with no significantly new markets for transit services. Most residents will be dependent on their cars for everyday travel.

Figure 2-10: Trend Scenario



SCENARIO PLANNING PROCES

Multimodal Corridor Development Concept

One of the key aspects of the Alternative Perspective Scenario, and also an important focus of corridor improvements within the current constrained plan, is the need to develop multimodal corridors that provide multiple means for the movement of people and goods, from driving and taking transit to walking and bicycling. An urban or suburban multimodal corridor is flanked by a built environment that is carefully designed to encourage pedestrian accessibility, but not at the expense of vehicle mobility. It features site-level and corridor-wide access management strategies consistent with the current VDOT guidelines and

national best practices. The following series of illustrations show ways in which general best practices can be applied over time to transform a typical suburban strip corridor into a mixed use, multimodal center.

The focus area for this hypothetical exercise is Timberlake Drive just west of Greenview Drive. This section was chosen because it represents typical suburban conditions on major roads through the region. Also, due to its proximity to both Cornerstone to the southeast, Wyndhurst to the northeast, and the High School directly to the east it is feasible that this corridor could become the center of a suburban area that supports multimodal access and development.

Existing Conditions

The suburban strip center along Timberlake Drive is characterized by massive paved parking lots that separate the major destinations from the street and from each other. The result is an auto-centric environment

despite the fact that it is located quite close to some residential areas. This development condition does not provide an environment that is conducive for serving with transit or accessing by other modes of travel including bicycling or walking. But over time, as redevelopment occurs, this type of conventional suburban strip mall can be transformed into a vibrant, diverse, and accessible destination, community, or neighborhood.

Phase 1

Public street improvements and underground utilities enhance the pedestrian environment. Sidewalks, shade trees and street lights increase the community's walkability, inviting people to get out of their cars by providing safe travel options for people of all ages and abilities. In addition, median openings along the roadway are closed or modified to adhere to access management planning principles, and replaced with



Figure 2-25: Existing Conditions



Figure 2-26: Phase 1

Figure 2-22: Suburban Residential Enhancement: Create more external connections



Figure 2-23: Suburban Retail Enhancement: Add a mix of interconnected activities



Figure 2-24: Highway Commercial/Campus Enhancement: Create multimodal connectors





Figure 2-19: Village Center Enhancement: Improve street grids and encourage infill development



Figure 2-20: Suburban Enhanced Residential Enhancement: Add more connector streets



Figure 2-21: Suburban Town Center Enhancement: Add retail connected to residential areas



How Will We Get There?

Transportation Investments

Should the region, over time, implement the types of concepts presented in the Alternative Perspectives Scenario, transportation plans and investment priorities could change, both in terms of facility types and locations. Investments in regional and local networks that support villages and urban centers could become a higher priority, as could multimodal transportation facilities and policies to promote transit and pedestrian travel. For now, the constrained plan is focused on a completing few high-priority roadway capacity and safety improvements that have been "on the books" for a long time. But over time, if local policies begin to reflect a stronger commitment to more efficient land use patterns, the MPO's planning and prioritization methods can change to reflect changing economic, environmental and demographic conditions.

Land Use Policies and Strategies

As part of this long range transportation plan, each of the comprehensive planning documents were reviewed to evaluate how well they support consistency with the ideas embodied in the Alternative Perspectives Scenario, specifically consistency with overall policies and physical design guidelines that support development of mixed use centers and rural preservation objectives. Chapter 6 of this document contains a summary of land use policies and planning strategies that could be employed should the region choose to embrace a new philosophy on growth and transportation investments.

Enhanced Community Elements: "Building Blocks" for the Alternative Perspective

One type of strategy involves making collective improvements to The Four Ds' of the local built environment. The following images illustrate ideas generated by the community and the project team that would help to enhance local patterns in the future so they could become the building blocks for the sorts of efficient development partners shown in the Alternative Perspective scenario.



Figure 2-18: Downtown Mixed-Use Enhancement: Add residential development to commercial areas

Figure 2-	17:	Scenario	Evaluation	Criteria	Related	to	Community	Vision	&	Values
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Scenario Evaluation	Community Vision & Values									
Criteria Related to Vision & Values	Sense of Community	Local Prosperity	Natural Environment	Regional Accessibility	Community Accessibility					
Community Development										
Proximity to Existing Public Schools - Residential	1				 ✓ 					
Proximity to Existing Parks - Residential										
Employment Mix	✓	×		 ✓ 	✓					
Housing Mix	✓	 Image: A set of the set of the	✓							
Proximity to Existing Centers	✓	×	✓	✓	✓					
Mobility & Accessibility										
Proximity to Major Roads		 ✓ 		✓	✓					
Access to Existing Transit Stop		✓		✓	✓					
Enhanced Walkable Development	\checkmark		✓		✓					
Proximity to Existing Major Employers		×		✓	~					
Total Vehicle Miles Traveled			✓	✓	✓					
Pct. Increase VMT per household generated by new growth	×	✓			~					
Environmental Quality										
Total Acres Required	✓	 Image: A set of the set of the	✓	✓	✓					
Residential Density	✓	×	✓		\checkmark					
Proximity to Existing Water Lines		×		✓	✓					
Pct. Increase VMT per household generated by new growth	1	 Image: A start of the start of								

2

Comparing Scenario Outcomes

As shown in the charts below, the compact development pattern of the Alternative Perspective concept results in a dramatic decrease in additional VMT throughout the region. By shortening some vehicle trips (primarily non-work trips, which constitute the majority of regional travel purposes) and by allowing some vehicle trips to shift to pedestrian, bicycle or transit modes, the Alternative Perspective pattern could reduce future congestion on regional roadways, lessens the environmental impacts of development and vehicle travel, and provide increased mobility and accessibility for all local residents, regardless of age or ability.

The scenarios were evaluated according to a broad array of criteria above and beyond VMT. The chart below summarizes the types of criteria used to test the impacts of each scenario, and how they correspond to the Guiding Principles established at the outset of the planning process. The complete results of the scenario evaluation process are presented in the summary of workshops provided as an appendix to this document (Appendix A).















Figure 2-14: Alternative Perspective Scenario

Alternative Perspective Scenario

Characterized by:

•Better proximity of housing, jobs, and services

•Strong ability to serve with transit. More mobility choices

More housing type choices

•Less land consumed by future development

Growth Orientation:

(Residential = 40% inside Lynchburg / 60% outside)

(Employment = 40% inside Lynchburg / 60% outside)





Alternative D – Corridors Scenario

This scenario concentrates most new development along the region's major road corridors. Density of new development is moderate at approximately 3 households per acre, and 30% of new housing multifamily (townhouse or condominium/apartments). **Diversity** is moderately low. Most new jobs, stores, and houses are in separate single use locations. The **design** of new development is primarily automobile oriented. Some new subdivisions or shopping centers may support self-contained pedestrian trips, but are not likely to provide pedestrian-oriented access to the larger region. The **destination** aspect features distributed commercial centers along urban and suburban highways, flanked by residential areas. lt provides a few opportunities for new transit to larger employment centers and shopping centers.



Figure 2-13: Corridors Scenario

Where Do We Want To Be?

"Alternative Perspective" Composite Scenario

Based on feedback from the community and a technical evaluation process, the team constructed a prototypical development pattern that represents the sort of long-term strategies the region wants to pursue. The scenario is not a land use plan, but rather a guide to help shape plans for regional development patterns that support a more efficient, multi-modal transportation network. In this scenario, 40% of new households and jobs are in the City, while others are focused mostly within new and existing village centers. **Density** of new development is moderate, with a regional average of 4.15 households per acre (more in cities, less in rural areas); 43% of new housing is in multifamily units. **Diversity** is high, with new jobs and services located near residential development. The **design** supports multimodal mobility and is largely pedestrian focused. The **destination** factor provides for the ability to serve local communities with transit. Most trips can be made within the existing urban core and/or suburban town centers.

Alternative B: Village Scenario

The Villages scenario depicts a possible future in which new growth is largely focused within outlying village centers, with approximately 30% of new jobs and households assigned to the City of Lynchburg. Density of new development is moderately high at approximately 4 households per acre, and 40% of new housing in multifamily units (townhouse or condominium/apartments). Diversity is relatively high, meaning that nearly all new jobs, stores, and houses are clustered in Lynchburg and the village centers. The design of new developments supports multimodal mobility. New sidewalk networks and street connections between activities within close proximity of one another provide for choices to bicycle, walk, or take shorter car trips to accomplish daily errands and tasks. The destination factor provides for the opportunity to run express transit services to local villages around the region.

Alternative C: Urban Development Scenario

In this scenario, 70% of the future growth is directed into the urban core of the City, with the remaining occurring in existing villages. Density of new development is high at approximately 6 households per acre, and 60% of new housing multifamily (townhouse or condominium/apartments). **Diversity** is high. New jobs, stores, and houses are concentrated in Lynchburg and the suburban town centers. The design of the new development supports multimodal mobility and is largely pedestrian-The **destination** aspect features focused. higher density centers, which provides maximum opportunities to expand sidewalks and bicycle networks. Most trips can be made within the existing urban core and/or suburban town centers. The urban and suburban town center areas can be well served by transit with high frequency service.

Figure 2-11: Village Scenario



Figure 2-12: Urban Development Scenario



landscaping to improve traffic flow and enhance the streetscape. As redevelopment occurs, buildings are pulled closer to the street, with parking relocated to the rear entrances. A grid street network is created around the corridor. This provides opportunities for consolidating driveways and moving access points off of Timberlake, thus improving traffic flow and safety on the main boulevard.

Phase 2

One-story warehouse and office buildings become mixed-use buildings, with stores on the ground floor and apartments, condos or offices on upper floors, and structured parking. The corridor begins to become a local or regional shopping destination with storefronts and pedestrian plazas along new connector roads.

Phase 3

Additional mixed use development and connector streets complete the links to adjacent neighborhoods. Instead of driving to each individual store, residents can now walk to the center, or drive and park once in order to reach a variety of activities. The result is a lively suburban center that makes efficient use of land and helps to prevent further sprawl by building up instead of out.

The multimodal design has the potential to reduce vehicle miles traveled, cut down on pollution and keep residents active by making it possible for them to walk to stores and convenient services in their neighborhood. Studies have shown that compact, walkable neighborhood design strategies help to lower residents' risk of obesity and heart disease. They also reduce local air pollutants because residents don't have to drive as many miles every day. This high-quality community, with an attractive gathering place and enough residents to support the businesses and local services, ensures long-lasting economic vitality and environmental health.



Figure 2-27: Phase 2



Figure 2-28: Phase 3