The Economic Impact Near DART Light-Rail Stations 2019-2021

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Prepared by
Michael C. Carroll, Ph.D.
Yang Zhou, Ph.D.

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Executive Summary

The primary purpose of this report is to identify and calculate economic impacts of real estate development projects within a quarter mile radius of DART light-rail stations in the period 2019-2021. The University of North Texas Economics Research Group (ERG) has undertaken a series of studies regarding the economic impact of DART stations, particularly in the form of Transit Oriented Development, since 1999.

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 and verification with CoStar data. 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. Unlike previous reports, this report data set reflects the anomaly of being subsumed by the Covid-19 Pandemic, which had a major impact on the transit and development industry.

Station Area Economic Impact - Selected Highlights 2019-2021

- A total of 31 development projects were completed within ¼ mile of DART stations with a total property value of $980.1 million.

- Commercial development accounted for $429.9 million; residential accounted for $540.5 million; and public projects accounted for $9.6 million.

- The total economic impact of the projects created $1.8 billion for the DFW economy over the study period.

- The projects created 10,747 construction jobs.

- The projects generated $144.7 million in Federal tax revenue over the study period.

- The projects generated $49.6 million in state and local tax revenue over the study period.
    - Sales taxes generated (excluding DART portion) was $22.7 million.
    - Property taxes generated was $18.3 million.
    - Other state & local tax revenue was $8.6 million.

Introduction

This study[1] measures the economic development near all DART stations. Continuing on from past studies undertaken by ERG for DART, it looks at economic development that occurred from 2019 to 2021. As with the previous ERG DART studies, construction activity is only considered if it took place within a quarter mile of a DART station. This is a distance that researchers agree yields a positive association with increased development.[2] [3] [4] and has traditionally been used as the distance a transit rider is willing to walk. Notably, recent studies have determined that residents of multi-family housing are more accepting of a ½ mile walk when located near a rail station; however, for the purposes of this study, we have decided to utilize the more conservative ¼ mile distance. Also, this study does *not* include the six downtown Dallas stations (West End, Akard, St. Paul, Pearl/Arts District, EBJ Union, and Convention Center Stations) as these stations often overlap with a ¼ mile radius. Consequently, the economic impact is even greater than what is reflected in this report. Additionally, it is likely that the effects of station proximity spread beyond the arbitrary ¼ mile impact zone relied upon in this study.

Methodology and Data

The underlying data used for the calculation of impacts (*i.e.*, real estate development projects) was 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 and in some cases verified by CoStar. ERG also used satellite image comparisons (Google Earth) to determine development projects that occurred in the 2019-2021 timeframe. A total of 31 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 six IMPLAN construction industry categories. The next step was to establish their stage of completion. The

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[1] The authors want to thank ERG Research Associate Ryan Meister for his work on the project.

[2] 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.

[3] 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.

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

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-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. Further, property values were verified with the CoStar dataset.

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 development 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 description of 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 the development projects located within ¼ of DART stations and along the streetcar route. Downtown Dallas locations were not included because of overlapping ¼ radii. All the projects included in this report have been completed or are currently under construction. In past ERG studies, projects that were planned and not under construction were listed. During 2019-2021, no projects met these criteria. It should also be noted that the economic impacts for projects not yet in the construction phase in previous studies were 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.

2019-2021 Activity:

Construction activity within a quarter mile of DART light rail stations and streetcar route in 2019-2021 resulted in significant economic activity for the Dallas-Ft. Worth region. Of these construction projects, seven are currently under construction (22.5%) and 24 (77.5%) have been completed. The projects created more than $980 million in direct spending. This yields a total economic impact of $1.8 billion for the DFW region. Direct construction employment was 6,264 jobs with at total employment creation (direct, indirect, and induced) of 10,747 DFW jobs. The construction jobs generated $738 million in labor income and $49.6 million in state and local taxes.

Table 1. Projects: Completed Under Construction, or Planned 2019 - 2021

Description	Impact
Direct Economic Impact	$980,078,889
Economic Impact	$1,797,948,382
Direct Labor Income	$457,411,385
Total Labor Income	$738,492,182
Direct Employment (Jobs)	6,264
Total Employment (Jobs)	10,747
State and Local Taxes*	$49,608,858

* Includes state and local sales (excluding DART) and use taxes, property taxes, and license and permit fees.
Source: IMPLAN

DART development generated $49.6 million in state and local tax revenue. The bulk of this revenue ($22.7 million) was from sales tax. (This sales tax excludes the portion remitted to DART by its service area cities.) Property taxes were $18.3 million and other state and local taxes accounted for $8.6 million.

Table 2. Recent State and Local Tax Revenue (2019-2021)	
Sales tax excluding DART sales tax	$22.7 Million
Property Tax	$18.3 Million
Other State and Local Taxes	$8.6 Million
State and Local Tax Revenue Total	$49.6 Million

The development near DART stations, and corresponding rise in property values, has been significant over the past two decades. Since the first economic impact study was conducted in 1999, the development now stands at a total of $17.1 billion dollars.

Table 3. Total Property Values 1999 - 2021	
1999-2018	$16,133.7 Billion
2019-2021	$980 Million
1999-2021	$17,113.7 Billion

Conclusion

The Dallas-Ft. Worth region's economy showed considerable economic activity from 2019-2021 despite the COVID pandemic. This continues the robust growth trend that the DFW region has experienced in the past few decades. The significant amount of development within a quarter mile of DART stations detailed in this report, as well as in our previous reports, attests to the region's positive economic health. The trend to develop properties near light rail stations is not unique to DFW as similar patterns extend across the nation. Connectivity and multi-modal access are increasingly important in a Texas that is rapidly urbanizing – this is especially true in the DFW. The 31 projects analyzed reflect the importance of multi-modal transportation options to the DFW economic landscape. The results of this study also demonstrate that transit-oriented development is not a single purpose strategy. Over the decades, the development near DART light rail stations, including various types of residential communities and significant commercial, office and retail establishments, have not only provided transit accessibility but also simultaneously boosted the economic wellbeing of the DFW 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 allows the analysis 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.