

The Economics of San Antonio's Digital Billboard Ordinance

March 18, 2008

"All political power is inherent in the people and all free governments are founded in their authority and instituted for their benefit"
First Constitution, State of Texas

"All of the great leaders have had one characteristic in common: it was the willingness to confront unequivocally the major anxiety of their people in their time. This, and not much else, is the essence of leadership"
John Kenneth Galbraith

1. Introduction

On December 6, 2007, San Antonio City Council passed a Digital Billboard ordinance, which allows 15 large, digital, off-premise signs ("digital billboards") to be placed in the city during a one year pilot program. At the end of one year, all pilot billboards remain although more could be approved by future city council vote. The following is my personal analysis of how Clear Channel (CC) and its subsidiary Clear Channel Outdoor (CCO), which owns around 90% of the off-premise billboards in San Antonio, will profit from this vote.

2. Background

City Council was almost unanimous in passing the pilot ordinance, despite solid opposition by citizens and civic groups, at least those who were not aligned with the billboard industry and particularly Clear Channel. [Ref 1c]

During the council meeting and subsequent speeches, council members have stated that they "worked extremely hard on this compromise", people would support their vote "if they only understood the ordinance", and that they had achieved the "best deal we could get." If this ordinance was in fact the "best deal" for the city of San Antonio and its citizens, then consequently it must not have been such a good deal for billboard companies.

As you will see, my research does not bear these representations out. The ordinance will result in an extravagant windfall for billboard companies, yielding up to a 38-to-1 increase in gross revenues, and it is far better, by a factor of 9-to-1, than another offer Clear Channel made to the City of Anaheim, which Anaheim turned down because it did "not demonstrate the level of community benefit necessary to warrant changes to the City's long-standing ban on new freeway-oriented billboards."

3. Scope

In the analysis, I focus on the economics of the billboard industry and neglect the numerous economic and non-economic factors impacting San Antonio government and citizens that were completely ignored by council's Dec. 6 vote:

- Possible loss of life, health and property, due to accidents
- Loss of scenic beauty and urban character
- Neighborhood impacts (light pollution and noise)
- Secondary electrical usage factors:
 - General environmental degradation, due to heating and CO₂ production
 - Increased revenues to the city from power sales by City Public Service (CPS)
- Loss of billboard maintenance jobs
- Loss of lease incomes to private property holders, due to signage consolidation
- Compensation liabilities, if billboards must be moved due to road changes

I will limit the analysis to impacts on company gross revenues. In other words, the basic goal here is to estimate what CCO will lose and gain in sales revenues from conversion ("exchange" or "trade") of old, passive billboards for new, digital billboards. By restricting the analysis in this way, I avoid a labyrinth of corporate accounting for

- One-time costs and investments for tear-down of old signs and installation of new ones
- Operational costs (maintenance, depreciation, power, etc.), and sales and administrative overhead
- Net income and return on investment

A real challenge to the effort is that while CCO and other companies, such as Lamar, make standard rate information available on the web, they attach privacy statements to this information. For my analysis, I am not comfortable from a legal standpoint to explicitly use the information, and will independently develop pricing levels. Company information is available to the reader to verify for themselves whether the calculations are reasonable. [Ref 2 & 3.]

Finally, I will not address a number of tangible and intangible factors that will favorably accrue to CCO with a conversion from passive to digital technologies:

- Enhanced access to lucrative, upscale, high-traffic highways, particularly those that had been closed to new development based on urban and scenic corridor ordinances (e.g., IH-10 N, 281 to downtown, Loop 1604, etc.)
- Marketing flexibility
- Goodwill from providing cost effective (time-share) public service spots
- Competitive advantage, since a 'replacement' ordinance favors a company with a large installed inventory

4. Analysis

Exchange ratios are at the heart of the ordinance and dictate how many old passive billboards must be removed in order to modify existing billboard structures, or erect new ones, to receive new digital billboard faces.

As an example of how the ordinance works, a company is allowed to

- Remove nineteen (19) single-face billboard structures having one (1) 14 ft. x 48 ft. (672 sq. ft.) passive sign each
- Add (or modify) one (1) single-face billboard structure to have one (1) 14 ft. x 48 ft. (672 sq. ft.) digital sign

The example is just one possible trade. The ordinance allows a plethora of options.

For more complete discussions of the San Antonio billboard ordinance, see Appendix A, "Exchange Ratios in the Digital Sign Ordinance" or Ref 1b for a link to the ordinance.

For public, independent records on billboard revenues, I look to the City of Anaheim. Anaheim has studied industry propositions to exchange billboards on secondary roads for a smaller number of billboards on large highway signs for over two years. Under the leadership of its mayor and council, the city sent out a request for proposals and hired an independent consultant firm to analyze the proposals. For the purposes of this paper, the critical findings are with regard to Anaheim revenue rates. [Ref 4]

For street-oriented passive billboards, the average annual rates were:

- \$3,600 for a 8-sheet (approximately 72 square foot) billboard
- \$32,400 for a 30-sheet (approximately 300 square foot) billboard
- \$120,000 for a bulletin (approximately 700-1200 square foot) billboard

For a freeway-oriented passive billboards, the average annual rates were:

- \$342,000 to \$360,000

For a more complete discussion of Anaheim's economic and political processes, see Appendix B, "City of Anaheim Case Study".

In order to extrapolate billboard revenues from Anaheim to San Antonio, I adjust Anaheim revenues for Traffic Density, Demographics, and Competition Factors. Without belaboring the details of the process, I compute comparable San Antonio rates as

For street-oriented passive billboards, the average annual rates were:

- \$2,662 for a 8-sheet (approximately 72 square foot) billboard
- \$23,961 for a 30-sheet (approximately 300 square foot) billboard
- \$88,744 for a bulletin (approximately 700-1200 square foot) billboard

For a freeway-oriented passive billboard, the average annual rates were:

- \$205,821 for 700-1200 Sq Ft billboards

The next big adjustment to take into account is billboard design, digital vs. passive. Digital billboards provide powerful technical, business and marketing features: displaying multiple advertisements; and rapid, same-day updating for message currency. Industry references quote revenue factors of 5x to 15x for the conversion from passive to digital design. For the purposes of this paper, a factor of 8 seems reasonable and conservative. Hence, in San Antonio

For a freeway-oriented digital billboard, the average annual rates is estimated as

- \$1,600,000 for a 700-1200 Sq Ft billboard

For a more complete discussion of how San Antonio billboard revenues are estimated and a list of references used for the derivation, see Appendix C, "Billboard Revenues".

The final step in the analysis is to bounce the billboard trades allowed under the ordinance, described in Appendix A, against the per-face revenues, computed in Appendix C. There is an extensive set of allowed trades but for exposition, reconsider the trade previously cited:

- Remove 19 single-face billboard structures with one 14 ft. x 48 ft. (672 sq. ft.) passive sign each

$$\begin{aligned}
 \rightarrow \text{Annual Revenue Loss} &= [\text{Number of Signs}] \times [\text{Annual Revenue per Sign}] \\
 &= 19 \times \$2,662 \\
 &= \underline{\$50,578}
 \end{aligned}$$

- Add (or modify) 1 single-face billboard structure with a 14 ft. x 48 ft. (672 sq. ft.) digital sign.

$$\begin{aligned}
 \rightarrow \text{Annual Revenue Gain} &= [\text{Number of Signs}] \times [\text{Annual Revenue per Sign}] \\
 &= 1 \times \$1,600,000 \\
 &= \underline{\$1,600,000}
 \end{aligned}$$

$$\begin{aligned}
 \rightarrow \text{Revenue Impact} &= \{ [\text{Annual Revenue Gain}] / [\text{Annual Revenue Loss}] \} \times 100\% \\
 &= \{ \$1,600,000 / \$50,578 \} \times 100\% \\
 &= \underline{3163\%}
 \end{aligned}$$

So for a 19-to-1 decrease in number of billboards, a company enjoys a 32-to-1 increase in gross revenues! Across all the trades allowed by the San Antonio billboard ordinance, my calculations yield improvement factors ranging from 5-to-1 to 38-to-1.

Under the ordinance, a company is free to decide what specific old signs to remove, and with some restrictions, where to put new digital ones. Assuming these decisions are economically driven, a reasonable expectation is that low profit passive billboards will be removed from secondary streets and replaced by high profit digital billboards on heavy traffic highways.

For a complete list of revenue impacts for exchanges, see Appendix D, "Revenue Impacts of the San Antonio Digital Sign Ordinance".

5. Discussion

This analysis of billboard economics shows that conversion of old passive signs to the new digital ones should be highly lucrative for companies. While the specifics of this analysis can be argued, its ultimate truth appears unquestionable, since companies themselves confirm it.

Express-News on February 15, 2008 carried an article on its business page, "Clear Channel profits rise 36%". CCO's fourth-quarter net income was \$106.6 million, which represented a 64 percent increase from \$65.1 million in the prior year. The Express-News credited a "Strong outdoor ad business" as a major factor for CC performance. In a Business Wire article, Mark P. Mays, Chief Executive Officer of CCO is quoted as saying that CCO results in 2007 were outstanding. [Ref 5] CCO surpassed its forecast for installing digital billboards and expected to accelerate this roll-out in 2008 by capitalizing on market opportunities.

Now let us return to our original question. Is the San Antonio Digital Billboard ordinance a good deal for the city? The answer is no. Clear Channel offered Anaheim a deal of "5.3 30-sheet billboard faces for 1 freeway billboard" with "9 bulletin billboard faces including 1 digital billboard" whereas San Antonio gave Clear Channel a deal of 5 30-sheet billboard faces for each digital billboard. [Ref 1b & 6] Given the greater intrusiveness of the digital design (signified by higher revenue rates), San Antonio got a 9x worse deal and settled too cheap.

6. Conclusion

Making a profit is not a bad thing in and of itself, and government should play a role in encouraging business success and economic development. But government must always balance these goals with a concern for the public good. When a profit accrues with undue social costs, in terms of public safety, quality of life, and scenic beauty, then government must carefully weigh public welfare.

I encourage the mayor and city council members to show good faith and new leadership on this issue. Order the City Manager to commission an independent group to

- Monitor the pilot ordinance. Calculate the specific economic impacts and return on investment, on an exchange by exchange basis, of the pilot program.
- Develop, assess and compare courses of actions (COAs), such as:
 - Pilot Ordinance. Assess future trends under the event that the pilot program is renewed or made permanent. This is required to prevent the industry from skewing/gaming results during the pilot period. Independent studies, such as the one Anaheim commissioned, would give San Antonio a stronger negotiating stance.
 - Previous Ordinances: What would happen if San Antonio rolled back to the prior Sign, Scenic and Urban Corridor Ordinances? What will the impact be? (Over 21 years, San Antonio saw a 30% reduction in billboards with its 2-for-1 ordinance.)
 - Total Ban: What would happen if San Antonio strengthened its ordinance to ban all new billboards? (Over 27 years, Houston saw a 60% reduction in billboards with its zero-tolerance for new billboards.)
 - Rolling Exchange Rates: Leverage the time value of money. Increment old-vs-new exchange rates over time to progressively flush the most marginal billboards from industry inventory and San Antonio urban landscape.
 - Other?

For all these COAs, projections of billboard inventories over time should be made.

Citizens need to become active on this issue, by contacting the mayor and council members [Ref 7], and joining public interest groups such as the Scenic Texas – San Antonio [Ref 8], and the San Antonio Conservation Society [Ref 9].

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Acknowledgements

I would like to express special thanks and congratulations to Mayor Pringle and the city council of Anaheim for setting the gold standard for employing economic principles and analysis in support of the legislative process for billboards. [Ref 10] Thanks to Jacob Dell of San Antonio for suggesting the course of action for rolling exchange rates. And finally thanks to June Kachtik of Scenic San Antonio for her editorial and critical inputs, some of which I even used.

References

For safety, cut and paste addresses into your navigation bar.

1. San Antonio Council Meeting Date 12/6/2007, Agenda Item # 5, RFCA Tracking No R-1935:
 - 1a. Request for Council Action:
<http://epay.sanantonio.gov/agendabuilder/RFCAMemo.aspx?RId=1935>
 - 1b. "Amending Chapter 28 of the City Code of San Antonio, Texas, by adding Provisions for Digital Signs . . .":
http://epay.sanantonio.gov/rfcdocs/R_1935_20080111093802.pdf
 - 1c. Voting Results:
<http://epay.sanantonio.gov/agendabuilder/votingresults.aspx?ItemId=1935&Src=RFCA>
2. Clear Channel Billboard Rates: <http://www.clearchanneloutdoor.com/rates/index.htm>
3. Lamar Texas Billboard Rates: <http://www.lamaroutdoor.com/StateRates.aspx?State=TX>
4. Responses to a Request for Information (RFI) for a Billboard Exchange Program, Planning Director, City of Anaheim, November 6, 2007:
http://www.anaheim.net/docs_agend/questys_pub/MG18947/AS18986/AS18990/AI19170/DO19171/DO_19171.PDF
5. Clear Channel 4th Quarter Earnings:
http://www.businesswire.com/portal/site/home/index.jsp?epi_menuItemID=887566059a3aedb6efaaa9e27a808a0c&ndmViewId=news_view&ndmConfigId=1000008&newsId=20080214006014&newsLang=en
6. "Billboard Exchange Program, Summary of Proposals", City of Anaheim:
http://www.anaheim.net/docs_agend/questys_pub/MG18947/AS18986/AS18990/AI19170/DO19184/DO_19184.PDF
7. Mayor and City Council, San Antonio, TX: <http://www.sanantonio.gov/council/?res=1280&ver=true>
8. Scenic Texas: <http://www.scenictexas.org/>
9. San Antonio Conservation Society: <http://www.saconservation.org/>
10. Anaheim City Council Home Page: <http://www.anaheim.net/section.asp?id=41>

Appendix A. Exchange Ratios in the Digital Sign Ordinance

This appendix only summarizes aspects of the ordinance that are important for estimation of revenues.

Since the exchange ratios are crucial to the analysis, the tables in the ordinance are recreated in Tables A1 and A2 on the next page of this appendix.

To view the actual ordinance that was passed by the San Antonio City Council on December 6, 2007, see Ref A1 below, which is repeated from the main report.

References

For safety, cut and paste addresses into your navigation bar.

A1. "Amending Chapter 28 of the City Code of San Antonio, Texas, by adding Provisions for Digital Signs . . . ", San Antonio Council Meeting Date 12/6/2007, Agenda Item # 5, RFCA Tracking No R-1935:

http://epay.sanantonio.gov/rfcdocs/R_1935_20080111093802.pdf

**Table A-1. Synopsis of “Table 1, “Conversion Requirements for Digital Bulletin Displays
(Up to 672 Sq. Ft. per structure)”**

Old Passive Signs to be Removed			New Digital Signs to be Gained		
Face Size	Number and Type of Structures to be Removed	Number of Faces Removed	Face Size	Number and Type of Structures Gained	Number of Faces Gained
8-Sheet (72 Sq Ft)	19 Single-Face	19	672 Sq Ft	1 Single-Face	1
8-Sheet (72 Sq Ft)	9 Double-Face	18	672 Sq Ft	1 Single-Face	1
8-Sheet (72 Sq Ft)	5 Quad-Face	20	672 Sq Ft	1 Single-Face	1
30-Sheet (288 Sq Ft)	2 Double-Face and 1 Single-Face	5	672 Sq Ft	1 Single-Face	1
30-Sheet (288 Sq Ft)	5 Double-Face	10	672 Sq Ft	2 Single-Face	2
10x30 Ft. (300 Sq Ft)	2 Double-Face plus 1 Single-Face	5	672 Sq Ft	1 Single-Face	1
10x30 Ft. (300 Sq Ft)	4 Double-Face plus 2 Single-Face	10	672 Sq Ft	2 Single-Face	2
10.6x36 Ft (378 Sq Ft)	4 Single-Face	4	672 Sq Ft	1 Single-Face	1
10.6x36 Ft (378 Sq Ft)	4 Double-Face	8	672 Sq Ft	2 Single-Face	2
10x40 (400 Sq Ft)	4 Single-Face	4	672 Sq Ft	1 Single-Face	1
10x40 (400 Sq Ft)	4 Double-Face	8	672 Sq Ft	2 Single-Face	2
14x48 (672 Sq Ft)	3 Single-Face	3	672 Sq Ft	1 Single-Face	1
14x48 (672 Sq Ft)	3 Double-Face	6	672 Sq Ft	2 Single-Face	2
20x60 Ft (1200 Sq Ft)	1 Single-Face	1	672 Sq Ft	1 Single-Face	1
20x60 Ft (1200 Sq Ft)	1 Double-Face	2	672 Sq Ft	2 Single-Face	2

**Table A-2. Synopsis of “Table 2, “Conversion Requirements for Digital Bulletin Displays
(Up to 300 Sq. Ft. per structure)”**

Old Passive Signs to be removed			New Digital Signs to be gained		
Face Size	Number and Type of Structures to be Removed	Number of Faces Removed	Face Size	Number and Type of Structures Gained	Number of Faces Gained
8-Sheet (72 Sq Ft)	8 Single-Face	8	300 Sq Ft	1 Single-Face	1
8-Sheet (72 Sq Ft)	12 Double-Face plus 4 Double-Face	16	300 Sq Ft	2 Single-Face	2
30-Sheet (288 Sq Ft)	2 Double-Face	2	300 Sq Ft	1 Single-Face	1
30-Sheet (288 Sq Ft)	2 Double-Face	4	300 Sq Ft	2 Single-Face	2
10x30 Ft. (300 Sq Ft)	2 Single-Face	2	300 Sq Ft	1 Single-Face	1
10x30 Ft. (300 Sq Ft)	2 Double-Face	4	300 Sq Ft	2 Single-Face	2
10.6x36 Ft (378 Sq Ft)	2 Single-Face	2	300 Sq Ft	1 Single-Face	1
10.6x36 Ft (378 Sq Ft)	3 Double-Face	6	300 Sq Ft	3 Single-Face	3
10x40 (400 Sq Ft)	2 Single-Face	2	300 Sq Ft	1 Single-Face	1
10x40 (400 Sq Ft)	2 Double-Face	4	300 Sq Ft	2 Single-Face	2

Appendix B. City of Anaheim Case Study

I submit to you the City of Anaheim as a positive case study for how a city government should address the billboards issue. I break the case study into 2 parts.

1. The Economics of Billboards

On September 26, 2006, "Mayor Pringle recommended the RFI process and asked the City Attorney if billboard exchange agreements could be written in such a way as to be extremely limiting in its scope". [Ref B1]

The City received billboard exchange program proposals from Bulletin Displays, LLC/Vista Media; CBS Outdoor; and Clear Channel Outdoor. [Ref B2] Of significance to San Antonio, the Clear Channel proposal was:

- Proposed Exchange Rate: 5.3 30-sheet billboard faces for 1 freeway billboard
- SP&H Exchange Rate: 8-14 30-sheet billboard faces for 1 freeway billboard
- Existing billboards: 48 30-sheet billboard faces and 2 bulletin billboard faces (locations identified on map in proposal)
- Billboards to be removed: 48 30-sheet billboard faces (locations identified on map in proposal)
- Proposed billboards: 9 bulletin billboard faces including 1 digital billboard (locations identified on map in proposal)
- Other Incentives: None provided
- Time-limits for new billboards: Not indicated
- Billboard content policies:
 - Establishes exclusionary zones which prohibit advertisements of all products illegal for sale to minors that are intended to be read from, or with 500 feet of established places of worship, primary and secondary schools or playgrounds
 - Asserts the right to reject creative content that is misleading, sexually explicit, overly suggestive, or in any way reflects upon the character, integrity, or standing of any organization or individual

Note - SP&H stands for the Sanli Pastore & Hill consulting firm, which was hired by the Anaheim Planning Department for consultation. [Ref B3]

From "Responses to a Request for Information (RFI) for a Billboard Exchange Program", Planning Department, City of Anaheim, November 6, 2007 [Ref B4]:

"City Council also commissioned a billboard exchange analysis prepared by Sanli Pastore & Hill (SP&H). The SP&H study analyzed various economic factors associated with removing street-oriented billboards in exchange for constructing freeway-oriented billboards and provided staff with recommended exchange rates by which to analyze the exchange proposals. The report identified the following average annual advertising rates for a street-oriented billboard:

- \$3,600 for a 8-sheet (approximately 72 square foot) billboard
- \$32,400 for a 30-sheet (approximately 300 square foot) billboard
- \$120,000 for a bulletin (approximately 700-1200 square foot) billboard

The advertising rate for a freeway-oriented billboard ranged from approximately \$342,000 to \$360,000 per year."

Note - Given the context, this figure corresponds to a predominant mix of old style, passive highway signs.

So from a revenue standpoint, not all billboards of the same size are created equal. In descending order of importance, billboard revenues are based on traffic density (which translates to exposure rate), citizen demographics, competition, size, business cycle, and so forth. In Appendix C, I will use the above revenues to compute equivalent ones for San Antonio.

2. The Decision Making (Politics) of Billboards

I have previously written exhaustively about what I saw as a flawed decision making process in San Antonio. [Ref B5] From researching the economics of billboards, I have been struck by the observation that Anaheim did not suffer from these same problems.

- **Deliberations:**

Anaheim: From web sources, Anaheim held a workshop on billboards in December 2005, took up the issue again in council in April and September 2006, issued a RFI, commissioned an independent study, asked for clarification of RFI responses in September thru October of 2007, and made the final decision in November 2007. (Around 2 years)

San Antonio: New City Council members were elected in May & June 2007. From all appearances, their deal was struck by September 11, 2007, when the ordinance first saw the light of day at an Electrical Supervisory Board. (Around 2 months, given the one-month summer vacation.)

- **Citizen Inputs:**

Anaheim: Anaheim held workshops and town meetings dating back almost 2 years from the date of the final vote.

San Antonio: To my knowledge, the first the general public was exposed to the 'proposed' ordinance was at Electrical Supervisory Board in September 11, 2007. Opposition speakers may have had some impact with these board members since they made favorable additions to continue restrictions on non-compliant structures (covered by the Scenic and Urban Corridor Ordinances), but subsequently city staff and council boards, such as the Infrastructure Committee, reversed these gains. [Ref B8] By council meeting on December 6, 2007, I know of no one, not aligned with the billboard industry and particularly Clear Channel, that had any sense the citizen inputs were effective. (The ordinance had too much momentum.)

- **Economic Analysis:**

Anaheim: "City Council also commissioned a billboard exchange analysis prepared by Sanli Pastore & Hill (SP&H). The SP&H study analyzed various economic factors associated with removing street-oriented billboards in exchange for constructing freeway-oriented billboards and provided staff with recommended exchange rates by which to analyze the exchange proposals." [Ref B4]

San Antonio: In essence, City Council skipped the RFI step to arrive at their 'best deal,' but to be fair, a RFI would not unleash competitive forces for the public good in San Antonio, since Clear Channel has an almost monopolistic share (90%) of off-premise billboards. Given this limitation, what could have San Antonio done and can still do? Spark a competition of options. (See 'Conclusions' in the main section of this paper.)

- **Legislative Restraint:**

Anaheim: On November 6, 2007, the city planning department recommended rejection of the proposals received from its RFI because "they are either incomplete or do not demonstrate the level of community benefit necessary to warrant changes to the City's long-standing ban on new freeway-oriented billboards." [Ref B9] (Underlining added.)

San Antonio: In its December 6, 2007 vote, no observable weight was given by San Antonio city council to protect existing Scenic and Urban Corridor Ordinances.

- **Exchange Ratios:**

Anaheim: Clear Channel proposed an exchange ratio of 5.3 30-sheet street billboard faces for each freeway billboard face, with only 1 out of 9 new faces being digital.

San Antonio: On a comparative basis, City Council gave Clear Channel an exchange ratio of 5 30-sheet faces for each (freeway) billboard face, with every new face being digital!

- **Outcomes:**

Anaheim: On November 6, 2007, “City Council, by motion, reject the four RFI responses received on the basis that they are either incomplete or do not demonstrate the level of community benefit necessary to warrant changes to the City’s long-standing ban on new freeway-oriented billboards.” “City Attorney Jack White responded Council could direct staff to design a process that would allow for more concrete information to be considered and for any financial information to be solicited in such a way as to preserve its confidentiality and to also not reveal new billboard locations to the extent that revelation would be proprietary in nature.” [Ref B9]

San Antonio: On December 6, 2007, San Antonio City Council passed the ordinance. [Ref B10]

I hope San Antonio City Council can learn from the positive examples from Anaheim.

References

For safety, cut and paste addresses into your navigation bar.

B1. City Council Agenda, City of Anaheim, September 12, 2006:

http://www.anaheimplatinumtriangle.com/docs_agend/questys_pub/MG11771/AS11810/AS11813/AI13417/DO13428/1.DOC

B2. “Billboard Exchange Program, Summary of Proposals”, City of Anaheim:

http://www.anaheim.net/docs_agend/questys_pub/MG18947/AS18986/AS18990/AI19170/DO19184/DO_19184.PDF

B3. Sanli Pastore & Hill (SP&H) web page: <http://www.sphvalue.com/>

B4. “Responses to a Request for Information (RFI) for a Billboard Exchange Program”, Planning Department, City of Anaheim, November 6, 2007:

http://www.anaheim.net/docs_agend/questys_pub/MG18947/AS18986/AS18990/AI19170/DO19171/DO_19171.PDF

B5. “Why Clear Channel Won the Digital Billboard Vote”, Theodore C. Trakas, President, Vance Jackson Neighborhood, Inc., February 2, 2008

<http://www.vjni.org>

B6. City Council Agenda, City of Anaheim, September 26, 2006:

http://www.anaheim.net/docs_agend/questys_pub/MG11771/AS11810/AS11813/AI13418/DO13419/DO_13419.PDF

B7. “An Ordinance of the City of Anaheim Amending Title 4 and Title 18 of the Anaheim Municipal Code Relating to Billboards”, October 3, 2006”:

www.anaheim.net/docs_agend/questys_pub/MG11771/AS11810/AS11813/AI13418/DO13420/DO_13420.PDF

B8. Infrastructure and Growth (Area of Oversight: Policies related to transportation, roads and sidewalks, infrastructure, VIA Metropolitan Transit, environmental quality, water delivery/SAWS, CPS Energy, and development codes.)

<http://www.sanantonio.gov/AgendaMeetings/Infrastructure.asp>

B9. Anaheim City Council, Regular Meeting of November 6, 2007

http://www.anaheim.net/docs_agend/questys_pub/MG18998/AS19037/AS19040/AI19567/DO19578/DO_19578.PDF

B10. City Council Minutes, City of San Antonio, December 6, 2007:

<http://www.sanantonio.gov/clerk/minutes/2007/20071206.pdf>

Appendix C. Billboard Revenues

In this appendix, billboard revenue rates in San Antonio are extrapolated from Anaheim. This approach is taken for two reasons: to compute these advertising rates based on publicly known data only; and to demonstrate the important factors in setting rates. An understanding of the economic factors that drive revenue rates are critical to understanding how simply moving a billboard from one part of a city to another can produce a huge change in revenue. In terms of scope, only simple linear (proportional) relationships between variables are assumed.

1. Per-Face Billboard Revenues in Anaheim

From Appendix B, the annual billboard revenues in Anaheim are:

- Old technology signs on secondary roads:
 - \$3,600 for a 8-sheet (approximately 72 square foot) billboard
 - \$32,400 for a 30-sheet (approximately 300 square foot) billboard
 - \$120,000 for a bulletin (approximately 700-1200 square foot) billboard
- Freeway-oriented billboard: \$350,000 – Passive style.

Source: “Responses to a Request for Information (RFI) for a Billboard Exchange Program”, Planning Department, City of Anaheim, November 6, 2007. [Ref B4 in Appendix B.]

2. Adjustment Factors

Now in order to extrapolate these numbers to San Antonio, consider each factor in turn: traffic density, demographics, competition, size, and business cycle.

Traffic Density. Traffic flow is important factor because it is the prime determinant of exposure rate.

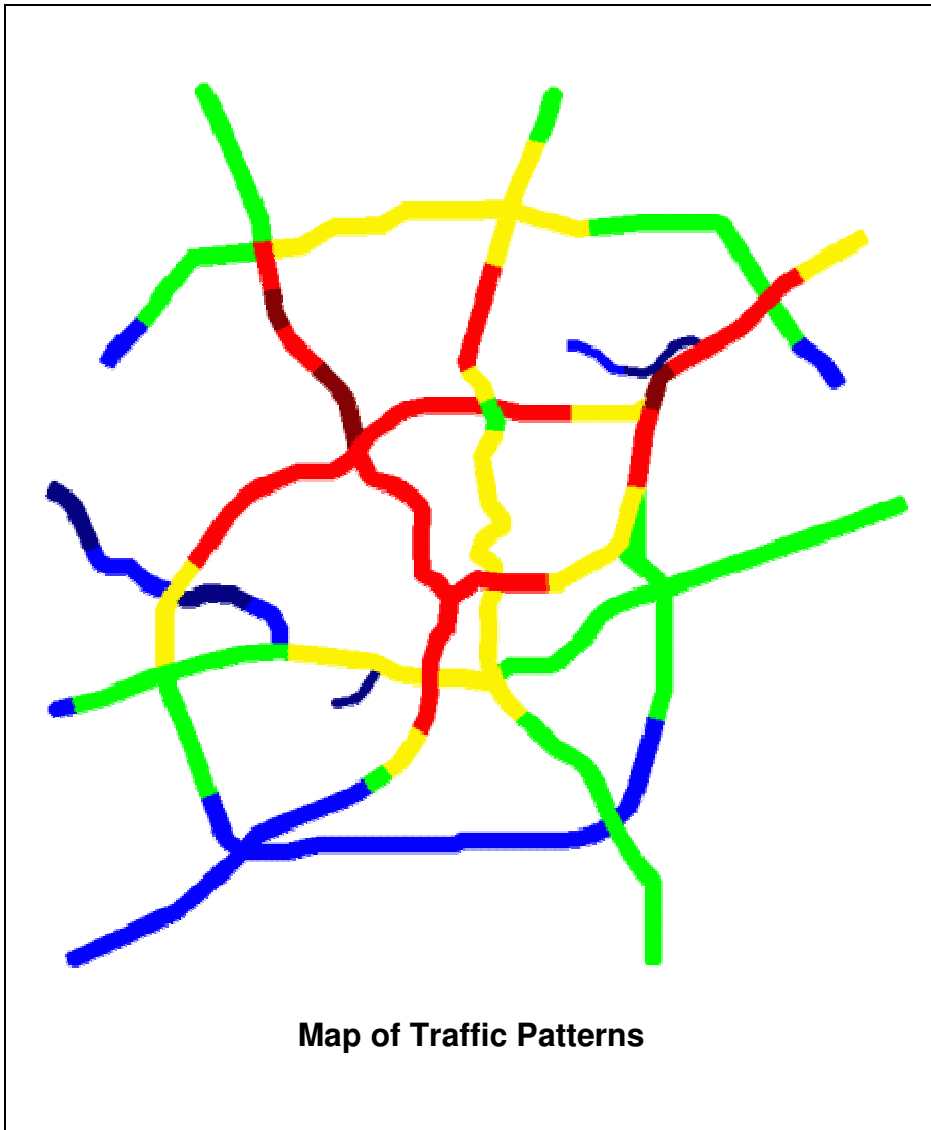
But traffic is also complex. It varies along the time dimension: time of the day, day of the week, business day vs. holiday, and so forth. It even varies between segments along the same highway, based on branching between pathways. This last effect is graphically demonstrated for San Antonio in the figure on the next page. [Ref C1.] In order to make calculation tractable, I need simple, common metrics.

From “2007 Annual Urban Mobility Report” [Ref C2], compute and compare the statistic:

$$[\text{Vehicle Density}] = [\text{Daily Vehicle-Miles of Travel (1000s)}] / [\text{Lane Miles}]$$

For Anaheim, use the data for Los Angeles-Long Beach-Santa Ana, CA. San Antonio use data from its separate report. For both cities, use data for the last reported year, 2005.

- Secondary (Arterial) Streets:
 - $[\text{Vehicle Density}]_{\text{Anaheim}} = [126,000] / [20,755] = 6.07$
 - $[\text{Vehicle Density}]_{\text{San Antonio}} = [11,245] / [2,235] = 5.03$
 - ➔ $\text{Traffic Factor}_{\text{Secondary}} = [\text{Vehicle Density}]_{\text{San Antonio}} / [\text{Vehicle Density}]_{\text{Anaheim}} = 5.03 / 6.07 = \underline{0.83}$



Map of Traffic Patterns

	200,000+		50,000 - 99,999
	150,000 - 199,999		25,000 - 49,999
	100,000 - 149,999		< 25,000

Legend

	FWY	LOCATION	2006 AADT	'05-'06 % CHG
1	10	Callaghan Rd.	216,000	+9.51%
2	35	Thousand Oaks	214,000	+12.85%
3	10	DeZavala Rd.	209,000	+6.88%
4	35	O'Connor Rd.	193,000	+14.81%
5	35	S of Rittiman Rd.	188,000	+3.01%
6	35	McCullough Ave.	187,000	-0.12%
7	35	N of Walzem Rd.	184,000	+7.18%
8	410	Evers Rd.	181,000	+2.06%
9	10	Huebner Rd.	179,000	+9.88%
10	35	S of Walzem Rd.	178,000	+4.68%
11	35	S. Laredo St.	176,000	+3.41%
12	410	Vance Jackson Rd.	172,000	+1.62%
13	410	Blanco Rd.	171,000	+6.19%
14	281	Brookhollow Dr.	169,000	+26.63%
15	410	Broadway	168,000	+2.13%
16	410	McCullough Ave.	165,000	+1.85%
17	10	Frio St.	164,000	-3.25%
	10	Crossroads Blvd.	164,000	-1.31%
18	35	Pat Booker Rd.	162,000	+21.87%
	281	Nakoma Rd.	162,000	+3.24%
19	35	N. New Braunfels Ave.	160,000	-0.32%
20	35	Theo Ave.	157,000	+4.74%
	410	Nacogdoches Rd.	157,000	+2.18%
21	10	S of Loop 1604	151,000	+5.40%
22	410	S of Bandera Rd.	150,000	-8.41%

Tabulation of Highest Traffic Segments

- Notes:**
1. While not the primary focus of this paper, new digital billboards can be expected on high travel segments.
 2. From "The Texas Highwayman Pages" (<http://www.texhwyman.com/traffic.htm>). Thanks to Brian Purcell for permission to use.

Figure C-1. San Antonio Average 2006 Daily Traffic by Location

- Freeways:

- $[\text{Vehicle Density}]_{\text{Anaheim}} = [140,000] / [5,870] = 23.85$

- $[\text{Vehicle Density}]_{\text{San Antonio}} = [17,065] / [1,090] = 15.66$

- $\text{Traffic Factor}_{\text{Freeways}} = [\text{Vehicle Density}]_{\text{Anaheim}} / [\text{Vehicle Density}]_{\text{San Antonio}} = 15.66 / 23.85 = \underline{0.66}$

Demographics. From “State Median Family Income by Family Size, US Census Bureau” [Ref C3], use median family income as the measure of citizen demographics:

- $[\text{Mean Family Income}]_{\text{California}} = \$64,563$

- $[\text{Mean Family Income}]_{\text{Texas}} = \$52,355$

- $\text{Demographics Factor} = [\text{Mean Family Income}]_{\text{Texas}} / [\text{Mean Family Income}]_{\text{California}} = \$52,355 / \$64,563 = \underline{0.81}$

Competition. Clear Channel owns 90% of the off-premise billboards in San Antonio, and hence can employ monopolistic pricing. As a rough figure, assume it can charge a 10% premium in San Antonio over what it could charge in Anaheim, which has a more competitive market. So its pricing is

- $\text{Competition Factor} = \underline{1.10}$

Size. Multiple billboard sizes and ranges are already accounted for in the Anaheim data but some adjustments for size are made in Tables C2 and C4, as noted in the tables.

Business Cycle. In an absolute sense, national and regional economies can vary over time, favoring one metropolitan area over another. To make this analysis more generic, neglect this factor.

Design.

Digital billboards allow companies to advertise and charge multiple customers from the same sign. Some references:

- “Seven standard billboards in Cleveland, Clear Channel Outdoor's first "digital" billboard market, returned \$380,000 in revenue from July 2004 to July 2005. In July 2005, the standard billboards were converted to digital. The new billboards generated \$3.5 million from January 2006 to December 2006, according to company projections.” [Ref C4.]
- “If ads could be updated quickly and cost-effectively by electronic means, billboard operators could rotate ads throughout the day with multiple advertisers per unit. Digital currently has appealing economics, with five to 10 times higher revenue per unit based on my calculations.” [Ref C5.]
- “New focus: one board for many advertisers. Aside from raising rates, an outdoor advertising (OA) company's best strategy for growing revenue had been to erect additional billboards. The more billboards, the higher the revenue. However, strict cap and replace ordinances often limit the number of billboards a company can own. This will lead outdoor advertising companies to look to technology--in the form of digital billboards--to grow revenue through more efficient boards. Digital billboards allow several advertisers to share the same billboard, multiplying revenue from an individual board by as much as six to eight times.” [Ref C6.]
- “But the digital billboards offer increased revenues opportunities for the outdoor advertising companies. A single digital billboard can bring in up to six times the revenue of a traditional one.” [Ref C7.]
- “Each digital sign produces \$14,000 a month in revenue, typically from multiple advertisers, compared with \$1,000 to \$2,000 for traditional billboards, which serve only one advertiser.” [Ref C8.]

A revenue factor of 8 appears reasonable for digital faces vs. passive ones. So mathematically,

$$[\text{Design Factor}]_{\text{Passive}} = 1.00$$

$$[\text{Design Factor}]_{\text{Digital}} = 8.00$$

3. Per-Face Billboard Revenues in San Antonio

To compute revenue rates for (passive) billboards in San Antonio that are comparable to those in Anaheim, multiply by the above adjustment factors:

Table C-1. Estimated Revenues for Passive Billboards in San Antonio based on Anaheim Revenues

Anaheim			Adjustment Factors				San Antonio
Street Type	Face Size	Revenue	Traffic Density	Demographics	Competition	Design	Revenue
Secondary	8-Sheet (72 Sq Ft)	\$3,600	0.83	0.81	1.1	1.0	\$2,662
	30-Sheet (300 Sq Ft)	\$32,400	0.83	0.81	1.1	1.0	\$23,961
	700-1200 Sq Ft	\$120,000	0.83	0.81	1.1	1.0	\$88,744
Freeway	700-1200 Sq Ft	\$350,000	0.66	0.81	1.1	1.0	\$205,821

The San Antonio ordinance addresses the plethora of current billboard sizes in San Antonio. (See Appendix A.) To account for all these variations, Table C-1 is expanded, as below¹.

Table C-2. Expanded Estimated Revenues for Passive Billboards in San Antonio

San Antonio			
Street Type	Face Size	Revenue	Comment
Secondary	8-Sheet (72 Sq Ft)	\$2,662	Exact match from Table C-1
	30-Sheet (288 Sq Ft)	\$23,961	Use 300 Sq Ft value from Table C-1
	10x30 Ft (300 Sq Ft)	\$23,961	Exact match from Table C-1
	10.6x36 Ft (378 Sq Ft)	\$40,000	Approx interpolations between 300 & 700 Sq Ft values
	10x40 Ft (400 Sq Ft)	\$40,000	
	10x48 Ft (672 Sq Ft)	\$88,744	Use 700-1200 Sq Ft value from Table C-1
	20x60 Ft (1200 Sq Ft)	\$88,744	Use 700-1200 Sq Ft value from Table C-1
Freeway	700-1200 Sq Ft	\$205,821	Exact match from Table C-1

¹ While the primary focus of this paper is economics, a political comment on the plethora of billboard sizes in the ordinance seems appropriate. If nothing else, the ordinance is written in such a way that it gives the unmistakable appearance that the billboard industry had a significant, if not predominant, role in its creation. How else can we explain the extraordinary effort the City made to give the industry credit for all the different billboard sizes? One can only hope that city government will give a more balanced attention to citizen inputs when the ordinance comes up for renewal in 2008; otherwise, I would suggest citizens consider legislative records when they go to vote in next election in May 2009.

To maximize revenues, I expect the companies to place new digital faces on high traffic highways.

Table C-3. Estimated Revenues for Digital Billboards in San Antonio based on Anaheim Revenues

Anaheim			Adjustment Factors				San Antonio
Street Type	Face Size	Revenue	Traffic Density	Demographics	Competition	Design	Revenue
Freeway	700-1200 Sq Ft	\$350,000	0.66	0.81	1.1	8.0	\$1,600,000

Again, to account for digital billboard size options in the San Antonio ordinance, I expand Table C-3, as below.

Table C-4. Expanded Estimated Revenues for Digital Billboards in San Antonio

San Antonio			
Street Type	Face Size	Revenue	Comment
Freeway	700-1200 Sq Ft	\$1,600,000	Exact match from Table C-3
	300 Sq Ft	\$800,000	From Table C2, revenue is not precisely proportional to face size. Assume 50%

Now that I have the per-face revenues estimated for San Antonio, I can compute the net revenue impacts for each exchange allowed by the San Antonio ordinance in the next appendix.

References

For safety, cut and paste addresses into your navigation bar.

- C1. "The Texas Highwayman Pages": <http://www.texhwyman.com/traffic.htm>
- C2. "2007 Annual Urban Mobility Report", Texas Transportation Institute, Texas A&M University System: <http://mobility.tamu.edu/ums/>
- C3. "State Median Family Income by Family Size", US Census Bureau: <http://www.census.gov/hhes/www/income/statemedfaminc.html>
- C4. Digital Billboard Blog: <http://digitalbillboards.blogspot.com/2007/06/clearchannel-tests-light-emitting-diode.html>
- C5. "Coming to Your Highway: Digital Billboards", Ryan Fuhrmann, CFA, May 15, 2007
- C6. All Business: <http://www.allbusiness.com/services/business-services/3997703-1.html>
- C7. NWITimes, February 17, 2008:
<http://www.nwitimes.com/articles/2008/02/17//business/business/docf7c241cac839ae94862573ef0058cd1a.txt>
- C8. "Bright Lights, Big Impact, Why digital billboards are growing in popularity". Sarah Goldstein:
<http://www.inc.com/magazine/20080301/bright-lights-big-impact.html>

Appendix D. Revenue Impacts of the San Antonio Digital Sign Ordinance

In this appendix, I combine the allowed billboard exchange data from Appendix A, "Exchange Ratios in the Digital Sign Ordinance", with the per-face average annual revenue data from Appendix C, "Billboard Revenues".

I thus estimate on a trade-by-trade basis what net revenue impacts are allowed under San Antonio's billboard ordinance, as passed on December 6, 2007. The findings are summarized in the tables on the next page.

Table D-1. Total Revenue Impacts for New Digital Signs (Up to 672 Sq. Ft. per structure)

Old Passive Signs to be Removed					New Digital Signs to be Gained			
Face Size	Number and Type of Structures to be Removed	Number of Faces Removed	Revenue per Face	Total Revenue Loss	Number of Faces Added	Revenue per Face	Total Revenue Gain	Percentage Change in Revenue
8-Sheet (72 Sq Ft)	19 Single-Face	19	\$2,662	\$50,578	1	\$1,600,000	\$1,600,000	+3163%
8-Sheet (72 Sq Ft)	9 Double-Face	18	\$2,662	\$47,916	1	\$1,600,000	\$1,600,000	+3339%
8-Sheet (72 Sq Ft)	5 Quad-Face	20	\$2,662	\$53,240	1	\$1,600,000	\$1,600,000	+3005%
30-Sheet (288 Sq Ft)	2 Double-Face and 1 Single-Face	5	\$23,961	\$119,805	1	\$1,600,000	\$1,600,000	+1336%
30-Sheet (288 Sq Ft)	5 Double-Face	10	\$23,961	\$239,610	2	\$1,600,000	\$3,200,000	+1336%
10x30 Ft. (300 Sq Ft)	2 Double-Face plus 1 Single-Face	5	\$23,961	\$119,805	1	\$1,600,000	\$1,600,000	+1336%
10x30 Ft. (300 Sq Ft)	4 Double-Face plus 2 Single-Face	10	\$23,961	\$239,610	2	\$1,600,000	\$3,200,000	+1336%
10.6x36 Ft (378 Sq Ft)	4 Single-Face	4	\$40,000	\$160,000	1	\$1,600,000	\$1,600,000	+1000%
10.6x36 Ft (378 Sq Ft)	4 Double-Face	8	\$40,000	\$320,000	2	\$1,600,000	\$3,200,000	+1000%
10x40 (400 Sq Ft)	4 Single-Face	4	\$40,000	\$160,000	1	\$1,600,000	\$1,600,000	+1000%
10x40 (400 Sq Ft)	4 Double-Face	8	\$40,000	\$320,000	2	\$1,600,000	\$3,200,000	+1000%
14x48 (672 Sq Ft)	3 Single-Face	3	\$88,744	\$266,232	1	\$1,600,000	\$1,600,000	+601%
14x48 (672 Sq Ft)	3 Double-Face	6	\$88,744	\$532,464	2	\$1,600,000	\$3,200,000	+601%
20x60 Ft (1200 Sq Ft)	1 Single-Face	1	\$88,744	\$88,744	1	\$1,600,000	\$1,600,000	+1803%
20x60 Ft (1200 Sq Ft)	1 Double-Face	2	\$88,744	\$177,488	2	\$1,600,000	\$3,200,000	+1803%

Exchange Rates from "Table 1, "Conversion Requirements for Digital Bulletin Displays (Up to 672 Sq. Ft. per structure)" of the San Antonio Sign Ordinance Passed December 6, 2007

Table D-2. Total Revenue Impacts for New Digital Signs (Up to 300 Sq. Ft. per structure)

Old Passive Signs to be Removed					New Digital Signs to be Gained			
Face Size	Number and Type of Structures to be Removed	Number of Faces Removed	Revenue per Face	Total Revenue Loss	Number of Faces Added	Revenue per Face	Total Revenue Gain	Percentage Change in Revenue
8-Sheet (72 Sq Ft)	8 Single-Face	8	\$2,662	\$21,296	1	\$800,000	\$800,000	+3757%
8-Sheet (72 Sq Ft)	12 Double-Face plus 4 Double face	16	\$2,662	\$42,592	1	\$800,000	\$800,000	+1878%
30-Sheet (288 Sq Ft)	2 Double-Face	2	\$23,961	\$47,922	1	\$800,000	\$800,000	+1669%
30-Sheet (288 Sq Ft)	2 Double-Face	4	\$23,961	\$95,844	1	\$800,000	\$800,000	+835%
10x30 Ft. (300 Sq Ft)	2 Single-Face	2	\$23,961	\$47,922	2	\$800,000	\$1,600,000	+3339%
10x30 Ft. (300 Sq Ft)	2 Double-Face	4	\$23,961	\$95,844	1	\$800,000	\$800,000	+835%
10.6x36 Ft (378 Sq Ft)	2 Single-Face	2	\$40,000	\$80,000	2	\$800,000	\$1,600,000	+2000%
10.6x36 Ft (378 Sq Ft)	3 Double-Face	6	\$40,000	\$240,000	1	\$800,000	\$800,000	+333%
10x40 (400 Sq Ft)	2 Single-Face	2	\$40,000	\$80,000	2	\$800,000	\$1,600,000	+2000%
10x40 (400 Sq Ft)	2 Double-Face	4	\$40,000	\$160,000	1	\$800,000	\$800,000	+500%

Exchange Rates from "Table 2, "Conversion Requirements for Digital Bulletin Displays (Up to 300 Sq. Ft. per structure)" of the San Antonio Sign Ordinance Passed December 6, 2007