DRAFT

Morgantown Area

BASELINE ECONOMIC CONDITIONS

Comprehensive Plan for the City of Morgantown, Comprehensive Plan for the Town of Star City and Long Range Transportation Plan for the Morgantown Monongalia Regional Planning Organization

Prepared March 18, 2012
For American Communities Partnership, Ltd. (ACP)

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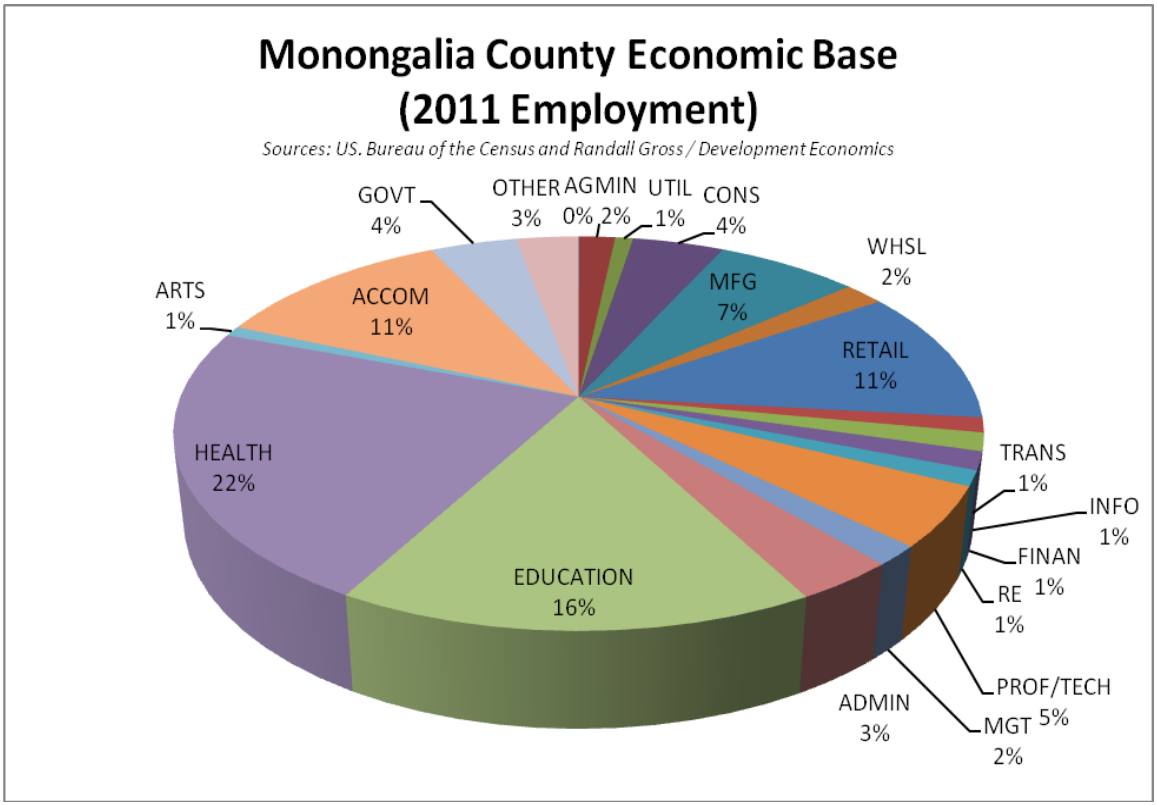
INTRODUCTION

This report provides an overview of existing economic conditions within the Morgantown area, as input to a Comprehensive Plan and Long-Range Transportation Plan. Field reconnaissance was conducted to assess existing economic conditions and to collect data and information from various local sources. Based on this information, and on a review of data from the U.S. Bureau of the Census, Bureau of Labor Statistics, West Virginia University, and other sources, a preliminary assessment was prepared to summarize economic conditions. In addition, a survey was conducted of area businesses to collect information on existing business conditions and key issues impacting on business operations. The response rate for this survey was low, so interviews were also conducted with individual businesses to help bolster the results. Key findings from these surveys and assessments are provided below as one input to the discussion of the local economy. Further information will be provided in a follow-up report on potential economic opportunities.

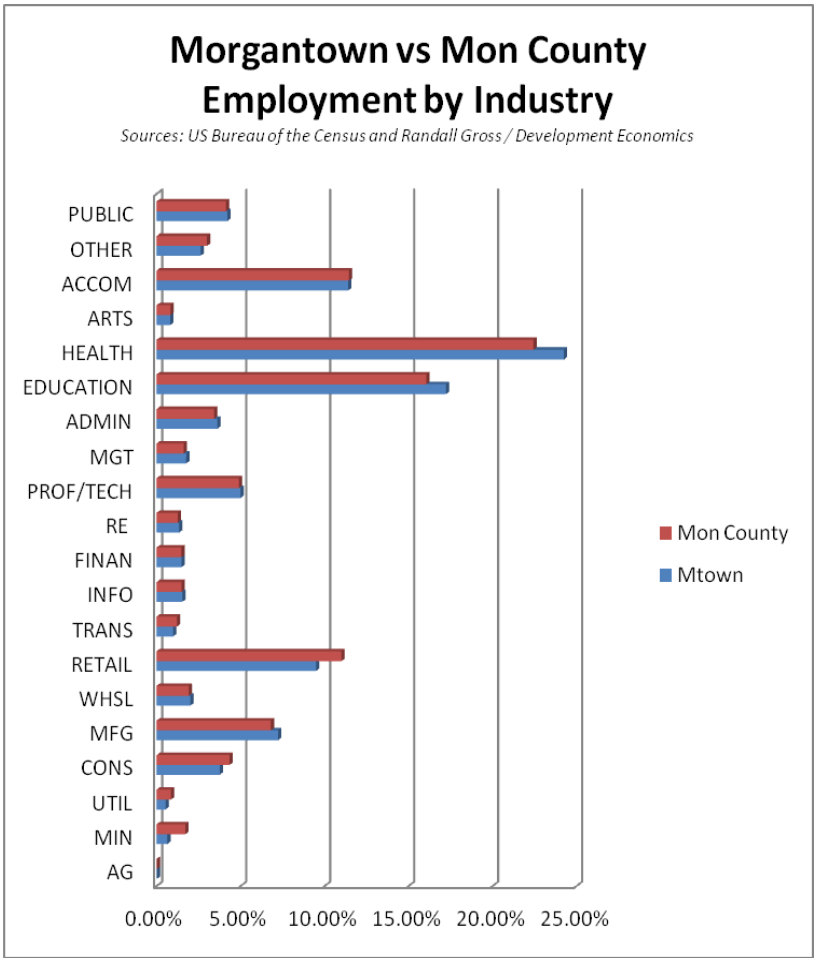
ECONOMIC BASE OVERVIEW

Morgantown is located within Monongalia County and is part of the Morgantown Metropolitan Statistical Area (MSA), which includes Monongalia and Preston counties. The Monongalia County economy is driven by health and education resources, which are concentrated there. West Virginia University (WVU), along with major hospitals and related health and social services, together generate almost 40% of the county's 51,725 jobs (in 2011).

Also important to the local economy are retail and accommodation services (each with 11% of Monongalia employment). Accommodation services include lodging as well as eating and drinking places. To some extent, the accommodation, retail and foodservice industries are dependent on sales generated by WVU, its faculty, staff, students, and visitors. Other important industries in the county include manufacturing (7%), professional & technical services (5%), and construction (4%). The public sector, including local, state and federal government agencies (excluding WVU, which is included in education), accounts for about 4% of total employment in the county.



More than 90% of the county's employment base is located within Morgantown. Less than 1% (about 440) of the county's jobs are located within Star City. The Star City economic base is oriented to retail and restaurants, real estate, manufacturing, local government and other services. Morgantown's economy closely mirrors that of the county as a whole. A slightly higher share of Morgantown employment is in education, health care, and manufacturing than in the county. Meanwhile, Morgantown has a slightly lower share of employment in retail, construction, utilities, and mining.



Major Employers

West Virginia University (WVU) employed 6,500 people in 2011, according to Census records, making it the largest single employer in the area. WVU Hospital employed another 4,050 people, not including 1,450 working for WVU Medical Corporation and another 140 in WVU Hospital Management. So, between its education and health care resources, WVU employed more than 12,000 people or almost one-fourth of all local workers in 2011. These numbers do not include people employed by the WVU Foundation, WVU Research Corporation, and other university-affiliated entities. Other key health care and education employers included Monongalia General Hospital, Valley Comprehensive Mental Health, Monongalia Board of Education, and West Virginia Rehabilitation Hospital.

Manufacturing. Mylan Pharmaceuticals (a subsidiary of Mylan, Inc.) is based in Morgantown. The company manufactures, markets and distributes generic pharmaceutical products and also conducts research & development (R&D) at its Morgantown facilities. The company employed about 2,530 people in its manufacturing arm and another 280 in wholesale distribution in 2011, making it the top private employer in Monongalia County. The much smaller Swanson

Plating Company, with just over 200 employees, is the second-largest manufacturing company in the area. As such, Mylan dominates local manufacturing employment.

Mining & Construction. While mining is not a major direct employer like it is in other parts of West Virginia, Monongalia County is home to companies servicing the mining, quarrying, oil and gas industries throughout the broader West Virginia / western Pennsylvania area. Tulsa-based Tunnel Ridge employs about 160 people in the area. Coastal Drilling and North American Drillers, both based in Mt. Morris, PA together employ about 260 people in Monongalia County. Construction companies like Kvaerner N.A. and March-Westin are also major employers in the area.

Government. In addition to local and state government functions, The U.S. Department of Energy employs more than 300 at its National Energy Technology Laboratory, while the Department of Agriculture employs about 100 people at the Natural Resources Conservation Service (NRCS) and other offices in Morgantown. The U.S. Centers for Disease Control (CDC) employs more than 340 at its Morgantown facilities, including the Health Effects Laboratory Division (HELD), Division of Safety Research (DSR), and Division of Respiratory Disease Studies (DRDS).

Other. Other sample private employers in the county include United Biosource Corporation (140+ in data processing), Gabriel Brothers (330+ in warehouse/corporate office), Urgent Care MSO (190+), Washington Group (180+), West Virginia's Choice (200+), Allegheny Power (180+ at power station), and others. Teletech Customer Care Management employs nearly 800 in telemarketing, making it the second largest private employer in the county. Waterfront Place Hotel is a major employer in the accommodation sector, with nearly 250 workers. Various retail and restaurant companies also employ hundreds at large stores like Wal-Mart, Kmart, Lowe's and others in the region.

Employment Trends

Monongalia County added about 12,600 jobs between 1998 and 2011, yielding a growth rate of 43.6% (or about **3.35%** per annum). This growth far surpassed the state's employment growth rate of **0.4%** per annum during this period. In fact, the Morgantown area has become a major growth node for the state of West Virginia. The most recent data suggest that the job growth in the Morgantown Metro Area has exceeded the rate of job creation at the national level.

Growth Sectors. Growth has not been concentrated in any one industry but has been spread throughout a large swath of the local economy. Growth rates in seven major industries exceeded the average for the county as a whole. The fastest growth was experienced in professional, scientific and technical

services, which saw an increase in employment of nearly 160% between 1998 and 2011. The presence of a large pharmaceutical company, together with research at WVU and government facilities like the National Energy Technology Laboratory and the Centers for Disease Control, have no doubt contributed to spin-off growth in the region's professional, scientific and technical jobs base.

- Professional, Scientific & Technical Services 157.6%
- Transport & Warehousing 131.5%
- Construction 104.4%
- Arts, Entertainment, Recreation Services 80.8%
- Manufacturing 68.4%
- Accommodation & Foodservice 64.0%
- Administrative Services 63.4%

Employment in transportation and warehousing also increased rapidly since 1998 (at 131.5%), as did employment in the construction sector (104.4%). Further diversifying the local economic and cultural base, employment in the arts, entertainment, and recreation industries increased by more than 80% during the 13-year period. Accommodation and food service employment also increased rapidly (64%), suggesting not only a need to meet growth in local demand (generated in part by population growth of more than 17% since 2000), but also to serve a growing travel and tourism industry. Growth in administrative services (which includes companies like Teletech and Action Facilities Management as well as other business service and waste management concerns) was also rapid at 63.4%.

Perhaps most interesting is the county's 68.4% growth in *manufacturing* employment since 1998. Given that the United States as a whole lost 5.3 million manufacturing jobs or nearly 46% of the manufacturing workforce between 1998 and 2009, Monongalia County is exceptional in its growth. Certainly the fact that large companies like Mylan Pharmaceutical have added significant workforce in Morgantown counter-balances declines in other manufacturing industries. Overall, Monongalia County manufacturing employment increased since 1998 in several industries, including food, chemicals (e.g., Mylan), non-metallic minerals, computers & electronics, furniture, and fabricated metal products (although down from 2009). At the same time, employment in several manufacturing industries has declined or disappeared, including jobs in textile mills, petroleum/coal, plastics, and transportation equipment. Employment in local machinery production has been slowly declining for the past 13 years. Other manufacturing has generally remained stable. Thus, the industry represents a "mixed-bag" in terms of employment growth, with a decline in more labor-intensive "heavy" industry but growth in some light manufacturing sectors. Overall, growth in Monongalia County manufacturing has far exceeded the national norm.

Declining Sectors. In addition to the several manufacturing industries that have seen declining employment, the county has also lost jobs in several

primary sectors. Forestry, fishing, hunting and agriculture employment has declined, but Monongalia County had less than 100 full-time jobs in this sector even in 1998. Mining, a mainstay industry for West Virginia, saw declining employment locally until 2006. However, since 2006, the industry has seen a re-bound, due in part to increased drilling and related services in the natural gas arena.

Recent data suggest that the development of Marcellus shale gas fields in the region have contributed to a sudden uptick in mining employment. From 1st Quarter 2010 to 1st Quarter 2011, mining employment increased by more than 20% in the Morgantown MSA, or about twice the rate of growth seen nationally.[1]

- Forestry, Fishing, Hunting, Agriculture -73.1%
- Mining -36.1%
  - *But increased between 2006 and 2011 by 25.9%*
- Management Services -25.2%
  - *But increased between 2006 and 2011 by 29.1%*

Similarly, the county lost management services jobs between 1998 and 2006, but has seen a turnaround since that time. Thus, despite the national recession, Monongalia County was able to generate a net increase in the jobs base and to reverse the downward trend in several key industries. Overall employment trends by industry are summarized in Appendix Table A-1.

Labor Force and Unemployment

According to the U.S. Bureau of Labor Statistics (BLS), the Morgantown MSA had a total civilian labor force of 63,900, with 3,500 unemployed as of December 2011. The metro area unemployment rate of 5.5%, though higher than the 3.2% rate recorded in 1st Quarter 2008, was still well below both the state (7.8%) and national (8.3%) averages. In fact, the Morgantown MSA had the 36th lowest unemployment rate of 372 metropolitan areas nationwide and 9th lowest among metro areas in the South. While housing markets have fallen precipitously around the country, Morgantown housing prices have generally held steady through the recession. The area's relatively stable economic performance no doubt reflects the strength of its core employment in education and health care, along with the dominance of a large and growing locally-based pharmaceutical company. The re-birth of the mining industry has no doubt contributed to an even faster local recovery from the 2008-2009 recession.

REGIONAL ASSETS

It is not surprising that *Forbes Magazine* ranks the Morgantown area as one of "America's Best Small Cities for Business and Careers." Morgantown, Star

[1] *Morgantown MSA Economic Monitor*, June 2011. West Virginia University Research Corporation.

City and Monongalia County have a wealth of assets on which to build a strong economic base. As the home of West Virginia University (WVU), Morgantown is the premier center for higher education in the state. The university brings not only highly-regarded resources for higher education but also cultural activities, research, healthcare, and vibrant student life. The contributions of the university and its 30,000 students to the region's socio-economic and cultural well-being are substantial.

WVU Healthcare operates WVU Hospitals - a 531-bed tertiary care center - and provides various health services for the region. WVU Hospitals includes Ruby Memorial Hospital, WVU Children's Hospital, John Michael Moore Trauma Center, and Chestnut Ridge Hospital in Morgantown. Monongalia General Hospital, West Virginia Rehabilitation Hospital, and other health care facilities are also important assets and resources for the region.

Morgantown's location near the intersection of Interstate 79 and Interstate 68 provides exceptional access to points north, south, and east. I-79 links Morgantown north to Pittsburgh, one of the nation's largest metropolitan areas and a major industrial hub, less than 1½ hours away. I-79 continues north to Erie, with direct connections east and west throughout the Great Lakes region. I-79 also links Morgantown south to Charleston and further links east and west. This highway is known as West Virginia's "High Tech Corridor," because of the presence of WVU, federal laboratories, and several corporate R&D facilities. Interstate 68 connects Morgantown to Cumberland, Maryland and provides direct access to points further east including Washington, DC and Baltimore. Since completion of this highway in 1991, travel time from Morgantown to Washington has been cut to less than four hours.

The region's natural setting is also a significant asset, providing a backdrop for the recreation and high-quality living for which West Virginia is well-known. In particular, the area's topography adds a visually-stunning setting for the community, its residential neighborhoods, institutions, and businesses. The Monongahela River, Coopers Rock State Forest, Dorsey Knob, and 1,730-acre Cheat Lake offer scenic beauty and recreation opportunities including Edgewater Marina, Lakeside Marina, and Sunset Beach Marina.

Downtown Morgantown and surrounding neighborhoods offer substantial historic assets and walk-able streets for dining and shopping, people-watching, and festive activities. The Monongalia Arts Center, Metropolitan Theatre, Riverfront Park, and other assets help enliven downtown. Other area attractions include Core Arboretum and WVU sports venues (Mountaineer Field, WVU Coliseum). Morgantown is also known for its Personal Rapid Transit (PRT) system, established as a public transit experiment by the U.S. Department of Transportation in 1975. Few cities of Morgantown's size have a transit system like the PRT, which efficiently moves thousands of people each year between WVU, downtown and other locations.

ECONOMIC DEVELOPMENT RESOURCES

While there is no agency within Morgantown City government which is focused on economic development, there are various organizations and entities involved in economic development throughout Monongalia County and the region. Several of the key economic development agents are described below.

Morgantown Area Economic Partnership (MAP) and Monongalia County Development Authority (MCDA)

The Morgantown Area Economic Partnership (MAP) operates as a non-profit, public-private partnership for economic development in Monongalia and Preston counties. MAP includes representation from local governments, the counties' respective economic development authorities, the Morgantown Area Chamber of Commerce, WVU, and various local businesses, financial institutions and utility companies. The Monongalia County Development Authority (MCDA) was established to "promote, develop, and advance the business prosperity and economic welfare of Monongalia County." MAP and MCDA collaborate on providing business assistance to new and existing businesses, in the form of capital financing, employee recruitment, training, tax incentives, trade, buildings and sites, and community and economic data.

MAP and MCDA regularly update their vision, mission, core goals, and objectives through annual work plans. The core goals of the *2012 Work Plan* are as follows:

1. Retain and expand existing businesses.

2. Recruit new businesses and investments.

3. Stimulate and support small business and entrepreneurial activity.

4. Improve the local, regional, and state business environment and increase the capacity to support economic growth and community development.

New or short-term initiatives set forth in this plan include collaboration with the City of Morgantown on a new business park on the east side of Morgantown Airport; extend Chaplin Hill Business Park Drive to open new parcels for development; update MAP's website and marketing materials; and take advantage of several "special opportunities." Longer-term initiatives focus on:

- Work with the Morgantown Metropolitan Planning Organization (MPO) to improve transportation facilities and services in the area;
- Construct a light manufacturing business incubator;

- Market the area for business recruitment and market its own services to assist local businesses;
- Continue to operate the 14,000 square-foot Morgantown Enterprise Center (MEC);
- Coordinate with other economic development agencies and efforts;
- Monitor environmental issues like air quality that impact on economic development;
- Continue to participate in regional micro loan (<$50,000) program;
- Continue to maintain and update community profiles;
- Apply for and secure WV Local Economic Development Matching Grant;
- Apply to renew Monongalia County's Certified Development Community Status; and
- Continue to inform the public about MAP's and MCDA's activities

Morgantown Area Chamber of Commerce
and Greater Morgantown Convention & Visitors Bureau

The Morgantown Area Chamber of Commerce is active in representing and supporting local business development. The Chamber has worked through Vision 2020, a volunteer organization of community leaders that supports efforts to solve problems and capture opportunities at the local level. The Greater Morgantown Convention and Visitors Bureau (CVB) helps support and promote the region's meeting and tourism base. Waterfront Place Hotel and the Morgantown Event Center provide rooms and 30,000 square feet of meeting space to accommodate intermediate-level conventions and trade shows. Overall, the area offers about 2,000 hotel rooms in support of business and tourism.

Main Street Morgantown

Main Street Morgantown (MSM) actively works to support the revitalization and continued success of downtown Morgantown and the Wharf District. MSM states that, since its founding in 1984, the organization has helped spur the creation of 1,300 new jobs, open 200 new businesses, and attract $126 million in investments through its historic preservation and economic development efforts.

West Virginia University

West Virginia University also plays an active role in regional and state economic development. The WVU Bureau of Business and Economic Research (BBER) provides regular updates on the region's and state's economy, sponsors conferences, and produces research on the region's economic outlook and opportunities within specific sectors. Within the Office of the Provost, the WVU Research Office has set as its goal to "…broaden its impact on the economies of West Virginia and the United States." The 5,000 square-foot West Virginia University Small Business Development Center (SBDC) "promotes economic

development by supporting entrepreneurs, advancing entrepreneurial activities, and nurturing early-stage businesses with space, facilities, and support services."

I-79 Development Council

The I-79 Development Council focuses on promoting the I-79 High Tech Corridor. The council's Executive Committee is comprised of representatives of WVU Office of Economic Development, banks, colleges, development authorities, and businesses. The Council is staffed to provide business assistance (focused on finance, tax credits, transportation and utilities), workforce development, information on available properties, and information on the area's technology resources. The council has a particular focus on promoting the area's concentration of biometrics, aerospace, and forensics technologies. The council developed the West Virginia Biometrics Initiative (WVBI), which is particularly focused on growing the region's biometrics and identity management economy.

Region VI Workforce Investment Board (WIB)

The Region VI Workforce Investment Board (WIB) operates as a non-profit organization under direction of the Governor's Workforce Investment Division. WIB is responsible for local implementation of the 1998 Workforce Investment Act, which aims to improve the quality of the workforce, reduce welfare dependency, and enhance productivity and competitiveness through various workforce training and investment activities.

BUSINESS SURVEY

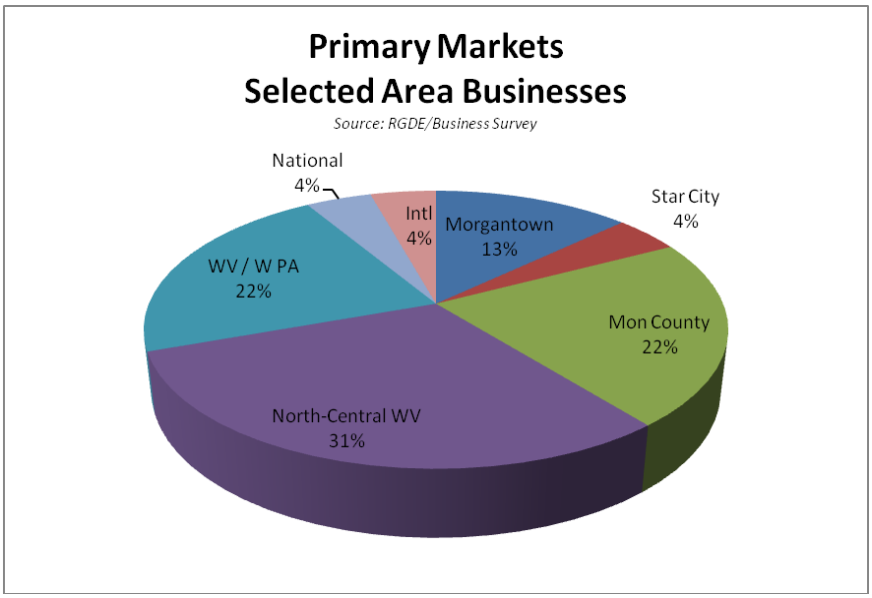
General business conditions were assessed based on the findings of an online survey as well as interviews with individual businesses. The online survey was publicized through the Chamber of Commerce and local leadership. Unfortunately, the response rate was relatively low and the results of the survey therefore cannot be held as representative of the overall business base. Even so, the results of the survey, coupled with data collected through individual interviews, can provide some general indicators of existing business conditions, opinions and needs as input to the planning process.

Business Characteristics

The survey and interviews yielded about 25 responses, which is insufficient to provide a representative sample of the region's business base but can provide input on indicative trends. The respondents included a relatively diverse mix of businesses and institutions, including professional & technical services; finance, insurance and real estate (FIRE); manufacturing; management; construction; education; arts, entertainment & recreation services, and other business services.

More than two-thirds of the responding businesses or institutions are based in the Morgantown area, and the businesses have been operating an average of more than 10 years. About 62% rent their facilities, with only 38% who own. The businesses employ an average of 34 people, but range in size from one to 150 employees.

Almost one-third of the businesses stated as their primary market the north-central West Virginia region. Another 22% said that Monongahela County alone is their primary market base. Similarly another 22% said that West Virginia and western Pennsylvania together form their market base. Only about 13% of the businesses depend primarily on Morgantown for their sales.



On average, businesses attributed 20% of their sales to West Virginia University contracts, student or staff expenditures. However, dependence on WVU ranged from none to 100%. In general, most of the responding businesses were not dependent on WVU for their sales, with 55% having 10% or less of their sales generated by WVU, its faculty, students or staff.

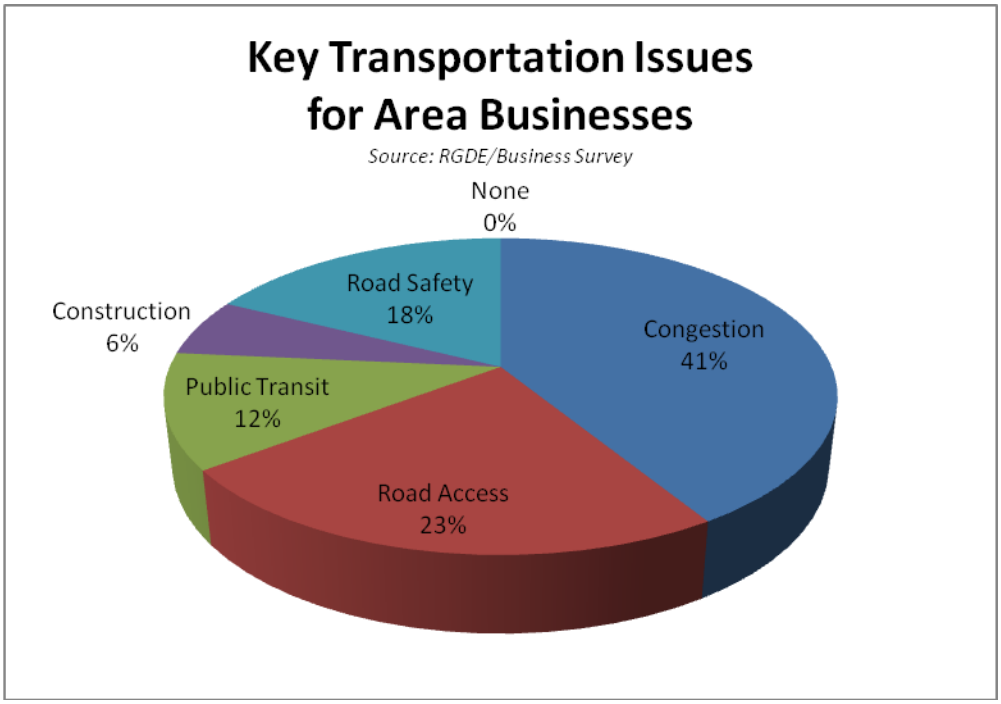
About 75% of businesses' space is in office use, using an average 11,000 square feet. About 30% of the responding businesses had seen recent expansions, and 54% plan new expansions over the next several years. These expansions are expected to add an average of about nine employees for each expanding business.

The reason that many businesses located where they are was due to visibility and access to their market base. The primary comparative advantages of the businesses' location were stated as:

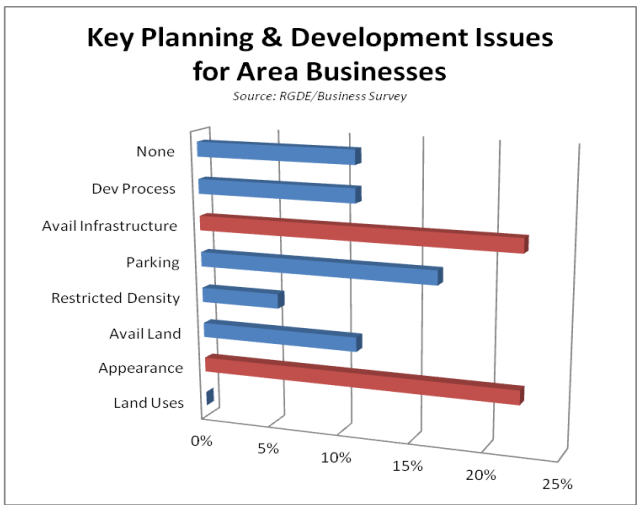
- Location/Market Access
- Available Building Space or Site
- Near the Owner's Home

The primary disadvantages of a Morgantown-area location were stated as:

- High Real Estate Costs
- High Taxes



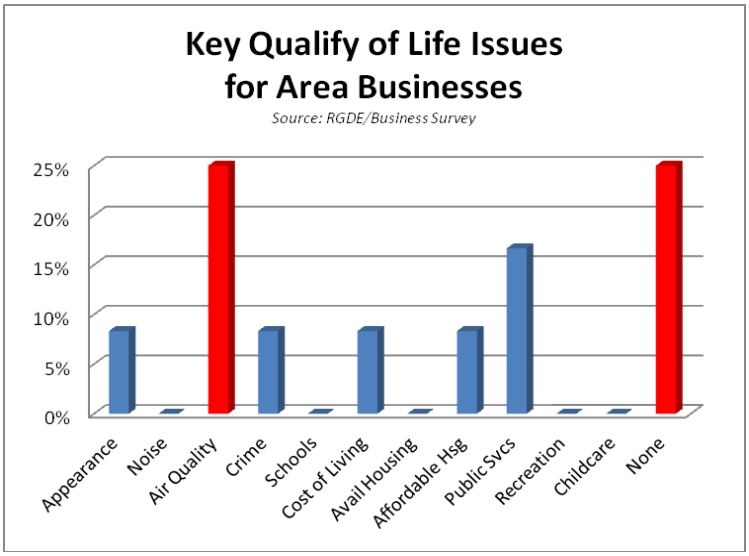
Businesses were also asked specifically about transportation and development issues. The key transportation issues for area businesses are dominated by traffic congestion (41% of responses), followed by road accessibility (23%), and road safety (18%).



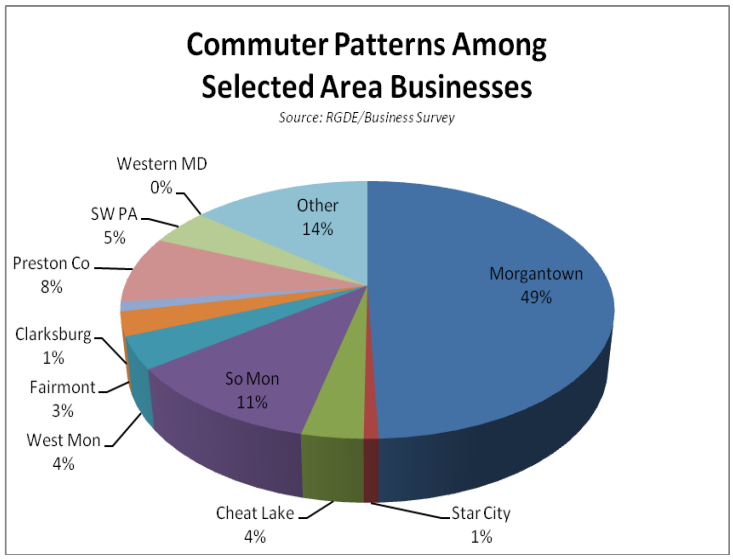
The key planning and development issues include visual appearance (of buildings, streetscape, etc) and the availability of developable land and infrastructure. Not surprisingly, the issues related to the type of business their needs. For example, manufacturing businesses

appeared to be concerned most with land and infrastructure, while retail and service businesses were concerned more with parking. Appearance, however, cut across several types of businesses. Tourism-oriented companies were particularly concerned about appearance and about the lack of regulation (or enforcement) in some areas.

While about 25% of the businesses did not identify any serious quality of life issues affecting their operations, a surprisingly large number identified air quality as a serious issue. It is not clear whether the air quality issues are related to the region's industry, vehicular traffic, or geography. Pollution may be trapped in mountain valleys, contributing to poor air quality in the region. The lower quality of public services was also identified as a key quality-of-life issue.



Businesses were asked about their employees' commuting patterns. Based on the information supplied by the respondents, there is the indication that about ½ of workers commute to work from within Morgantown. Another 11% commute from southern Monongahela County and 8% from Preston County. At least 5% commute from western Pennsylvania.



Among residents, the Census Bureau reports that, between 2005 and 2009 on average, 87.2% of Monongalia County workers commuted within the county, 7.2% worked in other West Virginia counties and 5.6% commuted to another state.

Business Needs

Area business needs were also assessed through the survey and interviews with businesses. Needs were defined in the context of how local government might help address some of the key issues identified above. Businesses in general identified a need to address infrastructure issues, particularly road conditions. Some businesses complained about the impact of coal trucks on road conditions as well as on air quality and noise pollution. Overall, traffic congestion was identified as a serious and growing problem that local government needed to help address.

Aside from roads, businesses also saw a general need to "formulate a new tax structure" that would help improve the business climate and also help support infrastructure upgrading. There were issues in particular identified with the B&O tax structure. Finally, businesses saw a need for local government to help improve the physical appearance of buildings through better enforcement, licensing, and other tools. The appearance issue seems most pronounced as it impacts on the region's tourism industry.

Employment Needs

Businesses generally listed as one of the advantages of the area its skilled workforce. That being said, surveys conducted by the 13-county Region VI WIB suggest that there remains a dearth of skilled workers and professionals with higher-level degrees. Education levels in the north-central West Virginia region have been increasing, with the share of adults having completed some college increasing from 11.3% in 1990 to 14.7% by 2003. Those with a Bachelor's degree increased from 7.1% to 8.5%, while those with a Graduate degree increased from 4.7% to 5.5% during the same period. Those residents with higher degrees tend to be concentrated in Morgantown and surrounding Monongalia County. Region VI WIB included 29 approved training provider organizations, offering a total of 135 courses of study for associate degrees, industry certifications, or apprenticeships as of 2007. There were about 350 Region VI students enrolled in training programs focused on truck driving, computer technologies, trades, administration, personal services, and miscellaneous professions.

Region VI WIB responded to the need for up to 3,730 jobs over five years (through 2012) based on projected employment opportunities in healthcare, information technologies, customer service, hospitality and food services, education and government. These projections did not foresee the economic recession of 2008-2009, but are generally consistent with the growth trends since 2007. Almost one-third of the identified employment needs were identified in healthcare, including caregivers, related support occupations, and health care facility staffing. Most of the jobs identified through workforce projections require

at least a high school diploma, although some of these jobs will require at least a Masters degree.

Regulatory Environment

Some of the businesses that participated in the survey or were interviewed seemed to suggest that the lack of enforcement of existing regulations was an issue. In particular, representatives of many businesses complained about the appearance of buildings and streets in the Morgantown area. Zoning and land use issues were not identified as a priority concern among businesses.

The broader development issues identified by business and the real estate community relate to the *cost* of development due to the lack of available "developable" land. The extreme topographical conditions within much of the study area have resulted in higher development costs while demand has increased the price for land, thus reducing opportunities in particular, for industrial development.

STRENGTHS & CHALLENGES

The baseline assessment provides a framework for discussion of key strengths and challenges in the local economic base. Further assessment of the opportunities will be summarized in a follow-up report, and additional information will also be garnered through roundtable discussions with businesses, but the basic overview provides key findings on the character of the area economy. Several key observations with respect to strengths and challenges are discussed below.

Strengths

Certainly a key strength of the Morgantown area economy is the presence of West Virginia University, which provides stability, attracts the "best and brightest" from the state and beyond, and invests in innovation that attracts entrepreneurial activity. The concentration of highly-skilled and educated professionals in the Morgantown area is fairly unique within the state and even within the 13-county workforce region. As such, the Morgantown area attracts industry in need of such skills. The university is pro-active in establishing and encouraging entrepreneurship through its various incubators, R&D park and other programs which help strengthen the region's base for economic development. WVU is also an anchor for marketing the region's I-79 High Tech Corridor, which also includes federal government research facilities and innovative private companies like Mylan Pharmaceuticals. The clustering of these activities does provide the region with a solid base for recruiting technology companies.

Morgantown's strategic location just 1½ hours south of Pittsburgh, accessible north and south by I-79 and east by I-68, also provides a competitive advantage for economic growth. Morgantown is part of an urban corridor linked closely with growing cities like Clarksburg and Fairmont in north-central West Virginia. The area also has access to natural resources, including shale reserves for natural gas production throughout western Pennsylvania and northern West Virginia. The surrounding area also has unparalleled natural beauty and a strong reputation for outdoor sports and recreation that increasingly attracts sports enthusiasts and tourists from around the country. The natural beauty and available recreation assets in the region contribute to the quality of life that is attractive to young entrepreneurs and emerging technology companies.

Challenges

While the area offers strengths, there are also challenges to its economic growth and development. Critical among these is the cost of development, which is driven up by a scarcity of developable land and lack of infrastructure. [The revised report will include a comparison of land and development costs, as well as discussion of the premiums on development within this region]. While the interstate system is effective in moving commuters from one part of the region to another, intra-city travel is challenging due to the antiquated road conditions. Traffic congestion is a serious complaint of business and residents alike. Winding mountain roads with steep drop-offs within an urban, inner-city context (especially in a heavy snowfall) contribute to the overall impression that driving is difficult within Morgantown. If not for the PRT and local bus transit, there would likely be even more serious road conditions. As the region continues to experience population and employment growth, the road network can help direct traffic more efficiently.

APPENDIX

Table A-1. **AT-PLACE EMPLOYMENT TRENDS, MONONGALIA COUNTY, 1998-2011**

					1998-2011 Change	
Industry	**1998**	**2006**	**2009**	**2011**	**Number**	**Percent**
Agriculture	*60*	*60*	25	16	(44)	-73.1%
Mining	**1,387**	**704**	**840**	**886**	**(501)**	**-36.1%**
Utilities	*311*	*333*	*362*	446	135	43.5%
Construction	**1,101**	**1,883**	**2,131**	**2,250**	**1,149**	**104.4%**
Manufacturing	**2,091**	***2,884***	**3,227**	**3,521**	**1,430**	**68.4%**
Wholesale trade	814	603	381	995	181	22.2%
Retail trade	4,825	5,827	6,289	5,694	869	18.0%
Transport	**270**	**306**	**417**	**625**	**355**	**131.5%**
Information	559	622	436	767	208	37.2%
Finance	750	997	847	765	15	2.0%
Real Estate	465	577	614	650	185	39.8%
Prof, Tech Svcs	**984**	**1,639**	**2,392**	**2,535**	**1,551**	**157.6%**
Management Svcs	**1,114**	**645**	**740**	**833**	**(281)**	**-25.2%**
Admin Svcs	**1,085**	**1,777**	**2,023**	**1,773**	**688**	**63.4%**
Education Svcs	184	*375*	261	246	62	33.7%
Health Care	**7,507**	**10,235**	**11,834**	**11,608**	**4,101**	**54.6%**
Arts, Entertain, Rec	**239**	***375***	**382**	**432**	**193**	**80.8%**
Accomm, Foodsvc	**3,614**	**4,587**	**5,271**	**5,927**	**2,313**	**64.0%**
Other svcs	1,491	1,394	1,502	1,540	49	3.3%
Not Classified	69	*10*	*10*	14	(55)	-79.8%
TOTAL	**28,921**	**35,830**	**39,982**	**41,523**	**12,602**	**43.6%**

Note: Some data estimated based on Census ranges. Totals may not add due to rounding.

Sources: U.S. Bureau of the Census and Randall Gross / Development Economics.

Randall Gross / *Development Economics*

Morgantown Area

OPPORTUNITIES ASSESSMENT

Comprehensive Plan for the City of Morgantown, Comprehensive Plan for the Town of Star City and Long Range Transportation Plan for the Morgantown Monongalia Regional Planning Organization

Prepared April 9, 2012
For American Communities Partnership, Ltd. (ACP)

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DRAFT DRAFT

INTRODUCTION

As an input to a Comprehensive Plan and Long-Range Transportation Plan, an "Opportunities Assessment" was conducted to identify possible economic development opportunities within the Morgantown-Monongalia County area. This assessment complements work on an Economic Overview completed earlier. Field reconnaissance, coupled with analysis of economic data, assessment of several comparable communities, and information from surveys and interviews, helped provide input to this Opportunities Assessment. The economic analysis considered Location Quotients (LQs) and other indicators of the area's competitive advantages for different types of industry. The findings of this assessment will be refined following meetings and roundtable discussions with local business and economic development entities. Further refinement will occur following the completion of market analyses which will forecast potential for commercial and other uses in the area.

INDUSTRY CLUSTERS & CONCENTRATIONS

A Location Quotients (LQ) analysis was conducted to identify Monongalia County's unique industry clusters and concentrations, as one indicator of the region's competitive advantage for attracting certain industries. LQs are simply a ratio or comparison of the county's employment share within each industry compared with industries' share of state, regional or national employment. An LQ ratio of 1.0 signals the county has exactly the same concentration of jobs (in a certain industry) as the state or the nation. Thus, the county may not be particularly unique as a location for that industry. An LQ of less than 0.70 signals the county has an unusually low concentration within that industry and may not be a particularly competitive location for that industry at present. An LQ of more than 1.3 signals a particularly strong or unique industry concentration within the local economy, suggesting that the area may have some unique advantages that have helped attract that industry in higher numbers (or with higher employment) than other places.

Not surprisingly, Monongalia County has a high concentration of the state's government and education jobs, largely because it is home to the state university plus several government laboratories. The analysis below focuses more on non-government private sector jobs, to identify key concentrations and clusters that help create synergies for business development in the area.

Major Industry Sectors

Among major private industry sectors, Monongalia County has a relatively high location quotient (LQ) within the state of West Virginia for management services (2.45), much higher than the 1.3 level threshold designating a concentration. This suggests that Monongalia County has a higher concentration of **management services** than other parts of the state. In addition, Mon County has about 15.8% of all management services employment in the state, even though the county only accounts for about 6.4% of the state's non-government job base.

Table 1. **INDUSTRY CONCENTRATIONS AND LOCATION QUOTIENTS (LQ), MONONGALIA COUNTY**

Industry	% Of State	LQ-State	% Of USA	LQ-USA
Agriculture	3.27%	0.509	0.0192%	0.608
Mining	2.47%	0.385	**0.1138%**	**3.614**
Utilities	5.35%	0.832	**0.0545%**	**1.731**
Construction	6.37%	0.991	0.0291%	0.924
Manufacturing	5.36%	0.833	0.0244%	0.776
Wholesale trade	2.15%	0.334	0.0072%	0.227
Retail trade	**6.74%**	1.047	**0.0400%**	**1.272**
Transport	2.32%	0.361	0.0090%	0.285
Information	5.06%	0.788	0.0158%	0.501
Finance	4.54%	0.706	0.0145%	0.459
Real Estate	**10.79%**	**1.679**	0.0338%	1.074
Prof, Tech Svcs	6.48%	1.008	0.0233%	0.740
Management Svcs	**15.75%**	**2.449**	0.0222%	0.705
Admin Svcs	**6.53%**	1.015	0.0203%	0.645
Education Svcs	2.99%	0.465	0.0078%	0.247
Health Care	**8.88%**	**1.382**	**0.0621%**	**1.971**
Arts, Entertain, Rec	3.08%	0.479	0.0174%	0.552
Accomm, Foodsvc	**8.00%**	**1.245**	**0.0424%**	**1.346**
Other svcs	5.48%	0.852	0.0269%	0.854
Not Classified	**7.32%**	1.138	0.0293%	0.929
Total	**6.43%**		**0.0315%**	

Note: Private industry only. Excludes Government, public universities / hospitals, etc.

Sources: U.S. Bureau of the Census and Randall Gross / Development Economics.

While Monongalia County has a high concentration of the state's management jobs, it is not well-represented nationally for these jobs, with a national LQ of only 0.70. Similarly with real estate, Monongalia County has a relatively high LQ of 1.68 within the state, but is just slightly above normal for the nation, at 1.07. Not surprisingly, the county has a relatively high LQ of 3.61 in the **mining** sector, which is highly concentrated in West Virginia overall. But when compared with other places in the state, Monongalia County is not that unusual, having an LQ of just 0.39, much lower than par with the state. Similarly, the county has a fairly high concentration of **utility** sector jobs (1.73) on a national basis, but not within West Virginia (0.83).

Where Mon County does seem to have a consistently high industry concentration is in **health care**, since the county's health care employment is higher than the norm for the state (1.38) and for the nation as a whole (1.97). The private health care industry is concentrated in Morgantown partly because of the university, and due to its central location for serving a population base throughout north-central West Virginia and beyond. Monongalia County also has a somewhat high LQ in **accommodation and foodservice**, both at the state (1.25) and national levels (1.35).

Selected Industries

Further analysis was completed to assess concentrations within certain selected industries. This analysis examined health care, accommodation, mining and utility industries because of Monongalia County's high LQ levels in those industries. Also examined were manufacturing and professional, scientific and technical services because of the county's significant growth trends in those industries.

Health Care. Health care includes ambulatory health services, hospitals, nursing & residential care facilities, and social assistance. Mon County has a somewhat significant concentration in hospital employment (1.38 as compared to the state and **1.63** to the nation). Aside from WVU Healthcare, Mon General (with workforce of nearly 1,500), along with West Virginia Rehabilitation Hospital (about 300) are major employers.

Accommodation & Foodservice. Within the accommodation and foodservice industries, there is no particular concentration, although the county has a fair representation of restaurants and drinking places.

Mining. The mining sector includes oil & gas extraction, mining (other than oil and gas) and support services. Monongalia County has a very strong concentration in the mining industry (LQ of **2.26**) on a national level, but as noted earlier, the state has much larger concentrations elsewhere. West Virginia as a whole still has more than 10% of the nation's mining jobs.

Utilities. The utility sector includes electric power generation, natural gas distribution, and water/sewer services. Mon County does not have a concentration within any particular utility industry, although it has a relatively significant share of the state's electric power generation employment.

Professional, Scientific, & Technical (PST) Services. This sector includes legal, accounting, architecture/engineering, specialized design, computer systems, management/technical consulting, scientific R&D, advertising/PR, and other PST services. The county has seen rapid growth in employment within this sector, and has a particular concentration in architecture and engineering services (LQ of 1.74 to the state and **1.95** to the nation). The concentration of services in Monongalia County may relate to or spin-off from the university. The county also has a relatively high concentration of scientific R&D services (LQ of 1.66 to the state and 1.54 for the nation), again perhaps spinning off from the university, serving federal laboratories, or attracted by regional economic development efforts oriented to high-tech industries. The county also has a fairly high concentration in management, scientific and technical consulting services (state 1.47 and national 1.29).

Manufacturing. There are about 20 major manufacturing industries, ranging from food production to fabricated metals. The county has a particularly strong concentration in the chemicals industry (LQ of **3.66** for the state and a very high **9.49** for the nation), mainly in pharmaceuticals thanks to the presence of Mylan Pharmaceuticals, which represents more than 90% of the county's chemical production employment. The county has a state concentration in computer manufacturing (LQ of **4.41**), with companies like FCX Systems, but lags behind the national norm at 0.91. Finally, the county has a minor concentration in fabricated metals production (1.27 in the state and 1.33 for the nation).

Summary

The analysis of concentrations and clusters suggests that WVU and other government activities have a spin-off impact on local private business, helping Monongalia County gain statewide or national concentrations in certain industries. The concentrations in health care and accommodation are no doubt assisted by the presence of a large university. Professional and technical services in architecture and engineering, scientific R&D, and management & technical consulting are likely to gain spin-off support such as through contracts from WVU and various federal laboratories in the area. While the county has a high concentration in mining on a national level, it is relatively small in comparison to other parts of West Virginia. Other than a small concentration in fabricated metals, the county's main manufacturing employment is concentrated in pharmaceuticals, thanks the presence of Mylan.

GROWTH PROSPECTS

West Virginia University's Bureau of Business and Economic Research (BBER) has forecasted positive job growth in all major industry sectors through 2015 for the Morgantown Metropolitan Statistical Area (MSA), which includes Monongalia and Preston Counties. The highest rates of growth will be in professional, scientific and technical services (3.7% per annum); construction (2.9%); education and health services (2.4%); and leisure and hospitality (1.8%).[1] These forecasts are relatively consistent with the region's growth trends as analyzed in the Baseline Economic Conditions report.

KEY COMPETITIVE ADVANTAGES

Several of the area's competitive advantages are identified below, based on the various economic analyses, field reconnaissance, interviews, surveys, and other inputs. This list will be refined further through roundtable focus group meetings with area businesses.

- **West Virginia University**. Provides economic stability, attracts the "best and brightest" from the state and beyond, and invests in innovation that attracts entrepreneurial activity. WVU faculty, staff and students also provide a large and well-educated market base for various goods and services in the regional economy.

- **Federal Laboratories and Innovation Base.** The presence of WVU as well as Mylan Pharmaceuticals and several federal government research facilities has helped strengthen the area's competitiveness for attracting industry and skilled professionals. The university has established an R&D park, various incubators, and other programs which help strengthen the region's innovation base. WVU is also an anchor for marketing the region's I-79 High Tech Corridor. The cluster of these activities provides the region with a solid base for recruiting technology companies.

- **Skilled Professional Base**. The Morgantown area has a relatively high concentration of skilled, educated professionals and business service providers that is unique within the state and broader region, excluding the major metropolitan areas. The presence of the university, along with federal research facilities, no doubt plays a role in attracting these professionals.

- **Regional Health Care Center**. Morgantown and Monongalia County are the health care hub for north-central West Virginia. The presence of

[1] *Morgantown MSA Outlook,* Bureau of Business and Economic Research, College of Business and Economics, West Virginia University, March 2011.

competitive and high-quality health care facilities helps enhance the quality of life for residents and increases health care standards for workers.

- **Proximity to Pittsburgh**. Morgantown's strategic location just 1½ hours south of Pittsburgh, accessible north and south by I-79 and east by I-68, also provides a competitive advantage for economic growth. Morgantown is part of an urban corridor linked closely with growing cities like Clarksburg and Fairmont in north-central West Virginia.

- **Access to Natural Resources.** The area also has access to natural resources, including shale reserves for natural gas production throughout western Pennsylvania and northern West Virginia. The surrounding area also has unparalleled natural beauty and a strong reputation for outdoor sports and recreation that increasingly attracts sports enthusiasts and tourists from around the country. Coopers Rock State Forest offers 50 miles of hiking/biking trails, white water rafting is available on the Cheat River, and the Rails Trails wind through the region. Natural beauty and available recreation assets in the region contribute to the quality of life that is attractive to young entrepreneurs and emerging technology companies, as well as to retirees and others seeking recreation amenities and a slower pace of life.

- **Historic Downtown and Riverfront Amenities**. Morgantown offers an historic, walk-able downtown environment that is attractive for visitors and residents alike. There are several unique destination stores catering not only to university patrons but also to the region's large recreation-based market. The riverfront offers relatively new meeting, lodging and convention facilities. The PRT, a unique public transit system, helps provide transportation between university campuses and downtown.

COMPARABLE COMMUNITIES

In order to help identify key characteristics of the region that help strengthen its competitive advantages and provide input to potential opportunities, an assessment was conducted of several "comparable" communities. No community is exactly like Morgantown, which has so many unique characteristics. However, several communities were identified which share some key characteristics and provide a framework for discussion of success factors that may apply to Morgantown.

Among the factors used to identify "comparable" communities were their relative size and location, accessibility, economic base, natural features, and university orientation, among others. In general, these communities tend to be similarly-sized university towns located in the Appalachian region. The cities examined included Asheville (NC), Athens (OH), Blacksburg (VA), Kingsport

(TN), Ithaca (NY), Burlington (VT), Corvallis (OR), State College (PA), and Logan (UT). A selection of findings on these cities is described below.

- **Asheville, North Carolina.** Asheville, a city of 84,000 in western North Carolina, shares with Morgantown a mountainous Appalachian terrain, steady growth, large health-care employers, and a youth-oriented culture. While not the home of a major university, the Asheville area nevertheless draws thousands of students to its ten universities, including the University of North Carolina-Asheville. The region's economy is tourism-based, with sites such as the Vanderbilt mansion (Biltmore) and the nearby Great Smoky Mountains National Park. But the city itself has become a draw for artists and craftsmen from around the country, who appreciate its laid-back atmosphere. This cultural dynamic has contributed to the city's renaissance and its ability to attract educated professionals, designers, and high-tech firms. The city's population expanded by 21.1% between 2000 and 2010.

- **Blacksburg, Virginia**. Home of Virginia Polytechnic Institute and State University ("Virginia Tech,") Blacksburg is another mountain city and college town that is an economic hub for a broader region. Virginia Tech has enrollment of about 28,000, while Blacksburg has a total population base of 40,000. While development of Virginia Tech's R&D park has been slow, the area has attracted a concentration of engineering firms and services due to the presence of the university. Blacksburg has also become an attractive retirement location, with significant lifestyle amenities appealing to retirees. Major private employers include hospitals and health care providers, as well as several manufacturing firms. Like in Morgantown, Blacksburg's manufacturing base increased at the same time that national and regional manufacturers were cutting jobs.

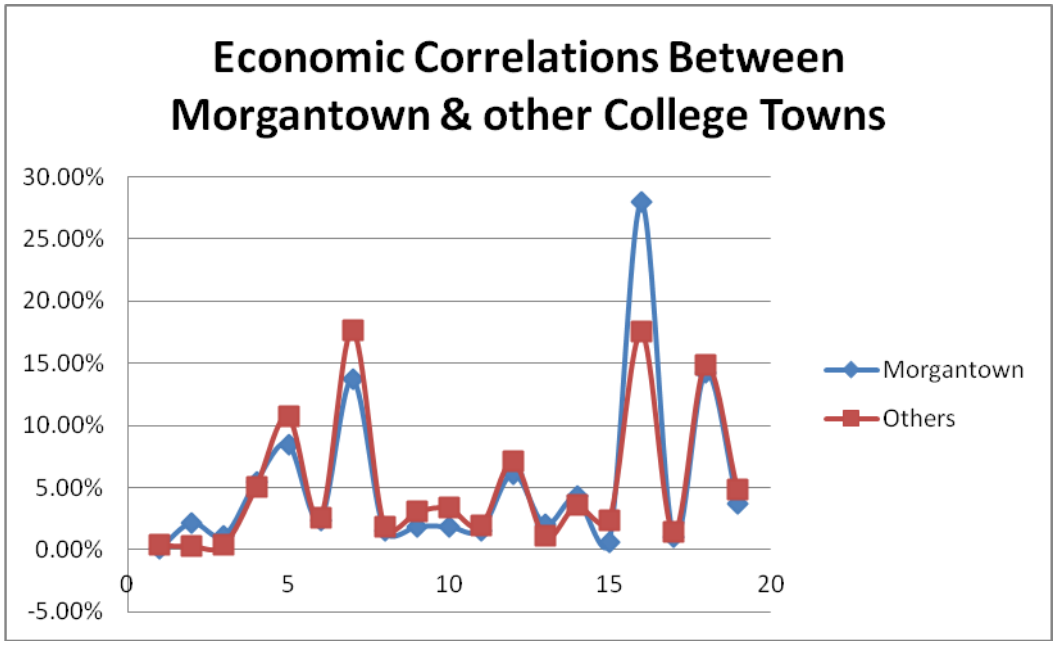
- **Ithaca, New York**. Cornell University dominates the cultural and economic life of Ithaca, another small city (with a population of 30,000) hemmed into mountainous terrain in the Appalachian range. Ithaca's hills are so steep that a second downtown district has established itself at the top of the hill near the university. Great and beautiful gorges push clean water through falls on Cornell's campus. Ithaca is located at the northern end of the gas boom that is impacting on the region south to Morgantown. Other than the universities (Cornell and Ithaca College) and the booming gas industry, Ithaca's economy is driven by manufacturing, high tech services, and tourism.

- **State College, Pennsylvania**. As home to a major state university (Penn State), State College's economic base is heavily influenced by the university. Health care also plays a critical role in the local economy, along with hospitality, retail, and government. Raytheon has a major presence in the area, with its Intelligence and Information Systems R&D division

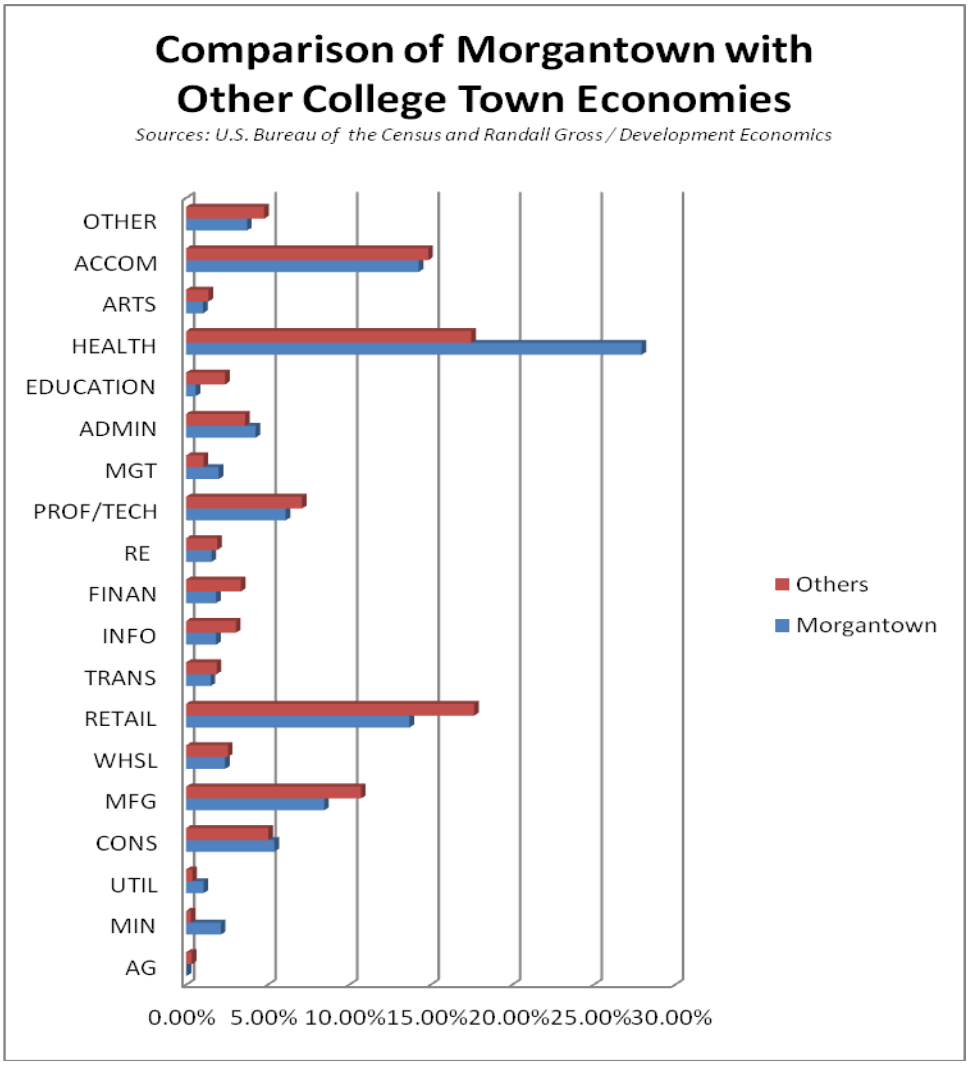
located there. Forbes Magazine has listed State College as one of the 10 best small metros to start a career or business, due in part to the presence of major research and development activity in the area.

College Town Economies

An analysis was conducted to assess the industry mix in the selected college towns (and surrounding counties), and compare these economies with that of Morgantown / Monongalia County. As shown below, there is a fair degree of correlation between Morgantown and other college towns, in terms of the local industry mix.



The analysis suggests that Morgantown/Monongalia County has an industry mix consistent with other college towns in the region, with strikingly similar economic patterns. Where Morgantown stands out as somewhat unique among these communities is in the share of local employment in health and social services. Nearly 28% of Morgantown's employment base is concentrated in health services, compared with 21% in Asheville, 18% in Ithaca, 16% in State College, and 15% in Blacksburg. Not-surprisingly, Morgantown also exceeds the norm for these towns in terms of mining and utility employment. On the other hand, Morgantown-Monongalia County has a relatively small share of its economic base in finance, information services, retail trade, and manufacturing. An industry-by-industry comparison follows.



KEY ECONOMIC DEVELOPMENT OPPORTUNITIES

Based on the various analyses and inputs, several key economic development opportunities are identified as a basis for further planning and land use assessment. A key finding is the opportunity to utilize the region's strengths to enhance lifestyle-driven economic opportunities. The U.S. Department of Agriculture studied factors that contribute to the success of small cities and rural economies, and determined that amenity value is key to the prosperity of certain regions.

The presence of a college or university, as well as natural amenities like oceans, lakes and/or mountains, helped secure the economic future of some towns located outside of major metropolitan regions. Morgantown is lucky to provide access to both a major university as well as stunning natural amenities. Further, the city and Monongalia County offer easy interstate access to major metros including Pittsburgh and Washington, DC. Industries that often thrive in such high-amenity, education-rich regions include those that employ young

people attracted to recreation and leisure activities, such as those who work in software development, arts & entertainment, tourism, and health services. College towns like Morgantown are also attractive retirement destinations, again due to the lifestyle amenities, further contributing to the growth of such industries as health care, real estate, leisure and recreation services.

- Bio-Technology. Synergies exist between the university's R&D efforts, Mylan Pharmaceuticals, the large local health care community, and the large concentration of biometric and identify management expertise in the I-79 Corridor. The State and local governments are already heavily invested in marketing the region for growing bio-tech industries.

- Information Technologies. In addition to bio-information management, Morgantown as room to grow as a broader hub for information technology management and software development. The analysis of IT concentrations in comparable college towns found that Morgantown has scope for further development of this industry. The region also has a fairly high concentration of electronics-related manufacturing, which could be developed further into a sustainable industry cluster.

- Arts, Entertainment and Recreation Services. College towns are thriving centers for art and culture, and there are opportunities to build on WVU and the region's art and craft strengths to grow production and associated tourism. The region's competitive advantages for recreation translate into some existing destination recreation retail and services, but again there is room to expand the depth and breadth of this sector. Communities like Rock Hill, South Carolina are developing their strengths as amateur sports capitals by pro-actively attracting or building facilities like velodromes and specialized training facilities. There are opportunities for Morgantown and Monongalia County to strengthen the supply chain and asset base to enlarge the recreation industry "cluster." Such an industry cluster can include the broad range of producers, suppliers, and services such as:

    - Outfitters, tour companies, eco-tourism agencies
    - Outdoor recreation associations and organizations
    - Specialized recreation facilities (e.g., mountain bike trails, etc)
    - Training facilities and services
    - Corporate team building companies, facilities, agents
    - Outdoor recreation wholesale and destination retail supply, especially web-based services and suppliers
    - Outdoor recreation equipment manufacturing, product development, testing
    - Recreation-based family entertainment

- Energy Support Services. Growth in the oil, gas, and alternative energy sectors has driven demand for various suppliers and services to mining

companies, environmental and engineering consulting, and marketing & management services for energy companies. Monongalia County is not the coal mining capital of West Virginia, but it is well-located to take advantage of growth in the broader region's natural gas industry.

- Specialized Health Services, Leisure & Health Tourism, and Accommodation Services. In addition to recreation tourism, there are opportunities for further development of retirement, leisure and health-related tourism. Asheville has been successful as a tourism hub in part by attracting young artists as well as retired professionals and Charlotte day-trippers to the scenic beauty and healthy environment of the city. Morgantown's strength as a medical and health-care hub can be developed further to attract "in-flow" from major metropolitan areas in the region, such as Pittsburgh and Washington, DC.

- Sustainable Energy Technologies. The region has a role to play in research and development of new and sustainable energy technologies, with synergies between WVU's activities and the region's growing energy production.

- Food & Beverage Production. There are opportunities to expand the region's existing manufacturing base with more specialized food and beverage manufacturing. West Virginia has a strong association with the natural environment and Morgantown is well-placed, as a college town, to test new beverages and foods for a health-conscious market. The area already has a concentration in this industry and competitive advantages, such as central location for distribution to regional markets.

Summary

This report is meant not as a full-scale assessment of target industrial potentials, but rather a framework for discussion of economic development strengths and opportunities, as input to the community's vision and comprehensive planning process. The Morgantown area has many competitive advantages that have helped its economy grow even during a period of national and international financial crisis and economic stagnation. As home to the state university, Morgantown is a "college town" in the sense that the university has a major impact on the local economic base and insulates the community somewhat from the ebb and flow of economic cycles.

The area has a high concentration of real estate, management services, health care, and accommodation services. Within these broad sectors, several specific industries are highly concentrated in the area, including pharmaceuticals, engineering, scientific consulting, hospitals, beverage manufacturing and a few others. The local industry mix mirrors that of comparable college towns in the region, expect that Morgantown has a much higher proportion of health care-

related jobs than do the other cities. Overall, key opportunities were identified in bio-tech and other information technologies; arts, entertainment, and recreation services and associated retail; energy support services; specialized health services; leisure & health tourism; sustainable energy technology; and food & beverage production.

Morgantown Monongalia Metropolitan Planning Organization's

2040 Long Range Transportation Plan

Existing Conditions Report

Executive Summary

DRAFT FOR REVIEW

PREPARED BY:

BURGESS & NIPLE

MAY 2012

EXISTING TRANSPORTATION SYSTEM

EXECUTIVE SUMMARY

Understanding the current transportation system is vital to the planning process, in that the existing system forms the underlying structure/foundation for the future (2040) system. This document is a summary of the existing conditions report being prepared for the Morgantown/Monongalia Study Area. A more complete discussion of transportation services in the area including freight services will be provided as part of the final report.

Roadway Conditions

Roadway functional classification groups streets and highways according to the service they are intended to provide. As a whole, the street network in an urbanized area has two distinct functions; providing access to properties along a roadway and providing travel mobility - getting from one point to the other. A comparison with the state system by functional classification highlights how different Monongalia County is. Only 9% of the state system is classified as urban. In contrast, almost 23% of Monongalia County is classified using the urban definitions. This distinguishes the county from the rest of the state and how its transportation system operates.

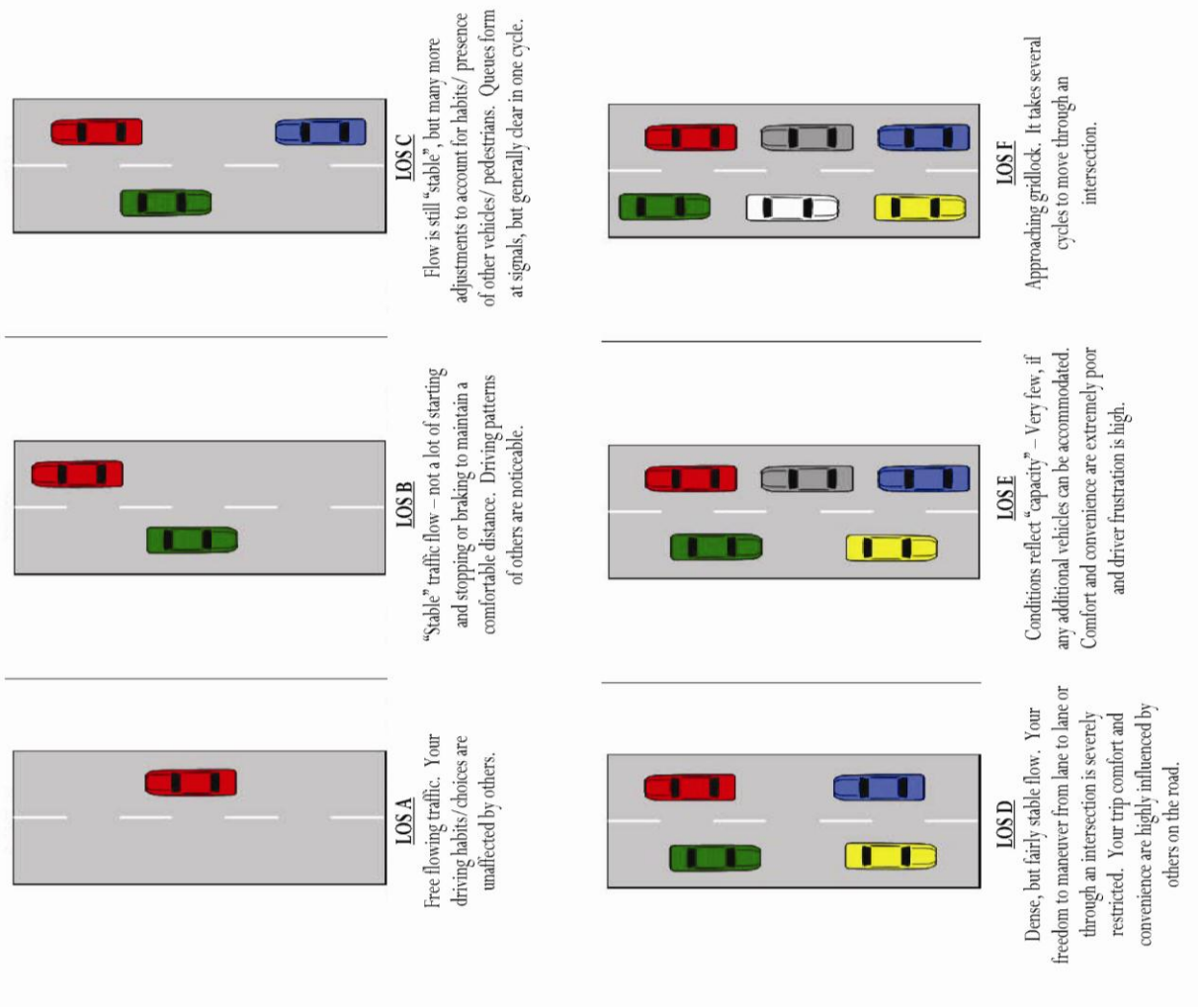
The volumes of vehicles on the roadway facilities are an integral component in evaluating the existing transportation conditions. Roads with average daily traffic volumes greater than 25,000 vehicles per day (vpd) are listed below:

- I-79;
- I-68;
- CR 19/24 (Chaplin Hill Road) from the I-79 Interchange to US 19 (Monongahela Blvd);
- US 19 (Monongahela Blvd) from Chaplin Hill Road to CR 55/7 (Chipps Hollow Road);
- US 19/WV 7 (Beechurst Avenue) south of Campus Drive;
- US 19/WV 7 (University Avenue) south of Foundry Street;
- US 19 (Don Knotts Blvd) south of Dorsey Avenue; and
- WV 705 (Patteson Drive) from Laurel Street to east of CR 67 (Stewartstown Road).

Capacity is often impacted by factors other than simply the volume of traffic on a facility. Roadway design issues such as uncontrolled vehicular access as on the Mileground or uncontrolled pedestrian access such Grumbein's Island in the West Virginia University Downtown Campus drastically reduces vehicular capacity and increases travel time.

As a measure of corridor operations, roadway capacity is often compared to the number of vehicles that travel the corridor. However, the maximum roadway capacity is often greater than the number acceptable to travelers in a community the size of Morgantown. The difference between the acceptable number of vehicles and the capacity is important because as more vehicles try to travel through an intersection, the greater the level of delay resulting for all travelers through the intersection. Level of Service (LOS) is the standard for assessing operations. A visual representation of the six LOS categories is included in Figure 1.

Figure 1 Traffic Flow Characteristics by Level of Service



Source: 2000 Highway Capacity Manual, Transportation Research Board, Washington, DC

Through analysis of the information included in the capacity deficiency figures, it was concluded that the following corridors are operating at either a LOS E or F:

- US 19 (Monongahela Blvd) from Chaplin Hill Road to Boyers Ave.
- US 19 (Beechurst Ave.) from 8th St. to Pleasant St.
- US 19 (Pleasant St/Westover Bridge/Holland Ave.) from University Ave. to Lane St.
- US 119 (Mileground Rd.) from Cheat Rd. to Hampton Ave.
- US 119 (N. Willey St.) from Monongalia Ave. to Richwood Ave.
- US 119 (Grafton Rd.) from Smithtown Rd. to Fairview Cemetery
- WV 705 (Van Voorhis Rd./Chestnut Ridge Rd.) from University Ave. to Pineview Dr.
- WV 705 from Stewartstown Rd. to US 119 (Mileground Rd.)
- WV 7 (Earl Core Rd.) from Deckers Creek Blvd. to Beulah Rd.
- CR 67 (Stewartstown Rd.) from Chestnut Ridge Rd. to south of US 119 (Point Marion Rd.)

- Boyers Ave. between University Ave. and Stafford St.
- Burroughs St. from University Ave. to WV 705 (Van Voorhis Rd.)
- Pineview Drive from WV 705 (Chestnut Ridge Rd.) to Riddle St.
- Riddle St. from Pineview Dr. to Hickory St.
- Willowdale Rd. from Grove St. to Medical Center Dr.
- University Ave. from WV 705 (Patteson Dr./Van Voorhis Rd.) to North Ave.
- University Ave. from College Ave. to Willey St.

Safety conditions for motorized vehicles in the urbanized area are another key component to analyzing the existing conditions. Crash record information was obtained from the City of Morgantown who obtained the information from WVDOT. Crash data for areas outside the City of Morgantown were unavailable. The data used in this study is from June 2008 to December 2011. During this time period there were a total of 4,060 vehicle crashes; an average of 3-4 crashes per day. Out of the 4,060 crashes, there were 20 that occurred within a work zone.

The key findings of the accident data review are summarized below:

- During the years analyzed, a total of 4,060 crashes occurred throughout the urbanized area. This equates to 3 to 4 crashes per day; and
- The intersections with crash rates in excess of two crashes per million entering vehicles are:
    - WV 705 (Patteson Drive) at US 19 (Monongahela Boulevard): 5.90 crashes/million vehicles entering;
    - Stewart Street at CR 67 (Vangilder Street): 3.62 crashes/million vehicles entering the intersection; and
    - Spruce Street at Walnut Street: 2.05 crashes/million vehicles entering the intersection.

Intersections are not the only locations where crashes occur. Several corridors with a significant number of crashes include:

- US 119 from Cheat Road to Smithtown Road
- WV 705 from US 19 to Pineview Drive
- US 19 from Chaplin Hill Road to Patteson Drive

Public Transportation

The Mountain Line Transit Authority (MLTA) is the primary public transportation service within Morgantown and Monongalia County. MLTA provides deviated fixed-route, flex-route, and dial-a-ride service. West Virginia University (WVU) also provides public transportation service in Morgantown and Monongalia County operating a variety of shuttles and buses as well as a unique fixed-guideway system known as Personal Rapid Transit (PRT).

MLTA primarily operates as a flag stop system, in which passengers can board a bus anywhere along a route by flagging down the driver as the bus approaches. The timetables MLTA provides for each route represent scheduled time points during which passengers can expect a bus along a route. The only exceptions are Mountain Line's two express routes; the West Run Express Route 30 and the Blue & Gold Connector Route 38. Both buses only stop at designated stops to maintain schedules.

MLTA operates 20 deviated fixed-routes within Morgantown and Monongalia County. Three of these routes connect the smaller communities and rural areas of Monongalia County with Morgantown. A map of the

routes is included in this document. A full description of the routes is available from MLTA and will be in the final document.

MLTA's NewFit program consolidates all of the flex-route, dial-a ride, and on-demand services available to residents of Monongalia County under one organization. NewFit provides curb-to-curb and door-to-door services to medical appointments and work/training opportunities to all residents; residents with disabilities are given preference priority. NewFit operates Monday through Friday from 6:00 a.m. to 5:30 p.m.

WVU's PRT system is an Automated Guideway Transit (AGT) system that uses small computer driven cars to transport passengers to five stations located along its 8.7 mile route. The stations include: Walnut Street and Beechurst Avenue two stations on WVU's downtown campus and the Engineering Science, Evansdale Residential Complex, and Health Sciences stations on WVU's Evansdale campus.

WVU also operates two campus shuttles. The Sunday Shopping Shuttle operates during Fall and Spring semester to and from various destinations around Morgantown. The Coliseum/Engineering PRT Shuttle operates between the Morgantown Coliseum and the Engineering PRT Station.

The Buckwheat Express provides public transportation to residents of Preston County, including a fixed-route service transporting residents to Morgantown. The Fairmount – Marion County Transit Authority (FMCTA) provides service to Fairmont and Marion County, including one fixed-route service to Morgantown. Fayette Area Coordinated Transportation (FACT) provides service to residents of Fayette County, West including a fixed route to Morgantown. In Touch and Concerned is a non-profit agency that provides door to door service to the elderly in Morgantown and Monongalia County.

Table 1 Transit Capacity and Quality of Service Manual - Level of Service (LOS) Measures[1]

Level of Service	Transit Capacity and Quality of Service Measures		
	Frequency (minutes)	Hours of Service	Service Coverage
LOS A	<10	19-24	90.0-100.0%
LOS B	10-14	17-18	80.0-89.9%
LOS C	15-20	14-16	70.0-79.9%
LOS D	21-30	12-13	60.0-69.9%
LOS E	31-60	4-11	50.0-59.9%
LOS F	>60	0-3	<50.0%

[1] The transit level-of-service analysis is based on the methodology described in *TCRP Report 100: Transit Capacity and Quality of Service Manual* (TCQSM). The TCQSM uses six measures to quantify service quality. Of the six available measures, three were selected for this analysis as being most relevant to a long-range planning effort; service frequency, hours of service, and service coverage.