

Chapter Three – Forecasting the Future

Forecasting the Future builds upon the data collected during the first phase, Foundations of Fact, and builds upon that by defining the changing character of the corridor, estimating future land uses, projecting traffic volumes, and establishing the concepts for improvements.

CORRIDOR CHARACTER

The US-56 Corridor is diverse. It includes stretches of rural and agricultural uses, major parks, and natural areas. Most corridor residents live in the communities of Baldwin City, Edgerton, and Gardner where there are local shopping opportunities, services, and such significant institutions as Baker University. Major existing and proposed industrial uses are located throughout the corridor, particularly in areas well-served by interstates, rail, and air.

At the first Workshop, Stakeholders helped identify four major “zones” along US-56:

- Rural-Agricultural Zone, which includes natural, agricultural, and low-impact recreation uses.
- Suburban Zone, which includes residential, civic, commercial, highway and auto-oriented uses.
- Town Center Zone, which includes residential, office and retail uses with good walking access.
- Industrial Zone, which includes industrial, warehousing, and major office uses.

Summaries and examples of the various character zones are described in more detail on **Figure 3-1**.

Stakeholders discussed where the different zones begin and end, based on future development as shown in the adopted Comprehensive Plans. The location of future potential character zones are shown on **Figure 3-2**.

Character

The character of the US-56 Corridor varies from Rural-Agricultural to Suburban to Town Center to Industrial/Heavy Business. This poster shows how character can relate to uses, transportation and access.



Figure 3-1 Character Zones

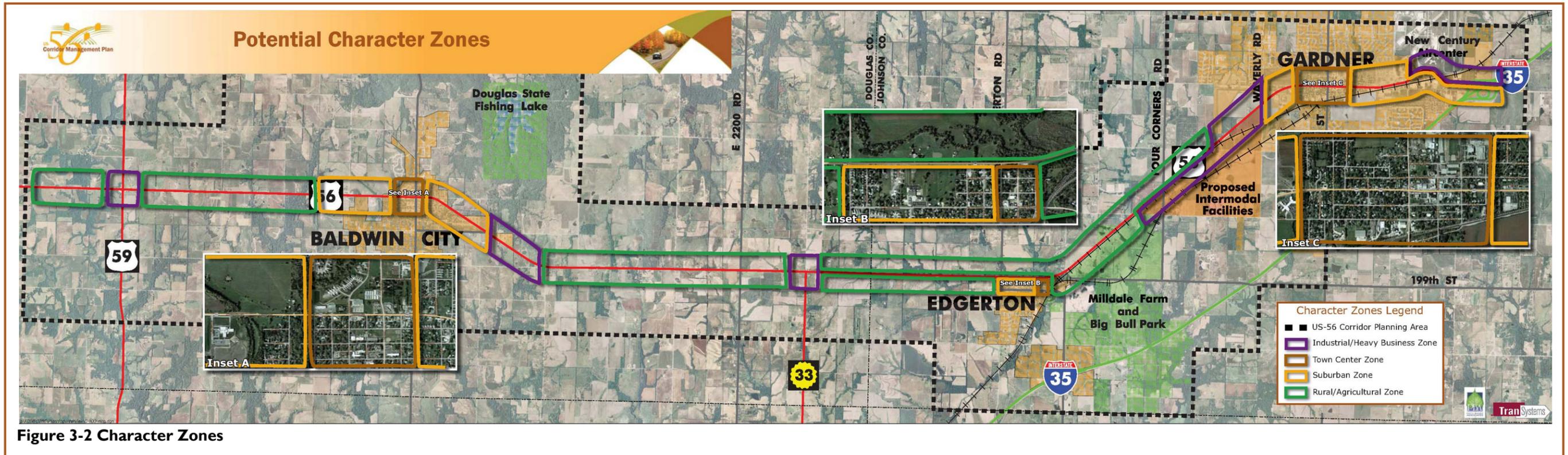


Figure 3-2 Character Zones

LAND USE FORECASTS

The Corridor study area has significant streams, floodplains, wetlands, and regionally and locally significant forest and grasslands. Identifying these sensitive areas when reviewing potential future development helps to protect valuable recreation areas, protect water quality, reduce flooding, and provide wildlife habitat. Key Geographical Information System (GIS) data was assigned weights producing a graphic classification of land ranging from “Highly Suitable for Urban and Rural Development to “Suitable Only for Passive Recreation”. Weighted data included soil classifications, hydrology, land cover, slopes, land use, and habitat.

The capacity of land is a measure of how much future development the undeveloped lands can accommodate. Not all of the undeveloped areas, however, are open to development due to environmental constraints and natural resources. Accounting for land that is not already developed and not environmentally sensitive is the basis for determining what areas are deemed developable.

Figure 3-3 illustrates the environmentally sensitive areas within the vicinity of US-56, which, when added to the existing development land, results in a map of the developable land shown on **Figure 3-4**.

To help guide future development along US-56, two land use scenarios were developed with the goal of framing an agreed upon or “Consensus” Land Use Scenario. The Land Demand Analysis projects the amount of land needed to accommodate residential and non-residential uses between now and the planning horizon of 2030, although the traffic projections were based on a 2040 horizon year.

Several assumptions were made in developing the various growth scenarios:

- Land use considerations were confined to the Study Area boundaries.
- Adopted Land Use Plans from the three Cities were used as the basis for developing the scenarios.
- Infrastructure constraints such as the provision of sewer and water.

Residential and non-residential market demands were based on population and employment projections in growth areas utilizing U.S. Census data, building permit trends, MARC Metrodata Line Projections of Population and Employment, State of Kansas Division of the Budget. In addition, study partners, the advisory committee, and stakeholder input was also sought to fine tune the projections.

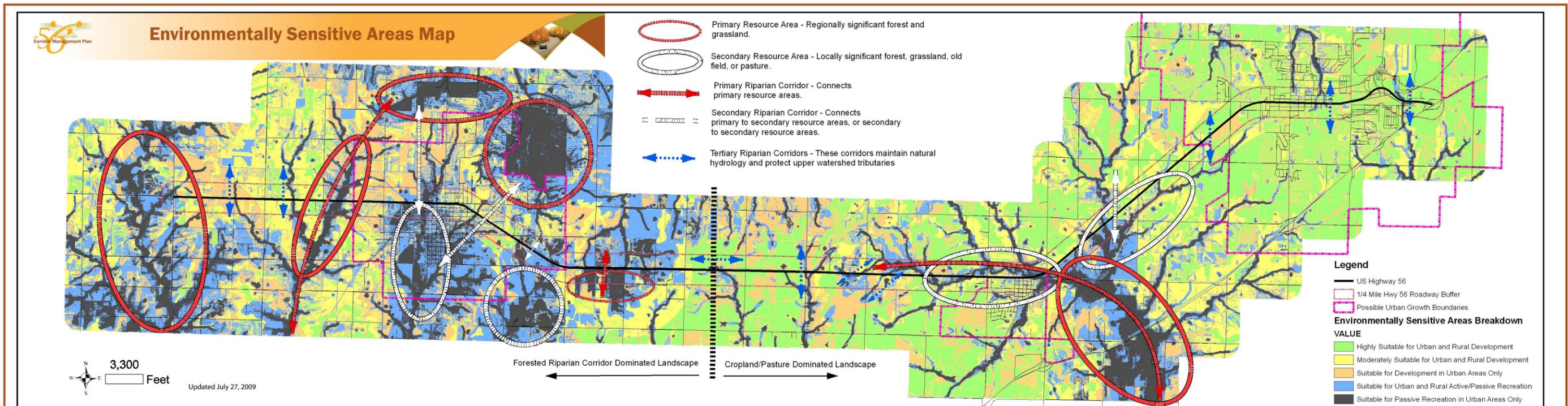


Figure 3-3 Environmentally Sensitive Areas

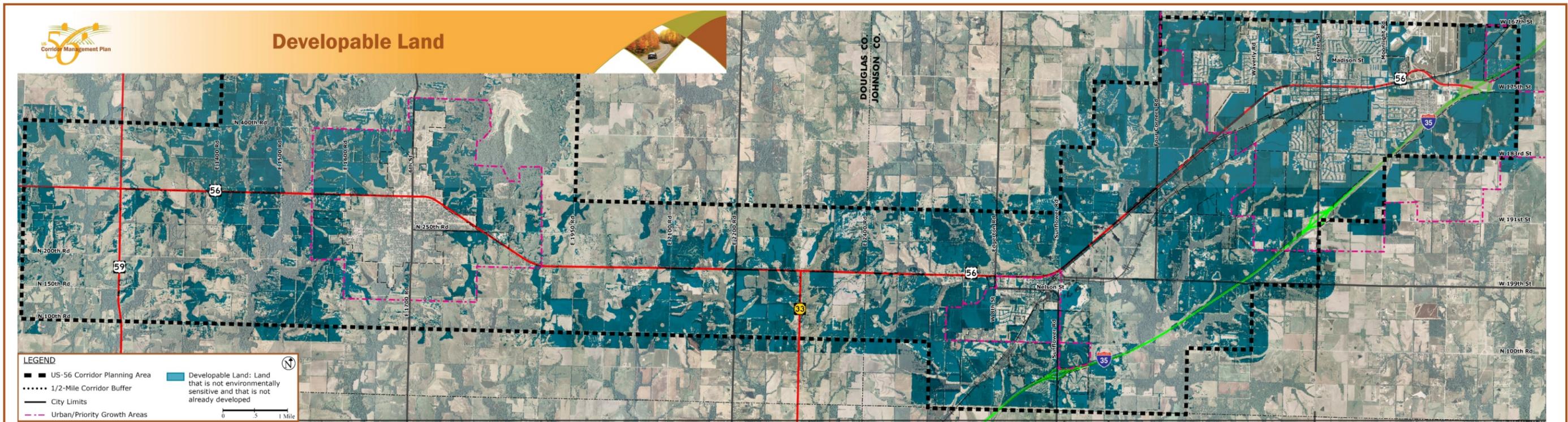


Figure 3-4 Developable Land

Low-Growth Scenario

- Demand was calculated to equal the market demand.
- Focusing upon infill first, and then developing around key intersections.
- Baldwin City and Edgerton have far more residential and non-residential capacity than projected demand by the year 2030
- Gardner may need to build more densely or expand their growth area to meet future demand.

High-Growth Scenario

- Demand was calculated to be three times the market demand.
- Avoided areas difficult to serve with sewers unless needed for market demand.
- For Baldwin City and Edgerton, even three times the demand for residential and non-residential acreage could be accommodated.
- For Gardner, accommodating three times the projected demand would require building at greater densities or expanding growth boundaries.

Consensus Land Use Scenario

The Consensus Land Use Scenario is an integration of the Low Growth and High Growth Scenarios, and reflects input from Advisory Committee, Partners, and Stakeholders. It includes Low Growth Scenarios for Baldwin City and Gardner, and a High Growth Scenario for Edgerton. It was determined that no development would occur at regional intersections along rural segments of the corridor.

It is important to note that when performing the 2030 market demand analysis to determine initial land capacity and demand, the employment projections and estimated acreage assumed the proposed BNSF intermodal facility would be located within the Gardner city limits. A change in corporate boundaries will not impact the overall traffic patterns of the corridor.

As the planning process continued, the assignment of the projections associated with the proposed BNSF intermodal facility to a specific municipality began to change. Consequently, the assignment of employment projections to the cities may change. Nonetheless, the proposed Intermodal Facility is considered a

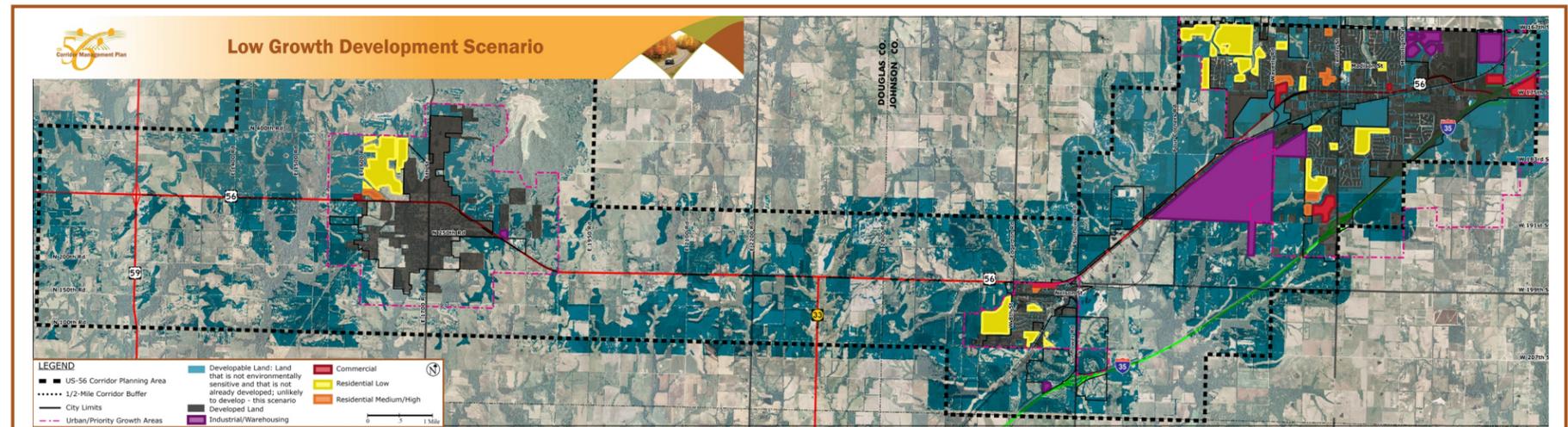


Figure 3-5 Low-Growth Scenario

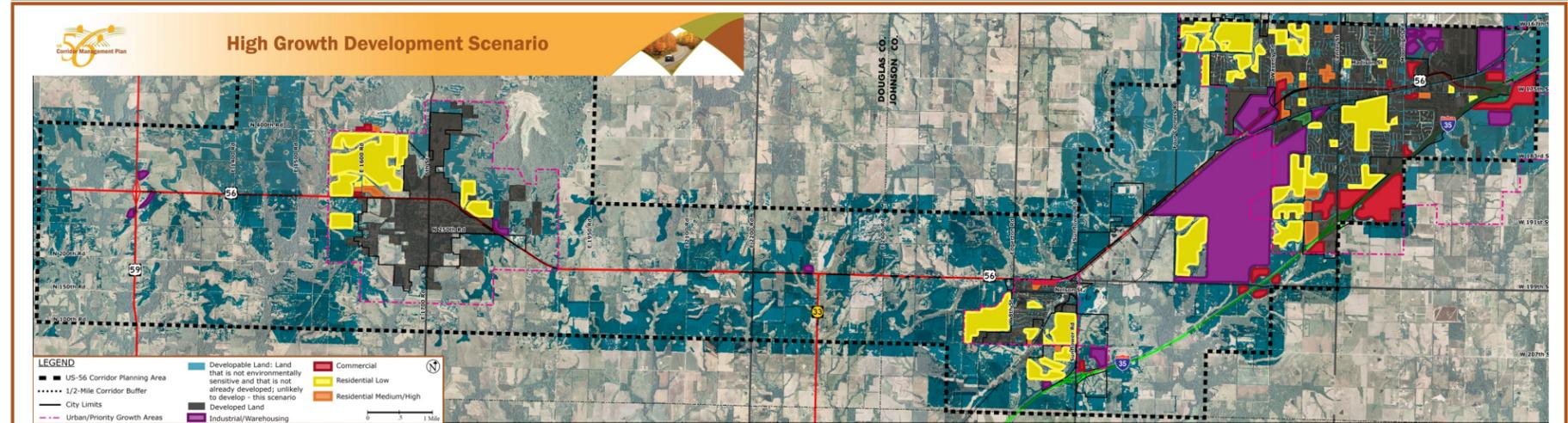


Figure 3-6 High-Growth Scenario

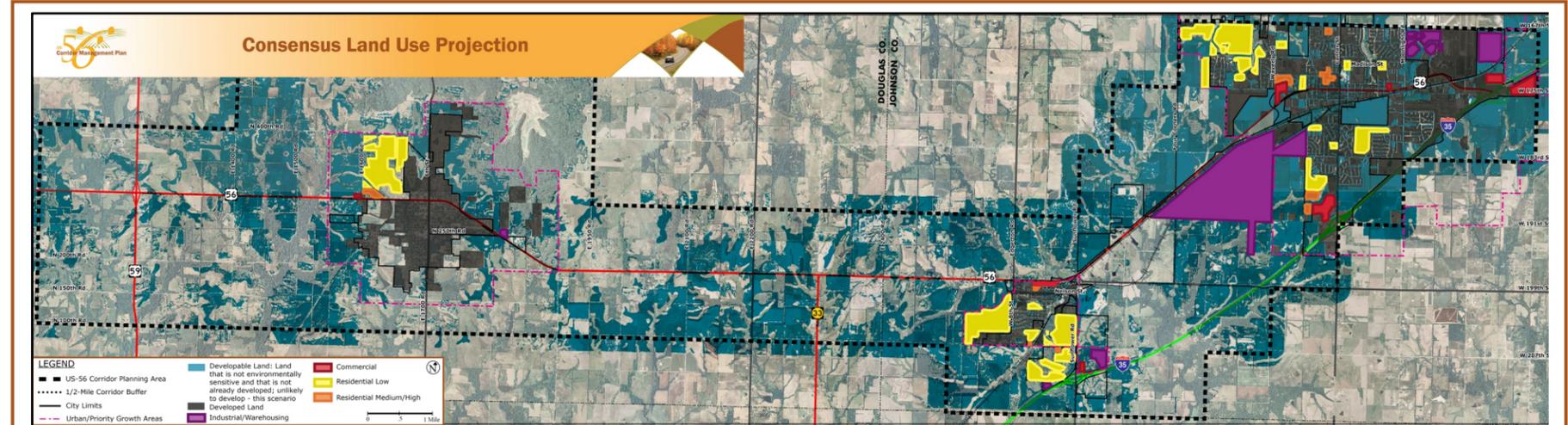


Figure 3-7 Consensus Land Use

committed project and its projections are included as part of the Consensus Scenario.

Based on the consensus land use projections, the cities along US-56 are anticipated to grow in population and employment over the next 30 years as summarized below. Again, this includes an initial assumption that the BNSF intermodal facility would be located in Gardner versus Edgerton as currently envisioned. The overall growth is not impacted by this change.

Population Forecasts			
	2000	2030	New Units
Baldwin City	3,460	6,400	1,200
Edgerton	1,440	2,800	500
Gardner	9,400	47,800	14,300

Employment Forecasts			
	2000	2030	Increase
Baldwin City	1,309	1,875	566
Edgerton	374	580	206
Gardner	4,408	16,016	11,608

Developable Land			
Baldwin City	Available	1,700	acres
	New Residential	290	acres
	New Non-Residential	40	acres
	Remaining	1,370	acres
Edgerton	Available	800	acres
	New Residential	100	acres
	New Non-Residential	20	acres
	Remaining	680	acres
Gardner	Available	4,900	acres
	New Residential	3,600	acres
	New Non-Residential	1,300	acres
	Remaining	0	acres

2040 TRAFFIC PROJECTIONS

US-56, from US-59 to I-35, serves as a local highway to the overall region. While providing important access to the communities along

the corridor, it is not utilized as a significant through corridor, such as I-35, I-70 or even K-10 and US-59.

Traffic volumes were projected out to Year 2040 to evaluate a long-term scenario for the corridor that included several major assumptions. Among those:

- K-7 would be upgraded to a freeway, extending from the new interchange at I59th Street/Lone Elm Road on I-35 to I-70.
- A new southern Johnson County interchange would be constructed on I-35, somewhere in the vicinity of I99th Street, Waverly Road or Homestead.
- The BNSF intermodal facility, and surrounding Logistics Park, would be developed.
- While the communities of Baldwin City, Edgerton and Gardner are anticipated to continue to grow and expand, the unincorporated areas in Douglas and Johnson Counties would remain rural in nature.

Forecasted traffic volumes were developed based on the City of Gardner’s Transportation Forecasting Model, combined with historical growth trends, and supplemental information developed as part of the proposed BNSF intermodal facility. While both Gardner’s model and the consensus land use projections have a horizon year of 2030, traffic projections were anticipated to increase in a similar manner out to year 2040. While projections along the corridor were made for the total volumes of traffic, an assessment of truck traffic that takes into account the new freight-generating facilities anticipated for the corridor was also made.

The Mid-America Regional Council (MARC) has established criteria to assess the regional significance of freight corridors based on the volume of truck traffic, designating corridors as having National (>4,000 trucks per day), Regional (>1,000 trucks per day) or Local (>500 trucks per day) significance. For comparison, I-35 south of US-56 carries approximately 5,600 trucks per day and is therefore designated as a National Freight Corridor.

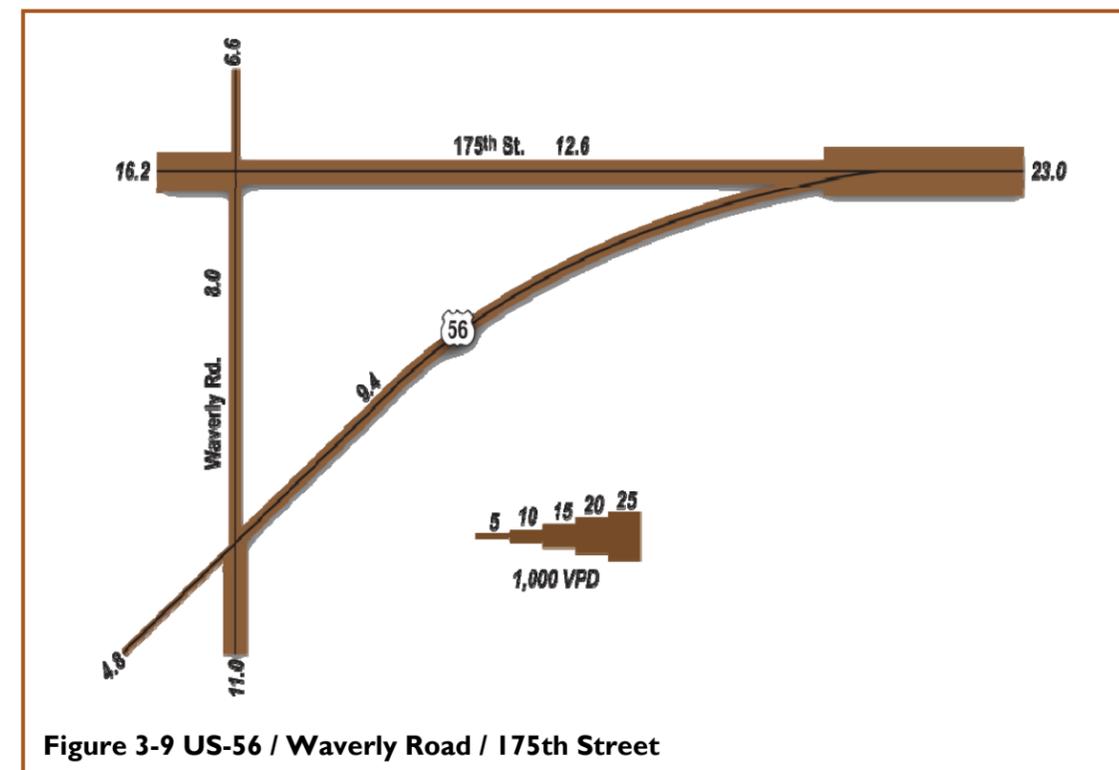
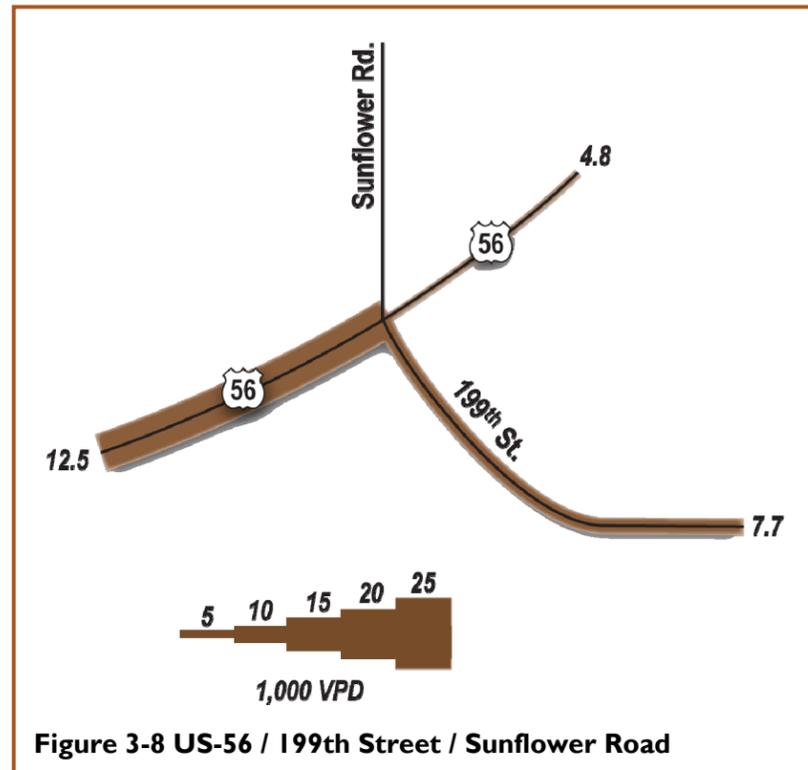
By 2040, the majority of the US-56 corridor is anticipated to operate as a local freight corridor. In Gardner, US-56 is projected to cross the threshold and operate as a regional freight corridor.

Several factors contribute to a significant change in travel patterns by year 2040.

- The location of a new interchange in the vicinity of I-35 and I99th Street, Waverly Road or Homestead will create a more direct option to drivers headed to Edgerton and Baldwin City, allowing them to by-pass Gardner.
- The anticipated development in the northwest portions of Gardner results in a greater volume of traffic on Santa Fe/I75th Street and Waverly Road than on US-56 in this west gateway of Gardner.

Existing and Projected Traffic Volumes				
Location	Existing		2040 Projections	
	ADT	Trucks	ADT	Trucks
US-59 to 1600 Road	4,900	280	7,500	900
Baldwin City	7,500	280	14,000	1,000
1900 Road to K-33	4,600	260	5,500	900
K-33 to Edgerton Road	4,700	270	6,500	900
Edgerton	4,900	270	12,000	800
199th Street to Waverly	4,900	270	4,800	500
Waverly to Center	9,000	270	30,000	1,200
Center to Moonlight	17,500	270	37,500	1,100
Moonlight to I-35	25,000	800	47,000	1,800
ADT – Average Daily Traffic				

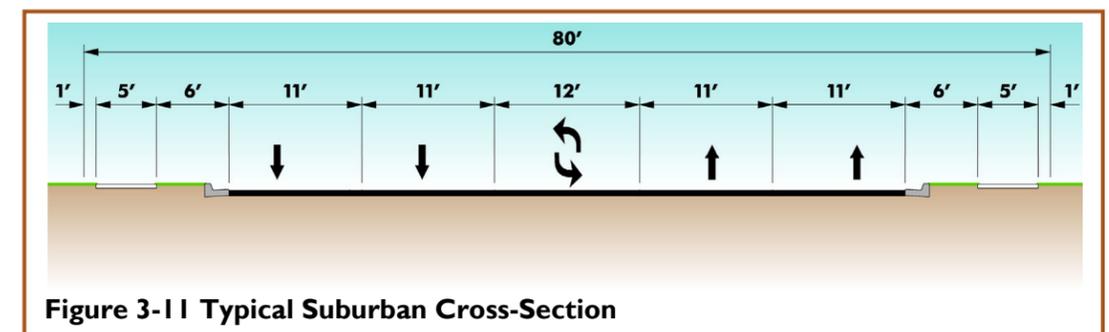
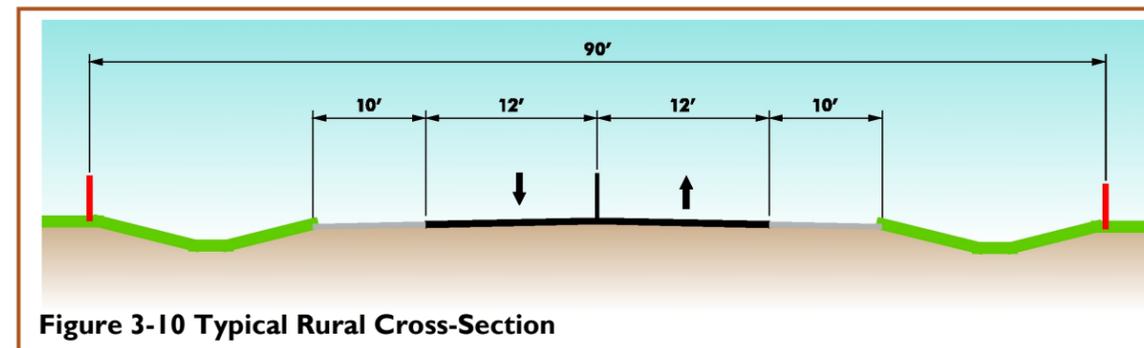
Figure 3-8 illustrates the projected traffic volumes at the US-56/ 199th Street/ Sunflower Road intersection, with volumes shown in 1,000 vehicles per day (vpd). Similarly, Figure 3-9 illustrates the projected traffic volumes in the vicinity of US-56, Waverly Road and I75th Street.



CONCEPTUAL IMPROVEMENTS

The conceptual improvements for US-56 were developed by overlaying the projected traffic volumes with the character zones along the corridor. The diversity of US-56 calls for cross-sections ranging from a rural two-lane highway with shoulders and drainage ditches to urban arterial sections with enclosed storm sewers and sidewalk. In urban areas on-street parking may be provided while in industrial areas the use of a raised median may be called upon to help facilitate movements and accommodate trucks turning on and off of US-56. Examples of some typical rural and suburban cross-sections are shown on **Figures 3-10** and **3-11**.

The conceptual improvements for the entire US-56 Corridor Management Plan are illustrated on **Figure 3-12**. Included on this summary are the characters of the corridor, existing and proposed number of lanes, existing posted speed limits, proposed design speed, and the existing and projected daily traffic volumes. These concepts are refined and detailed in the following chapter on **Formulating a Fit**.



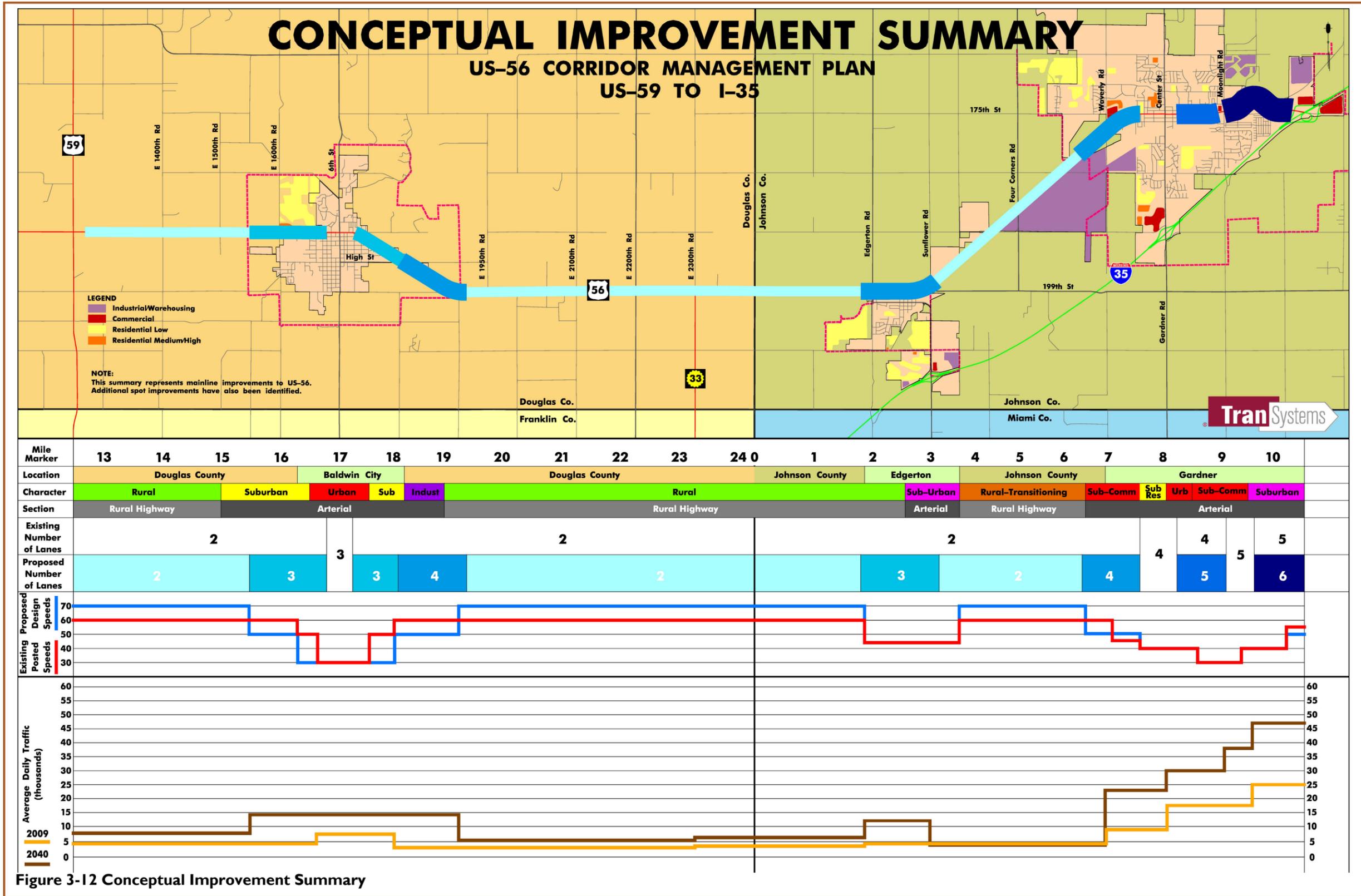


Figure 3-12 Conceptual Improvement Summary