
**AN ECONOMIC DEVELOPMENT STUDY FOR THE
PILOT PHASE - INTERSTATE 70 EXPANSION
WITH TRUCK LANES**

SALINE AND COOPER COUNTIES, MISSOURI

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PREPARED FOR

HNTB

TABLE OF CONTENTS

Introduction	2
Methodology.....	4
Retail Sales Analysis	7
Businesses, Jobs and Wages Analysis	9
Growth	10
Other Considerations.....	11

INTRODUCTION

The Missouri Department of Transportation (MODOT) has proposed the expansion of the Interstate 70 to eight lanes with segregated truck and automobile lanes from Missouri Route 30 near Sweet Springs to Missouri Route 135 near Chouteau Springs. This project will be the pilot phase of a proposed statewide expansion of Interstate 70 with truck lanes from Lake St. Louis to eastern Jackson County.

This initial phase of the project will increase the economic development potential of this approximately 30-mile corridor which can support a direct economic impact of over \$25.8 million in retail spending,¹ 284 new jobs and \$4.2 million in local wages annually using current traffic estimates. The expanded capacity of the interstate will support continued growth in the number of vehicles travelling in this corridor over the next two decades. Based on HNTB estimates the number of vehicles traveling the corridor averaged about 28,000 daily in 2006 and is expected to increase to just over 70,000 by 2030, averaging four percent growth annually. Since the increased economic potential of the corridor is driven mainly by the expansion of roadside services, these direct impacts can also be expected to increase by a similar rate. Using 2009 dollars, this could increase the retail spending power of the corridor to some \$65 million.²

Our review of studies measuring the impacts of major highway expansion suggests that the benefits from expansion of trucking, distribution and warehousing businesses will be seen within major metropolitan areas or on their fringes. Since the subject corridor is in a rural and largely undeveloped area of the state, most benefits from this project will occur through the development of roadside services with only limited trucking and distribution businesses.

The expanded potential will not result only from the increased capacity of Interstate 70. The interchange at Interstate 70 and US 65 is currently configured as a cloverleaf which offers very limited development potential for roadside services. While this type of interchange efficiently moves high-volumes of traffic between two large divided highways, the limited access does not create a good environment for roadside businesses:

- Cloverleaf interchanges occupy large amounts of land that could otherwise be developed;
- Quick flowing traffic does not stop for services;
- Vehicles that exit and would otherwise desire services have severely limited access – drivers must choose to exit north or southbound ahead of time and, having exited the interstate, drivers have access only to one side of the divided highway.

¹ This much spending power in a more-or-less suburban setting could support 90,000 to 100,000 square feet of retail floor area, or the equivalent of a neighborhood shopping center anchored by a major supermarket. The 30-mile corridor in question here, of course, is not suburban, so the impact will not likely be concentrated in a single shopping center, but in gas stations, restaurants, and other highway services.

² Equivalent to as much as 250,000 square feet of floor area.

Despite the fact that the interchange is a gateway to the existing commercial centers of Marshall and Sedalia which serve much of west-central Missouri, there is no existing development surrounding the Interstate 70/US 65 interchange. According to ESRI, a commercial provider of demographic and business data, there are no commercial businesses within a five-mile radius of this interchange. As a result, there is currently no significant economic activity in the area.

Under the expansion of Interstate 70 with truck lanes, the interchange with US 65 will be one of a limited number (four to eight) of “truck specific” interchanges across the state where exiting trucks will not have to merge with automobile traffic before entering the local roadways. Under this segregated interstate system trucks will find it much easier to exit the interstate at these points, thus potentially increasing the volume of exiting trucks. The “modified diamond” design of these interchanges will also more easily accommodate roadside services and other commercial activity by addressing the problems that a cloverleaf interchange creates for roadside development.

Additional economic development potential from the Interstate 70 expansion at other points along the 30-mile stretch of the pilot project will be limited. No major changes are planned for these interchanges that would facilitate a change in land-use patterns. The new economic development potential at the US 65 interchange will primarily be a result of:

- New supported land uses based on the replacement of a cloverleaf interchange with a modified diamond interchange.
- Truck traffic exiting the interstate will be concentrated at this exit (and other similar “truck specific” exits) due to the ease of exiting the interstate with limited interaction with fast moving automobile traffic.

Additional traffic alone will not create important new economic development opportunities under the current interchange configuration. The main benefit will come from the redesign of the interchange, but will be fully realized as the exit becomes more regularly utilized by additional trucks and other automobile traffic.

METHODOLOGY

Since there is no economic activity currently taking place within the five-mile radius of the Interstate 70/US 65 interchange, other interchanges along rural stretches of Interstate 70 were analyzed to find an appropriate model for the economic development potential of this interchange.

The Kingdom City interchange at Interstate 70 and US 54 was selected as the most appropriate model for several reasons.

Rural Location – Both interchanges are located in rural areas situated between the state’s largest metropolitan areas and Columbia. Interstate exits to the immediate west and east have limited highway services. Although the Kingdom City interchange is located closer to Columbia than is US 65, it is still clearly separated by rural land from the urbanized areas of the city. Moreover, Booneville can represent a closer center of economic activity to US 65, thus helping to better approximate the conditions at Kingdom City.

Competition – The two interchanges are separated by about 70 miles (about an hour’s drive) with Columbia located in between. Many travelers on the interstate will be making shorter city-to-city trips and will not pass both exits in a single trip. As a result, there will not be direct competition between businesses located at the two exits.

However, the existence of a second major interstate service exit would provide drivers on cross-state trips another non-urban option in the future.

Demographics – Although Kingdom City is recognized as a village while the US 65 interchange is not located within a municipality, both have very small nearby residential populations with similar incomes. The following table summarizes population and income data for each area along with the number of businesses and employees.

Demographic and Business Summary

	Interstate 70 and US 54 Kingdom City, MO 65262 3-Mile Radius	Interstate 70 and US 65 Near Marshall, MO 65340 3-Mile Radius
Total Residential Population:	676	316
2009 Per Capita Income	\$24,104	\$23,720
Total Businesses:	38	0
Total Employees:	531	0

ESRI, 2009

Neither area generates enough consumer demand on its own to support a robust local economy. Indeed, Kingdom City’s retailers thrive not because of the nearby population but because of the travelers on I-70 and US 54.

Proximity to Cities – Both interchanges serve as gateways to nearby small and medium sized cities which are centers of commerce in the adjacent counties; however, areas surrounding the interchanges are clearly separate from those nearby cities. The US 65 interchange serves Sedalia to the south and Marshall to the north, while the US 54 interchange serves Fulton to the south and Mexico to the north. The US 54 interchange is also a preferred route

for many travelers to Jefferson City and Lake of the Ozarks from the St. Louis area. A similar “destination purpose” for Kansas Citians does not yet exist via U.S. 65, however.

Other exits along Interstate 70 do not provide good comparisons since they are:

- Part of a larger metro region – St. Louis, Kansas City, or Columbia;
- Closely integrated into a small city, such as Warrenton or Odessa;
- Not major interchanges providing access to larger communities.

To determine the economic development potential for the US 65 interchange, several aspects of economic activity were examined.

Retail Sales - Retail sales (supply) and residential retail spending (demand) for the US 54 interchange were analyzed to estimate the amount of retail activity generated by interstate and highway traffic. Retail sales and spending data was supplied by ESRI. The US 54 area has a sizeable surplus of retail supply which is supported by this traffic. Only spending in specific retail sectors pertaining to highway travel were considered (dining, gasoline, and auto parts). The amount of surplus sales were divided by 2008 traffic counts in the area surrounding the interchange to estimate retail spending per vehicle. The vehicle count used was average of MODOT’s 2008 Average Daily Traffic (ADT) on the interstate at the interchange and the sum of the US 54 ADT at points just north and south of the interchange. This amount of spending is then applied to the traffic counts in the area surrounding the US 65 interchange where there is currently no development.

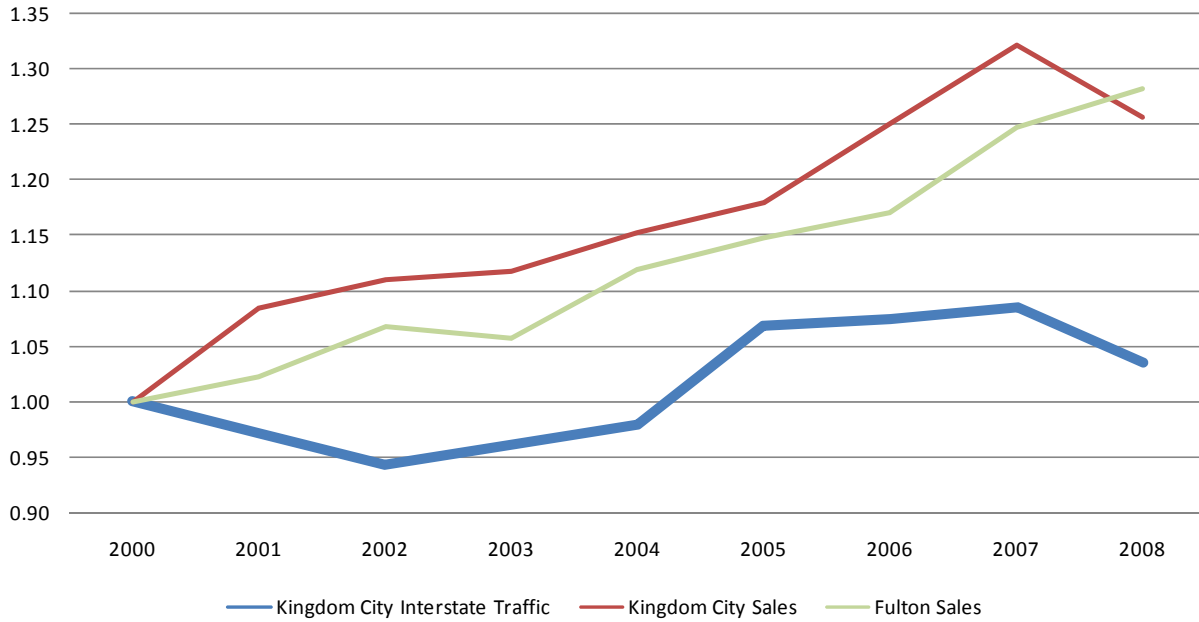
Businesses and Employment – A similar methodology was used to determine the number business and jobs that could be supported by spending from truckers and other interstate travelers. In this case, only those business sectors that would be directly impacted by interstate and local traffic were evaluated. These include transportation, retail trade, hotels/lodging, and automotive services. The number of businesses and employees located in the three-mile radius surrounding the US 54 interchange was divided by 2008 traffic counts in the area to estimate the number of businesses and jobs supported per 1,000 vehicles. These figures were then applied to the traffic counts in the area surrounding the US 65 interchange.

Wages – To determine the amount of wages potentially generated in the area surrounding the US 65 interchange, the number of possible jobs in each sector was multiplied by the average wage in that sector for Saline County. The local wage information was obtained from the Missouri Economic Research and Information Center (MERIC).

Growth – The expansion of Interstate 70 will support the continued growth of traffic along the corridor over the next several decades. With the available data for economic activity and traffic it is difficult to directly correlate increases in traffic counts to increases in local economic activity. However, retail sales in Kingdom City have outpaced increases in interstate traffic since 2000. This relationship is illustrated in the following chart.

Traffic/Retail Sales Comparison - Indexed Growth

Source: Missouri Department of Revenue, MODOT



Interstate 70 traffic at the US 54 interchange has increased by less than five percent since 2000, while Kingdom City sales have increased by about 25 percent during the same period. This growth is similar to retail sales in nearby Fulton. This suggests that retail sales and other economic activity at the interchange is impacted by both highway traffic and nearby local economies. Therefore, the assumption that economic activity at the interchange grows at the same rate as interstate traffic is conservative, depending on the growth of communities being served by the US 65 interchange, Sedalia and Marshall. Lacking better indicators of growth, we have tied the growth of highway related economic activity directly to HNTB’s estimate of traffic increases on the 30-mile stretch of Interstate 70 from 2006 to 2030 (modeled with interstate expansion). The estimated growth rate is 3.9 percent annually.

RETAIL SALES ANALYSIS

The following table summarizes the analysis of retail sales in the three-mile radius surrounding the US 54 interchange with Interstate 70 in Kingdom City and its application to the three-mile radius surrounding the US 65 interchange in the subject corridor.

The Kingdom City area has significant retail sales surpluses in all of the segments identified as serving highway users.³ This surplus is equivalent to \$1,165 per ADT, or about \$3.20 per car per day. Not surprisingly, almost 90 percent of this surplus is found in the gasoline stations category.

Since the US 65 interchange area has lower traffic counts, the spending per ADT results in lower potential retail spending of \$24.8 million assuming the interchange was reconfigured to support similar retailing activity. In addition, local residents around the US 65 interchange are underserved with no nearby outlets for their spending in these categories. Therefore, spending of local residents was included, bringing the total to \$25.8 million in potential sales based on the Kingdom City experience.

Retail Sales Potential Analysis

I 70 and US 54, 3mi Radius, Kingdom City, MO 65262

	Demand	Supply	Surplus/Leakage		Number of Businesses
	(Retail Potential)	(Retail Sales)	Retail Gap	Factor	
Auto Parts, Accessories, and Tire Stores (NAICS 4413)	\$62,482	\$381,364	-\$318,882	-71.8	1
Gasoline Stations (NAICS 447/NAICS 4471)	\$1,079,700	\$30,490,133	-\$29,410,433	-93.2	4
Food Services & Drinking Places (NAICS 722)	\$850,680	\$4,127,112	-\$3,276,432	-65.8	5
TOTAL Interstate Services (NAICS 441, 4471, 722)	\$1,992,862	\$34,998,609	-\$33,005,747	-89.2	10
		ADT	Retail Gap		Retail Potential per Vehicle Annually
2008 Interstate Traffic		30,953			
2008 US 54 Traffic (North and South of Interchange)		25,708			
2008 Avg. of Interstate and Local Highway Traffic		28,331	\$33,005,747		\$1,165

I 70 and US 65, 3mi Radius, near Marshall, MO 65340

	Demand	Supply	Surplus/Leakage		Number of Businesses
	(Retail Potential)	(Retail Sales)	Retail Gap	Factor	
Auto Parts, Accessories, and Tire Stores (NAICS 4413)	\$44,474	\$0	\$44,474	100.0	0
Gasoline Stations (NAICS 447/NAICS 4471)	\$594,676	\$0	\$594,676	100.0	0
Food Services & Drinking Places (NAICS 722)	\$387,879	\$0	\$387,879	100.0	0
TOTAL Interstate Services (NAICS 441, 4471, 722)	\$1,027,029	\$0	\$1,027,029	100.0	0
		ADT			Retail Potential per Vehicle Annually
2008 Interstate Traffic		27,125			
2008 US 65 Traffic (North and South of Interchange)		15,379			
2008 Avg. of Interstate and Local Highway Traffic		21,252		\$1,165	\$24,800,000
				add'l retail potential from local residents	\$1,000,000
				Total Retail Potential	\$25,800,000

ESRI, MODOT, Development Strategies, 2009

³ A retail sales surplus is the result of more sales than the local resident population could support on its own. Thus, additional sales must be coming from other sources of demand such as, in this case, highway travelers.

One concern is that newly expanded services at this interchange could impact existing businesses at other exits along the 30-mile subject corridor. Some businesses will clearly be affected by new competition which will be well positioned on a high-volume interchange. However, the table below shows that the entire corridor is underserved by retail options when looking exclusively at demand from local residents.

Retail Supply and Demand Analysis, Subject Corridor - 30mi x 3mi

Summary Demographics

2009 Population	5,860
2009 Households	2,228
2009 Median Disposable Income	\$36,714
2009 Per Capita Income	\$19,854

	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap (Demand - Supply)	Surplus/Leakage Factor	Number of Businesses
Overall Summary					
Total Retail Trade and Food & Drink (NAICS 44-45, 722)	\$46,460,001	\$18,395,839	\$28,064,162	43.3	40
Total Retail Trade (NAICS 44-45)	\$40,765,194	\$17,426,034	\$23,339,160	40.1	28
Total Food & Drink (NAICS 722)	\$5,694,807	\$969,805	\$4,725,002	70.9	12
Interstate Services Summary					
Total Interstate Services	\$16,161,070	\$11,498,803	\$4,662,267	16.9	18
Auto Parts, Accessories, and Tire Stores (NAICS 4413)	\$617,191	\$277,182	\$340,009	38.0	2
Gasoline Stations (NAICS 447/NAICS 4471)	\$9,849,072	\$10,251,816	-\$402,744	-2.0	4
Food Services & Drinking Places (NAICS 722)	\$5,694,807	\$969,805	\$4,725,002	70.9	12

ESRI, 2009

Only Gasoline Stations show a small surplus of supply. So if a business is forced to close due to new competition, existing residential demand should support a new business better positioned to meet the needs of local residents.

BUSINESSES, JOBS AND WAGES ANALYSIS

Since economic development and activity in the Kingdom City is driven largely by traffic generated by the interstate and highway, the US 65 interchange has the potential to attract a similar set of businesses, especially in the identified business categories driven by interstate traffic. The following table summarizes the businesses and jobs located within a three-mile radius of the US 54 interchange, and estimates the business potential for the US 65 interchange. The estimate is based on a ratio of businesses and jobs per 1,000 ADT in Kingdom City, with the ratio applied to the traffic counts at the US 65 interchange.

Business, Jobs and Wage Analysis

I 70 and US 54, 3mi Radius, Kingdom City Business and Employee Summary	<i>BUSINESSES</i>		<i>EMPLOYEES</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Transportation	3	7.7%	44	8.3%
Retail Trade Summary	10	25.6%	288	54.2%
Hotels & Lodging	3	7.7%	29	5.5%
Automotive Services	2	5.1%	17	3.2%
Total Interstate Supported Sectors	18	46.1%	378	71.2%
Per 1,000 Traffic Count (Interstate/Local Hwy. Avg.)	<i>Businesses</i>		<i>Employees</i>	
Transportation	0.11		1.55	
Retail Trade	0.35		10.17	
Hotel and Lodging	0.11		1.02	
Automotive Services	0.07		0.60	
Total Interstate Supported Sectors	0.64		13.34	
I 70 and US 65, 3mi Radius, near Marshall				
Indicated Business Potential	<i>Businesses</i>	<i>Employees</i>	<i>Avg Annual Wage</i>	
Transportation	2	33	\$31,000	\$1,020,000
Retail Trade	8	216	\$12,000	\$2,590,000
Hotel and Lodging	2	22	\$8,000	\$170,000
Automotive Services	2	13	\$26,000	\$330,000
Total Interstate Supported Sectors	14	284	\$15,000	\$4,250,000

ESRI, MODOT, Development Strategies, 2009

The lower traffic counts at the US 65 interchange results in a smaller number of businesses and jobs. Total wages were determined by the average annual wage in each business sector for Saline County. This analysis suggests that the area surrounding the interchange has the potential to support about 14 new businesses employing 284 employees with total wages of \$4.25 million annually.

GROWTH

The spending and business figures used above were based on ESRI 2009 estimates with 2008 MODOT traffic counts and 2008 wages from MERIC. The following table estimates growth of retail sales, wages, businesses and jobs tied directly to traffic counts on Interstate 70 from HNTB’s traffic model which assumes interstate expansion. Annual traffic growth along the 30-mile corridor is estimated to be 3.93 percent annually.

US 65 Interchange Economic Development Potential				
<i>Annual Growth</i>	3.93%			
<i>Year</i>	<i>Retail Sales</i>	<i>Wages</i>	<i>Businesses</i>	<i>Employees</i>
2008	\$25,800,000	\$4,200,000	14	284
2009	\$26,800,000	\$4,400,000	14	290
2010	\$27,900,000	\$4,600,000	15	300
2011	\$29,000,000	\$4,800,000	16	310
2012	\$30,100,000	\$5,000,000	17	320
2013	\$31,300,000	\$5,200,000	18	330
2014	\$32,500,000	\$5,400,000	19	340
2015	\$33,800,000	\$5,600,000	20	350
2016	\$35,100,000	\$5,800,000	21	360
2017	\$36,500,000	\$6,000,000	22	370
2018	\$37,900,000	\$6,200,000	23	380
2019	\$39,400,000	\$6,400,000	24	390
2020	\$40,900,000	\$6,700,000	25	410
2021	\$42,500,000	\$7,000,000	26	430
2022	\$44,200,000	\$7,300,000	27	450
2023	\$45,900,000	\$7,600,000	28	470
2024	\$47,700,000	\$7,900,000	29	490
2025	\$49,600,000	\$8,200,000	30	510
2026	\$51,500,000	\$8,500,000	31	530
2027	\$53,500,000	\$8,800,000	32	550
2028	\$55,600,000	\$9,100,000	33	570
2029	\$57,800,000	\$9,500,000	34	590
2030	\$60,100,000	\$9,900,000	35	610
Total (2011-2030)	\$854,900,000	\$140,900,000	35	610

HNTB, Development Strategies, 2009

By 2030 if the interchange is developed to its estimated potential, the surrounding three-mile radius has the potential to support 35 businesses that generate \$60.1 million in retail sales and employ 610 workers earning \$9.9 million in wages. Over the 20 year period from 2011 to 2030 the combined annual retail sales and wages could total almost \$855 million and \$141 million, respectively.

OTHER CONSIDERATIONS

This largely rural area currently contains no commercial development. In order to achieve the economic development potential presented by the proposed interstate expansion and reconfiguration of the interchange a major investment in infrastructure would be required to extend electric service and sewer lines to support commercial development. Without existing plans in place, it is difficult to estimate the amount of time needed to build the supporting infrastructure and commercial development, so these estimates represent only the economic development *potential*. Thought should be given to entities best able to facilitate the changes needed to support development around the interchange; these may include the county, an annexing city or newly created municipality containing the interchange and surrounding area.

This analysis does not consider “spin-off” development that may be created, but is harder to tie to highway traffic. Examples may include souvenir shops or road side attractions.

Although commercial development may indirectly compete with other highway services in nearby Marshall and Sedalia, it also presents an opportunity for these cities to create a more visible presence along Interstate 70 by providing more opportunities for signage and visitor information at local businesses, or a new visitor center.