

Methodological Considerations in Assessing the Urban Economic and Land-Use Impacts of Light Rail Development

Lyndon Henry

Transportation Planning Consultant
Mobility Planning Associates
Austin, Texas

Olivia Schneider

Researcher
Light Rail Now
Rochester, New York

David Dobbs

Publisher
Light Rail Now
Austin, Texas

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Evidence-Based Consensus: Major Transit Investment Does Influence Economic Development ...

Valley Metro: Development along light rail tops \$8 billion

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Metro light rail

TRENDING

TECHNOLOGY

Intel gets \$500M bond approval for Chandler campus

COMMERCIAL REAL ESTATE

Goodyear gives OK to expedited Microsoft development

... But by how much?
How to evaluate it?
(No easy answer)

Screenshot of Phoenix Business Journal headline: L. Henry

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Study Focus: Three Typical Major Urban Transit Modes

■ Light Rail Transit (LRT)

◆ Rapid



◆ Streetcar



■ Bus Rapid Transit (BRT)



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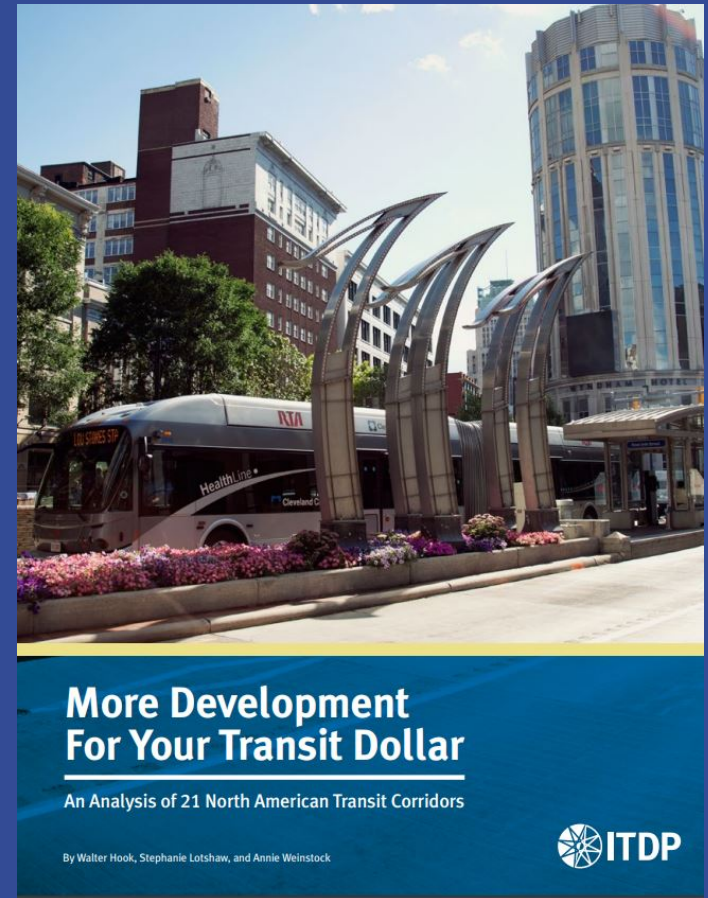
Why Include BRT?

- Particularly helps illustrate methodological issues
- Widespread publicity of assertions promoting BRT has generated national and international interest in transit-related economic development issues

Institute for Transportation and Development Policy (ITDP)

Widely publicized assertion:

“Per dollar of transit investment, and under similar conditions, Bus Rapid Transit leverages more transit-oriented development investment than Light Rail Transit or streetcars.”



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Key Issues in Evaluating Transit Project's Economic Impact

- Was transit project a catalyst to economic development or just an adjunctive amenity?
- Other salient factors involved in stimulating economic development?
- Evaluated by analyzing preponderance of civic consensus and other contextual factors

Data Sources: Economic Impacts

- Formal studies
- Tallies/assessments by civic groups, business associations, news media, etc.
- Reliability evaluated by preponderance of community endorsements, contacts with civic leaders, media reports/analyses, extent of civic consensus, etc.

Data Sources: Features and Performance of Installed Projects

- National Transit Database profiles
- APTA quarterly ridership reports
- Transit agency fact sheets, special analyses, civic reports, news media reports, etc.

Commonly Used Methods to Assess Economic Impact

- Typically undertaken by local entities
- Special focused research study
- Watershed before-after study: Tally of economic development before vs. after project completion, within watershed distance from line (typically 0.25-0.5 mile)

Return on Investment (ROI) Calculation

Total Value of
Economic Development
Attributable to Project

$$\text{ROI (\%)} = \frac{\text{Total Value of Economic Development Attributable to Project}}{\text{Total Capital Investment in Transit Project}} \times 100$$

Project Cases Studied (15)

Rapid LRT

- Portland MAX
- Dallas DART
- Salt Lake City TRAX
- Hudson-Bergen LRT
- Minneapolis/St. Paul (Twin Cities) METRO
- Phoenix Valley Metro
- Los Angeles Gold Line (Foothills)

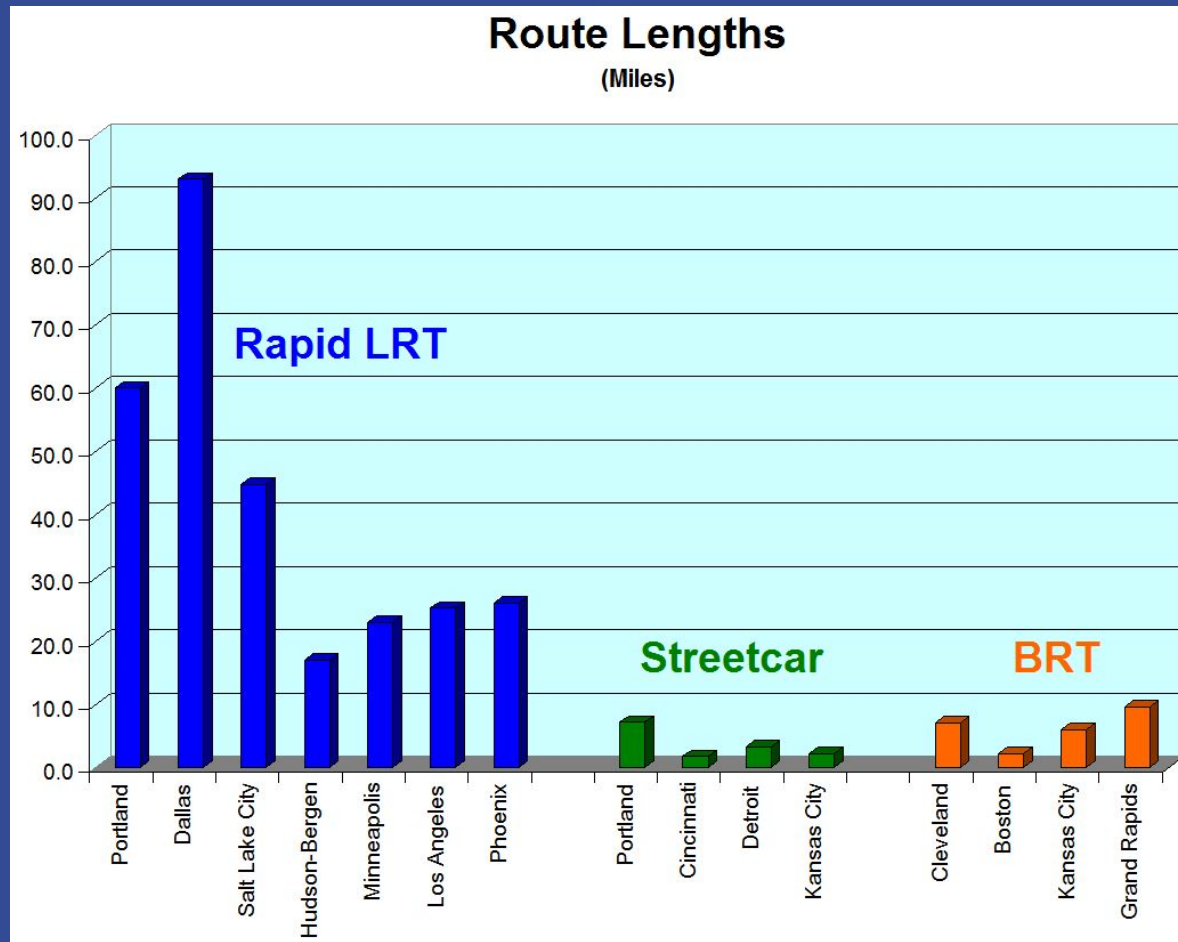
Streetcar LRT

- Portland Streetcar
- Cincinnati
CB Connector
- Detroit QLine
- Kansas City
KC Streetcar

BRT

- Cleveland
HealthLine
- Boston Silver Line
(Washington St.)
- Kansas City MAX
(Main St.)
- Grand Rapids
Silver Line

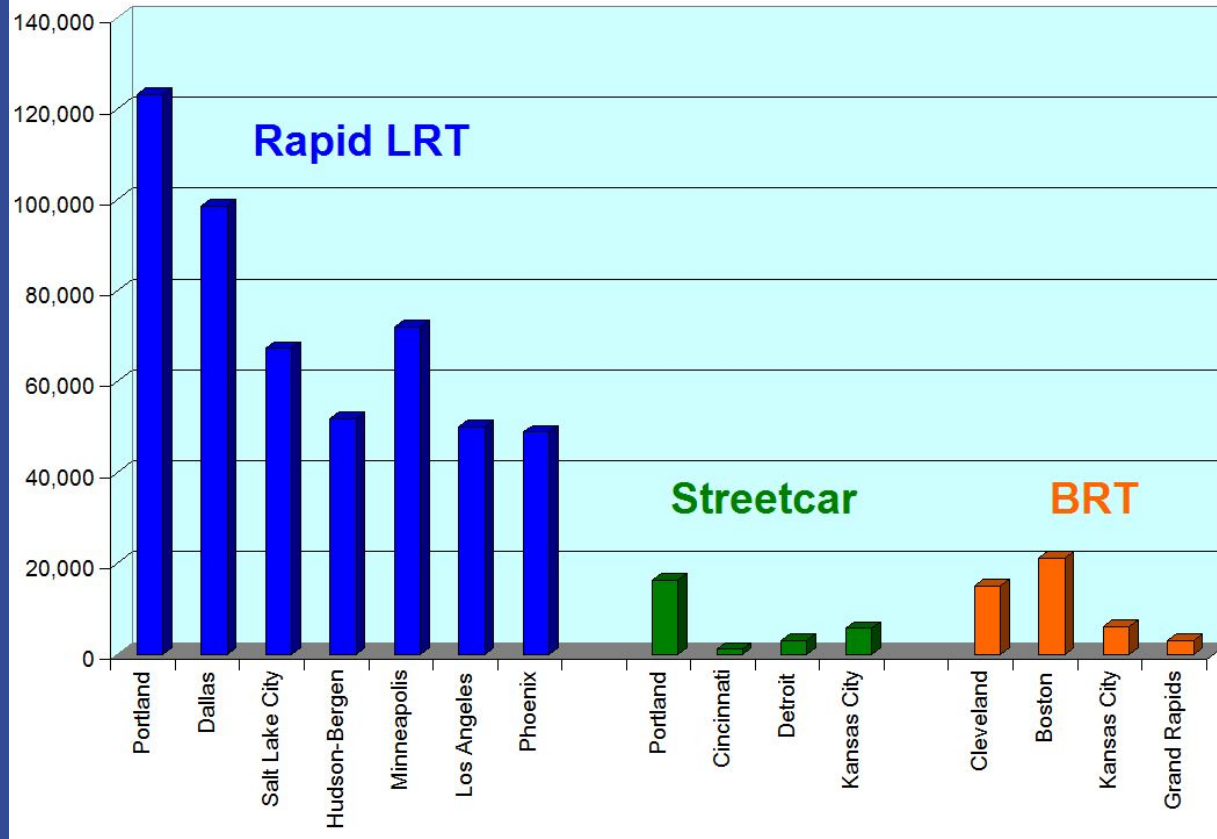
Project Cases Studied Route Lengths



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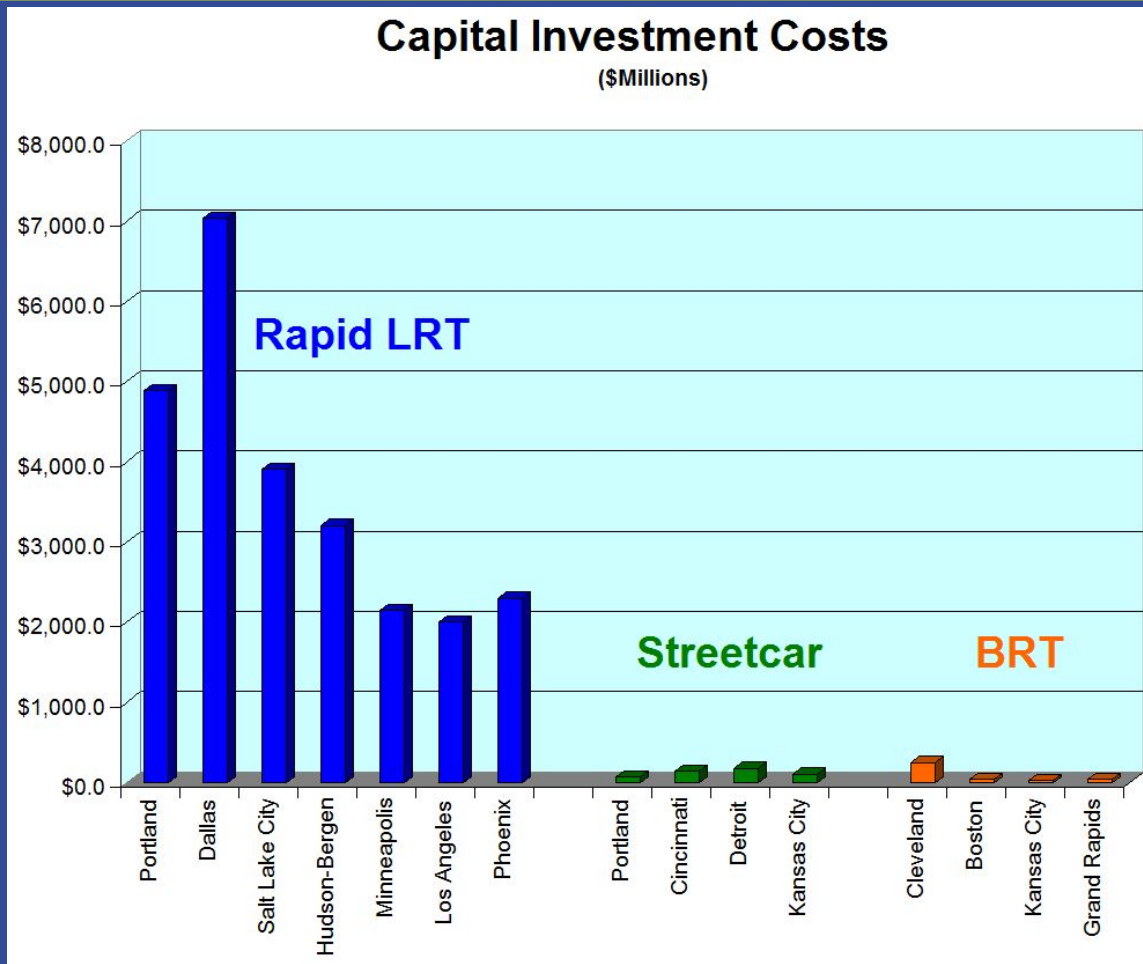
Project Cases Studied Ridership

Average Weekday Ridership



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Project Cases Studied Capital Investment Costs



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Cases Studied

Economic Impact Estimation Issues

- Salt Lake City TRAX — Comprehensive independent study included all rail transit modes in region



- Dallas LRT — Highly focused joint research study by University of North Texas and DART



Cases Studied

Economic Impact Estimation Issues

- Cincinnati Streetcar— Assessment via local publication survey of business owners and developers; project still in process of stimulating development
- Kansas City Streetcar — Watershed-type tally by Downtown Kansas City organization adjusted to 80% to account for other influences on economic development



Cases Studied

Economic Impact Estimation Issues

- Cleveland HealthLine BRT —
Watershed-type tally by transit agency adjusted to 42% to account for other specific significant influences on economic development
- Boston Washington St. BRT —
Watershed-type tally by Project Evaluation adjusted to 20% in respect of other much stronger influences on economic development



Cases Studied

Economic Impact Estimation Issues

- Kansas City Main St. BRT — Watershed-type tally reported by ITDB adjusted to 5% reflecting overriding role of pre-existing, ongoing downtown development boom
- Grand Rapids Silver Line BRT — Ancillary economic development “nonexistent”



Part 2

Presented by Olivia Schneider

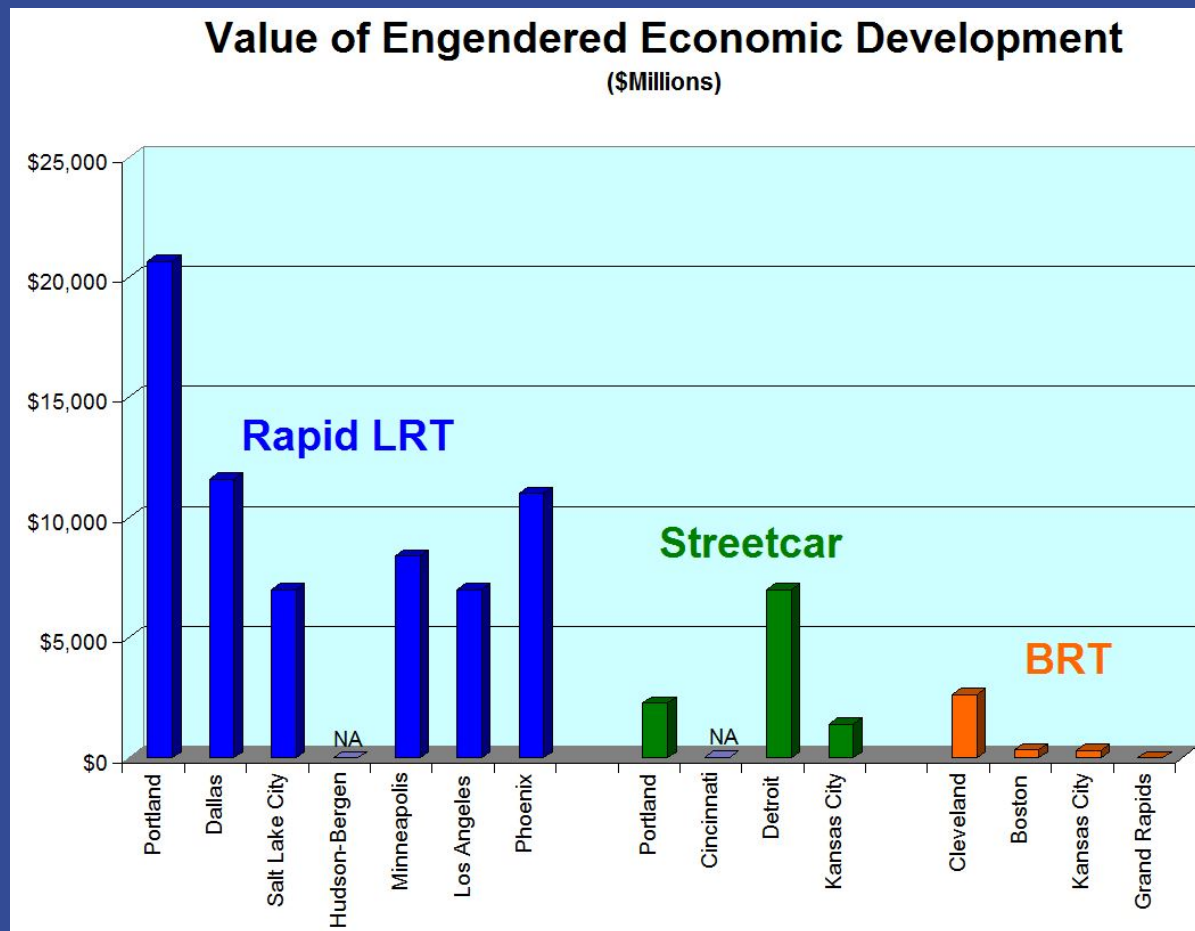
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Cases Studied

Economic Impact Assessment Results

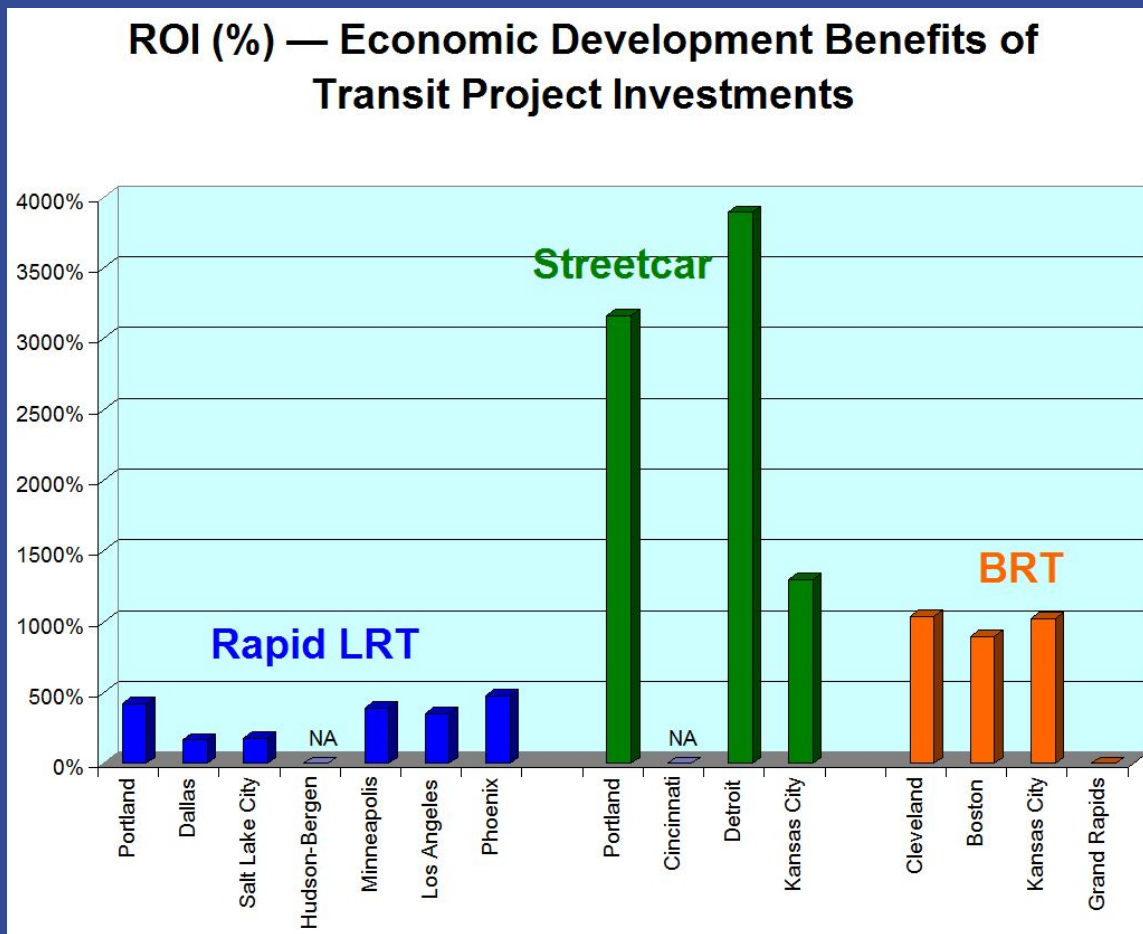


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Cases Studied

Economic Impact Assessment Results



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Cases Studied

Economic Impact Assessment Results

- Detroit QLine — Highest ROI at 3,889%
- Ridership 3,000 per weekday



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Methodological Observations

Types of Evidence

Types of Evidence	Our adjustments or requirements
Ridership	Weekday average
Transit construction cost (\$)	Converted to 2018\$
New construction near transit project	Construction begun since project was announced
Total investment near transit project	Within 1/4-1/2 mile of transit line (ideally transit stop)
Residential property values	Via tax assessment
Commercial property values	Various sources, including developers

Methodological Observations

Methods of Measurement

Watershed

- A tally of all construction development occurring within a given radius of the transit project
- Some cases: Before-After methodology
 - “Before” indicates before official announcement of transit project, to account for anticipatory effects
- Causal relationship between nearby development and transit may be weak

Methodological Observations

Methods of Measurement

- Portland MAX LRT —
Spatial-analysis model
provides higher degree of
accuracy (more details in
our paper)
 - Development and
redevelopment near stations
measured through tax
assessments
- Analysis covers 20+ years
of development



Methodological Observations

Methods of Measurement

- Hudson-Bergen LRT — Economic benefits such as positive impact on residential property values
- Spatial analysis methodology compared tax-assessments of property values
- Special attention to excluding areas where impact potential was limited, i.e. areas already well-served
- Analysis limited to residential property values, which do not provide a comprehensive measure for ROI



Methodological Observations

Methods of Measurement

- Los Angeles Foothills LRT — Transit construction agency pursued aggressive policy to foster TOD and economic development by encouraging regional collaboration/coordination among various public and private stakeholders
- Three-step methodology →



- ◆ “During” measure of follow-through on recommended uses
- ◆ “Before” construction assessment of land-use potential near stops, with recommendations
- ◆ “After” measure of actual development

Methodological Observations Contextual Factors

- Age of System
 - Question of exposure
- Connectivity to other systems
 - Impact potential
- Projects envisioned as LRT, realized as BRT
- Funding sources
 - Does funding source impact desired goals?

Methodological Observations Mode-Related Factors

- Roadway alignments vs. “abandoned or lightly used railway alignments” benefit from different methodologies for ROI
- Transit projects part of corridor revitalizations, so the transit mode itself is an element of the plan
- Property developers value stability of transit infrastructure – but is repurposed street lane, or bus service in mixed traffic, an asset as stable as tracks and other infrastructure of LRT?

Methodological Observations Mode-Related Factors

- LRT and BRT are not direct comparisons
 - LRT on average exhibits 3x the ridership levels of BRT
 - Other metrics such as carbon emissions, reduction in road miles traveled, or mobility performance are relevant
- Cities with BRT and LRT systems in them offer natural comparisons

Methodological Observations Voices in Research

- What are the motivations of the authors of the reports?
- Developers produce analysis but may offer biased calculations

Recommendations

- Develop basis for determining independent evidence of transit development effects
- Avoid ascribing credit for development to nearby transit project automatically
 - Consider comparison groups for study
- Create data-based methodological tool for establishing causal link in development

Further Research

- Standards for metrics
- Accuracy in measurement
- Feasibility of creating consistent ROI estimate standards

For More Information

Lyndon Henry

512.441-3014

nawdry@gmail.com

Olivia Schneider

248.935-4919

omdobbs@gmail.com

Dave Dobbs

512.905-6237

publisherlrn@gmail.com

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