On The Right Track?

Assessing Land Use Change Along Transit Lines Using Existing Rail Corridors

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Introduction

This study aimed to analyze land use change along transit lines which were developed using existing railroad corridors. The purpose of the study was to understand whether preexisting land uses changed over time after transit service opened. Initially, there was also intended to be a study of land use in Winnipeg along rail corridors to identify suitability for transit service, however the findigns of this study are now intended just to serve as lessons for Winnipeg or any city looking to develop transit service using existing railroad corridors.

Research Questions

1. How have North American cities used existing railroad corridors for transit service?
2. How has land use changed along these corridors over time?
3. How did planning policy guide land use change over time along the corridors?

Methods

This study used two primary methods of analysis: Spatial Analysis and Document Review.

Spatial Analysis

Conducted using publicly available land use and line and station data. Land use datasets were used for years prior to and following the opening of each studied transit line.

Document Review

Documents reviewed detailed the process of developing the studied transit lines, as well as the policies which guided land use along the transit line.

Case Selection

The case selection process used a list of transit systems in North American cities, along with internet searches, to identify those which were developed using existing railroad corridors.

After a list of transit systems using existing railroad corridors was identified, further searches were used to identify whether sufficient data existed to assess land use along the transit line prior to and following its opening, as well as if planning policy documents were available for analysis.

List of Figures:
Figure 1: Dallas Area Rapid Transit. https://texashistory.unt.edu/ark:/67531/metapth1138596/
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Figure 4: Dallas City Hall. https://dallascityhall.com/departments/pnv/Documents/Cedars%20Area%20Plan%202002_.pdf
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Findings

Corridor Development

The study found that each case city took a somewhat different approach to developing its transit system using existing railroad corridors. Key findings included that cost savings were typically a justification for doing so, however Dallas was able to much more effectively develop a comprehensive system while Charlotte and Austin struggled and the process took much more time in these cities.

Figures 1 & 2: The original DART Service Plan from the 1983 proposal, and the updated plan from 1995.

Land Use Change

The study found that the land use changes which occured in each case were also somewhat mixed. Some station areas saw significant land use change over time, while others did not. Overall, there were general reductions in most cases in Industrial land use types with small increases in multi family residential. However, these trends were not consistent across cases or across station areas within cases.

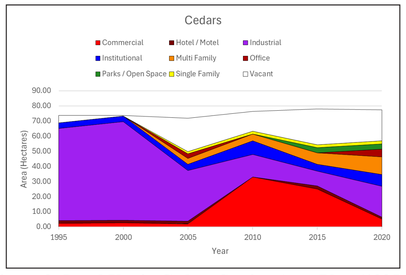
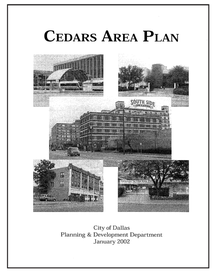


Figure 3: Land Use in Cedars Station Area Plan (1995-2020) - Dallas, Texas.

Planning Policy

The planning policies which were used to guide land use change in station areas were also mixed. Charlotte developed station area plans for all station areas. Meanwhile, Dallas only developed local planning policies and station area plans for select stations years after the opening of the transit service. Austin had station area plans in place for a few of its stations.



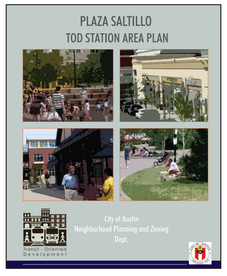
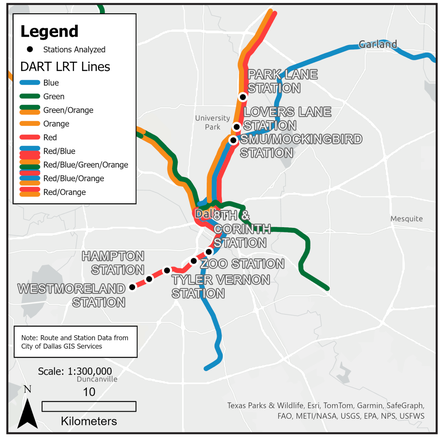


Figure 4: Cedars Area Plan (2002) - Dallas, TX.
Figure 5: Plaza Saltillo Station Area Plan (2008) - Austin, TX.

Dallas, TX

Metro Population: 8.1 Million
Area: 22, 468 km²
Transit: Dallas Area Rapid Transit
System Length: 150 km



Charlotte, NC

Metro Population: 2.8 Million
Metro Area: 8, 280 km²
Transit: LYNX
Length: 31.1 km

Austin, TX

Metro Population: 2.5 Million
Metro Area: 10, 929 km²
Transit: CapMetro
Length: 51.5 km

Recommendations

Based on the analysis, it can be said that land use changes do occur along transit lines developed using existing railroad corridors. Additionally, having strong planning policies in place to guide land use along corridors may result in greater land use changes. Cities looking to expand their transit service using existing railroad corridors should:

- Consider preexisting land uses
- Consider the potential to alter land use over time to make station areas more transit supportive
- Identify planning policies required to do so.

Figure 6: Development in Cedars Station Area - Dallas, Texas as of May 2024.

Conclusion

Overall, land use change in station areas along redeveloped railroad corrdors varied between and within cities. This study was also not able to establish a clear causal correlation between land use change and planning policy. Some cases provided more evidence than others that significant land use change is possible, and that planning policy can guide these changes.