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Literature Review and Impact of the Bicycle Boulevard

Presented to:
City of Austin, Texas
April 2010



Agenda

- Introduce the Project
- Outline Project Objectives
- Summarize Findings
- Examine Case Studies
- Present Economic Impact Results
- Discuss Citywide Ramifications and Conclusions
- Opportunities



About AngelouEconomics

- Significant experience in economic impact analysis and custom research projects
- Enable successful outcomes through **in-depth collaboration** with stakeholders
- Creator of innovative economic development and marketing strategies with **implementable action items**
- Experts in **industry and economic forecasting**





Introduction

- While city leaders throughout the country (Portland, Berkeley, Minneapolis, Tucson, Palo Alto, etc.) developed bicycle boulevards and bicycle networks, few have examined the economic implications before or after its completion
- Austin leaders felt it was important to forecast the economic impact of proposed changes to the corridor
- This is one of the first studies in the nation that seeks to quantify the economic impact of bicycle lanes or boulevards

Project Objectives

- Identify and review literature on cities with existing bicycle boulevards
- Examine property value trends of the boulevards within these cities
- Determine construction and sales impacts of boulevard on study area
- Study area: Rio Grande and Nueces from Caesar Chavez to MLK





Executive Summary

- Little formal analysis has been performed in other cities
 - Bicycle boulevards and bike lanes are generally perceived favorably by landowners
 - Land along boulevards typically command a higher premium than adjacent roads
- Companies that put a premium on workforce prefer to locate on or near areas with multi-modal opportunities – especially commuter bike corridors



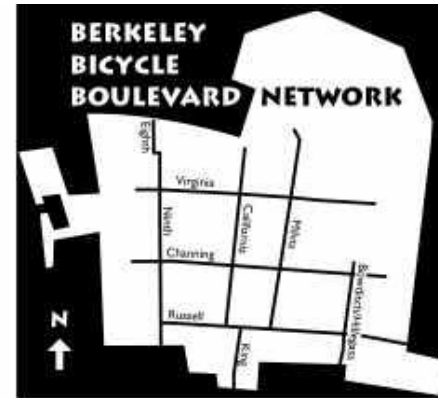
Executive Summary

- The added bicycle traffic will generate an additional \$96,000 - \$274,000 in sales revenue annually by 2020
- This project will have an initial impact of over \$1 million on the Austin economy from the construction of traffic circles, speed tables, etc.



Case Study: Berkeley, California

- Berkeley's seven bicycle boulevards are the backbone of the City's network of 50 bikeways
- Boulevards are on mostly residential streets, however some sections pass through commercial areas
- Planning from spring 1999 to spring 2000
- Implementation began 2001; phase one complete 2003
- Primarily grant funds used to implement project - \$330,000 (to date)



**NINTH
CALIFORNIA/KING
MILVIA
BOWDITCH / HILLEGASS
VIRGINIA
CHANNING
RUSSELL**



Berkeley, California

- Designed to be continuous routes, traveling the entire length of the city from north to south, or east to west
- Boulevards pass by, or very near, many popular destinations including schools, shopping districts, and BART stations
- No conclusive studies have been performed, but anecdotal evidence points to these boulevards as some of the most highly desired areas in the city – residents want to live on them and businesses want direct connectivity to them
- Tools
 - Bicycle Boulevard Signage System
 - Landscaped Diverters
 - Traffic Circles
 - Traffic Signal Loop Detectors

Berkeley, California





Case Study: Tucson, Arizona

- Tucson's Third Street bicycle boulevard is seven miles long and connects midtown, downtown and the University of Arizona



- Small commercial centers border various locations along the boulevard, east of UoA
- Bike only except for local traffic
- Construction is currently underway, which will include adding traffic calming/reduction infrastructure as well as intersection signal improvements

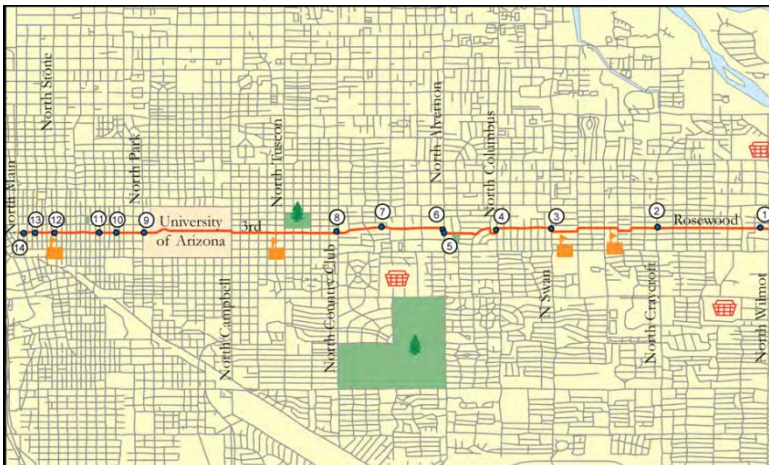
http://reconnectingamerica.org/public/display_asset/2009bicycleboulevardplanningdesign?docid=346

Tucson, Arizona

- This corridor was chosen because it already had strong bicycle traffic and connected UoA to the downtown.
- Tools
 - Back-in diagonal parking
 - Traffic circles
 - Speed bumps
 - Curb extensions
 - Right-turn only for motorists
 - Multi-modal signals at intersections
 - Addition of a bike lane
- Recent Development
 - 10-unit sustainable housing condo
 - High-end condo (starting in \$600s)



Tucson, Arizona





Case Study: Emeryville, California

- Horton/Overland Bicycle Boulevard – 1.3 miles
- The roadway selected for use as a bicycle boulevard serves a variety of land uses, including light industry, artist studios, offices, street-level retail, a shopping mall, an Amtrak station, a biotechnology facility, a post office, the blank back wall of a new residential development, and the site of an abandoned paint factory
- Preexisting bike lanes on part of the route were removed and replaced with parallel parking





Emeryville, California

- Car-sized bicycle stencils were placed in the middle of each travel lane. Distinctive street and directional signage helped identify and brand the route. There are no diverters or barriers yet.
- Cost totaled \$30,000: \$11,000 for markings, \$11,000 for signage, and the balance for inspections.
- A traffic signal, primarily to benefit motorists, cost about \$250,000, plus an additional \$1 million for an interlock with the railroad signaling.
- Planning for entire Bicycle Master Plan began in 1998; this boulevard was installed in 2005



Case Study: Portland, Oregon

- Portland's 40's Bikeway is a 10-mile boulevard running north-south
- Three commercial districts line the corridor
- It is a mixture of a bike boulevard, bike lanes, and a signed bike route (very similar to Austin's current proposal)
- Directly connects to Hollywood Transit Center, a major regional transit hub; integrated into the city-wide bicycle network



http://reconnectingamerica.org/public/display_asset/2009bicycleboulevardplanningdesign?docid=346

Portland, Oregon

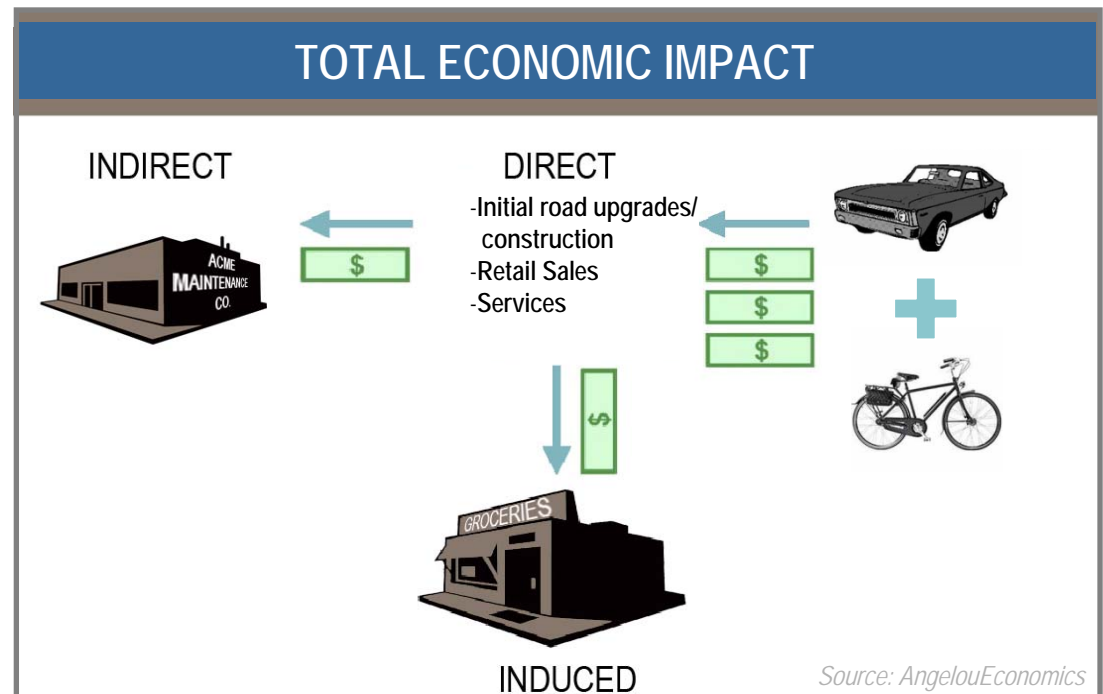
- This corridor was chosen because of its proximity to multiple commercial areas
- Tools
 - Reduced parking
 - Wayfinding signage
 - Pavement markings
 - Median refuges
 - Curb extensions
 - HAWK signals





Economic Impact: Methodology

- The proposed changes to Rio Grande and Nueces will have a direct effect on the corridor and the regional economy.
- For every dollar spent by bicyclists and motorists along this corridor, a portion of it remains within Travis County as wages, taxes and payment for local services.
- As the money gets re-spent within Travis County, it increases its overall local benefit.
- This compounding benefit is called the multiplier effect.





Economic Impact: Assumptions



Scenario 1 – Keeping the Corridor “As-Is”

- Using aggregated sales tax data from the Texas Comptroller for the past five years, average annual retail sales was determined for the corridor
- Based on this activity, overall economic impact was calculated

VS

Scenario 2 – Adding the Bicycle Boulevard

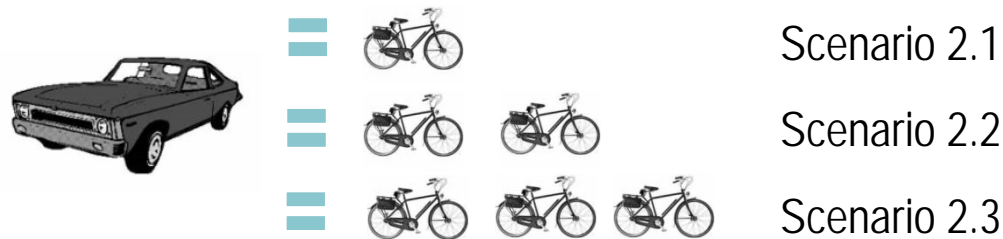
- Cost projections for construction were included
- Aggregated sales tax data was adjusted to account for the projected changes in both auto and bicycle traffic



Economic Impact: Assumptions

Scenario 2 – Adding the Bicycle Boulevard

- There is no standard for comparing sales from bicycle traffic to car traffic sales
- National average vehicle occupancy was 1.64 people per trip in 2007
- Cars can clearly hold larger/more expensive purchases than bicycles
- Due to these challenges, AngelouEconomics created three models to create a range for this scenario, with 1:1, 2:1, and 3:1 bicycle to car relationships





Economic Impact: Assumptions

Scenario 2 – Adding the Bicycle Boulevard

- Using the Traffic Analysis conducted by HDR Engineering, Inc., US Census data, City bicycle counts, and the development plan proposed by the City (dual development of Nueces and Rio Grande), by 2020 the modifications to the boulevard are supposed to have:
 - *No impact* on roadway traffic volume through 2020
 - *At least* a 29% increase in bicycle traffic by 2020, or an additional 155 bicyclists daily



Annual Sales Economic Impact

Scenario 1: The current annual economic impact

<i>Annual Impact</i>	<i>Direct</i>	<i>Indirect + Induced</i>
<i>Total Impact</i>	<i>\$3.8 million</i>	<i>\$2 million</i>
<i>Jobs (years)</i>	<i>60.3</i>	<i>13.1</i>
<i>Income</i>	<i>\$1.7 million</i>	<i>\$622,679</i>

- An average of \$13.8 million of goods and services were sold annually over the past five years by businesses within the study area. These sales supported 75 jobs within the corridor and had a total annual economic impact of \$5.8 million.

Scenarios 2.1 – 2.3: If the Bicycle Boulevard were already in place today

<i>Annual Impact</i>	<i>Direct</i>	<i>Indirect + Induced</i>
<i>Total Impact</i>	<i>\$3.82-\$3.9 M</i>	<i>\$2.05-\$2.1 M</i>
<i>Jobs (years)</i>	<i>60.7-61.5</i>	<i>13.1-13.3</i>
<i>Income</i>	<i>\$1.69-\$1.71 M</i>	<i>\$0.627-\$0.635 M</i>

- By 2020, additional bicycle traffic will increase annual sales for the corridor between \$96,000 and \$274,000. This will translate into a modest gain in economic activity and jobs.



Construction Economic Impact



<i>Impact</i>	<i>Direct</i>	<i>Indirect + Induced</i>
<i>Economic Activity</i>	<i>\$670,000</i>	<i>\$338,339</i>
<i>Jobs (Job Years)</i>	<i>4.5</i>	<i>2.4</i>
<i>Wages & Income</i>	<i>\$245,836</i>	<i>\$127,217</i>

- The capital expenditures for construction of the Downtown Bicycle Boulevard are \$670,000. This will directly create 4.5 jobs and increases wages and income within Austin by \$245,800. Total economic impact from construction will equal over \$1 million.



Scenario 2: 10-Year New Bicycle Impact



<i>Impact</i>	<i>Direct</i>	<i>Indirect + Induced</i>	<i>Total Impact</i>
<i>Economic Activity</i>	<i>\$0.8-1.1 million</i>	<i>\$0.4-0.6 million</i>	<i>\$1.2-1.6M</i>
<i>Jobs (Job Years)</i>	<i>7-11</i>	<i>3-4</i>	<i>10-15</i>
<i>Wages & Income</i>	<i>\$0.3-0.4 million</i>	<i>\$0.15-0.19 million</i>	<i>\$0.46-0.6M</i>

- The additional bicyclists to the bicycle boulevard would equal an additional \$500,000 – \$1.45 million to the corridor in retail sales over ten years.
- Combined with construction of the corridor, this amounts to a 10-year economic impact between \$1.2 and \$1.6 million.



Scenario 2: 10-Year Total Bicycle Impact



<i>Impact</i>	<i>Direct</i>	<i>Indirect + Induced</i>	<i>Total Impact</i>
<i>Economic Activity</i>	<i>\$1.7-3.6 million</i>	<i>\$0.9-1.9 million</i>	<i>\$2.6-5.6 M</i>
<i>Jobs (Job Years)</i>	<i>21-52</i>	<i>6-13</i>	<i>27-65</i>
<i>Wages & Income</i>	<i>\$0.7-1.6 million</i>	<i>\$0.3-0.6 million</i>	<i>\$1-2.2M</i>

- The 10-year retail **sales** from pre-existing as well as new bicycle traffic is expected to range between \$3.8 and \$10.9 million.
- This amounts to a 10-year economic **impact** of at least \$2.6 million and as much as \$5.6 million, including construction.



Citywide Ramifications

- Urban bike boulevards require access by bicycle – these are not destinations to park and ride, but infrastructure that allows for multi-modal transportation and more efficient traffic flow
- To ensure the boulevard's success, it must be integrated into a bicycle network that encourages bike movement throughout the city



Conclusion

- The Austin Downtown Bicycle Boulevard as proposed will have a modestly positive impact on the corridor, at worst
- Analysis was based on sales tax data, so economic activity exempt from sales tax was not included in this analysis – the benefit of increased traffic for this activity only increases the Boulevard's overall benefit
- Considering the experiences of other cities with similar projects, this is likely to have a very positive impact on property values, retail sales, and quality of life



Opportunities

- Austin has an opportunity to track the value of a bicycle boulevard and serve as a best practice example for cities across the United States
- The City should use this report as a baseline for the corridor and as it changes, should re-examine the impact of the boulevard



Economic Impact: Terminology

Jobs – All direct and indirect job figures are full-time equivalents. A job year is the equivalent of 1 person working full time for one year. Thus, it may be 2 people working full time for six months, or 1 person working full time for a year. The job numbers in the analysis include new jobs created as well as jobs retained.

Economic Activity – Total economic activity is made up of direct, indirect, and induced economic output in Travis County

Multipliers – Multipliers were derived from the IMPLAN input-output model and customized by AngelouEconomics based on project specific data. Assumptions to the model are made using background research on Travis County and U.S. economic data. The multipliers were calculated for each individual industry under consideration.

Wages & Income – Includes all forms of employment income, including employee compensation (wages and benefits) and proprietor income.



Economic Impact: Methodology

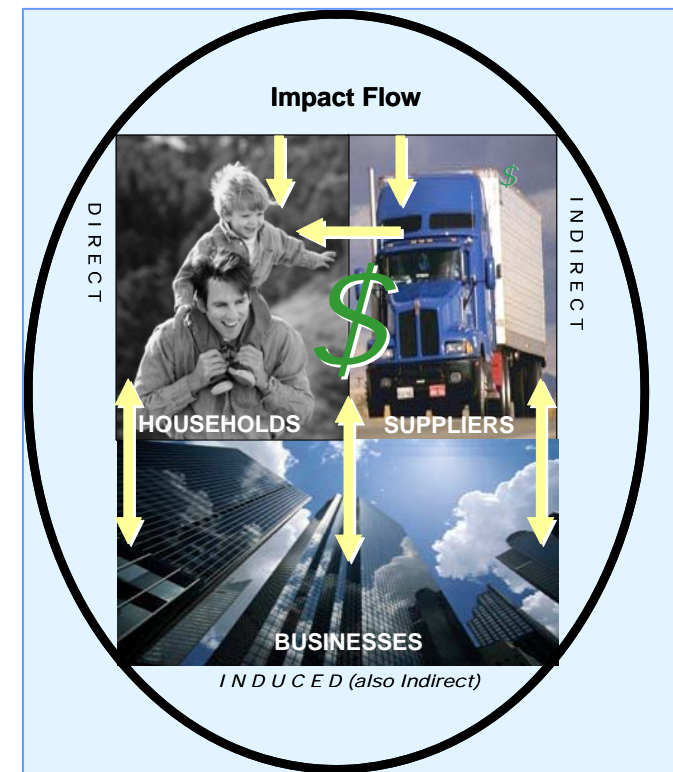
An economic impact analysis measures the effects of a new investment or change upon regional job creation, tax revenue, and commercial activity. The changes to Rio Grande and Nueces will impact businesses along the corridor, effecting the amount of spending that then ripples throughout the regional economy in the form of employee and supplier purchases.

For the purposes of this report, these effects are measured as direct and indirect/induced effects:

Direct vs. Indirect Impacts

Direct - attributable directly to operations, such as payroll, tax payments, and local purchases by firms along Nueces and Rio Grande.

Indirect/Induced – attributable to the additional demand for local goods and services by suppliers and employees



Total impact includes all direct, indirect, and induced impacts.



Economic Impact: Methodology

- The IMPLAN model utilized for the proposed bicycle boulevard uses multipliers that are specific to Travis County and to the specific industry types along the corridor.
- Inputs to the model were provided by the City of Austin and the Texas Comptroller of Public Accounts based on projected construction costs and aggregated sales tax information for the corridor.
- Outputs were generated utilizing the aggregated sales tax information provided by the Texas Comptroller and multipliers developed within the IMPLAN model.



Economic Impact: Methodology

- IMPLAN (IMpact Analysis for PLANning) was developed by the University of Minnesota Agricultural Economics department as a database for determining the total economic impact of an activity.
- Now known as the Minnesota IMPLAN Group (MIG), this data is maintained to provide economic impact multipliers for every county within the United States and is considered the industry standard.
- Every year, the multiplier effect of every industry in every county is calculated to determine indirect/induced effects from direct investment.



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