THE IMPACT OF FASTRACKS ON THE METRO DENVER ECONOMY

Prepared for

Metro Denver
Economic Development Corporation

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EXECUTIVE SUMMARY

Traffic congestion is a consequence of population and vehicular growth. The population in metro Denver is projected to grow by nearly one million people by 2025. In addition, total employment is expected to expand by more than 600,000 by 2025. If all new residents attempt to reach their jobs by car, the increase in congestion will be enormous.

Although the primary goal of any transit system investment is improved mobility, the economic and fiscal impact on a region is of equal importance in deciding whether to make a transit investment. The construction, operation and maintenance of a transit system create jobs, spending and tax revenues. New transportation infrastructure typically leads to new development and redevelopment activity, introducing shifts in development patterns and governmental service costs. Generally, travel time, air quality, business transportation costs and quality of life are positively affected. Regional competitiveness improves, thus affecting the location decisions of individuals and businesses.

This study was commissioned by the Metro Denver Economic Development Corporation and the Denver Metro Chamber of Commerce to examine the economic and fiscal impacts of FasTracks, which is the Regional Transportation District’s (RTD) $4.7 billion, 12-year comprehensive plan for the design and construction of high quality transit service and facilities in the seven-county metro Denver region. The seven-county metro Denver region includes Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas and Jefferson counties. The construction will be funded by a combination of a proposed increase of 0.4% in the RTD sales tax, federal funds and local contributions.

The proposed increase of 0.4% (4 cents on $10 of taxable spending) in the RTD sales tax, necessary for partially funding the infrastructure upgrade, means that households, firms and visitors will pay a 1.0% sales tax compared to the current 0.6% sales tax. This study documents, to the fullest extent possible, the various costs and benefits of the FasTracks plan.

Economic Benefits of FasTracks

The 12-year design and construction period of FasTracks will create an average of 2,413 construction jobs and an additional 3,799 indirect and induced jobs each year for a total of 6,213 jobs annually. During the four peak years of construction activity (2011-2014), there will be an average of 4,001 construction jobs and 6,298 indirect and induced jobs for a total of 10,299 jobs annually due to FasTracks construction.

FasTracks funding will pay construction workers almost $1.2 billion throughout the design and construction period. The direct and induced jobs generated across the community will create another $1.7 billion in wages and salaries. In total, the jobs created by FasTracks design and construction will pump $2.9 billion into the metro Denver economy.

This will generate at least $2.4 billion in consumer spending, the bulk of it in metro Denver. As a result of this construction employment, $90 million in state income taxes and $46.1 million in state and local sales taxes will be generated.

Operations and maintenance of the FasTracks system is estimated to be $1.258 billion for the period from 2017 through 2025. A total of 2,573 jobs each year are due to the direct, indirect and induced impacts of FasTracks expenditures on operations and maintenance after build out. This will add over $150 million annually in wages and salaries to the metro Denver economy, most of which will be spent locally.
The impact of FasTracks on businesses in metro Denver and the state of Colorado is far bigger than the jobs and spending created by the construction, maintenance and operation of the system. Transportation issues play an important role in site location decisions. Improved mobility enhances economic development and makes metro Denver more competitive in the global market for jobs and capital.

**Transportation Benefits of FasTracks**

Light rail, commuter rail and improved bus service increase the choices available to metro Denver citizens. They enable high density development for those who choose it, reducing urban sprawl. Rail service is quick and reliable, even if the roads are clogged because of bad weather or accidents. This makes metro Denver more desirable for business relocation and expansion. Rail offers relief from the congestion that plagues 79% of rush hour commute time, benefiting both transit commuters and those who choose to rely on their automobiles. Travel time per commuter will be reduced by as much as 600 hours each year (for those commuting on the US 36 rail line).

**Shaping the Community**

The dilemma facing Coloradans is how to maintain the quality of life that brought/keeps many of us here while at the same time accommodating the growth necessary to remain economically viable. Transit oriented development reduces urban sprawl and maximizes land usage by building more infill and dense developments. The redevelopment of declining areas helps to revitalize communities, fostering the development of new tax revenue and reducing governmental service costs.

This study analyzes the fiscal and economic impacts of three transit-oriented developments (TOD) on their respective communities to serve as examples of TOD impacts. The case studies include Fitzsimons in Aurora, Ridge Home in Arvada and Englewood CityCenter.

Each case study is a response to the plan for metro-wide rail and bus transit enhancements. However, this does not mean that these redevelopment projects would not occur in the event that FasTracks does not pass in November. The redevelopment of these areas will move forward with or without transit, although the timing, density, quality and development mix of the project will likely be quite different. Rather, the intent of these case studies is to demonstrate how transit can influence the development patterns of a region. Communities may capitalize on the presence of transit as plans to enhance and revitalize their communities are made.

The former Fitzsimons Army Medical Center site is being redeveloped into Colorado’s “Square Mile of Life Sciences.” Fitzsimons will be an integrated life sciences center dedicated to patient care, education, basic science research, and bioscience research and development. The total economic and fiscal impact for all construction-related activities at Fitzsimons on the City of Aurora is $355.8 million, including a positive net fiscal benefit of $74.7 million from the collection of taxes and fees. In a typical year of operations, business and residents of Fitzsimons will have a $673.6 million positive net economic benefit, including a positive net fiscal benefit of $9.8 million from the collection of taxes and fees. If new transit is not brought into Fitzsimons, substantial infrastructure redesign with significantly more parking and more costly investments in transportation access will be needed.

The 68-acre Ridge Home site in Arvada will be a pedestrian-friendly, transit-oriented and mixed-use development. The total economic and fiscal impact for all construction-related activities at the Ridge Home TOD on the City of Arvada is $5.2 million, including a net fiscal benefit of $477,000 from taxes and fees. In a typical year of operations, businesses, employees and residents of Ridge Home will have a $74 million net economic benefit to the City of Arvada. However, the net fiscal impact on Arvada averages -$205,500 per year until the end of the TIF agreement, at which time it is positive. If new transit
is not brought into the Ridge Home development, the development timeline and mix of uses would likely need to be revised.

CityCenter Englewood is a vibrant, mixed-use community centered on transit. In 1999, the former site of the Cinderella City Shopping Center was redeveloped into a pedestrian-friendly transit-oriented development (TOD) that features retail, entertainment, residential, office, civic and open space elements. CityCenter TOD added 300,000 square feet of office and civic space, 330,090 square feet of retail space and 50,000 square feet of restaurant to the Englewood community. The total economic impact for all construction-related activities at CityCenter on the City of Englewood is $6.6 million, including a positive net fiscal benefit of $2.2 million from taxes and fees. In a typical year of operations, business, residents and visitors of CityCenter have a $113.4 million annual net economic benefit to the City of Englewood, including a $1.6 million annual net fiscal impact. If transit was not brought into Englewood, the current residential choices would likely not exist and the types of retail offered would likely have consisted of a much different mix than today.

**Lifestyle Benefits**

Transit will reduce air pollution and promote a healthier life style, as many commuters walk rather than drive to and from transit stations and work. Rail transit is safer than driving and allows commuters to read or use cell phones safely. Parking costs are minimized and transportation costs are reduced. Seniors gain mobility, reducing isolation, which improves health and life expectancy. The disabled and low income populations will have more jobs available over a wider geographical area, reducing their dependence on public assistance. The local school system will save money by replacing school bus service with free and/or subsidized monthly RTD passes. Denver will be a more attractive site for large national conventions when hotel room availability is expanded with good rail service.

**FasTracks Cost per Household**

Ultimately, residents of metro Denver want to know how much FasTracks will cost them on an annual basis. This section presents an analysis of per household costs of the proposed 4/10 of a cent sales tax increase.

The typical household of 2.5 people earning the average income in metro Denver will pay an estimated additional $86 in sales/use tax to RTD in 2005 if voters approve the proposed tax increase. Households are estimated to generate 55% to 60% of the total RTD tax revenue, with the remainder generated from business purchases, business travelers, and leisure travelers. The amount of tax paid by the residents varies by total household income level.

The 0.4% increase in the RTD sales/use tax translates into $34 per metro Denver resident in 2005. This average value will vary by income level, with individuals earning higher income paying more tax. For just 9.4 cents per day, each household resident in metro Denver can enjoy more transit choices, greater transit reliability, reduced traffic congestion and travel time savings, not to mention large economic impacts gained throughout the metro Denver economy.
I. INTRODUCTION

This study was commissioned by the Metro Denver Economic Development Corporation and the Denver Metro Chamber of Commerce to examine the economic and fiscal impacts of FasTracks, which is the Regional Transportation District’s (RTD) $4.7 billion, 12-year comprehensive plan for the design and construction of high quality transit service and facilities in the seven-county metro Denver region. The seven-county metro Denver region includes Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas and Jefferson counties. The construction will be funded by a combination of a proposed increase of 0.4% (4 cents on $10 of taxable spending) in the RTD sales tax, federal funds and local contributions.

When completed, FasTracks will add 119 miles of new light rail and commuter rail (hereafter collectively referred to as “rail”) to the 35 miles already in operation or under construction, a 340% increase in miles of rail. In addition, there will be 18 miles of bus rapid transit service, over 21,000 new parking spaces at rail and bus stations and expanded bus service in all areas with focused support on suburb-to-suburb travel. According to the FasTracks plan review by the Denver Regional Council of Governments (DRCOG), RTD’s annual bus hours will increase by 24% by 2025. Union Station will be remodeled to function as an efficient multi-modal hub with plans to include the relocation of Greyhound, expanded van/bus service to mountain destinations and convenient taxi service. FasTracks also involves several technological updates for the transit system including real time information for rail trains and upgraded ticketing equipment. In addition to the 36 stations either in operation or under construction, FasTracks will add 57 new stations throughout the metro region.

The construction schedule of the six new rail corridors and three extensions is designed to maximize system functionality by finishing construction on all corridors within three years of each other. The entire system will be built between 2009 and 2016 with all lines anticipated to be operational by the end of 2016. Following the notion that the “whole is greater than the sum of its parts,” metro Denver residents will be able to benefit from the synergy and connectivity of having the entire system built simultaneously rather than experiencing the system’s functionality one corridor at a time.

Study Purpose

Although the primary goal of any transit system investment is improved mobility, the economic and fiscal impact on a region is of equal importance in deciding whether to make a transit investment. Specifically, FasTracks would impact the metro Denver economy in four ways:

♦ The construction, operation and maintenance of a transit system create jobs, spending and tax revenues.
♦ New transportation infrastructure typically leads to new development and redevelopment activity, introducing shifts in development patterns and governmental service costs.
♦ Travel time, air quality, business transportation costs and quality of life are positively affected.
♦ Regional competitiveness improves, thus affecting the location decisions of individuals and businesses.

The proposed increase of 0.4% in the RTD sales tax, necessary for partially funding the infrastructure upgrade, means that households, firms and visitors will pay a 1.0% sales tax compared to the current 0.6% sales tax. This study documents, to the fullest extent possible, these various costs and benefits.
**Current Support for FasTracks**

Numerous community groups have expressed public support for the FasTracks plan. As of September 2, 2004, the FasTracks website (www.FasTracks.org) lists 336 supporting groups or officials. A complete list is available in Appendix A.

- 63 Organizations – ranging from economic development organizations to environmental groups to organizations representing the disabled, elderly and disadvantaged.
- 157 Businesses – large and small, local and national.
- 26 Local Governments – within the RTD region.
- 74 Local Elected Officials – including 23 Mayors.
- 14 State Elected Officials and 2 U.S. Elected Officials.

**Study Region**

The Regional Transportation District includes most of the seven-county metro Denver area, including all of Boulder, Broomfield, Denver, and Jefferson counties and parts of Adams, Arapahoe and Douglas counties. In addition, both Longmont and Erie have annexed property in Weld County, thereby making those annexed lands part of RTD.

According to data provided by DRCOG, over 99% of the retail employment in Boulder, Broomfield, Denver and Jefferson Counties is in the District, along with over 97% of Adams and Arapahoe Counties and 37.6% of Douglas County (part of the City of Castle Rock and the Castle Rock Outlet Mall are not currently within RTD boundaries). The proposed increase of 4/10 of a cent in the RTD sales tax (4 cents on each $10 of taxable spending) that will partially pay for FasTracks is assessed on taxable retail sales that occur within the District.

As illustrated in the following map, the $4.7 billion FasTracks plan includes the development and enhancement of transit services and facilities in nine major travel corridors. Extensions are planned for the three corridors either existing or under construction (Southwest, Southeast and Central). Six new corridors will be added, including West, Gold, US 36, North Metro, East and I-225. The 12-year construction schedule includes planning and design work beginning in 2005, with corridor construction occurring between 2009 and 2016. In particular, the plan includes:

- Development of 40 miles of light rail transit (LRT), 79 miles of commuter rail transit, and 18 miles of bus rapid transit (BRT) in
- Addition of 57 rapid transit stations
- Increase of 24% in bus service (including suburb-to-suburb service)
- Addition of 21,213 park-n-Ride spaces
- Development of Union Station as the central, multimodal hub for the system, and improved Downtown Denver circulation system.
Research Design and Methodology

A major infrastructure project such as FasTracks creates two types of economic and fiscal impacts: quantitative and qualitative. The quantitative impact can be measured – number of jobs created, dollars of salary paid, spending on goods and services in the community and taxes paid. The qualitative impact, which is equally important but more subjective, can only be described anecdotally. This study examines both types of economic and fiscal impacts.

**Quantitative Impact:** This study uses multiplier analysis to trace the impacts on metro Denver businesses, organizations and individuals that are affected by the construction and operation of FasTracks as this impact works its way through the metro Denver economy. It also recognizes the interdependence of various sectors of the economy as activities in one sector spill over into other sectors, stimulating business activity.

**Qualitative Impact:** Researchers at The Adams Group, Inc. and Development Research Partners conducted a series of interviews with individuals in metro Denver who are particularly affected by or concerned with the transportation infrastructure and FasTracks in particular. Both the for-profit and nonprofit (including government) sectors were targeted. While the interviews do not purport to comprise a random sample necessary for producing statistically significant results, they do provide useful insights about the broad impact of FasTracks.

The study utilizes both primary and secondary data. Primary data are those collected by the research team itself. The main source of primary data for this study is a series of interviews conducted either in person or by telephone. Secondary data are those collected by an outside source – for example, publicly available data from the Bureau of Economic Analysis or the Colorado Department of Labor and Employment or proprietary data from studies done by consultants. A listing of data sources is provided in the Selected References and Interviews sections of this report.

The methodologies of this study's components are explained in further detail in their respective sections. Specifically, the methodology for studying the construction and operation impacts is explained in Section II and the methodology for analyzing the impacts of associated transit oriented development (TOD) is explained in Section IV.

Study Limitations

As is true in any impact study, this report is limited by the availability of information, in terms of timeliness and data collection and by time and financial constraints. Nevertheless, the collaboration of two well-known regional consulting firms and the cooperation of several government agencies and private organizations have made it possible to complete the most thorough study on the regional impacts of FasTracks to date.

No study based on timetables extending 12 to 25 years into the future will be entirely accurate in its conclusions. Minor variations in population growth or inflation rates have significant impacts on the results when compounded over 25 years. This study’s conclusions will need to be monitored and updated as new information becomes available.
II. ECONOMIC BENEFITS OF FASTRACKS

There are several ways to look at the economic benefits of a large project, including examining the impact of the jobs created or the impact of the dollars spent. In this section we examine both, but rely most heavily on the employment impact of FasTracks since average citizens are most concerned about jobs.

Employment Impact

Multiplier analysis is used to trace the impact of metro Denver businesses, organizations and individuals who are affected by the construction and operation of FasTracks as this impact works its way through the metro Denver economy. It recognizes the interdependence of various sectors of the economy as activities in one sector spill over into other sectors, stimulating business activity.

The flow of jobs and dollars is divided into three groupings:

♦ Direct: This is the first round impact generated by construction companies and RTD as they hire Coloradans to work for them.

♦ Indirect: A second round impact is generated by the purchase of goods and services by direct businesses. For example, the purchase of the concrete and steel used in the construction of FasTracks, as well as computers, office supplies and cleaning services by companies with FasTracks contracts, are examples of indirect economic impacts.

♦ Induced: This is the economic activity generated by the purchase of goods and services by the individuals whose incomes are derived directly or indirectly from the construction and operation of FasTracks. The purchase of groceries, a car or a home is an example of induced economic activity.

Companies that sell their goods and services outside of the region generate the largest employment impacts. This is called basic industry, industry that brings new dollars into the state and the metro Denver region. Companies that pay high salaries have a larger impact than those that pay less. The more employees a company hires, the bigger its impact. This study uses the RIMS (Regional Input-Output Modeling System) II multipliers developed by the Bureau of Economic Analysis of the U.S. Department of Commerce to trace the indirect and induced jobs and income flows generated by companies and organizations. This is the standard methodology for conducting multiplier analysis. An explanation of the RIMS multipliers is available in Appendix B. All data are from the Denver Regional Council of Governments’ Review of the RTD FasTracks Plan: Final Report dated April 21, 2004 unless otherwise noted.

Throughout this analysis we refer to a 12-year design and construction period because all construction activity will occur between 2005 and 2016. However, some of the construction payments extend into 2017, which has employment impacts. RTD provided a table of estimated annual expenditures during the 13-year period in which construction payments occur (2005-2017). These data included a breakdown between local and non-metro Denver expenditures. The estimate of local expenditures ranged from 63% to 77%, with the highest probability of 74% occurring locally. Annual direct employment was calculated by first deducting local expenditures for right-of-way acquisition; the cost of the maintenance facilities, park and ride and civil construction materials; rails; the Traction Electrification System; signal equipment; the Intelligent Transportation System; and vehicles. The first two items, totaling 33% of the $4.7 billion FasTracks budget, will be purchased locally. The rest, totaling 26%, will be purchased outside the metro Denver region, although the rails ($181 million) may be purchased in Pueblo.
The average annual salary in metro Denver for Heavy and Civil Engineer Construction workers ($47,682 in 2003) from the ES202 data provided by the Colorado Department of Labor and Employment was used to convert spending on labor for FasTracks design and construction to number of employees. The 2003 salary was inflated by 3.4% a year, the average over the last nine years, for each year through 2017. The RIMS II employment multiplier for Highways and Streets (2.5743) was then applied to this direct employment estimate to calculate indirect and induced employment estimates. For each direct construction job created by FasTracks, 1.5743 additional jobs will be created in metro Denver.

Table 1: Employment Generated by FasTracks Construction

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Annual Employment Expense (000s)</th>
<th>Average Construction Salary</th>
<th>Construction Employment</th>
<th>Indirect/ Induced Employment</th>
<th>Total Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$30,148.8</td>
<td>$50,979</td>
<td>598</td>
<td>942</td>
<td>1,540</td>
</tr>
<tr>
<td>2006</td>
<td>$42,168.0</td>
<td>$52,713</td>
<td>800</td>
<td>1,259</td>
<td>2,059</td>
</tr>
<tr>
<td>2007</td>
<td>$135,704.9</td>
<td>$54,505</td>
<td>2,490</td>
<td>3,920</td>
<td>6,409</td>
</tr>
<tr>
<td>2008</td>
<td>$137,530.3</td>
<td>$56,358</td>
<td>2,440</td>
<td>3,842</td>
<td>6,282</td>
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<tr>
<td>2009</td>
<td>$209,431.4</td>
<td>$58,274</td>
<td>3,594</td>
<td>5,658</td>
<td>9,252</td>
</tr>
<tr>
<td>2010</td>
<td>$195,766.1</td>
<td>$60,255</td>
<td>3,249</td>
<td>5,115</td>
<td>8,364</td>
</tr>
<tr>
<td>2011</td>
<td>$210,671.4</td>
<td>$62,304</td>
<td>3,381</td>
<td>5,323</td>
<td>8,705</td>
</tr>
<tr>
<td>2012</td>
<td>$346,063.1</td>
<td>$64,422</td>
<td>5,372</td>
<td>8,457</td>
<td>13,829</td>
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<tr>
<td>2013</td>
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<td>$66,613</td>
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<td>5,853</td>
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<tr>
<td>2014</td>
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<td>3,532</td>
<td>5,560</td>
<td>9,091</td>
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<tr>
<td>2015</td>
<td>$96,076.1</td>
<td>$71,219</td>
<td>1,349</td>
<td>2,124</td>
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<tr>
<td>2016</td>
<td>$27,881.4</td>
<td>$73,641</td>
<td>379</td>
<td>596</td>
<td>975</td>
</tr>
<tr>
<td>2017</td>
<td>$36,034.7</td>
<td>$75,145</td>
<td>473</td>
<td>745</td>
<td>1,218</td>
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<tr>
<td>Annual Average</td>
<td></td>
<td></td>
<td>2,413</td>
<td>3,799</td>
<td>6,213</td>
</tr>
<tr>
<td>2011-14 Average</td>
<td></td>
<td></td>
<td>4,001</td>
<td>6,298</td>
<td>10,299</td>
</tr>
</tbody>
</table>

The 12-year design and construction period of FasTracks will create an average of 2,413 construction jobs and an additional 3,799 indirect and induced jobs each year for a total of 6,213 jobs annually. During the four peak years of construction activity (2011-2014), there will be an average of 4,001 construction jobs and 6,298 indirect and induced jobs for a total of 10,299 jobs annually due to FasTracks construction.

FasTracks funding will pay construction workers almost $1.2 billion throughout the design and construction period. The direct and induced jobs generated across the community will create another $1.7 billion in wages and salaries. In total, the jobs created by FasTracks design and construction will pump $2.9 billion into the metro Denver economy.
This will generate at least $2.4 billion in consumer spending, the bulk of it in metro Denver. The 2002 U.S. Consumer Expenditure Survey reported that the average household of 2.5 individuals and 1.4 wage earners devoted 82.3% of personal income to annual expenditures. Since wage and salary and proprietors’ income comprised 73.4% of total income (the balance coming from rents, profits and interest), the percentage of FasTracks-generated income used for consumer spending is probably higher than 82.3%. On this $2.9 billion in wages and salaries will be paid $90 million in state income taxes (the Colorado income tax rate is 4.63% but, after adjustment for allowable deductions, the average tax rate is about 3.1%) and $46.1 million in state and local sales taxes.

Operations and maintenance (O&M) of the FasTracks system is estimated to be $1.258 billion for the period from 2017 through 2025. A conservative estimate of the impact of the O&M budget over that nine year period is an average of 1,600 O&M jobs annually. Using the RIMS II multiplier of 1.6079 for the Local and Suburban Transit sector, meaning an additional 0.6079 jobs is created for each Transit and Ground Passenger Transport job, a total of 2,573 jobs each year are due to the direct, indirect and induced impacts of FasTracks expenditures on operations and maintenance after build out. This will add over $150 million annually in wages and salaries to the metro Denver economy, most of which will be spent locally.

Once construction is completed and the system is fully operational, operation and maintenance will add 1,600 direct and 973 indirect and induced jobs each year to the metro Denver economy.
**Final Demand Impact**

Another way to look at the total impact of FasTracks expenditures is to look at the direct spending in the metro Denver community on FasTracks and to apply the RIMS II final demand (as opposed to employment) multiplier. RTD estimates that 73.6% of the $4.7 billion spending on FasTracks will occur in metro Denver, or $3.43 billion. Using the final demand multiplier of 2.2179 for Highways and Streets and deducting the $599.5 million expenditure for right-of-way acquisition, this suggests that FasTracks will generate a total of $6.3 billion in spending in metro Denver between 2005 and 2017.

However, we believe this overstates the FasTracks impact, because a substantial amount of the FasTracks budget is not new money coming into the community but rather money diverted from other local spending. In other words, the one additional dollar paid in RTD taxes on $250 of spending in the RTD tax district is a dollar that is not spent on other goods and services. However, at least $1 billion of the FasTracks budget is new money coming into the region, primarily from the Federal government, taxes paid on business sales outside the region and interest on the bond funds. Applying the final demand multiplier to this amount indicates that FasTracks will generate at least $2.2 billion in new spending in metro Denver during the construction phase.

**Benefits of Constructing Now Rather Than Later**

While it is possible to do present value analysis of various spending scenarios if the construction of FasTracks is spread over 40 years or more instead of 12, the heroic assumptions that must be made about future interest rates and inflation render the projections relatively useless. However, there are several obvious advantages of constructing FasTracks sooner rather than later.

In the first place, inflation will increase the total project cost if it is postponed. Liz Rao, RTD’s Assistant General Manager, estimates inflation will add $160 million per year to the total cost of FasTracks each year that it is delayed.

Second, jobs and income today are worth more than jobs and income at some future date. People unable to find jobs will leave the state, depressing home prices and land values. Businesses that would relocate to metro Denver if there were better transit may choose another city. A convention that chooses another city because Denver lacks transit takes dollars elsewhere that will never be recovered.

Third, transit is most effective when it is geographically dispersed and runs frequently. Most people think first of transit rather than their automobiles only when they do not have to worry about schedules and routes, but rather know that the train or bus they need is available whenever it is needed. This will occur when the entire FasTracks system is completed over a short period of time.

Fourth, each year that widespread transit is not available produces an unrecoverable loss of the time and money saved when commuting time is reduced, travel expenses are lower and jobs are more widely available to the disadvantaged. This is discussed in more detail later in this report.
Benefits to Business

The impact of FasTracks to businesses in metro Denver and the state of Colorado is far bigger than the jobs and spending created by the construction, maintenance and operation of the system. As John Huggins, Director of the Denver Office of Economic Development succinctly puts it, “FasTracks is much more than a transportation proposal – it is about building on our existing investments to make us the kind of community that can succeed and thrive in this new century.”

Transportation is an important factor in many business activities. It increases access to a company’s customer and employee base. Delivery and pickup services benefit from less roadway congestion due to the availability of rail transit. Good transportation infrastructure increases employee mobility, facilitates the rapid delivery of materials and improves access to repair and maintenance services.

A 2004 Downtown Denver business retention survey by Development Research Partners indicates that transportation issues are at the forefront of the business community’s concerns. The survey showed that transportation/traffic was the number one concern of the companies surveyed, followed by parking issues. When asked to identify the most important growth factor for Downtown Denver, 26% of the respondents cited transportation. Several specific references were made to the importance of adopting FasTracks.

A good transit system increases the labor pool for metro area businesses. Shorter commute times mean workers are able to travel from further distances, whether by car or transit. Potential workers without cars now become part of the labor pool, seeking jobs that are accessible by transit but were not a viable option before FasTracks. Like many other businesses, the hospitality industry is dependent on transit to bring lower wage workers from their homes to their jobs. Interviews with restaurant managers for a study of the hospitality industry done in 1999 by The Adams Group, Inc. determined that providing employee parking in Downtown Denver for those who had cars was a significant cost.

Proximity to transit allows businesses to provide fewer parking spaces for their employees. At an average cost of $10,000 per structured parking space, this is a significant cost saving. Specific examples of businesses that have benefited from having to provide fewer parking spaces include Fitzsimons, the Auraria Campus, the Gates Rubber headquarters at Union Station, the EPA offices in the Old Post Office and the Pepsi Center.

Transportation planners at DRCOG point out that transit enables workers at the low end of the income scale to get from where they can afford to live to where the jobs are. A 2000 DRCOG study of transit service gaps for major metro area employment centers found that all employment centers lacked affordable housing options. Also, the lack of reliable transit options acted as a barrier to entry-level employment.

A 2002 study examining the current housing supply in the south corridor of metro Denver by Development Research Partners illustrated the need for workforce housing in the south corridor because the workforce is not able to afford homes in the same area they work. In 2001, about 69% of workers in the south corridor earned $20 per hour or less. On the other hand, the average price of a detached single-family home in the area was over $338,400. An individual or household earning $20 per hour ($40,000 annually) could only afford to purchase 1.4% of the homes in Douglas County and 12% of the homes in Arapahoe County. This example illustrates that lower-income workers often cannot afford to live in the same area where they work. A transit system would allow lower-income workers greater access to jobs throughout metro Denver.

Richard Scharf, president of the Denver Metro Convention and Visitors Bureau, points out that large conventions require delegates to be housed outside of the Downtown Denver area, as there are only 6,500
hotel rooms within walking distance of the Convention Center. Conventioneers typically do not want to rent cars and pay the expense of parking in Downtown Denver, which can reach $18 a day. Further, it is expensive for conventions to charter buses to shuttle delegates back and forth. Frequent, reliable rail transit into the downtown area makes a city a far more attractive convention site.

In addition, families who accompany delegates to a convention often choose to stay in less expensive lodging in the Denver Tech Center or near Stapleton. If good transit into the city is available, convention delegates are more likely to turn a business trip into a family vacation. In 2003, 7.8 million leisure travelers and 1.9 million business travelers spent $2.3 billion in the Denver area, according to the most recent Longwoods International study. This spending creates jobs, retail sales and tax revenues for the metro Denver area.

International travelers, who spend more per day than domestic tourists, are particularly reliant on transit since they may be uncomfortable driving in a foreign country and may be used to transit at home.

**Economic Development**

Public economic development officials and private real estate developers revealed unanimous support of transit services in general and FasTracks in particular in numerous interviews. One commented that the fact that Denver is comprehensively addressing its transit needs will help differentiate us from many of the cities with which we routinely compete for business. See Appendix C for a brief discussion on how some of the other metropolitan areas across the country are addressing their transit needs.

Transportation issues play an important role in site location decisions. One reason the Boeing Corporation chose Chicago over Denver for its corporate headquarters was the availability of a comprehensive transit system because it gave them access to a larger labor pool than if they relied on workers’ willingness to drive. During the technology boom of the 1990s, companies cited the lack of convenient transit between affordable housing in Denver and jobs in Boulder as a hindrance to locating or expanding in the technology corridor along the Boulder Turnpike. Company executives from outside the region worry about bad weather along the Front Range and want rail transit to insure that their employees will be able to get to work on snowy days.

As cited in the July 2004 study by the Transportation Committee of the Denver Metro Chamber of Commerce, Chamber members indicated in a November 2002 membership survey that growth management and transportation were the two most important issues metro Denver faces as a community. Further, in annual surveys of Chamber membership, transportation consistently ranks among the top five community issues. Other issues of importance are growth management and economic health – retaining existing and attracting new business and industry, which are dependent on an excellent transportation system.

Companies are often more concerned about where a region is headed in solving its transportation problems than where it is at present, according to Tom Clark, Executive Vice President of the Metro Denver Economic Development Corporation. Decision makers believe Denver has addressed its brown cloud and airport unreliability issues. T-REX is evidence that Denver is addressing and solving its highway congestion problem, according to an unprompted response in a national survey of site selectors conducted by ccintellect. These are all national issues and Denver is recognized as a city that is solving them. FasTracks will go a long way toward convincing site selectors that Denver is a leader in addressing the issue of getting employees to work quickly, safely and cost-effectively.

While transit system effectiveness is an important factor to companies looking for new locations or expansion sites, companies are also concerned with the overall cost of doing business. One of the business costs that companies are concerned with is the total sales/use tax rate. As demonstrated in the following
table, even with the proposed increase in the RTD sales tax rate, the total sales tax rate in the City and County of Denver is still one of the lowest compared to many of the cities with which metro Denver frequently competes for jobs. While this list of cities is not exhaustive, it is indicative of Denver’s current relative sales tax rate position.

Table 3: Comparative Sales Tax Rates

<table>
<thead>
<tr>
<th>City</th>
<th>Tax Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle</td>
<td>8.8%</td>
</tr>
<tr>
<td>Chicago</td>
<td>8.75%</td>
</tr>
<tr>
<td>New York City</td>
<td>8.625%</td>
</tr>
<tr>
<td>San Francisco</td>
<td>8.5%</td>
</tr>
<tr>
<td>Dallas</td>
<td>8.25%</td>
</tr>
<tr>
<td>Austin</td>
<td>8.25%</td>
</tr>
<tr>
<td>San Jose</td>
<td>8.25%</td>
</tr>
<tr>
<td>Phoenix</td>
<td>8.1%</td>
</tr>
<tr>
<td>San Diego</td>
<td>7.75%</td>
</tr>
<tr>
<td><strong>Denver</strong></td>
<td><strong>7.6%</strong></td>
</tr>
<tr>
<td>Atlanta</td>
<td>7.0%</td>
</tr>
<tr>
<td>Salt Lake City</td>
<td>6.6%</td>
</tr>
</tbody>
</table>

*Includes 2.9% state tax, 3.5% city tax, 0.1% Scientific and Cultural Facilities District tax, 0.1% Football Stadium District tax and 1.0% RTD tax (includes proposed increase).

Source: FasTracks Yes!, 2004.

John Huggins, Denver’s economic development director, points out that improved mobility enhances economic development and makes metro Denver more competitive in the global market for jobs and capital. Foreign firms located in metro Denver, as well as Colorado companies selling goods and services abroad, identify the lack of transit as a shortcoming to doing business in Denver, according to a study on the impact of internationalization on Denver done at the Graduate School of International Studies, University of Denver. In particular, foreign nationals who do not drive find it difficult to navigate the city and low wage employees from Latin America find it difficult to get from where they can afford to live to where the jobs are located.
III. TRANSPORTATION BENEFITS OF FASTRACKS

Improved transportation will enhance metro Denver’s image as a progressive community that is more attractive to potential employers. Denver will be a more desirable place to work if workers know they have dependable transit options without the frustration of rush hour congestion. This makes it easier for employers to recruit/retain workers and for the metro area to recruit/retain businesses. Quality of life remains a key component in both the employee and employer decision-making process regarding location.

More Choices

Light rail, commuter rail and improved bus service increase the choices available to metro Denver citizens. Providing choices was a common theme throughout our research and the importance of increased choice was mentioned in most interviews we conducted. This notion was also echoed in a 2003 Colorado Department of Transportation (CDOT) survey, where 54% of Coloradans cited choice – travel options to relieve congestion – as the highest priority transportation issue. Sixty-one percent wanted these choices to include light rail (36%) or bus (25%).

Community leaders agree that high-density development and transit are not for everyone. As one developer commented:

Right now, people don’t have choices. The only way to provide low-density developments and unlogged highways for those who want them is to offer the option of mixed used communities, high-density developments and transit for those who prefer them. FasTracks isn’t the answer to all of our transportation problems, but it provides incremental improvement.

The developer estimates that about one-third of the metro Denver population is interested in high-density, mixed use development near good transit. Current supply is incapable of meeting this demand.

Since the opening of a portion of the Central Corridor in October 1994 and completion of the Southwest Corridor in July 2000, systemwide light rail ridership has consistently been 25% or more ahead of projections. In the Southwest Corridor, light rail ridership averaged 17,900 passengers per year for the 2001 to 2003 period compared to initial projections of 9,900 riders per year. In 2003 alone, the Southwest Corridor had 18,400 riders, 72.7% ahead of the projected ridership of 10,652. Based on an analysis of CDOT traffic counts, RTD reports that automobile traffic on Santa Fe Boulevard decreased by almost 60,000 vehicle miles traveled from 2000 to 2001. The Southwest Corridor line follows Santa Fe Boulevard from Mineral Avenue to the Broadway station.

It is important not to measure the potential impact of FasTracks by simply looking at the current level of usage. Not only is limited availability a factor, it takes time for the population to become familiar with a new transportation option, at which point usage increases with familiarity. For example, bus service has been available in Denver since the 1920s. According to the 2003 CDOT study, 10% of respondents said they were very likely to commute by bus and 7% actually do. Light rail, on the other hand, is a new product, available only since 1994 and only in a very limited area. While 19% of respondents say they would be very likely to use light rail if it were an option, only 1% actually commute on one of the two existing lines. But in the Southwest Corridor where light rail has been available for four years, 19% of all rush hour trips are by rail (DRCOG, 2004).
**Improved Reliability**

Experience shows that the most effective and popular transit systems are convenient, easy to use and provide reliable, frequent and relatively rapid service to destinations. People are more likely to use transit if they live or work within one-quarter of a mile or a five-minute walk of a station. Riders need to know that a bus, tram, trolley or train will come relatively on time and according to the schedule.

When FasTracks is complete, Denver will have a network of trains that will run every 15 minutes and even more frequently during rush hour. FastConnects will provide timed transfer points to connect the bus feeder system to rail lines, providing enhanced suburb-to-suburb coverage. Rail transit is not affected by weather or traffic delays like bus transit. Rail transit tends to provide more reliable service than bus transit. As part of FasTracks, real time information will be provided at major transfer facilities throughout the network, meaning estimated arrival time will be displayed in real time.

**Congestion Relief**

**The Problem:** Traffic congestion is a consequence of population and vehicular growth. According to DRCOG, the population in metro Denver is projected to grow from 2.6 million people in 2004 to 3.4 million in 2025, a 31% increase. In addition, total employment is expected to expand by more than 600,000 by 2025. If all new residents attempt to reach their jobs by car, the increase in congestion will be enormous. A trend analysis published in *Getting on the Fast Track to a Livable Denver Region* shows that vehicle miles traveled (VMT) in the metro Denver region are increasing at roughly twice the rate of population growth. This is conservative relative to U.S. Census data which documents a 49% increase in nationwide vehicle trips between 1990 and 2001, a period when the U.S. population rose only 15%. Miles traveled increased even more rapidly over this period, up 62%. Given current population and vehicular projections, increasing congestion will remain an issue for metro Denver.

According to the 2003 *Urban Mobility Study* by the Texas Transportation Institute (TTI), the Denver area ranks fourth worst in the Travel Time Index, which measures travel conditions in peak periods (rush hour). The study reports that travel during peak periods in 2001 (the most recent data available) took 47% longer than travel in non-peak periods. The annual delay per peak traveler was 62 hours, causing travelers to consume an excess of 114 million gallons of fuel. The study estimates the 2001 congestion cost at $1.4 billion or $698 per resident. Beyond increases in transportation costs, congestion reduces worker productivity, increases emergency response times, causes stress among the population and has negative effects on the environment.

The TTI study went on to point out that in 2001, 79% of peak period travel in metro Denver was in congestion, up from 75% in 2000 and 32% in 1982. This is far worse than the overall average of 67% for the 75 urban areas included in the study and the average for the large-area sub-sector that includes Denver of 65%. The study ranks the Denver area the seventh worst urban area for congestion during peak times, tied with the Seattle-Everett, WA area.

But congestion does not only affect rush hour commuters. Beyond rush hour, the percentage of all trips involving congestion in 2001 was 39%, up from 22% in 1990. Denver was ranked as the seventh worst city in terms of daily travel congestion, tied with four other cities including Seattle-Everett, WA, Miami-Hialeah, FL, Sacramento, CA and Portland-Vancouver, OR-WA. The six areas experiencing worse daily travel congestion include Los Angeles, San Francisco-Oakland, CA, Washington, DC, Atlanta, GA, San Diego, CA and Chicago, IL. The 2001 annual delay was 73 million hours of which transit saved 16% or 11.4 million hours. The TTI findings were confirmed by the Surface Transportation Policy Project, which ranked the Denver-Boulder-Greeley metropolitan region as the 12th most congested metro area in the nation.
It is no surprise that 17% of metro Denver respondents to the CDOT survey said their commute often took longer than average and 65% said it sometimes did. Too many cars on the road was the most common cause mentioned (37%) and accidents accounted for another 28% of delays. Of the 8% who identified transportation as the single most important issue facing the state (53% were most concerned about water and jobs), 27% identified traffic congestion as the most important transportation related problem.

DRCOG’s *Metro Vision 2030* states that:

About 275 lane-miles of freeways and expressways in the region are severely congested for more than three hours per day. This will grow to over 450 lane-miles by 2030 if funding for transportation is not increased. Congestion has been increasing not only in severity, but in the duration of time that it occurs. If the highway that a commuter uses to get to work is congested for three hours today, it may be congested for over five hours per day in 2030.

**The Solution:** Congestion can be addressed in various ways. Singapore, London and Switzerland have successfully reduced congestion by charging a congestion tax (a charge to drive into the city during rush hour) to encourage people to take transit.

Transit is another solution to congestion. Bangkok, once one of the most congested and polluted cities in the world, has reduced both since the advent of SkyTrain. Boulder, CO relies more heavily on transit services, walking and bicycling than metro Denver, with only 73.8% of its workforce commuting by car compared to 88.1% of metro Denver’s workforce. According to the Surface Transportation Policy Project, Boulder is the 67th most congested metro area in the nation while the Denver-Boulder-Greeley metropolitan region is the 12th.

The TTI study shows that large and very large U.S. urban areas with rail transit systems serving major travel corridors have a significantly lower rate of congestion growth than cities without rail transit. For example, consider the congestion savings by transporting 375 commuters with a single three-car train, as opposed to 7.5 50-passenger buses or 347 automobiles with just 1.08 passengers each.

A 2000 study by Mobility Planning Associates (MPA) of Austin, TX, as cited in the Light Rail Now! report, compared the ratio of roadway travel in peak, congested conditions to travel in un-congested, free-flowing conditions. MPA found that congestion continues to increase in urban areas with rail transit but at a rate 42% slower than in similar areas without rail. According to the DRCOG analysis of the FasTracks plan, between 19% and 27% (depending on the corridor) of rush hour trips will be on transit in corridors served by FasTracks. RTD (as referenced in the DRCOG study) estimates that travel by rail during rush hour will be up to three times faster than driving.

This will reduce stress and road rage while allowing time previously wasted in congestion to be spent doing other activities like reading, working or sleeping. Also, commuters using their cell phone will do it more safely on rail or bus transit than driving their cars.
Table 4: Peak Hour Travel Time with FasTracks (2025)

<table>
<thead>
<tr>
<th>Destination and Origin</th>
<th>Drive Alone (minutes)</th>
<th>Train/Transit (minutes)</th>
<th>Times Faster</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 36 Rail Corridor (from Longmont)</td>
<td>133</td>
<td>61</td>
<td>2.2</td>
</tr>
<tr>
<td>North Metro (from 160th)</td>
<td>112</td>
<td>41</td>
<td>2.7</td>
</tr>
<tr>
<td>East Corridor (from DIA)</td>
<td>48</td>
<td>39</td>
<td>1.2</td>
</tr>
<tr>
<td>I-225 Corridor (from Aurora City Center)</td>
<td>76</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td>SE Extension (from Ridgegate Parkway)</td>
<td>96</td>
<td>43</td>
<td>2.2</td>
</tr>
<tr>
<td>SE Extension (from Lucent/Plaza)</td>
<td>97</td>
<td>31</td>
<td>3.1</td>
</tr>
<tr>
<td>West Corridor (from Jeffco Govt Center)</td>
<td>57</td>
<td>39</td>
<td>1.5</td>
</tr>
<tr>
<td>Gold Line (from Ward Road)</td>
<td>55</td>
<td>31</td>
<td>1.8</td>
</tr>
</tbody>
</table>


Studies have shown that simply adding additional roadways will not alleviate congestion and, in fact, will attract more automobile traffic. This is referred to as induced traffic or induced demand. According to the 2003 report by Nuñez and McClintock, from 50% to 100% of new roadway capacity is filled by induced traffic.

Secondly, there is a limit to the capacity that a bus system can add. A fixed amount of space must be maintained between buses and it is not possible to string additional units onto a bus at peak demand times. Cars can be added to rail transit which can run as often as every two minutes. In Moscow, Russia, the metro runs every 60 seconds at peak demand.

Reduced Travel Time

The DRCOG analysis of the FasTracks plan provides an estimate of time saved commuting to Downtown Denver from specific locations by transit rather than automobile in 2025.

Table 5: Commute Time Saved in 2025

<table>
<thead>
<tr>
<th>Corridor</th>
<th>US 36</th>
<th>North</th>
<th>East</th>
<th>I-225</th>
<th>SE Ext</th>
<th>SW Ext</th>
<th>West</th>
<th>Gold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Saved (in minutes one way)</td>
<td>72</td>
<td>71</td>
<td>9</td>
<td>36</td>
<td>53</td>
<td>66</td>
<td>18</td>
<td>24</td>
</tr>
<tr>
<td>Time Saved (round trip in hours)</td>
<td>2.4</td>
<td>1.4</td>
<td>0.3</td>
<td>1.2</td>
<td>1.8</td>
<td>2.2</td>
<td>0.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Time Saved Annually (in hours 250 days per year)</td>
<td>600</td>
<td>592</td>
<td>75</td>
<td>300</td>
<td>442</td>
<td>550</td>
<td>150</td>
<td>200</td>
</tr>
</tbody>
</table>

This time has a monetary value to the transit commuter. Research traditionally values leisure time at between one-half and two-thirds of the commuter’s average wage. Using the more conservative approach of one-half the average metro Denver wage of $43,539 in 2003 equates to $21,770 per year or $10.67 per hour. Subtracting the average annual amount of RTD tax paid per person and the average annual fare, a transit commuter on the US 36 corridor line between Boulder and Downtown Denver might value the 600 hours per year saved as high as $23.11 per day or $5,777 per year. On the East corridor line, the transit commuter might value the 75 hours saved per year at $0.70 per day or $175.25 per year.
It must first be recognized that these are “virtual dollars,” not actual cash that the transit commuter receives to spend. Second, this analysis is based on assumptions about average wages and actual commute time saved, assumptions that could easily prove inaccurate. Also, there is no guarantee that the transit commuter values his time at half his hourly wage or that the average transit commuter in 2025 will earn the average metro-wide wage.

What can be concluded is that FasTracks will produce enormous savings in commute time to those who choose to travel by rail or bus, as well as lesser time savings (because roads will be less congested) to those who continue to commute by car. The value of this time provides a partial offset to the increased taxes that will be paid to finance FasTracks construction.
The FasTracks plan includes the development of 57 additional transit stations throughout metro Denver. These transit stations provide opportunities for development and/or redevelopment of the immediate area surrounding the transit station. Generally, transit and transit stations are investments that foster development commonly known as Transit Oriented Development (TOD). TOD can be defined as a complementary mix of uses that optimize land usage within less than one-quarter mile of a transit station. The mix of land uses adding to the convenience of TODs may include residential, retail, commercial, civic and entertainment within a pedestrian-friendly, walkable environment. Because each community has different needs and demands, TOD is unique to each station and rail line.

Planning for the Future

The dilemma facing Coloradans is how to maintain the quality of life that brought/keeps many of us here while at the same time accommodating the growth necessary to remain economically viable. Will Fleissig, former Director of Planning in Boulder, former Director for Downtown Planning in Denver during the Peña Administration and co-founder of Continuum Partners puts it this way:

If you are satisfied with the direction we are headed - more pollution, more congestion, being stuck in your own neighborhood because the traffic is too bad to try to drive somewhere else – don’t do anything. If you aren’t happy, what are you going to do about it? Transit (along with open space preservation and a few mixed use centers) is a significant element that could in fact alter these current trends in the next 15 to 20 years.

Denver has a long history of planning for future infrastructure needs in order to improve business opportunities and the quality of life. In 1876, concerned citizens formed the Denver Board of Trade to prevent the transcontinental railroad, routed through Cheyenne, WY, from bypassing the state. It began developing its mountain parks system in the early 1900s, built Stapleton Airport in the 1930s and Denver International Airport in the 1990s. A major transportation improvement project is currently underway in the south metro Denver region called T-Rex. T-Rex involves upgrading and adding lanes to I-25, the main north-south arterial in metro Denver, adding lanes to I-225 and adding 19 miles of double track light rail. The Southeast Corridor connecting Downtown Denver with the Denver Tech Center is scheduled to open on time and on budget in 2006.

Transportation will continue to play in integral role in the growth patterns of metro Denver. Tom Clark of the Metro Denver Economic Development Corporation argues that the railroad was the defining decision of the 19th century and Denver International Airport the defining decision of the 20th century. FasTracks will be the defining decision of the 21st century in metro Denver.

Planners at DRCOG stress that synergy exists between good transit services, urban center development and avoiding sprawl. Development often concentrates around transit stations while transit adds to the community’s desirability. The development of urban centers to absorb some of the population growth (estimated at nearly one million individuals or about 400,000 families over the next 20 years) is critical if other communities are to maintain their lower density uniqueness.

The vision for future transportation infrastructure development in metro Denver is described in DRCOG’s Metro Vision 2030. Metro Vision 2030 has three main components including the establishment of flexible
urban growth boundaries, promoting the development of high density urban centers, and encouraging transportation planning. The vision is to manage growth, not preclude it.

FasTracks is an integral component of DRCOG’s Metro Vision goal: a balanced, multi-modal transit system to include rail transit, a regional bus network, regional beltways, bike and pedestrian facilities, and improvements to the existing roadway system. Metro Vision encourages livable communities that will attract businesses, workers, residents and tourists. According to the DRCOG review of FasTracks, approximately 86% of metro households will be within five miles of a rapid transit park-n-ride when FasTracks is completed.

**TOD and Smart Growth**

TOD upholds the principals of Smart Growth that are increasingly important to metro areas such as metro Denver that face the reality and negative externalities of urban sprawl. While there is no single definition of Smart Growth, it generally includes some combination of six goals as defined by Smart Growth America:

- **Neighborhood Livability**: neighborhoods should be safe, convenient, attractive, and affordable.
- **Better Access, Less Traffic**: emphasis on mixing land uses, clustering development, and providing multiple transportation choices helps manage congestion, pollute less and save energy.
- **Thriving Cities, Suburbs and Towns**: guiding development to already built-up areas allows money for transportation, schools, libraries and other public services to go to the communities where people live today.
- **Shared Benefits**: encourages all residents to prosper, limiting divisions by income and race.
- **Lower Costs, Lower Taxes**: Sprawl costs money. Infill development and redevelopment is less expensive than green space development.
- **Keeping Open Space Open**: focusing development in already built-up areas preserves rapidly vanishing open space.

TOD reduces urban sprawl and maximizes land usage by building more infill and dense developments in addition to replacing parking lots and garages with higher, more productive uses. The redevelopment of declining regions helps to revitalize communities, fostering the development of new tax revenue and reducing governmental service costs. TOD makes economic and fiscal sense for the community.

Estimates by the U.S. Census Bureau and DRCOG show that land in the Denver region has developed at a rate two to three times faster than population growth. DRCOG estimates that an additional 250 to 300 square miles of land will be developed by 2025. A 10% savings would result in 16,000 acres of land potentially reserved for open space, depending on the specific location. DRCOG’s analysis on potential land saved because of FasTracks, based on projected numbers of residents that would locate at TODs or near transit, estimates a land savings of between 6,500 and 13,000 acres because of FasTracks and other important influences.

There is anecdotal evidence that a large share of Baby Boomers want to live closer to their jobs as they age. A case in point is the success of loft developments in Downtown Denver and multi-use developments such as Continuum’s 16 Market Square.

Inherent to TOD is reduced auto-dependency. In addition to transit, TOD encourages walking, biking and other alternatives to personal automobiles. The TOD lifestyle may not be for everyone, but it is undeniable that a market exists for higher density, transit-oriented living. A 2003 national poll by the
Surface Transportation Policy Project shows that 55% of Americans want to walk more instead of driving to destinations. The poll also shows that 59% of Americans support state investments in transit systems in lieu of building more highways and 66% would choose transit or walkable communities rather than new roads, as the best long-term solution to congestion.

The national mortgage lender, Fannie Mae, advocates the principle of Smart Growth through its Smart Commute program that extended to Denver in 2003. As reported in a May 30, 2004 Denver Post article, the program allows lenders to add as much as $250 to the monthly income of joint borrowers and $200 per month to the income of single borrowers providing they purchase homes within a quarter-mile of a weekday bus stop or within a half-mile of a light rail stop. Buyers must agree to limit the number of cars they own to no more than one per adult driver to participate in the program. According to the Community Strategies Institute in Lakewood, a two-car family would be able to spend an additional $57,000 on a home purchase by slimming to one car, theoretically allowing the family to be closer to work or a transit station. Transit users also benefit from lower auto-insurance rates.

**TOD and Property Values**

Nationwide studies have shown that land values within a quarter mile of a light rail station generally experience premiums averaging 20% over comparable properties over three-quarters of a mile from the station. While a portion of the premium is due to denser development, the property values are higher due to the desirability of the areas and the value of transit. Indeed, a good transit system provides individuals and businesses with greater access to work, customers and other activities. The monetary value of greater access should be reflected in property values. For example, RTD reports that properties near Bay Area Rapid Transit (BART) stations in San Francisco are the most valuable properties in the overall metro area with average premiums 20% to 25% higher than non-transit properties. Further, a study on light rail in Tucson that looked at other cities including Dallas found that vacant land values appreciated five times faster around Dallas Area Rapid Transit (DART) light rail stations than around comparable non-DART areas in the Dallas area.

**Residential Property Impacts:** Estimates show a wide variation in residential property values surrounding transit stations. While the actual values vary by community, numerous reports have indicated that residential property values close to transit stations tend to be higher than those further away. The report by Parsons Brinckerhoff summarizes the results for a number of areas across the country:

- A study by DART found that the close proximity of a transit station to a home has positive effects on the home’s value. The median value of residential property near a light rail station increased 32% over four years compared to a 20% increase in residential property not near a station.
- Single family homes with easy access to one of Philadelphia’s light rail stations have a 7.5% to 8.0% premium over the average home. (Southeastern Pennsylvania Transportation Authority – SEPTA)
- Median home values in Portland increase at increasing rates as properties are located closer to a light rail station. The largest price difference of $2,300 occurs within 200 feet from the station.
- According to another study about property values in Portland, beginning at a distance of 328 feet (100 meters) from the station, each additional foot away from the station decreases the average house price by $9.82. Within a 2,500 ft. to 5,280 ft. radius of the station, property values, on average, increase by $75 for every 100 feet closer to a light rail station. (Tri-County Metropolitan Transportation District of Oregon – TriMet)
- The typical home in San Diego sold for $83 more for every 100 feet closer to a light rail station. (San Diego Trolley – SDT)
♦ The average home price in San Francisco increased by about $1,578 for every 100 feet closer to a BART station.

♦ The number of people living within five miles of a transit stop increases significantly over a 20 year period, according to the Transportation Research Board. It should be noted that natural population growth accounts for a portion of the increase; however, market demand for TODs and the amenity of light rail increases the population beyond natural growth.

**Commercial Property Impacts:** Significant business investment tends to occur around transit stations. The *Lightrail in Tucson* study reported that over $1 billion in direct private business development had been invested near DART stations within five years of opening the $860 million DART system in Dallas. Further, commercial properties in transit oriented developments tend to experience lower vacancy levels and higher average rental rates. The report by Parsons Brinckerhoff summarizes the results for a number of areas across the country:

♦ The value of Dallas office buildings near a DART light rail station increased 53% more than comparable properties not near a station.

♦ In Washington, DC, the price per square foot of commercial properties decreases by about $2.30 for every 1,000 feet further from a Metro station.

♦ Office space within one-quarter of a mile of a light rail station in Santa Clara County, CA sold for an average of $4.87 per square foot more than space located more than three-quarters of mile from a station. (Santa Clara Valley Transportation Authority – VTA)

♦ According to an Urban Land Institute study of Santa Clara County, CA by Robert Cervero and Michael Duncan, commercial parcels near a light rail stop experienced substantial capitalization rates, or single year rates of return, of 23% compared to similar non-transit properties. Further, capitalization rates of more than 120% were found at commercial properties in a business district and within a ¼ mile of a commuter rail station.

**TOD Highlights in Metro Denver**

Even though the TOD concept is relatively new to metro Denver, numerous stories may be told about the redevelopment efforts planned and underway around the existing and future stations in metro Denver. These stories range from the large-scale rebirth of the Central Platte Valley and the $900 million redevelopment of Downtown Denver’s Union Station to potential redevelopment of the Lakewood Federal Center and several smaller-scale projects planned along the Gold Line and Southeast Corridor. The majority of these developments depend, in part, on the passage of FasTracks. However, some developments will continue with alterations if FasTracks is not approved in November. Below are highlights of some noteworthy TODs in metro Denver in addition to the three case studies that are presented in the following section.

**Union Station – Transportation Hub**

Union Station will serve as the main hub for metro Denver’s transit system resulting in a planned $900 million renovation and redevelopment of the building and site. In addition to being the hub for FasTracks, Union Station will also host Amtrak, Greyhound, taxis and Front Range van service. The 19.5-acre Union Station site will be filled with retail, restaurant, commercial and residential uses. East West Partners, the developer of the large scale residential project in Lower Downtown called Riverfront Park, has secured rights to build more residential units on 19 out of 24 parcels in the Central Platte Valley adjacent to Union Station.
Colorado Center – Southeast Line (T-REX)

The Colorado Center at I-25 and Colorado Boulevard has been oriented around the prospect of transit since the project began in the early 1990s. Land was initially set aside for a rail station in exchange for anticipated higher densities. High occupancy rates suggest the transit amenity is attractive to tenants and is a driver for the addition of a second office tower, a 15-screen movie theatre and a 132,000 square-foot entertainment center. The TOD will be mixed-use with a residential emphasis.

Denver Federal Center – West Corridor

The U.S. General Services Administration currently owns 650 acres of land in the Federal Center in Lakewood. The GSA plans to reduce its holdings to allow for future commercial and retail development. Current plans call for up to 5 million square feet of commercial development in the neighborhood. The Federal Center and future TOD will be served by the West Corridor line. Involved parties are currently in the early planning stages.

I-25 and Broadway / Gates Rubber Station – Southwest Line

The Gates Rubber site will be one of the largest TODs in the metro area upon completion. Current plans for the approximately 70-acre development adjacent to the existing station include up to 4,000 residential units, one million square feet of office space and 250,000 square feet of retail/entertainment space. Cherokee Investments is anticipating a kickoff in 2005.

Lincoln Station- Southeast Line (T-REX)

Bradbury Properties, Inc. plans to redevelop 46 acres adjacent to the Lincoln station, which is the final stop along the T-REX Southeast Line. Development plans include 1,350 for-sale and rental apartments, 100,000 square feet of retail and 750,000 square feet of office space. Construction is currently underway on 430 high-density apartments. The FasTracks Plan will extend the Southeast Line from the Lincoln station into Lone Tree and the RidgeGate Parkway stop.

Brighton Pavilions (US 85 and Brighton Bridge) - Park-n-Ride

After many years of thwarted redevelopment efforts, the 14-acre parcel at US 85 and Brighton Bridge in Brighton is on its way to becoming Brighton Pavilions TOD. Brighton Pavilions will feature a 12-screen movie theatre, restaurants and 30,000 square feet of retail uses. Completion is expected during the first quarter of 2005. The TOD is centered around a Park-n-Ride as opposed to a rail station and is one of the first of its kind in metro Denver. The constant overflow of the existing Park-n-Ride (42 parking spaces) lines the side streets daily. The new Park-n-Ride will have 220 dedicated spaces in addition to sharing 640 commercial spaces.

Bellevue Station – Southeast Line

The approximately 50 acres surrounding the Bellevue station along the Southeast line is slated for TOD. Initial plans for redeveloping the Mountain View Golf Course include 2,000 residential units, 2.2 million square feet of office, 250,000 square feet of retail and a 150,000 square-foot hotel.

71st and Lowell Station – US 36 Corridor Line

The redevelopment process has already begun for the approximately 100 acres surrounding the 71st and Lowell station in Westminster. TOD plans involve high-density retail, commercial and residential uses.
Boulder is planning a Transit Village at 30th and Pearl Streets on a 7.5-acre site adjacent to the station. The redevelopment will be both transit and traditionally oriented and includes residential, open space and commercial uses.

**TOD Case Studies**

Transit oriented development provides a new way to look at development in metro Denver. TOD provides residents with an improved quality of life, reduces transportation expenses, helps in the development of more stable, mixed-income neighborhoods, and reduces the environmental impacts associated with growth.

Further, new transit can be a redevelopment catalyst for areas in a state of decline. In addition to the case study areas, numerous examples throughout metro Denver exist where the potential for new transit is attracting new development that is breathing new life into declining areas. Often, new rail transit utilizes existing rights of way, as is the case of FasTracks in metro Denver. In many cases, these same rights of way have historically served now-aging industrial districts. Thus, the potential for new transit to foster (re)development in declining industrial areas is significant.

The economic benefits of rail transit have been studied at many levels and in many different cities across the county. The benefits are both quantifiable and non-quantifiable. TOD provides both direct and indirect economic and fiscal benefits to individual communities and the metro Denver region as a whole. The development generates construction activity, which requires labor and materials, and business activity which involves employees and business spending. Among the other quantifiable benefits of TOD previously studied are increased residential property values, increased investment, increased consumer demand and above average occupancy and lease rates for commercial real estate near the station.

An impact analysis of all of the TOD projects planned or underway throughout metro Denver is beyond the scope of this project. Instead, the purpose of this section is to analyze the fiscal and economic impacts of three transit-oriented developments on their respective communities to serve as examples of TOD impacts. The following case studies were selected to illustrate the fiscal and economic benefits of TODs on their communities:

- 1) Fitzsimons – Aurora, Colorado
- 2) Ridge Home – Arvada, Colorado
- 3) CityCenter – Englewood, Colorado

Each case study is a response to the plan for metro-wide rail and bus transit enhancements. However, this does not mean that these redevelopment projects would not have occurred without light rail. The light rail line already exists in Englewood and redevelopment activity is, for the most part, complete. Activity is already underway at Fitzsimons and Ridge Home. The redevelopment of these regions will move forward with or without transit, although the timing, density, quality and development mix of the project would likely be quite different.

If transit was not brought into Englewood, the current residential choices would likely not exist and the types of retail offered would likely have consisted of a much different mix than today. If new transit is not brought into Fitzsimons, substantial infrastructure redesign with significantly more parking and more costly investments in transportation access will be needed. If new transit is not brought into the Ridge Home development, the development timeline and mix of uses would likely need to be revised.
It is not the intent of these case studies to say that these particular developments only have economic impacts because of transit. These redevelopment projects may have a significant economic impact on their respective communities with or without transit, although it may certainly be argued that the impact is greater with transit due to increased property values, higher quality development and accelerated construction schedules due to stronger market economics.

Rather, the intent of these case studies is to demonstrate how transit can influence the development patterns of a region. Communities may capitalize on the presence of transit as plans to enhance and revitalize their communities are made.

**Case Study Methodology**

Economic impact analysis is the analytical approach used to assess the measurable direct and indirect, public and private costs and benefits resulting from development over a specific time period. Only those costs and benefits that can be measured or quantified are included. Intangible costs and benefits, such as enhancement of community character or diversification of the job base, are not included.

Throughout these case studies, the economic impact is measured in gross terms. That is, it does not focus only on activity that is “new” to the region. In the short term, it may be argued that development attracted to a TOD site may have been drawn away from a different location in the metro area, resulting in no net change in activity at the metro level. However, in the long term, the movement of an existing business from one location to another ultimately results in new development opportunities at the vacated site.

Fiscal impact analysis is a narrower concept that measures only the direct, public (governmental) costs and public revenues associated with development. This study considers the potential impacts on Arvada, Aurora and Englewood’s General Funds. While other governmental funds, such as capital funds, road and bridge funds, water and sewer funds and the like, will also be impacted by development activity, this analysis only focuses on the General Fund for each municipality. The analysis may be extended to include the impact on these other funds, but that is beyond the current scope of this project.

In general terms, economic impacts measure the effect of the spending by businesses, employees and residents on other businesses, whereas fiscal impacts measure the effect of this spending on the local government budget.

The economic benefits of the Fitzsimons, Ridge Home and City Center TODs are calculated within the framework of five categories: construction activity, business operations, employee spending, resident spending, and visitor spending. While the analysis herein is limited to reporting on impacts specific to the respective city where the project is located, it is assumed that surrounding areas are also positively impacted. This study considers all future and planned development as complete so that the case studies represent the development at build-out. We do not attempt to consider unplanned development or revisions to the current plans in this study.

Construction impacts are single-year impacts. For comparison purposes, all construction activity is assumed to take place within one year although the development of each TOD is actually a multi-year project. This assumption is necessary for comparison purposes as the development timeline for these projects differs by start date, completion date and length.

The business operations section analyzes the economic impacts of the business operations at Fitzsimons, Ridge Home and Englewood CityCenter, including employment, materials purchases, personal property, and real property expenditures. These impacts are intended to represent a typical year of business operations for comparison purposes.
Employee, resident and visitor spending are based on the taxable expenditures of Fitzsimons, Ridge Home and City Center employees, residents and visitors. This study recognizes the reality of retail leakage, thus reports specifically on the impacts of retail spending on the TOD’s respective community: Aurora, Arvada and Englewood. To avoid double-counting in employee and resident spending, the spending of employees that live and work at Fitzsimons, Ridge Home and City Center are accounted for as on-site residents and not off-site employees.

All calculations are in 2004 dollars. Throughout the analysis, some line items may not add to the total due to rounding. Development Research Partners made every attempt to collect all necessary information. We believe that the data and information used throughout these case studies are from sources deemed reliable but are not guaranteed. Detailed versions of each case study can be found in Appendix D.

**Fitzsimons – Aurora, Colorado**

After almost 80 years in service, the former Fitzsimons Army Medical Center site is being redeveloped into Colorado’s “Square Mile of Life Sciences.” Fitzsimons will be an integrated life sciences center dedicated to patient care, education, basic science research, and bioscience research and development. The redevelopment is anchored by a 227-acre campus shared by the University of Colorado Health Sciences Center (UCHSC) campus, the University of Colorado Hospital (UCH) and The Children’s Hospital (TCH) as well as the affiliated 160-acre Colorado Bioscience Park Aurora. Fitzsimons will add approximately nine million square feet of medical/educational space, 3.5 million square feet of bioscience/research space, more than 700,000 square feet of office/retail space and a full-service hotel complete with conference and meeting space that could exceed 300,000 square feet.

At the center of the one square-mile campus is Fitzsimons Commons, a 35-acre mixed-use development orientated around the Fitzsimons Commons light rail station on the I-225 Line. The Fitzsimons TOD includes over 500 mid-rise residential units, restaurants, convenience retail and the UCHSC library and student center.

The Fitzsimons campus will be served by the I-225 Corridor line that connects the Southeast Corridor and East Corridor lines. RTD ridership projections for 2025 forecast between 15,200 and 17,800 riders per day. The campus will be served by two light rail stations: Fitzsimons South and Fitzsimons Commons. Fitzsimons South, located in the southeast corner of the site near the proposed hotel site and other commercial development, includes 600 parking spaces. The Fitzsimons Commons station is centrally located and adjacent to residential and retail elements. There are no parking spaces planned at the Fitzsimons Commons station as it is anticipated to be accessible mainly by pedestrians.
According to Kim Prentice, the Fitzsimons Redevelopment Authority’s Director of Real Estate, “As Fitzsimons grows to become “life sciences city,” FasTracks will enhance the pedestrian-friendly environment that will link the UCHSC academic medical center campus to the Colorado Bioscience Park Aurora and other commercial or residential uses by reducing land needed for parking and roadway access while maximizing open space. Light rail stations planned for both of the mixed-use hubs at Fitzsimons will provide easy access to Aurora City Center, Denver International Airport and other population centers in the metro area for the 32,000 employees who will work at Fitzsimons.”

FasTracks will enable the campus to function as a pedestrian-friendly, walkable environment. Without light rail transit, a significantly larger portion of the campus land would be required for parking and access needs. Also, considerably more infrastructure improvements for access to and travel within the site would be required. Light rail transit affords the campus more aesthetic appeal, open space and facilities. Fitzsimons build-out is estimated by 2025-2030 and the I-225 light rail is scheduled to open in 2015.

- Total costs for all construction activity at Fitzsimons are estimated at $3.3 billion and will provide the City of Aurora with a net economic benefit of $355.7 million, including a net fiscal impact of $74.7 million from taxes and fees. Construction activity throughout the 25-year build-out period will support an average of 1,000 construction jobs per year and result in $1 billion of construction-related payroll.

The total economic and fiscal impact for all construction-related activities at Fitzsimons on the City of Aurora is $355.8 million, including a positive net fiscal benefit of $74.7 million from the collection of taxes and fees.

In a typical year of operations, business and residents of Fitzsimons will have a $673.6 million positive net economic benefit, including a positive net fiscal benefit of $9.8 million from the collection of taxes and fees.

- At build-out, Fitzsimons businesses will support more than 30,000 employees from the metro area at an average wage of $50,350. Total annual payroll is estimated at $1.6 billion. Fitzsimons employees are estimated to make annual taxable purchases in Aurora of $124.5 million that will result in $4.7 million of sales tax revenue for the City. Employees will support $1.5 billion of housing and contribute $1.3 in annual property taxes to Aurora.

- Annual retail sales at Fitzsimons businesses are expected to reach $24.1 million, resulting in $688,000 of sales tax revenue to Aurora’s General Fund, assuming 75% taxable purchases.

- In a typical year at build-out, all business operations including medical, research and educational activities will provide a $539.3 million net economic benefit to the City of Aurora, a portion of which is a net fiscal benefit of $7.3 million to Aurora’s General Fund.
The 500+ multi-family housing units in Fitzsimons Commons will be targeted to Fitzsimons employees who prefer the live/work environment and light rail transit. The estimated 1,270 residents will have a combined annual household income of $13.9 million. Residents are expected to make annual taxable purchases of $5 million, which translates into $133,000 of sales tax revenue for the City.

Fitzsimons will draw a significant visitor population of UCHSC students, patients, patient visitors and out-of-town researchers that will have a positive economic impact due to lodging and taxable expenditures. Visitors are estimated to have an annual net economic benefit of $4.6 million on the City, including an $893,000 net fiscal impact reflecting retail and lodging tax collections.

Ridge Home – Arvada, Colorado

The 68-acre Ridge Home site in Arvada will be a pedestrian-friendly, transit-oriented and mixed-use development. Plans include 65,000 square feet of office/flex space and 278,090 square feet of retail space along with 590 multi-family residential units. The mixed-income and affordable housing units will be built north of Ridge Road with the intention of providing the community with easy access to light rail.

“The advent of FasTracks has played an integral role in the design of Ridge Home and the entire Ralston Fields Urban Renewal District,” according to Tim Steinhaus, executive director of the Arvada Urban Renewal Authority. “Light rail transit is an invaluable amenity with considerable implications on not only the orientation and focus of the development but also its function and appeal.”

The Ridge Home TOD will be serviced by the Gold Line that will run west from Denver’s Union Station to Ward Road in Wheat Ridge. The Gold Line will stop at seven stations including the Ridge Home Park-n-Ride, which will features 250 parking spaces. RTD daily ridership projections for 2025 forecast between 16,300 and 19,100 riders on the Gold Line.

With the exception of the Gold Line and Ridge Home station, the Ridge Home development is scheduled for completion in 2011. The Gold Line is scheduled to be operational in 2015.

Total costs for all construction activity of Ridge Home are estimated at $124 million and will support the full-time equivalent of 160 construction jobs per year during the six-year build-out.

Ridge Home businesses will support 800 employees from the metro area at an average wage of $24,000, resulting in an annual payroll of $18.8 million. Employees will support $11.2 million of housing in the City of Arvada and make annual taxable purchases of $676,000 resulting in $22,000 of sales tax revenue for the City.

Ridge Home will be home to an estimated 1,550 residents with a combined annual household income of $19.7 million.

Annual retail sales at Ridge Home businesses are estimated to reach $66.1 million.
The City of Arvada directly invested $3 million in Ridge Home by way of an incentive to a large retailer. The $3 million investment will be recouped in economic benefits in just over six years, meaning spending by businesses, employees and residents will surpass the amount invested in six years.

The total economic and fiscal impact for all construction-related activities at the Ridge Home TOD on the City of Arvada is $5.2 million, including a net fiscal benefit of $477,000 from taxes and fees.

In a typical year of operations, businesses, employees and residents of Ridge Home will have a $74 million net economic benefit to the City of Arvada. However, the net fiscal impact on Arvada averages -$205,500 per year until the end of the TIF agreement, at which time it is positive.

CityCenter – Englewood, Colorado

CityCenter Englewood is a vibrant, mixed-use community centered on transit. In 1999, the former site of the Cinderella City Shopping Center was redeveloped into a pedestrian-friendly transit-oriented development (TOD) that features retail, entertainment, residential, office, civic and open space elements. CityCenter TOD added 300,000 square feet of office and civic space, 330,090 square feet of retail space and 50,000 square feet of restaurant to the Englewood community.

Among the many civic uses are City Hall offices, the Library, Municipal Court and the Museum of Outdoor Art. In 2003, CityCenter was awarded the U.S. Commerce Dept. Economic Development Administration Award for Suburban or Urban Excellence.

The City not only had the foresight to replace the deteriorating mall but also recognized the potential of a transit-oriented development (TOD) as part the Southwest Corridor line. Bob Simpson, Director of Community Development recently called transit, “the key success factor for CityCenter Englewood. With system expansion, the region will also reap the benefits of transit oriented development. CityCenter Englewood has attained a regional presence and offers a distinct sense of place that is active, mixed-use, pedestrian-friendly, most importantly, economically viable and sustainable.”

Without light rail, the CityCenter redevelopment would likely not have included any residential development. Englewood has an aging housing stock and limited housing types, so the ability to introduce new housing products into the community has been beneficial. Residents at Alexan, the multi-family residential development at CityCenter, cite light rail transit as the number one amenity and reason for choosing to live at the Alexan. The Alexan recently sold to an investment firm for an estimated $5,000 and $10,000 more per unit because of its location along a light rail line, according to an April 25, 2003 Rocky Mountain News article.

Proximity to light rail was one of the top five concerns in the headquarters relocation decision of Gart Sports, now Sports Authority. In order to minimize the loss of employees during the move, the company conducted an in-house survey to identify employee preferences. A company representative said that access to light rail was one of the top five factors in their relocation decision.
Transit is “the key success factor for CityCenter Englewood. With system expansion, the region will also reap the benefits of transit oriented development. CityCenter Englewood has attained a regional presence and offers a distinct sense of place that is active, mixed-use, pedestrian-friendly, most importantly, economically viable and sustainable.”

City Center is served by the Southwest Corridor line and several RTD bus routes. Since the Southwest line opened in 2000, ridership has been consistently 70% or more ahead of projections. Light rail passengers boarding at CityCenter can be in Downtown Denver in about 12 minutes.

By 2025, RTD estimates daily ridership on the Southwest line to be between 20,200 and 23,600. As part of FasTracks, the CityCenter Englewood Park-n-Ride will be enhanced with an additional 440 parking spaces. Partly due to the popular transit amenity of CityCenter, both the City of Sheridan and City of Englewood are planning residential developments adjacent to the station with direct pedestrian connections.

♦ Total costs for all construction activity at CityCenter are estimated at $111 million, which provided the City of Englewood with a net economic benefit of $6.6 million and a net fiscal impact of $2.2 million from taxes and fees. Construction activity supported the full-time equivalent of 165 construction jobs per year throughout the five-year build-out, resulting in $37.2 million of construction-related payroll.

♦ Business operations, in a typical year at CityCenter, will provide a $106.8 million positive net economic benefit to the City of Englewood, including a positive net fiscal impact of $2.1 million.

♦ Annual retail sales at CityCenter are expected to reach an estimated $91.7 million, which translates into $2.4 million in sales tax revenue for the City assuming 75% of sales are taxable.

The total economic impact for all construction-related activities at CityCenter on the City of Englewood is $6.6 million, including a positive net fiscal benefit of $2.2 million from taxes and fees.

In a typical year of operations, business, residents and visitors of CityCenter have a $113.4 million annual net economic benefit to the City of Englewood, including a $1.6 million annual net fiscal impact.

♦ CityCenter businesses support 1,730 employees from the metro area with an average wage of $37,821. Total annual payroll for CityCenter employees is estimated at $65.3 million. Employees make annual taxable purchases in Englewood of $3.1 million, resulting in $108,000 of sales/use tax revenue for the City. Employees also support $37.6 million of housing in the City and contribute almost $25,000 yearly in property taxes.

♦ The 438 multi-family housing units at CityCenter are home to an estimated 960 residents with a combined annual household income of $13.1 million. Residents make annual taxable purchases of $3.2 million, which translates into $113,000 of sales/use tax revenue for the City of Englewood.
CityCenter has several attractions that draw an estimated 750,000 visitors annually with the Library drawing 500,000 alone. It is estimated that visitors provide an annual net economic benefit of $770,000 to the City of Englewood, which accounts for $20,000 in sales tax revenue.

**Improving the Environment**

Transit offers a partial solution to many environmental problems facing metro Denver – air quality, the loss of open space, high energy consumption and climate change, to name a few. According to the Colorado Mobility Coalition, the use of cars and light trucks causes more environmental damage than anything else consumers do.

**Air quality:** The World Health Organization reports that 1.5 million people die each year from the effects of air pollution that can be traced to vehicle emissions. This is half of all deaths from air pollution and more than the one million who die annually in automobile accidents. The Colorado Mobility Coalition says that driving accounts for 46% of toxic air pollutants, over 25% of greenhouse gases and 22% of the common air pollutants produced by households. The highway network is responsible for 13% of ecologically harmful land use and vehicles are a major source of water pollution.

The Nuñez and McClintock report points out that air pollution continues to be a problem for the Denver region and that motor vehicles are responsible for 60% of our particulate matter pollution. The increasing number of cars on the road negates the impact of stricter auto-emission standards. By reducing the total number of trips made by automobile, FasTracks will improve air quality in the Denver region, as the existing light rail is already doing. Before the Southwest Corridor opened, over 50% of the current light rail trips were previously made by automobile.

**Open Space Preservation:** Higher density, urban development along transit corridors and around transit stops as a result of FasTracks may save between 6,500 and 13,000 acres of land from development, according to the Nuñez and McClintock report and DRCOG analysis.

**High Energy Consumption:** The transportation sector is over 95% dependent on oil. In 2000, cars and trucks guzzled 132 billion gallons of gasoline and an additional 33 billion gallons of diesel and other special fuels, according to the EIA in *Energy Outlook 2002*. The popularity of SUVs and trucks has led to a decrease in fuel economy and the total U.S. fleet’s fuel economy reached its lowest point since 1980 in 2001.

Cars and trucks accounted for 43% of all the petroleum used in the U.S. in 2000, consuming more energy than domestic oil producers extract and the trend is expected to worsen. Americans spend over $100,000 per minute to purchase foreign oil, making oil consumption an important part of the national trade deficit. The transportation sector’s dependence on oil is not fully reflected at the gas pump and helps drives U.S. foreign policy.
V. LIFESTYLE BENEFITS

What we refer to as the qualitative impact of FasTracks cannot be measured in dollars and cents in any consistent and compelling way. However, these components touch every citizen and may be more important in the aggregate than the jobs and income discussed in earlier sections. Although we tend to think of these benefits as social, they have important economic impacts as well.

Health and Safety

Air pollution from vehicle emissions contributes directly to higher health costs. A 2002 study by Albert Melcher found that children living within 250 yards of streets or highways with 20,000 vehicles per days are six times more likely to develop cancer and eight times more likely to develop leukemia. A University of Southern California study the same year found that poor air quality may cause asthma, not just trigger the attacks.

There is a positive relationship between physical activity and health. According to the 2003 study by the Surface Transportation Policy Project, the average Coloradan spends 71 minutes per day in the car and 15% of adult Coloradoans are considered obese. The study reports that nationwide, 55% of Americans want to walk more, rather than drive to specific destinations.

FasTracks travel will replace personal automobile travel for its riders, encourage them to walk once they reach their destination and allow many to walk to and from a transit station. Mixed-use transit oriented development that will accompany FasTracks will promote walking because goods and services are only a short distance from residences, thus improving the health of metro Denver residents.

Improved transit will make commuting safer. According to the National Highway Traffic Safety Administration, an automobile accident with minor injuries costs an average of $10,562 in medical services, lost productivity and property damage. Those causing critical injuries cost nearly $1.1 million over a lifetime and a death costs an estimated $977,208. According to the National Safety Council, there were 629 fatal traffic accidents in Colorado in 2003, giving Colorado a 1.4 fatality rate per 1,000,000 vehicles miles traveled. In 2002, there were 65 traffic deaths in Denver alone of which 25 were pedestrians.

Rail transit is far safer than driving. No passenger has ever been seriously injured while riding light rail in metro Denver, according to the Denver Post. Further, RTD has not been determined responsible in any light rail related accident in Denver.

Benefits to Individuals

Good public transportation provides economic benefits to individuals, as well as to businesses. Twenty-six percent of metro Denver residents identify lack of transit service as Colorado’s most important transportation problem. Nevertheless, only a portion of the metro Denver population will ride FasTracks on a regular basis. The 2003 CDOT study found that 42% of metro Denver residents said they would be somewhat likely (23%) or very likely (19%) to use light rail and 28% said they would be somewhat likely (18%) or very likely (10%) to use the bus if it were an option.

The percentage of people taking transit during the peak hours is projected to increase with FasTracks. Transit usage in 2001 ranged from 6% in the Gold Corridor to 12% in the I-225 Corridor, with most
corridors experiencing 10% to 12% transit usage. In the Southwest Corridor, where light rail already exists, 19% of commuters are currently using transit during the peak travel period and that is expected to increase to 21% in 2025 with FasTracks. The percentage of people currently using transit in the US 36 Corridor during peak times is 16% and is expected to increase to 19% in 2025 with FasTracks. Transit usage in other corridors is projected to reach 18% to 27% in 2025, depending upon the corridor.

However, many people who never use FasTracks will still benefit from it. And, many special needs groups will find their lives enormously improved by an increase in reliable transit services.

**Commuters:** The 2003 CDOT study found that 19% of metro Denver residents said they have access to rail transit near their residence, while 88% have bus access. However, 89% of metro Denver respondents own a car and 82% typically commute by driving alone; another 10% carpool, 7% ride the bus and only 1% use light rail. Sixty-four percent report an average commute time of 22 to 60 minutes roundtrip. When FasTracks construction is completed in 2016, approximately 86% of all households within the RTD district will be within five miles of a rapid transit Park-n-Ride. The DRCOG study reports that by 2025, 26% of all jobs (548,000) will be located within walking distance (defined as one-half mile) of a rapid transit station.

Rail transit is more economical for residents than personal automobiles. According to the 2002 Consumer Expenditure Survey, 18.8% of the typical national household’s average annual expenditures go to transportation. However, the typical household in Denver devotes 20.6% of its average annual expenditures to transportation costs, due primarily to the high costs of automobiles, maintenance and insurance. The average annual expenditure in Denver for gasoline and motor oil alone is $1,297 per household, which is more than double the cost for 12 monthly RTD passes valued at $540. Further, people who use transit typically get lower auto insurance rates.

Parking is often an additional cost for someone who drives to work. A 2000 study of off-street parking costs in Downtown Denver found that daily parking costs range from $2.60 to $17.03, with an average of $6.36. This equates to between $55 and $358 per month, with an average cost of $134.

**Seniors:** Planners at DRCOG describe FasTracks as a senior-friendly transit project. The metro Denver population is aging rapidly and transportation needs change as one ages. According to DRCOG, between 2000 and 2030, the over 60 population will increase from 12.6% of the metro Denver region population to 22.2%. There will be 577,132 more seniors by 2030, for a total of 868,267 seniors.

Margi Ness with the Colorado Mobility Coalition points out that transit makes life richer for the elderly, who usually rank transportation as one of their top two concerns. Good transit service means they are less isolated, so they remain healthier and live longer. An added bonus accrues to their children, who don’t have to take time away from work or family to drive elderly parents to appointments and activities. She also notes that family members who have never used transit may be afraid for elderly parents to use such a service. Also, seniors who are suddenly provided with good transit options may need training in how to use it.

Another local resident provided a telling description of the impact of rail transit on the elderly community. “I’m in a bridge club with several women in their 70s. Prior to the opening of the Mineral rail line, some of them hadn’t been downtown in 20 years. Now they are able to enjoy cultural events at the Denver Center for the Performing Arts without the stress of driving into a crowded city with its confusing one way streets.”

**Disabled:** Providing access for the disabled community to jobs and amenities in metro Denver is an ongoing challenge. The disabled are scattered across the metro area and need to travel to the same places
that the rest of us do. Even if they accept the responsibility of living near a transit station, the current bus system frequently does not go where they need to go without several transfers. As a result, they may be unable to work and have to rely on public assistance.

Improved transit in metro Denver will expand job opportunities for the disabled by enabling them to get to work across a larger job region. This reduces their dependence on public assistance financed by scarce state and federal tax dollars.

**Low Income:** According to DRCOG, 24,000 low income persons (11.8% of the total low income population in 2025) will live within one mile of stations that will be constructed or expanded as part of FasTracks. Transit stations will also be located near major job sites that employ large numbers of lower income workers. This will make them more productive by substantially increasing their job opportunity range (the number of jobs within a specified commute time). For example, when complete, FasTracks will put almost 300,000 jobs within 45 minutes of Five Points (including walk, wait and transit time) and 312,000 jobs within 45 minutes of the Alameda/Federal area.

The Women’s Bean Project at 32nd and Curtis teaches basic workplace competencies to chronically unemployed women. The majority of women who work there rely solely on transit because they are not able to afford a car. Tamra Ryan, the program’s executive director, recently described the program as “limited by transportation.” FasTracks would make the program accessible to women outside of the Downtown Denver area who do not currently have access to transit.

**Students:** Both adult and K-12 students currently benefit from RTD’s rail and bus service but will realize greater benefits under the FasTracks plan due to enhanced bus networks and additional corridors. The Central Corridor and the Southwest Corridor currently serve the Auraria Campus in Downtown Denver, which is shared by the Community College of Denver, Metropolitan State College of Colorado and the University of Colorado. Students who utilize rail transit are able to forgo parking fees on the campus.

Recently, the Denver Public Schools Board of Education unanimously moved to replace most yellow bus service with RTD service in order to offer students more academic opportunities under their financial constraints as well as provide students with more flexibility. Denver Public Schools will issue free monthly passes to high school students outside a 3.5 mile boundary and to middle school students outside a 2.5 mile boundary. Additionally, DPS and RTD will provide discounted passes to students within the boundaries. DPS expects about 32% of high school students and 7.5% of middle school students to use RTD for transportation this coming school year. Elaine Gantz Berman, a Board of Education member, said, “The greater the extent to which students can take advantage of transit, the better it will be for both the district and students because it will allow for increased spending on education instead of transportation.”

The current bus service network will be enhanced under FasTracks by providing more buses, more routes, feeder routes to train stations, more suburb-to-suburb service and timed transfers at transit hubs throughout the region called FastConnect. Students and parents alike will find RTD bus transit more attractive and appealing under FasTracks given the enhanced network. Ridership statistics suggest that rail transit is popular among the student population as ridership is consistently higher when school is in session.

**Business and Leisure Travelers:** Visitors will find it easier to travel within the metro area as a result of FasTracks. There will be less need to rent a car when reliable rail transit is available. Business travelers will have direct access to Downtown Denver, the Denver Tech Center and other metro Denver employment centers via rail. Leisure travelers can take the East Corridor line from Denver International Airport to Union Station and will have transit access to cultural attractions and shopping in both
Downtown Denver and the surrounding areas. Metro residents will also benefit, avoiding parking costs and the possibilities of traffic delays en route to the airport, Downtown Denver and other points throughout the metro Denver region.
Ultimately, residents of metro Denver want to know how much FasTracks will cost them on an annual basis. This section presents an analysis of per household costs of the proposed 4/10 of a cent sales tax increase.

**Average RTD Tax by Household Income Range**

Households spend their income on a variety of items, including food, shelter, clothing, transportation, health care, education and entertainment. The state sales/use tax of 2.9% is imposed upon the purchase price of retail sales of tangible personal property. In addition to the state tax, some counties, cities and special districts impose sales and use taxes. The Regional Transportation District currently imposes a 0.6% sales/use tax.

Taxable purchases include all tangible personal property purchases, as well as lodging, telephone service, restaurant food and drink sales, rental autos, and similar items. Services and entertainment tickets are generally not taxable, so items such as haircuts, dry cleaning, automotive repair labor, movie tickets and sporting event tickets are all exempt. Numerous other items are exempt from sales/use tax, including the following:

- Food for home consumption
- Machinery and machine tools
- Electricity and fuel for residential use
- Sales to charitable organizations, schools, governmental units
- Farm equipment
- Gasoline
- Pesticides
- Food sold through vending machines
- Low-emitting vehicles
- Cigarettes
- Prescription drugs and certain medical items

The taxable base for RTD is similar to that of the state with a few notable exceptions. RTD does not exempt machinery and machine tools, vending machine sales, or low-emitting vehicles.

The Consumer Expenditure Survey, prepared annually by the U.S. Department of Labor, provides estimates of typical household spending by category and by income level. According to the 2002 survey (the most recent study available), the average household of 2.5 people in metro Denver had total income of $60,983. This average household income is higher than the median household income of about $51,543 because the average value is influenced by very high income levels.

Based upon an analysis of the taxable base in Colorado, it is estimated that 38.5% of the total expenditures by a typical household in metro Denver are on taxable purchases. This percentage varies slightly by income level, ranging between 36% and 39% of total expenditures. The following table
provides an estimate of spending patterns by income level for a sample of income categories. The complete table is included in Appendix E, including detail on taxable and nontaxable purchases. It should be noted that households at the lowest income levels fund their purchasing patterns by “dissaving,” including the use of retirement funds and other savings, selling investments, borrowing or using public assistance funds.

**Table 6: Spending by Income Range, 2002**

<table>
<thead>
<tr>
<th>Income</th>
<th>Metro Denver Average</th>
<th>$10,000 to $14,999</th>
<th>$20,000 to $29,999</th>
<th>$40,000 to $49,999</th>
<th>$50,000 to $74,999</th>
<th>$100,000 to $124,999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Expenditures</td>
<td>$49,014</td>
<td>$21,710</td>
<td>$31,359</td>
<td>$42,753</td>
<td>$54,110</td>
<td>$81,448</td>
</tr>
<tr>
<td>Non-Taxable</td>
<td>$30,122</td>
<td>$13,842</td>
<td>$19,303</td>
<td>$26,809</td>
<td>$33,030</td>
<td>$51,163</td>
</tr>
<tr>
<td>Taxable</td>
<td>$18,892</td>
<td>$7,869</td>
<td>$12,056</td>
<td>$15,944</td>
<td>$21,081</td>
<td>$30,286</td>
</tr>
<tr>
<td>Personal Taxes</td>
<td>$4,086</td>
<td>($53)</td>
<td>$548</td>
<td>$2,147</td>
<td>$3,588</td>
<td>$10,042</td>
</tr>
<tr>
<td>Savings</td>
<td>$7,883</td>
<td>($9,260)</td>
<td>($7,420)</td>
<td>($445)</td>
<td>$1,419</td>
<td>$26,554</td>
</tr>
<tr>
<td>Total Income</td>
<td>$60,983</td>
<td>$12,397</td>
<td>$24,487</td>
<td>$44,455</td>
<td>$59,117</td>
<td>$118,044</td>
</tr>
</tbody>
</table>

**Taxable Spending as % Total Expenditures**: 38.5% 36.2% 38.4% 37.3% 39.0% 37.2%

**Non-Taxable Spending as % Total Expenditures**: 61.5% 63.8% 61.6% 62.7% 61.0% 62.8%


By 2005, the year in which the proposed tax increase would take effect, prices and incomes are expected to be higher than in 2002. While the prices of various goods and services will rise at different rates, this analysis assumes that all income levels and spending patterns will increase by the average increase in the Denver-Boulder-Greeley Consumer Price Index. All 2002 income and spending levels were increased by 5.0% in order to adjust for inflation during the 2002 to 2005 period, which was calculated as follows:

**Table 7: Consumer Price Index**

<table>
<thead>
<tr>
<th>Year</th>
<th>CPI-U</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>184.8</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>186.8</td>
<td>1.1%</td>
</tr>
<tr>
<td>2004e</td>
<td>190.2</td>
<td>1.8%</td>
</tr>
<tr>
<td>2005e</td>
<td>194.0</td>
<td>2.1%</td>
</tr>
<tr>
<td>2002-2005e</td>
<td>5.0%</td>
<td></td>
</tr>
</tbody>
</table>


**Portion of RTD Tax Paid by Businesses, Households and Non-Residents**

Even if resident households were to conduct all of their taxable spending in metro Denver, which is an unrealistic assumption, resident households would only generate 55% to 60% of RTD’s total tax revenues. The remaining tax revenue would originally be paid by metro Denver businesses and non-residents, including leisure and business travelers.
Businesses purchase computers and other machinery, office furniture and fixtures, and a variety of supplies in order to conduct their operations. While some business purchases are exempt because of the type of business organization, industry or item, businesses are the original payer of a significant amount of sales tax. While it may be argued that taxes paid by businesses are eventually passed on to the consumer in the form of higher prices, the reality is that some portion of the taxes paid by businesses are passed on to customers located outside of metro Denver, some portion is absorbed by the business in the form of lower net income, and some portion is passed on to metro Denver customers.

Businesses that sell more of their goods and services outside of metro Denver may be able to alleviate the potential impact on metro Denver customers. However, it is not known how much of the tax increase businesses will ultimately pass on to metro Denver residents in the form of higher prices. Therefore, this analysis is based upon who originally pays the tax. An analysis of Colorado Department of Revenue all industry retail sales data for metro Denver yields an estimate of taxable business purchases generating about 33% of all tax revenue.

In addition, business and leisure travelers to the metro Denver area purchase taxable goods and services during their visit. A Longwoods International study reveals that about 9.7 million visitors spent $2.3 billion in the Denver area in 2003. The figures for 2003 include 7.8 million leisure travelers and 1.9 million business travelers. Using this measure of tourist spending, non-resident spending contributes about 7% of all tax revenue. See Appendix F for the complete analysis.

RTD Tax Summary

Assuming that metro Denver households spend all of their taxable dollars in metro Denver, the maximum amount the household would spend in 2005 on the proposed 0.4% tax increase is described in the following table. It is, however, unrealistic to believe that metro Denver households will spend all of their taxable dollars in metro Denver, so this represents the upper limit of the cost per household.

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Total Households</th>
<th>% of Total Households</th>
<th>0.4% Tax Per Household</th>
<th>Total Revenue</th>
<th>% of Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $10,000</td>
<td>58,643</td>
<td>5.7%</td>
<td>$28.90</td>
<td>$1,694,705</td>
<td>1.9%</td>
</tr>
<tr>
<td>$10,000 to $14,999</td>
<td>45,736</td>
<td>4.4%</td>
<td>$33.04</td>
<td>$1,511,143</td>
<td>1.7%</td>
</tr>
<tr>
<td>$15,000 to $19,999</td>
<td>49,118</td>
<td>4.8%</td>
<td>$39.08</td>
<td>$1,919,585</td>
<td>2.2%</td>
</tr>
<tr>
<td>$20,000 to $29,999</td>
<td>117,588</td>
<td>11.4%</td>
<td>$50.62</td>
<td>$5,952,879</td>
<td>6.7%</td>
</tr>
<tr>
<td>$30,000 to $39,999</td>
<td>106,051</td>
<td>10.3%</td>
<td>$62.00</td>
<td>$6,575,601</td>
<td>7.4%</td>
</tr>
<tr>
<td>$40,000 to $49,999</td>
<td>109,475</td>
<td>10.6%</td>
<td>$66.95</td>
<td>$7,329,458</td>
<td>8.3%</td>
</tr>
<tr>
<td>$50,000 to $74,999</td>
<td>226,056</td>
<td>21.9%</td>
<td>$88.52</td>
<td>$20,010,416</td>
<td>22.5%</td>
</tr>
<tr>
<td>$75,000 to $99,999</td>
<td>135,601</td>
<td>13.1%</td>
<td>$117.38</td>
<td>$15,916,471</td>
<td>17.9%</td>
</tr>
<tr>
<td>$100,000 to $124,999</td>
<td>82,141</td>
<td>8.0%</td>
<td>$127.17</td>
<td>$10,446,088</td>
<td>11.8%</td>
</tr>
<tr>
<td>$125,000 to $149,999</td>
<td>38,566</td>
<td>3.7%</td>
<td>$143.84</td>
<td>$5,547,533</td>
<td>6.3%</td>
</tr>
<tr>
<td>$150,000 to $199,999</td>
<td>35,026</td>
<td>3.4%</td>
<td>$177.61</td>
<td>$6,220,869</td>
<td>7.0%</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>28,632</td>
<td>2.8%</td>
<td>$196.74</td>
<td>$5,633,037</td>
<td>6.3%</td>
</tr>
<tr>
<td>Metro Denver</td>
<td>1,032,632</td>
<td>100.0%</td>
<td>$85.95</td>
<td>$88,757,784</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
The typical household of 2.5 people earning the average income in metro Denver will pay an estimated additional $86 in sales/use tax to RTD in 2005 if voters approve the proposed tax increase. Households are estimated to generate 55% to 60% of the total RTD tax revenue, with the remainder generated from business purchases, business travelers, and leisure travelers. The amount of tax paid by the residents varies by total household income level, as described in Table 8.

The 0.4% increase in the RTD sales/use tax translates into $34 per metro Denver resident in 2005. This average value will vary by income level, with individuals earning higher income paying more tax. For just 9.4 cents per day, the average household resident in metro Denver can enjoy more transit choices, greater transit reliability, reduced traffic congestion and travel time savings, not to mention large economic impacts gained throughout the metro Denver economy.
VII. SELECTED REFERENCES


4. City of Arvada, www.ci.arvada.co.us


26. City of Englewood, [www.ci.inglewood.co.us](http://www.ci.inglewood.co.us)

27. FasTracks Yes!, [www.FasTracks.org](http://www.FasTracks.org)


29. Fitzsimons Redevelopment Authority, [www.colobio.com](http://www.colobio.com)


44. Smart Growth America, [www.smartgrowthamerica.com/whatisig.html](http://www.smartgrowthamerica.com/whatisig.html)


VIII. INTERVIEWS
(All interviews conducted in July and August 2004)

3. Berman, Elaine Gantz. Board Member, Denver Public Schools Board of Education.
5. Champlin, Guy. Director of Transportation, Denver Public Schools.
6. Clark, Tom. Executive Vice President, Metro Denver Economic Development Corp.
9. Fleissig, Will. Co-Founder, Continuum Partners LLC.
12. Laack, Peter. Hospitality Real Estate Counselors.
14. Orr, Liz. Director of Research, FasTracks Yes!
15. Phair, Maureen. Redevelopment Manager, Arvada Urban Renewal Authority.
17. Rao, Liz. Assistant General Manager, Regional Transportation District.
18. Romine, Jeff. Program Manager/Regional Economist, Denver Regional Council of Governments.
20. Rynerson, Robert. Service Planning and Scheduling, Regional Transportation District.
25. Seifried, Jeff. City of Aurora, Urban Renewal Division.
27. Steinhaus, Tim. Executive Director, Arvada Urban Renewal Authority.
IX. APPENDICES

Appendix A: FasTracks Supporters (as of September 2, 2004)

Organizations (63)

AARP
Adams County Economic Development Corporation
ACCORD
American Lung Association of Colorado
Alameda Gateway Community Association
Apartment Association of Metro Denver
Arvada Chamber of Commerce
Audubon Society of Greater Denver
Aurora Association of Realtors
Aurora Chamber of Commerce
Build the Bikeway
Broomfield Economic Development Corporation
Boulder Area Realtor Association
Boulder Chamber of Commerce
Boulder Tomorrow
The Bruce Randolph Merchants and Civic Association, Inc.
Capital Hill United Neighborhoods (CHUN)
The Chamber Serving the Broomfield Area
Citizens for Commuter Rail
Coalition for Healthy 170 Neighborhoods (CHIN)
Coalition for Mobility and Air Quality
Colfax Business Improvement District
Colfax on the Hill
Colorado Affordable Housing Partnership
Colorado Association of Hispanic Real Estate Professionals
Colorado Association of Realtors
Colorado Concern
Colorado Contractor Association
Colorado Environment Coalition
The Colorado Mobility Coalition
Colorado Rail Passenger Association (ColoRail)
Colorado Restaurant Association
Denver Metro Chamber of Commerce
Denver Metro Convention & Visitors Bureau
DIA Partnership
Downtown Denver Partnership
Denver Chamber of Commerce
City Council of Denver
Denver Community Design Center
Denver Economic Development Partnership
Denver-light Rail Support Committee
Denver Metro Business Council
Denver Metro Convention & Visitors Bureau
Denver Regional Chamber of Commerce
Denver-shares
Denver-5280
Detroit Area Chamber of Commerce
Downtown Denver Partnership
Downtown Denver Residents Organization
Elyria/Swansea Business Association
Environment Colorado
Home Builders Association of Metropolitan Denver
International Council of Shopping Centers
Jefferson County Association of Realtors (JCAR)
Jefferson County Transportation Advisory and Advocacy Group (JEFTAG)
Jefferson Economic Council
League of Women Voters of Colorado
Longmont Area Chamber of Commerce
Longmont Area Economic Council
Metro Mayors Caucus
Metro North Chamber of Commerce
myStapleton.com
NAIOP (National Association of Industrial and Office Properties)
PLAN Jeffco
Rocky Mountain Masonry Institute
Sierra Club
South City Park Communities
South Metro Denver Chamber of Commerce
Southeast Business Partnership
Transit Alliance
U.S. 36 Transportation Mobility Organization
The Voice Builder
West Chamber Serving Jefferson County
Workforce Housing Initiative

Businesses (157)

1125 Seventeenth St. Property LLC (Beacon Capital)
1950 Logan, LLC
1st Bank of Arvada
1st Bank Holding Company
Advanced Drainage Systems
Alvarado Construction Inc.
AmeriVest Properties, Inc.
Anderson Mason Dale Architects
Anthem Blue Cross Blue Shield
Arlo Braun & Associates, P.C.
Asphalt Recycling & Stabilization, Inc.
Bank One
Banner Rebar, Inc.
Boulder Denver Associates, LLC
Brookfield Properties
Brownstein Hyatt Farber
Brundage Bone Concrete Pumping
Buchanan Yonushewski Group, LLC
Carter & Burgess, Inc
Capstone Bay LLC
Carlson Parkhill LLC
Carrol and Lange, Inc.
CH2M Hill
CFC Construction
Citywide Banks
CMC Group, Inc.
Colfax Avenue Lakewood LLC
Colony Investments, Inc.
Columbia Group Limited
Continuum Partners
Coors Brewing Company
Corey Electrical Engineering, Inc.
Local Governments (26)
Boulder County Board of County Commissioners
City and County of Broomfield
City Council of Golden
City of Aurora
City of Arvada
City of Brighton
City and County of Boulder
City of Commerce City
City and County of Denver
City of Edgewater
City of Englewood
City of Federal Heights
City of Greenwood Village
City of Lakewood
City of Littleton
City of Lone Tree
City of Longmont
City of Louisville
City of Northglenn
City of Sheridan
City of Thornton
City of Wheat Ridge
City of Westminster
Town of Superior
U.S. 36 Mayors/Commissioners Coalition
Board of County Commissions for Adams County

Local Elected Officials (74)
Arvada Mayor Ken Fellman
Arvada Councilwoman Lorraine Anderson
Arvada Councilman John Malito
Arvada Councilman Marc Williams
Aurora Mayor Ed Tauer
Aurora Councilwoman Nadine Caldwell
Aurora Councilman Steve Hogan
Boulder Mayor Will Toor
Boulder Councilman Andy Schultheiss
Boulder City Councilman Jack Staakes
Boulder County Commissioner Thomas Mayer
Brighton City Councilman Dick Hodge
Broomfield Mayor Karen Stuart
Broomfield Councilman Clark Griep
Broomfield City Councilman Steve Kaverman
Centennial Mayor Randy Pye
Centennial Councilwoman Susan Nix
Commerce City Councilwoman Tracey Snyder
Commerce City Councilwoman Debbie Mitchell
Denver Mayor John Hickenlooper
Denver Councilwoman Marcia Johnson
Denver Councilman Michael Hancock
Denver Councilman Rick Garcia
Denver Councilwoman Judy Montero
Denver Councilwoman Jeanne Robb
Denver Councilman Doug Linkhart
Denver Councilwoman Kathleen MacKenzie
Denver Councilwoman Rosemary Rodriguez
Denver Councilwoman Peggy Lehmann
Denver City Councilman Charlie Brown
Englewood City Councilwoman Beverly Bradshaw
Englewood City Councilman Raymond Tomasso
Federal Heights Councilwoman Carol Wright
Glendale Mayor Larry Harte
Glendale City Councilman Marc Kamin
Golden Mayor Charles Baroch
Golden Councilman Bob Nelson
Golden City Councilwoman Lynne Timpeiro
Golden City Councilwoman Karen Oxman
Greenwood Village Mayor Nancy Sharpe
Greenwood Village Councilwoman Meg Froelich
Jefferson County Commissioner Michelle Lawrence
Jefferson County District Attorney Dave Thomas
Lakewood Mayor Steve Burbholder
Lakewood Councilman Bob Murphy
Lakewood Councilman Ed Peterson
Littleton City Councilwoman Rebecca Kast
Littleton City Councilwoman Kelli Narde
Littleton Councilman Jim Taylor
Littleton Mayor John Ostremiller
Lone Tree Councilwoman Patricia Braden
Lone Tree Mayor Jack O’Boyle
Longmont Mayor Julia Pirnack
Longmont Councilman Doug Brown
Longmont Mayor Pro-Term Tom McCoy
Louisville Mayor Chuck Sisk
Louisville Councilwoman Michele Van Pelt
Louisville Councilman Don Brown Jr.
Louisville Councilman Jay Keany
Northglenn Mayor Kathleen Novak
Northglenn Councilwoman Marge Carlow
Northglenn City Councilwoman Rosie Garner
Parker Mayor Gary Lasater
Sheridan Mayor Mary Carter
Superior Mayor Susan Spence
Thornton Mayor Noel Busck
Thornton City Councilwoman Rebecca Cavanaugh-Miller
Thornton Councilman Steve Lebsock
Westminster Mayor Nancy McNally
Westminster City Councilman Elmer Butch Hicks
Westminster City Councilman Chris Dittman
Westminster City Councilwoman Samantha Dixon
Wheat Ridge Mayor Gretchen Cerveny

**State and U.S. Elected Officials (16)**
Colorado State Representative Alice Borodkin
Colorado State Representative Betty Boyd
Colorado State Representative Bob Briggs
Colorado State Representative Mike Cerbo
Colorado State Representative Rob Fairbank
Colorado State Representative Mary Hodge
Colorado State Representative Bob Hagedorn
Colorado State Representative Cheri Jahn
Colorado State Representative Lois Tochtrop
Colorado State Representative Suzanne Williams
Colorado State Senator Norma Anderson
Colorado State Senator Peter Groff
Colorado State Senator Bob Hagedorn
Colorado State Senator Deanna Hanna
United States Representative Diana De Gette
United States Representative Mark Udall
Appendix B: RIMS II Multipliers

REGIONAL MULTIPLIERS
A User Handbook for the Regional Input-Output Modeling System (RIMS II)
Third Edition
March 1997
U.S. Department of Commerce

Effective planning for public- and private-sector projects and programs at the State and local levels requires a systematic analysis of the economic impacts of the projects and programs on affected regions. In turn, systematic analysis of economic impacts must account for the interindustry relationships within regions because these relationships largely determine how regional economies are likely to respond to project and program changes. Thus, regional input-output (I-O) multipliers, which account for interindustry relationships within regions, are useful tools for regional economic impact analysis.

In the 1970’s, the Bureau of Economic Analysis (BEA) developed a method for estimating regional I-O multipliers known as RIMS (Regional Industrial Multiplier System), which was based on the work of Garnick and Drake (1). In the 1980’s, BEA completed an enhancement of RIMS, known as RIMS II (Regional Input-Output Modeling System) and published a handbook for RIMS II users (2). In 1992, BEA published a second edition of the handbook, in which the multipliers were based on more recent data and improved methodology. Now, BEA is making available a third edition of the handbook, in response to requests by users for additional discussion of the data that they must provide in order to use RIMS II and of the data sources and methods used for multiplier estimation. The multipliers in the third edition reflect I-O data for 1987, the most recent benchmark year for which BEA’s national I-O data are available.

RIMS II is based on an accounting framework called an I-O table. For each industry, an I-O table shows the distribution of the inputs purchased and the outputs sold. A typical I-O table in RIMS II is derived mainly from two data sources: BEA’s national I-O table, which shows the input and output structure of nearly 500 U.S. industries, and BEA’s regional economic accounts, which are used to adjust the national I-O table in order to reflect a region’s industrial structure and trading patterns (3).

Using RIMS II for impact analyses has several advantages (4). RIMS II multipliers can be estimated for any region composed of one or more counties and for any industry or group of industries in the national I-O table. The cost of estimating regional multipliers is relatively low because of the accessibility of the main data sources for RIMS II. According to empirical tests, the estimates based on RIMS II are similar in magnitude to the estimates based on relatively expensive surveys (5).

To effectively use the multipliers for impact analysis, users must provide geographically and industrially detailed information on the initial changes in output, earnings or employment that are associated with the project or program under study. The multipliers can then be used to estimate the total impact of the project or program on regional output, earnings, or employment.

RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings, and State departments of transportation use RIMS II to estimate the regional impacts of airport construction and

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expansion. In the private sector, analysts, consultants, and economic development practitioners use RIMS II to estimate the regional impacts of a variety of projects, such as the development of theme parks and shopping malls.


Appendix C: Other Metro Experiences with Rail Transit

 Transit is increasing in popularity nationwide illustrated by the relative gains in operational vehicle miles and passengers carried by light rail, commuter rail and motor bus. According to the American Public Transportation Association, while operational vehicle miles increased by 324% between 1980 and 2001, passengers carried increased by a whopping 1,865%. The following list of transit systems across the country is intended to identify similar systems to FasTracks. The list is merely representative and not complete.

**Dallas Area Rapid Transit (DART)**

The DART system currently serves Dallas and 12 surrounding cities with approximately 130 bus routes, 44 miles of light rail transit, 31 miles of HOV lanes and paratransit service for the mobility-impaired. DART and the Fort Worth Transit Authority jointly operate 35 miles of commuter rail linking Dallas, Fort Worth and DFW International Airport. The Dallas region is planning to extend its Southeast and Northwest corridors with an additional 35 miles of rail at a cost of about $2.5 billion in the near future. (www.dart.org)

**Bay Area Rapid Transit (BART)**

BART serves the San Francisco Bay Area with 104 miles of rapid transit, 43 stations and approximately 46,000 parking spaces. In fiscal year 2003, BART carried more than 87 million people to their destinations. Current projects include a connector line to the Oakland Airport (opening in 2010) and a 5.4-mile extension to Warm Springs, CA. (www.bart.gov)

**Minneapolis – Hiawatha Line**

Light rail trains began carrying passengers in Minneapolis in June 2004. For now, the trains run only from the Warehouse District to historic Fort Snelling, about a 20-minute ride. Full service, which will extend beyond Fort Snelling to Minneapolis-St. Paul International Airport and on to the Mall of America in suburban Bloomington - 12 miles from the Warehouse District - is scheduled to begin in December 2004. The project was approved in 1997 with a budget of $400 million, but the cost has since grown to $715 million. Officials have said the increased cost came from inflation and project changes, not from overspending. Supporters hope more than 19,000 people will ride the train daily once the line is fully operational. They hope to eventually build a line connecting the northern suburbs and another connecting Minneapolis and its twin city of St. Paul. (www.dot.state.mn.us/metro/lrt/)

**Phoenix**

Construction began in the spring of 2004 on the Valley Metro Rail transit plan, which includes light rail, local bus service, bus rapid transit and possibly commuter rail. The 20-mile system connects Phoenix, Tempe, Mesa and Glendale and is scheduled to open in late 2008. (www.valleymetro.org/rail/)

**Metropolitan Atlanta Rapid Transit Authority (MARTA)**

MARTA is the ninth largest transit system in the U.S. and North America and provides bus, rail and paratransit service. MARTA transports an average of 500,000 passengers daily and has a service
population of 1,854,338 in the City of Atlanta, Fulton and DeKalb Counties. MARTA operates 691 buses (125 bus routes) and 350 rail cars with 38 stations on 47.6 miles of rail. MARTA is the first agency in the country to pioneer the largest transit-oriented development of its kind – Lindbergh City Center, a blend of commercial, residential, and retail development. Currently, MARTA operates 118 "clean-fuel" Compressed Natural Gas (CNG) buses, which reduce carbon monoxide by a full 95%, but will soon receive 206 more CNG buses, making MARTA the U.S. transit agency with the third largest CNG fleet. (www.itsmarta.com)

Portland

TriMet provides transit for much of the three counties in the Portland, OR area. The comprehensive transit network includes 44 miles of light rail, 64 rail stations, 93 bus lines and the Portland Street Car. In fiscal year 2003, residents and visitors boarded either a bus or light rail 88.9 million times. TriMet’s Metropolitan Area Express (MAX) is the light rail system that connects Portland, Gresham, Beaverton, Hillsboro and the Portland International Airport. Design work is underway on the I-205 line, a 6.5 mile extension into Clackamas County. (www.trimet.org)

Las Vegas

The Robert N. Broadbent Las Vegas Monorail opened for business in mid-July to strong ridership numbers. On the first day of operation, the $650 million monorail transported 30,515 riders, which resulted in $98,436.50 of ticket revenue. The four mile monorail rides above traffic at speeds reaching 50 miles per hour. Tourists are the initial target for monorail passengers.

Other Transit Systems

1. Baltimore, MD – MTA (Maryland Dept of Transportation) (www.mtamaryland.com)
2. Boston, MA – Massachusetts Bay Transportation Authority (www.mbta.com)
3. Cleveland, OH – Cleveland Regional Transit Authority (www.gcra.org)
4. Houston, TX - Metro Rail of Harris County, TX (www.ridemetro.org)
5. Los Angeles, CA – Los Angeles Metropolitan Transit Authority (LA MTA) (www.mta.net)
7. Philadelphia, PN – Southeastern Pennsylvania Transportation Authority (SEPTA) (www.septa.org)
8. Pittsburg, PN – Port Authority of Allegheny (www.portauthority.org)
10. St. Louis, MO – Bi-State Development Agency (www.metrostlouis.org)
11. Salt Lake City, UT – Utah Transit Authority (UTA TRAX)
12. San Diego, CA – San Diego Trolley (www.sdcommute.com)
14. San Jose, CA – Santa Clara Valley Transportation Authority (VTA) (www.vta.org)
15. Tacoma, WA – Sound Transit (www.soundtransit.org)
Appendix D: Detailed Case Studies

Fitzsimons – Aurora, Colorado

History/Previous Use: During World War I, the U.S. government built Fitzsimons Army General Hospital No. 21 to treat the wounded—especially those affected by mustard gas and tuberculosis. Aurora was chosen as the location because Colorado's climate was known for its beneficial effect on lung ailments. Over its lifetime, Fitzsimons, named after 1st Lt. William T. Fitzsimons, treated thousands of patients, trained health care professionals and received a handful of famous visitors like Bob Hope who frequently entertained the patients and President Dwight Eisenhower as he recovered from a heart attack in 1955. After almost 80 years in service, the federal government announced the closure of Fitzsimons Army Medical Center in 1995. According to a study commissioned by the City of Aurora, the closure resulted in an estimated loss of 4,000 civilian and military jobs.

The 578-acre site was positioned for redevelopment through public benefit conveyances to the University of Colorado Health Science Center (UCHSC) and the City of Aurora as well as through an economic development conveyance to the Fitzsimons Redevelopment Authority (FRA). Examples of recent land transactions include University of Colorado Hospital (UCH) and The Children’s Hospital (TCH) obtaining long-term ground leases from UCHSC and the FRA deeding 15 acres to the Colorado State Veterans Home at Fitzsimons.

New Use: Touted as Colorado’s “Square Mile of Life Sciences,” Fitzsimons will be an integrated life sciences center dedicated to patient care, education, basic science research, and bioscience research and development. The redevelopment is anchored by the 227-acre campus shared by UCHSC, UCH and TCH as well as the affiliated 160-acre Colorado Bioscience Park Aurora. The master plan calls for up to 15 million square feet of phased new construction for which build-out is estimated in 2025-2030. Current plans estimate a 14 million square foot build-out.

UCHSC is an academic medical school that strives to improve human health through research, education and patient care. By 2012, the current student population of 8,000 is expected to grow to an estimated 10,000 to 15,000. UCHSC is transitioning from its Ninth Avenue and Colorado Boulevard campus to Fitzsimons in two phases. The first phase, scheduled for completion by 2007/2008, is valued at $1.3 billion and will consist of four million gross square feet. UCH will focus on patient-centered care and collaboration among various disciplines. Completed UCH facilities include the Anschutz Centers for Advanced Medicine (Anschutz Inpatient Outpatient facilities and Cancer Pavilions) and the Rocky Mountain Lions Eye Institute. The state-of-the-art Children’s Hospital, located on the UCHSC campus, will feature 264 inpatient beds, diagnostic and surgery facilities, outpatient clinics, medical staff and administrative offices and support service areas. Completion of the 1.2 million square-foot Phase I building is scheduled for the fall of 2007.
Other noteworthy Fitzsimons facilities include the Nighthorse Campbell Native Health Building, Barbara Davis Center for Childhood Diabetes, University Physicians, Inc. office building, Center for Dependency, Addiction and Rehabilitation (CeDAR), Research Complex I and II, Preservation and Access Service Center for Colorado Academic Libraries (PASCAL), the Library at Fitzsimons, educational facilities and a proposed Federal Tower that would combine Veterans Affairs and the Department of Defense space. The “Tower” would be a unique model for health care delivery in the U.S.

The 160-acre Colorado Bioscience Park Aurora provides space for commercial-oriented biomedical, biotechnology and pharmaceutical research operations and is the first university-affiliated “biopark” west of the Mississippi River. Buildings will be either single user or multi-tenant. Some space will function as incubators, including accommodations ranging from shared space, generic labs and executive suites to build-to-suit labs and offices. About 20 client companies are currently housed at the Park.

At the center of the Fitzsimons square-mile campus is Fitzsimons Commons, a 35-acre mixed-use development orientated around the Fitzsimons Commons light rail stop on the I-225 Line. Scheduled to open in two phases with full completion by 2008, the TOD includes over 500 mid-rise residential units, restaurants and convenience retail as well as the UCHSC library and student center.

Examples of other Fitzsimons uses include City of Aurora Police and Parks facilities, U.S. Army Reserve Training Center, Colorado State Veterans Home, a full service hotel complete with conference and meeting space, and COMITIS – a homeless assistance program.

The Fitzsimons redevelopment has positive implications for areas surrounding the campus, in that several viable redevelopment opportunities are in the beginning stages of transformation to higher uses. Potential reuses are a neighborhood retail center anchored by a grocery store at Colfax and Peoria streets, multi-family residential directly across from the UCHSC campus and a hotel on Colfax Avenue near I-225.

The Fitzsimons redevelopment project has received national attention for its achievements, including the 2003 Excellence in Technology-Led Economic Development Award from the Economic Development Administration of the U.S. Department of Commerce.

**FasTracks and Fitzsimons:** The Fitzsimons campus will be served by the I-225 Corridor line that connects the Southeast Corridor and East Corridor lines. RTD ridership projections for 2025 forecast between 15,200 and 17,800 riders per day. There are two light rail stations planned for the Fitzsimons campus: Fitzsimons South and Fitzsimons Commons. Fitzsimons South is located in the southeast corner of the site just north of Colfax Ave and includes 600 parking spaces. Fitzsimons Commons is centrally located on the campus along Montview Blvd adjacent to residential and retail elements. There are no parking spaces planned as the Fitzsimons Commons station is anticipated to be accessible mainly by pedestrians.

Without light rail transit, a significantly larger portion of the campus land would be required for parking and access needs. Also, considerably more infrastructure improvements for access to and travel within the
site would be required. Light rail transit affords the campus more aesthetic appeal, open space and facilities.


**Financing Details:** Fitzsimons is not currently using tax-increment financing or other special district financing to fund development. However, the Colorado legislature approved the issuance of $202 million in Certificates of Participation (COPs) for the construction of UCHSC academic facilities. The COPs are currently at the center of a legal challenge causing the delay of construction. Otherwise, Fitzsimons has benefited through a hefty amount of private donations, totaling more than $90 million in grants and loans.

**Construction Activity Impacts:** Construction activity results in an increase in the real property value of the residential and non-residential property at Fitzsimons. Construction activity also generates tax revenue for the local government, payroll for construction workers, and sales for construction goods and services vendors. About $17.5 million will be spent on demolition of existing structures and remediation of asbestos contamination in addition to over $800 million in infrastructure improvements. This study considers the impacts of these activities as construction-related activities in addition to the construction of buildings, two light rail stations and other structures. The construction of RTD’s I-225 Line, however, is not included in this analysis due to limitations in isolating the Fitzsimons’ portion of the total light rail line.

Total costs for all construction activity at Fitzsimons are estimated at $3.3 billion and provide the City of Aurora with a net economic benefit of $355.7 million. The $355.7 million impact includes a net fiscal impact of $74.7 million from taxes and fees. Construction activity throughout the 25-year build-out period will support an average of 1,000 construction workers per year and result in $1 billion of construction-related payroll of which Aurora construction workers will receive $130 million.

**Business Operations Impacts:** The annual economic and fiscal impacts of Fitzsimons businesses including the commercial uses, hospital, research and educational facilities are estimated based on employment, occupied real property, business personal property and operational purchases.

Fitzsimons will add approximately 9 million square feet of medical/educational space, 3.5 million square feet of bioscience/research space, more than 700,000 square feet of office/retail space and a full-service hotel complete with conference and meeting space that could exceed 300,000 square feet.
At build-out, Fitzsimons businesses will support more than 30,000 employees from the metro area with an annual payroll of $1.6 billion. The estimated 10,000 Aurora residents working at Fitzsimons will receive $498 million in annual payroll. Businesses locating to Fitzsimons will initially purchase $671 million of furniture, fixtures, equipment and other materials necessary for operation. It is assumed that only a portion of purchases will be made in Aurora due to the close proximity of metro area vendors and a limited supply of Aurora vendors. According to a retail leakage analysis, an estimated $32.3 million of the total purchases will be made from Aurora vendors resulting in $25.1 million in sales/use tax revenue.

In a typical year of operation, businesses will make replacement purchases of furniture, fixtures, equipment and materials totaling $183 million, of which $9.5 million will be purchased from Aurora vendors. Further, annual utility costs for Fitzsimons businesses will total $27.2 million. Estimated annual replacement purchases and utilities contribute $6.8 million in sales/use tax revenue. Annual retail sales at Fitzsimons businesses are expected to reach $24.1 million. Assuming 75% of retail sales are taxable, retail sales will contribute $688,000 in annual sales tax revenue to Aurora’s General Fund.

In a typical year at build-out, all business operations including medical, research and educational activities will provide a $539.3 million net economic benefit to the City of Aurora. A portion of the net economic benefit is a positive net fiscal benefit of $7.3 million to Aurora’s General Fund.

**Off-Site Employee Impacts:** Fitzsimons employees receive paychecks and are thus able to purchase goods and services to support their households. This employee spending creates sales and property tax revenue for the City of Aurora and generates sales revenue for local goods and services vendors. However, not all of the workers that are employed at Fitzsimons will also live in Aurora. Based on 2000 Census data, it is assumed that 31.8% or approximately 10,000 of Fitzsimons workers will live and work in the City of Aurora. Further, an estimated 2% of Fitzsimons residents will live and work at businesses located at Fitzsimons. To avoid double-counting, employees that live and work at Fitzsimons are accounted for under the Residential Spending Impacts section.

The average wage for Fitzsimons employees will be $50,350 resulting in a total annual payroll of $1.6 billion. Total annual payroll for Fitzsimons employees that are also Aurora residents will be $498 million. The more than 30,000 Fitzsimons employees will make annual taxable purchases in Aurora of $124.5 million that will result in $4.7 million of sales tax revenue for the City of Aurora. Employees will support $1.5 billion of housing and contribute $1.3 million in property taxes to Aurora annually.

The net economic benefit of off-site Fitzsimons employees to the City of Aurora is estimated at $126.5 million in a typical year of build-out, including a $2 million net fiscal benefit through the collection of taxes and fees.

**Residential Impacts:** The Fitzsimons residents contribute to the local economy through their spending on goods and services, which generates sales tax revenue, and through the payment of property taxes and fees. The 500+ multi-family housing units in Fitzsimons Commons will be targeted to Fitzsimons employees that prefer the live/work concept and light rail transit. Fitzsimons will be home to an estimated 1,270 residents with a combined annual household income of $13.9 million. Residents are expected to make annual taxable purchases of $5 million, which translates into $133,000 of annual sales tax revenue for the City of Aurora. The net economic benefit of the 1,270 Fitzsimons residents to the City of Aurora is estimated at $3.2 million.
Visitor Impacts: Visitors to Fitzsimons positively impact the economy mainly through taxable expenditures and lodging. Because of the patient-care, educational, research and commercial activities at Fitzsimons, the campus will draw a significant visitor population including UCHSC students, patients, patient visitors and out-of-town researchers. It is estimated that Fitzsimons visitors will have an annual net economic benefit of $4.6 million on the City of Aurora, including an $893,000 net fiscal impact reflecting retail and lodging tax collections.

Summary of Impacts: The total economic and fiscal impact for all construction-related activities at Fitzsimons on the City of Aurora is $355.7 million, including a positive net fiscal benefit of $74.7 million from the collection of taxes and fees throughout the 25-year build-out period.

In a typical year of operations, business and residents of Fitzsimons will have a $673.6 million positive net economic benefit, including a positive net fiscal benefit of $9.8 million from the collection of taxes and fees.

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Ridge Home – Arvada, Colorado

History/Previous Use: Ridge Home opened in the 1920s as a State facility to serve individuals with developmental disabilities. In 1994, the Department of Human Services closed Ridge Home to better serve individuals in community homes. The City of Arvada worked closely with the developer to revitalize the deteriorating site that had become a haven for crime and create a pedestrian-friendly, urban center for the community. The development team also realized the unique opportunity to incorporate FasTracks and light rail transit. Since its closure, the 68-acre site has been virtually vacant and abandoned - partly due to the costly and necessary demolition of more than 20 buildings, remediation due to various sources of environmental contamination and extensive infrastructure improvements.

New Use: The 68-acre Ridge Home site will be a pedestrian-friendly, transit-oriented and mixed-use development. Plans include mixed-use retail and commercial uses anchored by a Super Target.
The Ridge Home site is part of the Ralston Fields Urban Renewal District, which includes the Lutz/Stenger Sports Complex and the Triangle retail shopping district at 58th and Kipling Streets.

**FasTracks and Ridge Home:** “The advent of FasTracks has played an integral role in the design of Ridge Home and the entire Ralston Fields Urban Renewal District,” according to Tim Steinhaus, executive director of the Arvada Urban Renewal Authority. “Light rail transit is an invaluable amenity with considerable implications on not only the orientation and focus of the development but also its function and appeal.”

The Ridge Home TOD will be serviced by the Gold Line light rail as part of RTD’s FasTracks plan. The Gold Line will run west from Denver’s Union Station to Ward Road in Wheat Ridge and has planned stations at 38th Avenue, Pecos Street, Federal Blvd., Sheridan Blvd., Olde Town, Ridge Home and Ward Road. The Ridge Home Park-n-Ride at approximately Ridge Road between Kipling and Lee Streets will include 250 parking spaces. RTD ridership projections for 2025 show between 16,300 and 19,100 riders per day on the Gold Line.

**Timeline:** Remediation efforts involving asbestos cleanup, the removal of underground storage tanks and PCBs began in 2001 and demolition of more than 20 buildings began in 2002. Phase I consists of a Super Target anchored retail development with pad sites along Kipling Street. Phase II includes the residential, office and transit-oriented components.

**Financing Details:** Ridge Home is part of the Ralston Fields Urban Renewal District, which allows for the utilization of tax-increment financing (TIF). TIF is a tool that leverages property and sales tax revenues to help finance infrastructure, environmental clean-up and public improvements. The developer is also creating a metropolitan district at Ridge Home for a similar purpose.

**Construction Activity Impacts:** Construction activity results in an increase in the real property value of the residential and non-residential property at the Ridge Home site. Construction activity also generates tax revenue for the local government, payroll for construction workers, and sales for construction goods and services vendors. Prior to any vertical construction at Ridge Home, about $26 million was spent on demolition of existing structures, remediation of asbestos contamination and extensive infrastructure improvements. This study considers the impacts of these activities as construction-related activities in addition to the construction of buildings, light rail station and other structures. However, the construction of RTD’s Gold Line is not included in this analysis due to limitations in isolating the Ridge Home’s portion of the total cost of the light rail.
Total costs for all construction activity of Ridge Home are estimated at $124 million and provide the City of Arvada with a net economic benefit $5.2 million. The $5.2 million impact includes a positive fiscal impact of $477,000 from taxes and fees. Construction activity will support an average of 160 construction workers per year between 2001 and 2015 and result in $37.9 million of construction-related payroll of which Arvada construction workers will receive $2.7 million.

**Business Operations Impacts:** The annual economic and fiscal impacts of Ridge Homes businesses are estimated based on employment, occupied real property, business personal property and operational purchases. Typically, property taxes and sales tax collections from on-site businesses would flow to the City of Arvada General Fund. However, in the case of Ridge Home and the tax-increment financing plan, all new Ridge Home property and sales tax revenues are deferred from the General Fund to finance development until the TIF period ends. Thus, business property and sales tax revenues for the general fund are not included in this analysis.

The Ridge Home TOD will add 65,000 square feet of office/flex space and 278,090 square feet of retail space to the Arvada community. Ridge Home businesses will support 800 employees from the metro area with an annual payroll of $18.8 million. The estimated 160 Arvada residents working at Ridge Home will receive $3.8 million in annual payroll.

Businesses locating to Ridge Home will initially purchase $15.2 million of furniture, fixtures, equipment and other materials necessary for operation. It is assumed that only a portion of purchases will be made in Arvada due to the close proximity of metro area vendors and a limited supply of Arvada vendors. According to a retail leakage analysis, an estimated $319,000 of the total purchases will be made from Arvada vendors.

In a typical year of operation, businesses will make replacement purchases of furniture, fixtures, equipment and materials totaling $3.4 million, of which $67,000 will be purchased from Arvada vendors. Further, annual utility costs for Ridge Home businesses will total $818,000.

Annual retail sales at Ridge Home businesses like Super Target will reach $66.1 million. Per the TIF agreement and assuming 75% taxable sales, $1.6 million in sales tax revenues will be deferred from the General Fund to finance the development.

Business operations, in a typical year at Ridge Home, will provide a $70 million positive net economic benefit to the City of Arvada.

**Off-Site Employee Impacts:** Ridge Home employees receive paychecks and are thus able to purchase goods and services to support their households. This employee spending creates sales and property tax revenue for the City of Arvada and generates sales revenue for local goods and services vendors. However, not all of the workers that are employed at Ridge Home will also live in Arvada. Based on 2000 Census data, it is assumed that 20.3% or 160 of the Ridge Home workers will live and work in the City of Arvada. Further, an estimated 2% of Ridge Home residents will live and work at businesses located at the site. To avoid double-counting, employees that live and work at Ridge Home are accounted for under the Residential Spending Impacts section.

The average wage for Ridge Home employees will be $24,000 resulting in a total annual payroll of $18.8 million. Total annual payroll for Ridge Home employees that are also Arvada residents will be $3.75 million. The 800 Ridge Home employees will make annual taxable purchases in Arvada of $676,000 that will result in $22,000 of sales tax revenue for the City of Arvada. Employees will support $11.2 million of housing in the City of Arvada and contribute $4,000 in property taxes.
The net economic benefit of off-site Ridge Home employees to the City of Arvada is estimated at $673,000 for a typical year of operations.

**Residential Impacts:** The Ridge Home residents contribute to the local economy through their spending on goods and services, which in turn generates sales tax revenue, and through the payment of other taxes and fees. Typically, property taxes from residents also flow to the City of Arvada General Fund. However, in the case of Ridge Home and the tax-increment financing plan, all property tax revenues are deferred from the General Fund to finance development until the TIF period ends. Thus, residential property tax revenue for the General Fund is not included in this analysis.

The 590 multi-family housing units will be built north of Ridge Road with the intention of providing the community with easy access to light rail. Ridge Home will be home to an estimated 1,550 residents with a combined annual household income of $19.7 million. Residents are expected to make annual taxable purchases of $3.6 million, which translates into $114,000 of sales tax revenue for the City of Arvada. Housing will be both mixed-income and affordable.

Annually, the net economic benefit of the 1,550 Ridge Home residents to the City of Arvada is estimated at $3.4 million.

**Summary of Impacts:** The total economic and fiscal impact for all construction-related activities at the Ridge Home TOD on the City of Arvada is $5.2 million, including a net fiscal benefit of $477,000 from taxes and fees.

In a typical year of operations, businesses and residents of Ridge Home will have a $74 million positive net economic benefit to the City of Arvada. However, the net fiscal impact on Arvada is negative due to the deferred property and sales tax revenues per the TIF agreement. Still, the long-term investment in Ridge Home will bring positive fiscal impacts as there will be sufficient local government revenue generated once the TIF bonds have been paid.

**Payback of Investment:** The City of Arvada invested $3 million in the Ridge Home development by way of an incentive to a large retailer. According to this study, the total investment of $3 million will be recouped in economic benefits in just over six years. In other words, spending by businesses, employees and residents surpassed the amount invested by the City in six years.
CityCenter – Englewood, Colorado

**History/Previous Use:** CityCenter Englewood is the former site of the Cinderella City Shopping Center. When the mall opened in 1968, it was the largest enclosed mall in the western U.S. At its peak in 1974, the mall accounted for 52% of Englewood’s sales tax revenue. By 1994, the mall only accounted for 2.6% of the City’s tax base due to changing trends. The mall was virtually vacant of tenants and deserted of shoppers by 1995. The City of Englewood not only had the foresight to replace the deteriorating mall but also recognized the potential of TOD as part the Southwest Corridor line, which opened in 2000.

**New Use:** CityCenter Englewood is a vibrant, mixed-use community centered around transit. The pedestrian-friendly development includes retail, entertainment, residential, office, civic and open space elements. Among the many civic uses are City Hall offices, the Library, Municipal Court and the Museum of Outdoor Art. CityCenter was awarded the 2003 U.S. Commerce Department Economic Development Administration Award for Suburban or Urban Excellence.

**FasTracks and CityCenter:** Bob Simpson, Director of Community Development recently called transit, “the key success factor for CityCenter Englewood. With system expansion, the region will also reap the benefits of transit oriented development. CityCenter Englewood has attained a regional presence and offers a distinct sense of place that is active, mixed-use, pedestrian-friendly, and most importantly, economically viable and sustainable.”

City Center is served by the Southwest Corridor line and several RTD bus routes. Within 12 minutes, light rail passengers can be in Downtown Denver. It is widely known that many businesses and residents choose to locate at CityCenter primarily for its accessibility to transit. Residents at Alexan, the multi-family residential development, cite light rail transit as the number one amenity and reason for choosing to live at the Alexan.

By 2025, RTD estimates daily ridership on the Southwest line to be between 20,200 and 23,600. The CityCenter Englewood station will be enhanced under the FasTracks plan by an additional 440 parking spaces for light rail riders. Partly due to the popular transit amenities of CityCenter, the City of Sheridan is planning a 318-unit residential development west of Santa Fe Drive with a direct pedestrian connection to the station. The City of Englewood is also planning a residential development west of Santa Fe and adjacent to the station.

**Timeline:** Cinderella City officially closed in 1997. Remediation and demolition began shortly after in 1998 along with the Civic Center’s groundbreaking. By 2000, the Southwest Corridor line, transit-oriented components, Civic Center and Wal-Mart were open for business. Phase I and II both consisted of multi-story residential and mixed-use office/residential components. Phase I began in 1999 and was completed in 2001. Phase II began and was completed in 2002.
Financing Details: The City of Englewood designated several parcels around and including the present day CityCenter an urban renewal district in the 1980s. As part of an urban renewal district, tax-increment financing (TIF) was utilized to fund the area’s redevelopment. Under the TIF agreement, the majority of property taxes (96%) are deferred from the City of Englewood General Fund until the TIF period ends but all sales tax revenues flow to the General Fund as usual.

Construction Activity Impacts: Construction activity results in an increase in the real property value of the residential and non-residential property at the CityCenter site. Construction activity also generates tax revenue for the local government, payroll for construction workers, and sales for construction goods and services vendors. Because CityCenter required $3 million to remediate various sources of contamination prior to any development, this study considers the impacts of remediation and demolition as construction-related activities in addition to the construction of buildings, light rail station and other structures. The construction of RTD’s Southwest Corridor Line, however, is not included in this analysis due to limitations in isolating CityCenter’s portion of the total cost of the light rail line.

Total costs for all construction activity at CityCenter are estimated at $111 million. This provided the City of Englewood with a net economic benefit of $6.6 million and a net fiscal impact of $2.2 million from taxes and fees. Construction activity supported an average of 165 construction workers per year during the five-year build-out period and resulted in $37.2 million of construction-related payroll of which Englewood residents received $1.2 million.

Business Operations Impacts: The annual economic and fiscal impacts of CityCenter businesses are estimated based on employment, occupied real property, business personal property and operational purchases.

The CityCenter TOD added 300,000 square feet of office and civic space, 330,090 square feet of retail space and 50,000 square feet of restaurant to the Englewood community. CityCenter businesses support 1,730 employees from the metro area with an annual payroll of $65.3 million. The estimated 340 Englewood residents working at CityCenter receive $12.9 million in annual payroll.

Businesses locating to CityCenter initially purchased approximately $16.4 million of furniture, fixtures, equipment and other materials necessary for operation. It is assumed that only a portion of purchases were made in Englewood due to the close proximity of metro area vendors and a limited supply of Englewood vendors. According to a retail leakage analysis, an estimated $451,000 of the total purchases were made from Englewood vendors, resulting in $573,000 of sales/use tax revenue for the City.

In a typical year of operation, businesses will make replacement purchases of furniture, fixtures, equipment and materials totaling $4.3 million, of which $107,000 are purchased from Englewood vendors. A typical year’s purchases contribute approximately $152,000 in sales/use tax revenues. Further,
annual utility costs for CityCenter businesses total $1.3 million in addition to $1.2 million in telecommunication costs.

Annual retail sales at CityCenter are expected to reach an estimated $91.7 million, which translates into $2.4 million in sales tax revenue for the City assuming 75% of the sales are taxable.

Business operations, in a typical year at CityCenter, will provide a $106.8 million positive net economic benefit to the City of Englewood, including a positive net fiscal impact of $2.1 million.

**Off-Site Employee Impacts:** CityCenter employees receive paychecks and are thus able to purchase goods and services to support their households. This employee spending creates sales and property tax revenue for the City of Englewood and generates sales revenue for local goods and services vendors. However, not all of the workers that are employed at CityCenter also live in Englewood. Based on 2000 Census data, it is assumed that 19.8% or 340 of the CityCenter workers live and work in the City of Englewood. Further, an estimated 3% of CityCenter residents currently live and work at businesses located at the site. To avoid double-counting, employees that live and work at CityCenter are accounted for under the Residential Spending Impacts section.

The average wage for the 1,730 CityCenter employees is $37,821, resulting in a combined annual payroll of $65.3 million. The combined annual payroll for the 340 employees at CityCenter that are also Englewood residents is $12.9 million. Employees make annual taxable purchases in Englewood of $3.1 million that result in $108,000 of sales/use tax revenue for the City of Englewood. Employees also support $37.6 million of housing in the City of Englewood and contribute almost $25,000 yearly in property taxes.

The net economic benefit of off-site CityCenter employees to the City of Englewood is estimated at $2.98 million for a typical year of operations.

**Residential Impacts:** The CityCenter residents contribute to the local economy through their spending on goods and services, which in turn generates sales tax revenue, and through the payment of other taxes and fees. Residents also contribute through the payment of property taxes, which flow to the General Fund.
The 438 multi-family housing units are home to an estimated 960 residents with a combined annual household income of $13.1 million. Residents make annual taxable purchases of $3.2 million in Englewood, which translates into $113,000 of sales tax revenue for the City of Englewood.

The annual net economic benefit of the 960 CityCenter residents to the City of Englewood is estimated at $2.7 million.

**Visitor Impacts:** CityCenter has several attractions that draw an estimated 750,000 visitors annually. The Library alone draws over 500,000 annual visitors. Other attractions include the Civic Center, the Museum of Outdoor Art and the Municipal Court. Visitors positively impact the economy by making taxable expenditures. Assuming each visitor spends $1 per visit, it is estimated that visitors provide an annual net economic benefit of $770,000 to the City of Englewood, which accounts for $20,000 in sales tax revenue.

**Summary of Impacts:** The total economic impact for all construction-related activities at CityCenter on the City of Englewood is $6.6 million, including a positive net fiscal benefit of $2.2 million from taxes and fees.

In a typical year of operations, business, residents and visitors of CityCenter will have a $113.4 million annual net economic benefit to the City of Englewood, including a $1.6 million annual net fiscal impact.
Appendix E: Spending By Income Range

Table 9, 2002 Estimates: This analysis uses data from several difference sources in order to estimate taxable spending per household by income range. First, the total number of households by income range is based on data from the 2002 American Community Survey by the U.S. Department of Commerce, Bureau of the Census. This income distribution is applied to 2002 total household estimates by the Denver Regional Council of Governments. Typical household expenditures by income range are based on the 2001-2002 Consumer Expenditure Survey by the U.S. Department of Labor. The figures for Denver are as reported in the Western Cities report. The distribution by income range, however, is based on data for the Western Region as data by income range is not available for Denver only. The income ranges marked with a “*” are not included in the Consumer Expenditure Survey, but have been estimated based on spending patterns in the next lowest income range. It was necessary to establish estimates for these other industry groups as a large percentage of households in metro Denver are found in the higher income ranges. Detailed spending per household (referred to as a consumer unit in the Consumer Expenditure Survey) was divided into taxable and non-taxable spending, to the extent possible, per Colorado tax policy. The result is an estimate of taxable spending per household by income range.

Table 10, 2005 Estimates: The number of households in metro Denver in 2005 was estimated based on the 2004 household growth rate, per DRCOG data for 2003 and 2004. The 2005 estimates of households by income were based on the same income distribution as 2002. All spending and income figures were inflated by 5.0% in order to estimate 2005 taxable and non-taxable spending by income range.
<table>
<thead>
<tr>
<th>Income Level</th>
<th>Denver</th>
<th>Less than $10,000</th>
<th>$10,000 to $14,999</th>
<th>$15,000 to $19,999</th>
<th>$20,000 to $29,999</th>
<th>$30,000 to $39,999</th>
<th>$40,000 to $49,999</th>
<th>$50,000 to $74,999</th>
<th>$75,000 to $99,999*</th>
<th>$100,000 to $124,999</th>
<th>$125,000 to $149,999*</th>
<th>$150,000 to $199,999*</th>
<th>$200,000 or more*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Households Population (DRCOG 2002)</td>
<td>2,466,246</td>
<td>5.7%</td>
<td>4.4%</td>
<td>4.8%</td>
<td>11.4%</td>
<td>10.3%</td>
<td>21.9%</td>
<td>13.1%</td>
<td>8.0%</td>
<td>3.7%</td>
<td>3.4%</td>
<td>2.8%</td>
<td></td>
</tr>
<tr>
<td>Percent of Households By Income (ACS 2002)</td>
<td>979,177</td>
<td>55,608</td>
<td>43,368</td>
<td>46,575</td>
<td>111,501</td>
<td>100,561</td>
<td>103,808</td>
<td>214,354</td>
<td>128,581</td>
<td>77,889</td>
<td>36,570</td>
<td>33,212</td>
<td>32,122</td>
</tr>
<tr>
<td>Avg HH Size (DRCOG 2002)</td>
<td>2.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income Category</th>
<th>Total Expenditures</th>
<th>Personal Taxes</th>
<th>Savings</th>
<th>Total Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$49,014</td>
<td>$4,086</td>
<td>$7,883</td>
<td>$60,983</td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>18,719</td>
<td>(53)</td>
<td>1,419</td>
<td>7,720</td>
</tr>
<tr>
<td>$10,000 to $14,999</td>
<td>21,710</td>
<td>96</td>
<td>1,419</td>
<td>12,397</td>
</tr>
<tr>
<td>$15,000 to $19,999</td>
<td>25,824</td>
<td>(11,095)</td>
<td>8,750</td>
<td>21,487</td>
</tr>
<tr>
<td>$20,000 to $29,999</td>
<td>31,359</td>
<td>(9,260)</td>
<td>26,557</td>
<td>34,388</td>
</tr>
<tr>
<td>$30,000 to $39,999</td>
<td>38,200</td>
<td>(8,949)</td>
<td>50,000</td>
<td>44,555</td>
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<td>$40,000 to $49,999</td>
<td>42,753</td>
<td>(7,420)</td>
<td>60,000</td>
<td>59,117</td>
</tr>
<tr>
<td>$50,000 to $74,999</td>
<td>54,110</td>
<td>(5,279)</td>
<td>70,000</td>
<td>71,750</td>
</tr>
<tr>
<td>$75,000 to $99,999*</td>
<td>71,750</td>
<td>(445)</td>
<td>90,000</td>
<td>87,500</td>
</tr>
<tr>
<td>$100,000 to $124,999</td>
<td>81,448</td>
<td>1,419</td>
<td>118,044</td>
<td>118,044</td>
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<td>$125,000 to $149,999*</td>
<td>92,125</td>
<td>8,750</td>
<td>156,000</td>
<td>137,500</td>
</tr>
<tr>
<td>$150,000 to $199,999*</td>
<td>113,750</td>
<td>26,557</td>
<td>175,000</td>
<td>175,000</td>
</tr>
<tr>
<td>$200,000 or more*</td>
<td>126,000</td>
<td>51,000</td>
<td>200,000</td>
<td>200,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Taxable Spending</th>
<th>Total Non-Taxable Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food at Home</td>
<td>$3,442</td>
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<tr>
<td>Shelter</td>
<td>$10,590</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>$346</td>
</tr>
<tr>
<td>Electricity</td>
<td>$843</td>
</tr>
<tr>
<td>Fuel Oil</td>
<td>$46</td>
</tr>
<tr>
<td>Water &amp; Other Public Services</td>
<td>$415</td>
</tr>
<tr>
<td>Household Operations: Personal services</td>
<td>$349</td>
</tr>
<tr>
<td>Gasoline/Motor Oil</td>
<td>$1,297</td>
</tr>
<tr>
<td>Vehicle Finance Charges</td>
<td>$497</td>
</tr>
<tr>
<td>Vehicle Maint &amp; Repair (50%)</td>
<td>$592</td>
</tr>
<tr>
<td>Vehicle Insurance</td>
<td>$1,191</td>
</tr>
<tr>
<td>Public Transportation</td>
<td>$503</td>
</tr>
<tr>
<td>Health Care: Health Insurance</td>
<td>$1,108</td>
</tr>
<tr>
<td>Health Care: Medical services</td>
<td>$715</td>
</tr>
<tr>
<td>Health Care: Drugs (50%)</td>
<td>$220</td>
</tr>
<tr>
<td>Health Care: Medical supplies</td>
<td>$131</td>
</tr>
<tr>
<td>Entertainment: Fees and admissions</td>
<td>$704</td>
</tr>
<tr>
<td>Education</td>
<td>$617</td>
</tr>
<tr>
<td>Tobacco Products</td>
<td>$307</td>
</tr>
<tr>
<td>Cash Contributions</td>
<td>$1,495</td>
</tr>
<tr>
<td>Insurance &amp; Pensions</td>
<td>$4,713</td>
</tr>
<tr>
<td>Total Non-Taxable Spending</td>
<td>$30,120</td>
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</table>

The Impact of FasTracks on the Metro Denver Economy
<table>
<thead>
<tr>
<th>Source</th>
</tr>
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<tbody>
<tr>
<td>Total Household Population (DRCOG 2002)</td>
</tr>
<tr>
<td>Percent of Households By Income (ACS 2002)</td>
</tr>
<tr>
<td>Income</td>
</tr>
<tr>
<td>Total Expenditures</td>
</tr>
<tr>
<td>Personal Taxes</td>
</tr>
<tr>
<td>Savings</td>
</tr>
<tr>
<td>Total Income</td>
</tr>
<tr>
<td>Taxable Spending</td>
</tr>
<tr>
<td>Non-Taxable Spending</td>
</tr>
<tr>
<td>Total Pre-Tax Expenditures</td>
</tr>
<tr>
<td>Taxable Spending as % Total Expenditures</td>
</tr>
<tr>
<td>Non-Taxable Spending as % Total Expenditures</td>
</tr>
</tbody>
</table>

### Table 10: % of Household Income Spent on Taxable and Nontaxable Goods and Services, 2005

<table>
<thead>
<tr>
<th>Income</th>
<th>2002 Calculations</th>
<th>Denver</th>
<th>Less than $10,000</th>
<th>$10,000 to $14,999</th>
<th>$15,000 to $19,999</th>
<th>$20,000 to $29,999</th>
<th>$30,000 to $39,999</th>
<th>$40,000 to $49,999</th>
<th>$50,000 to $74,999</th>
<th>$75,000 to $99,999</th>
<th>$100,000 to $124,999</th>
<th>$125,000 to $149,999</th>
<th>$150,000 to $199,999</th>
<th>$200,000 or more*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Expenditures (DRCOG 2002)</td>
<td>2,466,246</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Percent of Households By Income (ACS 2002)</td>
<td></td>
<td>5.7%</td>
<td>4.4%</td>
<td>4.8%</td>
<td>11.4%</td>
<td>10.3%</td>
<td>10.6%</td>
<td>21.9%</td>
<td>13.1%</td>
<td>8.0%</td>
<td>3.7%</td>
<td>3.4%</td>
<td>2.8%</td>
<td></td>
</tr>
<tr>
<td>Number of Households (DRCOG 2002)</td>
<td>979,177</td>
<td>55,608</td>
<td>43,368</td>
<td>46,575</td>
<td>111,501</td>
<td>100,561</td>
<td>103,808</td>
<td>214,354</td>
<td>128,581</td>
<td>77,889</td>
<td>36,570</td>
<td>33,212</td>
<td>27,150</td>
<td></td>
</tr>
<tr>
<td>Avg HH Size (DRCOG 2002)</td>
<td>2.52</td>
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<tr>
<td>Inflation 2002 figures by 5.0%</td>
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<tr>
<td>Total Expenditures (DRP 2005)</td>
<td>2,601,653</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Percent of Households By Income (ACS 2002)</td>
<td></td>
<td>5.7%</td>
<td>4.4%</td>
<td>4.8%</td>
<td>11.4%</td>
<td>10.3%</td>
<td>10.6%</td>
<td>21.9%</td>
<td>13.1%</td>
<td>8.0%</td>
<td>3.7%</td>
<td>3.4%</td>
<td>2.8%</td>
<td></td>
</tr>
<tr>
<td>Number of Households (DRCOG 2002)</td>
<td>1,032,632</td>
<td>58,643</td>
<td>45,736</td>
<td>49,118</td>
<td>117,588</td>
<td>109,475</td>
<td>106,051</td>
<td>226,056</td>
<td>135,601</td>
<td>82,141</td>
<td>38,566</td>
<td>35,026</td>
<td>28,632</td>
<td></td>
</tr>
<tr>
<td>Avg HH Size (DRCOG 2002)</td>
<td>2.52</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Expenditures</td>
<td>$49,014</td>
<td>$18,719</td>
<td>$21,710</td>
<td>$25,824</td>
<td>$31,359</td>
<td>$42,753</td>
<td>$54,110</td>
<td>$71,750</td>
<td>$81,448</td>
<td>$92,125</td>
<td>$113,750</td>
<td>$126,000</td>
<td>$126,000</td>
<td></td>
</tr>
<tr>
<td>Non-Taxable</td>
<td>$30,122</td>
<td>$11,837</td>
<td>$13,842</td>
<td>$16,517</td>
<td>$19,303</td>
<td>$23,434</td>
<td>$26,809</td>
<td>$33,030</td>
<td>$43,797</td>
<td>$51,163</td>
<td>$57,869</td>
<td>$71,453</td>
<td>$79,148</td>
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<tr>
<td>Taxable</td>
<td>$18,892</td>
<td>$6,882</td>
<td>$7,869</td>
<td>$9,307</td>
<td>$12,056</td>
<td>$14,766</td>
<td>$15,944</td>
<td>$21,081</td>
<td>$27,953</td>
<td>$30,286</td>
<td>$34,256</td>
<td>$42,297</td>
<td>$46,852</td>
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<tr>
<td>Personal Taxes</td>
<td>$4,086</td>
<td>$96</td>
<td>$53</td>
<td>$96</td>
<td>$147</td>
<td>$1,467</td>
<td>$3,588</td>
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<td>$10,042</td>
<td>$13,750</td>
<td>$19,250</td>
<td>$24,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savings</td>
<td>$7,883</td>
<td>$11,095</td>
<td>$9,260</td>
<td>$8,949</td>
<td>$7,420</td>
<td>$5,279</td>
<td>$445</td>
<td>$7,720</td>
<td>$12,397</td>
<td>$17,188</td>
<td>$24,487</td>
<td>$33,030</td>
<td>$43,797</td>
<td></td>
</tr>
<tr>
<td>Total Income</td>
<td>$60,983</td>
<td>$7,720</td>
<td>$12,397</td>
<td>$17,188</td>
<td>$24,487</td>
<td>$34,388</td>
<td>$44,455</td>
<td>$59,117</td>
<td>$78,500</td>
<td>$118,044</td>
<td>$147,500</td>
<td>$175,000</td>
<td>$200,000</td>
<td></td>
</tr>
<tr>
<td>Taxable Spending as % Total Expenditures</td>
<td>38.5%</td>
<td>38.5%</td>
<td>38.8%</td>
<td>38.4%</td>
<td>38.7%</td>
<td>37.3%</td>
<td>39.0%</td>
<td>37.2%</td>
<td>37.2%</td>
<td>37.2%</td>
<td>37.2%</td>
<td>37.2%</td>
<td>37.2%</td>
<td></td>
</tr>
<tr>
<td>Non-Taxable Spending as % Total Expenditures</td>
<td>61.5%</td>
<td>61.5%</td>
<td>62.2%</td>
<td>64.0%</td>
<td>61.6%</td>
<td>61.3%</td>
<td>62.7%</td>
<td>61.0%</td>
<td>62.8%</td>
<td>62.8%</td>
<td>62.8%</td>
<td>62.8%</td>
<td>62.8%</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The 0.4% Tax Revenue per Household for Denver was calculated as a weighted average of the tax bills for all households rather than directly from average taxable expenditures, resulting in a slightly different, but more accurate, estimate.

Appendix F: Taxable Retail Spending by Households, Businesses and Non-Residents

Retail sales tax is paid by households, businesses and non-residents on the purchase of taxable goods in metro Denver. This analysis provides an estimate of which of these three groups originally paid the retail sales/use tax, recognizing that some portion of the sales tax paid by businesses may eventually be transferred to the households in the form of higher prices. The analysis was conducted using 2003 data provided by the Colorado Department of Revenue on retail sales, taxable retail sales and net sales tax by industry for metro Denver and current Colorado sales/use tax policy. Based on this analysis, it is estimated that households contribute approximately 60% of total retail sales/use tax revenue. The remainder of the total retail sales/use tax revenue is originally derived from businesses (33%) and non-residents (7%).

Table 11: Spending Distribution on Taxable Retail Sales

<table>
<thead>
<tr>
<th>Industry</th>
<th>Total Retail Sales</th>
<th>Taxable Retail Sales</th>
<th>Net Sales Tax</th>
<th>% Taxable</th>
<th>% of Net Sales Tax</th>
<th>% Taxable Spending Per House-</th>
<th>% Taxable Spending Per Business</th>
<th>% Taxable Spending Per Non-resident</th>
<th>Total Spending by Group (000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>43,615</td>
<td>19,411</td>
<td>547</td>
<td>44.5%</td>
<td>0.1%</td>
<td>75.0%</td>
<td>25.0%</td>
<td>0.0%</td>
<td>990,890</td>
</tr>
<tr>
<td>Mining</td>
<td>279,987</td>
<td>162,687</td>
<td>4,581</td>
<td>58.1%</td>
<td>0.5%</td>
<td>75.0%</td>
<td>25.0%</td>
<td>0.0%</td>
<td>1,280,727</td>
</tr>
<tr>
<td>Utilities</td>
<td>2,629,629</td>
<td>959,907</td>
<td>27,031</td>
<td>36.5%</td>
<td>2.8%</td>
<td>0.0%</td>
<td>100.0%</td>
<td>0.0%</td>
<td>9,700,000</td>
</tr>
<tr>
<td>Construction</td>
<td>1,077,552</td>
<td>425,142</td>
<td>11,972</td>
<td>58.1%</td>
<td>1.3%</td>
<td>25.0%</td>
<td>75.0%</td>
<td>0.0%</td>
<td>106,286</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>3,552,225</td>
<td>1,265,513</td>
<td>35,639</td>
<td>36.5%</td>
<td>3.7%</td>
<td>75.0%</td>
<td>25.0%</td>
<td>0.0%</td>
<td>318,857</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>4,628,339</td>
<td>2,033,452</td>
<td>57,262</td>
<td>43.9%</td>
<td>6.0%</td>
<td>25.0%</td>
<td>75.0%</td>
<td>0.0%</td>
<td>508,363</td>
</tr>
<tr>
<td>Agriculture</td>
<td>990,890</td>
<td>2,180,185</td>
<td>272,523</td>
<td>60.5%</td>
<td>16.0%</td>
<td>55.0%</td>
<td>40.0%</td>
<td>5.0%</td>
<td>2,180,185</td>
</tr>
<tr>
<td>Furniture</td>
<td>1,432,381</td>
<td>508,363</td>
<td>51,957</td>
<td>76.1%</td>
<td>3.4%</td>
<td>70.0%</td>
<td>25.0%</td>
<td>5.0%</td>
<td>51,957</td>
</tr>
<tr>
<td>Electrical/Appliances</td>
<td>807,063</td>
<td>288,237</td>
<td>46,658</td>
<td>35.6%</td>
<td>3.7%</td>
<td>75.0%</td>
<td>20.0%</td>
<td>5.0%</td>
<td>46,658</td>
</tr>
<tr>
<td>Building</td>
<td>959,907</td>
<td>333,303</td>
<td>83,326</td>
<td>35.6%</td>
<td>3.7%</td>
<td>75.0%</td>
<td>20.0%</td>
<td>5.0%</td>
<td>83,326</td>
</tr>
<tr>
<td>Food and Beverage</td>
<td>1,312,415</td>
<td>765,575</td>
<td>109,368</td>
<td>87.9%</td>
<td>6.4%</td>
<td>60.0%</td>
<td>35.0%</td>
<td>5.0%</td>
<td>109,368</td>
</tr>
<tr>
<td>Health Care</td>
<td>1,249,885</td>
<td>333,303</td>
<td>83,326</td>
<td>35.6%</td>
<td>3.7%</td>
<td>75.0%</td>
<td>20.0%</td>
<td>5.0%</td>
<td>83,326</td>
</tr>
<tr>
<td>Gas Stations</td>
<td>98,651</td>
<td>25,207</td>
<td>6,577</td>
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<td>0.4%</td>
<td>75.0%</td>
<td>20.0%</td>
<td>5.0%</td>
<td>6,577</td>
</tr>
<tr>
<td>Clothing</td>
<td>1,386,467</td>
<td>57,363</td>
<td>154,052</td>
<td>92.6%</td>
<td>4.5%</td>
<td>90.0%</td>
<td>0.0%</td>
<td>10.0%</td>
<td>154,052</td>
</tr>
<tr>
<td>Sport</td>
<td>1,283,376</td>
<td>57,363</td>
<td>154,052</td>
<td>92.6%</td>
<td>4.5%</td>
<td>90.0%</td>
<td>0.0%</td>
<td>10.0%</td>
<td>154,052</td>
</tr>
<tr>
<td>Gen Merchandisers</td>
<td>2,295,881</td>
<td>819,957</td>
<td>163,991</td>
<td>71.7%</td>
<td>9.6%</td>
<td>70.0%</td>
<td>25.0%</td>
<td>5.0%</td>
<td>163,991</td>
</tr>
<tr>
<td>Misc.</td>
<td>714,368</td>
<td>255,131</td>
<td>51,026</td>
<td>71.3%</td>
<td>3.0%</td>
<td>70.0%</td>
<td>25.0%</td>
<td>5.0%</td>
<td>51,026</td>
</tr>
<tr>
<td>Retail non-store</td>
<td>1,690,632</td>
<td>57,363</td>
<td>154,052</td>
<td>92.6%</td>
<td>4.5%</td>
<td>90.0%</td>
<td>0.0%</td>
<td>10.0%</td>
<td>154,052</td>
</tr>
<tr>
<td>Total Retail Trade</td>
<td>12,738,805</td>
<td>5,023,681</td>
<td>1,286,058</td>
<td>59.5%</td>
<td>56.0%</td>
<td>66.9%</td>
<td>26.4%</td>
<td>6.8%</td>
<td>1,286,058</td>
</tr>
</tbody>
</table>

Sources: Colorado Department of Revenue, 2003 retail sales by industry; spending distribution by Development Research Partners.