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1.0 INTRODUCTION

Winston-Salem is a city in transition. The traditional industries of tobacco and textiles are in decline while the city is building on its strong financial and educational resources to develop emerging industries in technology and medical research. A sound transportation network is essential to the continued growth and development of the city and, in particular, its downtown area. In this context, the viability of US Highway 52 (US 52) is essential as an efficient transportation Corridor linking downtown with the Piedmont Triad region and beyond.

Winston-Salem has a rich history dating founded by a group of Moravian settlers town of Winston was established just to government center. The two towns were 1913. Since the merger, the city has into the technological research, medical educational and artistic presence is also

US 52 is critical to the transportation system serving Winston-Salem and the greater Piedmont Triad region.

to 1766 when the town of Salem was searching for religious freedom. In 1849 the the north of Salem as a business and united into the city of Winston-Salem in evolved from a textile and tobacco economy and financial center that it is today. An prevalent in 21st century Winston-Salem.

US 52 is critical to the transportation system serving Winston-Salem and the greater Piedmont Triad region. The highway supports the economic viability of Winston-Salem by providing access to residential communities and employment centers along its route. It is also an important link in an extensive network of limited-access highways that includes US 311, Interstate 40 and Business Interstate 40.

Beyond the study area, the highway serves as an important link in the nation's surface transportation network. Until the proposed Interstate 74 (I-74) is completed, US 52 forms the "missing link" between three interstate highways: Interstate 77 to the north and Interstates 40 and 85 to the south. After the proposed interstate is completed, US 52 will continue to function as the urban interstate connector between I-77/I-74 and I-40 and I-85. In this context, the route must be maintained as a facility capable of carrying interstate traffic safely and efficiently to and through downtown Winston-Salem.

1.1 Project Description and Project History

1.1.1 Project Description

The City of Winston-Salem Department of Transportation (WS DOT), through an inter-municipal agreement with the North Carolina Department of Transportation (NCDOT), has retained RS&H Architects-Engineers-Planners Inc. (RS&H) to develop a land use and transportation plan for the US 52 Corridor. The study area, shown in **Figure 1-1**, is defined as:

- US 52 in Winston Salem, North Carolina from Interstate 40 to the proposed location for the Northern Beltway, a total of approximately 12 miles.

The preparation of the US 52 Corridor Land Use and Transportation Plan (hereinafter referred to as the Corridor Plan) conforms to the Federal Highway Administration (FHWA) requirements for preparing a Corridor plan pursuant to the National Corridor Planning and Development Program (NCPD). The Corridor Plan is consistent with, and supports implementation of, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and the Transportation Equity Act for the 21st Century of 1998 (TEA-21). The US 52 route was included in both ISTEA and TEA-21 legislation as part of Interstate 74 in Winston-Salem. The Interstate 74 Corridor, designated High Priority Corridor Number 5, extends from Detroit, Michigan to Charleston, South Carolina.

1.1.2 Related Past and Current Studies

Winston-Salem Downtown Plan – The Plan, prepared by the City-County Planning Board, establishes major use or activity areas for the downtown, the eastern boundary of which is US 52. The Plan follows the policies of the *Legacy Plan* with an emphasis on mixed-use development. It also provides a local mass transit system that will interface with the regional commuter system being planned by Piedmont Authority Regional Transit (PART). Subsequent to publication of the Plan, Piedmont Triad Research Park announced a major expansion of its development zone to replace all uses that the Downtown

Plan provides adjacent to US 52.

South Central Area Plan – The Plan, prepared by the City-County Planning Board (Draft, March 22, 2002), provides a land use and revitalization strategy for the west side of US 52 extending from I-40 northward to Business 40. The Plan builds upon the *Legacy Plan* with more detailed planning of the South Central area. The specific recommendations of the Plan are recognized by the US 52 Planning process. The Plan also contains components that provide a base for the planning approach used in the Tier 3 component of this study.

Southeast Winston-Salem Area Plan – The Plan, prepared by the City-County Planning Board (October 2001), provides a land use and revitalization strategy for the east side of US 52 extending from I-40 northward to Business 40. While formatted differently from and not offering the same level of detail as the South Central Area Plan, the Southeast Area Plan is also a guide to ongoing implementation strategies by the City.

Piedmont Triad Research Park Master Plan (in process) – In the fall of 2002, Piedmont Triad Research Park (PTRP) announced that its project area had been expanded northward to encompass all of the lands abutting US 52 northward to Martin Luther King Jr. Drive and westward to approximately Patterson Avenue. At that time, PTRP commenced preparation of a Master Plan. While that plan has not been released, the US 52 Planning Team has met with PTRP officials and consultants to coordinate roadway elements of the two planning efforts.

Several studies have been completed or are underway that provide a background for this Corridor Plan. These include studies that have focused on US 52 itself and the primary roadways in the vicinity of US 52 or with important connections to US 52. Several studies have developed transportation and land use objectives for the City of Winston-Salem; others are specific to communities affected by US 52. Some studies relevant to US 52 assess alternative modes of transit for Winston-Salem. Each of these addresses the role of US 52 within the transportation network.

US 52 Feasibility Study—In November, 1995, the consulting firm of Howard, Needles, Tammen and Bergendoff (HNTB) completed this study for NCDOT. The purpose of the study is to develop a preliminary assessment of the traffic service benefits, implementation costs, and social and environmental impacts for a range of alternatives for improvements to US 52. The study recommended widening US 52 from the existing four-lane cross section to an eight-lane freeway with auxiliary lanes that would meet interstate standards.

Liberty Street Corridor Study—Prepared by Jackson Person & Associates in association with Liberty Street Design Collaborative in March 1997, this document serves as a master plan report for the section of the Liberty Street Corridor from downtown Winston-Salem to Smith Reynolds Airport. The report provides a vision for Liberty Street, including transportation, land use, and economic development opportunities.

Legacy Comprehensive Plan—The plan, prepared by the City-County Planning Board of Forsyth County and Winston-Salem, is the vision of 2015 for these jurisdictions. It was completed in September 2000 and includes objectives for transit, highways, street design, rail transportation, bicycle/pedestrian transportation, air transportation and environmental protection, among others.

Southeast Gateway Plan—The North Carolina section of the American Institute of Architects created this plan through its Urban Design Assistance Team in 1992. The Plan articulates the desired future land use and transportation features for the area between Winston-Salem State University, Old Salem, North Carolina School of the Arts, and downtown Winston-Salem.

Southeast High-Speed Rail Study—The Tier One Analysis of this US DOT study analyzed the alternatives for providing high-speed rail service between Washington, D.C. and Charlotte, North Carolina. Winston-Salem is included along the route for the recommended Corridor.

Piedmont Triad Inter-city Rail Study—This study, performed by the Piedmont Authority for Regional Transportation (PART), is one element of a state-wide effort to revive passenger rail service in western North Carolina. PART's focus is on the alternatives that connect Winston-Salem to the inter-city passenger rail network.

Project Location

Major Investment Study for commuter service in the Piedmont Triad—PART is also studying the feasibility of commuter rail service for the Piedmont Triad region utilizing the same lines and stations as the inter-city service. This study is still underway.

US 52 Interim Improvement Study—NCDOT has contracted with Kimley-Horn & Associates to study safety conditions and develop short-term improvements to alleviate the most severe of the issues along US 52. The study area focuses on the segment of US 52 between Business Interstate 40 and Akron Drive.

1.2 Project Purpose and Need

The major purpose of the US 52 Corridor Plan is to develop an integrated economic development, land use and transportation system which is economically efficient, environmentally sound and moves people and goods in an energy efficient manner. The Corridor Plan was developed in accordance with all applicable WS DOT procedures, standards, policies, and guidelines.

The objectives of the study are to address the short-term and long-term safety, mobility and productivity needs of the US 52 Corridor through Winston-Salem while limiting the negative impacts on the human and natural environment. Specifically, the Corridor Plan was developed to:

- 1) Provide a clear vision of the physical layout and traffic operations of the US 52 Corridor;
- 2) Identify the potential physical, environmental, social and economic impacts of the highway enhancement project;
- 3) Identify a community, land use and economic development strategy that will maximize the positive community development influences that the highway enhancement project will have on the City of Winston-Salem;
- 4) Identify the land use/transportation interrelationships in the Corridor;
- 5) Guide appointed and elected officials in implementing community and economic development and revitalization projects along the Corridor; and
- 6) Actively involve citizens and other stakeholders in the land use and highway planning process.



The US 52 Corridor.



City Hall South, Winston-Salem.

The Corridor Plan was developed cooperatively with state, regional, and local groups. This ensures the proper coordination with affected parties as well as consistency with the requirements of NEPA and TEA 21, Clean Air Act, Growth Management, and other transportation plans. The Corridor Plan supports the provisions of Winston-Salem's and North Carolina's growth management laws, rules, and policies, and supports the development of livable urban communities by enhancing the viability and availability of public transportation. The Corridor Plan builds on and implements appropriate provisions of the City's "Legacy Plan" and other applicable planning studies. The support of energy conservation, reduced congestion, and minimized pollution is incorporated into the Corridor Plan by designing facilities that favor the utilization of advanced technologies and public transit for commuting and local trips.

1.2.1 Background and Objectives

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) established a new National Highway System (NHS) and identified a series of High Priority Corridors that were part of the NHS. High Priority Corridor Number 5 will connect the port of Charleston, South Carolina with Detroit and Sault Saint. Marie, Michigan.

The interstate highways on High Priority Corridor Number 5 will be designated as I-73 and I-74. I-74, in conjunction with I-73, will provide a direct link to several major cities including Detroit, Michigan; Cincinnati, Columbus, Toledo and Portsmouth, Ohio; Bluefield, West Virginia; Winston Salem and High Point, North Carolina; and the coastal cities of Myrtle Beach and Charleston, South Carolina.

The I-74 portion of High Priority Corridor Number 5 is designated by statute to follow US 52 from Mount Airy, North Carolina through Winston Salem to US 311. Current planning by the North Carolina Department of Transportation anticipates that I-74 would follow the proposed eastern bypass around Winston-Salem when that route is built. Until that time US 52 through downtown Winston-Salem functions as the freeway link between I-74 to the north and I-40 and I-85 to the south. After the proposed I-74 is completed along the eastern beltway, the City proposes that US 52 be upgraded to an urban interstate connector.



US 52 Through Winston-Salem.

US 52 in Forsyth County is currently a four lane divided freeway with two 12-foot lanes in each direction. The Corridor has a full control of access right of way and has 17 interchanges within the 12-mile study area. Built in the 1950's and 1960's, the freeway was not constructed to Interstate design standards. The facility suffers from a variety of geometric design deficiencies including inadequate spacing of interchanges and ramp terminals, the creation of partial interchanges (ramps only provided in one direction), poor connectivity to the adjoining surface street system, narrow shoulders and breakdown lanes, and short acceleration and deceleration lanes.

Although not built to Interstate standards, US 52 currently carries interstate traffic travelling between the recently-completed I-74 near Mount Airy, North Carolina, and I-40 in Winston-Salem. Commercial vehicles using this new highway segment and US 52 can reduce their travel time between I-77 and I-40 east of Winston Salem by up to 55 minutes.

US 52 in Winston-Salem now carries a very high volume of traffic up to 79,000 vehicles per day (particularly commercial vehicle traffic) which is significantly over its designed capacity. The freeway is one of the most congested in the Piedmont Triad region, resulting in traffic flowing at a very poor level of service (LOS), particularly during the morning and evening peak hours. The poor geometry coupled with the high volume of traffic result in long traffic delays, traffic accidents, excessive noise and poor air quality conditions.

In November, 1995, the consulting firm of Howard, Needles, Tammen and Bergendoff (HNTB) completed the US 52 Feasibility Study for NCDOT to develop a preliminary assessment of the traffic service benefits, implementation costs, and social and environmental impacts for a range of alternatives for improvements to US 52. That study recommended widening US 52 from the existing four-lane cross section to an eight-lane freeway with auxiliary lanes to meet interstate standards. This Plan further refines the findings of the earlier study, taking into account changes in regional land use and transportation conditions since the 1995 study was published.



Old Salem.



Central Winston-Salem.

The US 52 Corridor project was conducted to achieve the following objectives:

- 1) Evaluate **travel projections** and **traffic operations** used as the basis for the roadway plan. Since the US 52 Feasibility Study was completed in 1995, Winston-Salem has updated its socioeconomic and land use database. The Team evaluated the traffic and public transportation ridership projections to determine if they reflect the latest planning data available. As a basis for analysis, traffic volumes are projected for the design year of 2025 and for interim development years.
- 2) Analyze the **mainline geometry** and number of freeway lanes needed to serve the downtown and the remainder of the US 52 Corridor. Among the alternatives analyzed, the alignment of the existing route was evaluated to determine if the roadway should be relocated. The study obtained from NCDOT any route plans developed as part of the feasibility study and determined the right-of-way requirements for the proposed freeway. An important consideration with this study is to investigate alternative north-south routes in addition to transit and ITS options that could minimize right-of-way requirements through impacted areas.
- 3) Perform a detailed **interchange analysis**. Some interchanges are closely spaced, impacting traffic flow and safety conditions in those areas, while other areas do not have adequate interstate access or only have partial interchanges serving the area. The travel projections and traffic analysis were used to evaluate the capacity of the interchanges and the accessibility needs of the community wherever changes in access are proposed. Where access is removed, a detailed analysis of the effects on nearby businesses and neighborhoods was documented. Where new access is proposed, the potential for redevelopment of the interchange area was investigated.
- 4) Evaluate the effect of the selected freeway and interchange configuration on **local street circulation** and at nearby intersections, including changes in access on the local roadway network. Another consideration is the addition of overpasses across US 52 to increase connectivity between eastside neighborhoods and the downtown. The results of the intersection capacity analyses and signal timing studies are used to determine the kinds of improvements to local streets and intersections needed to accommodate changes in traffic patterns.
- 5) Develop a **land use and economic development plan** for the Corridor. As US 52 proceeds north to south, its land use characteristics change from rural to highly urban. An essential component of this study is to carefully examine the existing and future relationships between the necessary road improvements and the abutting land uses, development districts, activity centers and neighborhoods. These relationships are variable along the Corridor, and the approach is to understand and develop solutions that respect and reflect the variety. The whole area of community integrity and potential impacts is considered. In addition to community form and character, there is the potential for improving the economic and job opportunities for residents along the Corridor. By examining economic and market trends, a coordinated land use/economic development strategy is formulated to maximize the US 52 improvements.
- 6) Improve the **visual appearance** of the Corridor through creative landscape design processes including hardscape elements such as bridges, "caps", and retaining and noise wall treatments. Rather than being a blight on the community, the freeway could be used to enhance the identity of Winston-Salem by creating Gateway statements including the incorporation of landscaping and murals at interchanges using City landmarks such as: Winston-Salem State University and SciWorks, Old Salem, Wake Forest University, Sports Complex, etc. The plan includes a range of streetscape guidelines and freeway visual criteria similar to those developed in the *Liberty Street Corridor Study*¹. Good community appearance through well-designed highway Corridors is a key goal of the *Legacy Comprehensive Plan*².
- 7) Consider **environmental justice** issues at every stage of the review process. US 52 is perceived as a barrier between the eastern and western parts of the City. Change in the Corridor could either bring together or further alienate the two parts of the City. To assure that this Plan addresses environmental justice issues, neighborhood input and community involvement are included at every stage of the planning process. The Team was proactive in reaching out to the community to gain input by interviewing over 50 community leaders, organizing focus groups comprised of key business and community activists, and conducting general public meetings at key milestones in the planning process. The economic development and land use planning elements of the project incorporate ways to define and strengthen neighborhood areas.

1.2.2 Need for Improvements

Substandard freeway design and mainline traffic demand coupled with closely spaced interchanges, short acceleration/ deceleration lanes and short weaving sections contributes to capacity deficiencies and unsafe travel conditions for most of the US 52 Corridor, especially the segment located between I-40 and Akron Drive.

- Two horizontal curves do not meet freeway design standards; one additional curve does not meet interstate design standards;
- Nine vertical curves do not meet freeway or interstate design standards;
- Curb and gutter extending from south of I-40 to the Patterson Avenue interchange does not meet standards for routes posted for speeds greater than 45 mph;
- Acceleration and deceleration lanes do not meet minimum design standards for freeways or interstates;
- Six weaving sections are too short to meet traffic demand;
- Ramp tapers are too short for either freeway or interstate design standards;
- Accident rates in the Corridor range from twice the statewide average for US 52 in the vicinity of downtown Winston-Salem to approximately one-third higher than the statewide average for the section of US 52 located between Vargrave Street/ Diggs Boulevard to Northwest Boulevard and in the vicinity of the Akron Drive interchange;
- Peak hour traffic demand exceeds the route's capacity between I-40 and 25th/28th Streets;
- The 19 interchanges in the twelve-mile corridor are too closely spaced for interstate standards;
- Nine interchanges provide only partial access;
- Crash rates on US 52 within the city limits are twice as high as the statewide average for similar facilities. Both the substandard physical design and the high traffic volumes of US 52 contribute to these rates;
- As the City's economic base shifts from heavy industrial and manufacturing businesses to the service and technology business sectors, community leaders and local residents continue to seek opportunities to revitalize the properties along the Corridor.
- Winston-Salem is seeking to reknit the community fabric that was torn when US 52 was originally constructed by removing the barriers to the economic and social integration of communities on both sides of the Corridor.

The following is a more detailed discussion of the factors supporting the need for implementing the US 52 Corridor Land Use and Transportation Plan.

1.2.2.1 Design Deficiencies

US 52 does not meet current design standards for a freeway (with a 60 mph design speed) or for an interstate facility (with a 70 mph design speed). In addition, the existing US 52 Corridor has horizontal and vertical alignment deficiencies, and drainage and structure issues to address.

Horizontal Alignment. Of the 20 horizontal curves within the study corridor, two curves north of Waughtown Street in the vicinity of the Carolina Steel mill do not meet current freeway design standards for a design speed of 60 mph. One additional horizontal curve located in the vicinity of the 25th/28th Street interchange does not meet interstate design standards.

Vertical Alignment. Of the 29 vertical curves on the twelve-mile study area, five northbound curves and four southbound curves have substandard stopping sight distances. The existing highway grades within the Corridor are sufficient but the lengths of curves do not provide adequate sight distance for the freeway 60 mph design speed. The substandard design elements occur at the following locations: the Diggs Boulevard/ Vargrave Street interchange; the Martin Luther King, Jr. Drive interchange; and in the vicinity of the Liberty Street northbound exit ramp to the Smith Reynolds Airport.

Drainage. The closed drainage system along some six miles of the Corridor is substandard for both freeway and interstate facilities because a vehicle striking the curb at high speeds can be deflected back into the traffic stream.

Structures. All 39 of the bridges in the US 52 Corridor were built between 1959 and 1971 and will probably need to be replaced within the next twenty years. The sufficiency ratings of the bridges located along the Corridor range from 44.3 (US 52 southbound lanes crossing Liberty Street—bridge 300257) to a high of 97.0 at Vargrave Street. Seventeen bridges have ratings lower than 70; another nine were rated between 70 and 80; and 13 had ratings of 80 and higher.

NCDOT recently rehabilitated structures at three locations on US 52 at 25th Street, at 28th Street and at Glenn Avenue. The dual structures over Liberty Street and the rail yards north of 28th Street are scheduled for replacement in 2005 by NCDOT. The sufficiency rating for the structures being rehabilitated or replaced ranges from 44.3 to 67.0.

1.2.2.2 Capacity Deficiencies

Roadway Capacity. An analysis of 2001 traffic flow conditions in the US 52 Corridor indicates that the study area roads are congested and many segments are approaching the capacity of the existing highway at present.

During the morning peak hour, northbound traffic on US 52 is approaching capacity between I-40 and Martin Luther King, Jr. Drive and southbound between the Liberty Street entrance ramp and 5th Street. In addition, the traffic demand on the southbound segment of US 52 at the northern limit of this study between Bethania-Rural Hall Road and University Parkway is approaching the current capacity of the highway.

During the evening peak hour, northbound traffic on US 52 is approaching capacity between 5th Street and the Liberty Street exit ramp. Southbound traffic demand is approaching capacity between Third Street and Stadium Drive.

The congestion indicates that the high travel demand is inbound to downtown Winston-Salem in the morning and outbound from downtown in the evening. A secondary travel pattern is to and from employment sites in the vicinity of Hanes Mill Road and University Parkway.

By the year 2025, traffic demand on US 52 is expected to increase by about 50 percent over existing conditions, further exacerbating congestion in the Corridor. This study shows that, even with the proposed Eastern and Western Beltway in place (as this study assumes), traffic demand will exceed the current capacity of the existing highway. It is estimated that the Eastern Beltway will divert some 30 percent of the traffic demand away from US 52; the Western Beltway will divert another 10 percent. Thus, if the Eastern and Western Beltways were not built, the need for improvements to US 52 to meet future 2025 travel demand would be even greater than estimated in this study.

US 52 Interchange Ramps. A capacity analysis of peak hour ramp volumes indicates that traffic demand on all of the entrance and exit ramps on US 52 are well below capacity today and will continue to be below capacity even with fewer interchanges in the future.

Weaving Sections. An analysis of the weaving conditions along US 52 indicates that traffic flows through five of the 14 weaving sections at a rate exceeding their capacity (LOS F) in the morning peak hour and six of the 14 weaving sections do so in the evening peak hour. Closely spaced interchanges with short weaving sections contribute to the poor rate of traffic flow and the unsafe conditions within the US 52 Corridor at present. The proposed improvements to the US 52 Corridor will eliminate substandard weaving sections.

1.2.2.3 Safety Considerations

Crash Rates. The crash rates for US 52 are higher than the statewide average for similar highway facilities. The highest total number of accidents occur within a ¼ mile of the Business 40 interchange which has an accident rate of almost double the

statewide average. The concentration of accidents near Business 40 is within the high-accident area extending from just south of Stadium Drive to just north of the Liberty Street/11th Street interchange. Another high-accident area is within the vicinity of the Akron Drive interchange where the accident rate is one-third higher than the statewide average.

The accident data point to several basic safety deficiencies as listed below:

- Two high-accident areas in the US 52 Corridor are located within the area of Stadium Drive to Liberty Street/11th Street and the area in the vicinity of Akron Drive. The high rate of accidents in these areas can be attributed to high traffic volumes, poor horizontal and vertical geometry, and closely-spaced interchanges with short acceleration/deceleration lanes and weaving sections.
- Rear-end and sideswipe accidents are most prevalent from Stadium Drive to Liberty Street/11th Street where there are substandard sight distances and short weaving areas; and in the vicinity of Akron Drive where there are limited sight distances and two-way ramp segments; and
- Vehicles are involved in run-off-the-road type of accidents between Stadium Drive and 3rd Street due to substandard weaving areas and short acceleration/deceleration lanes and near Akron Drive due to the substandard acceleration/deceleration lanes, two-way ramps, and poor sight distances.

The proposed improvements to the US 52 Corridor would eliminate these safety deficiencies.

1.2.2.4 Land Use and Economic Development Opportunities

Land Use. Concentration of employment and residential land uses along many sections of the Corridor support the need for guiding the context of development growth and mobility throughout the study area. An overwhelming majority of land use in the corridor is residential interspersed with industrial and general business uses. As much as 37 percent of the study area is single family residential with densities ranging from 7 to 12 dwelling units per acre. Industrial development makes up 31.4 percent of the overall corridor land use. Historically, US 52 functioned as the primary corridor connecting Winston-Salem's industrial core (tobacco, textile industries) with the region's transportation network.

Institutional land uses and cultural features are dispersed within the Corridor with primary concentrations in the southern section between Interstate 40 and the Smith Reynold's Airport. There are approximately 27 places of worship, 7 schools/colleges/universities, 3 historic sites and 14 area museums/attractions within 2000 feet of US 52. Significant cultural features located within the Corridor study area and its sphere of influence include: Wake Forest University, Winston Salem State University, The North Carolina School of the Arts, SciWorks Natural Science Museum, Old Salem Historic District, Downtown Winston Salem and numerous museums and attractions. The Corridor also boasts a promising system of parks and greenways, which have the potential of linking the cultural attractions into a cohesive fabric.

Economic Overview. Despite the climate of rapid growth, both in the state and in the Piedmont Triad region, relatively little growth has been directed towards Winston-Salem's inner core, or the US 52 Corridor study area which includes the slower-growth portions of the city. The 16 Census Tracts that comprise the Corridor study area grew by only 5.4 percent during the period from 1990 - 2000, less than one-third the rate of growth in the greater Piedmont Triad region and substantially less than the growth rates for the larger region or the state. Improved access and an upgraded freeway facility, possibly with an interstate designation, could stimulate growth in the Corridor.

The US 52 Corridor study area contains substantial amounts of Winston-Salem's employment base. In total, more than 48,000 private sector employees work in the study area's Census Tracts. The breakdown of this employment shows that it is heavily dominated by the manufacturing sector (with nearly one-third of total employment), as well as services and retail trade. The heavy manufacturing of the study area's employment pattern reflects both the traditional manufacturing emphasis of Winston-Salem, and also the inclusion in the Corridor of the state's largest employer, R.J. Reynolds. These businesses will benefit from an upgraded facility and improved interchange access proposed as part of this plan.

1.2.3 Land Use and Economic Development Planning Context

The US 52 Corridor Land Use and Transportation Plan was undertaken to provide a balanced evaluation of:

- The long-term transportation needs and potential of the US 52 Corridor; and
- The long-term creation of associated positive land use, community enhancement and economic development opportunities in the study area as defined by the US 52 Corridor.

The reconstruction and improvements to US 52 will play an important role in traffic flow and in future development of the city. The primary transportation objective of the US 52 Land Use and Transportation Plan is the reconstruction of the highway to meet current freeway design standards, to relieve traffic congestion and to improve safety in the Corridor. The primary land use and economic development objective of this project is the creation of conditions that will support positive community development associated with the reconstruction of the highway.

By upgrading the design standards of US 52, this highway may be eligible for designation as an interstate highway in the future. US 52's transition into an interstate route (probably as a three digit interstate connector) will be a very positive community development action for Winston-Salem. A good highway design that is focused on the quality of life of residents, and that is effectively coordinated with land use planning and economic development initiatives will improve accessibility to key areas of the city, open up new markets, and help direct new jobs to the corridor. Improvements in the highway's configuration and classification will likely attract new development of industrial business parks, residential communities, housing, retail, office, highway-oriented lodging, and research and technology activities to the US 52 Corridor. Driving forces associated with this development opportunity include:

- Regional growth
- Interstate highway designation
- Redevelopment and reconfiguration of highway interchanges
- Community land use and economic development policy

Regional growth. Growth in the regional economy is a necessary predicate for positive land use and economic development in the US 52 corridor, regardless of improvements to the highway. Long-term market analyses conducted as part of this study indicate that there will be significant growth in the regional economy. Land use and economic development opportunities that are associated with improvement of the highway will result from the "capturing" of a share of the long term economic growth as well as selected, desirable types of uses to the Corridor. Further public policy actions by the City of Winston-Salem and the broader business community can assist in positively directing a greater share of that growth to the US 52 Corridor.

Interstate highway designation. The first step in enhancing the positive land use and economic development attractiveness for the US 52 Corridor is its redevelopment to current freeway design standards followed by its possible designation as an interstate highway. Interstate designation in and of itself will bring new national and regional attention and will give the highway a "new address". National and regional travelers and shippers tend to utilize the interstate system as preferred routes for efficient, long-range travel. This increased interstate travel will in turn give Winston-Salem and the corridor a new address and a new "front door". An important consequence of this new exposure is the creation of new markets for the real estate development industry. Additionally, an "interstate highway address" is a major site location consideration for many sectors of the real estate development industry.

The US 52 Corridor bisects many of the older areas of the City where private and public investment have declined over the past two decades resulting in blighted industrial areas, a deteriorating eastern side of downtown, and blighted neighborhood housing and commercial areas. The redevelopment of US 52 will provide support to a new reinvestment cycle recently energized by expansion of the Piedmont Triad Research Park and a recently adopted Downtown Redevelopment Master Plan. This new interstate address will also create an expanded market for a new highly competitive, targeted industrial corridor within the city limits. The results of these economic spin-offs will include an expanded market for housing and an expanded tax base for the City.

Redevelopment and reconfiguration of highway interchanges. The reconstruction of highway interchanges that will accompany the improvements of US 52 to current freeway design standards will have additional positive implications for land use and economic development. The present configurations of many of the interchanges, particularly those in the southern one-half of the corridor, do not support good access and are not conducive to real estate development. Additionally, they do not provide clear access routes to several of the key institutions and destinations in the Corridor. The present interchanges in the southern half of the Corridor have a variety of problems: some are partial interchanges; some lead to roads that parallel the highway; some lead to minor streets that do not connect directly to the major arterial network. The reconfiguration of highway interchanges that are part of the US 52 Corridor proposed improvements will have the following positive influences:

- **Clear access to key destinations and institutions:** The creation of full directional interchanges that connect to major east-west local roadways will create a variety of positive impacts. First, they will facilitate the installation of clear signage at appropriate interchanges that will direct the traveler to their destination. Second, with the access clarified, a clear return route to the highway is also created. Third, the negative impacts that partial interchanges have on community areas will be mitigated. As an example, the development of a full interchange at a new "Salem Creek Parkway" will enable Old Salem, Salem College and Winston-Salem State University to have very clear and direct signage that will lead travelers directly to their respective facilities. In this example, the Piedmont Triad Research Park will be able to use the interchange as its southern gateway. As another example, the creation of a full service interchange at Waughtown Street will provide a clear route to and from the North Carolina School of the Arts as well as support business and industrial enhancement opportunities that are appropriate to the Waughtown Street corridor. Similarly, a full interchange with access to upgraded east-west roadways in the vicinity of 27th and 28th Streets will provide a clear direction to the North Liberty Street redevelopment area, the Smith Reynolds Airport and the Airport Business Park.
- **Identifiable access to which the real estate development industry will respond:** Real estate developers have acceptable thresholds of access and site identification that they require before making an investment in a location. As an example, developers are less likely to invest at partial interchanges such as those at Sprague Street and Waughtown Road; or at ones that do not have clear connections to major arterials than at full interchanges with connection to east-west arterials. There is a clear link between economic development and highway networks that, if planned correctly, can benefit the City of Winston-Salem. In a economic impact survey conducted for the Missouri Department of Transportation, 55 percent of responding businesses with annual sales of more than \$10 million were located within three miles of an interstate highway and 74 percent of responding businesses with sales of \$100 million or more were located within three miles of a four-lane highway. Furthermore, 61 percent of the business respondents indicated that proximity to a highway creates a competitive advantage.

The land use and economic development proposals of this planning process seek to capitalize on this market opportunity by supporting existing and creating new business opportunities to stabilize and expand the employment base of the City. An expanded job base will lead to a growth in population, households, and household expenditures for the City economy. Key opportunity areas for enhanced land use and economic development include:

- Most, if not all, of the interchange locations;
- Land areas with high susceptibility for changes – that is, areas that are deteriorated, blighted or under utilized;
- Publicly owned under utilized land resources;
- Communities located in the Corridor for which Area Plans have been prepared.

Community land use and economic development policy. As discussed above, the creation of a "new address" and improved access will result in increased land use and economic development opportunities. However, improved access, in and of itself, does not assure "desirable" land use patterns. Fortunately, Winston-Salem, through its *Legacy Plan*, special area plans, and land development regulations, has set the stage to support more desirable and compatible land use patterns. Area Plans have been prepared for the area located between I-40 and Business-40; recommendations are made for updating these plans. The Piedmont Triad Research Park is currently engaged in a master planning program that has been informed of the proposed improvements to US 52. The land use plans and economic development opportunities identified in this study build upon the plans that are in place as well as make land use recommendations that may require further policy and regulatory action by the Winston-Salem community.

1.3 Report Organization

The report is divided into the following sections:

- 1) **Introduction** presents background information pertaining to the US 52 Corridor Land Use and Transportation Plan, such as the purpose and need for the project, project objectives, and summary of related past and current projects. This section provides the justification for pursuing the alternatives analysis. Elements presented include design and capacity deficiencies, safety concerns, and consistency with local, regional, and state transportation plans.
- 2) **Existing Conditions** describes the land use and transportation conditions in the US 52 Corridor study area in 2001. Physical and environmental conditions are presented here and form the basis of the evaluation of alternatives. Existing travel conditions are also included in this section and are the basis for evaluating future travel conditions.
- 3) **Community Involvement** documents the public informational process and public input to the project analyses and evaluations.
- 4) **Travel Analysis** explains the process followed in developing future year travel forecasts, and shows the future travel demand forecast for each component of the alternatives.
- 5) **Design Standards and Criteria** states the industry, governmental, and operational guidelines that were used in the development of the proposed alternative design solutions.
- 6) **Tier 1 Alternatives Analysis** describes the physical, environmental, and forecasted operating conditions of the proposed Corridor concepts. This section details the process by which alternatives evaluation was performed, including the methodology applied, the results of the alternatives comparison, and the public response to the alternatives.
- 7) **Tier 2 Alternatives Analysis** describes the alternatives that pass the Tier 1 level of evaluation and provides conceptual cost estimates for these alternatives. A Locally Preferred Alternative is established and carried into Tier 3 analysis.
- 8) **Tier 3 Locally Preferred Alternative** fully describes the physical, environmental, and forecasted operating conditions of the Locally Preferred Alternative. Recommendations conclude the report with a summary of the Locally Preferred Alternative, incorporating necessary modifications from the public comment and agency review process.
- 9) **Implementation and Funding** recommendations are included for the phasing of the project and revenue sources available for funding of the Corridor improvements are summarized.

¹ *Liberty Street Corridor Study*, Jackson Person & Associates in association with Liberty Street Design Collaborative, prepared for the city of Winston-Salem, March, 1977.

² *Legacy Comprehensive Plan*, prepared by the Forsyth County and Winston-Salem Planning Board, September 2000.