

# A Geographic and Financial Analysis of the Billboard Market in Philadelphia

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## Abstract:

*This report outlines the cost and revenue structure of the billboard industry in Philadelphia and identifies levels of market strength by geographic location. Possible tax strategies are compared using the valuation methods to maximize city revenues while also reducing the presence of non-performing signs. The potential impact of a recent trade-in policy passed in 2015 for converting existing signs to digital is also assessed against financial analysis.*

## Introduction

Philadelphia is a city covered with an abundance of outdoor advertising signs across its landscape. At least 1,917 sign faces in Philadelphia are owned by just the top 4 operators. According to Jared Brey from PlanPhilly, "that's an average of 13 billboards per square mile, if evenly spread out."<sup>1</sup>

The opportunity for new legislation brings the chance for additional policy changes, such as existing tax policies. Currently the city generates no greater revenue from billboards than any other business. A 7% excise tax is paid on billboards but only by the advertisers not operators. This 7% tax is equivalent to the rate of sales tax which is not applicable to the industry. Owners only need to pay a permitting fee of \$650, and then an annual fee of \$150 which can only be used to fund enforcement, not revenue. These fees are also accompanied by the typical commercial and business revenue taxes paid for any business.

By comparison the parking industry pays a parking tax of 22% on gross earnings in taxes. This parking tax policy is meant to encourage better utilization of land by limiting revenues. The billboard industry could generate city revenue through the use of a fixed tax, which would have the biggest discouraging effect only on signs generating little or no revenue.

The first aim of this analysis is to identify the financial structure and value of billboards. Identifying the costs and revenue structure would allow for an assessment of possible tax policies that could generate revenue for the city while achieving additional positive effects. The first of which would be to identify a tax level that most adversely affects non-performing billboards with little or no value. With 1,917 sign faces any attempt at enforcement or other policies is unfeasible. Other tax strategies will also be recommended to maximize revenue without eliminating the overall financially viability of the industry.

The second aim of this report is to evaluate the effects of the digital conversion policy created by The City zoning amendment to outdoor advertising signs passed in 2015 that requires city approval for any conversion of an existing static sign to digital. It also requires the removal of 2 existing legally compliant static signs for the conversion of an existing sign.

The financial value of signs at various market levels will be compared to the value of a digital sign to determine how many signs would be available to trade in profitably. This analysis will also determine whether a higher trade in level such as 4:1 is financially viable. Analysis will also be determined on the receiving end to identify the total number of possible conversion locations given the supply of feasible signs.

The results indicate that a combination of a fixed tax policy, along with a change in Use and Occupancy tax valuation could yield the city a net revenue gain of \$8.5 million annually initially. Other results also indicate that the current digital conversion regulation could allow for 72 locations of conversion based on current inventory and revenue returns unless additional restrictions are enacted.

## Objective

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The purpose of this analysis is to generate public knowledge of the billboard market that informs the current financial and geographic market.

- The current geographic, policy, and financial landscape of the billboard industry.
- Understand components estimate and quantify the performance of the market geographically.
- Understand the impact of current and possible tax and digital conversion policies.
- Identify recommendations and conclusions based on the available data and analysis of the market.

## Background

Over the past 20 years, the City of Philadelphia has either proposed or passed several different ordinances aimed to regulate billboards and generate tax revenue for the City. The licensing fees are generated to fund regulatory enforcement and cannot serve as a source of revenue. Just as often as new legislation and controls have been proposed these efforts have been matched either with political obstacles and litigation from the billboard industry.

The zoning code includes a list of location restrictions and includes a ban on any new billboard construction unless it is accompanied by the removal of an existing sign elsewhere. The new location is also subject to approval of the zoning board. Zoning also limits the conversion of existing billboards to digital, but specific controls have not been written as of yet.

The City currently generates very low revenues from taxes and licensing fees, which in turn make enforcement difficult. No special revenue specific to the industry is generated when considering taxes equivalent throughout the rest of the city.

The most recent ordinance passed which formed the current landscape was by The City in 2001 and lasted until 2005. This bill originally intended to bring into the city \$300,000 a year (\$520,000 in 2016 USD).<sup>2</sup> The annual fee per sign was to be raised from \$100 to \$150 per sign to pay for enforcement.

However litigation from the billboard industry successfully reduced and eliminated these taxes and fees resulting in only \$4,000 of total annual tax revenue for the City. The most significant impact for the court ruling to the challenge of the 1991 bill was that it ruled that billboards could not be forced to pay different fees than on-premise “accessory” signs.

In 2005 another ordinance was passed which aimed to bring in \$1.25 million in revenue for the city in license fees alone. This bill was also challenged in court, resulting in a settlement. The settlement terms yield only \$95,000 in revenue. Any non-compliant billboards were legitimized for a 10 year term and a full inventory with location data was required.<sup>4</sup>

Today as a result of the settlement billboards pay \$50 annually in licensing fees, and a 7% tax is charged to the advertisers (not the operators).<sup>5</sup> The city receives \$2.5 million annually from this excise tax, which is a similar substitute for sales tax. It is important to note that this legislation and the settlement, were scheduled to expire in October 2015.

A recent bill passed in 2015 required city permission for the conversion of an existing billboard to digital. Changes in the fee structure would also bring in an additional \$350k per year.<sup>6</sup> However, shortly after the city passed the new billboard bill, the Pennsylvania's Dept. of Transportation, PennDOT, revoked

## Summary of Billboard Legislation Proposed by Philadelphia City Council (1990 - Current)

Proposed	Goals and Outcome	Impact
1965 (Federal Law)	<ul style="list-style-type: none"> <li>Regulation of placement of sign locations within 660 of Federal Hwy</li> <li>10% of hwy funding tied to enforcement</li> </ul>	Resulted in the 2015 state reclamation of approval authority for new signs.
1991	<ul style="list-style-type: none"> <li>Intended to raise \$300k in revenue annually.</li> <li>Blocked by court ruling.</li> </ul>	Passed and in effect for 14 years.
2005	<ul style="list-style-type: none"> <li>Intended to raise \$1.25m in revenue annually.</li> <li>Challenged in court &amp; settled. Agreement included:           <ul style="list-style-type: none"> <li>-7% excise tax paid by advertiser. (\$2.5m/yr)</li> <li>-Fees that phased down from \$350 to \$50 per year.</li> <li>-Legitimized non-compliant billboards for duration.</li> </ul> </li> </ul>	Agreement effective: 10/2007 to 10/2015
2015	<ul style="list-style-type: none"> <li>Sign fee \$150 per year.</li> <li>System to regulate approval of the conversion of existing sign to digital after removal of two existing static signs.</li> </ul>	Eventually passed by city council after PennDOT subsumed control of billboard regulation.

the city's Outdoor Advertising certification and retook control of outdoor signs along the major highways. The authorization letter from the FHWA authorizes a transition plan for state regulation and enforcement.<sup>8</sup>

PennDOT's actions to take control of signage along highways was a response to concerns that the state was at risk of losing 10 percent of its federal transportation funding.<sup>9</sup> The Highway Beautification Act requires that states maintain effective controls of outdoor advertising signs, which includes issuing permits and removing illegal signs within 90 days. However the city has not had effective enforcement.

The current combination city and state regulations still allows for the city to regulate through its zoning ordinance, permitting and approval process. However once the city process is complete billboard operators must also obtain a license from PennDOT as well. The City will continue to have conversations with officials in Harrisburg in the future in hopes of negotiating a deal for future legislative controls.<sup>10</sup>

## Method

### *Valuation*

Since billboards are rarely sold by themselves, looking at the individual sales is not feasible.<sup>11</sup> The true market value of a typical billboard was therefore determined by creating a financial model and measuring the net operating income after expenses against a capitalization rate in line with risk levels and market growth to determine an estimated market value.

A range for weak, mid, and strong performing market locations was derived from pricing sheets advertised online by various operators. Geographic factors were used to locate where these areas of market strength occur.

### *Costs*

Administrative costs were derived from Outfront Media's 2014 annual report. Itemized costs for sales teams, general administration, and operating expenses were provided.<sup>12</sup> A ratio of expenses was determined by dividing total expenses by total revenues at a nationwide scale. Federal income tax expenses were also provided in annual reports. Local taxes for Philadelphia were obtained through Philadelphia's Department of Revenue.<sup>13</sup>

### *Taxes*

According to annual reports, the advertising industry pays a 30% federal income tax and a city Business Income and Receipts Taxes on gross and net income. These taxes are similar to any business within the city. Property tax estimates are based on a sampled average. The city also places a used and occupancy tax on commercial activity.

The industry specific fees area a license fee of \$150, and a 7% excise tax.<sup>14</sup> The license fee is calculated not to exceed costs for enforcement. Excise taxes are paid by the advertiser, not the operator, and therefore are excluded from financial calculations. It is also relevant to note that the excise tax is an equivalent substitute to the city sales tax, which was at 7% until it was recently raised to 8%. As a result both could be excluded from consideration as unique revenue sources for the city from the billboard industry.

### *Revenues*

Clear Channel posts on their website a price range between \$6,500 & \$7,500 for a 4 week period at locations along I-95.<sup>15</sup> Lamar advertises \$2,500 to \$3,500 for 4 weeks.<sup>16</sup> The quoted revenues of \$6,500, \$3,500 and a low value of \$2,000 will be used as the income levels for strong, mid and weak level

markets respectively. Rates will be monthly instead of 28 days to account for vacancy.

Geospatial analysis will be used to estimate which locations likely fall into each range. Revenues and valuation for each location will account not just the strength of the market but also the number of sign faces present. The key variable for identifying market strength is the daily VMT of the nearest road provided by PennDOT<sup>17</sup>, with extra attention paid for any sign within 300 ft of an interstate highway.

### *Capitalization Rate*

The strong barrier to entry through legislation limits the supply of billboards in the market. As a result the risks for the industry are lower due to a fixed level of competition which is reflected in a lower capitalization rate. The true market valuation is calculated by dividing the net operating income by a capitalization rate based on the industry growth rate of 6%.<sup>18</sup>

### *Location Data and Geospatial Analysis*

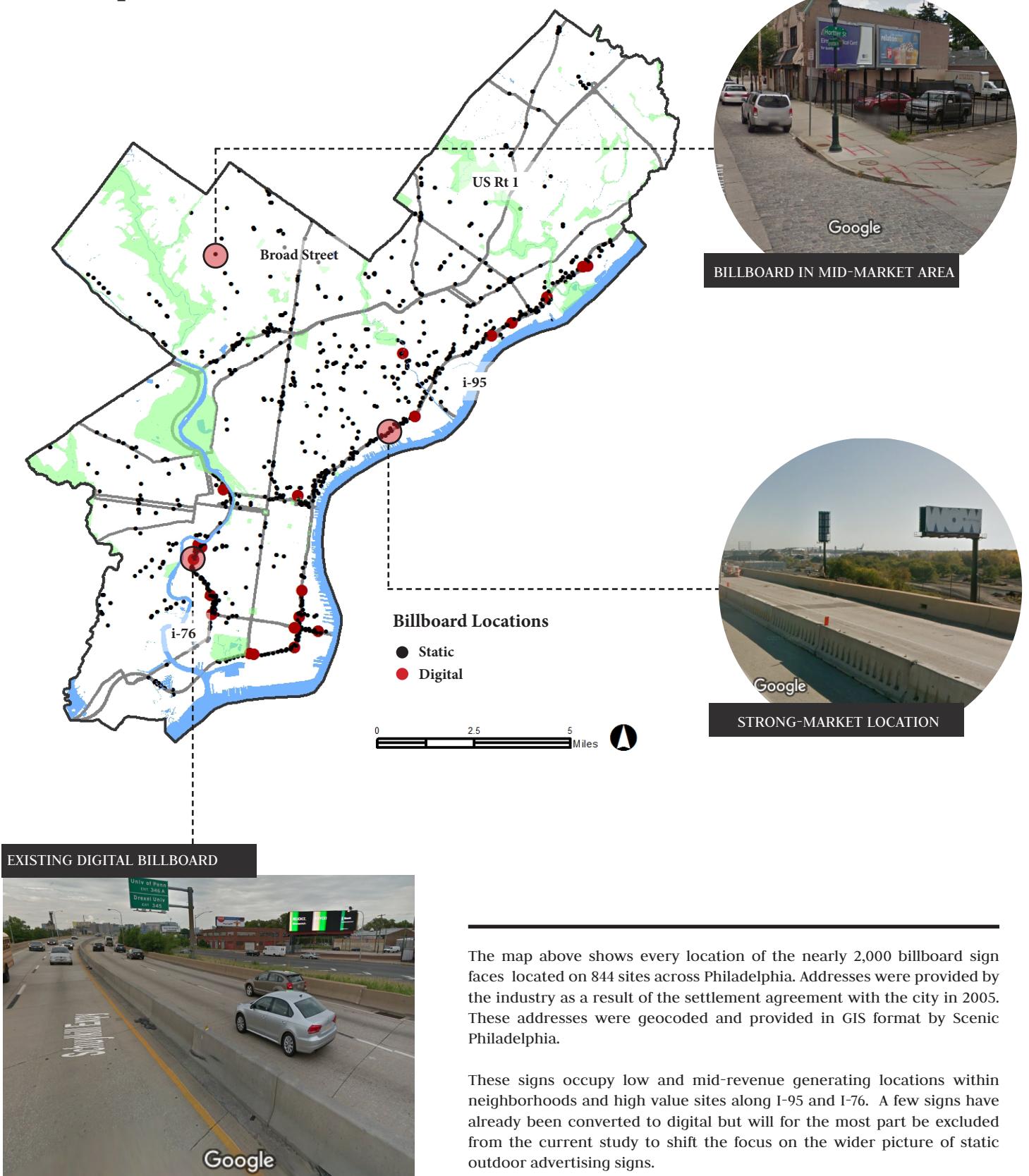
The inventory of every sign including address and number of faces was first required in the settlement agreements between the city and industry in 2005.<sup>19</sup> This data has been maintained by the city's Bureau of Revision and Taxes and was digitized into GIS and provided by Scenic Philadelphia. Data included height, address, coordinate locations, and number of sign faces per location.

Geospatial analysis for market strength involved comparing the location of signs with the highest VMT traffic count of the nearest roads. In addition, signs within 300 ft of major highways were also included in strong market areas. Traffic counts identifies highways, arterial, and local roads which were then used to identify strong, mid, and weak market performance of signs.

The location of each sign was also joined spatially with parcel provided by the city through its open data portal, OpenDataPhilly. This allowed for the ability to join signs to additional data such as land use and vacancy data, as well as land assessment data provided by the City Office of Property Assessments through OpenDataPhilly.

Spatial analysis was also used to evaluate which signs conformed to regulations within the zoning ordinance. Comparison of distance of signs to one another, within industrial zoning, near schools and other restrictions was also conducted in GIS.

## Geocoded Digital and Static Billboard Locations Philadelphia, Pa



## Balance Sheet

The summary of valuation table was calculated by tallying the revenues and costs as described. Shown to the right is an example of the breakdown in costs and revenues for a typical mid-market billboard that generates \$3,500 every month.

It should be noted that the taxes paid by the operator would account for less than \$2,700 total. It is likely that due to complex ownership and easement agreements that the property tax may have been passed onto a separate property owner or activity.

Annual revenues generated could vary from \$10,000 to \$35,000 for the typical market conditions in each of the three performance categories and \$80,000 for digital signs.

### *Non-Significant Taxes*

It is likely that billboards would also be subject to a Use and Occupancy Tax of 1.21% of the assessed value of land. However there is also a \$2,000 exemption annually for this tax, which translates into \$177,000. Land for vacant parcels with billboards is currently only valued at about \$30,000 on average.

If assessors changed valuation methods to accommodate the additional value of the sign as identified in the Valuation Table on page 10 and valued market strength according to traffic exposure or road category similar to the analysis in the following section, the city could generate additional revenues from the Use and Occupancy Tax. The largest contributors would be from strong and the growing digital market locations.

The industry is also subject to an excise tax of 7%. Since sales tax doesn't apply, this is used as a substitute to capture the same amount of revenue that another business would be providing. Since the establishment of the excise tax, the sales tax in Philadelphia has risen to 8%. As a result the excise tax is now bringing less funds than a sales tax would on a similar amount of business in another industry.

## Summary of Billboard Valuation

Location	4 Week Revenue	Annual NOI	Value
Weak	\$2,000	\$8,758	\$145,960
Average	\$3,500	\$15,638	\$260,628
Strong	\$6,500	\$29,398	\$489,965

Digital	\$15,000	\$68,385	\$1,339,753
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\*For comparison of accuracy it should be noted that the 7% excise tax brings in \$2.5 million annually, while the market estimations above total almost \$2 million. However conservative estimates were chosen for modeling purposes of tax scenarios.

## Financial Model of a Typical Mid-Market Billboard

### **Operating Income:**

Average Market: \$3500 / 4 weeks	
Avg Yearly: (At \$3500 per 4wks)	\$45,500

<b>Total Income</b>	<b>\$45,500</b>
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### **Expenses:**

Operating, selling & general admin: 34%	\$15,470
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### **Taxes:**

Phila. License Fee:	\$50
Phila. Real Estate 1.4% Assessed Value	\$728

<b>Total Expenses</b>	<b>\$16,248</b>
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<b>Net Income Before Taxes</b>	<b>\$29,252</b>
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Phila. BIRT Gross (1.415 mills on Gross )	\$41
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Phila. BIRT Net Income Tax 6.41%	\$1,875
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PA Corporate Income Tax 9.99%	\$2,922
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Federal Income Tax: 30%	\$8,776
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<b>Total Income Taxes:</b>	<b>\$13,614</b>
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<b>NOI:</b>	<b>\$15,638</b>
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Capitalization Rate:	6%
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<b>Asset Value:</b>	<b>\$260,628</b>
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\* The City of Philadelphia also has an excise tax of 7% on all outdoor advertising sales. However this tax is paid by the advertiser and not the billboard operator. It has therefore been excluded from the operating cost calculations above. The city also charges a Use and Occupancy Tax based on assessed property values, but these assessments do not accurately include the market value of billboards present.

## Market Strength

The range in revenue and value of a billboard can vary depending on its location and exposure to the public. Combining the publicized 4 week price for a billboard ad with the traffic exposure allows one to estimate the geographic locations of the best and worst performing signs.

Road traffic counts are publicly available and obtained from the regional planning commission for analysis. Traffic exposure was combined with data regarding the number of faces per location to further evaluate clusters of high and low revenue generation geographically.

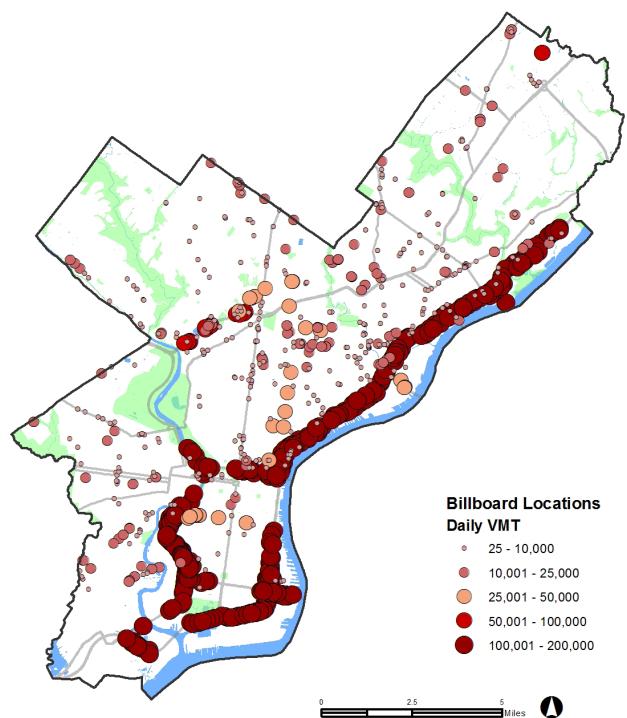
### Traffic & Exposure

Traffic counts obtained from PennDOT in GIS format were overlaid with billboard locations geocoded by Scenic Philadelphia. The market strength was determined by VMT levels of the nearest road with an additional 300 ft buffer used to include signs near highways. Thresholds for each category were determined by levels that typically separate the character of major highways, and arterial state roads within the city.

As a result the market categories observed are relatively evenly distributed in number as seen in the chart below the map to the right. They are also evenly distributed geographically along local, state arterial, and federal highways as shown in the map. Major highways were buffered to also capture any signs within 300 ft as being within visibility of this market area. To the right are the results of the distribution of sign faces within each market strength category.

The results show an even distribution throughout each market segment even through the number of roads within each market segment varies. Local roads are the most abundant with arterial the next highest, and finally Philadelphia only has a few federal highways. However signs are densified according to economic value.

## Market Valuation: Billboard Traffic Exposure



Billboard market performance was estimated by analyzing the highest traffic value of nearby roads using GIS and data provided by PennDot. Strong market values were also extended to any sign within 300 ft of the highways.

### Breakdown or Results per Market Segment by VMT

Total Billboard Faces: 1,630\*

Strong Market: 574 ( VMT > 100k)

Mid Market: 475 ( 7,500 < VMT < 100k)

Weak Market: 581 (VMT < 7,500)

\*Faces are located in 844 locations across the city.

## Sign Locations and Faces by Market Strength

Local reporters, media, and GIS data all show numbers of nearly 2,000 sign faces. Often these are referred to simply as 2,000 billboards. However this could reflect the individual leasable faces, and each location often has multiple faces or signs present.

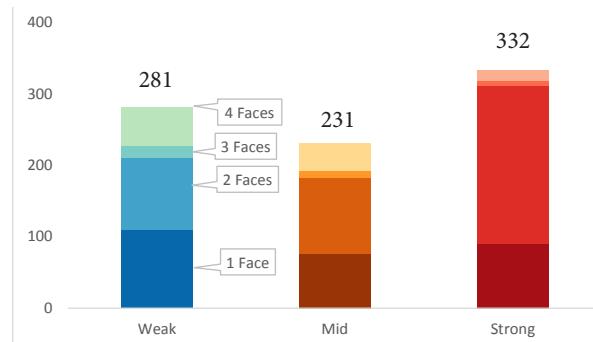
Analysis was conducted to determine the difference between the roughly 2,000 faces inventoried, with the total locations. Geospatial analysis using a tolerance of 5 ft indicates that there are 844 different locations. This is important for identifying impacts of property taxes, the total value of a site, the impact of a fixed tax on particular locations themselves, and therefore the total value of a particular location.

Within each market segment it is interesting to note the distribution of the number of sign faces per location. Weak markets have the most variation, and the most single faced signs. Predictably, a large share of strong markets, which are mostly along highways, mostly have 2 sign faces to maximize profits.

Locations with multiple sign faces would be the least likely to change either for trade-in, demolition for development, or to convert to digital because of the additional revenue generated. However a fixed tax policy could affect each face and the overall location if the site was performing poorly in generating revenue.

The single-faced locations of weak or mid markets are very likely to indicate areas of susceptibility to change. This can be deduced by the lack of additional sign development on the location. Areas that are the strongest in market performance have a high correlation with multiple faces per locations.

## Sign Faces per Billboard Location by Market



## Sign Faces per Location Count by Market

	Weak	Mid	Strong
1 Face	109	76	90
2 Faces	102	106	222
3 Faces	16	11	6
4 Faces	54	38	14
<b>Total</b>	<b>281</b>	<b>231</b>	<b>332</b>

## Digital Scenario: Sending & Receiving Areas

City council passed a revision of the zoning code in 2015 allowing a two for one digital conversion policy. This policy would result in many of the billboards in weak and mid markets being traded toward the conversion of existing static signs in strong market locations. The maps to the right reflect what areas are represented by potential sending and receiving locations if such a trade-in policy as recommended in the 2015 legislation were actually placed into effect without any constraint under the current financial estimates.

Under a trade-in for digital policy every weak and many of the mid-market locations depicted in blue could be available and would likely be financially worthwhile to trade-in for a new digital location. The revenue they generate as static signs is consistently lower than what a digital sign in a strong market area would produce. The overwhelming supply of viable signs for trade in makes it difficult to evaluate the location and net gain that a trade-in policy would generate.

The other aspect to consider is how many of the strong market sign locations would be eligible. The city zoning ordinance<sup>20</sup> places the following pertinent restrictions for sign locations:

- Within 660ft of a highway on/off ramp.
- Within 300 ft of a residential area.
- Within 660 ft of a public or private school.
- Within 660 feet of a public park.
- Within an area zoned for industrial use.
- Outside of the area bounded by Darien St.

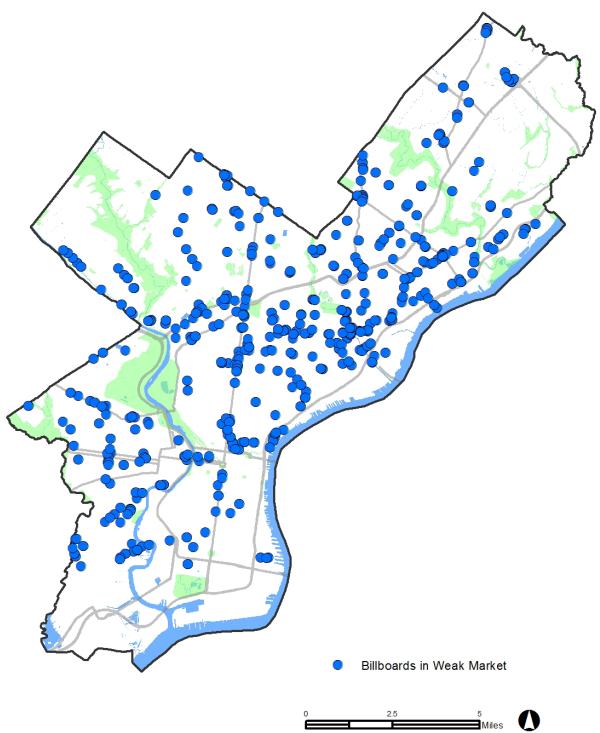
Any new conversions would have to be compliant. All other existing billboards are considered legal but non-compliant. The strong market locations were re-evaluated under these zoning requirements. Data was evaluated per location (844 total) not per sign face.

Other zoning restrictions for new signs are in place but did not affect the strong market subset of sign locations. In addition to the restrictions list previously, signs must also be distanced 500 ft from one another. In areas where signs were closer than this buffer, a sample were selected to create the greatest quantity of conforming locations. The map to the right depicts the results.

The final result of applying the restrictions to determine the max number of legal conforming strong market locations left 36 locations that were currently conforming to the zoning code. Another 36 could be selected from closely grouped clusters as conforming as well to give a maximum availability of 72 possible digital billboards.

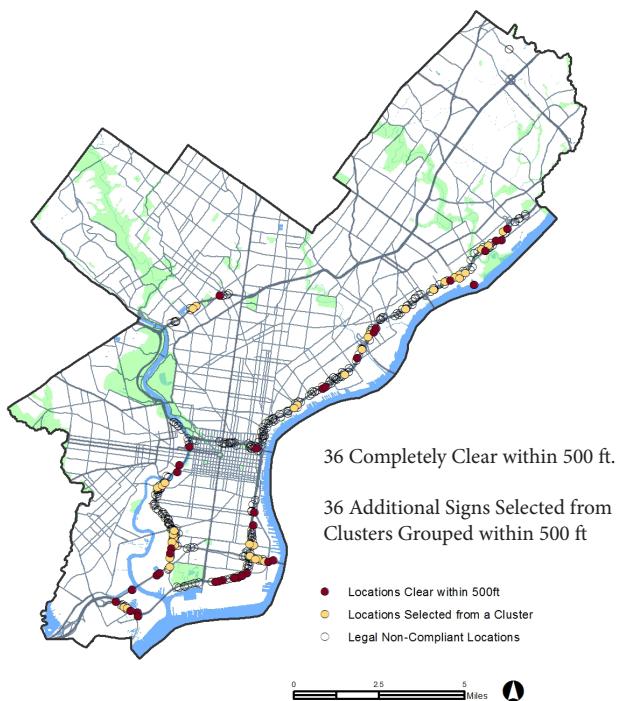
Additional regulations should be considered if a different outcome were desired by the public. Limiting the quantity and negotiation which locations would be traded in are one option. Outright restrictions may be another, but would face opposition due to the financial incentives. Finally, reducing the overall inventory might change the landscape for the negotiation of future legislation.

## Conversion Trade-In Sending Areas



Above: Weak and mid-market locations that could serve as trade-in candidates to be removed to allow for digital conversion of an existing sign.  
Below: Strong market locations per analysis that show where digital conversion would most likely occur.

## Legal Conforming Sign Locations



## Evaluation of the 2:1 Policy Passed in 2015

Digital billboards can earn \$15,000 or more in a 4-week period. The most likely locations would be within strong markets. Subtracting a conservative revenue valuation of \$7,500 that a static billboard currently generates in that location leaves room for an increase of the same amount under digital revenues.

The financial valuation shows that a two for one trade-in policy could result in the 581 weak market signs becoming available to create 290 digital billboards, most likely along the highways. It would also be worthwhile to trade in any mid-market sign earning \$3,500 or less. According to the market evaluation analysis here, that would provide enough inventory to theoretically convert almost every one of the 574 strong market signs.

Accounting for multiple faces, only locations of 1 or 2 faces for weak markets, and typically only the single-faced mid-markets would likely be traded in for a digital conversion. This would yield a maximum of 424 signs available to trade in for 212 digital signs from both weak and mid market segments.

Using the potential increase of \$7,500 the cost benefit value equates to approximately a combination of the following becoming financially viable, accounting for the number of faces at each location:

- 4 weak market sign faces (Nearly all 281 locations)
- 2 mid market faces (76 Available that could pair with 76 weak market faces)
- Or a combination of 2 weak market and 1 mid market location (76 mid market locations that could pair with 152 available weak market signs)

A 3:1 trade in policy, requiring a mid-market sign on an arterial (or state) road would yield approximately 76 possible new conversions at the expense of 228 signs. Not requiring the mid market signs as a condition of trade in would result in a 3:1 policy still allowing in every weak market being traded in plus 76 mid market signs. As a result a 3:1 policy would remove more billboards, however it would not limit the total 72 available locations which is still problematic.

When evaluating a higher trade in policy such as 4:1, the financial valuations indicate that it would be difficult to find candidates. Therefore this could limit the total conversions because trade-in would rarely be financially beneficial. However the only scenarios where these would be beneficial would be in weak performing markets where billboards are generating little or no revenue. A fixed tax policy could have the same effect without allowing for new digital billboards.

As a result the trade-in policy alone, regardless of the ratio would not reduce the total number of billboard conversions

to digital. In addition the city would still have a very large number of billboards remaining. Other methods via tax policy would be significantly more effective in reducing billboards with little or no value, and could yield greater revenues in the process.

## Conclusion

Any combination of a trade-in policy would result in an enormous number of digital locations becoming possible due to the sheer number of signs available in low and mid markets. As a result there are a number of combinations not just under a 2:1, but also a 3 or 4 for 1 trade in policy that could allow for the 72 potential existing locations to convert to digital.

The only way to limit conversions would be to restrict the current process and enable additional requirements for community negotiation of the transaction, or to reduce the total number of signs available through policy interventions such as through tax policy that disincentivizes non-performing locations with little or no current value.

The market valuation study shows that there are a very large number of under-performing billboards with about 1/3 near roads with low daily VMT numbers. It is likely that a number of these signs generate little or no revenue due to high vacancy rates. It is equally likely that the highest performing signs also generate significantly more revenue than estimated here.

The following sections will identify various tax policies to identify first which levels are feasible. A tax structure would generate revenue, but not at the expense of rendering an entire industry completely unprofitable. It should have an effect on each market segment that still allows for viability, except for current signs that produce almost no revenue.

## Effects of a Fixed Tax Scenario

A flat annual tax on each billboard face would have a regressive effect that impacted those in weaker market areas most negatively, with a lessening effect on strong market locations. This approach would be an effective strategy to target billboards that are still present, but have such low performance and high vacancy rates that they may not be worth the additional cost for operators. Meanwhile this tax would have a minimal effect on the highest producing locations. Not counting the removal of grossly under performing locations, a \$2,500 fixed tax could generate \$4 million annually for the city.

The lowest level of a \$2,500 fixed tax modeled to the right would have an effect on the costs similar to the current parking tax of 22% on gross receipts. The 15% loss in value shown, plus a 7% excise tax together are similar to the 22% tax on parking. The major difference is that a gross receipts tax such as the parking tax affects the highest earning locations the most, while a fixed tax is regressive and has the largest impact on the lowest performing locations. Both approaches have a similar effect of discouraging the activity in certain areas.

The most severe level of a \$15,000 annual tax is shown as the maximum possible value that could possibly be levied on a billboard that would completely eliminate nearly all of the revenues for those in weaker markets. It is used to identify the uppermost theoretical limit, however this level would likely be ruled as a taking, which under the current zoning law allows for operators to relocate the sign, amongst other provisions.

The next tax level of \$10,000 calculated reflects an impact similar to the 22% tax currently in place on parking for the strongest markets.<sup>21</sup> Under this scenario mid-market signs would still retain 66% of their value and it is likely that many would still be retained in the landscape but the weakest performers would lose a majority of their value.

Both the \$10,000 and \$15,000 fixed tax thresholds could possibly be interpreted as a taking if challenged in court. This could be offset by allowing value in trade-in credits, however the financial shift would create tremendous pressure to quickly convert as many as possible to digital. The large and dispersed possibility of digital conversion is likely to warrant controls that slow the process for review as opposed to accelerating it. As a result higher tax levels such as those proposed should be avoided.

Using an assumption that every one of the 109 single-faced weak performance signs were under-performing, for the purposes of demonstration, the remaining sign faces could generate \$4.5 million in revenues under a \$2,500 fixed tax.

## Effect of Flat-Tax Rates on Billboard Valuation

Tax	Weak (\$2,000/mo.)	Mid (\$3,500/mo.)	Strong (\$6,500/mo.)
\$2,500	18%	10%	5%
\$10,000	61%	34%	18%
\$15,000	92%	51%	27%
NOI	Weak	Mid	Strong
None	\$11,051	\$15,638	\$29,398
\$2,500	\$7,171	\$14,501	\$27,812
\$10,000	\$3,412	\$10,292	\$24,052
\$15,000	\$739	\$7,619	\$21,379
Post Tax Value	Weak	Mid	Strong
None	\$184,182	\$260,628	\$489,965
\$2,500	\$119,517	\$234,183	\$463,533
\$10,000	\$56,867	\$171,533	\$400,867
\$15,000	\$12,317	\$126,983	\$356,317

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## Combining A Fixed Tax with Use & Occupancy Taxes

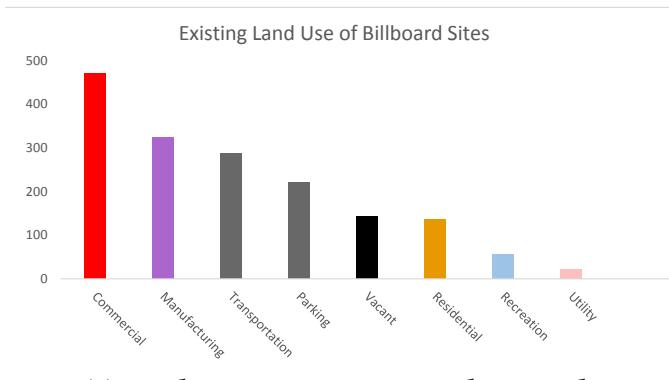
A fixed tax could be combined with a change in land valuation methods that would allow for the Use and Occupancy Tax to apply to billboards valued over \$177,000. Currently market evaluations according to city data do not account for the true market value of billboards. Changing parcel valuation to account for this market value would push land values over the tax exemption threshold as shown by the valuation figures above.

This would have the greatest effect, and generate the most advertising revenue from strong and digital signs. With digital signs producing \$15,000 or more a month this additional tax could help generate significant revenues from a more profitable billboard model. The combination would disincentivize completely non-producing locations and encourage their removal while generating additional profits from digital signs.

## Using Tax Policy to Encourage Higher Land Uses

Tax policy could theoretically lower the value of a billboard to the point where it becomes more worthwhile to sell and develop a vacant parcel that it is located within. However after evaluating whether this could have a significant impact in Philadelphia, the results indicate the overall the answer is no.

In total 1,666 separate sign faces were analyzed 1,057 faces were located either on or within 30ft of a parcel with a building. The total number of billboards faces located on a vacant parcel, that were not in a strong market area were 193. Analysis was done by comparing the parcel with the OPA land use assessment shown below. The remaining number were unmatched with a parcel nearby. This number represents only 10% of the total signs in the city.



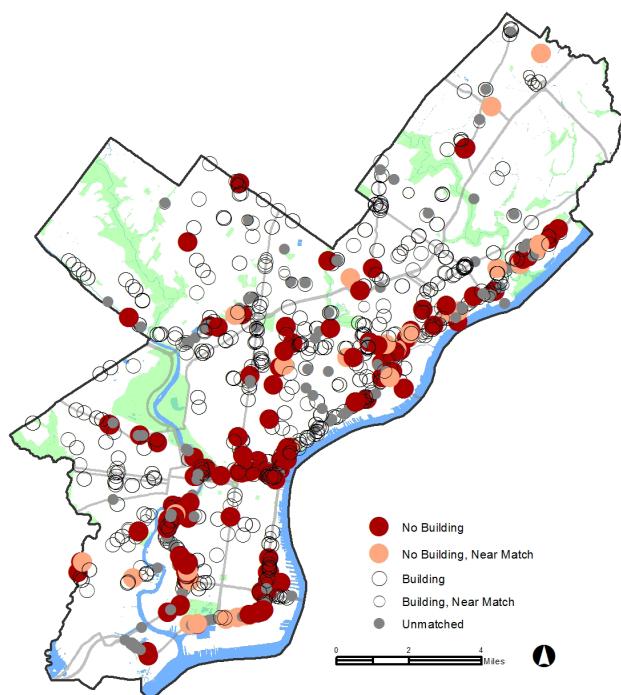
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Of those 10% only about half are actively influenced by taxation. To further limit the effectiveness of any tax policy on land development, half of the vulnerable parcels are only susceptible to change at the very highest, and most unlikely, tax level of \$15,000 annually. Below is a summary of the analysis on all 193 parcels:

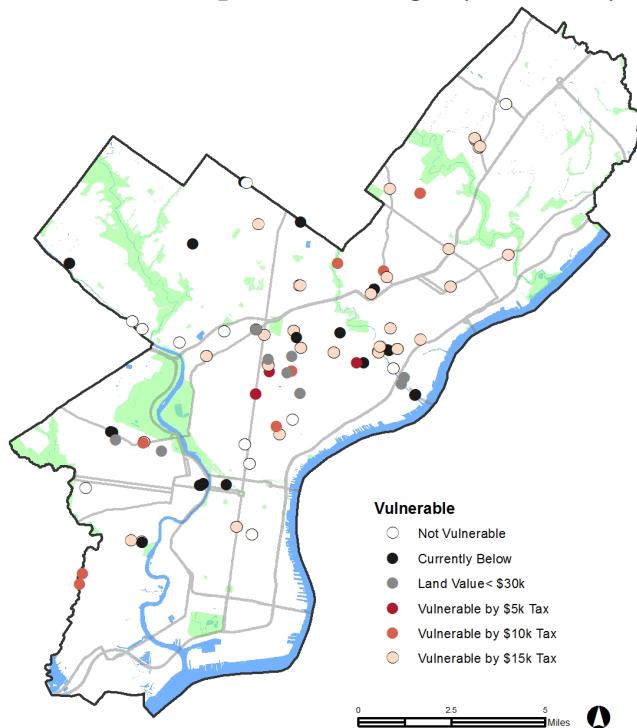
- 193 Total Locations without a Building on Parcel
  - 43 Not Vulnerable to Tax Increase
  - 37 Already Vulnerable without Tax
  - 10 Vulnerable, but Land Value too Low
  - 6 Vulnerable by a Low Tax
  - 17 Vulnerable to Med Tax Level
  - 80 Vulnerable to High Tax Level
  - (38 excluded due to lack of OPA data)

## Analysis of Vacant Billboard Parcels



Sources: This is where I add a caption and probably list my sources. This is where I add a caption and probably list my sources. This is where I add

## Parcels Susceptible to Change by Tax Policy



## Conclusion & Recommendations

A fixed tax of \$2,500 could be implemented with minimal impact of any financially performing billboard face. It could yield \$4.5 million annually while incentivizing the removal of completely non-performing signs.

This fixed tax could be combined with a policy overhaul of property valuation to account for the market value of sign easements, which would push the total value over the exemption value of the Use and Occupancy tax. The used and occupancy tax currently has an exemption that equates to \$177,000 per parcel. Many vacant parcels for example are only valued at \$30,000. This would ensure that additional revenues were generated especially from digital signs.

Lower performing billboards are only valued at \$172,000 if they received \$2,000 per month according to financial analysis using the known costs with assumed revenue levels. This would remain below the threshold for the use and occupancy tax, leaving these signs to be subject to a fixed tax only. Meanwhile the higher performing signs of \$300,000 and \$500,000 (more for digital)

Using the location and valuation calculations, the change in land valuation for the Use and Occupancy Tax would generate an estimate \$4 million in revenues annually. This is calculated by adding the market value of each sign face under a \$2,500 fixed tax to the total value of the property and deducting the excluded tax amount.

**The combined total of a \$2,500 fixed tax, and true market valuation of a sign easement added to the Use and Occupancy tax would generate an estimated combined \$8.5 million annually.**

Another result for the spatial analysis to mention is that only 10% of signs lie on vacant land and are unlikely to be removed by specific development pressure and opportunities. That share doubles to 20% when accounting for parking which is also heavily taxed. Regardless a strategy of targeting inefficient signs would need to rely on another strategy such as a regressive tax and positive incentives.

When evaluating tax scenarios, a higher fixed tax of \$10,000 or more would eliminate the viability of a large portion of sign locations. As a result the industry would either react through placing strong pressure on a trade-in policy and moving a deluge of signs to trade in for digital which would still be profitable. The more likely outcome however would be that the tax would trigger the taking clause in either litigation, or in the zoning code process. This clause in the zoning code allows for relocation of such signs.

A lower tax of \$2,500 would have a minimal effect on all sign values. The lower performing sign market segment would only lose 15% of its value. The tax could bring in significant revenue annually, and it would make unprofitable signs not worth retaining. It would therefore bring in revenue and serve to incentivize the removal of existing signs. Funds could be used to compensate the removal and disposal of existing signs.

If digital legislation were enacted there would be a virtually unlimited supply of signs to trade in and a possible 72 locations available for digital conversion. These locations include 36 currently legally conforming signs and another 36 signs chosen from clusters within the 500 ft buffer. This is about 25% of the 250 total strong market signs and are located exclusively along highways in industrial parcels.

The only means of limiting conversion would be to reduce the total number of locations viable for trading in, which could be achieved by tax policy and enforcement of illegal signs. However restricting the approval is the only other method to reducing the number from the current 72 available.

The availability of public revenue and costs allows for a fairly detailed estimate of finances for an individual sign which can be modeled under various conditions. This analysis can continue to be used to evaluate the feasibility of a tax policy, the impact it would have geographically on the market, and the revenues tax policies can generate.

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## Appendix: Calculations of Possible Tax Scenario Impacts

# Tax Scenario: Impact on Weak Market Locations

Tax Scenario: \$2,500 Annually

Tax Scenario: \$10,000 Annually

Tax Scenario: \$15,000 Annually

Operating Income:		Operating Income:		Operating Income:	
Low: \$2000/ 4 weeks	\$26,000	Low: \$2000/ 4 weeks	\$26,000	Low: \$2000/ 4 weeks	\$26,000
Avg Yearly: (At \$2000 per 4wks)	\$10,000	Avg Yearly: (At \$2000 per 4wks)	\$10,000	Avg Yearly: (At \$2000 per 4wks)	\$10,000
<b>Scenario Flat Tax</b>		<b>Scenario Flat Tax</b>		<b>Scenario Flat Tax</b>	
<b>Total Income</b>	<b>\$23,500</b>	<b>Total Income</b>	<b>\$16,000</b>	<b>Total Income</b>	<b>\$11,000</b>
<b>Expenses:</b>		<b>Expenses:</b>		<b>Expenses:</b>	
Operating, selling & general admin: 34%	\$8,840	Operating, selling & general admin: 34%	\$8,840	Operating, selling & general admin: 34%	\$8,840
<b>Taxes:</b>		<b>Taxes:</b>		<b>Taxes:</b>	
License Fee \$350 (2006)-\$50 (2013)	\$50	License Fee \$350 (2006)-\$50 (2013)	\$50	License Fee \$350 (2006)-\$50 (2013)	\$50
Real Estate 1.4% Assessed Value	\$728	Real Estate 1.4% Assessed Value	\$728	Real Estate 1.4% Assessed Value	\$728
<b>Total Expenses</b>	<b>\$9,618</b>	<b>Total Expenses</b>	<b>\$9,618</b>	<b>Total Expenses</b>	<b>\$9,618</b>
<b>Net Income Before Taxes</b>	<b>\$6,382</b>	<b>Net Income Before Taxes</b>	<b>\$6,382</b>	<b>Net Income Before Taxes</b>	<b>\$1,382</b>
<b>BIRT Gross (1.415 mills on Gross )</b>	<b>\$9</b>	<b>BIRT Gross (1.415 mills on Gross )</b>	<b>\$9</b>	<b>BIRT Gross (1.415 mills on Gross )</b>	<b>\$2</b>
<b>BIRT Net Income 6.41%</b>	<b>\$409</b>	<b>BIRT Net Income 6.41%</b>	<b>\$409</b>	<b>BIRT Net Income 6.41%</b>	<b>\$89</b>
<b>PA Corporate Income Tax 9.99%</b>	<b>\$638</b>	<b>PA Corporate Income Tax 9.99%</b>	<b>\$638</b>	<b>PA Corporate Income Tax 9.99%</b>	<b>\$138</b>
<b>Federal Income Tax: 30%</b>	<b>\$1,915</b>	<b>Federal Income Tax: 30%</b>	<b>\$1,915</b>	<b>Federal Income Tax: 30%</b>	<b>\$415</b>
<b>Total Income Taxes:</b>	<b>\$2,970</b>	<b>Total Income Taxes:</b>	<b>\$2,970</b>	<b>Total Income Taxes:</b>	<b>\$643</b>
<b>NOI:</b>	<b>\$7,171</b>	<b>NOI:</b>	<b>\$3,412</b>	<b>NOI:</b>	<b>\$739</b>
<b>Capitalization Rate:</b>		<b>Capitalization Rate:</b>		<b>Capitalization Rate:</b>	
<b>Asset Value:</b>		<b>Asset Value:</b>		<b>Asset Value:</b>	
Value Change Due to Tax: 18%		Value Change Due to Tax: 18%		Value Change Due to Tax: 92%	

# Tax Scenario: Impact on Mid-Market Locations

Tax Scenario: \$2,500 Annually		Tax Scenario: \$10,000 Annually		Tax Scenario: \$15,000 Annually	
<b>Operating Income:</b>		<b>Operating Income:</b>		<b>Operating Income:</b>	
Average Market: \$3500 / 4 weeks	\$45,500	Average Market: \$3500 / 4 weeks	\$45,500	Average Market: \$3500 / 4 weeks	\$45,500
Avg Yearly: (At \$3500 per 4wks)	\$2,500	Avg Yearly: (At \$3500 per 4wks)	\$10,000	Avg Yearly: (At \$3500 per 4wks)	\$15,000
<b>Scenario Flat Tax</b>		<b>Scenario Flat Tax</b>		<b>Scenario Flat Tax</b>	
<b>Total Income</b>	<b>\$43,000</b>	<b>Total Income</b>	<b>\$35,500</b>	<b>Total Income</b>	<b>\$30,500</b>
 <b>Expenses:</b>		 <b>Expenses:</b>		 <b>Expenses:</b>	
Operating, selling & general admin: 34%	\$15,470	Operating, selling & general admin: 34%	\$15,470	Operating, selling & general admin: 34%	\$15,470
<b>Taxes:</b>		<b>Taxes:</b>		<b>Taxes:</b>	
License Fee \$350 (2006)-\$50 (2013)	\$50	License Fee \$350 (2006)-\$50 (2013)	\$50	License Fee \$350 (2006)-\$50 (2013)	\$50
Real Estate 1.4% Assessed Value	\$728	Real Estate 1.4% Assessed Value	\$728	Real Estate 1.4% Assessed Value	\$728
<b>Total Expenses</b>	<b>\$16,248</b>	<b>Total Expenses</b>	<b>\$16,248</b>	<b>Total Expenses</b>	<b>\$16,248</b>
 <b>Net Income Before Taxes</b>	<b>\$26,752</b>	 <b>Net Income Before Taxes</b>	<b>\$19,252</b>	 <b>Net Income Before Taxes</b>	<b>\$14,252</b>
 BIRT Gross (1.415 mills on Gross )	\$27	BIRT Gross (1.415 mills on Gross )	\$27	BIRT Gross (1.415 mills on Gross )	\$20
BIRT Net Income 6.41%	\$1,234	BIRT Net Income 6.41%	\$1,234	BIRT Net Income 6.41%	\$914
PA Corporate Income Tax 9.99%	\$1,923	PA Corporate Income Tax 9.99%	\$1,923	PA Corporate Income Tax 9.99%	\$1,424
Federal Income Tax: 30%	\$5,776	Federal Income Tax: 30%	\$5,776	Federal Income Tax: 30%	\$4,276
<b>Total Income Taxes:</b>	<b>\$8,960</b>	<b>Total Income Taxes:</b>	<b>\$8,960</b>	<b>Total Income Taxes:</b>	<b>\$6,633</b>
 <b>NOI:</b>	<b>\$12,701</b>	 <b>NOI:</b>	<b>\$10,292</b>	 <b>NOI:</b>	<b>\$7,619</b>
 Capitalization Rate: 6%		Capitalization Rate: 6%		Capitalization Rate: 6%	
<b>Asset Value:</b>	<b>\$234,191</b>	<b>Asset Value:</b>	<b>\$171,531</b>	<b>Asset Value:</b>	<b>\$126,982</b>
Value Change Due to Tax: 10%		Value Change Due to Tax: 34%		Value Change Due to Tax: 51%	

# Tax Scenario: Impact on Strong Market Locations

Tax Scenario: \$2,500 Annually		Tax Scenario: \$10,000 Annually		Tax Scenario: \$15,000 Annually	
<b>Operating Income:</b>		<b>Operating Income:</b>		<b>Operating Income:</b>	
Strong Market \$6,500 / 4 wks)	\$84,500	Strong Market \$6,500 / 4 wks)	\$84,500	Strong Market \$6,500 / 4 wks)	\$84,500
Avg Yearly: (At \$3500 per 4wks)	\$2,500	Avg Yearly: (At \$3500 per 4wks)	\$10,000	Avg Yearly: (At \$3500 per 4wks)	\$15,000
<b>Scenario Flat Tax</b>		<b>Scenario Flat Tax</b>		<b>Scenario Flat Tax</b>	
<b>Total Income</b>	<b>\$82,000</b>	<b>Total Income</b>	<b>\$74,500</b>	<b>Total Income</b>	<b>\$69,500</b>
<b>Expenses:</b>		<b>Expenses:</b>		<b>Expenses:</b>	
Operating, selling & general admin: 34%	\$28,730	Operating, selling & general admin: 34%	\$28,730	Operating, selling & general admin: 34%	\$28,730
<b>Taxes:</b>		<b>Taxes:</b>		<b>Taxes:</b>	
License Fee \$350 (2006)-\$50 (2013)	\$50	License Fee \$350 (2006)-\$50 (2013)	\$50	License Fee \$350 (2006)-\$50 (2013)	\$50
Real Estate 1.4% Assessed Value	\$728	Real Estate 1.4% Assessed Value	\$728	Real Estate 1.4% Assessed Value	\$728
<b>Total Expenses</b>	<b>\$29,508</b>	<b>Total Expenses</b>	<b>\$29,508</b>	<b>Total Expenses</b>	<b>\$29,508</b>
<b>Net Income Before Taxes</b>	<b>\$52,492</b>	<b>Net Income Before Taxes</b>	<b>\$44,992</b>	<b>Net Income Before Taxes</b>	<b>\$39,992</b>
<b>BIRT Gross (1.415 mills on Gross )</b>	<b>\$64</b>	<b>BIRT Gross (1.415 mills on Gross )</b>	<b>\$64</b>	<b>BIRT Gross (1.415 mills on Gross )</b>	<b>\$57</b>
<b>BIRT Net Income 6.41%</b>	<b>\$2,884</b>	<b>BIRT Net Income 6.41%</b>	<b>\$2,884</b>	<b>BIRT Net Income 6.41%</b>	<b>\$2,563</b>
<b>PA Corporate Income Tax 9.99%</b>	<b>\$4,495</b>	<b>PA Corporate Income Tax 9.99%</b>	<b>\$4,495</b>	<b>PA Corporate Income Tax 9.99%</b>	<b>\$3,995</b>
<b>Federal Income Tax: 30%</b>	<b>\$15,748</b>	<b>Federal Income Tax: 30%</b>	<b>\$13,498</b>	<b>Federal Income Tax: 30%</b>	<b>\$11,998</b>
<b>Total Income Taxes:</b>	<b>\$24,680</b>	<b>Total Income Taxes:</b>	<b>\$20,940</b>	<b>Total Income Taxes:</b>	<b>\$18,613</b>
<b>NOI:</b>	<b>\$27,812</b>	<b>NOI:</b>	<b>\$24,052</b>	<b>NOI:</b>	<b>\$21,379</b>
Capitalization Rate:	6%	Capitalization Rate:	6%	Capitalization Rate:	6%
<b>Asset Value:</b>	<b>\$463,528</b>	<b>Asset Value:</b>	<b>\$400,867</b>	<b>Asset Value:</b>	<b>\$356,319</b>
Value Change Due to Tax:	5%	Value Change Due to Tax:	18%	Value Change Due to Tax:	27%