

**ECONOMIC IMPACT OF THE
PORT OF SOUTH LOUISIANA CONNECTOR**

**State Project No. 700-48-0101
F.A.P. No. HP-T021(020)**

This portion of the Environmental Assessment addresses the economic impact of the proposed Port of South Louisiana (POSL) Connector on the St. John the Baptist Parish economy and the Louisiana economy. We will estimate both the construction impacts and the impacts post-construction of the project alternatives.

The “Multiplier” Concept

We will focus in this section not only on the direct impact of, say, the construction spending, but also on the **multiplier** or indirect impacts of that spending. Think of Louisiana as a large economic pond. Into this pond a rock will be dropped labeled “construction spending on the POSL Connector”. As we will illustrate below, this rock represents over \$21 million in spending injected into the Parish and State economies just from constructing the alternative AP-2 portion of the POSL Connector. That rock is so large that it will make a sizeable splash in the pond. This is the “**direct**” impact of the spending.

However, once that rock hits the pond, it begins to send out ripples to the edge of the pond. For example, construction workers will take their new paychecks and spend those new monies at grocery stores, car dealerships, movie theaters, department stores, etc. This will create new earnings at these establishments, and those workers will spend their new earnings at other establishments in the State, etc., etc. Construction firms will spend money on supplies at area stores, creating new income for their owners and employees, who will take this new money and spend it at car dealerships, grocery stores, etc. This is the “**multiplier**” effect.

Fortunately, there is a handy tool available for measuring these multiplier effects--an **input/output (I/O) table**. I/O tables for both the Parish and Louisiana economies have been constructed by the Bureau of Economic Analysis (BEA), which is located

within the U.S. Department of Commerce. The BEA is the same governmental agency responsible for measuring the nation’s gross domestic product each quarter.

This I/O table can be used to estimate three separate impacts of the POSL Connector construction spending on the alternatives of the POSL Connector...the impact on (1) sales at firms in the Parish/State, (2) household earnings of citizens of the Parish/State, and (3) jobs in the Parish/State. These three effects will be estimated for all alternatives of the POSL Connector.

Impact of Construction Spending

Below, we estimate the impact of constructing the various proposed alternatives of the POSL Connector on both the Parish and State economies.

Direct Construction Spending

Table 1 shows the estimated expenditures to construct the various alternatives of the POSL Connector. Obviously, not all of these alternatives will be constructed; rather some combination will be built. We estimate the separate impacts of each alternative, so that when the final decision is made on which alternatives will be constructed one can simply add up the impacts of those particular alternatives.

Note that Table 1 has the alternatives separated into the “southern” and “northern” segments. The southern segment includes the alternatives from LA 44 (River Road) to US 61 (Airline Highway), and the northern segment includes the alternatives from US 61 to I-10. All alternatives are shown for “at grade” levels. No construction impacts are estimated for “elevated” alternatives of the northern routes; these impacts would be proportionately larger than the construction impacts for “at grade” alternatives since their costs are greater.

Table 1
Estimated Construction Spending on
Various Alternatives of the POSL Connector

| Alternative | Estimated Construction Costs |
|--------------------------------------|------------------------------|
| Northern Segment: | |
| Upgrade Existing Routes | \$1,520,000 |
| AP-2 At Grade | \$21,407,000 |
| AP-6 At Grade | \$21,298,000 |
| AP-7 At Grade | \$19,376,000 |
| Southern Segment: | |
| Upgrade West 10 th Street | \$1,437,000 |
| Upgrade West 19 th Street | \$1,022,000 |

In our construction impacts estimated below, we assume that an “Upgrade” alternative can be completed within one calendar year. The construction of an “AP” alternative is estimated to take three years to completion.

Impact of Construction Spending on St. John the Baptist Parish

Table 2 illustrates the I/O table estimates of the impact of constructing the various POSL Connector alternatives on business sales and household earnings within St. John the Baptist Parish. As mentioned in the last paragraph, the sales and earning effects for the upgrade alternatives will occur within a one-year time period, while the sales and earnings benefits from building the AP alternatives are summed over a three-year construction period.

According to the I/O table, firms in the Parish will enjoy sales boosts ranging from \$1,648,077 for upgrading West 19th Street to a high of \$2,526,116 for upgrading the existing northern routes. The sales boosts from building the AP alternatives are much higher, going from \$33,661,037 for AP-7 to a high of \$37,131,247 associated with constructing the AP-2 alternative. Clearly, building any one of the AP alternatives would generate a sizable boost for firms in the Parish.

Table 2
The Impact of Construction Spending on
St. John the Baptist Parish

| | Sales | Earnings |
|--------------------------------------|--------------|-------------|
| Northern Segment: | | |
| Upgrade Existing Routes | \$2,526,116 | \$339,435 |
| AP-2 At Grade | \$37,131,247 | \$4,989,344 |
| AP-6 At Grade | \$36,957,736 | \$4,966,029 |
| AP-7 At Grade | \$33,661,037 | \$4,523,050 |
| Southern Segment: | | |
| Upgrade West 10 th Street | \$2,357,708 | \$316,806 |
| Upgrade West 19 th Street | \$1,684,077 | \$226,290 |

Note: This table is based on the Bureau of Economic Analysis' RIMS II tables, which provide impact multipliers for 37 industries. The total impact is the sum of the direct and indirect impact over all 37 industries.

Households in the Parish also stand to experience a noticeable increase in their earnings when these alternatives are constructed. The smaller impacts arise from building one of the upgrade alternatives. These earnings increases cover a range from \$226,290 for upgrading West 19th Street to a high of \$339,435 for upgrading the existing northern routes. Earnings gains will be much greater from building one of the AP alternatives, since these segments are much more expensive to construct. Gains range from a low of \$4,523,050 associated with building the AP-7 alternative to a high of \$4,989,344 if AP-2 is built.

Table 3 illustrates the impact on jobs in the Parish of constructing the various alternatives of the POSL Connector. The footnote to this table is very important. It points out that because the upgrade alternatives will be constructed within a one-year time frame, the job boost to the Parish---which range from 6 to 9 jobs---will occur for only one year. On the other hand, because the AP alternatives take three years to build, the jobs associated with building those alternatives---which range from 40 to 44 jobs---will last for three years.

Table 3
The Impact of Construction on Employment:
St. John the Baptist Parish

| | New St. John Jobs from Construction |
|--------------------------------------|--|
| Northern Segment: | |
| Upgrade Existing Routes | 9 |
| AP 2- At Grade | 44 |
| AP 6- At Grade | 44 |
| AP 7- At Grade | 40 |
| Southern Segment: | |
| Upgrade West 10 th Street | 9 |
| Upgrade West 19 th Street | 6 |

Note: This table is based on the Bureau of Economic Analysis' RIMS II tables, which provide impact multipliers for 37 industries. The total impact is the sum of the direct and indirect impact over all 37 industries. The new jobs last one year in the case of projects upgrading existing routes and for three years for projects creating new routes.

It is important to note that the sales, earnings, and job impacts detailed in Tables 2 and 3 are one-time, non-recurring benefits that last only for the period of construction, and then they vanish.

It is also possible to estimate the impact of constructing each of the POSL Connector alternatives on sales tax collections in the Parish. In 2000, the personal income in the Parish was \$908,023,000. In that same year, the Parish collected \$20,184,883 in sales taxes or about 2.2% of personal income in that year. If we apply that 2.2% factor to the earnings generated by building each of the alternatives (back in Table 2), we get the sales tax estimates shown in Table 4.

Because the cost of constructing the upgrade alternatives is much smaller than the cost of the AP alternatives, the sales taxes to be generated from the former will naturally be much smaller than from the latter. Indeed, sales tax collections associated with the upgrade alternatives range from a low of \$4,978 for the West 19th Street work to a high of \$7,478 for the existing northern routes. On the other hand, tax collections associated with

Table 4
The Impact of Construction Spending on
Sales Tax Collections in St. John the Baptist Parish

| | Earnings | Sales Tax Collections |
|--------------------------------------|-------------|--------------------------|
| Northern Segment: | | |
| Upgrade Existing Routes | \$339,435 | \$7,478 |
| AP 2- At Grade | \$4,989,344 | \$109,766 |
| AP 6- At Grade | \$4,966,029 | \$109,253 |
| AP 7- At Grade | \$4,523,050 | \$99,507 |
| Southern Segment: | | |
| Upgrade West 10 th Street | \$316,806 | \$6,970 |
| Upgrade West 19 th Street | \$226,290 | \$4,978 |

Note: This table is based on the Bureau of Economic Analysis' RIMS II tables, which provide impact multipliers for 37 industries. The total impact is the sum of the direct and indirect impact over all 37 industries.

constructing the AP alternatives range from a low of \$99,507 for the AP-7 alternative to a high of \$109,766 for building the AP-2 alternative.

Impact of Construction Spending on the State

We have also used an I/O table for the State of Louisiana to estimate the impact on the entire State of building each of the POSL Connector alternatives. Two factors will make these estimates larger than those for the Parish, which were shown in Tables 2 and 3. First, the State “economic pond” is much bigger than that of the Parish. The ripple effects have a much longer way to go.

Secondly, when plugging construction estimates into the State I/O table, we reduced the total spending figure by 20%, since construction of these alternatives would involve a 20-80 state-federal funds match. The 20% put forward by the State does not represent new money injected into the State’s economy (it is just moving from one pocket to another), so it is not included in our impact estimates below.

Table 5 shows the I/O table estimates of the impact of constructing each of the alternatives on business sales and household earnings in the State. Note that the sales estimates are just under 20% larger than sales estimates for the Parish (see Table 2). This is a reflection of the larger size of the “economic pond” for the State. The earnings estimates differences are even larger---more than twice the size of the Parish earnings

effects. This reflects not only the larger size of the pond, but also the fact that more of a firm's earnings stay within the State than within a given parish.

Table 5
The Impact of Construction Spending on
Louisiana

| | Sales | Earnings |
|--------------------------------------|--------------|--------------|
| Northern Segment: | | |
| Upgrade Existing Routes | \$2,962,548 | \$894,079 |
| AP 2- At Grade | \$43,546,336 | \$13,142,013 |
| AP 6- At Grade | \$43,342,849 | \$13,080,601 |
| AP 7- At Grade | \$39,476,585 | \$11,913,787 |
| Southern Segment: | | |
| Upgrade West 10 th Street | \$2,765,045 | \$834,473 |
| Upgrade West 19 th Street | \$1,975,032 | \$596,052 |

Note: This table is based on the Bureau of Economic Analysis' RIMS II tables, which provide impact multipliers for 37 industries. The total impact is the sum of the direct and indirect impact over all 37 industries.

In the case of **business sales**, impacts from the upgrading work range from a low of just under \$2 million for West 19th Street to a high of nearly \$3 million for the existing northern routes. Because construction costs are much higher for the AP alternatives, the sales impacts are higher as well. These range from a low of about \$39.5 million for constructing AP-7 to a high of over \$43.5 million associated with building the AP-2 alternative.

Household earnings impacts are shown in the last column of Table 5. Household earnings gains from constructing an upgrade alternative range from a low of \$596,052 for West 19th Street to a high of \$894,079 for the existing northern routes. Impacts are much higher for the AP alternatives, ranging from a low of almost \$12 million for the AP-7 alternative to a high of \$13.1 million for the AP-2 alternative. Again, the earnings benefits from each of the AP alternatives are summed over the 3-year period of building these roads.

Table 6
The Impact of AP-2 Construction on Business
Sales in Louisiana by Industry

| Industry | Sales |
|---------------------------------|---------------------|
| Construction | \$20,812,106 |
| Business Services | \$2,715,512 |
| Real Estate | \$2,061,171 |
| Transportation | \$1,817,839 |
| Stone, Clay, and Glass Products | \$1,770,808 |
| Retail Trade | \$1,760,584 |
| Health Services | \$1,693,105 |
| Total | \$43,546,336 |

Note: This table is based on the Bureau of Economic Analysis' RIMS II tables, which provide impact multipliers for 37 industries. The table includes only industries with at least \$1.5 million of new sales attributable to the project. The total impact is the sum of the direct and indirect impact over all 37 industries.

The Louisiana I/O tables makes it possible to determine which industries gain the most sales from constructing the various alternatives. In Table 6 we have chosen construction of the AP-2 alternative to illustrate how the \$43.5 million in newly generated sales (see column 2, row 2 of Table 5) is distributed across various industries in the State. Not surprisingly, firms in the construction sector are the greatest beneficiaries of the sales boost, with a \$20.8 million gain. Over \$2 million in new sales would be enjoyed by firms in the business services and real estate sectors. Between \$1.7 million and \$1.8 million in new sales would be garnered by firms in transportation, stone/clay/glass, retail trade, and health services.

Back in the last column and the second row of Table 5, we estimated that constructing AP-2 would generate \$13.1 million in new household earnings in the State. Table 7 shows how those household earnings would be distributed across workers in various sectors of the State's economy.

Table 7
The Impact of AP-2 Construction on Louisiana
Earnings by Industry

| Industry | Earnings |
|-------------------|---------------------|
| Construction | \$6,498,416 |
| Business Services | \$1,233,022 |
| Health Services | \$834,284 |
| Retail Trade | \$654,340 |
| Transportation | \$566,413 |
| Total | \$13,142,013 |

Note: This table is based on the Bureau of Economic Analysis' RIMS II tables, which provide impact multipliers for 37 industries. The table includes only industries with at least \$500,000 of new earnings attributable to the project. The total impact is the sum of the direct and indirect impact over all 37 industries

Workers in the construction industry would pick up the biggest boost in paychecks, bringing in a total of nearly \$6.5 million in new earnings, followed by employees of business services firms with earnings gains of over \$1.2 million. Earnings increases of half a million dollars up to over \$800 thousand would go to employees in health services, retail trade, and transportation.

Table 8 illustrates the I/O estimates of the **job impacts** at the State level from building each of the POSL Connector alternatives. As was the case at the parish level, job impacts are much larger for constructing the AP alternatives than the upgrade alternatives. For the upgrade alternatives, the job gains would last for the one-year period of construction and range from a low of 18 jobs for the West 19th Street upgrade to 27 jobs for the upgrade of the existing northern routes. For the AP alternatives, the job gains in Table 8 will be maintained for three years and range from a low of 117 jobs for building the AP-7 alternative to a high of 129 jobs for the AP-2 alternative.

Table 8
The Impact of Construction on Employment:
State of Louisiana

| | New Louisiana Jobs from Construction |
|--------------------------------------|---|
| Northern Segment: | |
| Upgrade Existing Routes | 27 |
| AP 2- At Grade | 129 |
| AP 6- At Grade | 129 |
| AP 7- At Grade | 117 |
| Southern Segment: | |
| Upgrade West 10 th Street | 25 |
| Upgrade West 19 th Street | 18 |

Note: This table is based on the Bureau of Economic Analysis' RIMS II tables, which provide impact multipliers for 37 industries. The total impact is the sum of the direct and indirect impact over all 37 industries. The new jobs last one year in the case of projects upgrading existing routes and for three years for projects creating new routes.

Finally, we are able to estimate the impact of constructing each alternative on **revenue collections by the state treasury**. Officials in the Legislative Fiscal office have estimated that the State collects about 5.6 cents in new revenues...in the form of income taxes, sales taxes, license fees, etc...for every \$1 of new earnings generated in the State. In Table 9 we take the household earnings estimates from Table 5 and apply this 5.6% factor to generate revenue impacts on the state treasury. The state treasury would receive

Table 9
The Impact of Construction Spending on
State Revenue Collections

| | Earnings | State Revenue Estimates |
|--------------------------------------|--------------|----------------------------|
| Northern Segment: | | |
| Upgrade Existing Routes | \$894,079 | \$50,068 |
| AP 2- At Grade | \$13,142,013 | \$735,953 |
| AP 6- At Grade | \$13,080,601 | \$732,514 |
| AP 7- At Grade | \$11,913,787 | \$661,172 |
| Southern Segment: | | |
| Upgrade West 10 th Street | \$834,473 | \$46,730 |
| Upgrade West 19 th Street | \$596,052 | \$33,379 |

Note: This table is based on the Bureau of Economic Analysis' RIMS II tables, which provide impact multipliers for 37 industries. The total impact is the sum of the direct and indirect impact over all 37 industries.

a revenue boost ranging from \$33,379 to \$50,068 for upgrading the existing northern routes. For the AP alternatives the revenue gains would range from a low of \$661,172 for building the AP-7 alternative to a high of \$735,953 associated with constructing the AP-2 alternative.

Annual Benefits Once POSL Connector Is Constructed

The annual benefits of the Port of South Louisiana Connector each year include (1) travel time savings, (2) lower operating costs, and (3) fewer accidents for those using the road and possibly (4) increases in economic activity attributable to the new route. Our primary source of basic information about the project is traffic-related information for alternatives provided by Professional Service Industries, Inc.

The project considers several alternatives: upgrading existing northern routes, upgrading West 10th Street, upgrading West 19th Street, and building a new route (AP-2, AP-6, or AP-7). The traffic impact evaluation suggests that the travel time savings from upgrades of existing routes will be negligible and offer no estimates of that small amount. **Thus, we conservatively assume zero travel time savings, operating cost savings, and no new economic activity from these upgrades.** The traffic impact evaluation indicates that all three new connector alternatives---AP-2, AP-6, and AP-7---would have the same impact on travel time, a savings of 3 minutes and 25 seconds per trip. Thus, travel time and operating cost computations are identical for all three alternatives.

Time Savings

The value of travel time savings depends on the time saved per trip, number of trips on the route, and the value of time for those who travel. Based on input from the Louisiana DOTD (Mr. Jeff Lambert), we assume that major reconstruction will be required after twenty years. Thus, all calculations are made for a twenty-year period beginning at the end of construction in 2010.

The traffic impact evaluation indicates that the new connector route will save an average of 3 minutes 25 seconds or 0.05694 hours per trip. The traffic impact evaluation also projects 14,000 trips per day along the new connector route in 2020. Multiplying the trips by the saving implies that **an AP alternative will save travelers 797 hours**

(0.05694 x 14,000) of time in a single day in 2020. To ensure conservative estimates, we assume traffic volume falls by 50% on weekends. Table 10 contains the projected travel time savings for the twenty years from 2010-2029; annual figures are computed based on the 3% traffic growth rate used in the traffic impact evaluation.

The literature makes a distinction between the value of time for commercial trucks and automobiles. This particular route is likely to attract a heavy volume of trucks. The traffic impact evaluation indicates that 20% of the vehicles at US 61 in LaPlace were trucks. The final two columns of Table 10 break the travel time savings into trucks and cars assuming that 20% of the vehicles on the new connector route are trucks.

The value of time for truckers is easy to compute; it is the reduction in costs to the firms employing the truckers. The Bureau of Labor Statistics (BLS) reports that transportation and materials movers in the United States earned an average wage of \$13.89 per hour and average fringe benefits were \$6.21 per hour. Thus, the hourly value of time for truckers was \$20.10 in 2002. We allow this value to grow by 3% each year to account for inflation. Following previous studies, we assume an average of 1.2 individuals per truck.

Table 10
Annual Time Savings (in hours)

| | ADT | Annual Time Savings | Truck Time Savings | Car Time Savings |
|------|---------|---------------------|--------------------|------------------|
| 2010 | 185,081 | 10,417 | 37,016 | 148,065 |
| 2011 | 190,633 | 10,730 | 38,127 | 152,507 |
| 2012 | 196,352 | 11,052 | 39,270 | 157,082 |
| 2013 | 202,243 | 11,383 | 40,449 | 161,794 |
| 2014 | 208,310 | 11,725 | 41,662 | 166,648 |
| 2015 | 214,560 | 12,077 | 42,912 | 171,648 |
| 2016 | 220,996 | 12,439 | 44,199 | 176,797 |
| 2017 | 227,626 | 12,812 | 45,525 | 182,101 |
| 2018 | 234,455 | 13,196 | 46,891 | 187,564 |
| 2019 | 241,489 | 13,592 | 48,298 | 193,191 |
| 2020 | 248,733 | 14,000 | 49,747 | 198,987 |
| 2021 | 256,195 | 14,420 | 51,239 | 204,956 |
| 2022 | 263,881 | 14,853 | 52,776 | 211,105 |
| 2023 | 271,798 | 15,298 | 54,360 | 217,438 |
| 2024 | 279,952 | 15,757 | 55,990 | 223,961 |
| 2025 | 288,350 | 16,230 | 57,670 | 230,680 |
| 2026 | 297,001 | 16,717 | 59,400 | 237,600 |
| 2027 | 305,911 | 17,218 | 61,182 | 244,729 |
| 2028 | 315,088 | 17,735 | 63,018 | 252,070 |
| 2029 | 324,541 | 18,267 | 64,908 | 259,632 |

There is still some debate on the subject of valuing time by automobile travelers. Some studies suggest valuing time at the wage rate plus fringes while others suggest discounting the wage rate. Miller (1989) suggests that the time of automobile travelers should be valued at 40% to 60% of their hourly wage rate. We conservatively value the time of our automobile travelers at 40% of the average hourly wage rate, excluding fringe benefits. We also use a conservative estimate of occupancy, 1.2 persons per vehicle. The BLS estimate of average wages for September 2002 was \$16.78, and we inflate this figure by 3% to obtain estimates for 2010-2029.

Table 11 contains the estimated value of time saved by an AP alternative for each year. The first two columns contain savings for trucks and automobiles. The third column is the total savings each year in current period dollars and the final column converts the savings to 2007 dollars to match the initial construction expenditure.

Table 11
Annual Value of Time Savings

| | Value of Truck Time Savings | Value of Automobile Time Savings | Total Value of Time Savings | Total Value of Time Savings (2007 \$) |
|--------------|--------------------------------|--|--------------------------------|---|
| 2010 | \$1,131,011 | \$1,888,395 | \$3,019,406 | \$2,763,184 |
| 2011 | \$1,199,890 | \$2,003,398 | \$3,203,287 | \$2,846,079 |
| 2012 | \$1,272,963 | \$2,125,405 | \$3,398,368 | \$2,931,462 |
| 2013 | \$1,350,486 | \$2,254,842 | \$3,605,328 | \$3,019,406 |
| 2014 | \$1,432,731 | \$2,392,162 | \$3,824,893 | \$3,109,988 |
| 2015 | \$1,519,984 | \$2,537,844 | \$4,057,829 | \$3,203,287 |
| 2016 | \$1,612,551 | \$2,692,399 | \$4,304,950 | \$3,299,386 |
| 2017 | \$1,710,756 | \$2,856,366 | \$4,567,122 | \$3,398,368 |
| 2018 | \$1,814,941 | \$3,030,319 | \$4,845,260 | \$3,500,319 |
| 2019 | \$1,925,471 | \$3,214,865 | \$5,140,336 | \$3,605,328 |
| 2020 | \$2,042,732 | \$3,410,651 | \$5,453,382 | \$3,713,488 |
| 2021 | \$2,167,134 | \$3,618,359 | \$5,785,493 | \$3,824,893 |
| 2022 | \$2,299,113 | \$3,838,717 | \$6,137,830 | \$3,939,639 |
| 2023 | \$2,439,129 | \$4,072,495 | \$6,511,624 | \$4,057,829 |
| 2024 | \$2,587,671 | \$4,320,510 | \$6,908,182 | \$4,179,563 |
| 2025 | \$2,745,261 | \$4,583,629 | \$7,328,890 | \$4,304,950 |
| 2026 | \$2,912,447 | \$4,862,772 | \$7,775,219 | \$4,434,099 |
| 2027 | \$3,089,815 | \$5,158,915 | \$8,248,730 | \$4,567,122 |
| 2028 | \$3,277,985 | \$5,473,093 | \$8,751,078 | \$4,704,135 |
| 2029 | \$3,477,614 | \$5,806,404 | \$9,284,018 | \$4,845,260 |
| Total | \$42,009,683 | \$70,141,540 | \$112,151,223 | \$74,247,784 |

Vehicle Operating Costs

Because both trucks and cars will spend less time on the road, another benefit of a new connector route is a **reduction in operating costs** for those traveling on the road. We assume operating costs of \$5 per hour for automobiles and \$25 per hour for trucks. At 50 miles per hour, this implies cost of 10 cents per mile for autos and 50 cents per mile for trucks. We choose these low values for the savings from operating costs to capture the fact that time savings comes primarily from avoiding spending time idling at an intersection and to ensure conservative estimates.

Table 12
Annual Value of Operating Cost Savings

| | Value of Truck Operating Cost Savings | Value of Automobile Operating Cost Savings | Total Value of Operating Cost Savings | Total Value of Operating Cost Savings (2007 \$) |
|--------------|--|---|---|--|
| 2010 | \$1,172,275 | \$937,820 | \$2,110,095 | \$1,931,036 |
| 2011 | \$1,243,667 | \$994,933 | \$2,238,600 | \$1,988,967 |
| 2012 | \$1,319,406 | \$1,055,525 | \$2,374,931 | \$2,048,636 |
| 2013 | \$1,399,758 | \$1,119,806 | \$2,519,564 | \$2,110,095 |
| 2014 | \$1,485,003 | \$1,188,002 | \$2,673,005 | \$2,173,398 |
| 2015 | \$1,575,440 | \$1,260,352 | \$2,835,792 | \$2,238,600 |
| 2016 | \$1,671,384 | \$1,337,107 | \$3,008,491 | \$2,305,758 |
| 2017 | \$1,773,171 | \$1,418,537 | \$3,191,708 | \$2,374,931 |
| 2018 | \$1,881,157 | \$1,504,926 | \$3,386,083 | \$2,446,179 |
| 2019 | \$1,995,720 | \$1,596,576 | \$3,592,296 | \$2,519,564 |
| 2020 | \$2,117,259 | \$1,693,807 | \$3,811,067 | \$2,595,151 |
| 2021 | \$2,246,200 | \$1,796,960 | \$4,043,161 | \$2,673,005 |
| 2022 | \$2,382,994 | \$1,906,395 | \$4,289,389 | \$2,753,196 |
| 2023 | \$2,528,118 | \$2,022,495 | \$4,550,613 | \$2,835,792 |
| 2024 | \$2,682,081 | \$2,145,665 | \$4,827,745 | \$2,920,865 |
| 2025 | \$2,845,419 | \$2,276,336 | \$5,121,755 | \$3,008,491 |
| 2026 | \$3,018,705 | \$2,414,964 | \$5,433,670 | \$3,098,746 |
| 2027 | \$3,202,545 | \$2,562,036 | \$5,764,580 | \$3,191,708 |
| 2028 | \$3,397,580 | \$2,718,064 | \$6,115,643 | \$3,287,460 |
| 2029 | \$3,604,492 | \$2,883,594 | \$6,488,086 | \$3,386,083 |
| Total | \$43,542,374 | \$34,833,900 | \$78,376,274 | \$51,887,661 |

Combining these estimates of vehicle operating costs with the estimates of travel time savings in Table 10 produces the estimated vehicle operating savings in Table 12. Because commercial trucks are far more expensive to operate, the reduction in operating costs for trucks is large relative to their share of the travel time savings. Likewise, the fact that this route is heavily traveled by trucks increases the total amount of vehicle operating cost savings.

Accident Costs

Another benefit of the planned upgrades and new route is a **reduction in accidents**. The traffic impact evaluation contains data on accidents in the project study area for 1998 through 2000, but does not supply detailed estimates of accidents in the future. Thus, we compute savings in accident costs using national averages and conservative assumptions with regard to accident reduction.

The methodology consists of estimating the number of accidents in each year, estimating the cost of those accidents using national averages, then computing the savings based on an assumed accident reduction rate. With regard to accidents, alternatives AP-2, AP-6, and AP-7 all have the same effect of routing a commercial truck and other traffic away from busy and potentially dangerous intersections. We assume that any of these new connector routes would provide a 5% reduction in total accidents in the project study area. Based on conversations with the preparer of the traffic impact evaluation, this is likely to be a conservative estimate of the accident reduction.

The traffic impact evaluation reports 406 accidents in the project study area for US 61, LA 3188, LA 641 and West 10th Street (no data are available West 19th Street) for the year 2000. We assume that the accident rate will be constant in the future; thus we estimate that the number of accidents will rise by 3% each year to match the growth in traffic. The National Highway Traffic Safety Administration reports that during the year 2000 0.6% of U.S. accidents involved fatalities, 32.4% involved injuries, and 67% were limited to property damages. To value each accident, we assume that these national averages apply in our study area. Accidents involving trucks tend to be more severe and the proportion of trucks in the project study area is higher than the national average. Thus, the use of these national averages leads to conservative estimates of the savings from accident reduction.

To place an economic cost on each accident, we updated the figures from Thompson, et. al.'s (1997) I-66 impact assessment to 2010 dollars using observed inflation rates through 2002 and an assumed 3% inflation rate in the future. Table 13 contains the resulting estimates of the average 2010 economic costs for each type of accident. For later years, we assume that these costs grow by 3% to match inflation.

Table 13
Estimated Cost of Accidents in 2010

| Type of Accident | Average Cost in 2010 \$ |
|------------------------------------|-------------------------|
| Accident with fatality | \$4,542,337 |
| Accident with injury only | \$90,161 |
| Accident with only property damage | \$7,867 |

Source: Thompson, et. al (1997) and Author's calculations.

Combining Table 14 with our estimates for the number of accidents, NHTSA estimates of accident severity, and our assumed accident reduction rate provide enough information to estimate the cost savings from accident reduction in each year. Table 14 contains the estimated number of accidents in each year with no improvements, the cost of those accidents, and the reduction in costs that might be achieved with the new connector route involving alternatives AP-2, AP-6, or AP-7. Column 3 of the table contains the predicted reduction in accident costs that might be achieved with the new connector route in current period dollars and column 4 converts these potential savings to 2007 dollars to match construction costs.

The traffic impact evaluation indicated that construction of any of the new connector alternatives (AP-2, AP-6, or AP-7) would affect traffic on US 61 from LA 641 to US 51, plus LA 3188 and LA 641. Therefore, the total number of accidents in 2000 for these roads (401 accidents) was used as the basis for computations for the new connector alternatives.

Table 14
Annual Value of Accident Reduction
for Alternatives AP-2, AP-6, and AP-7

| | Estimated Number of Accidents with no Improvement | Estimated Cost of Accidents with no Improvement | Estimated Cost Savings due to Accident Reduction | Estimated Accident Costs in 2007 \$ |
|--------------|--|--|---|---|
| 2010 | 539 | \$32,330,560 | \$1,616,528 | \$1,479,352 |
| 2011 | 555 | \$34,240,771 | \$1,712,039 | \$1,521,124 |
| 2012 | 572 | \$36,265,553 | \$1,813,278 | \$1,564,149 |
| 2013 | 589 | \$38,411,830 | \$1,920,591 | \$1,608,465 |
| 2014 | 607 | \$40,686,945 | \$2,034,347 | \$1,654,110 |
| 2015 | 625 | \$43,098,691 | \$2,154,935 | \$1,701,125 |
| 2016 | 643 | \$45,655,329 | \$2,282,766 | \$1,749,550 |
| 2017 | 663 | \$48,365,624 | \$2,418,281 | \$1,799,428 |
| 2018 | 683 | \$51,238,873 | \$2,561,944 | \$1,850,803 |
| 2019 | 703 | \$54,284,936 | \$2,714,247 | \$1,903,718 |
| 2020 | 724 | \$57,514,273 | \$2,875,714 | \$1,958,221 |
| 2021 | 746 | \$60,937,978 | \$3,046,899 | \$2,014,359 |
| 2022 | 768 | \$64,567,819 | \$3,228,391 | \$2,072,181 |
| 2023 | 791 | \$68,416,279 | \$3,420,814 | \$2,131,738 |
| 2024 | 815 | \$72,496,599 | \$3,624,830 | \$2,193,082 |
| 2025 | 840 | \$76,822,823 | \$3,841,141 | \$2,256,266 |
| 2026 | 865 | \$81,409,850 | \$4,070,492 | \$2,321,345 |
| 2027 | 891 | \$86,273,482 | \$4,313,674 | \$2,388,377 |
| 2028 | 917 | \$91,430,482 | \$4,571,524 | \$2,457,419 |
| 2029 | 945 | \$96,898,632 | \$4,844,932 | \$2,528,533 |
| Total | 14,481 | \$1,181,347,331 | \$59,067,367 | \$39,153,347 |

Similar computations lead to an estimated accident cost reduction of \$4.7 million for the alternative of upgrading existing northern routes and \$488,196 for the West 10th street upgrade. Since the proposed upgrade for the existing northern routes only involves 0.5 mile of US 61 immediately west of LA 3188, the accident rate for 2000 for this portion of US 61 (48 accidents) was used as the basis for computations for this alternative. The proposed upgrade of West 10th Street will only affect that street, so the accident rate for 2000 (5 accidents) was used as the basis for computations for this

alternative. Accident figures were incomplete for West 19th street; thus, no estimates are possible for that upgrade alternative.

Economic Impact

The economic impact of the new connector route will benefit larger industrial/commercial operations in the project area, such as the seven companies listed in Table 15. Note that the travel time savings, vehicle operating cost savings, and accident reduction cost savings already include benefits to each of these firms. The economy could also benefit from an expansion of one or all of these firms due to the new connector route. Based on interviews with these and other larger businesses in the project study area on preliminary benefits, our preliminary estimate is that the project may generate up to 20 new jobs and \$737,000 (2007 \$) in new earnings per year. The size of this impact is limited by the travel time savings per vehicle and the fact that much of the land around the AP alternatives is wetlands which cannot be developed for expansion.

Table 15
Key Businesses in the Study Area

| COMPANY | # TRUCKS/YEAR | % WESTBOUND | % EASTBOUND |
|----------------|----------------------|---------------------|---------------------|
| Constar | 5,250 | 60% (3,150) | 40%(2,100) |
| Delta Beverage | 13,560 | 50% (6,780) | 50%(6,780) |
| Stockhausen | 7,620 | 70% (5,119) | 30%(2,501) |
| Marathon Oil | 41,500 | 45% (18,675) | 55%(22,825) |
| Cargill | 6,000 | 20% (1,200) | 80%(4,800) |
| Kinder Morgan | 1,050 | 75% (788) | 25%(262) |
| Ondeo Nalco | 25,300 | 30% (7,590) | 70%(17,710) |
| TOTALS | 100,280 | 43,302 (43%) | 56,978 (57%) |

Source: POSL Connector traffic impact evaluation

The traffic impact evaluation assumes no new traffic will be induced by the project; thus, it implicitly assumes no resulting expansion in truck shipments from key firms such as these. Given the relatively small size of the estimated economic benefit, we omit this figure from our final calculations to remain consistent with the traffic impact evaluation.

Total Benefits of AP-2, AP-6, or AP-7

Table 16 contains the total benefits attributable to one of the proposed new connector routes---AP-2, AP-6, or AP-7. The size of the benefit stems primarily from the large estimated traffic flow along the new route and relatively high volume of truck traffic along the route.

Table 16
Total Benefits of AP-2, AP-6, or AP-7 (2007 \$)

| | Value of Time Savings | Value of Vehicle Operating Cost Savings | Value of Accident Reduction | Total Value (2007 \$) |
|--------------|--------------------------|---|-----------------------------------|--------------------------|
| 2010 | \$2,763,184 | \$1,931,036 | \$1,479,352 | \$6,173,572 |
| 2011 | \$2,846,079 | \$1,988,967 | \$1,521,124 | \$6,356,171 |
| 2012 | \$2,931,462 | \$2,048,636 | \$1,564,149 | \$6,544,247 |
| 2013 | \$3,019,406 | \$2,110,095 | \$1,608,465 | \$6,737,966 |
| 2014 | \$3,109,988 | \$2,173,398 | \$1,654,110 | \$6,937,496 |
| 2015 | \$3,203,287 | \$2,238,600 | \$1,701,125 | \$7,143,013 |
| 2016 | \$3,299,386 | \$2,305,758 | \$1,749,550 | \$7,354,694 |
| 2017 | \$3,398,368 | \$2,374,931 | \$1,799,428 | \$7,572,727 |
| 2018 | \$3,500,319 | \$2,446,179 | \$1,850,803 | \$7,797,300 |
| 2019 | \$3,605,328 | \$2,519,564 | \$1,903,718 | \$8,028,610 |
| 2020 | \$3,713,488 | \$2,595,151 | \$1,958,221 | \$8,266,860 |
| 2021 | \$3,824,893 | \$2,673,005 | \$2,014,359 | \$8,512,257 |
| 2022 | \$3,939,639 | \$2,753,196 | \$2,072,181 | \$8,765,016 |
| 2023 | \$4,057,829 | \$2,835,792 | \$2,131,738 | \$9,025,358 |
| 2024 | \$4,179,563 | \$2,920,865 | \$2,193,082 | \$9,293,510 |
| 2025 | \$4,304,950 | \$3,008,491 | \$2,256,266 | \$9,569,707 |
| 2026 | \$4,434,099 | \$3,098,746 | \$2,321,345 | \$9,854,190 |
| 2027 | \$4,567,122 | \$3,191,708 | \$2,388,377 | \$10,147,207 |
| 2028 | \$4,704,135 | \$3,287,460 | \$2,457,419 | \$10,449,015 |
| 2029 | \$4,845,260 | \$3,386,083 | \$2,528,533 | \$10,759,876 |
| Total | \$74,247,784 | \$51,887,661 | \$39,153,347 | \$165,288,792 |

References:

Miller, Ted R. (1989), *The Value of time and the Benefit of Time Saving*, Washington, DC: The Urban Institute.

National Highway Traffic Safety Administration, *Traffic Safety Facts 2000*.

Thompson, Eric, Mark Berger, Dan Black, Amitabh Chandra, and Katherine Ginting (1997), *Economic Impact Assessment of a Southern Kentucky Corridor*, Center for Business and Economic Research, University of Kentucky.