

**The Impact of the Interstate 70 East Corridor Project
on The Economies of Colorado and Local Communities**

Prepared for

The Colorado Department of Transportation

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Executive Summary

John Dunham & Associates and BBC Research & Consulting were commissioned by the Colorado Department of Transportation (CDOT) to conduct a state level and regional economic impact study for the I-70 East Corridor Project. The purpose of the study was to determine direct and indirect jobs, wages and outputs related to:

- Project construction expenses;
- Increased mobility;
- Increased business productivity; and
- Changes in land use/value.

The improvement of the Interstate 70 Corridor (I-70) between Interstate 25 on the west and Tower Road on the east will benefit motorists by expanding highway capacity and allowing for the management of traffic congestion. Expanding capacity along this stretch of I-70 is currently the subject of an Environmental Impact Statement (EIS). In the EIS process, several alternatives are evaluated and the most beneficial alternative is selected following a long and detailed analysis. A draft EIS (DEIS) for this project was released in 2008 and no clear preferred alternative emerged from the evaluation. There were four alternatives presented in the draft EIS: two alternatives added lanes to I-70 preserving the present alignment; and two alternatives suggested a new alignment that routes the highway north of its present location. Managed toll lanes are present in two of the alternatives—one in each alignment.¹

Following a lengthy public review and input process, a new set of alternatives was developed, which are the subject of the forthcoming supplemental draft EIS (SDEIS). The new preferred alternative will lower I-70 below grade between Brighton Boulevard and Colorado Boulevard and add lanes for general traffic and managed tolling. The original alignment of the highway is preserved in the preferred alternative.

A detailed traffic study of the preferred alternative with estimates of congestion mitigation is not yet available. As such, this analysis is based on Alternative 3 in the DEIS, which is the most comparable alternative in terms of alignment, tolling and general traffic capacity to the expected preferred alternative in the SDEIS. Under this alternative, I-70 would follow the existing roadway, and tolled-express lanes would be added.

The traffic time savings from the I-70 East Corridor Project were calculated by comparing projected traffic congestion conditions in 2030 between the “No Action” alternative and Alternative 3.²

¹ For detailed information on the draft EIS please refer to *I-70 East Draft Environmental Impact Statement*, Colorado Department of Transportation, <http://www.i-70east.com/reports.html>.

² This is being used as a proxy as traffic data for the preferred alternative is not yet available.

Based on this data, and a detailed model of the Colorado economy, and the economy of each of the regional subdivisions (Denver, Commerce City, Aurora, etc.), an analysis of the economic benefits of the construction project, the time savings and the increase in corridor level land values was conducted. This analysis suggests that the project will create 14,160 temporary jobs over the multi-year construction period (with nearly 79 percent of these in the surrounding communities). These additional construction jobs and the increased spending power that they provide to the region, would lead to an increase in sales tax revenues for state and local governments of about \$22.0 million dollars.

Following the completion of the reconstruction project, the resulting reduction in congestion will lead to the creation of nearly 9,800 new permanent jobs (with 83 percent of these in the surrounding communities) paying over \$520.3 million in wages annually. State and regional governments would receive nearly \$26.4 million annually in increased tax revenues as a result of this reconstruction. In addition, land values in the Denver portion of the corridor alone would increase by about \$89.7 million. Table ES.o.1 outlines these economic impacts.

Exhibit ES.o.1 Summary of Economic Benefits

	Direct			Total			Sales Taxes
	Jobs	Wages	Economic Impact	Jobs	Wages	Economic Impact	
Construction Impact							
Regional	8,199	\$501,750,487	\$1,034,526,888	11,156	\$645,878,948	\$1,460,060,340	\$16,200,947
Total	8,199	\$501,750,487	\$1,034,526,888	14,166	\$790,434,108	\$1,846,977,184	\$21,820,133
Mobility Benefits							
Regional	116	\$4,938,588	\$13,334,663	192	\$9,011,121	\$25,197,503	\$353,968
Total	243	\$10,012,549	\$31,414,541	407	\$17,641,173	\$54,368,686	\$752,676
Business Productivity Benefits							
Regional	N/A	N/A	N/A	7,895	\$357,690,868	\$1,228,091,660	\$12,325,731
Total	N/A	N/A	N/A	9,379	\$502,697,227	\$1,458,899,968	\$25,654,374
Total Annual Recurring Benefits							
Regional	116	\$4,938,588	\$13,334,663	8,087	\$366,701,988	\$1,253,289,163	\$12,679,699
Total	243	\$10,012,549	\$31,414,541	9,786	\$520,338,400	\$1,513,268,654	\$26,407,049

ES.1 What are the economic impacts of the I-70 East Corridor Project on local construction spending and employment?

The I-70 East Corridor Project encompasses approximately 12 miles of heavily trafficked roadway. After careful deliberations by the CDOT, the preferred solution to existing and predicted congestion encompasses replacing the current viaduct structure with both a submerged and an elevated highway. The construction industry has incurred some of the highest job losses since the 2008-2009 recession and is still recovering. The I-70 East Corridor Project will significantly boost construction spending and jobs in the Greater Denver Area and within Colorado as a whole. The current proposed alternative for the replacement of the existing viaduct with a below grade highway along with extensive additional highway improvements to the east of the viaduct is estimated to cost approximately \$2.05 billion.

This project will create nearly 8,200 temporary construction jobs and 6,000 supplier and induced jobs in businesses located throughout the state of Colorado. Of these, nearly 79 percent, or 11,150 jobs in total will be created in communities located on both sides of the I-70 East Corridor Project. In particular, there are a wide range of highway construction jobs that are envisioned throughout the project, including drainage, traffic signage, embankment development, removal of existing structures, bridges and retaining walls. Thus highway construction jobs will encompass many sectors of the labor market, from relatively unskilled workers to highly skilled workers.

ES.2 What are the economic impacts of the I-70 East Corridor Project due to increased mobility?

Aside from replacing aging structures (viaducts, bridges) that are beyond their operational lifespan, the I-70 East Corridor Project also incorporates managed lanes which can provide motorists with an option of avoiding traffic and congestion. Overall, the project is designed to significantly manage traffic and congestion on one of the critical roadways leading through Denver. Based on data provided by the CDOT, portions of the project area carry as many as 208,000 vehicles per day using this transportation artery through the state's main city as a local road, a commuter route, and for the movement of goods and services locally as well as to other destinations including the Denver International Airport, farming communities, energy development sites and various tourist areas such as Colorado's many ski resorts.³

In terms of private vehicles, such as those bringing commuters to work, it is estimated that the I-70 East Corridor Project will reduce commuting times across the project area by about 45 percent or an average of 12 minutes for each vehicle operating on I-70 within the project corridor. Additionally, the travel times could be further improved by commuters who choose to enter the proposed managed toll lanes. Commercial travel time will be reduced by 795,000 hours annually (delay hours) once the project is completed. Most importantly, major commercial transportation, particularly heavy trucking moving goods through the Greater Denver area as well as moving goods to and from Denver-based business, will see a reduction of 2.5 percent in transportation costs, including as much as \$2.6 million in reduced fuel expenditures. Reduced travel times can be translated to both time and dollar impacts for people engaged in a wide range of economic and domestic activities. For example:

- Extra time taken traveling to a store results in higher costs for consumers which reduces overall purchases;
- Parents with children in day-care or after-school programs must leave work early to ensure that they do not incur significant late pickup charges;

³ *Draft Environmental Impact Statement*, Colorado Department of Transportation, http://www.i-70east.com/DEIS/I-70EastDEIS_V1_Cho3_AlternativesConsidered.pdf

- Higher travel times for tourists coming to and from DIA impacts businesses throughout the state as visitors have less time at their destinations;
- Tradespeople (like plumbers or carpenters) have to reduce the number of jobs that they can take since they spend additional time in traffic; and
- Firms have to reduce the number of deliveries that they can make in a day since trucks are held up in traffic.

The I-70 East Corridor Project will address problems in both areas. For private travel there will be a time savings valued at \$47.5 million per year after the completion of the project. This will translate into 217 additional jobs for the region and about \$28 million in additional economic activity. Statewide, this time savings alone would create about 400 additional jobs as people living in the area spend less time in traffic and more time in productive household activities. This is the result of time savings to individuals using the roadways. Even greater impacts will accrue to local and regional businesses that rely on Interstate 70 to carry their supplies, products and in many cases employees through the region. These impacts are discussed in the following section.

ES.3 What are the economic impacts of the I-70 East Corridor Project due to increased business productivity?

Nearly all businesses in the state and the metropolitan area rely to some extent on transportation. In fact, according to the United States Department of Commerce, nationally, over 67 percent of all freight is delivered by truck, and even the smallest service firm relies on trucks and other transportation services to some extent. One of the major benefits of the I-70 East Corridor Project will be to reduce the cost of providing trucking and transportation services for local businesses. As costs fall, firms are not only able to pass on savings to their customers. They are also able to become more competitive nationally and regionally, which increases profitability and the potential for adding jobs. In addition, more profitable firms will help to increase Colorado's revenue stream, as well as that of the regional cities and counties. All told, the reduction in transportation delay time will generate as many as 7,895 net new jobs in the region (3,700 in Denver alone) on an on-going basis once the project is complete.

ES.4 What are the economic impacts of the I-70 East Corridor Project due to changes in land use/value?

The areas surrounding and directly served by the I-70 East Corridor Project will see some gains and losses consistent with any highway project that leads to changes in the capacity and operational characteristics of the road. Most of the areas impacted by the I-70 East Corridor Project are either currently used by other transportation systems (for example rail yards), host institutional venues (for example the stock show yards) or are vacant. Much of the rest of the area consists of industrial sites and residential parcels with relatively low property values. While there will be the potential for both "winners and losers," in balance the overall change in land use/value is considered to be positive. In

fact, examining just those parcels in the City and County of Denver, it is estimated that the project will increase overall property values within the project corridor by about \$89.7 million, with over 62 percent of that reflecting higher property values for industrial facilities that would now be better served by the highway.

The Economic Impact of the I-70 East Corridor Project

This report provides a detailed overview of the economic impacts associated with the I-70 East Corridor Project. The report is based on economic analysis conducted by John Dunham & Associates with assistance from BBC Research & Consulting for the Colorado Department of Transportation in June 2013. The purpose of this study was to determine direct and indirect jobs, wages and outputs related to the I-70 East Corridor project. This report is segmented into four key areas that comprehensively define the economic impact of the I-70 East Corridor Project:

- Project construction expenses;
- Increased mobility;
- Increased business productivity; and
- Changes in land use/value.

A detailed methodology is provided at the end of this report as an addendum.

1.1 Project Construction Impact

The I-70 East Corridor Project may encompass as much as approximately 12 miles of heavily trafficked roadway. After careful deliberation by the CDOT, the solution to existing and predicted congestion encompasses both elevated and below grade alternatives. In addition, while building the new roadway, the existing roadway will be maintained in order to prevent congestion from worsening during the completion of the I-70 East Corridor Project. The project could also include managed lanes which will reduce congestion and enhance the flow of traffic through the project area by providing motorists with “free-flow” options and a way to avoid congestion.

The construction industry was one of the hardest hit sectors of the economy during the 2008-2009 recession. Presently, the construction industry nationally as well as in Colorado is still recovering. Nationally, total construction jobs fell from 6.7 million in 2008 to 5.7 million by December of 2012.⁴ While there has been some recovery in this industry, the National Bureau of Labor Statistics indicates that recovery in construction remains inconsistent. For example, nationally only 157,000 new construction jobs have been added since September of 2012 and construction hiring slumped in April 2013.⁵

Colorado has been fortunate to have weathered much of the national decline in construction jobs, even to the point where local news sources indicated that there were

⁴ Bureau of Labor Statistics, *Employment, Hours, and Earnings from the Current Employment Statistics Survey*, May 15, 2013 at: <http://www.bls.gov/ces/#tables>.

⁵ Based on April 2013 data, *Current Employment Statistics - CES (National)*, Bureau of Labor Statistics, May 16, 2013, at: <http://www.bls.gov/ces/#tables>.

not enough construction workers to go around in the Denver-Aurora-Broomfield area.⁶ Even so, the number of construction jobs in Colorado fell from 152,700 in 2008 to just 115,800 by December of 2012. A project of the magnitude of the I-70 East Corridor Project will help ensure that the construction industry, especially commercial construction, remains healthy. The following chart shows the anticipated construction cost estimates for the proposed alternative solution to the I-70 East Corridor Project.

Exhibit 1.1.1 Estimated Construction Costs by Segment

	I-25 to West of Brighton Blvd	West of Brighton Blvd to Dahlia St	Dahlia St to Quebec St	Quebec St to I-225	I-225 to Tower Road	Total Project Costs
Construction Spending	\$34,392	\$914,032,603	\$159,818,500	\$445,666,468	\$148,580,041	\$1,668,135,971
Engineerig Spending	\$3,968	\$94,555,097	\$16,532,948	\$46,103,428	\$15,370,349	\$172,565,790
Railroad Spending	\$0	\$12,544,000	\$1,872,000	\$2,850,000	\$0	\$17,266,000
State Government Costs	\$4,220	\$106,100,786	\$19,321,335	\$49,451,211	\$16,416,404	\$191,293,957
Total Costs	\$42,579	\$1,127,232,486	\$197,544,783	\$544,071,107	\$180,366,794	\$2,049,261,718

Table does not add exactly due to rounding

An actual schedule of when and how these particular construction zones will be worked on is not yet known; however, it is possible to estimate how this \$2.05 billion in spending will impact overall employment in Colorado as well as within the specified project area.

Construction jobs associated with a project of the magnitude of the I-70 East Corridor Project cover a considerable range of expertise, from relatively unskilled workers to highly trained specialists in managing complex equipment such as cranes, backhoes, and graders. It is estimated that the I-70 East Corridor Project will draw in labor from other portions of the state that have not recovered from the recession and should provide many jobs to unskilled workers in the Denver area.

This is particularly important along the 12 mile stretch of highway that is the focus of the project since the area has relatively high unemployment and underemployment relative to the City of Denver and to Colorado overall. The table on the following page compares per capita income in the areas where the I-70 reconstruction project will take place with incomes in Colorado overall and incomes in Denver and the adjacent communities.⁷

Although much of the area is commercial and industrial, there are a number of residential communities in this area that will benefit not only from the influx of construction workers that will contribute to local businesses during the construction phase, but also as a result of the hiring of local workers. It is estimated that the entire reconstruction

⁶ *Denver-area construction jobs: not enough workers to go around*, Fox 31 Denver, May 15, 2012, at: <http://kdvr.com/2012/05/15/denver-area-construction-jobs-not-enough-workers-to-go-around/>.

⁷ US Department of Commerce, Bureau of the Census, American Fact Finder at: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.

project will employ a total of 14,170 people in Colorado (including over 11,156 people in the metropolitan region) over the course of the construction period.⁸

Exhibit 1.1.2 Estimated Median Income for Project Area, Denver and Adjacent Communities

Community	Median Household Income
Aurora	\$ 50,468
Commerce City	\$ 63,823
Denver	\$ 47,499
Thornton	\$ 66,827
Westminster	\$ 64,076
Colorado	\$ 57,685
Project Area	\$ 51,791

The construction industry provides high quality jobs. The median wage for the direct construction workers employed on the I-70 East Corridor Project is \$61,200.⁹ The table below outlines the job impacts for the communities most impacted by the construction project. Overall economic impact tables for each community can be found in the appendix to this report.

Exhibit 1.1.3 Estimated Employment Impacts Due to Construction

Location	Direct	Supplier	Induced	Total
Adams County (Less Aurora)	-	90	217	307
Arapahoe County	-	264	479	743
City of Aurora	3,381	63	147	3,591
Broomfield County	-	17	33	50
Commerce City	-	3	9	12
City of Denver	4,817	347	634	5,798
Jefferson County	-	174	335	509
City of Thornton	-	14	28	42
City of Westminster	-	29	74	103
Total	8,199	1,001	1,956	11,156

These additional construction jobs and activity will also generate additional sales tax revenues for the communities in the project area. Table 1.1.4 shows the breakdown by county and town of estimated additional sales tax revenues from the construction impacts resulting from both increased spending by workers in the local community, and

⁸ Employment in full-time equivalent person years. If the project takes 5 years to complete, this would average 2,830 full-time equivalent positions during the entire course of the construction period.

⁹ Wages and Benefits in 2012 Dollars

from local use taxes on construction materials in Denver, Aurora and Arapahoe counties totals nearly \$22.0 million for the state and the communities analyzed.

Exhibit 1.1.4 Estimated Sales and Use Tax Revenues Due to Construction

Locality	State of Colorado	Commerce City	Denver City & County	Adams County	Arapahoe County	Jefferson County	City & County of Broomfield	Westminster	Thornton	Aurora	RTD	SCFD	Total
Adams County	\$ 550,422	\$ -	\$ -	\$ 142,351	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 189,801	\$ 18,980	\$ 901,553
Arapahoe County	\$ 1,556,315	\$ -	\$ -	\$ -	\$ 134,165	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 536,660	\$ 53,666	\$ 2,280,806
Aurora	\$ 285,141	\$ -	\$ -	\$ -	\$ 24,581	\$ -	\$ -	\$ -	\$ -	\$ 1,314,111	\$ 98,324	\$ 9,832	\$ 1,731,989
Broomfield	\$ 57,289	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 81,982	\$ -	\$ -	\$ -	\$ 19,755	\$ 1,975	\$ 161,001
Commerce City	\$ 15,353	\$ 18,529	\$ -	\$ 3,971	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,294	\$ 529	\$ 43,676
Denver	\$ 1,860,746	\$ -	\$ 11,901,503	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 641,637	\$ 64,164	\$ 14,468,050
Jefferson County	\$ 1,126,159	\$ -	\$ -	\$ -	\$ -	\$ 194,165	\$ -	\$ -	\$ -	\$ -	\$ 388,331	\$ 38,833	\$ 1,747,488
Thornton	\$ 48,936	\$ -	\$ -	\$ 12,656	\$ -	\$ -	\$ -	\$ -	\$ 63,279	\$ -	\$ 16,874	\$ 1,687	\$ 143,433
Westminster	\$ 118,826	\$ -	\$ -	\$ -	\$ -	\$ 20,487	\$ -	\$ 157,752	\$ -	\$ -	\$ 40,974	\$ 4,097	\$ 342,137
TOTAL	\$ 5,619,186	\$ 18,529	\$ 11,901,503	\$ 158,977	\$ 158,746	\$ 214,653	\$ 81,982	\$ 157,752	\$ 63,279	\$ 1,314,111	\$ 1,937,650	\$ 193,765	\$ 21,820,133

These construction related jobs flow through to the entire regional economy. In fact, roughly a quarter of the jobs come from a wide range of supplier firms located throughout the region and the state that provide services to the construction industry. These are firms ranging from steel foundries, cement processors and even restaurants and retail stores that supply not only the project, but also supply general merchandise to those working on the project. All told, firms in nearly every sector of the regional economy would benefit from this project.¹⁰ While the vast majority of the direct construction jobs will be in the project area, supplier firms such as those providing steel, or specialty paints, or construction equipment, will be located throughout Colorado.

Exhibit 1.1.5 Estimated Regional Supplier and Induced Impact By Economic Sector

Industry	Jobs	Wages	Output
Agriculture	3	\$ 210,631	\$ 635,545
Mining	6	\$ 513,002	\$ 2,131,279
Construction	12	\$ 793,139	\$ 2,251,514
Manufacturing	88	\$ 5,210,843	\$ 25,753,129
Transportation and Communication	211	\$ 14,715,510	\$ 65,182,501
Wholesaling	82	\$ 4,394,941	\$ 8,038,397
Retailing	498	\$ 14,425,704	\$ 32,236,567
Finance, Insurance and Real Estate	611	\$ 28,124,047	\$ 144,037,332
Travel and Entertainment	227	\$ 6,605,932	\$ 16,194,552
Business and Personal Services	1,194	\$ 66,840,080	\$ 121,167,703
Government	25	\$ 2,294,631	\$ 7,904,931
Total	2,957	\$ 144,128,461	\$ 425,533,451

1.2 Increased Mobility

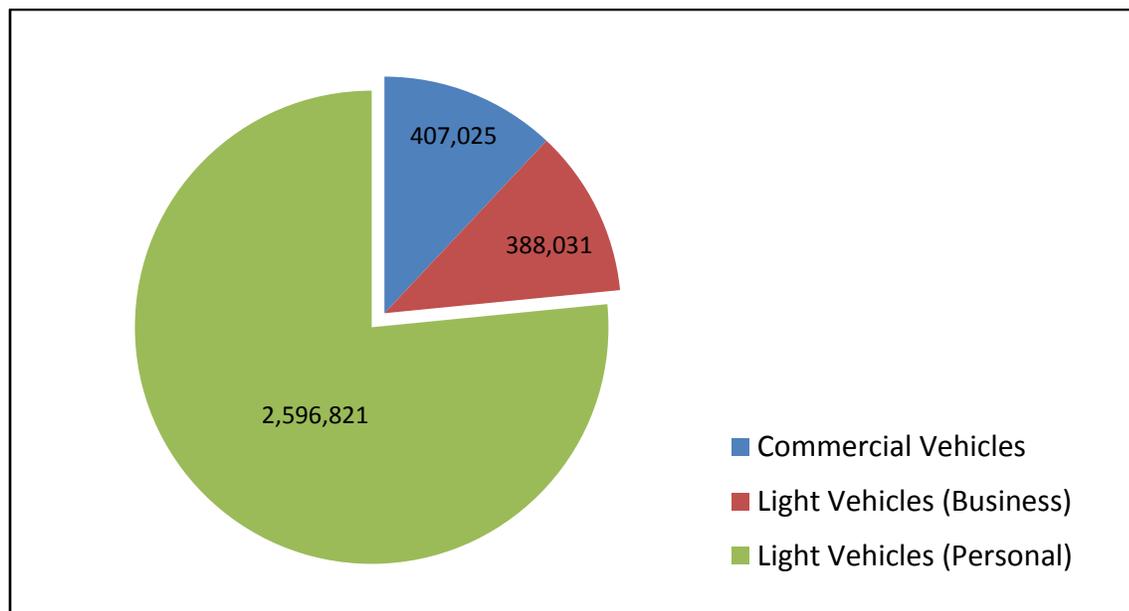
Not only will the I-70 East Corridor Project generate significant numbers of construction jobs and activity, it will also improve the lives of the hundreds of thousands of people

¹⁰ Since the project is still in the design stage, it is impossible to determine if a particular firm will supply goods and services. These impacts are distributed across the state and region based on the current location of firms.

who use the corridor every day. Delays affect commuters, shoppers, tourists, even emergency first-responders leading not only to frustration but to lost time, slower emergency responses, and reduced economic welfare.

In the case of commercial transportation, this lost time impacts business productivity. This impact will be discussed in Section 1.3. In the case of private vehicles such as those bringing commuters to work, it is estimated that the I-70 East Corridor Project will reduce overall travel times through the project area by 45.3 percent, which is equal to about 12 minutes per vehicle using the Corridor.¹¹ Additionally, the travel times could be further improved by commuters who choose to enter the proposed managed toll lanes. These reduced delays (which are equal to 3.394 million hours in total) can be translated to both time and dollar impacts.

Exhibit 1.2.1 Estimated Hours of Reduced Travel Delay (Annual)



Based on the DEIS, the project area carries as many as 208,000 vehicles per day through the state’s main city as well as to other destinations including local industrial centers, the Denver International Airport, farming communities, energy development sites and various tourist areas such as Colorado’s many ski resorts.¹²

¹¹ Based on Alternative 3 from the I-70 East *Environmental Impact Statement, Traffic Technical Report*, November 2008, at: www.i-70east.com/DEIS/I-70EastDEIS_V3_TrafficTechnicalReport.pdf. According to the report, traffic forecasts for Alternative 3 were obtained from the DRCOG (2030) regional model. The version of the DRCOG model used in this analysis did not produce reliable results in assigning vehicle trips to tolled facilities. Therefore, for Alternatives 3 the AIMSUN model was used to split trips within the corridor to either general purpose lanes or tolled express lanes, thus providing mainline and ramp link volumes for use in the analyses.

¹² *Draft Environmental Impact Statement*, Colorado Department of Transportation, http://www.i-70east.com/DEIS/I-70EastDEIS_V1_Cho3_AlternativesConsidered.pdf. Traffic forecasts for

Reduced travel times can be translated to both time and dollar impacts for people engaged in a wide range of economic and domestic activities. For example:

- Extra time taken traveling to a store results in higher costs for consumers which reduces overall purchases;
- Parents with children in day-care or after-school programs must leave work early to ensure that they do not incur significant late pickup charges;
- Higher travel times for tourists coming to and from DIA impacts businesses throughout the state as visitors have less time at their destinations;
- Tradespeople (like plumbers or carpenters) have to reduce the number of jobs that they can take since they spend additional time in traffic; and
- Firms have to reduce the number of deliveries that they can make in a day since trucks are held up in traffic.

The impact on the tourism industry is particularly important. Currently tourists (as well as business travelers) arriving at the Denver International Airport traveling to the western part of Colorado through the I-70 corridor to a ski resort will incur a negative opportunity cost as a result of traffic congestion. Instead of spending time at the resort, they will spend more time in their car, burning fuel in traffic. Equally, the businesses at tourist destinations, such as a ski resort, will suffer negative business impacts because tourists who are spending time in traffic will either reduce the amount of time spent at Colorado vacation destinations or they will not spend as much money on food, or other activities at the tourist location they do visit. All of this has an impact on the State and regional economy.

While 3,394 million hours may seem like a huge number of hours saved, it is on par with other major traffic congestion projects. A study conducted 10 years ago for the American Highway Users Alliance suggested that the I-25/I-225 interchange project in Denver saved 8.7 million hours of delay time.¹³

These time costs can be converted into a detailed consumer spending figure that can then be used to calculate economic impacts in the state and region.¹⁴ Based on this analysis, overall, the cost of delay on non-business travel is as much as \$47.5 million, including over \$2.6 million saved from fuel expenses alone. This translates into 407 additional jobs

Alternative 3 were obtained from the DRCOG (2030) regional model and are identical to those of Alternative 1. As noted in the methodology section, the version of the DRCOG model used in this analysis did not produce reliable results in assigning vehicle trips to tolled facilities. Therefore, for Alternatives 3 the AIMSUN model was used to split trips within the corridor to either general purpose lanes or tolled express lanes, thus providing mainline and ramp link volumes for use in the analyses.

¹³ See: *UNCLOGGING AMERICA'S ARTERIES: Effective Relief for Highway Bottlenecks 1999-2004*, Prepared for the American Highway Users Alliance by Cambridge Systematics, Inc., February 2004.

¹⁴ More detail on how this is done is included in the Methodology section.

created in the state, with almost 53 percent of them (217 jobs) created in the region itself. As these jobs are the result of increased consumer and tourist spending, they span the gamut of industry sectors, ranging from increased farming and agriculture jobs, increased retailing jobs, even increased jobs in the government sector. Table 1.2.2 outlines these jobs by industry type for the study region.

Exhibit 1.2.2 Estimated Annualized Time Savings Benefit By Industry

Induced Impacts	Jobs	Wages	Output
Agriculture	0 \$	15,198 \$	56,481
Mining	0 \$	7,007 \$	20,088
Construction	0 \$	63,095 \$	152,691
Manufacturing	1 \$	189,242 \$	1,310,625
Transportation and Communication	8 \$	864,224 \$	3,557,329
Wholesaling	9 \$	959,533 \$	1,968,106
Retailing	43 \$	1,342,850 \$	2,807,148
Finance, Insurance and Real Estate	50 \$	2,065,668 \$	8,740,494
Travel and Entertainment	34 \$	759,321 \$	2,097,620
Business and Personal Services	72 \$	3,738,802 \$	6,930,964
Government	0 \$	98,814 \$	170,722
Other	0 \$	55,416 \$	204,048
Total Induced Impacts	217 \$	10,159,170 \$	28,016,316

These jobs are created throughout the region. As Table 1.2.3 shows, the jobs tend to follow population since they come about due to increased consumer and tourist spending.

Exhibit 1.2.3 Estimated Annualized Time Savings Benefit By Community

Location	Jobs	Wages	Output
Adams County	25 \$	1,172,296 \$	2,890,276
Arapahoe County	53 \$	2,639,689 \$	8,041,861
City of Aurora	16 \$	744,892 \$	1,803,008
Broomfield County	3 \$	90,391 \$	252,948
Commerce City	0 \$	61,100 \$	162,861
City of Denver	68 \$	3,093,149 \$	8,714,138
Jefferson County	41 \$	1,740,012 \$	4,610,700
City of Thornton	2 \$	161,802 \$	391,395
City of Westminster	9 \$	387,793 \$	954,460
Total	217 \$	10,091,123 \$	27,821,648

In addition to generating jobs and economic activity, providing leisure travelers and residents with better flowing traffic helps increase tax revenues. Based on this analysis, the state and communities in the study area will receive as much as \$752,700 in additional sales tax revenues annually simply by allowing residents to traverse the project area with minimal delay.

Exhibit 1.2.4 Estimated Annualized Sales Tax Revenue Increases By Community

Locality	State of Colorado	Commerce City	City & County of Denver	Adams County	Arapahoe County	Jefferson County	City & County of Broomfield	Westminster	Thornton	Aurora	RTD	SCFD	Total
Adams County	\$58,730	\$0	\$0	\$15,189	\$0	\$0	\$0	\$0	\$0	\$0	\$20,252	\$2,025	\$96,196
Arapahoe County	\$133,413	\$0	\$0	\$0	\$11,501	\$0	\$0	\$0	\$0	\$0	\$46,004	\$4,600	\$195,519
Aurora	\$19,538	\$0	\$0	\$0	\$1,684	\$0	\$0	\$0	\$0	\$25,265	\$6,737	\$674	\$53,898
City & County of Broomfield	\$4,263	\$0	\$0	\$0	\$0	\$0	\$6,101	\$0	\$0	\$0	\$1,470	\$147	\$11,981
Commerce City	\$2,013	\$2,429	\$0	\$520	\$0	\$0	\$0	\$0	\$0	\$0	\$694	\$69	\$5,725
Denver	\$81,475	\$0	\$101,704	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$28,095	\$2,809	\$214,084
Jefferson County	\$83,452	\$0	\$0	\$0	\$0	\$14,388	\$0	\$0	\$0	\$0	\$28,776	\$2,878	\$129,494
Thornton	\$4,210	\$0	\$0	\$1,089	\$0	\$0	\$0	\$0	\$5,443	\$0	\$1,452	\$145	\$12,339
Westminster	\$11,613	\$0	\$0	\$0	\$0	\$2,002	\$0	\$15,418	\$0	\$0	\$4,005	\$400	\$33,439
Total	\$398,708	\$2,429	\$101,704	\$16,798	\$13,185	\$16,391	\$6,101	\$15,418	\$5,443	\$25,265	\$137,485	\$13,749	\$752,676

All of these figures (and those in the following section on business productivity gains) are highly dependent on the estimated number of hours saved by both commercial and non-commercial vehicles using the impacted segment of I-70. These estimates are detailed in the Methodology section at the end of this report but are all based on traffic estimates from the Draft Environmental Impact Statement.¹⁵ That said, a detailed traffic study of the preferred alternative with estimates of congestion mitigation is not yet available so there is a potential for significant variation in the economic impact estimates. The models used in this analysis are fairly linear, so it could be anticipated that a 10 percent increase in time savings would result in a 10 percent increase in impact estimates, while on the other hand a 10 percent decrease in time estimates would do just the opposite. Once detailed origin/destination and traffic flow data are available a more detailed sensitivity analysis can be conducted.

1.3 Increased Business Productivity

Nearly all businesses in the state and the metropolitan area rely to some extent on transportation. This includes transportation of goods and services to their facilities as well as transportation of their employees. Both can be negatively affected by traffic congestion.

In terms of the transportation of goods and services, nationally almost 70 percent of goods are delivered by truck. Even the smallest service firm relies on trucks and other transportation services to some extent. According to the United Parcel Service, it handles 15.8 million shipments in the U.S. alone on a daily basis and its services are used by 7.9 million customers.¹⁶ FedEx estimates that it delivers 3.4 million packages daily.¹⁷ The United States Postal Service delivers a staggering 511 million pieces of mail daily.¹⁸ All of this relies on the nation's highway network.

¹⁵ Congestion and person hours of delay figures obtained in the *DEIS Traffic Technical Report*, Colorado Department of Transportation, www.i-70east.com/DEIS/I-70EastDEIS_V3_TrafficTechnicalReport.pdf.

¹⁶ *UPS Fact Sheet*, at: www.pressroom.ups.com/Fact+Sheets/UPS+Fact+Sheet. Accessed May 15, 2013.

¹⁷ *FedEx Facts*, at: www.fedex.com/gy/about/facts.html. Accessed May 15, 2013.

¹⁸ Based on 159 billion parcels delivered, six days a week, according to the United States Postal Service, "2012 Annual Report to Congress & Comprehensive Statement," http://about.usps.com/publications/annual-reports/2012/year_review.html (15 May 2013)

In terms of the I-70 East Corridor Project, one significant benefit to local businesses will be to reduce the cost of providing trucking and transportation services. As costs fall, firms are able to pass on their savings to consumers, increase employment or provide higher returns to their owners. In addition, more profitable firms will help to increase Colorado's revenue stream, as well as that of the regional cities and counties. All told, the reduction in transportation delay time generates as many as 7,900 new jobs in the region. This does not even include the benefits that accrue from reduced commuting time.

While this may seem like a large number, it is based on the fact that the trucking and local transportation costs make up a substantial part of the input costs for most manufactured products and services. The I-70 corridor contains many major manufacturing and transportation operations, including: Safeway's distribution center between Colorado Boulevard and Dahlia Street, Nestle's pet food plant at York Street, the Denver Mattress facility on Havana, Intertech Plastics, at I-225, and the Union Pacific Railroad's intermodal facility at York Street just to name a few.

Examining the role of transportation for each of these firms demonstrates exactly why improving this major infrastructure link is so important. The time savings expected from the I-70 East Corridor Project will reduce costs substantially for these and other firms in the metropolitan region. For example, it will reduce costs per \$1 million in sales by \$55 for grocery distributors, by \$537 for pet food manufacturers, by \$395 for mattress producers, by \$149 for injection molders and by \$117 for rail transportation companies.¹⁹

With regard to employees, each hour of commute time can be viewed as both lost productivity time for the employee and a lost opportunity cost for the employer. Commuting is a waste of energy and time, and carries with it enormous economic costs. Table 1.3.1 demonstrates the expected change in delay times for each of the construction zones on the I-70 East Corridor Project. As the table shows, the majority of the delay is currently occurring in the section of the roadway between I-270 and I-225, which significant delays also occurring on the viaduct between York Street and Colorado Boulevard, and then through to Holly Street. On the other hand, there are currently only minimal delays on the section of I-70 between Holly Street and I-270 through what is essentially an industrial corridor. These delays would grow over time as the Denver region becomes more populated and the roadway becomes more and more congested.

If the I-70 East Corridor Project were to be implemented, the expected congestion would be reduced so much so that not only would future traffic be accommodated, but also the existing delays would be markedly reduced. The engineers reports included in the DEIS, suggest that, overall, delay times would be reduced by 45.3 percent from their current

¹⁹ Based on the share of output in each of these industries as calculated by MIG, Inc. in its 2010 IMPLAN tables for the State of Colorado

levels through the project corridor, with only the currently uncongested segment between Holly Street and I-270 seeing increased delays over 30 years.²⁰

Exhibit 1.3.1 Estimated Delay Savings By Zone

Segment	Current Delay Hours Per Day	Expected Delay Hours Per Day	Change (Hours)	Change (Pct)
I-25 to York Street	2,742	143	(2,599)	-94.8%
York St to Holly St	4,242	1,342	(2,900)	-68.4%
Holly St to I-270	1,674	2,441	766	45.8%
I-270 to I-225	14,552	8,714	(5,838)	-40.1%
I-225 to Tower Road	5,596	3,120	(2,476)	-44.2%
Total Project Area	28,805	15,760	(13,046)	-45.3%

Commuting costs America an estimated \$121 billion dollars per year in terms of lost productivity and wasted energy, according to the annual *Urban Mobility Report* released by the Texas A&M Transportation Institute.²¹ The 2012 report indicates that the Denver-Aurora area was the 15th most congested nationwide, costing over \$1.61 billion annually in total congestion costs.²² Based on that study, this project alone will reduce these costs by \$78.7 million and \$3.4 million in fuel savings.

As one of the most congested portions of I-70, the corridor cuts directly through many of Denver’s most significant business and manufacturing districts including the Elyria/Swansea, Northeast Park Hill and Stapleton communities. It also connects to the various rail lines serving Denver including BNSF main lines and Union Pacific Central Corridor Line. In addition, the I-70 corridor services businesses that operate and supply the farming industry in northern and western part of the state, as well as the energy producing areas in the Denver-Julesburg Basin that surrounds the city. These two sectors are particularly important to point out because while they will benefit from lower transportation costs, they also are currently the main beneficiaries of the constrained system, as trucks sitting in traffic burn additional fuel, oil and tires and incur other wear and tear.

Some may think that inefficiencies such as traffic congestion may actually create regional jobs, since companies would need to employ drivers just to sit in traffic. This argument is a kin to the “broken windows fallacy” which was debunked in 1850 by the French

²⁰ *Draft Environmental Impact Statement*, Colorado Department of Transportation, http://www.i-70east.com/DEIS/I-70EastDEIS_V1_Cho3_AlternativesConsidered.pdf

²¹ *2012 Urban Mobility Report*, Texas A&M Transportation Institute, December 2012 <http://mobility.tamu.edu/ums/>

²² The authors of this report determined this amount based on the cost of idling in congestion (estimated at \$16.79 per hour of person travel and \$86.81 per hour of truck time) and the price of excess gasoline burned. Per person, this amounted to \$937 in congestion costs.

economist Frédéric Bastiat.²³ According to Bastiat, the idea that a non-productive investment, like the expenditure to fix a broken window, generates economic activity (since the storekeeper has to pay the glazer for the window, and the glazer needs to purchase glass, etc.) fails to take into account opportunity costs. If, for example, the shopkeeper cannot invest in new inventory controls because he has spent the resources on glass, the overall economy will suffer. This is also true in the case of congestion. Firms that have to pay for additional drivers will have reduced funds to invest in new production lines, new operations or new stores. All of this will cost the regional economy.

Exhibit 1.3.2 Estimated Annualized Productivity Benefit By Industry

Industry	Jobs	Wages	Economic Output
Agriculture	(207)	(\$21,321,674)	(\$63,848,861)
Mining	(44)	(\$5,603,808)	(\$16,119,363)
Construction	12	\$778,263	\$5,628,099
Manufacturing	(243)	(\$21,361,667)	(\$109,892,516)
Transportation & Communication	1,038	\$92,775,068	\$443,332,032
Wholesaling	60	\$3,201,953	\$5,856,409
Retailing	490	\$15,789,518	\$36,731,923
Finance, Insurance & Real Estate	4,115	\$165,775,129	\$671,759,992
Travel and Entertainment	432	\$10,966,400	\$19,752,109
Business and Personal Services	2,111	\$108,156,473	\$213,222,394
Government	38	\$3,248,393	\$11,176,201
Other	93	\$5,286,819	\$10,493,241
Total	7,895	\$357,690,868	\$1,228,091,660

Even so, the overall impact of the project is a net impact – encompassing both positive effects (lower transportation costs) as well as negative effects (lower fuel use). Table 1.3.2 outlines the impact by major industry category. As the table shows, even though there are particular industries that will see a reduction in business due to the improvements, most will see sizable gains. The industries that marginally lose business are those that simply benefit from traffic congestion; including gasoline stations, oil refineries, and even motels. Agriculture is a net loser mainly due to all of the grain currently being diverted to make ethanol. Overall, however, the net impact on the state and the region is positive.

These differential impacts across industries generate different effects depending on the community analyzed. For example, Commerce City, which has a sizable oil and gas refinery industry, will see less benefit from the roadway reconstruction than will areas like Arapahoe and Jefferson counties that have economies largely dominated by service industries. Table 1.3.3 shows the impact of the productivity benefits across the different regional communities studied.

²³ Bastiat, Frédéric, *That Which Is Seen, and That Which Is Not Seen*, Translated by Patrick James Stirling, at: http://en.wikisource.org/wiki/That_Which_Is_Seen,_and_That_Which_Is_Not_Seen

Exhibit 1.3.3 Estimated Annualized Productivity Benefit by Community

Location	Jobs	Wages	Output
Adams County	14	\$ 595,832	\$ 1,591,297
Arapahoe County	2,717	\$ 140,043,187	\$ 480,717,963
City of Aurora	186	\$ 8,040,700	\$ 24,721,029
Broomfield County	11	\$ 432,956	\$ 1,500,537
Commerce City	0	\$ (1,559)	\$ 17,264
City of Denver	3,716	\$ 160,505,520	\$ 558,370,273
Jefferson County	1,195	\$ 45,828,975	\$ 154,124,992
City of Thornton	4	\$ 152,559	\$ 227,176
City of Westminster	52	\$ 2,092,698	\$ 6,821,129
Total	7,895	\$ 357,690,868	\$ 1,228,091,660

It is important to note that this analysis is somewhat static in that it only looks at marginal changes to existing business operations. Were the roadway improvements undertaken under the I-70 East Corridor Project to enhance the overall business environment in the Denver metropolitan area, it could help the community attract additional businesses. Anecdotal evidence suggests that this is likely. For example, the Metro Denver Economic Development Corporation has identified *Mobility* as one of its strategic initiatives.²⁴ Additional jobs that might be attracted to the region due to improved access are not included in this analysis.

Exhibit 1.3.4 Estimated Annualized Sales Tax Revenue Increases By Community

Locality	State of Colorado	Commerce City	City & County of Denver	Adams County	Arapahoe County	Jefferson County	City & County of Broomfield	Westminster	Thornton	Aurora	RTD	SCFD	Total
Adams County	\$ 20,551	\$ -	\$ -	\$ 5,315	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,086	\$ 709	\$ 33,661
Arapahoe County	\$ 5,966,013	\$ -	\$ -	\$ -	\$ 514,311	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,057,246	\$ 205,725	\$ 8,743,295
Aurora	\$ 131,070	\$ -	\$ -	\$ -	\$ 11,299	\$ -	\$ -	\$ -	\$ -	\$ 169,487	\$ 45,197	\$ 4,520	\$ 361,573
Broomfield	\$ 15,540	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22,238	\$ -	\$ -	\$ -	\$ 5,369	\$ 536	\$ 43,673
Commerce City	\$ (382)	\$ (461)	\$ -	\$ (99)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (132)	\$ (13)	\$ (1,086)
Denver	\$ 4,859,001	\$ -	\$ 6,065,374	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,675,518	\$ 167,552	\$ 12,767,444
Jefferson County	\$ 2,277,023	\$ -	\$ -	\$ -	\$ -	\$ 392,590	\$ -	\$ -	\$ -	\$ -	\$ 785,180	\$ 78,518	\$ 3,533,312
Thornton	\$ 4,706	\$ -	\$ -	\$ 1,217	\$ -	\$ -	\$ -	\$ -	\$ 6,085	\$ -	\$ 1,623	\$ 162	\$ 13,794
Westminster	\$ 55,120	\$ -	\$ -	\$ -	\$ -	\$ 9,504	\$ -	\$ 73,177	\$ -	\$ -	\$ 19,007	\$ 1,901	\$ 158,709
TOTAL	\$ 13,328,643	\$ (461)	\$ 6,065,374	\$ 6,433	\$ 525,611	\$ 402,094	\$ 22,238	\$ 73,177	\$ 6,085	\$ 169,487	\$ 4,596,084	\$ 459,608	\$ 25,654,374

Higher business productivity and cost savings leads to greater employment, higher overall wages, lower product costs and makes the state and the region more economically competitive, making Denver and the surrounding area a more attractive place for entrepreneurs to invest, and for people to work and live. This enhances tax revenues for Colorado and the various regional governments. Based on the figures above, overall sales tax revenues will increase by \$25.7 million annually simply due to the business benefits of reduced congestion on this one section of roadway.

²⁴ See: *Our initiatives are a blueprint for economic success*, Metro Denver Economic Development Corporation at: www.metrodenver.org/about-metro-denver-edc/initiatives.html

1.4 Changes in land use/value

The impact on property values is an important consideration in any project, and the areas affected by the I-70 reconstruction will see some gains and losses consistent with any highway project that expands the capacity and modifies the operational characteristics of the roadway. While there will be the potential for both “winners and losers,” in balance the overall change in land use/value is considered to be positive. Table 1.4.1 outlines these effects in the City and County of Denver based on land use type.²⁵

Exhibit 1.4.1 Estimated Changes in Property Values in the Denver Portion of the Project Corridor

Use Type	Current Value			Expected Increase in Values		
	Land	Improvements	Total	Land	Improvements	Total
Commercial	\$64,703,500	\$30,383,728	\$95,087,228	\$720,218	\$226,712	\$946,930
Industrial	\$873,440,700	\$2,457,431,150	\$3,330,871,850	\$49,384,800	\$6,464,376	\$55,849,176
Residential	\$2,301,205,800	\$6,500,118,196	\$8,801,323,996	\$31,076,303	\$1,649,150	\$32,725,453
Parks	\$25,269,200	\$182,444,197	\$207,713,397	\$130,408	\$52,222	\$182,630
Institutional Uses	\$5,784,200	\$1,844,184	\$7,628,384	N/A	N/A	N/A
Post Office	\$8,758,900	\$62,623,566	\$71,382,466	N/A	N/A	N/A
Total	\$3,279,162,300	\$9,234,845,021	\$12,514,007,321	\$81,311,728	\$8,392,460	\$89,704,189

As Table 1.4.1 shows, the main beneficiaries of the project will be those areas zoned either industrial or residential, with the largest impacts being in the industrial zones. In other words, better transportation systems improve the value of industrial facilities.

Most of the areas impacted by the I-70 East Corridor Project are currently used by other transportation systems (for example rail yards), host institutional venues (for example the stock show yards) or are vacant. Much of the rest of the area consists of industrial sites and residential parcels with relatively low property values.

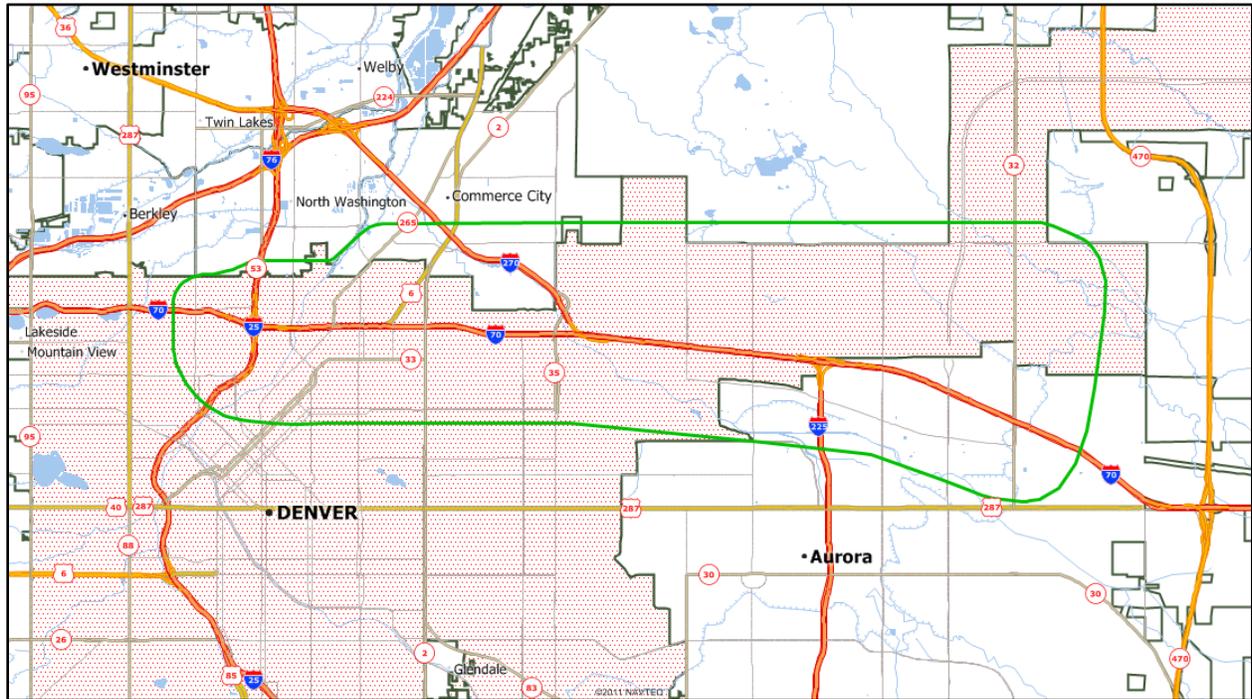
An examination of current property uses and values along the Denver portion of the project area (from the Globeville neighborhood through to Montbello) shows that most of the land use patterns are long established and reflect the fact that the region is a road and rail transportation corridor. Residential land values generally increase as one moves away from the roadway, rising by as much as \$2.80 per square foot one mile from the roadway. Industrial property values generally increase (improving by \$1.98 per square foot as distance from the road way increases by a mile;); however, a more thorough analysis shows that most of the variation in land and property values in the corridor have less to do with Interstate 70 than then do with other more generalized effects. In fact, once what economists call “neighborhood fixed effects” are taken into account, the impact of the Interstate on property values virtually disappears – both for residential areas and for industrial facilities.²⁶ In total, the mitigation of the environmental and aesthetic issues

²⁵ Detailed property value data by parcel for Denver is available at: <http://data.denvergov.org/dataset/city-and-county-of-denver-parcels>. Future revisions of this report will include impacts in Commerce City and Aurora as those data become available.

²⁶ A more detailed discussion of this analysis can be found in the Methodology section below.

with I-70 will likely increase property values in the Denver portion of the project corridor by just \$89.7 million, or about 0.7 percent.

Exhibit 1.4.2 Area of the City and County of Denver Included in the Project Corridor



This does not mean that there may not be large impacts on specific properties. For example a house directly next to the highway would likely be priced lower than the same house placed 5 blocks away; but in general, the highway does not seem to be what is impacting local land values and use, and that these reflect the overall neighborhood conditions that have been in place for the past 50-years.

Methodology

2.1 Delay Savings

The improvement of Interstate 70 (I-70) between Interstate 25 on the west and Tower Road on the east will benefit motorists by expanding highway capacity and alleviating traffic congestion. This section quantifies and monetizes the personal time saved by private motorists, and provides estimates of the local economic impacts of the highway improvements as accrued to local households. The consultants employed a methodology in accordance to the cost-benefit framework developed by the United States Department of Transportation (USDOT).²⁷

Expanding capacity along this stretch of I-70 is currently the subject of an Environmental Impact Statement (EIS). In the EIS process, several alternatives are evaluated and the most beneficial alternative is selected following a long and detailed analysis. A draft EIS (DEIS) for this project was released in 2008 and no clear preferred alternative emerged from the evaluation. There were four alternatives presented in the draft EIS: two alternatives added lanes to I-70 preserving the present alignment; and two alternatives suggested a new alignment that routes the highway north of its present location. Managed toll lanes are present in two of the alternatives—one in each alignment.²⁸

Following a lengthy public process, a new set of alternatives was developed, which are the subject of the forthcoming supplemental draft EIS (SDEIS). The new preferred alternative will lower I-70 below grade between Brighton Boulevard and Colorado Boulevard and add lanes for general traffic and managed tolling. The original alignment of the highway is preserved in the preferred alternative.

A detailed traffic study of the preferred alternative with estimates of congestion mitigation is not yet available. As such, this analysis is based on Alternative 3 in the DEIS, which is the most comparable alternative in terms of alignment, tolling and general traffic capacity to the expected preferred alternative in the SDEIS. The traffic time savings from the I-70 East Corridor Project were calculated by comparing projected traffic congestion conditions in 2030 between the “No Action” alternative and Alternative 3.²⁹

The DEIS provides measures of the percentage of day congested and peak-hour person-

²⁷ *The Value of Travel Time Savings: Departmental Guidance for Conducting Economic Evaluations, Revision 2*, US Dept. of Transportation, at: www.dot.gov/sites/dot.dev/files/docs/vot_guidance_092811c.pdf

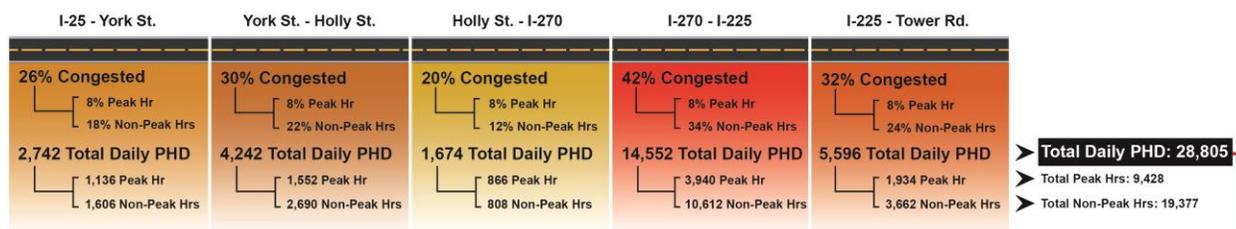
²⁸ For detailed information on the draft EIS please refer to *I-70 East Draft Environmental Impact Statement*, Colorado Department of Transportation, <http://www.i-70east.com/reports.html>.

²⁹ This is being used as a proxy as data for the preferred alternative is not yet available.

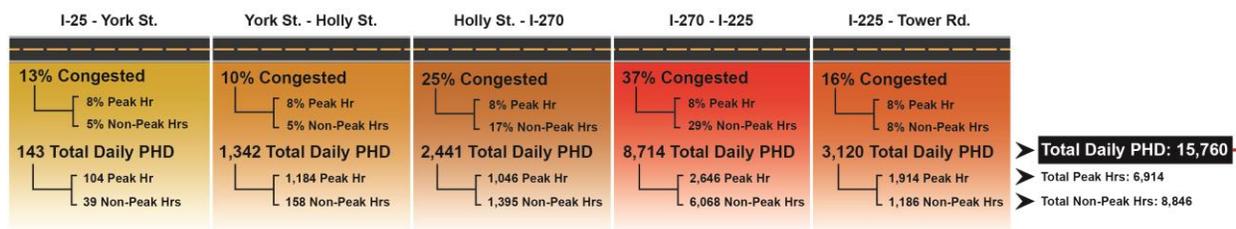
hours of delay.³⁰ This analysis uses estimates person-hours of delay at the two daily peak hours (about 8 percent of the day) and assumes that person-hours of delay were approximately two-thirds of peak-hour amounts during other congested periods of the day. Combining the percent of day congested and peak and non-peak person-hours of delay yields projected daily person hours of delay in 2030 for Alternative 3 and the No Action Alternative. The difference between these two amounts yields the daily time savings if Alternative 3 is implemented.

Exhibit 2.1.1 Calculation of Time Savings Used Throughout the Modeling Process

No Action



Alt 3



Daily time savings is converted to annual time savings assuming that congested conditions only occur on weekdays. Commercial traffic is netted out of the time savings figure based on traffic distributions for this road type obtained from the USDOT.³¹ The remaining private motorist time savings is valued at 60 percent of hourly local median household income according to USDOT time valuation preferred methodology for the road classification.³²

³⁰ Congestion and person hours of delay figures obtained in the *DEIS Traffic Technical Report*, Colorado Department of Transportation, www.i-70east.com/DEIS/I-70EastDEIS_V3_TrafficTechnicalReport.pdf.

³¹ Op. Cit., USDOT.

³² Op. Cit., USDOT.

The results of this process yields over 13,000 hours of travel time saved per day or approximately 3.4 million hours per year. Private motorist time savings is about 77 percent of that figure or about 2.6 million hours per year. Personal time savings is valued at \$18.86 per hour and is worth about \$47.5 million per year in 2013 dollars. The figure presented on the prior page provides additional detail.

2.2 Construction Impacts

Construction impacts are based on new spending that is associated with the project itself. These spending estimates come from the DEIS and are broken down into five categories: Construction spending on structures, engineering and professional services spending, railroad spending, construction spending on factories, and state and local government spending. The railroad spending is used to incorporate any work related to moving and managing the railroads that cross the project area. This is because railroads are a particular institution and spending on anything related to these facilities would be different than spending on normal roadways or bridges. The factory construction sector is used as a proxy for equipment (for example traffic control systems) that are part of the project.

Once the construction spending numbers are placed into these categories they are aggregated across construction zones and then entered into the IMPLAN economic modeling system for the base year of 2013. This is done since there is no schedule for when the actual project would begin, nor is there a schedule for how it might be staged. As such, all figures represent 2013 dollars and impacts and are an aggregate for the entire project. If for example, the project were to be spread evenly over 5 years the annual impact would be equal to 20 percent of the total calculated in the model.

Actual construction spending is expected to occur in Denver and in Aurora since these communities contain the bulk of the project area being examined. The percentage allocated to each community is based on the overall percentage of existing jobs in each of the modeled industries in each community. This is true for all of the other county and municipal distributions as well, with jobs being allocated based on the percentage of jobs in Colorado that currently exist in each community.

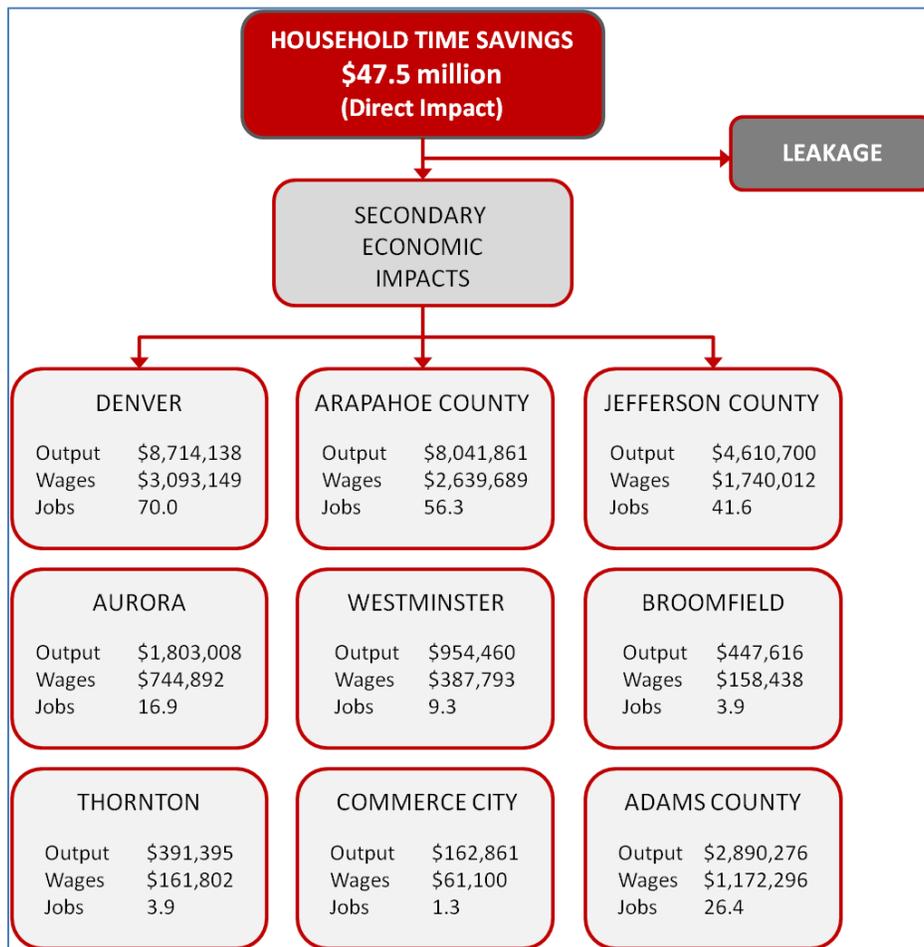
Job numbers by industry type come from Dun & Bradstreet and are based on data in their Hoovers system as of June 2012. Dun & Bradstreet data is recognized nationally as a premier source of micro industry data. The database contains information on over 15 million businesses in the United States.³³ It is used extensively for credit reporting and,

³³ The D&B information database updates over 1 million times a day, over 350 million payment experiences are processed annually, and over 110 million phone calls are made to businesses. In addition, D&B uses a patented matching technology and over 2,000 information computer validations to ensure a high standard of data quality.

according to the vendor, encompasses about 98 percent of all business enterprises in the country. This data is gathered at the facility level; therefore, a company with a manufacturing operation, warehouse and sales office would have three facilities, each with separate employment counts. Data are gathered at the zip code level and allocated to the various communities based on the physical percentage of each zip code area falling within the boundary of the community.

2.3 Personal Motorist Time Savings Impacts

Exhibit 2.3.1 Calculation of Personal Time Savings Impacts



The annual time savings value figure is then input into the IMPLAN economic modeling system to calculate the local economic impact of personal travel time savings in terms of jobs and economic output. Direct, indirect and induced impacts are included in the analysis and then allocated to local jurisdictions including the cities of Denver, Commerce City, Aurora, Westminster, Thornton and Broomfield; and Adams, Jefferson and Arapahoe County based on the industry level data breaks described in section 2.2.

The actual value of time savings is calculated at about \$47.5 million per year as per section 2.1 above and is entered into the IMPLAN model using the institutional spending pattern of households that earn between \$50,000 and \$75,000. This distinction was chosen because the Denver Metropolitan median household income is \$63,000 according to the US Census Bureau 2011 American Community Survey inflated to 2013 dollars.

2.4 Productivity Impacts

In addition to saving travelers time, an improved I-70 will save commercial vehicles an estimated 795,000 hours in delay times annually once the project is completed. As the old adage goes, time is equal to money, and in this case, time is equal to savings. Every firm in Colorado relies in part on trucks and other vehicles for delivering not only their supplies but their production. As delay costs fall, the transportation component of each product will fall as well. This is equivalent to a “productivity” savings and will translate into lower consumer prices, more employment opportunities and increased entrepreneurial profits to businesses throughout the state and the region.

The productivity savings is calculated by modifying the IMPLAN input/output tables for each industry in Colorado to reflect this savings. Since actual time savings by industry is proportional to the amount of transportation used as an input, a standardized table can be created and then compared to the baseline. In this case, the table is created by removing 10 percent of the transportation input in each of the 440 IMPLAN sections. Total employment by industry in each of the communities in the study area is then run through both the base and the modified model and the difference in output between the two is calculated. This difference represents the impact of a 10 percent reduction in ground transportation costs, and can be positive or negative depending on the industry in question. For example, faster egress through Denver will benefit food producers who can ship at a lower cost, but will cost grain farmers since less ethanol will be consumed as fuel.

The project itself will not reduce overall transportation costs by 10 percent, even though it will reduce transit times across I-70 by over 45 percent. The actual effect will depend on the percentage of travel going over the facility itself. Since origin-destination data are not available at this time, a proxy model was developed based on the speed weighted highway lane miles in a number of geographic areas: I-70 from the mousetrap through Tower Road, and a 10-mile, a 50-mile, a 100-mile and a 400-mile zone around the impacted part of I-70. The 400-mile limit is set as it represents the standard maximum daily range of a long-haul truck. The table on the following page presents an index based on the number of speed-weighted highway miles in each of these zones.

Business travel using automobiles is assumed to all occur within the 50-mile boundary zone, while a declining distribution is used for truck traffic, weighing the I-70 zone itself by 4, the next zone by a factor of 3, the next by a factor of 2 and the 400-mile zone by a factor of 1. This suggests that 7 percent of regional truck traffic and about 3 percent of

business related automobile traffic in the region occurs over the impacted part of I-70. Multiplying the 45 percent time savings by these percentages suggests that the transportation time savings for regional firms will be about 2.5 percent overall.

Exhibit 2.4.1 Regional Transportation Zones

Zone	Lane Miles	Percent of Lane Miles	Avg Speed	Adjusted Lane Miles	Index
Project area of I-70	36.0		62	2223.18132	
10 Mile Circle	242.5	14.8%	53	12763.59093	17.4%
50 Mile Circle	1,039.7	3.5%	54	56377.90136	3.9%
100 Mile Circle	2,176.7	1.7%	52	113219.92353	2.0%
400 Mile Circle	21,511.0	0.2%	52	1127460.41980	0.2%

Once the productivity savings were calculated across industries the results were divided across the regional communities based on the Dun & Bradstreet data described in section 2.2.

2.5 Fiscal Impacts

Sales taxes are the largest funding source for municipalities in Colorado. The IMPLAN economic modeling system provides estimates of combined state and local sales and use tax changes that result from the impact being analyzed, and was used to calculate overall tax impacts from the three components modeled: Construction impacts, household time savings and business productivity.

Using this aggregated data, state and local sales and use taxes were estimated for each jurisdiction in the model including the cities of Denver, Commerce City, Aurora, Westminster, Thornton and Broomfield; Adams, Jefferson and Arapahoe Counties; and the state of Colorado; using the appropriate sales tax rates in each jurisdiction. In addition to the above jurisdictions, the Regional Transportation District (RTD) and the Scientific and Cultural Facilities District (SCFD) also impose sales taxes on all eligible retail purchases in the Denver Metropolitan Area.

Sales and use tax revenue growth resulting from business productivity and consumer spending is estimated on an annual basis after the highway capacity improvements are completed. Construction related sales and use tax revenue is a temporary revenue stream that will end once project construction is complete.

In total, the highway construction will produce approximately \$22.0 million in sales tax revenues during the project period across all jurisdictions. Productivity travel time savings will yield \$25.7 million annually in sales tax revenue across all jurisdictions. Household travel time savings will produce approximately \$752,700 annually across all jurisdictions. The table below provides the breaks that were used for calculating the sales tax revenues across each of the modeled jurisdictions.

Exhibit 2.5.1 Estimated Sales Tax Rates and Relevant Percentages By Community

Location	Sales Tax Rate	Percent Revenue Distribution By Locality											
		State of Colorado	Commerce City	City & County of Denver	Adams County	Arapahoe County	Jefferson County	Broomfield	Westminster	Thornton	Aurora	RTD	SCFD
Commerce City	8%	35%	42%	0%	9%	0%	0%	0%	0%	0%	0%	12%	1%
Denver	8%	38%	0%	48%	0%	0%	0%	0%	0%	0%	0%	13%	1%
Adams County	5%	61%	0%	0%	16%	0%	0%	0%	0%	0%	0%	21%	2%
Arapahoe County	4%	68%	0%	0%	0%	6%	0%	0%	0%	0%	0%	2.4%	2%
Jefferson County	5%	64%	0%	0%	0%	0%	11%	0%	0%	0%	0%	2.2%	2%
Broomfield	8%	36%	0%	0%	0%	0%	0%	51%	0%	0%	0%	12%	1%
Westminster	8%	35%	0%	0%	0%	0%	0%	0%	46%	0%	0%	12%	1%
Thornton	9%	34%	0%	0%	9%	0%	0%	0%	0%	44%	0%	12%	1%
Aurora	8%	36%	0%	0%	0%	3%	0%	0%	0%	0%	47%	13%	1%

2.6 Summary of IMPLAN Model³⁴

Francoise Quesnay, one of the fathers of modern economics, first developed the analytical concept of inter-industry relationships in 1758. The concept was actualized into input-output analysis by Wassily Leontief during the Second World War, an accomplishment for which he received the 1973 Nobel Prize in Economics.

Input-Output analysis is an econometric technique used to examine the relationships within an economy. It captures all monetary market transactions for consumption in a given period and for a specific geography. The IMPLAN model uses data from many different sources – as published government data series, unpublished data, sets of relationships, ratios, or as estimates. The Minnesota IMPLAN group gathers this data, converts it into a consistent format, and estimates the missing components.

There are three different levels of data generally available in the United States: Federal, state and county. Most of the detailed data is available at the county level, and as such there are many issues with disclosure, especially in the case of smaller industries, such as brewing. IMPLAN overcomes these disclosure problems by combining a large number of datasets and by estimating those variables that are not found from any of them. The data is then converted into national input-output matrices (Use, Make, By-products, Absorption and Market Shares) as well as national tables for deflators, regional purchase coefficients and margins.

The IMPLAN Make matrix represents the production of commodities by industry. The Bureau of Economic Analysis (BEA) Benchmark I/O Study of the US Make Table forms the bases of the IMPLAN model. The Benchmark Make Table is updated to current year

³⁴ This section is paraphrased from IMPLAN Professional: Users Guide, Analysis Guide, Data Guide, Version 2.0, MIG, Inc., June 2000.

prices, and rearranged into the IMPLAN sector format. The IMPLAN Use matrix is based on estimates of final demand, value-added by sector and total industry and commodity output data as provided by government statistics or estimated by IMPLAN. The BEA Benchmark Use Table is then bridged to the IMPLAN sectors. Once the re-sectoring is complete, the Use Tables can be updated based on the other data and model calculations of interstate and international trade.

In the IMPLAN model, as with any input-output framework, all expenditures are in terms of producer prices. This allocates all expenditures to the industries that produce goods and services. As a result, all data not received in producer prices are converted using margins which are derived from the BEA Input-Output model. Margins represent the difference between producer and consumer prices. As such, the margins for any good add to one. If, for example, 10 percent of the consumer price of beer is from the purchase of hops, then the hops margin would be 0.1.

Deflators, which account for relative price changes during different time periods, are derived from the Bureau of Labor Statistics (BLS) Growth Model. The 224 sector BLS model is mapped to the 440 sectors of the IMPLAN model. Where data are missing, deflators from BEA's Survey of Current Businesses are used.

Finally, the Regional Purchase Coefficients (RPCs) must be derived. IMPLAN is derived from a national model, which represents the "average" condition for a particular industry. This makes the RPCs essential to using the model for state and local level analysis. Since national production functions do not necessarily represent particular regional differences, adjustments need to be made. Regional trade flows are estimated based on the Multi-Regional Input-Output Accounts, a cross-sectional database with consistent cross interstate trade flows developed in 1977. These data are updated and bridged to the 509 sector IMPLAN model.

Once the databases and matrices are created, they go through an extensive validation process. IMPLAN builds separate state and county models and evaluates them, checking to ensure that no ratios are outside of recognized bounds. The final datasets and matrices are not released before extensive testing takes place.

2.7 Land Use Analysis

A neighborhood level land use study was conducted for this report using data on land and improvement values by parcel from the City of Denver. While there will be the potential for both "winners and losers," in balance the overall change in land use/value is considered to be positive. Tax block and lot data from the City of Denver (including commercial, industrial and residential properties) was used to see if there were any significant impacts on land values associated with being near the existing viaduct and at-

grade highway structure. Data were from the US Department of Commerce, Bureau of the Census, and the City of Denver.³⁵

Exhibit 2.7.1 Regression Calculation for Industrial Properties

INDUSTRIAL LAND VALUES										INDUSTRIAL IMPROVEMENT VALUES									
Regression Statistics										Regression Statistics									
Multiple R	0.67984									Multiple R	0.094563								
R Square	0.462182									R Square	0.008942								
Adjusted R	0.461399									Adjusted R	0.0075								
Standard Error	7.376472									Standard Error	13.15133								
Observations	5506									Observations	5506								
ANOVA										ANOVA									
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>						<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				
Regression	8	257039.9	32129.99	590.4908	0					Regression	8	8578.533	1072.317	6.199882	5.32E-08				
Residual	5497	299104.6	54.41234							Residual	5497	950747.9	172.9576						
Total	5505	556144.5								Total	5505	959326.5							
Coefficients										Coefficients									
	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>		<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	20.50688	1.106245	18.53738	1.84E-74	18.3382	22.67556	18.3382	22.67556	18.3382	Intercept	11.09093	1.972297	5.623358	1.97E-08	7.22445	14.95741	7.22445	14.95741	7.22445
In Half	-1.92868	0.239297	-8.05978	9.3E-16	-2.3978	-1.45956	-2.3978	-1.45956	-2.3978	In Half	-1.61006	0.426637	-3.77385	0.000162	-2.44644	-0.77369	-2.44644	-0.77369	-2.44644
Median Inc	-0.00014	9.12E-06	-15.5128	3.75E-53	-0.00016	-0.00012	-0.00016	-0.00012	-0.00016	Median Inc	-4E-06	1.63E-05	-0.24333	0.807763	-3.6E-05	2.79E-05	-3.6E-05	2.79E-05	-3.6E-05
Pct Vacant	44.93928	7.939639	5.660116	1.59E-08	29.37444	60.50411	29.37444	60.50411	29.37444	Pct Vacant	-8.85536	14.15539	-0.62558	0.531615	-36.6055	18.89481	-36.6055	18.89481	-36.6055
Pct hisp	-34.0477	0.901516	-37.7671	1E-277	-35.815	-32.2803	-35.815	-32.2803	-35.815	Pct hisp	-0.07019	1.607291	-0.04367	0.965169	-3.22112	3.080735	-3.22112	3.080735	-3.22112
Median Agri	0.545505	0.020554	26.54043	3.8E-146	0.505211	0.585798	0.505211	0.585798	0.505211	Median Agri	0.043679	0.036645	1.191963	0.233327	-0.02816	0.115517	-0.02816	0.115517	-0.02816
pct white	-44.0039	1.026178	-42.8814	0	-46.0156	-41.9922	-46.0156	-41.9922	-46.0156	pct white	-6.12868	1.829548	-3.34983	0.000814	-9.71532	-2.54204	-9.71532	-2.54204	-9.71532
instituit	-5.18948	1.291623	-4.0178	5.95E-05	-7.72157	-2.65739	-7.72157	-2.65739	-7.72157	instituit	-2.17686	2.302803	-0.94531	0.344543	-6.69126	2.337547	-6.69126	2.337547	-6.69126
Park	1.640017	0.231011	7.099309	1.41E-12	1.187144	2.09289	1.187144	2.09289	1.187144	Park	0.641145	0.411864	1.556692	0.119601	-0.16627	1.44856	-0.16627	1.44856	-0.16627

An examination of current property uses and values along the Denver portion of the project area (from the Globeville neighborhood through to Montbello) shows that most of the land use patterns are long established and reflect the fact that the region is a road and rail transportation corridor. Residential land values generally increase as one moves away from the roadway, rising by as much as \$2.80 per square foot one mile from the roadway. Industrial property values generally increase (improving by \$1.98 per square foot as distance from the road way increases by a mile;); however, a more thorough analysis shows that most of the variation in land and property values in the corridor have less to do with Interstate 70 than then do with other more generalized effects. In fact, once what economists call “neighborhood fixed effects” are taken into account, the impact of the Interstate on property values virtually disappears – both for residential areas and for industrial facilities.³⁶ In total, the mitigation of the environmental and aesthetic issues with I-70 will likely increase property values in the Denver portion of the project corridor by just \$89.7 million, or about 0.7 percent. The regression tables in Exhibits 2.6.1, 2.6.2 and 2.6.3 show the relative impacts of the highway, as well as key demographics on property values in the Denver portion of the Corridor by type.

³⁵ Detailed property value data by parcel for Denver is available at: <http://data.denvergov.org/dataset/city-and-county-of-denver-parcels>. Future revisions of this report will include impacts in Commerce City and Aurora as those data become available.

³⁶ A more detailed discussion of this analysis can be found in the Methodology section below.

Exhibit 2.7.2 Regression Calculation for Residential Properties

RESIDENTIAL LAND VALUES								RESIDENTIAL IMPROVEMENT VALUES									
Regression Statistics								Regression Statistics									
Multiple R	0.676473							Multiple R	0.360474								
R Square	0.457616							R Square	0.129941								
Adjusted R	0.45745							Adjusted R	0.129675								
Standard Error	5.325234							Standard Error	4.286586								
Observations	26204							Observations	26204								
ANOVA								ANOVA									
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				
Regression	8	626743.6	78342.95	2762.628	0			Regression	8	71885.22	8985.652	489.02	0				
Residual	26195	742841	28.35812					Residual	26195	481328.3	18.37482						
Total	26203	1369585						Total	26203	553213.6							
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>		<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	40.75991	0.884396	46.08786	-	39.02645	42.49338	39.02645	42.49338	Intercept	-19.7131	0.711901	-27.6908	2.2E-166	-21.1085	-18.3177	-21.1085	-18.3177
In Half	-2.83256	0.108354	-26.1416	0.0000	-3.04494	-2.62017	-3.04494	-2.62017	In Half	-1.69898	0.087221	-19.4791	6.49E-84	-1.86994	-1.52802	-1.86994	-1.52802
Median Inc	-0.00014	3.95E-06	-34.7566	0.0000	-0.00014	-0.00013	-0.00014	-0.00013	Median Inc	5.63E-05	3.18E-06	17.72149	7.33E-70	5.01E-05	6.25E-05	5.01E-05	6.25E-05
Pct Vacant	21.43343	2.357267	9.092491	0.0000	16.81306	26.0538	16.81306	26.0538	Pct Vacant	24.80123	1.897499	13.07048	6.43E-39	21.08203	28.52043	21.08203	28.52043
Pct hisp	-35.1586	0.466302	-75.3987	-	-36.0725	-34.2446	-36.0725	-34.2446	Pct hisp	9.052658	0.375353	24.11773	4E-127	8.316246	9.78837	8.316246	9.78837
Median Age	-0.04738	0.016021	-2.95716	0.0031	-0.07878	-0.01598	-0.07878	-0.01598	Median Age	0.576767	0.012897	44.72253	0	0.551489	0.602045	0.551489	0.602045
pct white	-39.5977	0.424431	-93.2958	-	-40.4296	-38.7658	-40.4296	-38.7658	pct white	2.82205	0.341649	8.260084	1.52E-16	2.152399	3.491701	2.152399	3.491701
institut	-2.63748	0.58962	-4.47318	0.0000	-3.79316	-1.48179	-3.79316	-1.48179	institut	4.0428	0.474619	8.517998	1.71E-17	3.112522	4.973078	3.112522	4.973078
Park	-0.4064	0.07578	-5.3629	0.0000	-0.55494	-0.25787	-0.55494	-0.25787	Park	-0.13649	0.061	-2.23758	0.025257	-0.25606	-0.01693	-0.25606	-0.01693

As the tables show, the regression equations are statistically significant (except for commercial buildings and improvements), meaning that in a statistical sense they explain deviations in property values. While the signs for proximity are correct (in that the closer a property is to I-70 the less valuable) the low t-statistic for commercial properties suggests that this variable is not a statistically significant indicator.

Exhibit 2.7.3 Regression Calculation for Commercial Properties

COMMERCIAL LAND VALUES								COMMERCIAL IMPROVEMENT VALUES									
Regression Statistics								Regression Statistics									
Multiple R	0.619387							Multiple R	0.24554								
R Square	0.383641							R Square	0.06029								
Adjusted R	0.35429							Adjusted R	0.015542								
Standard Error	7.135212							Standard Error	5.125505								
Observations	177							Observations	177								
ANOVA								ANOVA									
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				
Regression	8	5323.703	665.4629	13.07104	1.41E-14			Regression	8	283.1616	35.3952	1.347321	0.22346				
Residual	168	8553.09	50.91125					Residual	168	4413.494	26.2708						
Total	176	13876.79						Total	176	4696.656							
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>		<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	31.94244	6.590003	4.847106	2.83E-06	18.93256	44.95233	18.93256	44.95233	Intercept	3.895601	4.73386	0.822923	0.411718	-5.44991	13.24112	-5.44991	13.24112
In Half	-0.89112	1.292594	-0.68941	0.491519	-3.44294	1.660698	-3.44294	1.660698	In Half	-0.93442	0.928522	-1.00635	0.315694	-2.76749	0.898656	-2.76749	0.898656
Median Inc	-0.00025	5.12E-05	-4.83389	3E-06	-0.00035	-0.00015	-0.00035	-0.00015	Median Inc	3.48E-06	3.68E-05	0.094587	0.924756	-6.9E-05	7.61E-05	-6.9E-05	7.61E-05
Pct Vacant	15.3368	35.39818	0.433265	0.665378	-54.5458	85.21936	-54.5458	85.21936	Pct Vacant	27.52437	25.42791	1.082447	0.280605	-22.675	77.72378	-22.675	77.72378
Pct hisp	-36.8094	6.461987	-5.6963	5.36E-08	-49.5666	-24.0523	-49.5666	-24.0523	Pct hisp	0.989587	4.6419	0.213186	0.831441	-8.17438	10.15356	-8.17438	10.15356
Median Age	0.495421	0.132949	3.7264	0.000265	0.232955	0.757887	0.232955	0.757887	Median Age	-0.18454	0.095502	-1.9323	0.055005	-0.37308	0.004	-0.37308	0.004
pct white	-53.6328	6.131713	-8.74679	2.21E-15	-65.7379	-41.5276	-65.7379	-41.5276	pct white	5.620466	4.404652	1.27603	0.203706	-3.07513	14.31606	-3.07513	14.31606
institut	-13.6366	6.159705	-2.21384	0.028186	-25.797	-1.47623	-25.797	-1.47623	institut	6.10189	4.424759	1.379033	0.169718	-2.6334	14.83718	-2.6334	14.83718
Park	1.323934	1.294283	1.02291	0.307821	-1.23122	3.879088	-1.23122	3.879088	Park	-0.42998	0.929734	-0.46248	0.644335	-2.26545	1.405483	-2.26545	1.405483

Overall, residential property values should increase due to highway noise and aesthetic improvements; however, the data suggest that being near a park in this part of Denver has a negative impact on property values. As such, the development of parkland on the decked areas of the highway may not generate the level of benefits that some may claim.³⁷

³⁷ While this may seem counterintuitive, the industrial nature of the neighborhoods that I-70 traverses may explain this. In primarily residential neighborhoods, parks may be considered

In each case the regression results find that the neighborhood fixed effects, as well as the current demographic makeup of the surrounding community seem to most influence property values.

All of this suggests that the neighborhoods surrounding I-70 have developed over a long period of time and reflect the overall industrial nature of the whole North Denver region.

amenities, while often in more industrial areas, parks may be considered more as vacant space, or vacant land and may not be considered either safe or particularly useful.

Summary Tables

Exhibit 3.1.1 Estimated Annualized Construction Benefit – Aurora

	Jobs	Wages	Output
Direct Impacts			
Construction	632	\$ 34,701,311	\$ 97,400,057
Other Industries	2,749	\$ 173,670,260	\$ 214,025,452
Supplier Impacts			
Agriculture	0	\$ 3,529	\$ 11,758
Mining	0	\$ 4,051	\$ 17,164
Construction	0	\$ 10,571	\$ 27,795
Manufacturing	4	\$ 260,320	\$ 1,051,454
Transportation and Communication	5	\$ 312,276	\$ 1,181,000
Wholesaling	1	\$ 64,554	\$ 118,070
Retailing	5	\$ 167,425	\$ 374,968
Finance, Insurance and Real Estate	8	\$ 441,559	\$ 1,720,223
Travel and Entertainment	4	\$ 153,035	\$ 321,188
Business and Personal Services	35	\$ 2,264,453	\$ 4,081,328
Government	1	\$ 110,212	\$ 379,931
Total Supplier Impacts	63	\$ 3,791,987	\$ 9,284,879
Induced Impacts			
Agriculture	0	\$ 4,350	\$ 13,822
Mining	0	\$ 9,012	\$ 38,566
Construction	1	\$ 33,868	\$ 103,714
Manufacturing	4	\$ 192,693	\$ 952,768
Transportation and Communication	7	\$ 387,292	\$ 1,555,604
Wholesaling	6	\$ 321,750	\$ 588,484
Retailing	39	\$ 1,137,249	\$ 2,488,151
Finance, Insurance and Real Estate	24	\$ 944,465	\$ 5,554,057
Travel and Entertainment	12	\$ 272,599	\$ 742,923
Business and Personal Services	48	\$ 2,147,936	\$ 4,148,769
Government	6	\$ 554,026	\$ 1,907,642
Total Induced Impacts	147	\$ 6,005,238	\$ 18,094,500
Total Economic Impact	3,591	\$ 218,168,796	\$ 338,804,887

Exhibit 3.1.2 Estimated Annualized Construction Benefit – Commerce City

	Jobs	Wages	Output
Direct Impacts			
Construction	0 \$	- \$	-
Other Industries	0 \$	- \$	-
Supplier Impacts			
Agriculture	0 \$	712 \$	3,000
Mining	0 \$	358 \$	822
Construction	0 \$	904 \$	2,324
Manufacturing	1 \$	81,203 \$	288,576
Transportation and Communication	1 \$	70,692 \$	181,865
Wholesaling	0 \$	10,977 \$	20,078
Retailing	0 \$	7,752 \$	18,179
Finance, Insurance and Real Estate	0 \$	11,074 \$	143,529
Travel and Entertainment	0 \$	6,701 \$	14,766
Business and Personal Services	1 \$	72,699 \$	131,641
Government	0 \$	451 \$	1,572
Total Supplier Impacts	3 \$	263,522 \$	806,351
Induced Impacts			
Agriculture	0 \$	411 \$	1,506
Mining	0 \$	50 \$	130
Construction	0 \$	7,898 \$	24,634
Manufacturing	0 \$	25,149 \$	194,895
Transportation and Communication	2 \$	104,192 \$	272,577
Wholesaling	1 \$	54,713 \$	100,070
Retailing	2 \$	60,378 \$	134,008
Finance, Insurance and Real Estate	1 \$	29,329 \$	344,130
Travel and Entertainment	0 \$	8,759 \$	21,758
Business and Personal Services	3 \$	116,394 \$	216,162
Government	0 \$	1,082 \$	3,773
Total Induced Impacts	9 \$	408,354 \$	1,313,643
Total Economic Impact	12 \$	671,876 \$	2,119,994

Exhibit 3.1.3 Estimated Annualized Construction Benefit – Denver

	Jobs	Wages	Output
Direct Impacts			
Construction	3,739	\$ 205,361,821	\$ 576,526,367
Other Industries	1,079	\$ 88,017,096	\$ 146,575,013
Supplier Impacts			
Agriculture	0	\$ 12,432	\$ 39,867
Mining	1	\$ 102,157	\$ 398,138
Construction	1	\$ 76,597	\$ 202,533
Manufacturing	17	\$ 1,060,726	\$ 4,391,025
Transportation and Communication	25	\$ 1,795,248	\$ 7,766,221
Wholesaling	4	\$ 214,271	\$ 391,903
Retailing	15	\$ 458,139	\$ 1,034,686
Finance, Insurance and Real Estate	67	\$ 3,584,892	\$ 12,444,589
Travel and Entertainment	19	\$ 672,429	\$ 1,447,145
Business and Personal Services	196	\$ 13,397,778	\$ 23,342,458
Government	2	\$ 158,044	\$ 545,109
Total Supplier Impacts	347	\$ 21,532,713	\$ 52,003,675
Induced Impacts			
Agriculture	0	\$ 18,984	\$ 58,175
Mining	1	\$ 78,258	\$ 317,990
Construction	2	\$ 134,784	\$ 389,587
Manufacturing	9	\$ 554,509	\$ 4,165,300
Transportation and Communication	34	\$ 2,313,291	\$ 11,009,601
Wholesaling	20	\$ 1,067,965	\$ 1,953,320
Retailing	120	\$ 3,358,614	\$ 7,292,197
Finance, Insurance and Real Estate	167	\$ 7,260,792	\$ 41,829,251
Travel and Entertainment	47	\$ 1,300,165	\$ 3,205,286
Business and Personal Services	225	\$ 10,590,400	\$ 19,937,690
Government	9	\$ 775,659	\$ 2,671,537
Total Induced Impacts	634	\$ 27,453,422	\$ 92,829,936
Total Economic Impact	5,798	\$ 342,365,051	\$ 867,934,990

Exhibit 3.1.4 Estimated Annualized Construction Benefit – Thornton

	Jobs	Wages	Output
Direct Impacts			
Construction	0 \$	- \$	- \$
Other Industries	0 \$	- \$	- \$
Supplier Impacts			
Agriculture	0 \$	1,068 \$	4,170 \$
Mining	0 \$	2,263 \$	9,574 \$
Construction	0 \$	5,511 \$	14,462 \$
Manufacturing	3 \$	149,995 \$	568,971 \$
Transportation and Communication	1 \$	52,831 \$	200,942 \$
Wholesaling	0 \$	11,840 \$	21,655 \$
Retailing	1 \$	39,142 \$	91,423 \$
Finance, Insurance and Real Estate	2 \$	101,789 \$	541,973 \$
Travel and Entertainment	1 \$	31,889 \$	66,735 \$
Business and Personal Services	6 \$	359,181 \$	693,536 \$
Government	0 \$	35 \$	123 \$
Total Supplier Impacts	14 \$	755,544 \$	2,213,563 \$
Induced Impacts			
Agriculture	0 \$	784 \$	4,268 \$
Mining	0 \$	5,238 \$	22,502 \$
Construction	0 \$	19,731 \$	55,999 \$
Manufacturing	0 \$	24,315 \$	140,634 \$
Transportation and Communication	1 \$	67,744 \$	267,147 \$
Wholesaling	1 \$	59,011 \$	107,932 \$
Retailing	10 \$	290,860 \$	647,698 \$
Finance, Insurance and Real Estate	5 \$	173,807 \$	1,333,897 \$
Travel and Entertainment	1 \$	47,546 \$	125,331 \$
Business and Personal Services	10 \$	438,162 \$	837,114 \$
Government	0 \$	85 \$	295 \$
Total Induced Impacts	28 \$	1,127,284 \$	3,542,818 \$
Total Economic Impact	42 \$	1,882,827 \$	5,756,381 \$

Exhibit 3.1.5 Estimated Annualized Construction Benefit – Westminster

	Jobs	Wages	Output
Direct Impacts			
Construction	0 \$	- \$	- \$
Other Industries	0 \$	- \$	- \$
Supplier Impacts			
Agriculture	0 \$	1,831 \$	6,764 \$
Mining	0 \$	778 \$	3,118 \$
Construction	0 \$	5,708 \$	15,040 \$
Manufacturing	2 \$	81,963 \$	379,624 \$
Transportation and Communication	2 \$	163,294 \$	975,160 \$
Wholesaling	1 \$	55,820 \$	102,095 \$
Retailing	3 \$	97,166 \$	239,474 \$
Finance, Insurance and Real Estate	4 \$	185,618 \$	793,181 \$
Travel and Entertainment	2 \$	99,678 \$	194,736 \$
Business and Personal Services	15 \$	985,059 \$	1,719,062 \$
Government	0 \$	351 \$	1,224 \$
Total Supplier Impacts	29 \$	1,677,264 \$	4,429,478 \$
Induced Impacts			
Agriculture	0 \$	1,794 \$	9,664 \$
Mining	0 \$	1,626 \$	6,840 \$
Construction	0 \$	14,889 \$	42,389 \$
Manufacturing	1 \$	32,802 \$	178,808 \$
Transportation and Communication	4 \$	254,616 \$	1,568,499 \$
Wholesaling	5 \$	278,216 \$	508,861 \$
Retailing	21 \$	615,723 \$	1,412,982 \$
Finance, Insurance and Real Estate	12 \$	443,216 \$	3,057,542 \$
Travel and Entertainment	5 \$	153,289 \$	394,040 \$
Business and Personal Services	26 \$	1,207,474 \$	2,186,709 \$
Government	0 \$	842 \$	2,937 \$
Total Induced Impacts	74 \$	3,004,488 \$	9,369,273 \$
Total Economic Impact	103 \$	4,681,753 \$	13,798,751 \$

**Exhibit 3.1.6 Estimated Annualized Construction Benefit – Adams County
(Less Direct Jobs Reported in Aurora)**

	Jobs	Wages	Output
Direct Impacts			
Construction	0	\$ -	\$ -
Other Industries	0	\$ -	\$ -
Supplier Impacts			
Agriculture	0	\$ 11,800	\$ 46,143
Mining	0	\$ 11,528	\$ 36,187
Construction	0	\$ 23,909	\$ 62,671
Manufacturing	15	\$ 862,307	\$ 3,412,077
Transportation and Communication	12	\$ 673,944	\$ 2,692,334
Wholesaling	3	\$ 159,147	\$ 291,081
Retailing	8	\$ 243,080	\$ 563,919
Finance, Insurance and Real Estate	9	\$ 487,350	\$ 2,459,957
Travel and Entertainment	5	\$ 210,804	\$ 438,334
Business and Personal Services	38	\$ 2,378,766	\$ 4,453,715
Government	0	\$ 44,928	\$ 155,138
Total Supplier Impacts	90	\$ 5,107,562	\$ 14,611,555
Induced Impacts			
Agriculture	0	\$ 16,233	\$ 70,362
Mining	0	\$ 13,349	\$ 55,885
Construction	2	\$ 95,208	\$ 290,227
Manufacturing	5	\$ 297,378	\$ 2,068,853
Transportation and Communication	18	\$ 960,916	\$ 4,075,654
Wholesaling	15	\$ 793,218	\$ 1,450,805
Retailing	61	\$ 1,756,227	\$ 3,905,513
Finance, Insurance and Real Estate	26	\$ 1,022,898	\$ 7,191,113
Travel and Entertainment	12	\$ 350,985	\$ 916,118
Business and Personal Services	76	\$ 3,350,082	\$ 6,353,967
Government	2	\$ 209,118	\$ 720,723
Total Induced Impacts	217	\$ 8,865,612	\$ 27,099,221
Total Economic Impact	307	\$ 13,973,174	\$ 41,710,776

Exhibit 3.1.7 Estimated Annualized Construction Benefit – Arapahoe County

	Jobs	Wages	Output
Direct Impacts			
Construction	0	\$ -	\$ -
Other Industries	0	\$ -	\$ -
Supplier Impacts			
Agriculture	0	\$ 12,868	\$ 46,487
Mining	2	\$ 116,950	\$ 510,650
Construction	1	\$ 50,139	\$ 132,238
Manufacturing	8	\$ 451,855	\$ 1,905,137
Transportation and Communication	33	\$ 2,605,129	\$ 10,434,579
Wholesaling	2	\$ 124,573	\$ 227,846
Retailing	13	\$ 404,770	\$ 943,528
Finance, Insurance and Real Estate	47	\$ 2,685,383	\$ 8,826,723
Travel and Entertainment	16	\$ 521,945	\$ 1,168,450
Business and Personal Services	141	\$ 9,902,870	\$ 17,161,454
Government	1	\$ 70,290	\$ 242,252
Total Supplier Impacts	264	\$ 16,946,772	\$ 41,599,342
Induced Impacts			
Agriculture	1	\$ 45,896	\$ 102,302
Mining	1	\$ 61,643	\$ 264,215
Construction	2	\$ 119,139	\$ 341,910
Manufacturing	4	\$ 275,845	\$ 1,764,614
Transportation and Communication	39	\$ 3,069,987	\$ 13,526,140
Wholesaling	12	\$ 620,896	\$ 1,135,625
Retailing	95	\$ 2,766,087	\$ 6,154,751
Finance, Insurance and Real Estate	135	\$ 6,381,965	\$ 30,746,237
Travel and Entertainment	52	\$ 1,216,210	\$ 3,325,458
Business and Personal Services	134	\$ 6,339,853	\$ 11,863,089
Government	4	\$ 357,049	\$ 1,229,251
Total Induced Impacts	479	\$ 21,254,568	\$ 70,453,591
Total Economic Impact	743	\$ 38,201,340	\$ 112,052,934

Exhibit 3.1.8 Estimated Annualized Construction Benefit – Broomfield County

	Jobs	Wages	Output
Direct Impacts			
Construction	0 \$	- \$	- \$
Other Industries	0 \$	- \$	- \$
Supplier Impacts			
Agriculture	0 \$	994 \$	3,142 \$
Mining	0 \$	419 \$	1,710 \$
Construction	0 \$	4,987 \$	13,171 \$
Manufacturing	3 \$	144,187 \$	920,913 \$
Transportation and Communication	1 \$	87,742 \$	519,129 \$
Wholesaling	0 \$	9,402 \$	17,197 \$
Retailing	2 \$	51,020 \$	122,845 \$
Finance, Insurance and Real Estate	2 \$	78,603 \$	353,240 \$
Travel and Entertainment	1 \$	48,470 \$	96,050 \$
Business and Personal Services	8 \$	553,905 \$	969,544 \$
Government	0 \$	903 \$	3,146 \$
Total Supplier Impacts	17 \$	980,634 \$	3,020,086 \$
Induced Impacts			
Agriculture	0 \$	1,443 \$	7,133 \$
Mining	0 \$	865 \$	3,678 \$
Construction	0 \$	10,084 \$	29,026 \$
Manufacturing	1 \$	46,372 \$	205,099 \$
Transportation and Communication	2 \$	138,551 \$	845,687 \$
Wholesaling	1 \$	46,862 \$	85,711 \$
Retailing	10 \$	306,942 \$	692,224 \$
Finance, Insurance and Real Estate	5 \$	204,163 \$	1,297,067 \$
Travel and Entertainment	4 \$	130,892 \$	370,444 \$
Business and Personal Services	10 \$	418,608 \$	749,186 \$
Government	0 \$	2,481 \$	8,627 \$
Total Induced Impacts	33 \$	1,307,262 \$	4,293,883 \$
Total Economic Impact	50 \$	2,287,896 \$	7,313,970 \$

Exhibit 3.1.9 Estimated Annualized Construction Benefit – Jefferson County

	Jobs	Wages	Output
Direct Impacts			
Construction	0	\$ -	\$ -
Other Industries	0	\$ -	\$ -
Supplier Impacts			
Agriculture	1	\$ 22,304	\$ 83,440
Mining	0	\$ 34,959	\$ 145,687
Construction	1	\$ 53,312	\$ 140,619
Manufacturing	8	\$ 505,097	\$ 2,196,528
Transportation and Communication	10	\$ 707,185	\$ 3,366,485
Wholesaling	2	\$ 83,842	\$ 153,348
Retailing	11	\$ 334,188	\$ 812,836
Finance, Insurance and Real Estate	25	\$ 1,268,857	\$ 5,112,234
Travel and Entertainment	13	\$ 480,816	\$ 1,014,834
Business and Personal Services	103	\$ 6,777,218	\$ 11,968,941
Government	0	\$ 2,669	\$ 9,308
Total Supplier Impacts	174	\$ 10,270,447	\$ 25,004,262
Induced Impacts			
Agriculture	1	\$ 53,198	\$ 123,543
Mining	1	\$ 69,498	\$ 298,422
Construction	2	\$ 125,902	\$ 363,173
Manufacturing	3	\$ 164,130	\$ 967,853
Transportation and Communication	14	\$ 950,582	\$ 4,743,876
Wholesaling	8	\$ 417,885	\$ 764,317
Retailing	82	\$ 2,330,938	\$ 5,307,185
Finance, Insurance and Real Estate	72	\$ 2,818,288	\$ 20,288,387
Travel and Entertainment	33	\$ 899,722	\$ 2,330,958
Business and Personal Services	119	\$ 5,539,240	\$ 10,353,338
Government	0	\$ 6,406	\$ 22,344
Total Induced Impacts	335	\$ 13,375,788	\$ 45,563,396
Total Economic Impact	509	\$ 23,646,235	\$ 70,567,658

Exhibit 3.2.1 Estimated Annualized Time Savings Benefit – Aurora

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0	\$ 92	\$ 250
Mining	0	\$ 30	\$ 88
Construction	0	\$ -	\$ -
Manufacturing	0	\$ 3,646	\$ 23,124
Transportation and Communication	0	\$ 10,960	\$ 30,745
Wholesaling	1	\$ 61,155	\$ 125,436
Retailing	3	\$ 102,935	\$ 209,753
Finance, Insurance and Real Estate	1	\$ 46,120	\$ 201,495
Travel and Entertainment	2	\$ 44,243	\$ 112,738
Business and Personal Services	3	\$ 152,427	\$ 281,777
Government	0	\$ 6,215	\$ 16,538
Other	0	\$ 8,922	\$ 32,852
Total Direct Impacts	10	\$ 436,747	\$ 1,034,795
Supplier Impacts			
Agriculture	0	\$ 103	\$ 270
Mining	0	\$ 26	\$ 75
Construction	0	\$ 3,712	\$ 8,916
Manufacturing	0	\$ 2,657	\$ 11,035
Transportation and Communication	0	\$ 16,453	\$ 40,959
Wholesaling	0	\$ 8,351	\$ 17,129
Retailing	0	\$ 1,608	\$ 3,236
Finance, Insurance and Real Estate	1	\$ 49,282	\$ 169,041
Travel and Entertainment	0	\$ 9,178	\$ 20,181
Business and Personal Services	1	\$ 48,732	\$ 94,656
Government	0	\$ 4,616	\$ 9,275
Other	0	\$ -	\$ -
Total Supplier Impacts	2	\$ 144,717	\$ 374,770
Induced Impacts			
Agriculture	0	\$ 51	\$ 135
Mining	0	\$ 15	\$ 43
Construction	0	\$ 998	\$ 2,398
Manufacturing	0	\$ 1,739	\$ 9,397
Transportation and Communication	0	\$ 8,187	\$ 21,435
Wholesaling	0	\$ 14,834	\$ 30,426
Retailing	1	\$ 33,942	\$ 69,154
Finance, Insurance and Real Estate	1	\$ 25,697	\$ 99,075
Travel and Entertainment	1	\$ 14,948	\$ 37,133
Business and Personal Services	1	\$ 57,380	\$ 107,388
Government	0	\$ 2,903	\$ 6,790
Other	0	\$ 2,734	\$ 10,068
Total Induced Impacts	4	\$ 163,428	\$ 393,443
Total Economic Impact	16	\$ 744,892	\$ 1,803,008

Exhibit 3.2.2 Estimated Annualized Time Savings Benefit – Commerce City

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0 \$	103 \$	202
Mining	0 \$	3 \$	6
Construction	0 \$	- \$	-
Manufacturing	0 \$	1,723 \$	12,036
Transportation and Communication	0 \$	4,603 \$	13,279
Wholesaling	0 \$	10,399 \$	21,330
Retailing	0 \$	4,861 \$	9,996
Finance, Insurance and Real Estate	0 \$	1,983 \$	9,985
Travel and Entertainment	0 \$	1,580 \$	4,471
Business and Personal Services	0 \$	6,452 \$	12,430
Government	0 \$	88 \$	107
Other	0 \$	90 \$	330
Total Direct Impacts	0 \$	31,884 \$	84,172
Supplier Impacts			
Agriculture	0 \$	27 \$	74
Mining	0 \$	12 \$	25
Construction	0 \$	1,065 \$	2,566
Manufacturing	0 \$	680 \$	3,591
Transportation and Communication	0 \$	8,024 \$	19,571
Wholesaling	0 \$	1,420 \$	2,913
Retailing	0 \$	86 \$	175
Finance, Insurance and Real Estate	0 \$	1,722 \$	8,200
Travel and Entertainment	0 \$	280 \$	789
Business and Personal Services	0 \$	2,649 \$	6,000
Government	0 \$	222 \$	258
Other	0 \$	- \$	-
Total Supplier Impacts	0 \$	16,188 \$	44,162
Induced Impacts			
Agriculture	0 \$	34 \$	72
Mining	0 \$	4 \$	8
Construction	0 \$	286 \$	691
Manufacturing	0 \$	638 \$	4,116
Transportation and Communication	0 \$	3,646 \$	9,358
Wholesaling	0 \$	2,522 \$	5,174
Retailing	0 \$	1,606 \$	3,301
Finance, Insurance and Real Estate	0 \$	1,013 \$	4,796
Travel and Entertainment	0 \$	527 \$	1,495
Business and Personal Services	0 \$	2,636 \$	5,311
Government	0 \$	89 \$	104
Other	0 \$	27 \$	101
Total Induced Impacts	0 \$	13,028 \$	34,527
Total Economic Impact	0 \$	61,100 \$	162,861

Exhibit 3.2.3 Estimated Annualized Time Savings Benefit – Denver

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0	\$ 535	\$ 1,281
Mining	0	\$ 2,411	\$ 6,968
Construction	0	\$ -	\$ -
Manufacturing	1	\$ 37,935	\$ 321,748
Transportation and Communication	1	\$ 81,670	\$ 329,135
Wholesaling	2	\$ 202,990	\$ 416,354
Retailing	7	\$ 192,967	\$ 411,930
Finance, Insurance and Real Estate	8	\$ 291,298	\$ 1,380,586
Travel and Entertainment	7	\$ 145,086	\$ 421,051
Business and Personal Services	14	\$ 736,764	\$ 1,360,659
Government	0	\$ 11,782	\$ 26,501
Other	0	\$ 8,983	\$ 33,078
Total Direct Impacts	40	\$ 1,712,422	\$ 4,709,291
Supplier Impacts			
Agriculture	0	\$ 393	\$ 1,052
Mining	0	\$ 2,080	\$ 5,955
Construction	0	\$ 9,381	\$ 22,607
Manufacturing	0	\$ 16,775	\$ 91,015
Transportation and Communication	1	\$ 82,593	\$ 283,626
Wholesaling	0	\$ 27,719	\$ 56,854
Retailing	0	\$ 2,783	\$ 5,867
Finance, Insurance and Real Estate	6	\$ 253,909	\$ 1,061,853
Travel and Entertainment	1	\$ 19,296	\$ 57,231
Business and Personal Services	5	\$ 278,580	\$ 529,222
Government	0	\$ 19,023	\$ 27,357
Other	0	\$ -	\$ -
Total Supplier Impacts	13	\$ 712,531	\$ 2,142,639
Induced Impacts			
Agriculture	0	\$ 246	\$ 618
Mining	0	\$ 1,186	\$ 3,414
Construction	0	\$ 2,522	\$ 6,084
Manufacturing	0	\$ 14,533	\$ 108,274
Transportation and Communication	1	\$ 46,279	\$ 171,475
Wholesaling	1	\$ 49,238	\$ 100,992
Retailing	2	\$ 63,567	\$ 135,677
Finance, Insurance and Real Estate	4	\$ 143,206	\$ 636,042
Travel and Entertainment	2	\$ 46,750	\$ 136,401
Business and Personal Services	5	\$ 289,337	\$ 538,464
Government	0	\$ 8,580	\$ 14,631
Other	0	\$ 2,753	\$ 10,137
Total Induced Impacts	15	\$ 668,196	\$ 1,862,208
Total Economic Impact	68	\$ 3,093,149	\$ 8,714,138

Exhibit 3.2.4 Estimated Annualized Time Savings Benefit – Thornton

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0 \$	910 \$	1,637
Mining	0 \$	5 \$	14
Construction	0 \$	- \$	-
Manufacturing	0 \$	835 \$	5,977
Transportation and Communication	0 \$	3,686 \$	11,009
Wholesaling	0 \$	11,216 \$	23,006
Retailing	1 \$	24,631 \$	51,427
Finance, Insurance and Real Estate	0 \$	8,339 \$	38,027
Travel and Entertainment	0 \$	8,674 \$	24,843
Business and Personal Services	1 \$	36,176 \$	66,145
Government	0 \$	130 \$	150
Other	0 \$	588 \$	2,166
Total Direct Impacts	2 \$	95,191 \$	224,402
Supplier Impacts			
Agriculture	0 \$	223 \$	1,328
Mining	0 \$	9 \$	22
Construction	0 \$	1,907 \$	4,667
Manufacturing	0 \$	754 \$	3,713
Transportation and Communication	0 \$	3,771 \$	10,371
Wholesaling	0 \$	1,532 \$	3,142
Retailing	0 \$	359 \$	742
Finance, Insurance and Real Estate	0 \$	10,133 \$	34,795
Travel and Entertainment	0 \$	1,043 \$	2,974
Business and Personal Services	0 \$	10,618 \$	19,013
Government	0 \$	622 \$	717
Other	0 \$	- \$	-
Total Supplier Impacts	0 \$	30,971 \$	81,483
Induced Impacts			
Agriculture	0 \$	306 \$	789
Mining	0 \$	4 \$	10
Construction	0 \$	513 \$	1,258
Manufacturing	0 \$	437 \$	2,612
Transportation and Communication	0 \$	2,193 \$	6,245
Wholesaling	0 \$	2,721 \$	5,580
Retailing	0 \$	8,115 \$	16,941
Finance, Insurance and Real Estate	0 \$	4,880 \$	18,986
Travel and Entertainment	0 \$	2,745 \$	7,868
Business and Personal Services	0 \$	13,329 \$	24,307
Government	0 \$	218 \$	251
Other	0 \$	180 \$	664
Total Induced Impacts	0 \$	35,640 \$	85,510
Total Economic Impact	2 \$	161,802 \$	391,395

Exhibit 3.2.5 Estimated Annualized Time Savings Benefit – Westminster

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0	\$ 107	\$ 347
Mining	0	\$ 23	\$ 66
Construction	0	\$ -	\$ -
Manufacturing	0	\$ 1,857	\$ 13,263
Transportation and Communication	0	\$ 5,001	\$ 17,458
Wholesaling	1	\$ 52,881	\$ 108,465
Retailing	2	\$ 55,242	\$ 118,164
Finance, Insurance and Real Estate	1	\$ 20,089	\$ 93,781
Travel and Entertainment	1	\$ 24,704	\$ 70,030
Business and Personal Services	1	\$ 66,409	\$ 124,393
Government	0	\$ 350	\$ 407
Other	0	\$ 679	\$ 2,501
Total Direct Impacts	6	\$ 227,343	\$ 548,876
Supplier Impacts			
Agriculture	0	\$ 307	\$ 5,534
Mining	0	\$ 26	\$ 67
Construction	0	\$ 1,283	\$ 3,130
Manufacturing	0	\$ 1,593	\$ 9,641
Transportation and Communication	0	\$ 4,753	\$ 14,798
Wholesaling	0	\$ 7,221	\$ 14,811
Retailing	0	\$ 847	\$ 1,773
Finance, Insurance and Real Estate	0	\$ 22,783	\$ 79,113
Travel and Entertainment	0	\$ 2,876	\$ 8,162
Business and Personal Services	1	\$ 33,694	\$ 61,850
Government	0	\$ 1,551	\$ 1,788
Other	0	\$ -	\$ -
Total Supplier Impacts	1	\$ 76,935	\$ 200,668
Induced Impacts			
Agriculture	0	\$ 107	\$ 1,536
Mining	0	\$ 13	\$ 35
Construction	0	\$ 345	\$ 843
Manufacturing	0	\$ 922	\$ 6,070
Transportation and Communication	0	\$ 2,884	\$ 9,583
Wholesaling	0	\$ 12,827	\$ 26,309
Retailing	1	\$ 18,212	\$ 38,946
Finance, Insurance and Real Estate	0	\$ 11,499	\$ 45,787
Travel and Entertainment	0	\$ 7,665	\$ 21,735
Business and Personal Services	1	\$ 28,283	\$ 52,671
Government	0	\$ 550	\$ 635
Other	0	\$ 208	\$ 767
Total Induced Impacts	2	\$ 83,515	\$ 204,916
Total Economic Impact	9	\$ 387,793	\$ 954,460

Exhibit 3.2.6 Estimated Annualized Time Savings Benefit – Adams County

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0	\$ 5,110	\$ 10,233
Mining	0	\$ 124	\$ 351
Construction	0	\$ -	\$ -
Manufacturing	0	\$ 16,336	\$ 132,069
Transportation and Communication	0	\$ 30,693	\$ 88,049
Wholesaling	2	\$ 150,768	\$ 309,242
Retailing	5	\$ 155,561	\$ 319,753
Finance, Insurance and Real Estate	1	\$ 47,326	\$ 228,947
Travel and Entertainment	2	\$ 51,247	\$ 145,624
Business and Personal Services	5	\$ 232,044	\$ 430,069
Government	0	\$ 3,864	\$ 7,810
Other	0	\$ 3,501	\$ 12,890
Total Direct Impacts	15	\$ 696,573	\$ 1,685,037
Supplier Impacts			
Agriculture	0	\$ 1,230	\$ 5,820
Mining	0	\$ 144	\$ 386
Construction	0	\$ 10,957	\$ 26,401
Manufacturing	0	\$ 7,837	\$ 40,004
Transportation and Communication	1	\$ 43,088	\$ 106,897
Wholesaling	0	\$ 20,588	\$ 42,228
Retailing	0	\$ 2,481	\$ 5,030
Finance, Insurance and Real Estate	1	\$ 51,356	\$ 193,215
Travel and Entertainment	0	\$ 6,481	\$ 18,275
Business and Personal Services	2	\$ 71,067	\$ 136,325
Government	0	\$ 6,913	\$ 9,371
Other	0	\$ -	\$ -
Total Supplier Impacts	4	\$ 222,142	\$ 583,952
Induced Impacts			
Agriculture	0	\$ 1,677	\$ 4,192
Mining	0	\$ 71	\$ 195
Construction	0	\$ 2,946	\$ 7,105
Manufacturing	0	\$ 6,485	\$ 45,558
Transportation and Communication	0	\$ 21,699	\$ 56,835
Wholesaling	0	\$ 36,571	\$ 75,010
Retailing	2	\$ 51,310	\$ 105,448
Finance, Insurance and Real Estate	1	\$ 26,526	\$ 111,518
Travel and Entertainment	1	\$ 16,197	\$ 46,033
Business and Personal Services	2	\$ 86,008	\$ 160,733
Government	0	\$ 3,019	\$ 4,710
Other	0	\$ 1,073	\$ 3,950
Total Induced Impacts	6	\$ 253,581	\$ 621,287
Total Economic Impact	25	\$ 1,172,296	\$ 2,890,276

Exhibit 3.2.7 Estimated Annualized Time Savings Benefit – Arapahoe County

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0	\$ 437	\$ 1,241
Mining	0	\$ 169	\$ 486
Construction	0	\$ -	\$ -
Manufacturing	0	\$ 13,879	\$ 116,261
Transportation and Communication	1	\$ 139,095	\$ 693,952
Wholesaling	1	\$ 118,015	\$ 242,061
Retailing	7	\$ 233,583	\$ 484,210
Finance, Insurance and Real Estate	7	\$ 264,215	\$ 1,179,465
Travel and Entertainment	5	\$ 127,461	\$ 338,493
Business and Personal Services	9	\$ 453,653	\$ 827,926
Government	0	\$ 4,578	\$ 11,357
Other	0	\$ 12,947	\$ 47,671
Total Direct Impacts	30	\$ 1,368,031	\$ 3,943,124
Supplier Impacts			
Agriculture	0	\$ 370	\$ 1,573
Mining	0	\$ 269	\$ 792
Construction	0	\$ 9,988	\$ 24,281
Manufacturing	0	\$ 6,611	\$ 33,258
Transportation and Communication	2	\$ 185,501	\$ 927,987
Wholesaling	0	\$ 16,115	\$ 33,054
Retailing	0	\$ 3,721	\$ 7,577
Finance, Insurance and Real Estate	6	\$ 274,975	\$ 975,831
Travel and Entertainment	1	\$ 22,341	\$ 50,673
Business and Personal Services	3	\$ 175,002	\$ 323,132
Government	0	\$ 6,288	\$ 9,813
Other	0	\$ -	\$ -
Total Supplier Impacts	12	\$ 701,181	\$ 2,387,971
Induced Impacts			
Agriculture	0	\$ 210	\$ 733
Mining	0	\$ 116	\$ 341
Construction	0	\$ 2,688	\$ 6,540
Manufacturing	0	\$ 5,511	\$ 39,855
Transportation and Communication	1	\$ 85,930	\$ 424,711
Wholesaling	0	\$ 28,626	\$ 58,715
Retailing	2	\$ 77,045	\$ 159,674
Finance, Insurance and Real Estate	3	\$ 141,508	\$ 560,810
Travel and Entertainment	2	\$ 42,274	\$ 109,913
Business and Personal Services	3	\$ 179,601	\$ 329,174
Government	0	\$ 3,000	\$ 5,691
Other	0	\$ 3,968	\$ 14,609
Total Induced Impacts	11	\$ 570,477	\$ 1,710,766
Total Economic Impact	53	\$ 2,639,689	\$ 8,041,861

Exhibit 3.2.8 Estimated Annualized Time Savings Benefit – Broomfield County

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0	\$ 57	\$ 190
Mining	0	\$ 6	\$ 18
Construction	0	\$ -	\$ -
Manufacturing	0	\$ 5,070	\$ 41,806
Transportation and Communication	0	\$ 3,192	\$ 12,327
Wholesaling	0	\$ 8,907	\$ 18,269
Retailing	1	\$ 25,177	\$ 54,211
Finance, Insurance and Real Estate	0	\$ 7,866	\$ 38,931
Travel and Entertainment	1	\$ 11,911	\$ 33,858
Business and Personal Services	1	\$ 27,535	\$ 51,516
Government	0	\$ 261	\$ 320
Other	0	\$ 408	\$ 1,502
Total Direct Impacts	3	\$ 90,391	\$ 252,948
Supplier Impacts			
Agriculture	0	\$ 168	\$ 2,931
Mining	0	\$ 10	\$ 24
Construction	0	\$ 772	\$ 1,871
Manufacturing	0	\$ 1,682	\$ 11,375
Transportation and Communication	0	\$ 3,157	\$ 11,239
Wholesaling	0	\$ 1,216	\$ 2,495
Retailing	0	\$ 377	\$ 798
Finance, Insurance and Real Estate	0	\$ 8,034	\$ 30,482
Travel and Entertainment	0	\$ 1,425	\$ 4,075
Business and Personal Services	0	\$ 15,177	\$ 29,713
Government	0	\$ 884	\$ 1,026
Other	0	\$ -	\$ -
Total Supplier Impacts	0	\$ 32,903	\$ 96,029
Induced Impacts			
Agriculture	0	\$ 58	\$ 815
Mining	0	\$ 4	\$ 11
Construction	0	\$ 208	\$ 504
Manufacturing	0	\$ 1,945	\$ 15,185
Transportation and Communication	0	\$ 1,874	\$ 6,953
Wholesaling	0	\$ 2,161	\$ 4,431
Retailing	0	\$ 8,298	\$ 17,863
Finance, Insurance and Real Estate	0	\$ 4,277	\$ 18,347
Travel and Entertainment	0	\$ 3,715	\$ 10,569
Business and Personal Services	0	\$ 12,151	\$ 23,115
Government	0	\$ 329	\$ 386
Other	0	\$ 125	\$ 460
Total Induced Impacts	0	\$ 35,144	\$ 98,639
Total Economic Impact	3	\$ 158,438	\$ 447,616

Exhibit 3.2.9 Estimated Annualized Time Savings Benefit – Jefferson County

	Jobs	Wages	Output
Direct Impacts			
Agriculture	0	\$ 962	\$ 2,200
Mining	0	\$ 84	\$ 239
Construction	0	\$ -	\$ -
Manufacturing	0	\$ 18,836	\$ 113,506
Transportation and Communication	0	\$ 25,524	\$ 104,623
Wholesaling	1	\$ 79,428	\$ 162,916
Retailing	7	\$ 203,346	\$ 427,932
Finance, Insurance and Real Estate	4	\$ 135,791	\$ 665,914
Travel and Entertainment	5	\$ 101,827	\$ 287,290
Business and Personal Services	8	\$ 388,581	\$ 708,029
Government	0	\$ 1,885	\$ 2,205
Other	0	\$ 6,299	\$ 23,194
Total Direct Impacts	25	\$ 962,563	\$ 2,498,046
Supplier Impacts			
Agriculture	0	\$ 887	\$ 8,593
Mining	0	\$ 110	\$ 305
Construction	0	\$ 10,656	\$ 25,865
Manufacturing	0	\$ 10,391	\$ 51,655
Transportation and Communication	0	\$ 25,119	\$ 81,240
Wholesaling	0	\$ 10,846	\$ 22,247
Retailing	0	\$ 3,146	\$ 6,506
Finance, Insurance and Real Estate	3	\$ 138,380	\$ 537,400
Travel and Entertainment	1	\$ 12,829	\$ 35,524
Business and Personal Services	3	\$ 173,638	\$ 329,732
Government	0	\$ 7,999	\$ 9,225
Other	0	\$ -	\$ -
Total Supplier Impacts	7	\$ 394,002	\$ 1,108,292
Induced Impacts			
Agriculture	0	\$ 491	\$ 2,834
Mining	0	\$ 51	\$ 144
Construction	0	\$ 2,867	\$ 6,965
Manufacturing	0	\$ 7,934	\$ 44,483
Transportation and Communication	0	\$ 14,650	\$ 53,466
Wholesaling	0	\$ 19,266	\$ 39,517
Retailing	2	\$ 67,045	\$ 141,063
Finance, Insurance and Real Estate	2	\$ 73,459	\$ 318,071
Travel and Entertainment	2	\$ 32,018	\$ 90,194
Business and Personal Services	3	\$ 160,881	\$ 297,214
Government	0	\$ 2,855	\$ 3,301
Other	0	\$ 1,930	\$ 7,108
Total Induced Impacts	9	\$ 383,448	\$ 1,004,361
Total Economic Impact	41	\$ 1,740,012	\$ 4,610,700

Exhibit 3.3.1 Estimated Annualized Productivity Benefit – Aurora

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	(1) \$	(88,578) \$	(266,143)
Mining	0 \$	(818) \$	(89)
Construction	0 \$	11,827 \$	92,489
Manufacturing	(2) \$	(32,393) \$	(177,753)
Transportation and Communication	5 \$	324,612 \$	1,480,097
Wholesaling	1 \$	62,991 \$	115,211
Retailing	8 \$	263,939 \$	585,104
Finance, Insurance and Real Estate	24 \$	954,152 \$	3,807,807
Travel and Entertainment	5 \$	77,986 \$	175,536
Business and Personal Services	21 \$	969,423 \$	2,002,004
Government	2 \$	148,955 \$	512,591
Other	4 \$	206,516 \$	409,890
Total Supplier Impacts	67 \$	2,898,612 \$	8,736,747
Induced Impacts			
Agriculture	(3) \$	(316,778) \$	(930,176)
Mining	0 \$	(9,949) \$	(24,063)
Construction	0 \$	13,463 \$	99,334
Manufacturing	(1) \$	75,162 \$	169,270
Transportation and Communication	13 \$	781,725 \$	3,469,167
Wholesaling	0 \$	- \$	-
Retailing	9 \$	279,782 \$	635,943
Finance, Insurance and Real Estate	48 \$	1,862,448 \$	7,212,727
Travel and Entertainment	7 \$	108,965 \$	213,777
Business and Personal Services	40 \$	1,923,230 \$	3,983,316
Government	2 \$	215,289 \$	740,658
Other	4 \$	208,751 \$	414,328
Total Induced Impacts	119 \$	5,142,088 \$	15,984,283
Total Economic Impact	186 \$	8,040,700 \$	24,721,029

Exhibit 3.3.2 Estimated Annualized Productivity Benefit – Commerce City

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	(15)	\$ (1,347,716)	\$ (4,238,702)
Mining	(4)	\$ (472,903)	\$ (1,171,626)
Construction	3	\$ 182,425	\$ 1,151,352
Manufacturing	(17)	\$ (806,015)	\$ (5,582,819)
Transportation and Communication	111	\$ 8,777,288	\$ 44,738,793
Wholesaling	16	\$ 835,449	\$ 1,528,046
Retailing	104	\$ 3,215,974	\$ 7,062,219
Finance, Insurance and Real Estate	686	\$ 26,722,137	\$ 118,035,539
Travel and Entertainment	72	\$ 1,939,790	\$ 3,711,131
Business and Personal Services	387	\$ 19,136,239	\$ 37,713,783
Government	10	\$ 853,354	\$ 2,936,851
Other	16	\$ 907,015	\$ 1,800,237
Total Supplier Impacts	1,369	\$ 59,943,038	\$ 207,684,804
Induced Impacts			
Agriculture	(87)	\$ (9,082,622)	\$ (26,921,916)
Mining	(35)	\$ (4,070,300)	\$ (11,154,432)
Construction	1	\$ 58,673	\$ 848,733
Manufacturing	(78)	\$ (5,114,660)	\$ (36,747,454)
Transportation and Communication	268	\$ 23,013,802	\$ 115,723,677
Wholesaling	16	\$ 846,484	\$ 1,548,229
Retailing	107	\$ 3,406,682	\$ 7,751,132
Finance, Insurance and Real Estate	1,337	\$ 50,813,730	\$ 219,413,996
Travel and Entertainment	124	\$ 3,936,210	\$ 6,638,621
Business and Personal Services	664	\$ 34,653,977	\$ 67,708,496
Government	14	\$ 1,173,520	\$ 4,036,514
Other	16	\$ 926,986	\$ 1,839,875
Total Induced Impacts	2,347	\$ 100,562,481	\$ 350,685,469
Total Economic Impact	3,716	\$ 160,505,520	\$ 558,370,273

Exhibit 3.3.3 Estimated Annualized Productivity Benefit – Denver

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	(15)	\$ (1,347,716)	\$ (4,238,702)
Mining	(4)	\$ (472,903)	\$ (1,171,626)
Construction	3	\$ 182,425	\$ 1,151,352
Manufacturing	(17)	\$ (806,015)	\$ (5,582,819)
Transportation and Communication	111	\$ 8,777,288	\$ 44,738,793
Wholesaling	16	\$ 835,449	\$ 1,528,046
Retailing	104	\$ 3,215,974	\$ 7,062,219
Finance, Insurance and Real Estate	686	\$ 26,722,137	\$ 118,035,539
Travel and Entertainment	72	\$ 1,939,790	\$ 3,711,131
Business and Personal Services	387	\$ 19,136,239	\$ 37,713,783
Government	10	\$ 853,354	\$ 2,936,851
Other	16	\$ 907,015	\$ 1,800,237
Total Supplier Impacts	1,369	\$ 59,943,038	\$ 207,684,804
Induced Impacts			
Agriculture	(87)	\$ (9,082,622)	\$ (26,921,916)
Mining	(35)	\$ (4,070,300)	\$ (11,154,432)
Construction	1	\$ 58,673	\$ 848,733
Manufacturing	(78)	\$ (5,114,660)	\$ (36,747,454)
Transportation and Communication	268	\$ 23,013,802	\$ 115,723,677
Wholesaling	16	\$ 846,484	\$ 1,548,229
Retailing	107	\$ 3,406,682	\$ 7,751,132
Finance, Insurance and Real Estate	1,337	\$ 50,813,730	\$ 219,413,996
Travel and Entertainment	124	\$ 3,936,210	\$ 6,638,621
Business and Personal Services	664	\$ 34,653,977	\$ 67,708,496
Government	14	\$ 1,173,520	\$ 4,036,514
Other	16	\$ 926,986	\$ 1,839,875
Total Induced Impacts	2,347	\$ 100,562,481	\$ 350,685,469
Total Economic Impact	3,716	\$ 160,505,520	\$ 558,370,273

Exhibit 3.3.4 Estimated Annualized Productivity Benefit – Thornton

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	0	\$ (5,382)	\$ (17,923)
Mining	0	\$ (44)	\$ 175
Construction	0	\$ 1,459	\$ 9,818
Manufacturing	0	\$ (17,919)	\$ (186,454)
Transportation and Communication	0	\$ 12,157	\$ 58,273
Wholesaling	0	\$ 2,769	\$ 5,065
Retailing	0	\$ 15,717	\$ 35,936
Finance, Insurance and Real Estate	1	\$ 40,432	\$ 207,926
Travel and Entertainment	(1)	\$ (20,106)	\$ (75,618)
Business and Personal Services	1	\$ 40,243	\$ 86,138
Government	0	\$ 3	\$ 9
Other	0	\$ 3,240	\$ 6,430
Total Supplier Impacts	1	\$ 72,568	\$ 129,776
Induced Impacts			
Agriculture	0	\$ (13,731)	\$ (44,025)
Mining	0	\$ (494)	\$ (994)
Construction	0	\$ 1,853	\$ 11,320
Manufacturing	(1)	\$ (64,767)	\$ (463,619)
Transportation and Communication	0	\$ 27,784	\$ 128,434
Wholesaling	0	\$ 2,895	\$ 5,294
Retailing	1	\$ 17,035	\$ 40,255
Finance, Insurance and Real Estate	2	\$ 70,416	\$ 390,509
Travel and Entertainment	(1)	\$ (37,643)	\$ (140,536)
Business and Personal Services	2	\$ 73,361	\$ 164,246
Government	0	\$ 2	\$ 7
Other	0	\$ 3,280	\$ 6,509
Total Induced Impacts	3	\$ 79,991	\$ 97,400
Total Economic Impact	4	\$ 152,559	\$ 227,176

Exhibit 3.3.5 Estimated Annualized Productivity Benefit – Westminster

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	0	\$ (20,300)	\$ (65,964)
Mining	0	\$ (385)	\$ (790)
Construction	0	\$ 2,647	\$ 16,856
Manufacturing	0	\$ (34,774)	\$ (250,299)
Transportation and Communication	2	\$ 113,999	\$ 696,957
Wholesaling	1	\$ 31,373	\$ 57,381
Retailing	3	\$ 90,736	\$ 222,455
Finance, Insurance and Real Estate	7	\$ 248,674	\$ 1,170,952
Travel and Entertainment	1	\$ 27,442	\$ 60,049
Business and Personal Services	7	\$ 322,375	\$ 594,600
Government	0	\$ 62	\$ 215
Other	0	\$ 8,809	\$ 17,484
Total Supplier Impacts	21	\$ 790,657	\$ 2,519,895
Induced Impacts			
Agriculture	0	\$ (38,091)	\$ (119,646)
Mining	0	\$ (1,456)	\$ (3,537)
Construction	0	\$ 3,640	\$ 19,909
Manufacturing	(2)	\$ (162,584)	\$ (711,333)
Transportation and Communication	3	\$ 257,240	\$ 1,510,579
Wholesaling	1	\$ 32,042	\$ 58,606
Retailing	3	\$ 101,369	\$ 263,386
Finance, Insurance and Real Estate	13	\$ 437,951	\$ 2,055,874
Travel and Entertainment	1	\$ 30,372	\$ 46,378
Business and Personal Services	12	\$ 632,582	\$ 1,163,137
Government	0	\$ 44	\$ 152
Other	0	\$ 8,932	\$ 17,729
Total Induced Impacts	31	\$ 1,302,041	\$ 4,301,234
Total Economic Impact	52	\$ 2,092,698	\$ 6,821,129

Exhibit 3.3.6 Estimated Annualized Productivity Benefit – Adams County

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	0	\$ (17,463)	\$ (57,813)
Mining	0	\$ (714)	\$ (1,600)
Construction	0	\$ 2,432	\$ 19,422
Manufacturing	0	\$ (14,011)	\$ (196,196)
Transportation and Communication	1	\$ 45,327	\$ 216,400
Wholesaling	0	\$ 11,403	\$ 20,856
Retailing	1	\$ 30,152	\$ 68,788
Finance, Insurance and Real Estate	2	\$ 75,999	\$ 340,912
Travel and Entertainment	0	\$ (11,429)	\$ (50,723)
Business and Personal Services	2	\$ 105,560	\$ 214,658
Government	0	\$ 3,987	\$ 13,728
Other	0	\$ 6,016	\$ 11,940
Total Supplier Impacts	6	\$ 237,260	\$ 600,372
Induced Impacts			
Agriculture	(1)	\$ (101,220)	\$ (329,525)
Mining	0	\$ (4,193)	\$ (10,760)
Construction	0	\$ 2,686	\$ 20,664
Manufacturing	(1)	\$ (41,665)	\$ (378,046)
Transportation and Communication	2	\$ 133,427	\$ 601,532
Wholesaling	0	\$ 11,701	\$ 21,402
Retailing	1	\$ 32,885	\$ 78,664
Finance, Insurance and Real Estate	4	\$ 135,721	\$ 642,820
Travel and Entertainment	(1)	\$ (30,385)	\$ (126,982)
Business and Personal Services	4	\$ 208,081	\$ 440,290
Government	0	\$ 5,483	\$ 18,856
Other	0	\$ 6,052	\$ 12,011
Total Induced Impacts	8	\$ 358,572	\$ 990,925
Total Economic Impact	14	\$ 595,832	\$ 1,591,297

Exhibit 3.3.7 Estimated Annualized Productivity Benefit – Arapahoe County

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	(8)	\$ (723,002)	\$ (2,289,631)
Mining	0	\$ (13,873)	\$ 21,837
Construction	2	\$ 136,414	\$ 852,151
Manufacturing	(16)	\$ (1,927,478)	\$ (10,121,596)
Transportation and Communication	137	\$ 12,677,370	\$ 58,131,229
Wholesaling	8	\$ 455,275	\$ 832,704
Retailing	76	\$ 2,434,506	\$ 5,584,668
Finance, Insurance and Real Estate	448	\$ 20,046,778	\$ 74,429,930
Travel and Entertainment	65	\$ 1,250,651	\$ 2,963,562
Business and Personal Services	188	\$ 9,397,626	\$ 18,605,448
Government	4	\$ 351,670	\$ 1,210,155
Other	18	\$ 1,051,151	\$ 2,086,318
Total Supplier Impacts	922	\$ 45,137,089	\$ 152,306,774
Induced Impacts			
Agriculture	(36)	\$ (3,791,724)	\$ (11,270,252)
Mining	(2)	\$ (538,599)	\$ (1,880,162)
Construction	2	\$ 136,444	\$ 873,156
Manufacturing	(40)	\$ (4,166,996)	\$ (21,067,702)
Transportation and Communication	386	\$ 37,477,348	\$ 168,815,101
Wholesaling	9	\$ 465,257	\$ 850,961
Retailing	80	\$ 2,636,549	\$ 6,326,889
Finance, Insurance and Real Estate	903	\$ 40,318,891	\$ 140,590,572
Travel and Entertainment	113	\$ 2,443,713	\$ 4,812,572
Business and Personal Services	355	\$ 18,365,515	\$ 36,545,556
Government	6	\$ 493,937	\$ 1,699,181
Other	19	\$ 1,065,762	\$ 2,115,317
Total Induced Impacts	1,795	\$ 94,906,098	\$ 328,411,189
Total Economic Impact	2,717	\$ 140,043,187	\$ 480,717,963

Exhibit 3.3.8 Estimated Annualized Productivity Benefit – Broomfield County

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	0	\$ (8,405)	\$ (27,442)
Mining	0	\$ (55)	\$ (78)
Construction	0	\$ 1,072	\$ 6,698
Manufacturing	(1)	\$ (42,744)	\$ (181,416)
Transportation and Communication	1	\$ 39,720	\$ 237,455
Wholesaling	0	\$ 3,058	\$ 5,593
Retailing	1	\$ 25,815	\$ 62,496
Finance, Insurance and Real Estate	2	\$ 66,308	\$ 308,001
Travel and Entertainment	0	\$ 12,639	\$ 30,343
Business and Personal Services	1	\$ 62,910	\$ 116,842
Government	0	\$ 132	\$ 458
Other	0	\$ 3,130	\$ 6,213
Total Supplier Impacts	4	\$ 163,580	\$ 565,163
Induced Impacts			
Agriculture	0	\$ (20,861)	\$ (64,263)
Mining	0	\$ (468)	\$ (1,210)
Construction	0	\$ 1,138	\$ 7,059
Manufacturing	(1)	\$ (126,043)	\$ (484,790)
Transportation and Communication	1	\$ 93,494	\$ 540,866
Wholesaling	0	\$ 3,056	\$ 5,590
Retailing	1	\$ 28,627	\$ 73,783
Finance, Insurance and Real Estate	3	\$ 111,569	\$ 534,095
Travel and Entertainment	0	\$ 9,643	\$ 11,093
Business and Personal Services	3	\$ 166,023	\$ 306,764
Government	0	\$ 28	\$ 95
Other	0	\$ 3,170	\$ 6,292
Total Induced Impacts	7	\$ 269,376	\$ 935,374
Total Economic Impact	11	\$ 432,956	\$ 1,500,537

Exhibit 3.3.9 Estimated Annualized Productivity Benefit – Jefferson County

	Jobs	Wages	Output
Supplier Impacts			
Agriculture	(12)	\$ (1,136,378)	\$ (3,514,529)
Mining	0	\$ (35,679)	\$ (115,899)
Construction	2	\$ 113,904	\$ 788,059
Manufacturing	(10)	\$ (905,879)	\$ (7,820,735)
Transportation and Communication	33	\$ 2,683,262	\$ 14,276,829
Wholesaling	4	\$ 215,982	\$ 395,033
Retailing	46	\$ 1,520,982	\$ 3,654,564
Finance, Insurance and Real Estate	225	\$ 8,547,827	\$ 37,362,252
Travel and Entertainment	24	\$ 612,552	\$ 1,069,477
Business and Personal Services	148	\$ 7,199,889	\$ 14,244,908
Government	0	\$ 1,894	\$ 6,605
Other	8	\$ 435,686	\$ 864,747
Total Supplier Impacts	468	\$ 19,254,042	\$ 61,211,311
Induced Impacts			
Agriculture	(44)	\$ (4,583,571)	\$ (13,615,566)
Mining	(3)	\$ (450,464)	\$ (1,767,719)
Construction	2	\$ 107,950	\$ 806,597
Manufacturing	(73)	\$ (7,975,670)	\$ (25,701,583)
Transportation and Communication	75	\$ 6,307,213	\$ 32,675,246
Wholesaling	4	\$ 221,517	\$ 405,156
Retailing	49	\$ 1,687,377	\$ 4,282,215
Finance, Insurance and Real Estate	410	\$ 15,315,459	\$ 65,229,487
Travel and Entertainment	23	\$ 616,508	\$ 415,828
Business and Personal Services	276	\$ 14,886,616	\$ 29,306,648
Government	0	\$ 63	\$ 221
Other	8	\$ 441,935	\$ 877,150
Total Induced Impacts	727	\$ 26,574,934	\$ 92,913,680
Total Economic Impact	1,195	\$ 45,828,975	\$ 154,124,992