Effects of Residential Block Layout on Urban Tree Population in San Jose, California

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ABSTRACT

Urban forests play a key role in providing environmental, social and economic benefits and enhancing human health and quality of life in cities. Street trees as an element of landscape design emerged with suburban development. Tree-sidewalk conflicts such as sidewalk lifting incur social and financial costs. In the 1970s, planners took the advice of arborists to move from the traditional Park Strip (PS) Design to a new Monolithic Sidewalk (ML) Design in new residential development, hoping to allow more room for tree root growth. However, there remains a lack of consensus whether the new design promotes healthier trees. Missing trees were observed in some neighborhoods. I used a Tree Inventory which recorded tree species and sidewalk type. I sampled 42 neighborhoods and found that the proportion of missing tree in ML is higher. Net property value is not a significant indicator of the presence or absence of trees. I also found tree planting space in ML is not significantly higher than planting space in PS, likely due to confusion between private and public-right-of-ways where street trees are located. The confusion can also be attributed to the fact that residents believed the government is responsible for tree stewardship and very few believe that residents should be responsible for tree care. This study confirmed the tree populations in ML neighborhoods are significantly smaller than PS neighborhoods. Results evoke consideration of sidewalk choice for future developments, enforcement of poor tree care, and a broader scale education of homeowners concerning public street trees care.

KEYWORDS

Park Strip, Monolithic Sidewalk, marginal sidewalk, street trees, tree-sidewalk conflict

INTRODUCTION

Urban forests play a key role in providing environmental, social and economic benefits and enhancing human health and quality of life in cities (Young and McPherson 2013). Street trees benefits include: economic, social, health, visual and aesthetic benefits; identified ecosystem services include: carbon sequestration, air quality improvement, storm water attenuation and energy conservation (Roy et al. 2012). Municipal forestry programs that involved street trees care and their regulation in the interest of public welfare thrived in the early twentieth centuries (Miller et al. 2015). However, factors such as suburban sprawl continued to reduce the benefits of street trees (Bloniarz 1992). Even more recently, new higher-density subdivisions in many communities have left less space for street trees in spite of larger house lots, resulting in an increased number of tree conflicts with the sidewalk (Miller et al. 2014). Factors influencing long term street tree mortality such as planting space width and adjacency to construction sites (Koeser et al. 2013), type of land use where trees are located (Lu et al. 2010), homeowner stability and tree care (Roman et al. 2014), tree mature size and net property value (Ko et al. 2015), and tree species (Lu et al. 2010, Koeser et al. 2013) were studied. Understanding the many tree- and site-related factors that influence urban tree longevity is therefore critical for urban tree managers to maximize net urban forest value (Koeser et al. 2013).

Street trees as an element of landscape design emerged with suburban development which bring huge benefits to urban environment, but tree-sidewalk conflicts often incur social costs and undermine those benefits. Disservices of urban trees include infrastructure damage, sidewalk uplift, and the high costs of pavement repair and replacement (Roy et al. 2012, Mullaney et al. 2015, North et al. 2015). Approximately US$71 million annually has been spent state-wide across California due to conflicts between street trees and infra-structure

(McPherson, 2000). In many California such as San Jose, homeowners are required to maintain street trees adjacent to private property located in the park strips and the sidewalk (CSJ 2013). Good sidewalk and tree planting designs are therefore crucial for homeowners to reduce costs, and can enhance the safety of the public. To minimize pavement damage by tree roots, measures such as the use of root barriers, structural soils and pervious surfaces with underlying drainage layers were adopted, but some of the measures have limitations in urban settings (North et al. 2015). In a low-density residential area, however, a change in park strip design could provide an alternative to these interventions.

In the 1970s and 1980s, acting on suggestions from arborists, planners in newly constructed neighborhoods moved the park strip (PS), a linear planting area between the sidewalk and the curb, to make it adjacent to the front lawns of houses by moving the sidewalk to the curb to form a new design, the monolithic sidewalk (ML). Theoretically, this change in design should have allowed more room for tree roots to grow and reduce conflicts with sidewalk, as the roots can extend their growth not limited only within the PS but also to the space under the property's lawn. While no published studies compare tree performance in the two sidewalk design (PS and ML), studies found out an increase in the tree-lawn width (i.e. distance between curb and sidewalk) is positively correlated with better tree condition (Koeser et al. 2013), thus possibly supporting the idea that new design promotes better conditions. On the other hand, factors such as variation of tree care (Ko et al. 2015, Roman et al. 2014) and socioeconomic status of homeowners (Ko et al. 2015) may overwhelm the effect of the type of sidewalk design. There is still a lack of consensus amongst foresters and arborists whether the new street design provides better conditions for tree growth, and no studies have been conducted specifically on the effects of change in street design. Maximizing the ecosystem services of urban trees and minimizing social costs of road damage become the goal of formulating the most cost-effect management practice. The effects of the change in street design is patently critical to urban forest condition, but is often brushed aside.

In my study, I compared tree numbers and conditions of two different street designs–the conventional PS and the new ML design – in San Jose, California with a tree inventory, GIS and census data on a parcel level. I seek to answer the following questions: 1) is there an association between the type of sidewalk design and the proportion of missing trees? 2) Is there a difference in condition of tress between the conventional design and new design? 3) Whether the average empty planting space differ in the two sidewalk systems? 4) Does socioeconomic status of homeowners affect the proportion of missing trees?

BACKGROUND

Development of low-density suburban neighborhoods

The United States' urban form experienced drastic decentralization in the post-industrial period, which has shaped the modern suburban form. In the 1850s, the advent of the steam engine transport allowed cities to support larger populations (Miller et al. 2015). As the living conditions in cities deteriorated during the period and technology of street cars advanced, decentralization of middle-income families became prevalent and spawned the emergence of metropolis (Muller 2014). Levittown, a large suburban development model in the United States, was a by-product of urban sprawl. This housing model further decentralized population and shaped the low-density characteristics of suburbs (Jackson 1985). As the American population became more affluent and the popularity of the automobile increased, there was a further shift from high-density housing in the cities to low-density housing suburbs- an urban form that remains prevalent today (Miller et al. 2015).

Urban Street trees in a historical context

Suburbanization resulted from a response to urban environmental degradation from the city center (Southworth and Ben-Joseph 1995). Frederick Olmstead and his colleague Calvert Vaux rejected rectangular blocks with overcrowded houses, the then-traditional urban form in their 1868 design for the Riverside suburb in Illinois (Southworth and Ben-Joseph 1997). Instead, they incorporated a more circular and picturesque landscape with trees planted in a strip between the path and the roadway for the first time in suburban context (Southworth and Ben-Joseph 1995). Historically, street trees served shading purposes (Miller et al. 2015) and indication of the course of road from a distance (Nadel and Oberlander 1977). This form of road planting as a physical and visual separator between road and pedestrian was influenced by the planting schemes of Paris boulevards of the 1860s and became a prominent feature of the American suburban landscape (Southworth and Ben-Joseph 1997).

Urban Trees in a Modern Context

With the increasing awareness on benefits of urban trees, many large cities and medium-sized communities initiated city forestry program to plant and care for street and park trees in the twentieth century (Miller 2015). Over the past decade, large scale tree planting initiatives were launched in cities like Sacramento, Houston, New York and Denver (Young and McPherson 2013, Roman et al. 2014). The ecosystem services from urban forest further motivate these tree planning campaigns, and studying determinants of street tree survival were key to success and projected benefits (Roman et al. 2014). Koeser et al. 2013 studied biophysical and human factors influencing urban tree planting program growth and survival in Florida. Furthermore, Ko et al. 2015 looked specifically into factors influencing residential yard tree survival because street trees and yard tree environments have noticeable differences in site characteristics (yard trees typically in lawn vs. street tress often in restricted sidewalk spaces) and ownership (private yards vs. public right-of-way) (Ko. et al. 2015). The study of change of sidewalk type from traditional PS to new ML in my project further substantiates another often brush-aside factor that affects tree population and health.

METHODS

Study site

Study was carried out in the city of San Jose (37.3382° N, 121.8863° W; area: 180.2 square miles), the third most populous (1,000,536 persons in 2014) city in California, United States. San Jose also has a relatively uniform physiography which reduces other potential sources of variation in tree cover and condition. It has extensive single and multi-family residential neighborhoods that were planted with street trees at the time of residential development.We focused on low density residential neighborhoods. Each residential lot in these neighborhoods was provided with a street tree at the time the neighborhood was built, i.e. every house should have at least one street tree fronting it (corner lots may have two trees).

Figure 1. Aerial photos of two sidewalk designs- Park Strip (left) and Monolithic sidewalk (right). Dotted lines indicate area where public street trees are planted.

Park Strip and Monolithic Sidewak System

***Park Strip* system** is where an obvious green planting strip can be observed (left). A planting strip where public trees were planted is located between the curb and the sidewalk. The strip and the lawn are then separated. Order from the roadway: roadway, curb, planting strip, sidewalk and lawn.

Monolithic Sidewalk system is where the sidewalk is pushed towards the curb to form one piece of land- the "mono"lithic sidewalk (right). The green planting strip is now located adjacent to the lawn, with no clear distcition between the two. Order from the rodway: roadway, curb, sidewalk, "invisible" planting strip and lawn.

I used a Tree Inventory that was conducted by the City of San Jose, Americorps, Our City Forest and Davey Tree Expert Company between 2011 and 2014 for my analysis. The inventory includes information on species, size, condition, address and the type of sidewalk they belong to. 42 neighborhoods in San Jose were selected as my study sample. The Planning Division of San Jose prepared a neighborhood boundary map, which was created in 1999 for the purpose of assessing and assigning neighborhood service needs (https://www.sanjoseca.gov /DocumentCenter/View/757). I followed how the planning division defined a neighorhood and compared this map with my tree inventory data in ArcGIS. For each of the 10 regions in San Jose, I randomly sampled four to five neighborhoods to obtain 42 neighorhoods. For a map of San Jose and complete list of sample neighborhoods refer to Appendix A.

Data Collection Methods

To obtain the proportion of missing trees, tree condition and planting space size, I identified the following variables in the Tree Inventory: tree species (name or whether they are vacant), tree condition, space size and types of street design (PS or ML).

To obtain the property value of a house, I used the address of the corresponding tree data from the Tree Inventory. I then used this information at the Santa Clara County Assessor to obtain net property value as a representation of socioeconomic status of homeowners (Ko et al. 2015)

Data Analysis

I conducted various statistical tests based on the character of variables examined in order to identify differences in tree populations and condition according to situation amongst dissimilar landscape design and socioeconomic condition.

1. T-test for Proportion of Misssing Trees between ML and PS

I assigned tree data points corresponding to the neighborhood name and calculated the proportion of missing trees within a neighborhood. Species type recorded as "vacant site - small", "vacant site - medium" or "vacant site - large" in the Tree Inventory were regarded "tree absent", while tree species with species names were regarded "tree present". To determine the percent of absent trees, I added these trees points which either had "vacant site - small", "vacant site – medium" or "vacant site – large". I divided this number by the total number of trees in the neighborhood to get the percentage of missing trees in a particular neighborhood. These steps were repeated for all the 42 neighborhoods.

Proportion of missing trees of a neighborhood

$$= \frac{Number\ of\ vacant\ site}{Total\ number\ of\ tree\ data} X\ 100\%$$

I conducted t-tests to analyze the difference in numbers of trees per parcel between PS neighborhoods and ML neighborhoods. I excluded 10 neighborhoods with disproportionate PS: ML or ML:PS ratio because a small ratio would yield unrepresentative results. For example, in a neighborhood with predominating PS trees (1 ML tree and 500 PS tree), if the 1 ML tree is missing, it would yield a 100% missing tree as a representation for that area.

2. Chi-square test for tree condition between PS and ML

To determine if there is any association between tree condition in different sidewalk- PS and ML, I conducted a chi-square test. I identified the variables- tree condition and sidewalk type- in the Tree Inventory. Tree are assigned conditions as follow:

Table 1. Definition of tree condition

Condition	Definition
5- Very good	< 20% of canopy affected by anything/ no defects or canker on drunk
4-Good	20-50% of canopy affected or small defects or canker on trunk
3-Fair	50-75% of canopy affected by some problems, e.g. missing leaves or single large defects or canker on trunk
2-Poor	75-90% of the canopy gone/defoliated or multiple large defects or canker on trunk
1-Dying	More than 90% affected by these defects

I selected attribute in the database table to obtain the number of tree that belongs to each of the category: tree conditions (1-5) and type of sidewalk (PS & ML) using the following commands:

select SKY_Type= ‘Monolitihic’ and Tree_Conditions= ‘5-Very Good’

…

select SKY_Type= ‘Monolitihic’ and Tree_Conditions= ‘1-Dying’

Similarly for PS design:

select SKY_Type= ‘Park Strip’ and Tree_Conditions= ‘5-Very Good’

…

select SKY_Type= ‘Park Strip’ and Tree_Conditions= ‘1-Dying’

3. Chi-square test for planting space between ML and PS

To find if plating space is associated with sidewalk type, I conducted a chi-squre test. I identified the following attribute of the Tree Invetory: space size and sidewalk type. Space size range from 0, 0.5, 1, … 8, 8+ feet. I used the following command to find the count of tree for each category:

select SKY_Type= 'Monolitihic' and Space_size = '0'

…

select SKY_Type= 'Monolitihic' and Space_size= '8+'

Similar commands for Park Strip

select SKY_Type= 'Park Strip' and Space_size = '0'

…

select SKY_Type= 'Park Strip' and Space_size= '8+'

4. Chi-square tests for Net Property Value

To find if net property value is a predictor of missing trees, I conducted a chi-square test. I identified the following attribute of the Tree Invetory: address and sidewalk type. I added an attribute: propoerty value, by retrieving this piece of information from the Santa Clara Assessor's website. Using the same logic in part 1, species type recorded as "vacant site - small", "vacant site - medium" or "vacant site - large" in the Tree Inventory were regarded "tree absent", while tree species with species names were regarded "tree present". I classified net property value (NPV) into three categories (Ko et al. 2015): assessed NPV less than $150,000 were classified as low NPV; those with NPV greater than $150,000 but less than $250,000 as medium NPV; those with NPV greater than $250,000 as high NPV. I randomly selected 50 points from ML and 50 points from PS to conduct two chi-square tests.

RESULTS

Difference in tree population between two layout designs

A significantly greater proportion of trees was absent from the ML design (mean = 44.49667 % absent) compared with the PS design (mean= 20.42581 % absent) in the 31 neighborhoods evaluated. (Figure 1; p-value = 7.487e-13; df = 57.678).

Proportion of Missing Trees in PS and ML system

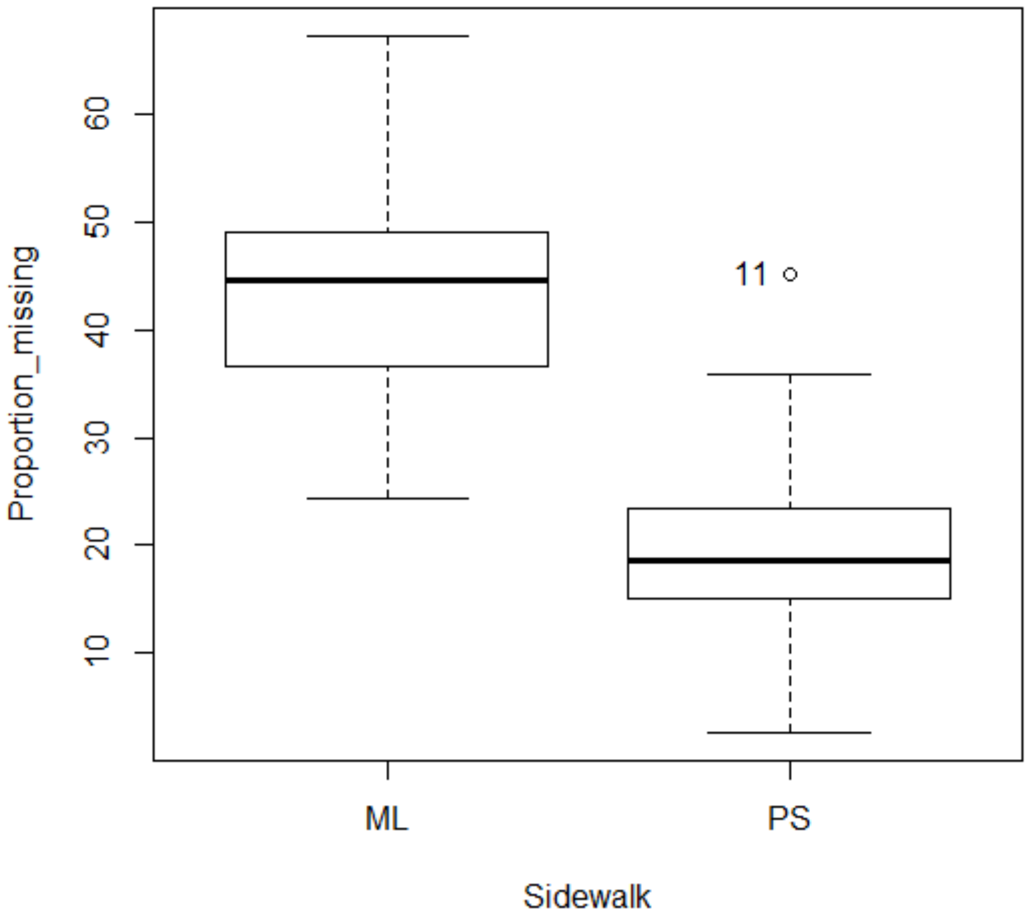


Figure 2. Percentage of Missing trees in Monolithic sidewalk (n=30) and Park Strip (n=31).

Tree condition and health

I rejected the null hypothesis that there is no association between sidewalk type and distrubition of condition classes.

Table 2. Tree counts of tree condition vs sidewalk type (ML n=15800; PS n=100774)

Condition \ Sidewalk type	ML	PS	ML%	PS%
Very good	45	256	0.28481	0.254034
Good	6938	40515	43.91139	40.20382
Fair	7710	52464	48.79747	52.06105
Poor	535	5471	3.386076	5.42898
Dying	572	2068	3.620253	2.052117
	15800	100774		

Pearson's Chi-squared test

X-squared = 333.76, df = 4, p-value < 2.2e-16

Planting space size

ML sidewalks included very large planting spaces (over eight feet wide) that were not found in the PS system; this group contributed about 55% of all ML trees. About 20% rangeg from five to six feet, while about 10% had zero feet planting space. For PS system, about 70% of trees had six to six and a half feet of planting space. There were virtually no trees that belong to planting space less than one feet.

Table 3. Tree counts of space size versus sidewalk type

Space size/ sidewalk type	ML	PS	ML%	PS%
0	3510	89	8.197678	0.069637
0.5	941	16	2.197725	0.012519
1	1069	78	2.496672	0.06103
1.5	58	584	0.13546	0.456946
2	303	650	0.707663	0.508587
2.5	172	1684	0.40171	1.317632
3	601	2296	1.403648	1.796487
3.5	298	2868	0.695985	2.244044
4	971	10262	2.267791	8.02942
4.5	379	6813	0.885162	5.330777
5	6063	4249	14.16026	3.324596
5.5	3227	1498	7.536726	1.172098
6	1228	22359	2.86802	17.49462
6.5	247	71171	0.576874	55.68718
7	221	784	0.51615	0.613435
7.5	127	1188	0.296611	0.929541
8	282	224	0.658617	0.175267
>8	23120	992	53.99724	0.776182
	total	total		
	42817	127805		

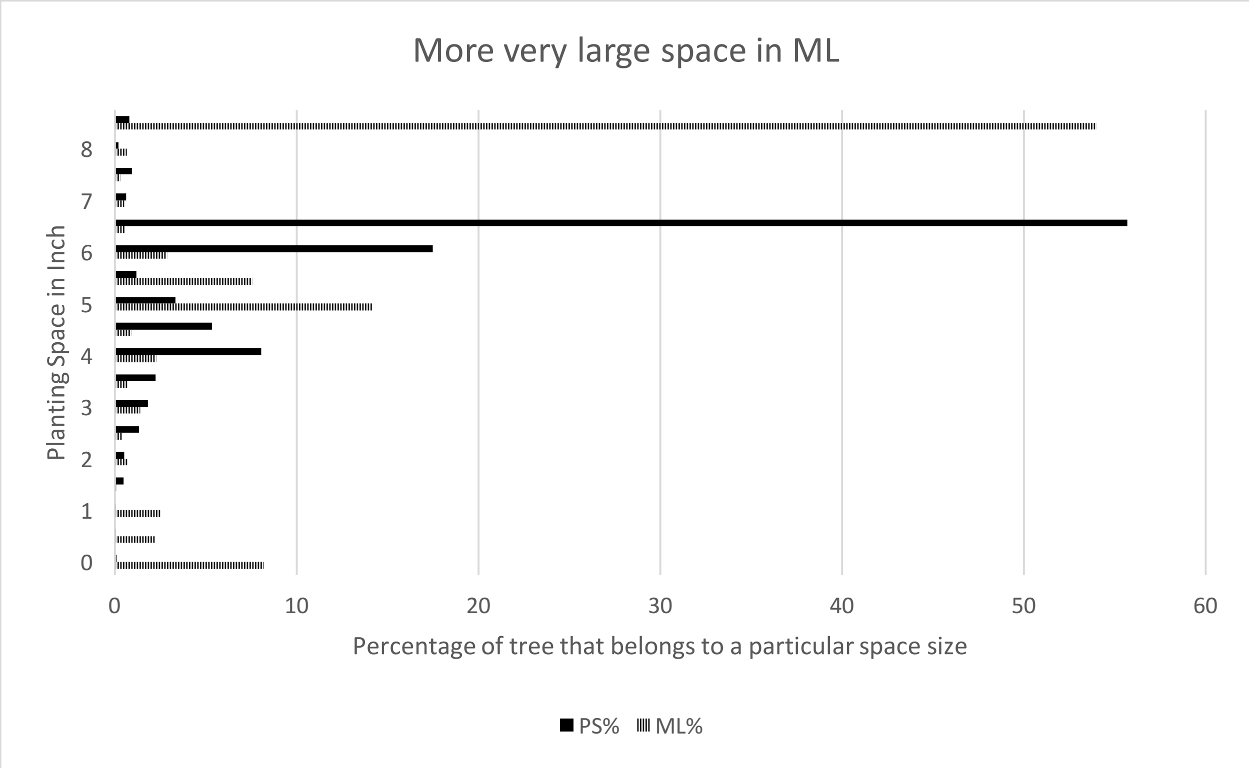


Figure 3. More very large planting space in ML sidewalk. +8 feet planting space is found only in ML and majority of PS planting space is 6 to 7 feet.

Chi-square test on Net Property Value on Tree Presence or Absence

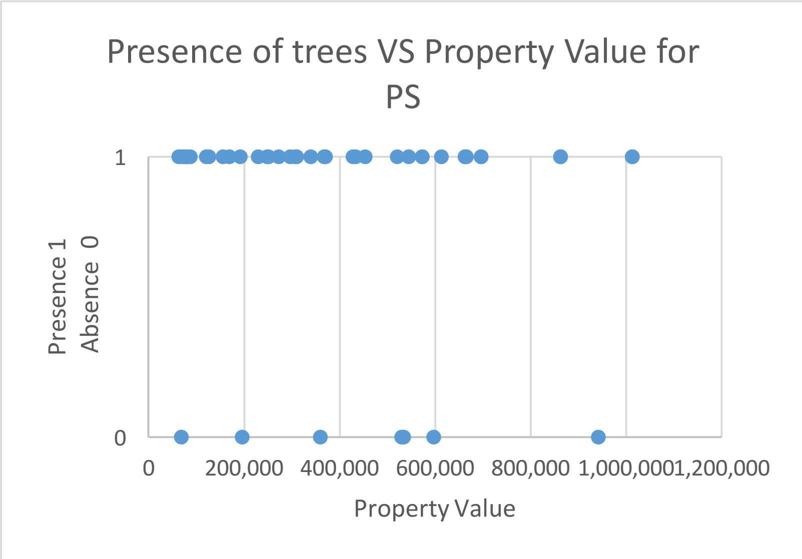
From the 100 point sample, there was no association between property value and proportion of missing trees in both PS and ML system.

Table 4a. Level of property value versus presence or absence of tree in Park Strip system

Property Value\ tree presence	*Yes tree*	*No tree*
Low	*9*	*1*
Medium	*5*	*1*
High	*25*	*5*

Pearson's Chi-squared test

X-squared = 0.2696, df = 2, p-value = 0.8739



.

Figure 4a. Distribution of presence or absence tree in property value in Park Strip system

Table 4b. Level of property value versus presence or absence of tree in Monolithic sidewalk system

Property Value/ Tree presence?	*Yes tree*	*No tree*
Low	*1*	*3*
Medium	*3*	*4*
High	*24*	*13*

Pearson's Chi-squared test

X-squared = 3.1678, df = 2, p-value = 0.2052

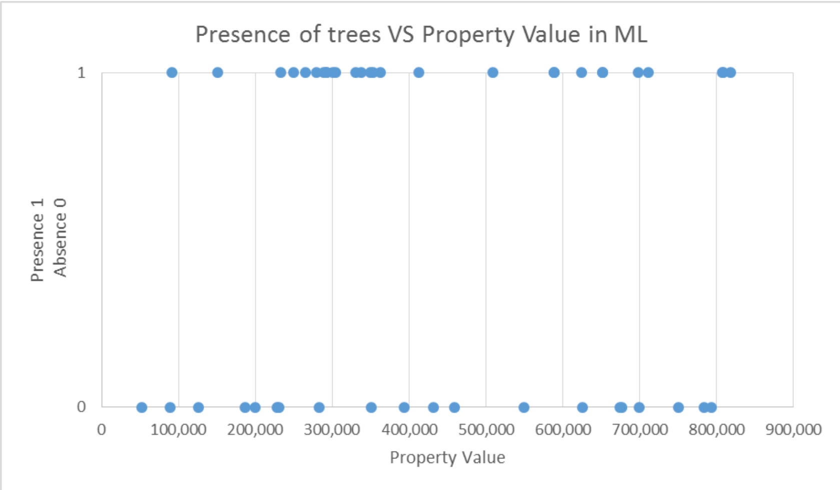


Figure 4b. Distribution of presence or absence tree in property value in Monolithic sidewalk system

DISCUSSION

I hypothesized that higher proportion of missing trees is associated with Monolithic Sidewak (ML) design. I found significant differences of absent trees and tree condition between the two sidewalk designs. Planting space in ML was bigger, but still considerably high in Park Strip (PS) system. Net property value indicated homeowner's stewardship on a property level and is not an important factor affecting tree population. Understanding how these factors influence tree population will help foresters make better decision on future sidewalk design and management plans on current tree-sidewalk conflict and confusion.

Tree Population and Tree Condition

ML system had a significantly higher proportion of missing trees because of the confusion between public and private space (R. Mize, personal observations). In the ML system, there is not a clear distinction between the "invisible strip" and homeowner's lawn because the green strip is now directly adjacent to the front lawn. Trees might have been cut down by homeonwers because they consider them as private tree, when in fact they belong to the city. Whereas in the old PS design, the planting strip would have indicated trees belong to the city government. Despite the fact that there is a higher proportion of missing trees in the ML design, tree condition can still be better. Because increase in tree-lawn width provides more room for tree growth and greater tree survival (Koerser et al. 2013), and decrease in sidewalk-tree distance correlated to worse tree condition and health (North et al. 2015). Therefore, better tree condition is expected in ML trees than PS trees. I expected to see no significant difference in tree condition between the two sidewalk types. But in my analysis I rejected the null hypothesis that tree condition are the same in the two sidewalk system.

Difference in Planting Space of ML and PS trees

Tree planting space defines the physical capacity of a street tree- its health and survival. Reduced planting space has resulted in reduced maximum size of trees (Sanders et al. 2013). I expected to see larger planting space in ML than PS. Large planting space (>8 feet) was only found in the ML system but not in the PS system. However, majority of the planting size of PS system lied between 4 to 6 feet, which is reasonably high for a tree to grow. Randup et al. 2001 found that conflicts between tree and sidweak is high when their distance is less thant 2 to 3 m, which translates to 6.46 to 9.84 feet. In other words, tree-sidealk conflicts in ML should be rare, while the majority of the PS trees should perform considerable well. Another surprising fact I found was small planting size in a ML sidewalk system existed. Spaces with zero feet was also found only in ML system, but not PS. It theoretically should not happen. ML sidewalks should offer more space. My findings suggested that in practice, ML design may be constrained by the installation of non-compliance fences of paving other than yard of installation of other infrastructure such as power line to reduce size (Ko et al.

2015, I. Lacan, personal communications). The increase in tree-lawn with was expected to increase social beneifts; however, when sidewalk and trees come into conflicts, there are losses in beneifts provided by trees and sidewalk (North et al. 2015). This result can also explain why there is higher proportion of missing trees in the ML system.

Net Property Value on Tree Population

There was no association between level of property value and absence of tress in both ML and PS system. Table 4a and 4b showed an evenly distributed pattern of net property value on presence or absence of trees. I conducted two chi-square test based on three level of net property value. Results showed no association between property value and presence or absence of trees. Property-level built conditions, residents' actions and multiple measures of the urban forest were needed to better understand the patterns of trees in cities (Shakeel and Conway 2014). In my study, socio-economic factor such as property value helped understand what would be the best practice to manage urban trees. Property value influenced homeowner's degree of stewardship due to financial incentives and willingness to manage (Ko et al. 2015). Although high income residents are more likely to pay contractors for tree care than those in lower income groups, homeowners with higher income are also more prone to alter their landscapes to incorporate new landscape trends (Larsen and Harlan 2006). My results did not yield the same results: I found net property value is not associated with tree presence. Additionally, Shakell and Conway substantiated property value has no effects on tree canopy cover or tree density which is another indicator for tree health.

I did not consider homeownership stability as a component of stewardship as Roman et al. 2014 found is the most critical determinants of planting and survival of young trees in particular. Trees in my study site are at least as old as how long the neighborhood has developed; therefore, homeownership stability was not included in my study. The number of samples between two sidewalk systems were uneven. PS generally had ten times more data points than ML in my study. It did not affect the analysis of proportion of missing trees, because only relative percentage was compared. However, it affected the analysis of the association between sidewalk type and tree condition. The percentage of each condition (**Table 2**) between sidewalk types were very similar, yet after running a chi-square test, I rejected the null hypothesis that tree condition between two sidewalk systems are the same. Regarding the association between property value and absence of trees, 100 sample points were not as robust as the entire sample of 300,000 points. Gathering data from San Jose assessor online was possible. Requesting for the database for property value was also possible, but the cost was beyond the budget of my study. I decided to do a 100-point sample, which could yield comparable results.

The underlying cause of missing trees is the unclear definition between the public and private properties under the new ML design. Another possible research question is how the city of San Jose monitor and react to the breach of property and treatment of street trees. Studying the effectiveness of the ways city of San Jose responded to homeowners' performance can affect the effectiveness pf the new ML design. Also, research questions on top of my study could be the effects on education on the proportion of missing tree and conditions.

My study confirmed the hypothesis that proportion of missing trees in ML system is higher than PS system. Possibly better tree condition in ML system was undermined by the effect of disappearing trees. Future interviews can focus on 1) why are there missing tress and 2) homeowner's perception on tree stewardship and how the city of San Jose define the private-public distinction.

Broader Implications

Majority of New York City residents believed the government are responsible for tree stewardship and that few respondents believed that residents should be responsible for tree care, or that multiple groups should share stewardship responsibility (Moskell and Allred 2013). Investigating homeowners' value and attitudes who do or do believe they are responsible for tree care, is key to understanding why the trees were removed. My study substantiated the fact that there is a significant difference in tree population and how property value and homeowner stability influenced tree population. My findings are yet to investiagate the homeowners' perception on tree stewardship.

Planners in newly constructed neighborhoods moved PS to ML design, ideally hoping that the new design would allow more tree roots to grow. Property-level built conditions, residents' actions, and multiple measures of the urban forest to better understand the patterns of trees in cities (Shakeel and Conway 2014) and make better decisions on sidewalk type and also tree species.

Conclusion

In summary, my results showed proportion of missing trees in Monolithic Sidewalk system is substantially higher than traditional Park Strip system due to confusion whether trees belong to private or public. Trees might have been cut down by homeowners. More large tree planting space in Monolithic sidewalk neighorhoods were found, which should therotically promote healthier tree population. I rejected the null hypothesis that tree condition have no difference between the two systems. Medum platning space was found in Park Strip system, which is sufficient for a typical tree to grow. Small planting space in

Monolithic sidawlk was found, due to additional, non-compliance infrastructure. Results evoke consideration of sidewalk choice for future developments, enforcement of poor tree care, and a broader scale education of homeowners concerning public street trees care.

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Appendix A: List of 42 neighorhoods:

Commodore, Heritage, Ashbridge, Estates, SilverLand, Quimby, Coldwater, Stoneagte_East, Ramblewood, Miner, Barry_Park, Parkview, La_Colina, Sunrise_Almaden, Graystone, Woodside_of_Almade, Pierce_Ranch, Oak_Ganyon, Thousand_Oaks, Dartmouth, Blossom_Crest, Warmsprings, Penitencia, Cinderella, Little_Portugal_North, Mt_Pleasant_North, Pinnacle, Nobel, Bonita_24th, McKinley, Washington_Guadalupe, Willow_Glen, Payne, Bucknall, Lynbrook, Downing-Whitethorne, Pamlar-Borello, Parker, Ponderosa, Silver_Leaf, Chantillery, Avenida_Espana_South

San Jose sample neighorhoods map