“Creating Livable Communities Through Transit”

An Analysis of the Potential Benefits of Transit Oriented Communities on the Denver Metro Region

A report by the Livable Communities Support Center, a program of Civic Results and Environment Colorado Research and Policy Center

October 2004
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Creating Livable Communities Through Transit

A Successful Transit Oriented Community in the Denver region. Englewood City Center, located on the Southwest light rail line, is the new downtown hub for Englewood. The area around the station now includes a library, museum, city services, housing, employment, shopping, dining and recreation opportunities.

Executive Summary
The build out of the proposed regional transit system envisioned under FasTracks would present the Denver metro area with an enormous opportunity to create new exciting transit-oriented neighborhoods and communities that will offer new housing options, small urban centers throughout the region and expanded lifestyle choices. A high quality transit system, because it provides efficient access to an entire region, will attract people to live, work, shop and be entertained near transit stations.

All across the country, cities that are building transit systems are seeing a new wave of transit-oriented development (TOD). Transit-oriented development occurs when local municipal planners actively work with developers and
community leaders to design compact, multi-use communities around rapid transit stations. These communities typically have a one-quarter to one-half mile radius around the transit station which serves as the central focal point for the community. Office space, retail shops, restaurants, entertainment venues, and residences can surround a single transit station, creating an active and exciting area to live, work, or experience entertainment and shopping.

With only one real transit line in operation and another nearing completion, transit oriented development in Denver is still mostly a vision for the future. But what little transit has been built here has already begun to spur transit-oriented development along the Southwest line, including the Englewood City Center, and along the Central corridor, including the site of the old Gates Rubber factory at I-25 and Broadway. Other transit oriented developments are already springing up along the T-Rex line even before it opens.

This report examines the potential for transit oriented development if the FasTracks plan passes and analyzes the likely impact of those developments on regional land use and transportation patterns using data from the Denver Regional Council of Governments’ (DRCOG’s) own preliminary analysis of the impact of urban centers.

**Key Findings of the Report:**

1) **FasTracks is projected to create opportunities for transit oriented communities at 90% of the new station areas throughout the region.** The expansion of existing transit into a regional system will dramatically boost the potential for additional transit-oriented development. An analysis of the 57 new stations currently planned under FasTracks showed that 51 stations would have strong TOD potential and 18 of those areas are major opportunities greater than 10 acres in size. These transit oriented communities would also be located in many jurisdictions throughout the region, creating multiple small town and village centers.

2) **Transit oriented development would significantly reduce the overall growth in the amount of traffic in the Denver region.** Previous estimates of the impact of FasTracks examined the impact of transit alone and did not factor in the benefit of land use changes on reducing overall travel through the creation of small urban centers where retail, employment, and housing are near one another, as is called for in DRCOG’s MetroVision 2030 plan. While a formal regional study of the land use patterns fostered by transit oriented development has yet to be completed, a 2002 DRCOG analysis of 31 small urban centers gives a clear sense of the magnitude of the impact of TOD on vehicle travel. In a study conducted for the EPA regarding the impact of land use on transportation, DRCOG concluded that small clusters of mixed use centers would reduce the
number of vehicle miles traveled each day by more than 2.7 million compared to a more dispersed pattern of development (89.3 million VMT per day vs. 92.0).

Because the TODs projected under FasTracks closely mirror the pattern of development in the urban centers study, it can be reasonably concluded that the magnitude of VMT reductions would be similar. Based on that study and other projections on the likely number of additional residents and employees living or working within ½ mile of a transit stop, this report estimated that there would be at least 2.5 million less VMT per day by 2025 as a result of transit oriented development. This reduction in VMT is more than five times the previous estimates of the impact of FasTracks on travel, which considered direct travel impacts as a result of increased transit but did not factor in the impacts of changes in land use patterns as a result of transit oriented development.

3) TOD would help the region realize its MetroVision 2030 plan, saving valuable land and open space. DRCOG’s proposed MetroVision 2030 plan calls for creating 33 distinct urban centers throughout the region. There is a strong correlation between the location of the proposed urban centers and transit stations. DRCOG’s analysis showed that on average each urban center would save over 960 acres of land as a result of more compact development patterns. If 33 urban, town and village centers could be created with mixed uses and more intensive development, it would result in a total land savings of more than 31,600 acres of land (49.5 square miles) – which is an amount of land larger than the entire city of Lakewood. Given that the metro region is projected to grow from 500 square miles to more than 750 square miles by 2025, reducing that expansion by more than 45 miles would be a big impact on successful implementation of the regional MetroVision 2030 plan.

4) TOD would significantly raise property values for current residents, small business owners and others within ½ mile of the stations. The desirability of mobility provided by transit means properties located adjacent to transit stations rise in value. As residential, retail, and commercial interests compete for access to transportation, areas adjacent to transit see higher development intensities with a greater diversity of businesses and consumers that help create economic activity. Cal State Fullerton researchers reviewed 41 studies of 15 rail systems in the U.S., and found that light rail transit has enhanced residential property values adjacent to transit up to 18 percent. Rising property values around transit stations provides obvious benefits to nearby property owners, as well as business and residential tenants. But the entire community benefits substantially as the local tax base expands, and public revenues from property taxes, sales taxes, and personal income and business taxes increase.
5) **Transit oriented communities would offer Denver metro area residents new options for neighborhoods, shopping, working and lifestyle choices.** TOD communities combine residential, retail, office and other uses in a small area and provide access to a regional transit network, making it easier for people who live or work in these neighborhoods to rely less on their car as the sole means of getting around. By offering people increased options to walk to new destinations created by TOD, many people will be driving less often for those many trips during the day that are not work related, such as buying groceries, eating out, going to the pharmacy or simply strolling for the evening’s entertainment.

6) **There is strong consumer and worker market demand for creating more transit oriented communities.** A recent study by the Center for Transit Oriented Development found that an estimated 88,000 households would be seeking housing within ½ mile of transit by 2025. Many of those seeking this lifestyle choice will be empty nesters and seniors, which according to DRCOG demographic projections will make up 25% of the region’s population by 2030. Demographic forecasts also show a strong expansion in the number of young people in their twenties, many of whom will be seeking their first apartment or homeownership opportunities in located near transit and urban centers.

7) **FasTracks is a necessary first step to creating transit oriented communities in the region, but additional civic action and public/private partnership are needed for success.** Building out the transit corridors is a necessary, but not sufficient, part of creating successful TOD. TOD does start, however, with a regional commitment to funding and constructing transit. Beyond that there are a number of other key elements that will be necessary ingredients for successful TODs, including station area planning processes, market analyses for each area, public/private partnerships and regional coordination among the many entities involved.
**Introduction**

The quality of life for future generations of residents living in the Denver metro area greatly depends on the patterns of growth that occur over the next twenty years. As more than a million people are added to the metro Denver population, an increase of 35% from three million to four million by 2030 is expected. Transit oriented development (TOD) represents a major opportunity to positively shape the development patterns in the region in ways that make communities throughout the region more livable. This report serves as a background on what TOD is, where it is likely to occur, and explores the projected impacts of TOD on the region’s land use and transportation patterns if FasTracks passes.

Despite, the recent economic slowdown, Colorado is continuing to grow at a rapid rate, mostly along the Front Range (see Table 1). By the year 2030, the state’s population is projected to increase from approximately 4.4 million today to over 7 million people, more than 5.5 million of whom will be living along the Front Range. More than half of the state’s residents will make their home in the Denver metro area by 2030. Table 1 shows the latest projections from the state demographer’s office based on the most recent census. With more than a million people being added to the Denver area in the next 25 years, we need to develop smart, long-term land use and transportation strategies.

**Table 1. Population Forecasts for Colorado and the Metro Denver Region**

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<td>COLORADO</td>
<td>4,335,540</td>
<td>4,691,258</td>
<td>5,137,928</td>
<td>5,632,645</td>
<td>6,133,491</td>
<td>6,652,082</td>
<td>7,156,422</td>
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<td>FRONT RANGE</td>
<td>3,514,362</td>
<td>3,802,322</td>
<td>4,146,838</td>
<td>4,522,115</td>
<td>4,893,611</td>
<td>5,278,958</td>
<td>5,655,656</td>
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<td>DENVER METRO REGION</td>
<td>2,415,042</td>
<td>2,598,322</td>
<td>2,826,036</td>
<td>3,061,098</td>
<td>3,282,354</td>
<td>3,505,300</td>
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<tr>
<td>Adams</td>
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<td>396,328</td>
<td>448,200</td>
<td>507,322</td>
<td>567,870</td>
<td>629,866</td>
<td>693,540</td>
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<td>Arapahoe</td>
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<td>526,537</td>
<td>560,698</td>
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<td>621,884</td>
<td>645,827</td>
<td>666,262</td>
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<td>Boulder</td>
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<td>344,645</td>
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<td>Clear Creek</td>
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<td>9,701</td>
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<td>12,689</td>
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<td>Denver</td>
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<td>574,317</td>
<td>606,161</td>
<td>639,473</td>
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<td>716,760</td>
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<td>Douglas</td>
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<td>224,960</td>
<td>274,921</td>
<td>327,491</td>
<td>364,876</td>
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<td>Gilpin</td>
<td>4,775</td>
<td>4,940</td>
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<td>Jefferson</td>
<td>526,269</td>
<td>543,597</td>
<td>576,784</td>
<td>612,129</td>
<td>647,332</td>
<td>680,573</td>
<td>709,958</td>
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Current dominant development patterns, which have historically focused primarily on expanding suburban subdivisions, would make it difficult for the region to accommodate this 35% increase in the population without consuming large amounts of land. This sprawling style of development uses land at a higher rate than smaller urban center developments, like transit-oriented communities, which incorporate a combination of residential, retail, and commercial uses in a small area. Without TOD and the urban centers called for in DRCOG’s MetroVision 2030 plan, the rate of land development would continue to grow faster than population, resulting in a sprawling development pattern that would expand the urbanized metro Denver urban area from approximately 500 square miles today to more than 800 square miles by 2030.²

The good news is that with a new wave of smart growth, urban center redevelopment projects present clear alternatives to sprawl. From Englewood City Center, to the brand new Villa Italia at Belmar in Lakewood, to the redevelopment of Stapleton airport (an area 1/3 the size of Manhattan that is expected to house 30,000 residents and 25,000 workers by 2030) – local governments, developers, residents and workers are realizing the benefits of communities where people can live, work, dine or shop without traveling long distances.

The passage of FasTracks, a new comprehensive transit system for the Denver metro area would create a historic opportunity to expand on these smart growth trends. With a regional transit network in the works and under construction over the next decade, a new type of smart growth development, transit-oriented development (TOD), could evolve to change regional land use patterns, spur economic development, and help reduce negative impacts on our air and water.

Transit-oriented development harnesses the attractiveness of transit, and the access that transit provides, to develop and enhance communities within urban and suburban areas.

Simply put, transit can be a powerful engine for encouraging smart growth.

If the experiences of many other cities holds true for metro Denver, the region would be presented with a huge opportunity with the successful passage of FasTracks. Dozens of examples from across the country show that transit can be the catalyst for new types of land use patterns.

Many people, especially seniors, empty nesters, and lower/middle income people want to live near transit. Businesses also want to locate near transit because of the access provided by transit to jobs, goods, and services throughout the transit network is an attraction. That desire to be near transit has spawned a new type of development pattern called “transit oriented development (TOD).”
While investment in transit is a basic requirement for transit-oriented development, simply building transit alone will not automatically make good transit-oriented development occur. It will take coordination of local government, business, and community leaders to harness the power of a new regional transit system to help create smart growth, transit-oriented development, and create the kind of shift in regional land use patterns that will preserve our quality of life.

Overview of Transit-Oriented Development
Transit-oriented development (TOD) is a new trend in creating vibrant, livable communities that many segments of the population are drawn to live in, work in or visit. Simply, it is the creation of compact, walkable communities centered around high quality transit systems that improves housing affordability and choice, revitalizes downtowns and suburban neighborhoods, reduces traffic and congestion, and helps protect our environment.

Components of Transit-Oriented Development
Transit stations offer a unique opportunity for development to be simultaneously locally and regionally oriented. This powerful combination is fundamental to what distinguishes transit-oriented development from other types of urban infill projects. There are three primary components to TOD:

1. **TOD typically occurs in a ½ mile radius centered around transit.**
   Transit stations, which are part of a high quality transit network and provide access to an entire metro region, form the centerpiece for any transit-oriented development. In an age where automobile commute times are continually increasing, roads are becoming more congested, and continued highway building has not solved the problem – people are looking for more convenient ways to get around. The access that transit provides to other areas of the city, to jobs, to goods and services generates a desirability to be near transit stations. This desirability provides the economic driver for high density, high quality, transit-oriented development.

2. **TOD involves a mix of uses; allowing living, working, and shopping to be near one another.**
   Transit oriented development projects can provide a much broader range of options and accessible services in a significantly smaller area than can typical suburban development. Rather than giving residents no choice but to live in a single-family house, shop at auto-oriented retail centers, drive to work, and drive their children to activities, transit-oriented development can offer a wide variety of options to local residents either by walking or taking transit. TOD can make available apartments, townhouses, and single-family homes to accommodate most family structures, income levels and life stages. It can offer a choice of small, unique specialty shops and larger retail outlets, in addition to office spaces, commercial areas and other work space. They can also provide civic areas like parks, schools, libraries and recreational opportunities such as theaters, bars and restaurants.
3. **TOD focuses on serving pedestrians and creating walkable communities.** Ample evidence demonstrates that, on average, residents of Denver urban neighborhoods own fewer cars, drive less, and walk and ride transit more than residents of suburban areas (see "Travel Patterns and Behavior" subsection of Appendix)\(^3\). This is true even when controlling for income. This suggests that reduced auto dependency will result from an effective blending of convenient and efficient transportation links with enhancements of the ability to carry out many, if not most, everyday tasks by walking to destinations close to home. Increased walking not only reduces traffic but encourages personal and social health through increased physical activity and more social encounters on the street.

**Examples of Transit-Oriented Development Already at Work**
The creation of new transit systems in major cities across America in recent decades has resulted in hundreds of transit-oriented developments that have changed land use patterns and improved quality of life. Transit has created closer connections between destinations that have spawned transit-oriented development in many areas across the nation. The success of large transit expansions in other cities in spawning transit oriented development gives us a glimpse of what may be possible in Denver in the near future.

**National Examples of TOD**

**Arlington County, Virginia** The Rosslyn/Ballston corridor just outside of Washington D.C. in Arlington County, Virginia is an excellent example of transit-oriented development. Redevelopment of the area began in the 1960's and 70's, and has continued to thrive ever since.\(^4\) Dense development has concentrated around five urban transit stations. Now, seventy-three percent of the 40,000 daily passengers arrive at the transit stations in the corridor on foot, eliminating the need for more park and ride lots and further reducing the number of vehicle miles traveled in private vehicles.\(^5\) The transit-oriented development in the Rosslyn-Ballston corridor has also kept traffic congestion from spiraling out of control, which has occurred in nearby suburban areas. The amount of congestion has risen only slightly, even though the number of jobs and residents in the area has more than doubled since 1980.\(^6\) The redevelopment of the Rosslyn-Ballston corridor provides a model of how transit-oriented development can work, which local municipalities in Colorado can follow.

**Dallas, Texas**
There has already been more than $800 Million in development around the 15 light rail stations opened in 1996 by Dallas Area Rapid Transit (DART). A study by the University of North Texas found that property values near the light rail...
stations has jumped 25% faster than properties in comparable neighborhoods not served by rail. 7

DART is credited with being a factor in the resurgence of downtown living. Historic landmark buildings are being converted into condos, lofts and apartments. Projects include:

- Titche-Goettinger Building, an $11 Million project with 125 apartments
- Hirby Building, a $17 Million conversion to 156 lofts and apartments
- Wilson Building, a $20 Million conversion to 135 loft apartments
- Santa Fe Terminal Building II, a $22 Million conversion to 205 loft apartments
- Davis Building, a $40 Million renovation into ground floor restaurant and retail, 137 hotel suites and 122 apartments 8

Light rail has also helped draw employers to downtown. Blockbuster Entertainment cites DART as a major factor in moving its 1,000 employees downtown. "With the coming of DART and housing downtown, it makes for a lot better environment, and companies can't help but recognize this,"9 says real estate broker Jerry Fults about the move of almost 1,000 new Omnicom employees to its new downtown headquarters across the street from a rail stop.

Restaurants in the West End, a renovated historic warehouse district, have seen a 25% increase in sales over the last three years. They attribute this to lunchtime traffic increase from the rail stop (which connects to the CBD) and game nights at Reunion Arena, also connected to the West End by rail.10

Examples of TOD in Colorado
With only one major line in operation, which travels mostly through old industrial neighborhoods, transit oriented development in Denver is still mostly a vision for the future. But the Denver metro region is booming in a way that offers tremendous potential for TOD. And what little transit has been built here has already begun to spur transit-oriented development along the Southwest line, including the Englewood City Center, and along the Central corridor, including the site of the old Gates Rubber factory at I-25 and Broadway. Other transit oriented developments are already springing up along the T-Rex Southeast line even before it opens.

Englewood City Center
The Economic Developers Council of Colorado named the City of Englewood, Colorado as the Large Community of the Year for redeveloping a failed shopping mall into CityCenter Englewood—a 55-acre mixed-use community centered on an inter-modal transit station.11 CityCenter Englewood provides 440 residential units, restaurants, office space, and retail space within walking distance of bus and light rail transit.12 CityCenter also functions as a center for local government facilities, including a library, city offices, and courts.13 The City of Englewood
even convinced a major “big-box” retailer to change their typical exterior façade and parking lot layout to conform to CityCenter’s goal of creating a pedestrian friendly community.14

Downtown Denver
In downtown Denver, light rail has brought a new boom to the central business district focused around the 16th Street Pedestrian Mall. The Central Corridor Light Rail Line runs right into central downtown with the Platte Valley Spur looping down to Lower Downtown, adjacent to Market Street station with express bus service to Boulder. Between the stations run constant free shuttles, up and down the 16th Street Pedestrian Mall.

Over 60,000 riders a day take the shuttle up and down the mall along the central business district. Along with millions of square feet of office space, the 16th Street Mall Area supports an array of businesses, shops, restaurants, and lofts. In fact, the number of residents has jumped from 1,500 in 1990 to over 8,000 today.15

At the west end of the 16th Street Mall is Union Station, the center of the fashionable Lower Downtown district that is home to the Pepsi Center and Coors Field. Behind Union Station is the Commons, a former rail yard that is in the process of being developed into a mixed-use commercial and entertainment complex.

Gates Rubber Factory at Broadway and I-25
City planners are also working with developers on a master plan to develop a transit village on the site of the old Gates Rubber factory. The existing Broadway/I-25 transit station is included in a large Master Plan led by a new property owner who is interested in building over 6 million square feet of development in a 50 acre transit village. More than 4,000 residential units are planned in addition to a major employment center. The project value of this TOD plan is estimated at $1.5 billion. Not only would there be hundreds of jobs created at the employment center and retail stores, but this is a great example of redevelopment within the urbanized area, improving a brownfield site that would otherwise be run down and eliminating the need for even larger amounts of greenfield development elsewhere.

Many other TOD sites are planned along the existing lines in the Denver region as well as the Southeast Corridor line that is currently under construction as part of the T-REX improvements. See Appendix A for a full list of TOD opportunities that are already being planned in those corridors where a commitment to transit has been made.
The Impact of FasTracks on Transit Oriented Development in the Denver Metro Region

What is FasTracks?
FasTracks is a twelve-year comprehensive plan to connect the Denver metro region, support future growth, and provide transportation choices. FasTracks includes:

- 119 miles of new light rail and commuter rail.
- Bus Rapid Transit.
- 21,000 new parking spaces at new and existing Park and Rides.
- Expansion of bus service with new suburb-to-suburb service and timed connections at transit hubs.
- Service to DIA, and major employment centers throughout the region - Fitzsimons, the Federal Center, Denver Tech Center, Stapleton, U.S. 36 corridor, and downtown Denver.

The FasTracks plan would create 57 new light rail and commuter rail stations along nine major corridors throughout the Denver metro region. The project also includes plans to renovate and enhance already existing light rail and bus transit lines. The cost of FasTracks is $4.7 billion. On November 2, voters in the Denver metro region will be asked to approve an RTD sales tax of 4 pennies on a $10 taxable purchase. The tax does not apply to groceries, prescription drugs, gasoline or home heating and electric bills. The following map shows the proposed corridors for major investment (see Chart 1).
When Will the Transit Corridors in FasTracks Be Completed?
If FasTracks is approved this November, design and construction will begin in 2005-06 on all of the corridors. The completion dates for each line are as follows:

- 2013 – Union Station, West Corridor Light Rail
- 2014 – US 36 Corridor Commuter Rail, East Corridor Commuter Rail, Central Corridor Light Rail Extension
- 2015- North Metro Corridor Commuter Rail, I-225 Corridor Light Rail, Gold Line Light Rail
- 2016- Southwest Corridor Light Rail Extension, US 36 Corridor Bus Rapid Transit

FasTracks Will Create Many Opportunities for TOD
Across the nation, new light rail, subways, commuter rail, and improved bus transit are providing better transportation for everyone. Improved transportation means increased access to people, jobs, markets, goods and services—the very things that make any property desirable. That desirability of access means that properties located adjacent to transit see their values rise. As residential, retail, and commercial interests compete for that
access to transportation, areas adjacent to transit will see higher development densities and intensities with a greater diversity of businesses and consumers that help create economic activity.

FasTracks stands to offer the kind of transportation options that will provide the improved access to people, jobs, markets, etc. that have spawned transit oriented development in many areas across the nation. The success of large transit expansions in other cities in spawning transit oriented development gives us a glimpse of what may be possible in Denver in the near future.

Transit Increases Real Estate Values Significantly Around Stations
High quality public transit has triggered an increase in real estate values, residential and commercial, compared with similar property not served by transit in cities across the country. Cal State Fullerton researches reviewed 41 studies of 15 rail systems in the U.S., and found that light rail transit has enhanced residential property values between 2 and 18 percent in Portland, Sacramento, San Diego, and Santa Clara, with larger changes occurring in cities with commuter rail. Similarly, the Urban Land Institute (ULI) found that residential properties for sale near commuter rail stops in California consistently enjoy price premiums, including a 17 percent advantage in San Diego. Other studies indicate that there are premiums of 4-30 percent for office, retail, and industrial buildings located near rail transit in Santa Clara, Dallas, Atlanta, and San Francisco and Washington, DC. There are numerous other examples of cities, large and small, experiencing boosts in property value near transit stations (included those listed below and in Chart 2):

St. Louis, Missouri – The St. Louis region has seen substantial TOD, redevelopment, and real estate investments near its Metrolink light rail stations since the system was opened in 1993, generating approximately $1 billion in Metrolink’s service area.

San Francisco, CA – “Transit oriented developments in San Francisco are overall the most valuable properties in the metro area averaging 20-25 percent over comparable non-transit sites…”

Portland, Oregon – “Portland’s Tri-County Metropolitan Transportation District of Oregon reported more than $3 billion in real estate and overall economic development taking place within walking distance of its MAX light rail stations since the agency began planning its 38-mile system in the late 1970’s….”

Dallas, Texas – Residential properties near light rail stations on average increased in value by 39 percent more than comparable properties not served by rail….office buildings near DART Light Rail increased in value 53 percent more than comparable properties not near rail.
Across the country, transit-oriented development has significantly greater value than property not near transit.

Transit Correlates with Greater Real Estate Investment and Lower Taxes

The rising value of property near transit stations provides obvious benefits to nearby property owners as well as business and residential tenants. But the entire community benefits substantially as the local tax base expands and public revenues from property taxes, sales taxes, and personal income and business taxes increase (see Chart 3).

Chart 3. Real Estate Investment Adjacent to Transit

- Washington Metro since 1976: $15 billion
- Portland MAX since late 1970s: $3 billion
- Dallas DART since 1996: $1 billion
- St. Louis MetroLink since 1993: $1 billion
- Boston Silver Line BRT since planning began late 1990s: $450 million
- Charlotte South Corridor since planning began 2000: $400 million
Washington, DC

- The Metrorail system is expected to generate $2.1 billion in tax revenues for the Commonwealth of Virginia between 1977, when the first station opened in Virginia, and 2010.28

- In Arlington County, Virginia development in two WMATA Metrorail corridors is concentrated on 6 percent of the land in the county but produces almost half of the county’s tax revenue.29

- Planners and developers in Fairfax, Prince William and Stafford counties are turning previously open and out-of-the-way land near VRE [Virginia Railway Express] stations into mixed retail, commercial and residential communities.30

Dallas–Ft. Worth, Texas – More than $922 million worth of mixed-use projects have recently emerged along the Dallas DART light rail system, bringing total DART-related development to more than $1 billion.31

Portland, Oregon – “Businesses located on the light rail line find they have benefited from their visibility to riders as much as from their proximity to stations, and within five years after the line was constructed, over 7 million square feet of new development valued at over $900 million occurred adjacent to light rail.”32

Where is Transit Oriented Development Predicted to Occur?
The Regional Transportation District, Denver Regional Council of Governments and local communities are already assessing the possibilities of transit-oriented development in conjunction with the FasTracks plan. Out of 57 stations to be built under FasTracks, 51 stations are predicted by RTD to have significant TOD occur. (See Table 2). In DRCOG’s SB 208 analysis of the FasTracks plan, they concluded that 18 of those TODs would be larger than 10 acres in size.33
Table 2. Future Stations*** Under FasTracks that have TOD Potential (from Appendix I of the RTD SB 208 submittal to DRCOG)

<table>
<thead>
<tr>
<th>West Corridor (11)</th>
<th>Gold Line (7)</th>
<th>I-225 Corridor (5)</th>
<th>North Metro (8)</th>
<th>Southwest Corridor (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Knox Perry Sheridan Lamar Wadsworth Garrison Oak Federal Center Red Rocks Community College Jeffco Government Center</td>
<td>38th and Inca Pecos Federal Sheridan Olde Town Arvada Ridge Ward Road</td>
<td>Fitzsimons Commons Fitzsimons South 4th Avenue Aurora City Center City Center/ Exposition Iliff</td>
<td>Globeville/ Swansea Commerce City 88th Avenue 100th Avenue 112th Avenue 124th Avenue 144th Avenue 160th Avenue</td>
<td>C-470/ Lucent Blvd</td>
</tr>
<tr>
<td><strong>Southeast Corridor (3):</strong> Sky Ridge Lone Tree Town Center Ridgegate Parkway</td>
<td>East Corridor (5)</td>
<td>Central Corridor (0)</td>
<td><strong>US-36 Corridor (11)</strong></td>
<td><strong>US-36 Corridor (11)</strong></td>
</tr>
<tr>
<td>40th and 40th Colorado Stapleton Peoria/Smith Airport Blvd/ 40th Avenue</td>
<td>Between: 30th and Downing and 40th/40th (no TOD)</td>
<td>Between: 30th and Downing and 40th/40th (no TOD)</td>
<td>71st and Lowell Westminster Center Mandalay Town Center Broomfield 96th Superior Louisville 30th and Pearl Table Mesa Twin Peaks IBM at Diagonal Highway</td>
<td><strong>US-36 Corridor (11)</strong></td>
</tr>
</tbody>
</table>

***Projected station locations in the East Corridor, US 36 Corridor, Gold Line, the I-225 and I-25 North Corridors are tentative and subject to change through the Environmental Impact Statement (EIS) planning process.
Development around transit stations has the opportunity to be both locally and regionally beneficial. DRCOG made the following comment in its analysis of the FasTracks plan—“**FasTracks solidly supports the region’s Metro Vision Plan and is consistent with many of the conceptual corridors contained therein. Metro Vision calls for the development of higher density centers within the metropolitan area which will help to accommodate the one million additional residents of the region and thereby reduce the need to expand costly infrastructure beyond the region’s established growth boundaries. Rapid transit can be a major stimulus to the development of higher density urban forms along the lines.**”\(^{35}\)

**Transit Helps Create Vibrant Urban Centers Throughout the Region**

At the local level, TOD can create new transit-oriented communities that give residents the choice to live, work, shop, and recreate all within their neighborhood more often. TOD offers residents access to the region without having to drive a car. TOD offers a new lifestyle option where neighbors can walk to the store and interact with their neighbors—giving residents a sense of community.

At the regional level, TOD can change land use patterns and create compact urban centers to help preserve open space. By offering thousands of people the choice to live within walking distance or a transit trip away from their jobs, TOD can reduce the number of cars on the road. By reducing car travel, the region’s air quality can improve.

“**Urban forms are compact, mixed-use activity areas, with sufficient densities to support cost-effective transit service. They are also intended to absorb a significant amount of the population and employment growth that is anticipated to occur within the region through 2030. Transit service, especially fixed-guideway rapid transit, encourages higher density development and has an important influence on the overall success of an urban form. The proposed FasTracks rapid transit improvements will directly serve 18 of the proposed urban forms currently identified by DRCOG. Of these 18 forms, 16 are mixed-use Urban Centers, and two are employment-based Activity Centers.**”\(^{36}\)

**Less Traffic and Less Need to Drive**

Across the country, TOD has had a positive impact on both traffic congestion and the overall amount of driving in regions where it has occurred. According to the recent Environmental Protection Agency report, *EPA Guidance: Improving Air Quality through Land Use Activities*, there are several TOD features that will impact residents’ travel and commuting choices.\(^{37}\) The EPA lists five TOD form characteristics that will influence travel patterns: the compactness of a
neighborhood/development, land-use mix (mixed-use development—e.g., commercial, residential, recreational—in a community), transit accessibility, walkability, and regional development patterns (that is, the overall development patterns for a region, including how highway and transit connect, patterns of residential development and employment centers, etc). Combining TOD with the expansion of the transit system will result in the largest possible reduction in vehicle miles traveled and consequently the greatest improvement in air quality.

A study of TODs showed that various components of TOD result in anywhere from a 5-15% reduction in overall vehicle miles traveled within that area (see table 3).  

| Table 3. Travel Impacts of Land Use Design Features (Dagang, 1995) |
|---------------------------------|-----------------|
| Design Feature                  | Reduced Vehicle Travel |
| Residential development around transit centers. | 10% |
| Commercial development around transit centers. | 15% |
| Residential development along transit corridor. | 5% |
| Commercial development along transit corridor. | 7% |
| Residential mixed-use development around transit centers. | 15% |
| Commercial mixed-use development around transit centers. | 20% |
| Residential mixed-use development along transit corridors. | 7% |
| Commercial mixed-use development along transit corridors. | 10% |
| Residential mixed-use development. | 5% |
| Commercial mixed-use development. | 7% |

DRCOG modeled the impact of developing 31 urban centers around the region by 2025 and found there would be significant impacts on traffic and land development patterns. The study found that an urban center pattern of development would reduce the expected increase in the number of vehicle miles traveled by 2.7 million miles every working day by 2025 when compared with a dispersed development pattern (see table 4).
Table 4. Reduction in Vehicle Miles Traveled and Air Pollution from Small Urban Center Development Compared with Dispersed Development

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Daily VMT (Millions of miles)</th>
<th>Hydrocarbons (lbs)</th>
<th>CO (lbs)</th>
<th>Nox (lbs)</th>
<th>Delay (1,000s of hours)</th>
<th>Peak Speed (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispersed Development</td>
<td>92.3</td>
<td>76,000</td>
<td>2,240,000</td>
<td>66,000</td>
<td>723.74</td>
<td>31.81</td>
</tr>
<tr>
<td>Small Urban Centers</td>
<td>89.6</td>
<td>73,400</td>
<td>2,178,000</td>
<td>64,000</td>
<td>681.54</td>
<td>32.00</td>
</tr>
<tr>
<td>Difference between scenarios</td>
<td>2.7 million less VMT</td>
<td>2,600 lbs. less pollution</td>
<td>62,000 lbs. less pollution</td>
<td>2,000 lbs. less pollution</td>
<td>42,200 less hours</td>
<td>.09 mph faster</td>
</tr>
</tbody>
</table>

TOD will reduce air pollution
A pattern of TOD development will decrease the number of vehicle miles traveled in personal cars as people shift from driving to walking to destinations closer to where they live or work. This reduction in vehicle miles traveled results in a decrease in automobile emissions, which will help improve air quality. As shown in Table 4, DRCOG modeled that an urban center pattern of development would reduce emissions of nitrogen oxides by 2,000 pounds and hydrocarbons by 2,600 pounds every work day. Both nitrogen oxides and hydrocarbons are precursors to smog, or ground level ozone. Ground level ozone causes serious health problems including difficulty breathing, lung damage, and reduced cardiovascular functioning.

TOD will makes people healthier
Transit oriented development also results in more active lifestyles, where people can walk or bike to more destinations as they go about their daily lives. The following chart (see chart 4) compares the relationship between the amount of daily walking and percentage of people who are overweight. Many communities around the country are embracing changes in land use and transportation design that encourage active living. TOD is one more way to create active living environments where people can increasingly have the choice of walking, biking or taking transit to their destination and get some healthy exercise along the way.
A recent study of Atlanta also showed a strong correlation between mixed use urban centers and the percentage of people who are overweight in that part of the community (see Chart 5 below). Mixed use centers with housing, shopping and other retail uses near one another clearly create more walkable destinations that, by design, encourage more walking and better health.
Increased Housing and other Lifestyle Choices

One of the problems with standard suburban development is the lack of choice. Residents have few options in terms of housing types, places to shop, and modes of transportation.

TOD is intended to supplement, not replace, the current choices. Transit-oriented development projects can provide a much broader range of options by offering internal diversity and by simply adding a new type of development into the metropolitan area. Rather than leaving residents with no choice but to live in a single-family house, shop at auto-oriented retail centers, drive to work, and drive their children to activities, transit-oriented development can a wide variety of options to local residents. TOD can make available apartments, townhouses, and single-family homes to accommodate most family structures, income levels, and
life stages It can offer a choice of small, unique specialty shops and larger retail outlets; the opportunity to get around on foot, by bicycle, or on transit; and greatly enhanced mobility for children and seniors.

TOD is about expanding rather than circumscribing options. Lower-income people with less money to spend on transportation, first-time homebuyers, seniors and others inadequately served by most currently available housing options may particularly value the location efficiency offered by TOD.

Enhanced choice may entail:

- A diversity of housing types that reflects the regional mix of incomes and family structures.
- A greater range of affordable housing options.
- A diversity of retail types. Diversity will necessarily be limited by the market area and the particular desires of the residents; however, this outcome could be measured in terms of how well the retail mix meets the needs and desires of the residents as they themselves define them.
- A balance of transportation choices.

**TOD Encourages Smart Growth**

Transit-oriented development is one of the most important tools for creating more efficient regional land-use patterns. The more growth that can be accommodated in station areas, the less pressure there will be for sprawl at the urban edge.

The same analysis by DRCOG of urban center development showed that if local governments complete the planned urban centers, approximately 960 acres per urban center could be saved from development because of the compact style of development.\(^{45}\) The land saved from development by encouraging the growth of TODs could be used as valuable open space. The Denver region is losing thousands of acres of open space to sprawling development every year. These open spaces serve multiple purposes: a visual and spatial buffer that helps separate communities, preserve wildlife habitat, protect fragile ecosystems, and create recreation areas. These open spaces serve to enhance the quality of life in the Denver Metro Area while providing opportunities for active living and healthier lifestyles.
**GROWING DEMAND FOR TOD**

There is increased demand for transit oriented development among key demographic groups that are expanding such as seniors and information economy workers.

Jennifer Dorn, Administrator for the Federal Transit Administration of the U.S. Department of Transportation, stated recently that *“with the recent surge in interest and construction of rail transit systems, families and communities are seeking ways to take full advantage of their promise – seeking improved mobility, environmental benefits, and economically thriving neighborhoods.”*  

Table 5. Projected Increase in Metro Denver Households in Transit Zones

<table>
<thead>
<tr>
<th>Metro Area</th>
<th>Total Households in Metro Area 2000</th>
<th>Households in Transit Zone 2000</th>
<th>Total Projected Households 2025</th>
<th>Potential Households in Transit Zones 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denver Metro Area</td>
<td>825,022</td>
<td>45,338</td>
<td>1,201,670</td>
<td>88,187</td>
</tr>
</tbody>
</table>

Research by DRCOG indicates that older Coloradoans, looking for alternative lifestyle options, are likely to embrace transportation alternatives such as light rail. DRCOG particularly noted the graying of the baby boomers, concluding that those “born between 1945 and 1964 are beginning to retire. As they do, some will leave their existing communities and others will want to preserve their existing lifestyle and explore new options.” In either scenario, this generation represents a large portion of the population and one that has significant implications for local government and private developers thinking about future transportation needs. In 1990 the senior population of the Denver region represented 12% of the overall population. In sharp contrast, by 2030 seniors will represent closer to 25% of the total population.
Chart 6 - Changes in Colorado's Age Demographics

Source: U.S. Bureau of the Census
Key Elements of Creating Successful TODs in the Metro Region
FasTracks is the necessary first step to creating transit oriented communities in the region but additional civic action is needed to create urban centers. Building out the transit corridors is a necessary, but not sufficient in and of itself to creating successful transit oriented communities. Creating small urban centers throughout the region, however, does start with a fundamental requirement: making a regional commitment to funding and constructing transit. Based on the lessons from TOD along the existing lines and T-Rex, as well as other communities around the country, a number of other key elements are necessary ingredients for successful TOD. Appendix D includes a summary of key principles for successful TOD developed by experts based on case studies from numerous TODs around the country.51

Report Conclusions

1) The transit oriented communities and urban centers that would be spurred on by the passage of FasTracks would represent the single largest factor in shaping the overall development and patterns in the metropolitan region over the next 25 years. TODs would significantly impact the creation of small urban centers and village squares throughout the region, which would in turn reduce vehicle miles traveled by at least 2.5 million miles every workday, five times the impact of considering travel modes alone.

2) TOD would start shaping growth and development patterns in the region as soon as FasTracks passes, not when the lines open. There is strong market demand as a result of major demographic changes coming; including a doubling of the senior population over 60.

3) The region needs to learn from our successes and failures in planning for TOD along the existing light rail lines as well as from other TODs around the country to maximize the opportunities created if FasTracks passes.
APPENDICES

Appendix A. DRCOG 2002-2003 Urban Forms Study – summary

Urban Centers are Important to Regional Vision

*Urban centers have*...

• Compact form

• Transit/pedestrian access

• Intensive uses

• Mixed activities

• Existing infrastructure

• Senior accessible

Community Urban Form Benefits

*Provides*...

• Economic development

• High market activity capture

• Community identity

• Efficient services
The EPA Brownfields Project – 2002/03

• To evaluate the environmental effects of infill development
• Contrasted three cities’ experiences: Denver, Boston, and Charlotte, NC
• DRCOG used it to evaluate general urban form effects
• Early in the process of urban forms development, so results are general

Project Analysis: Scenarios

• Three scenarios
• Transportation network held constant
• Three contrasting development patterns
  – Dispersed
  – 31 smaller urban centers
  – 10 larger urban centers

Differences Between Scenarios

• 400,000 new households and 1,000,000 jobs by 2025
• 60% allocated according to traditional pattern.
• 40% allocated according to scenario requirements
  ➢ Dispersed – 40% allocated to “greenfields” development
  ➢ Smaller Urban Centers – 40% allocated to 31 smaller centers.
  ➢ Larger Urban Centers – 40% allocated to 10 larger centers.
Appendix B. DRCOG Study - Small Urban Centers Employment Areas

EPA Brownfield Study
Forecasted Employment
Multi-Center Scenario

<table>
<thead>
<tr>
<th>ID</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arapahoe City Center</td>
</tr>
<tr>
<td>2</td>
<td>Englewood Park</td>
</tr>
<tr>
<td>3</td>
<td>East Lake</td>
</tr>
<tr>
<td>4</td>
<td>Federal</td>
</tr>
<tr>
<td>5</td>
<td>Highlands</td>
</tr>
<tr>
<td>6</td>
<td>Brownfield Town Center</td>
</tr>
<tr>
<td>7</td>
<td>CBD</td>
</tr>
<tr>
<td>8</td>
<td>Cherry Creek</td>
</tr>
<tr>
<td>9</td>
<td>Stapleton Town Center</td>
</tr>
<tr>
<td>10</td>
<td>Fitzsimons</td>
</tr>
<tr>
<td>11</td>
<td>Gateway Development</td>
</tr>
<tr>
<td>12</td>
<td>Glendale</td>
</tr>
<tr>
<td>13</td>
<td>Highlands Ranch</td>
</tr>
<tr>
<td>14</td>
<td>I-70 &amp; Colorado</td>
</tr>
<tr>
<td>15</td>
<td>Jefferson Center</td>
</tr>
<tr>
<td>16</td>
<td>Lakewood</td>
</tr>
<tr>
<td>17</td>
<td>Laramie</td>
</tr>
<tr>
<td>18</td>
<td>Westminster</td>
</tr>
<tr>
<td>19</td>
<td>Arapahoe Ridge</td>
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<td>20</td>
<td>Park Meadows</td>
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<td>21</td>
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<td>22</td>
<td>Standing Lake</td>
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<td>23</td>
<td>Stapleton Redevelopment</td>
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<td>24</td>
<td>Ridgeline</td>
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<td>25</td>
<td>Tech Center Arapahoe</td>
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<td>26</td>
<td>Tech Center Denver</td>
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<tr>
<td>27</td>
<td>Thompson Parkway</td>
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<td>28</td>
<td>Thornton</td>
</tr>
<tr>
<td>29</td>
<td>Westminster Town Center</td>
</tr>
<tr>
<td>30</td>
<td>Westminster Promenade</td>
</tr>
<tr>
<td>31</td>
<td>Westminster Plaza</td>
</tr>
</tbody>
</table>
Appendix C. Key Elements of Creating Successful TODS

(Summary compiled by the Livable Communities Support Center from presentations made at the 2004 Congress for the New Urbanism in Chicago by GB Arrington, Tim Van Meter and Charles Witherington-Perkins)

Key Points by GB Arrington, PB Placemaking

Station Area Planning should be at least ¼ mile and can be up to ½ mile around stations:
- EIS for corridors should include strong TOD planning as part of the process
- Early planning and zoning by cities and counties is critical
- There are four key elements of TOD planning and zoning
  - Minimum densities
  - Parking maximums
  - Building orientation
  - Prohibited uses

Components of Successful TOD
1. Early Bird Catches the TOD
   - Many missed opportunities
   - Hard to slow the engineering down
   - Universal lesson from New Starts: start TOD earlier

2. Have the Right Tools
   - Clear entitlements for TOD
     - Zoning for density, mix of uses, less parking, building orientation
     - Land Assembly
     - Tame the traffic
     - Incentives may be required
       - Financial & regulatory
       - Leverage TEA-21 dollars

3. Density Matters
   - Rule of thumb: 10% more density = 5% more transit trips

4. Create Centers to Come Back to
   - Create a Defined Center
   - Make sure the uses are synergistic

5. Development Friendly Transit
   - Transit designed with development in mind
     - Corridor station
     - Station function
• Pedestrian access
• Parking location
• Community partnerships
• Incorporate TOD

6. Plan for Cars
   • Cars "drive" the market
     • Make them “behave”
   • Retail requires visibility
   • Balance through traffic & local circulation
   • Multi-Modal Streets
     • For walking, transit and cars

7. Design for the Pedestrian
   • Community to the transit platform
   • Walkable TOD site design
   • Connections to community from TOD

8. Plan for a Mix of Uses
   • Vertical or Horizontal
   • Most difficult TOD element
   • Great TOD benefits
     • More walking
     • More ridership
     • Reduced auto-use
   • Experienced developer key

9. Get the Parking Right
   • Critical land use
   • Rules of thumb:
     • 20% reduction for residential
     • 15% for office
     • up to 25% for mixed-use
   • Allow shared use
   • Maximum ratios

10. Understand Your Market
    • Doubling of demand for homes within walk of stores
    • Buyers who prefer dense, compact homes
      • 31% of homeowner growth (2000-2010)
      • US Households with children at home is declining
        • 33.6% in 1990
        • 29.5% in 2010
Key Points from Tim Van Meter, Van Meter, Williams, Pollack

*Transit Design Orientation: Node or Place*

- Transit Node: Regional Transit Function & Emphasis. Development Adjacent
- Transit Place: Local Transit & Neighborhood Emphasis.

*Transit Station Activity Places*

- The Chaotic Place: At the Station
- The Utilitarian Place: Next to Station
- The Passive Place: Adjacent to Station

*Transit Oriented Streets*

- Connectivity
- Clear Path to Transit
- Pedestrian first Design
- Clear Bus Route

*Transit Oriented Parking*

- Shared Parking
- Parking Reduction
- Wrap Parking
- On Street Parking

*Transit Oriented Blocks*

- Pedestrian Block Size
- Hide the Parking
- Build-to-Lines
- Restrict Curb Cuts
- Solar Orientation

*Transit Oriented Buildings*

Above all else, make it pedestrian-friendly
- Ensure that the walker has precedence over all other models of movement
Pocket Parks and Urban Spaces

- Visual Gateways
- Gathering places
- Special places for art
- Aesthetic beautification
- Eliminate blight

5 Key Urban Design Lessons Learned

1. Above all else, make it Pedestrian
2. Break, Bend or Change the Rules
3. Place park-n-rides adjacent to, but not between the Station and Development
4. Utilize the streets as the bus transfer facility
5. Create Public Focal Points

Key Points from Charles Witherington-Perkins, Director of Planning and Community Development, Arlington Heights, Illinois

Initial Steps to Take to Make TOD Successful

- Create a vision for TOD area
- Develop a Master Plan
- Aggressively pursue implementation
  - Assign someone/group to take ownership
  - Provide the necessary tools
  - Monitor and adjust
  - Be pro-active/make things happen
- Establish financing for public/private economic development partnerships
  - Create Small Business assistance programs
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