LIGHT RAIL TRANSIT AS A MAGNET FOR ECONOMIC DEVELOPMENT: EVIDENCE FROM TWIN CITIES

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Outline

- Transitway Investments and Economic Development
- Impacts of the Hiawatha Light-Rail Line on Commercial & Industrial Property Values in Minneapolis
- Real Estate Development in Anticipation of the Green Line Light Rail Transit in St. Paul
- Green Line and Development Activities
This study examines the impacts of the Hiawatha light-rail line on the values of commercial and industrial properties.

- Sale prices during 2000-2008
- Properties within a one-mile buffer of stations
- Before and after the opening of the Blue Line in 2004
Method

- Hedonic pricing model
  - Access to transportation, such as distance to a highway on-ramp or light-rail station
  - Access to labor, such as the number of residents in neighborhoods
  - Structural characteristics, such as number of building stories and square footage
  - Socioeconomic factors of neighborhoods, such as median household income
  - Proximity to employment centers, such as distance to downtown or shopping centers
- Dummy variable indicating property sold after its opening
  - Interact with distance to LRT station (LRT effect or intersection effect)
  - Quadratic term
Results

- After the Blue Line was completed in 2004, prices per building-square-foot increased from $36 to $56, controlling for other factors. This suggests higher demand for properties within the station area.

- Property values increase as they are closer to a light-rail station. For example, a property located a quarter-mile from a light-rail station was sold more than a similar property located a half-mile from a station.

- The positive effect on property values extends to properties as far as 0.9 mile from the light-rail transit station.
“The average value of a single-family home in a station area has increased more than $5,000, and the average value of a multifamily home in a station area has increased more than $15,500.” – Ed Goetz

http://www.cts.umn.edu/Research/featured/transitways/research/
Green Line and Building Activity

- Property value increase does not demonstrate whether development is actually taking place.
  - Neighborhood revitalization: new development, infill development, building rehabilitation, adaptive reuse of old buildings
- Real estate development may occur even before LRT service opens.
- We assume that the announcements of LRT plan stimulate real estate development.
Green Line LRT

- Project facts
  - Construction: 2010 - 2013
  - Service: June 14, 2014
  - 18 new stations, 14 in Saint Paul
  - Budget: $957 million
  - Ridership: 40,000 weekday by 2030

- Key dates
  - Preliminary Engineering (PE): December 13, 2006
  - Full Funding Grant Agreement (FFGA): April 27, 2011
Data Collection and Preparation

- **Data Sources**
  - Building permit data
  - Ramsey County Parcel data
  - Transit data

Example of a recent development along the Green Line

Photo: C & E Lofts, in the Raymond Ave station area
https://ce-lofts.com/
Building Permit Data

- **Important info**
  - Permit type (e.g. remodel)
  - Building type (e.g. single family home)
  - Permit value
  - Location: x-y coordinates, address, property ID #

- **Modifications**
  - Included: remodels, additions and new construction
  - Excluded: repairs and express repairs; LRT facility permits
Methodology

- Compare corridors
  - Treatment
  - Control
- Downtown stations
- Measure changes in building
  - Location Quotient (LQ)
  - Difference in Difference (DID)

How is rail different?
Location Quotient (LQ)

LQ Method

\[
LQ = \frac{\text{# or $ value of permits within x distance of study area}}{\text{total # of parcels within x distance of study area}} \div \frac{\text{Total # or $ value of permits in Saint Paul}}{\text{Total # of parcels in Saint Paul}}
\]

- Compare station area activity to the activity in the city of St. Paul
- Concentration of building activity relative to the city of St Paul
## LQ Results

### LQ: # of Building Permits within 1/4 mile buffer

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Type</th>
<th>Green</th>
<th>Control</th>
<th>+/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2007</td>
<td>Before PE</td>
<td>All</td>
<td>1.21</td>
<td>1.03</td>
</tr>
<tr>
<td>2007-2011</td>
<td>After PE</td>
<td>All</td>
<td>1.35</td>
<td>1.08</td>
</tr>
<tr>
<td>2011-2014</td>
<td>After FFGA</td>
<td>All</td>
<td>1.37</td>
<td>1.07</td>
</tr>
</tbody>
</table>

### LQ: 2013 $ Value of Building Permits within 1/4 mile buffer

<table>
<thead>
<tr>
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<th>Type</th>
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<th>Control</th>
<th>+/-</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2007</td>
<td>Before PE</td>
<td>All</td>
<td>4.08</td>
<td>1.58</td>
</tr>
<tr>
<td>2007-2011</td>
<td>After PE</td>
<td>All</td>
<td>3.51</td>
<td>1.80</td>
</tr>
<tr>
<td>2011-2014</td>
<td>After FFGA</td>
<td>All</td>
<td>4.25</td>
<td>2.79</td>
</tr>
</tbody>
</table>
Difference in Difference (DID)

- Method
  - Show impacts of key announcements on building activity (Y)
    - T(Treatment) * PE (Preliminary Engineering Announcement)
    - T(Treatment) * FFGA (Full Funding Grant Agreement)
  - Expectation: key dates impact building activity

Impact of PE
\[ Y = \beta_0 + \beta_1 T + \beta_2 \text{PE} + \beta_3 T*\text{PE} \]

Impact of FFGA
\[ Y = \beta_0 + \beta_1 T + \beta_2 \text{FFGA} + \beta_3 T*\text{FFGA} \]
**DID results: PE**

### Number of permits

<table>
<thead>
<tr>
<th>Variable</th>
<th>All Coefficient</th>
<th>All P-value</th>
<th>Non-downtown Coefficient</th>
<th>Non-downtown P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment (T)</td>
<td>0.494</td>
<td>0.000</td>
<td>0.174</td>
<td>0.001</td>
</tr>
<tr>
<td>PE</td>
<td>-0.278</td>
<td>0.000</td>
<td>-0.221</td>
<td>0.000</td>
</tr>
<tr>
<td>T*PE</td>
<td>0.137</td>
<td>0.156</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Value of permits

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<th>Non-downtown Coefficient</th>
<th>Non-downtown P-value</th>
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</thead>
<tbody>
<tr>
<td>Treatment (T)</td>
<td>-0.484</td>
<td>0.000</td>
<td>0.014</td>
<td>0.924</td>
</tr>
<tr>
<td>PE</td>
<td>-0.484</td>
<td>0.000</td>
<td>0.014</td>
<td>0.924</td>
</tr>
<tr>
<td>T*PE</td>
<td>0.164</td>
<td>0.278</td>
<td>0.108</td>
<td>0.522</td>
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</table>
DID results: FFGA

### Number of permits

<table>
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<tr>
<th>Variable</th>
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<th>P-value</th>
<th>Coefficient</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment (T)</td>
<td>0.523</td>
<td>0.000</td>
<td>-0.026</td>
<td>0.783</td>
</tr>
<tr>
<td>FFGA</td>
<td>0.074</td>
<td>0.459</td>
<td>0.041</td>
<td>0.698</td>
</tr>
<tr>
<td>T*FFGA</td>
<td>0.253</td>
<td>0.036</td>
<td>0.253</td>
<td>0.053</td>
</tr>
</tbody>
</table>

### Value of permits

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<th>Coefficient</th>
<th>P-value</th>
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<tr>
<td>All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment (T)</td>
<td>0.164</td>
<td>0.277</td>
<td>0.109</td>
<td>0.529</td>
</tr>
<tr>
<td>FFGA</td>
<td>-0.033</td>
<td>0.850</td>
<td>-0.033</td>
<td>0.855</td>
</tr>
<tr>
<td>T*FFGA</td>
<td>0.589</td>
<td>0.011</td>
<td>0.067</td>
<td>0.798</td>
</tr>
</tbody>
</table>
### Additional DID Results by Permit Type

<table>
<thead>
<tr>
<th>Type</th>
<th>All After PE</th>
<th>Non-Downtown After PE</th>
<th>All After FFGA</th>
<th>Non-Downtown After FFGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial/MxU</td>
<td>Insig.</td>
<td>Positive</td>
<td>Insig.</td>
<td>Positive*</td>
</tr>
<tr>
<td>Residential</td>
<td>Insig.</td>
<td>Positive</td>
<td>Insig.</td>
<td>Positive*</td>
</tr>
</tbody>
</table>

Insig.=insignificant at the 0.10 level

* indicates that p-value is between 0.05 and 0.1. All others are significant at the 0.05 level.
Conclusions

- **PE**
  - No impacts on all permits
  - Positive impact on value of residential permits; negative impact on value of commercial permits.

- **FFGA**
  - All permits, all station areas: positive impact on # (29%) and value (80%).
  - Station areas outside downtown: positive impact on # but not value.
  - Commercial: positive impact on # and value, for all station areas and station areas outside downtown.
  - Residential: positive impact on # in downtown areas; negative impact on value
Caveat

- Neither of the projects can demonstrate whether transitways generate new activities.
- Generation effect or distribution effect

- The Green Line seems to revitalize neighborhoods in the Central Corridor and creates location-efficient neighborhoods.
GREEN LINE & SAINT PAUL’S DEVELOPMENT ACTIVITIES

Donna Drummond
City of Saint Paul
Department of Planning & Economic Development
May 22, 2014

CTS Transportation Research Conference
Development of the Green Line was an opportunity for Saint Paul to realize many community building benefits.

Intensive community process from 2006-present.

Many community groups, residents, business and property owners have participated to prepare for this new future.
DEVELOPMENT STRATEGY

- Creates a vision and strategy for how University Avenue and the downtown should grow and change over the next 20-25 years in response to the LRT investment.

- Adopted by the Mayor and City Council as part of the City’s Comprehensive Plan.
More detailed plans were developed for the areas within ¼ mile of planned LRT stations.

These supplement the Central Corridor Development Strategy.

11 station area plans were completed:
- Rice
- Western
- Dale
- Victoria
- Lexington
- Hamline
- Snelling
- Fairview
- Raymond
- Westgate
- Downtown
Directly related to LRT:

- **Push for three additional LRT Stations**
  Western, Victoria & Hamline
  City committed to paying for one of the three stations.

- **Streetscape Improvements**
  City committed approximately $13.5 million to pay for “above the base” streetscape improvements (boulevard trees, twin lantern lighting, sidewalk & pedestrian crossing enhancements, median improvements).
IMPLEMENTATION ACTIVITIES

Indirectly related to LRT:

- Zoning code amendments and property rezoning
- Parking mitigation – workshops/forgivable loans
- Affordable housing – Big Picture Project
- Business assistance – Ready for Rail and On the Green Line marketing
- Redevelopment resources – Brownfield program, Design Center

Green Line Gems
ZONING CODE AMENDMENTS

Central Corridor Zoning Study: approved April 2011.

- Significantly expanded development capacity (more height and density)
- Greater flexibility in developing a mix of uses
- Elimination of minimum parking requirements
- Enhanced design for new development (pedestrian-friendly/high quality).
WHY DO ALL THIS?

- Support existing businesses and households to prevent displacement and support growth and improvement.

- Set the stage for new private investment (housing, jobs, services) in the corridor.
Example Green Line Projects
RAYETTE LOFTS

- 5th & Wall – Union Depot Station
- Developer: Sherman & Associates
- Conversion from parking ramp to 88 market rate rental units
- 2,700 sq. ft. first floor commercial space
- Fall 2014 completion
- 4th & Robert Street – Central Station
- Developer: PAK Properties
- Historic buildings renovated into 234 units of market rate housing
- 31,900 sq. ft. commercial space
- Minnesota Museum of Modern Art leasing space on the first floor
- Additional commercial uses include a salon/spa, wine shop, and bistro.
- 80% leased
HAMLINE STATION

- University & Hamline – Hamline Station
- Developer: Project for Pride in Living
- 108 affordable rental units
- 13,700 sq. ft. retail
- Full “half-depth” block development
- Construction starting Summer 2014
C&E LOFTS

- 2402 University Avenue – Raymond Ave. Station
- Developer: Exeter Realty
- Historic rehab in University-Raymond Commercial Historic District
- 102 market rate rental units
- Opened in spring 2013
TAKE AWAY LESSONS

- LRT investment attracts new private development
- Supportive land use planning, zoning, and public investments will accentuate market interest
- Public investments include infrastructure (streets, green spaces) and selective public subsidy for private development projects
- True impact must be measured over time (10 and 20 years after LRT operation?)
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