



The Economic and Fiscal Impacts of Development near DART Stations 2014 – 2015

Prepared for
Dallas Area Rapid Transit

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Executive Summary

The purpose of this document is to identify and calculate economic impacts of real estate development projects within a quarter mile radius of DART light-rail stations. The study is a follow-up to the 2013 analysis completed by this office and analyzes development projects in 2014 and 2015. The values of all projects included in the analysis were determined through a combination of steps including the use of their estimated values as published in the sources analyzed, cross-checking the properties with the Dallas and Collin County Appraisal Districts where possible, and augmenting all information with a review by analysts at Cushman & Wakefield. IMPLAN software was used to create an economic input-output model to measure the direct, indirect, and induced impacts of the development projects on the Dallas-Ft. Worth region.

Highlights

- A total of 27 private projects were announced in the two year period studied, 16 of which were characterized as “Completed or Under Construction” and 11 as “Planned or Proposed.”
- Projects “Completed or Under Construction” are responsible for \$2.03 billion in total spending throughout the region supporting over 12,000 jobs paying \$703 million in salaries, wages, and benefits.
- Projects “Completed or Under Construction” generated \$69 million in state and local tax revenue.
- Potential spending for projects “Planned or Proposed” could result in \$5.1 billion of total spending in the region which would support over 31,000 jobs and pay almost \$2 billion.
- Potential spending for projects “Planned or Proposed” could generate \$160 million in state and local tax revenue.

Introduction

In 2013, our office examined the economic impacts associated with construction near DART rail stations. This study is a follow-up to that analysis and examines the impacts of projects that were proposed, planned, underway, or completed near DART stations in 2014 and 2015. As with the previous study, construction activity is only considered if it took place within a quarter mile of a DART station – a distance researchers agree yields a positive association with increased development.^{1 2 3} Further, this study does not include downtown stations. While our focus is only on projects within a quarter mile of a DART station, it is likely that the effects of station proximity spread beyond this arbitrary impact zone.

Methodology and Data

The underlying data used for the calculation of impacts – the real estate development projects – were gathered through an ongoing review of publicly announced projects in publications such as the *Dallas Morning News*, *Dallas Business Journal*, and assorted community newspapers and online resources. A total of 27 projects were identified then organized by type and status of completion. First, details of the projects were examined which helped assign them to one of four categories, “Non-Residential,” “Multi-Family,” “Single-Family,” and “Healthcare.” The next step was to establish their stage of completion. Of the total number of projects, 16 were assessed as “Completed or Under Construction” and 11 as “Planned or Proposed.” Intermittent consultation with a DART representative over the two-year period helped refine what emerged as a database of properties proposed, planned, underway, or completed during 2014 and 2015. The values of all projects included in the database were determined through a combination of steps including the use of their estimated values as published in the sources analyzed, cross-

¹ Bollinger, C. & Ihlanfeldt, K. (1997). The impact of rapid rail transit on economic development: The case of Atlanta’s MARTA. *Journal of Urban Economics*, 42, 179-204.

² Cervero, R. & Landis, J. (1997). Twenty years of the Bay Area Rapid Transit System: Land Use and Development Impacts. *Transportation Research A*, 31(4), 309-333.

³ Weinberger, R. (2000). *Commercial Rents and Transportation Improvements: The Case of Santa Clara County’s Light Rail*. Cambridge, MA. Lincoln Institute for Land Policy.

checking the properties with the Dallas and Collin County Appraisal Districts where possible, and augmenting all information with a review for accuracy by commercial real estate analysts.

In order to understand how the effects of development projects constructed within a quarter mile of DART stations ripple throughout the economy of the Dallas-Ft. Worth region, IMPLAN was used to create economic models based on the spending data provided. IMPLAN is an industry standard tool used to calculate the direct, indirect, and induced impacts of spending and employment. To better understand this process, a brief look at how impacts are calculated for the development of a property is helpful. “Direct” effects are the result of the money initially spent in the region by real estate developers, builders, and construction companies for the completion of a project. This includes money spent to pay employee salaries, purchase supplies, and other operating expenses. “Indirect” effects are the result of business-to-business transactions. When suppliers to the companies driving the development (e.g. an accounting firm) purchase services or supplies they create the indirect effect. When the employees of the real estate developers, builders, construction companies and their suppliers spend their income, this causes the “induced” effect. When added together, the sum of all the activity from direct, indirect, and induced impacts is greater than the combined spending of the developer – this is referred to as the “multiplier effect.” For more detail concerning how the economic impacts were calculated in this study, please see Appendix A.

Results

What follows are descriptions of the economic and fiscal impacts for “Projects: Completed and Under Construction” and “Projects: Planned or Proposed.” It should be noted that the economic impacts for projects not yet in the construction phase are offered as economic scenarios of what *may* happen if the projects in question come to fruition. It is reasonable to assume that some of the projects planned or proposed may never make it to the construction phase. It is also important to keep in mind that while dollar values are associated with projects as they are announced, once reaching the construction phase projects may be expanded or contracted in scale and material costs may have fluctuated from initial projections. These

uncertainties can result in direct spending on a project that is higher or lower than previous expectations.

Projects: Completed or Under Construction – Total

Construction activity within a quarter mile of DART rail stations in 2014 and 2015 resulted in significant economic activity for the Dallas-Ft. Worth region. The projects either in the construction phase or completed in this time frame resulted in over \$986 million in direct spending and a total economic impact of \$2.03 billion for the region. This activity created more than 12,000 construction-related jobs paying almost \$69 million in salaries, wages, and benefits (Table 1).

**Table 1. Economic and Fiscal Impacts of
Projects: Completed or Under Construction, 2014 - 2015**

Description	Impact
Direct Impact	\$986,175,066
Total Impact	\$2,030,315,970
Labor Income	\$703,717,303
Employment	12,157
State and Local Taxes*	\$69,232,886

* Includes state and local sales and use taxes, property taxes, and license and permit fees.

Source: IMPLAN

When the projects are grouped together according to function, further insight is gained concerning the economic effects of differing types of development.

Projects: Completed or Under Construction – Non-Residential

Impacts generated by activity in the Non-Residential sector are the largest out of all the sectors. The Non-Residential sector includes office buildings, retail stores, hotels, training facilities, mixed-use developments, and public projects such as libraries, convention centers, and police headquarters. Direct spending of \$181 million on non-residential real estate development projects resulted in a total economic impact of \$336 million for the Dallas-Ft. Worth region. This activity supported just over 2,000 construction-related jobs paying \$127 million in salaries, wages, and benefits. State and local fiscal impacts amounted to \$10.5 million (Table 2).

**Table 2. Economic and Fiscal Impacts of
Projects: Completed or Under Construction – Non-Residential, 2014 - 2015**

Description	Impact
Direct Impact	\$181,752,260
Total Impact	\$336,040,875
Labor Income	\$127,231,184
Employment	2,077
State and Local Taxes*	\$10,542,958

* Includes state and local sales and use taxes, property taxes, and license and permit fees.

Source: IMPLAN

Projects: Completed or Under Construction – Multi-Family Residential Impacts

The multi-family residential sector includes apartment complexes and multi-family residential units within a quarter mile radius of DART stations. Multi-family residential projects were directly responsible for \$796 million in direct spending creating significant indirect and induced impacts for a combined total impact of over \$1.6 billion. This activity supported almost 10,000 construction-related jobs paying \$570 million in salaries, wages, and benefits. State and local taxing entities received \$58 million due to these development projects.

**Table 3. Economic and Fiscal Impacts of
Projects: Completed or Under Construction – Multi-Family Residential, 2014 - 2015**

Description	Impact
Direct Impact	\$796,422,799
Total Impact	\$1,678,363,786
Labor Income	\$570,754,859
Employment	9,980
State and Local Taxes*	\$58,132,516

* Includes state and local sales and use taxes, property taxes, and license and permit fees.

Source: IMPLAN

Projects: Completed or Under Construction – Single-Family Residential

The single-family residential sector showed the least amount of economic impact out of the categories analyzed. A total of \$8 million in spending provided a modest \$15 million in total economic impacts for the Dallas-Ft. Worth region. This activity facilitated 101 construction-related jobs paying \$5.7 million in wages, salaries, and benefits. State and local tax revenues from single-family residential development are also comparably low with \$557,412 reaching city and state coffers (Table 4).

**Table 4. Economic and Fiscal Impacts of
Projects: Completed or Under Construction – Single-Family Residential, 2014 - 2015**

Description	Impact
Direct Impact	\$8,000,000
Total Impact	\$15,911,309
Labor Income	\$5,731,266
Employment	101
State and Local Taxes*	\$557,412

* Includes state and local sales and use taxes, property taxes, and license and permit fees.

Source: IMPLAN

Projects: Planned or Proposed – Totals

As the spending concerning projects under construction or completed suggests, real estate development has recovered from the recent recession in the Dallas-Ft. Worth region. In addition, the region is one of the fastest growing nationwide in terms of population and continues to be the destination for corporate relocations.^{4 5} As a result, there were many real estate development projects proposed or in the planning stages in 2014 and 2015 that fall within a quarter mile of DART rail stations. To gain perspective of the magnitude of these projects and their potential impacts on the Dallas-Ft. Worth region, the reported details (e.g., square footage, construction value, use classification) of 11 projects were captured from various media outlets, placed into a database, then verified by a third party to ensure accuracy of the media reports.

⁴ Young M. E. (2015, May 20). Population gain in Dallas-Fort Worth is eye-popping, census figures show. *The Dallas Morning News*. Accessed from <http://www.dallasnews.com/news/metro/20150520-some-things-really-are-bigger-in-texas-census-figures-show.ece>

⁵ Amburgery-Sood, E. (2015, November 13). The fastest-growing ZIP codes in a booming North Texas. *Dallas Business Journal*. Accessed from http://www.bizjournals.com/dallas/blog/morning_call/2015/11/the-fastest-growing-zip-codes-in-a-boomingnorth.html

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The estimated value of the 11 projects either in the planning stages or proposed in 2014 and 2015 offers potential for significant economic impact on the Dallas-Ft. Worth region. Potential direct spending of \$2.7 billion to complete the projects in question would result in potentially \$5.1 billion in total economic impact for the region. This activity would create more than 31,000 jobs paying almost \$2 billion in salaries, wages, and benefits and generate \$160 million in state and local tax revenues (Table 5).

**Table 5. Economic and Fiscal Impacts of
Projects: Planned or Proposed, 2014 - 2015**

Description	Impact
Direct Impact	\$2,746,789,671
Total Impact	\$5,103,459,207
Labor Income	\$1,924,425,687
Employment	31,490
State and Local Taxes*	\$160,779,265

* Includes state and local sales and use taxes, property taxes, and license and permit fees.

Source: IMPLAN

As with projects that are completed or under construction, when the projects are grouped together according to function, further insight is gained concerning the potential economic effects of differing types of development. Unlike projects that are completed or under construction, projects proposed or already in the planning stages are less varied in scope and fall into the “Non-Residential” and “Multi-Family” categories.

Projects: Planned or Proposed – Non-Residential

The office buildings, mixed-use developments, public projects and more that are proposed or in the planning stages are estimated to provide \$2.6 billion in direct spending which would result in a total economic impact of almost \$5 billion for the Dallas-Ft. Worth region. This activity would provide for just over 30,000 construction-related jobs paying over \$1.8 billion in salaries, wages, and benefits. State and local fiscal impacts would amount to \$153 million (Table 6).

**Table 6. Economic and Fiscal Impacts of
Projects: Planned or Proposed – Non-Residential, 2014 - 2015**

Description	Impact
Direct Impact	\$2,650,329,668
Total Impact	\$4,900,181,530
Labor Income	\$1,855,297,812
Employment	30,281
State and Local Taxes*	\$153,738,452

* Includes state and local sales and use taxes, property taxes, and license and permit fees.

Source: IMPLAN

Projects: Planned or Proposed – Multi-Family Residential Impacts

If fully realized, the apartment complexes and multi-family residential units planned or proposed within a quarter mile radius of a DART station may result in \$96 million in direct spending and \$203 million of total economic impact. This activity would support 1,208 construction-related jobs paying nearly \$69 million in salaries, wages, and benefits. State and local taxing entities would receive \$7 million in revenues if these development projects were completed (Table 7).

**Table 7. Economic and Fiscal Impacts of
Projects: Planned or Proposed – Multi-Family, 2014 - 2015**

Description	Impact
Direct Impact	\$96,460,004
Total Impact	\$203,277,677
Labor Income	\$69,127,875
Employment	1,208
State and Local Taxes*	\$7,040,811

* Includes state and local sales and use taxes, property taxes, and license and permit fees.

Source: IMPLAN

Conclusion

The Dallas-Ft. Worth region’s economy weathered the recessionary period between 2007 and 2009 better than most metropolitan regions in the United States. The substantial amount of development within a quarter mile of DART stations analyzed in our last report attests to the region’s economic health. The current building boom the region is experiencing is reflected in the number of projects “Completed or Under Construction” while the continued health and growing

strength of the region's economy is portrayed in the billions of dollars of projects currently in the planning stages or being proposed.

The trend to develop properties near light rail stations is one that extends across the nation. Connectivity and multi-modal access are increasingly important in a Texas that is rapidly urbanizing – this is especially true in the Dallas Ft. Worth region. The 27 projects completed, under construction, planned, or proposed represent not only the region's commitment to multi-modal transportation options and an urban landscape that reflects the importance of those options, but billions of dollars in economic activity and tens of thousands of jobs throughout the region.

Appendix A: Detailed Methodology

To understand how money being spent developing properties within a quarter mile of a DART station ripples through a regional economy, the first step is to define the region in question. This study uses the Dallas-Ft. Worth region for analysis as its economy is strongly integrated. The U.S. Office of Management and Budget's (OMB) definition of the "Dallas-Ft. Worth-Arlington Metropolitan Statistical Area" is used and the counties included in the region include Collin, Dallas, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Somervell, Tarrant, and Wise. After deciding on a region for analysis, the values of the selected properties are placed into an Input/Output economic model that examines how the money being spent on property development ripples through a regional economy. Input/Output methodology allows for insight into forward and backward linkages that are present in any regional economy, highlighting how they add value to the initial dollar spent. The model – in this case facilitated by the IMPLAN software package – measures the total annual economic activity that results from inter- and intra-industry transactions.

The model first breaks the economy into 536 separate sectors with each sector representing an individual industry, then it uses a sectoring scheme developed by the IMPLAN Group. This scheme is closely related to the Bureau of Economic Analysis (BEA) REIS model and is a 536 X 536 (row x column) matrix showing all the economic activity between the individual sectors. The entries in the matrix are based on the dollar amount that each industry sells to (and purchases from) other industries in a regional economy. It measures the amount of final consumption by the residents of the region as well as how much each industry exports from the area. The model uses data collected at the county level, which are obtained from the IMPLAN Group and the BEA. County data are in turn aggregated or "rolled-up" to form service areas such as local regions, states or larger geographic regions such as the Midwest. Input/Output models are able to estimate economic impacts because the flow of goods and services within an economic region is relatively stable. Predictions can be made of an industry's total economic impact by examining the purchasing patterns of the individual sectors. The BEA collects extensive data on these regional trade flows and reports their findings annually.

After the region is selected and the data on spending are entered, how the spending flows through the region and impacts it can be calculated. The three levels of spending impacts analyzed are direct, indirect, and induced. The direct impact includes the purchases of resources (labor, goods, and services) by real estate developers, builders, and construction companies for the completion of a project. The indirect impact occurs through industry-to-industry purchases made by regional suppliers. Finally, the induced impact reflects the change in household demand as the employees of real estate developers, builders, and construction companies and the employees of their suppliers earn dollars for consumer spending. Therefore, the total impact to the economy is the summation of the direct, indirect, and induced components. The indirect and the induced portions are commonly known as the multiplier and their impacts often referred to as the “multiplier effect.” It shows how the initial (direct) spending get multiplied through the economy. Calculating the multipliers based on the supplier relationships and employee consumption patterns are much more accurate than simple multiplier tables.

The effects that the three levels of impacts and related spending have on employment is also calculated in the IMPLAN economic model. Employment is the total number of full-time wage and salary employees, plus the number of self-employed workers in a particular industry. Part-time workers’ hours are aggregated into full-time equivalents (2,080 hours), and reported with the full-time workers. An IMPLAN economic model will draw from multiple sources of data to offer employment estimates. This is due to the differences in how employment data is gathered by varying government agencies. In general, due to nondisclosure rules, the employment figure reported by government agencies often underestimates true employment in a given county. In accordance with U.S. Code Title 13, Section 9, no datum is published that would disclose the operations of an individual employer or put an individual employer at an unfair disadvantage.

By carefully combining the employment figures reported by the U.S. Department of Labor, Bureau of Economic Analysis, U.S. Census, and the Internal Revenue Service, a fairly comprehensive employment figure can be reconstructed. The raw data are then “sectored” into the appropriate NAICS and, in turn, combined into the necessary industry vectors and IMPLAN matrices. The result of this process is a “Total Employment” impact figure that is a result of the

three levels of economic impacts associated with the initial spending. An IMPLAN economic model also calculates employee compensation which includes all salaries, wages, and benefits paid to the industry's employees resulting from the direct, indirect, and induced employment impacts. The figure includes the proprietors' income of self-employed persons in the industry. The figures reported are gross amounts and taken from the IMPLAN data set.

Input/Output methodology and IMPLAN software allow one to leverage and integrate the enormous amount of data collected by government agencies. As such, a reliable model of how spending affects a regional economy can be developed. These models take into account not only how money is initially spent in the "direct" stage of an event, but also inter- and intra-industry transactions. These transactions establish forward and backward linkages in a regional economy during the "indirect" and "induced" stages. In addition to spending, these models also estimate the resulting change in employment. The end product is a comprehensive economic analysis of a given event and its effect on a region.