



## P Street Corridor, Phase 1 Methods

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This investigation was conducted as part of the Landscape Architecture Foundation's 2018 *Case Study Investigation* (CSI) program. CSI matches faculty-student research teams with design practitioners to document the benefits of exemplary high-performing landscape projects. Teams develop methods to quantify environmental, social, and economic benefits and produce Case Study Briefs for LAF's *Landscape Performance Series*.

The full case study can be found at:  
<https://landscapeperformance.org/case-study-briefs/p-street-corridor>

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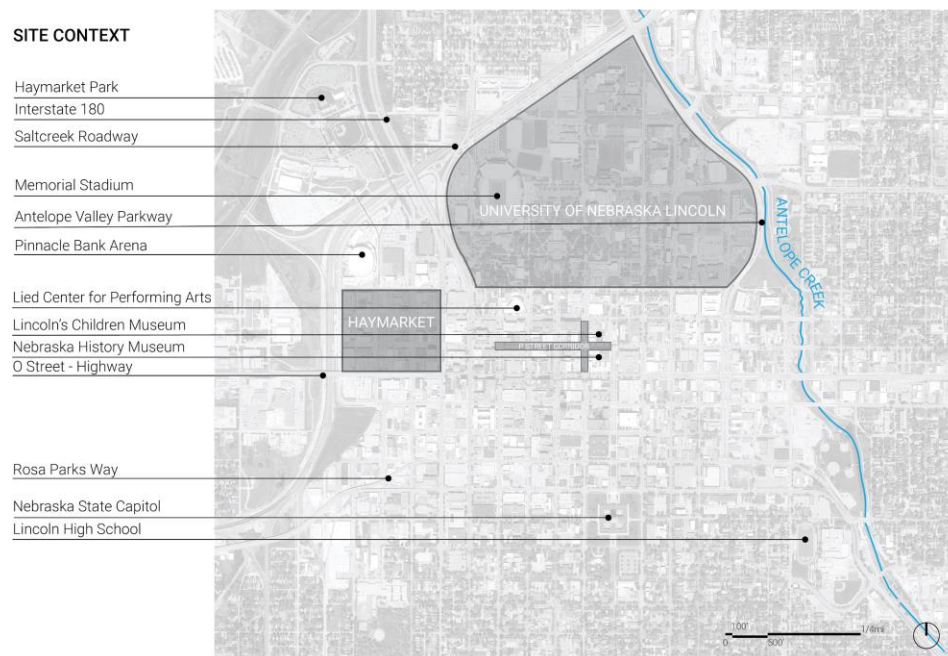
# Overview

The P Street Corridor project is a revitalized 6-block urban downtown streetscape in Lincoln, Nebraska that has the primary goal of transforming unpleasant, underused spaces to grant greater public access. Located just blocks away from the University of Nebraska-Lincoln City campus, the corridor is within a half-mile of various museums, restaurants, and Nebraska's State Capitol building (see Figure: Site Location and Context). The corridor was redesigned to enhance the pedestrian streetscape experience and establish environmental integrity through increased tree canopy coverage, stormwater management, and native planting strategies. The project focuses on runoff capture and reduced irrigation cost for roadside planted bioswales. The P Street redesign was done by Design Workshop, and construction administration was executed by a local Lincoln firm, Clark Enersen Partners. The design firm's baseline data collection was extensive—covering themes such as user perception, impervious surfaces, and property values, which have informed many of the benefits within this case study. While developing the master plan, the design firm organized a community engagement process that provided excellent baseline data for social benefits. Our survey replicates the design firm's pre-project survey (with a few additions), which collected post occupancy social data in order to make direct comparisons of user perception before and after the corridor redesign.

The following Methods document showcases a broad range of data collection and analysis methodologies. Beyond user surveys, the research team has taken on-site inventory of tree DBH, pedestrian crossing times, building vacancy, and locally owned businesses. These collection strategies allow for clear analytical comparison to pre-project conditions through the use of the design firm's baseline data and recorded city data.

## Site Location and Context

Author: Brandon Zambrano



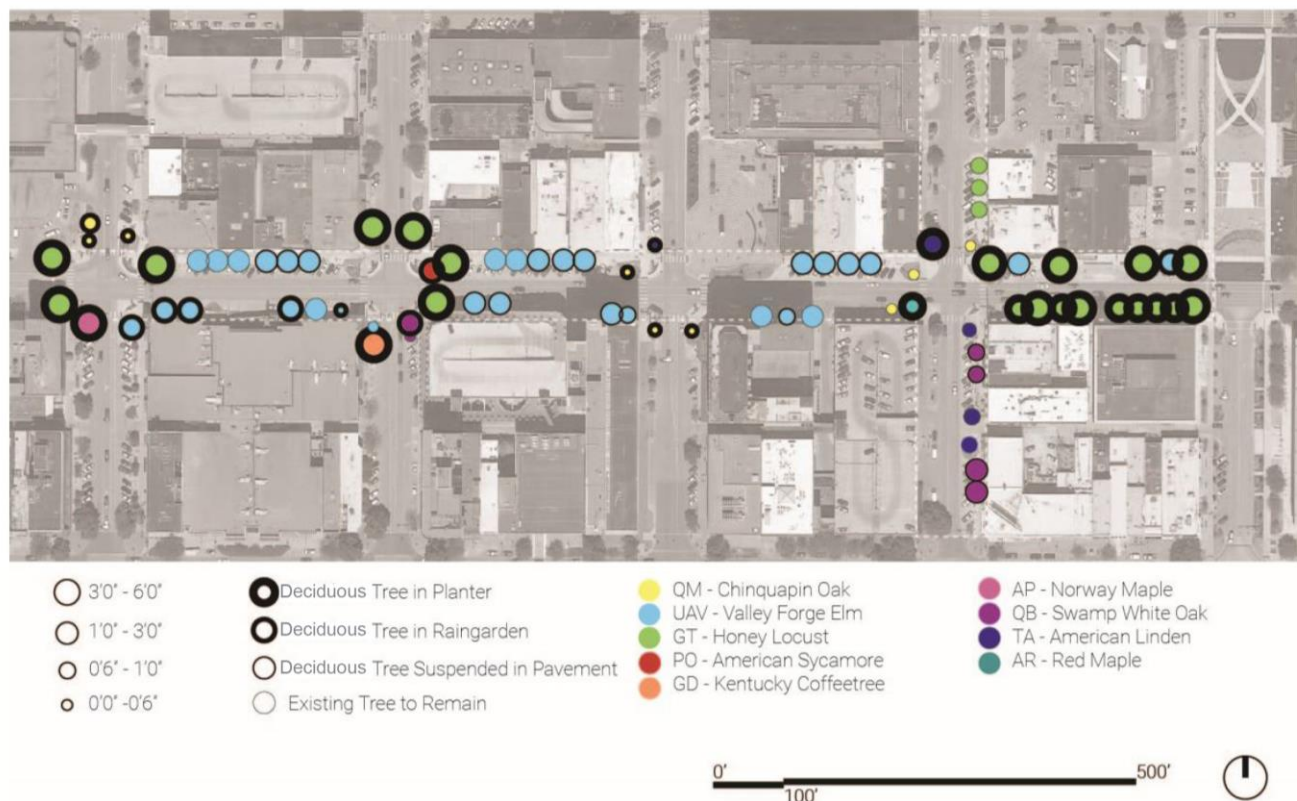
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## 1. Environmental Benefits

- ***Sequesters 23,378 lbs of atmospheric carbon, equivalent to driving 26,000 miles in a single-passenger vehicle, and intercepts approximately 36,600 gallons of stormwater runoff annually in existing and newly-planted trees.***

Figure 1.1: Tree Inventory Author: Brandon Zambrano



### Methods:

Although some existing on-site trees were preserved, many new street trees were planted either in planters or Silva Cells. All tree species on site, both newly planted and original, had their

circumference at breast height (4.5 ft. up from the tree base) and location inventoried and verified (see Figure 1.1 above). Circumference was then used to determine the average diameter of each species (see Table 1.1). i-Tree Streets was used to estimate the amount of carbon sequestered and intercepted gallons of stormwater captured per year by these trees. When a specific species was not available, the genus was used instead. The tree species, average DBH, and land use was entered into this calculator (see Table 1.2 and 1.5).

For carbon sequestration, the amount of atmospheric carbon sequestered per year was then multiplied by the number of specific species of trees found on site. All totals were added up to obtain a total annual reduction of atmospheric carbon on-site. A calculation of just the existing tree count numbers was charted (see Table 1.3) to subtract from the on-site total to find the approximate reduction of atmospheric carbon contributed by only newly-planted trees (see Table 1.4).

The stormwater interception calculation encompasses stormwater intercepted by tree canopies. After tree species, average DBH, and land use was entered into the calculator (see Table 1.5), the amount of intercepted gallons per year was then multiplied by the number of specific tree species found on site. All totals were added to obtain a total annual stormwater interception value. A calculation of the existing tree count numbers was charted (see Table 1.6) to subtract from the on-site total to find the approximate gallons of stormwater intercepted by only newly-planted trees (see Table 1.7).

#### *Calculations:*

*Table 1.1: Street Tree Circumference and Average Diameter (DBH) - All*

	Chinquapin Oak <i>Quercus muehlenbergii</i>	Valley Forge Elm <i>Ulmus Americana 'Valley Forge'</i>	Honey Locust <i>Gleditsia triacanthos</i>	American Sycamore <i>Platanus occidentalis</i>	Norway Maple <i>Acer platanoides</i>	Kentucky coffeetree <i>Gymnocladus dioica</i>	Swamp White Oak <i>Quercus bicolor</i>	American Linden <i>Tilia americana</i>	Red Maple <i>Acer rubrum</i>	Live oak <i>Quercus virginiana</i>
Specimen 1 Circumference	5"	1'-4"	3'-3"	10"	3'-10"	4'-1"	3"	4'-6"	2'-11"	1'
Specimen 2 Circumference	4.5"	1'-3"	3'-7"	1'-5"			3"			
Specimen 3 Circumference	3.5"	2'-7"	5'-7"				2.5"			
Specimen 4 Circumference	5"	1'-4"	4'-4"				2"			
Specimen 5 Circumference	4"	1'-9.5"	4'-2"							
Specimen 6 Circumference	3"	1'-4"	3'-9.5"							
Specimen 7 Circumference	3"	1'-6"	4'-5"							
Specimen 8 Circumference	5"	1'-3"	8.5"							

Specimen 9 Circumference	6"	1'-6"	9.5"							
Specimen 10 Circumference	5"	1'-1.5"	2'-1"							
Specimen 11 Circumference		11"	3'-6"							
Specimen 12 Circumference		1'-2"	2'-11"							
Specimen 13 Circumference		1'-6.5"	3'-2"							
Specimen 14 Circumference		1'-6.5"	3'-9"							
Specimen 15 Circumference		11"	6'							
Specimen 16 Circumference		8.5"	9.5"							
Specimen 17 Circumference		1'-3"	9"							
Specimen 18 Circumference		1'-3.5"	11"							
Specimen 19 Circumference		1'-4.5"	3'-3.5"							
Specimen 20 Circumference		9.5"	2'-11"							
Specimen 21 Circumference		1'-1"	2'-10"							
Specimen 22 Circumference		1'-3"	2'-11"							
Specimen 23 Circumference		10"	2'-11.5"							
Specimen 24 Circumference		1'	4'-6"							
Specimen 25 Circumference		1'-4"	4'-2"							
Specimen 26 Circumference		1'-6"	3'-9"							
Specimen 27 Circumference		1'-6"	10"							
Specimen 28 Circumference		1'-5"	10"							
Specimen 29 Circumference		1'-3"	9"							
Specimen 30 Circumference		1'-1"	2.5"							
Specimen 31 Circumference			1'							
Specimen 32 Circumference			11"							

Average Circumference	4.4"	15.5"	32.39"	11.25"	46"	49"	2.63"	54"	35"	12"
Calculation $C=\pi d$	$4.4"=\pi d$	$15.5"=\pi d$	$32.39"=\pi d$	$11.25"=\pi d$	$46"=\pi d$	$49"=\pi d$	$2.63"=\pi d$	$54"=\pi d$	$35"=\pi d$	$12"=\pi d$
Average DBH	1.40"	4.93"	10.31"	3.58"	14.64"	15.60"	0.84"	17.19"	11.14"	3.82"

*Table 1.2: Total Street Tree Atmospheric Carbon Reduction Per Year - All*

Species	Average DBH (inches)	Land Use	Atmospheric Carbon Reduction Per Year (lbs)	# of Trees	Calculation	Total Atmospheric Carbon Reduction by Species Per Year (lbs)
Chinquapin Oak <i>Quercus muehlenbergii</i>	1.40	Industrial or Large Commercial Business	7	10	$7 \times 10 =$	70
Valley Forge Elm <i>Ulmus Americana</i> 'Valley Forge'	4.93	Industrial or Large Commercial Business	92	30	$92 \times 30 =$	2,760
Honey Locust <i>Gleditsia triacanthos</i>	10.31	Industrial or Large Commercial Business	535	32	$535 \times 32 =$	17,120
American Sycamore <i>Platanus occidentalis</i>	3.58	Industrial or Large Commercial Business	87	2	$87 \times 2 =$	174
Norway Maple <i>Acer platanoides</i>	14.64	Industrial or Large Commercial Business	754	1	$754 \times 1 =$	754
Kentucky coffeetree <i>Gymnocladus dioica</i>	15.6	Industrial or Large Commercial Business	863	1	$863 \times 1 =$	863
Swamp White Oak <i>Quercus bicolor</i>	0.84	Industrial or Large Commercial Business	7	4	$7 \times 4 =$	28
American Linden <i>Tilia americana</i>	17.19	Industrial or Large Commercial Business	966	1	$966 \times 1 =$	966
Red Maple <i>Acer rubrum</i>	11.14	Industrial or Large Commercial Business	547	1	$547 \times 1 =$	547
Live oak <i>Quercus virginiana</i>	3.82	Industrial or Large Commercial Business	96	1	$96 \times 1 =$	96
						Total Atmospheric Carbon Reduction On Site Per Year (lbs): 23,378

*Table 1.3:E Atmospheric Carbon Reduction – Existing Street Trees*

Species	Average DBH (inches)	Land Use	Atmospheric Carbon Reduction Per Year (lbs)	# of Trees	Calculation	Total Atmospheric Carbon Reduction by Species Per Year (lbs)
Chinquapin Oak <i>Quercus muehlenbergii</i>	1.40	Industrial or Large Commercial Business	7	1	$7 \times 1 =$	7
Honey Locust <i>Gleditsia triacanthos</i>	10.31	Industrial or Large Commercial Business	535	19	$535 \times 19 =$	10,165
Norway Maple <i>Acer platanoides</i>	14.64	Industrial or Large Commercial Business	754	1	$754 \times 1 =$	754

American Linden <i>Tilia americana</i>	17.19	Industrial or Large Commercial Business	966	1	966 x 1 =	966
Red Maple <i>Acer rubrum</i>	11.14	Industrial or Large Commercial Business	547	1	547 x 1 =	547
						Existing Tree Total Atmospheric Carbon Reduction Per Year (lbs): 12,439

**Table 1.4: Atmospheric Carbon Reduction – New Street Trees**

Total Atmospheric Carbon Reduction On Site Per Year (lbs):	Existing Tree Atmospheric Carbon Reduction On Site Per Year (lbs)	Calculation	New Tree Atmospheric Carbon Reduction On Site Per Year (lbs)
23,378	12,439	23,378 - 12,439 =	10,939

**Table 1.5: Street Tree Stormwater Runoff Interception Per Year - Total**

Species	Average DBH (inches)	Land Use	Stormwater Runoff Interception Per Year (gal)	# of Trees	Calculation	Total Stormwater Runoff Interception by Species Per Year (gal)
Chinquapin Oak <i>Quercus muehlenbergii</i>	1.40	Industrial or Large Commercial Business	17	10	17 x 10 =	170
Valley Forge Elm <i>Ulmus Americana</i> 'Valley Forge'	4.93	Industrial or Large Commercial Business	130	30	130 x 30 =	3,900
Honey Locust <i>Gleditsia triacanthos</i>	10.31	Industrial or Large Commercial Business	829	32	829 x 32 =	26,528
American Sycamore <i>Platanus occidentalis</i>	3.58	Industrial or Large Commercial Business	124	2	124 x 2 =	248
Norway Maple <i>Acer platanoides</i>	14.64	Industrial or Large Commercial Business	1,354	1	1,354 x 1 =	1,354
Kentucky coffeetree <i>Gymnocladus dioica</i>	15.6	Industrial or Large Commercial Business	1,578	1	1,578 x 1 =	1,578
Swamp White Oak <i>Quercus bicolor</i>	0.84	Industrial or Large Commercial Business	7	4	7 x 4 =	28
American Linden <i>Tilia americana</i>	17.19	Industrial or Large Commercial Business	1,665	1	1,665 x 1 =	1,665
Red Maple <i>Acer rubrum</i>	11.14	Industrial or Large Commercial Business	968	1	968 x 1 =	968
Live oak <i>Quercus virginiana</i>	3.82	Industrial or Large Commercial Business	137	1	137 x 1 =	137
						Total Stormwater Runoff Interception On Site Per Year (gal): 36,576

**Table 1.6: Stormwater Runoff Interception Per Year – Existing Street Trees**

Species	Average DBH (inches)	Land Use	Stormwater Runoff Interception Per Year (gal)	# of Trees	Calculation	Total Stormwater Runoff Interception by Species Per Year (gal)
Chinquapin Oak <i>Quercus muehlenbergii</i>	1.40	Industrial or Large Commercial Business	17	1	17 x 1 =	17

Honey Locust <i>Gleditsia triacanthos</i>	10.31	Industrial or Large Commercial Business	829	19	829 x 19 =	15,751
Norway Maple <i>Acer platanoides</i>	14.64	Industrial or Large Commercial Business	1,354	1	1,354 x 1 =	1,354
American Linden <i>Tilia americana</i>	17.19	Industrial or Large Commercial Business	1,665	1	1,665 x 1 =	1,665
Red Maple <i>Acer rubrum</i>	11.14	Industrial or Large Commercial Business	968	1	968 x 1 =	968
						Existing Tree Total Stormwater Runoff Interception On Site Per Year (gal): 19,755

Table 1.7: New Street Tree Stormwater Runoff Interception Per Year

Total Stormwater Runoff Interception On Site Per Year (gal):	Existing Tree Stormwater Runoff Interception On Site Per Year (gal)	Calculation	New Tree Stormwater Runoff Interception On Site Per Year (gal)
36,576	19,755	36,576 - 19,755 =	16,821

Equivalency for a single-passenger vehicle was calculated using the EPA's Greenhouse Gas Equivalencies Calculator.

*Sources:*

EPA. 2018. "Greenhouse Gas Equivalencies Calculator," *United States Environmental Protection Agency*.  
<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

Design Workshop. 2016. "Tree Plan."

i-Tree Streets. 2018. "i-Tree Streets." *i-Tree Software Suite*.  
<https://www.itreetools.org/streets/>

*Limitations:*

1. What was inventoried on site had some variation when compared with the tree plan provided by the design firm. Additionally, this calculation does not include carbon sequestration from other plant material on-site.
2. Average species DBH rather than each individual tree DBH was used for the calculations. Therefore, the result is an approximation, not an exact value.

- **Conserves 2,377 kWh of electricity annually by reducing adjacent buildings' heating and cooling costs through shade and wind protection from existing and newly-planted trees.**

*Methods:*

All tree species on site, both newly planted and original, had their circumference at breast height (4.5 ft. up from the tree base) and location inventoried. Circumference was then translated to average diameter of each species (Table 1.1). To calculate the conserved Kilowatt hours of electricity per year by these trees, i-Tree Planting software was utilized. This tool estimates



trees' ability to reduce buildings' heating and cooling costs through shading, wind protection, and evapotranspiration. When a specific species was not available to enter, the genus was used instead. The tree species, average DBH, distance to nearest building, side of building, building vintage, climate controls, tree health, and sun exposure were entered into this calculator (see Table 1.8). It should be noted that all building vintage was before 1950, tree health was excellent, and sun exposure was partial. The amount of conserved energy per year was then multiplied by the number of trees on site of that specific species. All totals were added up to obtain a total annual conserved energy value. A calculation of the existing tree count numbers was charted (see Table 1.9) to subtract from the on-site total to find the approximate kilowatt hours conserved by only newly-planted trees (see Table 1.10).

### Calculations:

*Table 1.8: Street Tree Kilowatt Hours Conserved and Dollars Saved - Total*

Species	Average DBH (in)	# of Trees Per Side of Building	Kilowatt Hours Conserved Per Year Per Building Side	Total Kilowatt Hours Conserved Per Species Per Year	Total Dollars Saved by Species Per Year (Kilowatt Hours x \$0.10)	Average Kilowatt Hours Conserved Per Tree Per Year
Chinquapin Oak <i>Quercus muehlenbergii</i>	1.40	N:1 S:2 E:4 W:3	N: 0.1 S: 4.4 E: 20.6 W: 69.9	95	\$9.50	9.5
Valley Forge Elm <i>Ulmus Americana</i> 'Valley Forge'	4.93	N:12 S:16 E:1 W:1	N: 37.3 S: 272.2 E: 20 W: 68.5	398	\$39.80	13.27
Honey Locust <i>Gleditsia triacanthos</i>	10.31	N:12 S:9 E:1 W:10	N:104.1 S: 362.8 E: 36.2 W: 993.6	1,496.7	\$149.67	46.77
American Sycamore <i>Platanus occidentalis</i>	3.58	S:1 W:1	S: 13.8 W: 64.1	77.9	\$7.79	38.95
Norway Maple <i>Acer platanoides</i>	14.64	E:1	E: 65.5	65.5	\$6.55	65.5
Kentucky coffeetree <i>Gymnocladus dioica</i>	15.6	E:1	E: 86.3	86.3	\$8.63	86.3
Swamp White Oak <i>Quercus bicolor</i>	0.84	N:1 W:2 E:1	N: 0.1 W: 36.3 E: 4	40.4	\$4.04	10.1
American Linden <i>Tilia americana</i>	17.19	E:1	E: 40.5	40.5	\$4.05	40.5
Red Maple <i>Acer rubrum</i>	11.14	N:1	N: 21.5	21.5	\$2.15	21.5
Live oak <i>Quercus virginiana</i>	3.82	W:1	W: 55.4	55.4	\$5.54	55.4
				Total Kilowatt Hours Conserved Per Year: 2377.2	Total Dollars Saved Per Year: \$237.72	

Table 1.9: Kilowatt Hours Conserved and Dollars Saved – Existing Street Trees

Species	Average DBH (inches)	Average Kilowatt Hours Conserved Per Year	# of Trees	Calculation	Total Kilowatt Hours Conserved by Species Per Year	Total Dollars Saved by Species Per Year (Kilowatt Hours x \$0.10)
Chinquapin Oak <i>Quercus muehlenbergii</i>	1.40	9.5	1	9.5 x 1	9.5	\$0.95
Honey Locust <i>Gleditsia triacanthos</i>	10.31	46.77	19	46.77 x 19	888.63	\$88.86
Norway Maple <i>Acer platanoides</i>	14.64	65.5	1	65.5 x 1	65.5	\$6.55
American Linden <i>Tilia americana</i>	17.19	40.5	1	40.5 x 1	40.5	\$4.05
Red Maple <i>Acer rubrum</i>	11.14	21.5	1	21.5 x 1	21.5	\$2.15
					Total Kilowatt Hours Conserved: 1,025.63	Total Dollars Saved: \$102.56

Table 1.10: Kilowatt Hours Conserved and Dollars Saved – New Street Trees

Total Kilowatt Hours Conserved and Dollars Saved:	Existing Tree Kilowatt Hours Conserved and Dollars Saved:	Calculation	New Tree Kilowatt Hours Conserved and Dollars Saved:
2377.2 kWh \$237.72	1,025.63 kWh \$102.56	2,377.2 - 1,025.63 = 1,351.57 237.72 - 102.56 = 135.16	1,351.57 kWh \$135.16

#### Sources:

Design Workshop. 2016. "Tree Plan."

i-Tree Planting. 2018. "i-Tree Planting." *i-Tree Software Suite*.

<https://planting.itreetools.org/app/location/>

#### Limitations:

1. Average species DBH rather than each individual tree DBH was used for the calculations. Therefore, the result is an approximation, not an exact value.

## 2. Social Benefits

- **Improves perception of pedestrian safety and comfort for 67% of 63 surveyed users who had visited the corridor before reconstruction.**

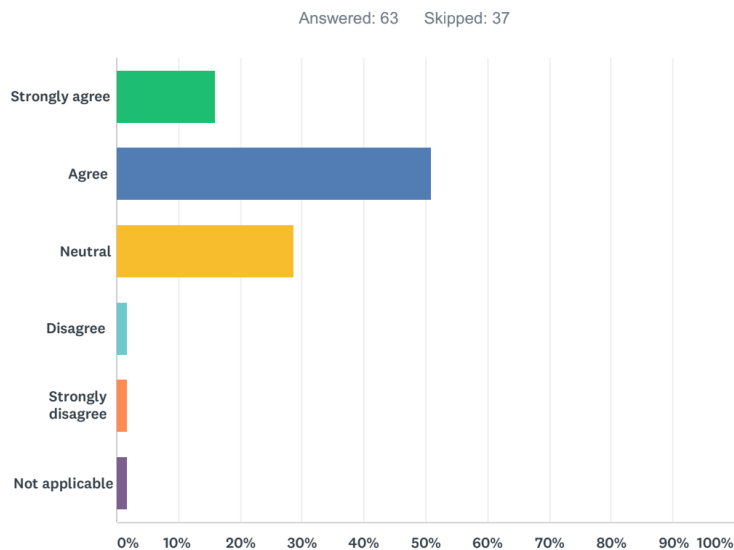
#### Methods:

By means of a 2018 survey, users who have experienced the P Street Corridor both before and after reconstruction were asked specific comparative questions. One survey question asked

returning users to indicate whether their perceived level of safety increased or decreased after reconstruction.

*Figure 2.2: User Perception of Street Safety. Author: SurveyMonkey*

Q16 I feel safer and more comfortable using P Street as a pedestrian after the reconstruction



*Calculations:*

*Table 2.2: Returning Users That Feel Safer as Pedestrians*

"Agree"	"Strongly Agree"	Calculation	"Agree" or "Strongly Agree"
50.79%	15.87%	$50.79 + 15.87 =$	66.66%

*Sources:*

Survey Question 5 in the "Reflecting on the Renovation of P Street" section (see Appendix A).

*Limitations:*

1. Weather, time of day, and time of year can impact survey responses.

- **Reduced street crossing time for pedestrians from an average of 11.5 seconds to 6.9 seconds per crossing, a 40% reduction.**

*Methods:*

Crosswalk distances and signal times were measured at four locations; P Street (at 12th Street), O Street (at 12th Street), 12th (at P Street), and 12th (at O Street). These measurements are found below (see Table 2.3). At each of these crosswalks, five pedestrians were observed crossing. These crossing times were recorded and averaged (see Table 2.4). Because the pre-

construction P Street crossing area at 12th Street was approximately the same as O Street is currently, O Street crossing times were measured as a baseline to serve as a proxy for the pre-project condition. However, measurements of crossing 12th Street at both P Street and O Street offer a more accurate comparison as it is based upon two conditions on the same roadway. Calculating the percent reduction in crossing times for each comparison yielded the same result: 40%. Finally, crossing distance was divided by average crossing time at 12th Street on both P and O in order to identify the average crossing rate at each location.



Figure 2.3: Crosswalk Diagram Author: Brandon Zambrano

Calculations:

Table 2.3: Crosswalk Distances

	P Street @ 12th	O Street @ 12th	12th @ P Street	12th @ O Street
Distance (ft)	39'	65'	42'	57'

Table 2.4: Observed User Crossing Times

	P Street @ 12th	O Street @ 12th	12th @ P Street	12th @ O Street
Trial 1 (sec)	7	14	6	11
Trial 2 (sec)	7	14	8	12
Trial 3 (sec)	8	14	7	11
Trial 4 (sec)	9	11	6.5	12
Trial 5 (sec)	8	12	7	11.5
Average (sec)	7.8	13	6.9	11.5

Table 2.5: Crossing Time Reductions

Crossing P Street and O Street <sup>1</sup>	$(13-7.8)/13 \times 100 \rightarrow 40\% \text{ reduction}$
Crossing 12th @ P Street and O Street <sup>2</sup>	$6.9/11.5=0.6 \rightarrow 1-0.6=0.4 \rightarrow 40\% \text{ reduction}$

<sup>1</sup> Previous to construction, P Street closely resembled O Street in street width and crosswalks

<sup>2</sup> Comparing the crossing times on 12th St @ both P and O is a more accurate measurement of crossing time reduction because it compares two crossings on a single roadway

Table 2.6: Rate of Crossing Per Second

	Crossing Distance (ft)	Average Crossing Time (sec)	Crossing Rate (ft/sec)
Crossing 12th @ O Street	57	11.5	4.96
Crossing 12th @ P Street	42	6.9	6.09

#### Sources:

On-site observations using measuring tape and a digital timer.

#### Limitations:

1. Perception of space and safety may change how fast a user walks.
2. Variation in personal habits of pedestrians observed may affect the average walking speed accuracy.

- **Improved user perception of the appearance of P Street, with 80% of 100 surveyed visitors rating the street's appearance as "good" or "very good" as compared to 23% before the redesign.**

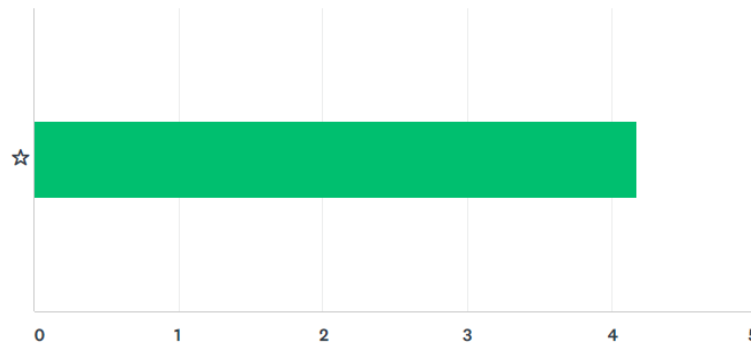
#### Methods:

The design firm's initial user survey at the time of the Master Plan asked users to rate P Street as either very poor, poor, neutral, good, or very good. By asking the identical question on a 2018 post project survey, a direct comparison of survey results was made.

Figure 2.1: User Perception Results. Author: SurveyMonkey

### Q9 How would you rate the appearance of P Street today?

Answered: 100 Skipped: 0



	VERY POOR	POOR	NEUTRAL	GOOD	VERY GOOD	TOTAL	WEIGHTED AVERAGE
☆	0.00%	2.00%	18.00%	42.00%	38.00%	100	4.16
	0	2	18	42	38		

Based on a weighted average, 2018 survey respondents perceived the site 40% more positively than pre-project survey respondents.

Calculations:

Table 2.1: Appearance Ratings

	Very Poor (1)	Poor (2)	Neutral (3)	Good (4)	Very Good (5)	Weighted Average Rate Calculation	Weighted Average Rate (Scale of 1 to 5)
Pre-project Survey Results	3%	16%	57%	22%	1%	$(1 \times 3) + (2 \times 16) + (3 \times 57) + (4 \times 22) + (5 \times 1) = 299 / 100 = 2.99$	2.99
2018 Survey Results	0%	2%	18%	42%	38%	$(1 \times 0) + (2 \times 2) + (3 \times 18) + (4 \times 42) + (5 \times 38) = 416 / 100 = 4.16$	4.16
							<b>Calculation:</b> 4.16 $- 2.99 = 1.17 \rightarrow$ $1.17 / 2.99 = .3913$
							<b>Improvement in User Perception Rating: 39.13%</b>

Sources:

Survey Question 2 in the “Current Use and Perception of P Street” Segment (see Appendix A).

Limitations:

1. Weather, time of day, and time of year can impact survey responses.

### 3. Economic Benefits\*

\* Reference Appendix B for a locally-owned street front property methodology with inconclusive results

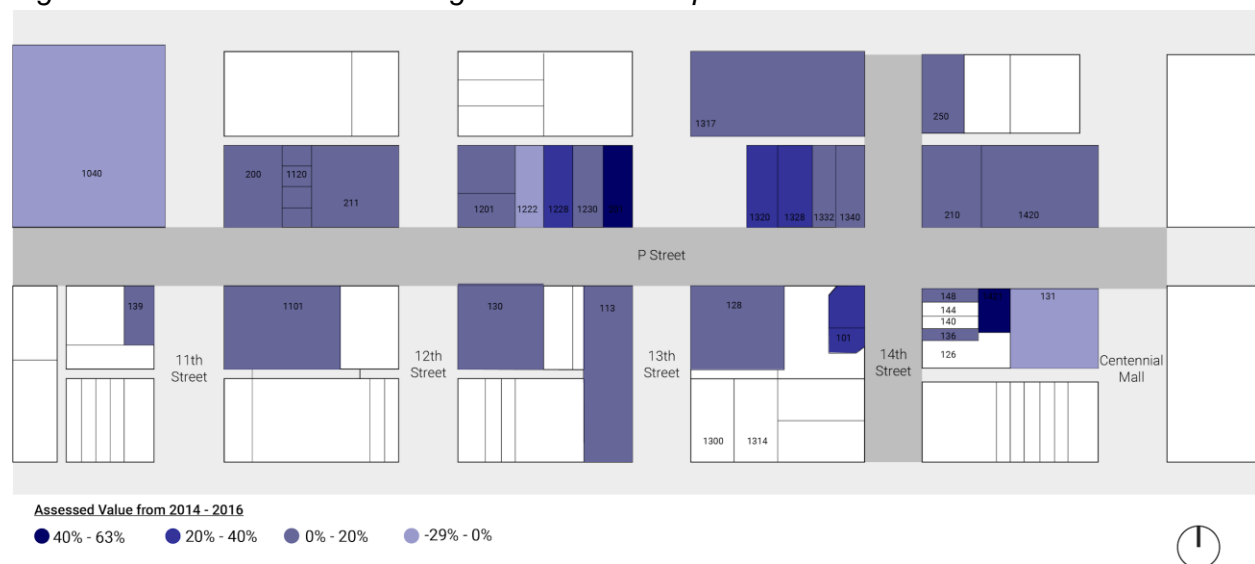
- **Contributed to an 11.2% increase in assessed value for properties on the P Street Corridor from 2014 to 2018.**

#### Methods:

With increased popularity and traffic, property values along the corridor have increased. Obtained from the Lancaster County GIS Viewer, the corridor's private property assessed values were recorded for 2014 (year of construction) and 2018 (see Table 3.2). Properties under construction were not included because of their temporary decrease in property value (this only applied to one property along the corridor). A direct comparison was made between the 2014 and 2018 assessed property values to obtain a percent increase in assessed value (see Table 3.3).

Figure 3.2: Assessed Value Changes for Private Properties

Author: Brandon Zambrano



#### Calculations:

Table 3.2: Property Assessed Values Pre and Post Project: 2014 and 2018

Property Address	Business(es) and/or Features on Property	2014 Total Assessed Value (Land + Buildings)	2018 Total Assessed Value (Land + Buildings)	Difference (2018 - 2014)
1040	Embassy Suites	22,300,400	21,871,400	-429,000, -2%
200	Misty's	821,100 <sup>1</sup>	932,900	111,800, +12%
1120	Husker Headquarters	152,200	178,500	26,300, +15%

211	T Mobile Qdoba Panera	688,600	745,400	56,800, +8%
139	YMCA	646,600 <sup>2</sup>	767,900	121,300, +16%
1101	Marcus Theaters	7,193,000	7,563,800	370,800, +5%
1202	Swanson + Russell	1,084,500	1,295,800	211,300, +16%
1228	Lan House Toppers	1,275,100	1,869,600	594,500, +32%
1230	Five Guys	694,500	785,000	90,500, +12%
201	Fly Fitness Brown Immigration Law	688,600	1,272,200	583,600, +46%
130	Starbucks Threads Footloose and Fancy	2,444,600	2,636,400	191,800, +7%
113	Wells Fargo + Parking Garage	14,604,000	17,275,000	2,671,000, +15%
128	Rococo Theater	1,139,700	1,192,400	52,700, +4%
128	Captain's Chair	39,500	41,800	2,300, +6%
128	Ruby's Begonias	39,500	41,800	2,300, + 6%
101	Jake's Cigars	401,300	492,100	90,800, +18%
1300	Tower Square Plaza	284,000 <sup>2</sup>	511,200	227,200, +44%
1320	Operdorse Bulu Box Bison Witches The Coffee House	1,069,900	1,527,000	457,100, +30%
1328	Buffalo Wild Wings	490,100	725,800	235,700, +32%
1332	Stogies Bar	339,000	404,900	65,900, +16%
1340	Canes Foundry Non Profit	1,702,500	1,883,100	180,600, +10%
1317	Larson Building	1,139,700	1,192,400	52,700, +4%
250	NBC Nebraska Bank of Commerce	588,200	692,100	103,900, +15%
210	Jersey Mike's Subs Freezing Thai Rolled Ice Cream Chezhay Noodles and Co Wahoo's (Vacant)	1,566,300	1,702,800	136,500, +8%
126	Honest Abe's	830,500	984,100	153,600, +16%
136	The Zoo Bar	114,100	135,200	21,100, +16%
148	The Post and Nickel	188,600	212,600	24,000, +11%
1421	1421 P Street Apts.	365,300	982,500	617,200, +63%
		<b>2014 Total Assessed Value: \$62,891,400</b>	<b>2018 Total Assessed Value: \$69,915,700</b>	<b>Total Increase in Assessed Value: \$7,024,300</b>

<sup>1</sup> 2017 Value (earliest recorded assessed value available for the property)

<sup>2</sup> 2015 Value (earliest recorded assessed value available for the property)

*Table 3.3: Increase in Assessed Value*



2014 Total Assessed Value	2018 Total Assessed Value	Total Increase in Assessed Value	Calculation	% Increase in Assessed Value
\$62,891,400	\$69,915,700	\$7,024,300	$\$7,024,300 / \$62,891,400 =$	$.11169 = 11.17\%$

Sources:

City of Lincoln/Lancaster County, NE. GIS Viewer: ESRI.

<http://maps.lincoln.ne.gov/default/index.html?viewer=GISViewer>

Limitations:

1. Property values along the corridor may have increased due to other factors, such as university housing demands and inflation.
2. A few properties did not have a recorded assessed value for 2014. Misty's had 2017 as the earliest assessed value. The YMCA and Tower Square Plaza had an earliest recorded value in 2015. These earliest recorded values were entered in place of a 2014 value for these properties, resulting in slightly skewed data.

- **Reduced ground floor vacancy rates for street front properties from 5.5% to 2.3%.**

Methods:

All ground floor street front properties along the P Street Corridor were identified as either "Occupied" or "Vacant" (see Table 3.1) via an on-site inventory observation and internet investigation, with only 1 vacant property identified. One area under construction (location 10 in the chart below) was not considered vacant because there is an intended use upon completion. The total number of vacant properties was divided by the total number of properties to obtain a vacancy rate (see Table 3.2).

A vacancy rate on P Street of 5.50% was provided by the primary design firm's pre-project study during the formation of the Master Plan and used the same criteria, with areas under construction not being considered vacant.

Figure 3.1: Ground Floor Vacancy Author: Brandon Zambrano



*Calculations:*

*Table 3.1: 2018 Vacancy Rate\**

Total # of Properties	Total # of Vacant Properties	Calculation	Vacancy Rate
43	1	1 / 43 =	2.33%

\*See Appendix C: 2018 Vacancy Status for detailed inventory

*Sources:*

Design Workshop. "Pre-Project Study."

Olberding, Matt. 2018. "Bizz Buzz: Restaurant Closings Include Perkins Location, Downtown Taco Shop," *Lincoln Journal Star*.

[https://journalstar.com/blogs/biz-buzz/biz-buzz-restaurant-closings-include-perkins-location-downtown-taco-shop/article\\_2f831634-e0ce-5105-b28a-a9c6e0b7163c.html](https://journalstar.com/blogs/biz-buzz/biz-buzz-restaurant-closings-include-perkins-location-downtown-taco-shop/article_2f831634-e0ce-5105-b28a-a9c6e0b7163c.html)

*Limitations:*

1. The primary design firm's inventoried study area covered more blocks than the final built project, which may impact the overall comparison.
2. Areas under construction were not considered vacant because there is an intended use upon completion. It is unknown how many areas were under construction as part of the primary design firm's evaluation.

---

## 4. Cost Comparison

- ***The estimated cost for the materials and installation of a single immature 2" caliper street tree with a modular suspended pavement system is approximately \$5,725, while traditional installation of the same tree is estimated to cost approximately \$350. However, the appraised value for a mature street tree in good soil conditions as provided by a modular suspended pavement system is approximately 27.4 times higher than at initial planting (from \$350 initial to \$9,590 mature) as compared to an increase in value of only 1.5 times for a conventionally planted street tree (from \$350 initial to \$525 mature).***

*Methods:*

The added cost of tree planting with a Silva Cell installation was weighed against the increased appraised value of a mature tree planted using Silva Cells vs. the appraised value of a mature tree planted conventionally in smaller tree pits in Lincoln's urban streetscape. In our assessment below, "caliper" is a measurement that describes tree size at planting, and "DBH" (diameter at breast height) is used to document a tree's growth post-installation.

The local firm on the project, Clark Enersen Partners, provided their cost per cell, average number of cells per street tree, and average cost per new 2" caliper tree in Lincoln, NE (see Table A). To identify the approximate increase in appraised value<sup>1</sup> for a tree planted in Silva Cells versus a conventionally planted tree, a tree appraisal value chart was created by referencing James Urban's 2008 book *Up By Roots*. Factors that increased the overall appraised value were determined by using willow oak data in Urban's chart. The willow oak depicted in Urban's chart was selected because of its similarity to P Street's intended canopy size for large shade trees in the form of honey locust and elm along with the site's compacted urban soil conditions (see Table B and Figure A). The factors that affected the increase in appraised value were then combined with Clark Enersen's cost data to calculate approximate appraised values for P Street's street trees with and without the installation of Silva Cells (see Table C).

The installation of a single 2" caliper street tree with a Silva Cell system had an upfront cost in Lincoln in 2014 of approximately \$5,725. Conventional tree installation (without a Silva Cell system) for a single 2" caliper street tree in Lincoln would have had a much lower upfront cost of approximately \$350. However, because Silva Cells provide larger soil volumes for street trees that prevent soil compaction, maximize water retention, and increase the lifecycle of an urban tree, the appraised value in mature street trees with Silva Cells is much higher than that of conventionally planted trees without Silva Cells. Mature urban street trees that have grown in better soil conditions have a higher DBH (approximately 3 times larger), larger canopy (approximately double in size), lower rate of replacement, and increased ability to manage stormwater. The appraised value for a mature street tree in good soil conditions, such as that achieved through the use of Silva Cells, is approximately 27.4 times higher than at initial planting (\$9,590) as compared to an increase of only 1.5 times in a conventionally planted street tree (\$525). Although the upfront cost with Silva Cell installation was much higher, the City of Lincoln felt that the higher tree canopy, faster growth rates, increased lifecycle, and higher aesthetic value made this Silva Cell installation a worthwhile investment.

1. Appraised value was determined based upon the International Society of Arboriculture Guide to Plant Appraisal. The appraisal process has many variations based on the uniqueness of each case. Therefore, the appraised values referenced in this cost comparison are generalized to convey an approximate appraisal increase. Reference the full appraisal guide below in "Sources."

### Calculations:

**Table A: Base Tree and Silva Cell Cost Data<sup>1</sup>**

Average # of Silva Cells per tree <sup>2</sup>	43
Cost per cell	\$125
Average cost for tree and installation per new 2" caliper tree in Lincoln, NE	\$350

1 The data presented in this chart comes from The Clark Enersen Partners, local firm for the P Street project

2 A range of 40-46 cells was installed per tree with 1,530 cells installed total

**Table B: Appraised Value Increase of Willow Oak 3.5" Caliper in a Commercial District<sup>1</sup>**

	Appraised Value	Increase in Appraised Value from Newly Planted to Mature
Newly planted	\$720	-----

Mature with poor soil conditions (10" caliper)	\$1,100	1.5x
Mature with good soil conditions (30" caliper)	\$19,700	27.4x

<sup>1</sup> The appraised values of Willow Oak 3.5" caliper were obtained from James Urban's 2008 book *Up by Roots*. These appraisal increase factors of the Willow Oak most closely represent the urban street conditions of P Street along with the intended canopy of large shade trees. Below is the chart from *Up by Roots*

**Figure A: Tree Appraisal Value Affected by Soil Conditions<sup>1</sup>**

**Table 2.8.2. Appraised value of various trees as affected by soil conditions.  
(Appraisals prepared by Keith Pitchford using the *Guide for Plant Appraisal* 2005 values.)**

Description	Appraised value
<b>Newly planted tree</b>	
• Willow oak, 3.5-inch dbh, in good condition in a residential front yard	\$840
• Single-stemmed crabapple, 3.5-inch dbh, in good condition in a residential front yard	\$720
• Willow oak, 3.5-inch dbh, in good condition; street tree in a commercial district	\$720
• Single-stemmed crabapple, 3.5-inch dbh, in good condition; street tree in a commercial district	\$660
<b>Mature tree at site with good soil conditions</b>	
• Willow oak, 30-inch dbh, in good condition in a residential front yard	\$24,300
• Single-stemmed crabapple, 15-inch dbh in good condition in a residential front yard	\$5,000
• Willow oak, 30-inch dbh, in good condition; street tree in a commercial district	\$19,700
• Single-stemmed crabapple, 15-inch dbh, in good condition; street tree in a commercial district	\$4,950
<b>Mature tree at sites with poor soil conditions</b>	
These trees were assumed to grow at a much slower rate and to be in a stressed condition.	
• Willow oak, 10-inch dbh, in poor condition in a residential front yard	\$1,170
• Single-stemmed crabapple, 8-inch dbh, in poor condition in a residential front yard	\$700
• Willow oak, 10-inch dbh, in poor condition; street tree in a commercial district	\$1,100
• Single-stemmed crabapple, 8-inch dbh, in poor condition; street tree in a commercial district	\$700

<sup>1</sup> Urban, James. 2008. "Up By Roots," International Society for Arboriculture

**Table C: P Street Tree Appraised Value Calculations**

Step	Calculation	Outcome
1. Appraised value increase factor for <b>poor</b> soil conditions x cost of new 2" caliper tree with installation (without Silva Cells)	1.5 x \$350	= \$525
2. Appraised value increase factor for <b>good</b> soil conditions x cost of new 2" caliper tree (with Silva Cells)	27.4 x \$350	= \$9,590

#### Sources:

Council of Tree and Landscape Appraisers. 2017. "Guide to Plant Appraisal 10th Edition (Draft)," *International Society of Arboriculture*.

<https://www.isa-arbor.com/Portals/0/Assets/PDF/News/2017-01-18-draft-10th-edition-guide-for-plant-appraisal.pdf>

Pitchford Associates. 2018. "Tree Inventories/Appraisals," *Pitchford Associates Arboriculture + Environmental Consulting*.

<http://pitchfordtrees.com/?services=inventories>

Urban, James. 2008. "Up By Roots," *International Society for Arboriculture*.

Urban, James, and Leda Marritz. 2015. "Growth Rates and Performance of Trees in Silva Cells," *DeepRoot Green Infrastructure*.

<https://www.deeproot.com/silvapdfs/resources/SC2/articles/Growth-Rates-and-Perform>

*Limitations:*

The cost comparison above is an approximation, not an exact calculation, for various reasons:

1. Because no willow oaks were planted on P Street, the factors influencing the overall appraised value are not exact. They are instead based upon similar street conditions (commercial district with compacted soils) and intended canopy (comparable canopy size to the trees on P Street; honeylocust and elms).
  2. The methodology described in the International Society of Arboriculture Guide to Plant Appraisal is very flexible and unique case by case. Therefore the factors playing into the \$750 starting appraisal value for a newly planted willow oak may not match the factors contributing to the initial P Street tree value (combination of tree cost and installation cost). Instead, the significance of this cost comparison is based primarily upon the factor increase rather than the starting values.
  3. Installation costs of the Silva Cells are not considered in calculations.
- 

## 5. Appendix A: P Street Survey and Results

### **P STREET [between 11<sup>th</sup>street and Centennial Mall] USER SURVEY**

☐ By selecting this box, I agree to participate in this survey and am aware that my personal information will not be collected.

#### **ABOUT YOU**

- Select your age group:
  - 18-25
  - 26-35
  - 36-45
  - 46-55
  - 56-65
  - 65+
- I have lived in the Lincoln area for...
  - 3 years or less
  - 3 to 5 years
  - 5 to 10 years
  - 10 to 20 years
  - More than 20 years
  - I am visiting from out of town
- Select one of the following as your best descriptor:
  - I am a student at UNL
  - I am a faculty or staff member at UNL
  - I work downtown
  - I live downtown
  - I live outside of the downtown but I shop downtown
  - I frequent the museums and entertainment venues downtown
  - I'm visiting from out of town
- What time of day do you typically visit P Street? (select all that apply)
  - Early Morning: 6am-10am
  - Late Morning: 10am-12pm

- Early Afternoon: 12pm-2pm
- Late Afternoon: 3pm-5pm
- Evening: 5pm-7pm
- Night: 8pm-12am
- Other: \_\_\_\_\_
- When you visit P Street, how long do you typically stay?
  - 15 minutes or less
  - Half hour
  - 1-2 hours
  - 3+ hours
  - Other: \_\_\_\_\_
- I mostly travel to P Street via...
  - Bike
  - Car
  - Bus
  - Skateboard
  - On foot (Walking)
  - On foot (Running/Jogging)
  - Other: \_\_\_\_\_
- Once I get to P Street, I move around...
  - On foot
  - By bike
  - By car
  - By skateboard
  - Other: \_\_\_\_\_

#### **CURRENT USE AND PERCEPTION OF P STREET**

- I utilize P Street and the surrounding district to... (select all that apply)
  - Dine
  - Visit bar and entertainment venues (nightlife)
  - Shop
  - Get to the Haymarket
  - Visit family oriented venues (museums, theaters, etc)
  - Run errands
  - Work
  - I live here
  - I own a business here
  - I own property here
  - Worship
  - Hang out and people watch
  - Pass through on my way elsewhere

Specify: \_\_\_\_\_

- How would you rate the appearance of P Street today?
  - Very good
  - Good
  - Neutral
  - Poor
  - Very Poor
- Why did you give P Street this rating?
- If neutral or less, what would improve your perception of P Street?

#### **REFLECTING ON THE RENOVATION OF P STREET**

- Are you familiar with what P Street looked like before the 2014 renovation?
- Yes
- No

**If you answered “Yes,” please continue to fill out the following questions. If you answered “No,” please skip to the next section titled “VEHICULAR PARKING”**

- Do you find walking on P Street easier or more difficult after the reconstruction? How much easier or more difficult? Circle one.
  - (Much More Difficult) -5 -4 -3 -2 -1 0 1 2 3 4 5 (Much Easier)
  - Not Applicable
- Do you find biking on P Street easier or more difficult after the reconstruction? How much easier or more difficult? Circle one.
  - (Much More Difficult) -5 -4 -3 -2 -1 0 1 2 3 4 5 (Much Easier)
  - Not Applicable
- Do you find driving on P Street easier or more difficult after the reconstruction? How much easier or more difficult? Circle one.
  - (Much More Difficult) -5 -4 -3 -2 -1 0 1 2 3 4 5 (Much Easier)
  - Not Applicable
- I feel safer and more comfortable using P Street as a pedestrian after the reconstruction
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
  - Other: \_\_\_\_\_
  - Not Applicable
- I feel safer and more comfortable using P Street as a biker after the reconstruction
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
  - Other: \_\_\_\_\_
  - Not Applicable
- I feel safer and more comfortable using P Street as a driver after the reconstruction
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
  - Other: \_\_\_\_\_
  - Not Applicable
- How often do you shop on P Street after the reconstruction?
  - (Much Less Often) -5 -4 -3 -2 -1 0 1 2 3 4 5 (Much More Often)
  - Not Applicable
- How often do you dine on P Street after the reconstruction?
  - (Much Less Often) -5 -4 -3 -2 -1 0 1 2 3 4 5 (Much More Often)
  - Not Applicable
- How is the traffic after the reconstruction?
  - (Much Faster) -5 -4 -3 -2 -1 0 1 2 3 4 5 (Much Slower)
  - Not Applicable
- The single most important improvement made to P Street was...
  - New plantings (trees, planting beds, etc)

- New street furniture (benches, bike racks, etc)
- Safer crosswalks
- Better signage and wayfinding
- Better lighting
- More on-street parking
- Dedicated bicycling space in roadway
- Wider sidewalks
- Traffic calming
- Other: \_\_\_\_\_

### **VEHICULAR PARKING**

- Within the P Street District, I feel the quantity of parking is...
  - Sufficient along P Street
  - Should be reduced along P Street to add more public space for pedestrian activities like outdoor eating/cafes
  - Should be increased for commercial purposes along P Street
  - Should be increased in the form of parking garages
  - I don't know. I would like to learn more.
- Where do you find yourself typically parking?
  - Daily parking at a garage
  - Monthly parking at a garage
  - Best available parking space
  - Best available parallel or angled parking space
  - Best available angled parking space
  - Not applicable as I typically use my bicycle
  - Not applicable as I typically walk
  - Not applicable as I typically use public transportation
  - Other \_\_\_\_\_

### **BICYCLING**

**If you don't bike on P Street, please skip to the next section titled "PEDESTRIAN ZONE"**

- How would you rate your satisfaction with the amount of bike parking on P Street?
  - Very good
  - Good
  - Neutral
  - Poor
  - Very Poor
- How would you rate your satisfaction with the location of bike parking on P Street?
  - Very good
  - Good
  - Neutral
  - Poor
  - Very Poor
- If you selected "Poor" or "Very Poor," where would be better locations for the bike parking?

### **THE PEDESTRIAN ZONE**

- Do you feel safer crossing the street?
  - Yes
  - No
  - I don't know
- When you are walking on P Street, what safety issues concern you most? (select all that apply)
  - Crossing 9th and 10th Street
  - Not enough points of interest
  - Narrow sidewalks

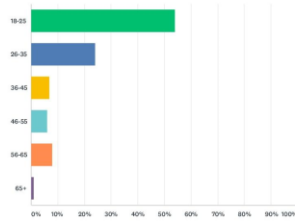


- Too many driveways
- Fast traffic
- Crossing P Street
- Other
- Crossing other side streets
- Long wait for crossing lights
- Personal security
- How would you rate your satisfaction with the sidewalk widths on P Street? Why?
- Very good
- Good
- Neutral
- Poor
- Very Poor

P Street User Survey

Q1 Select your age group:

Answered: 100 Skipped: 0



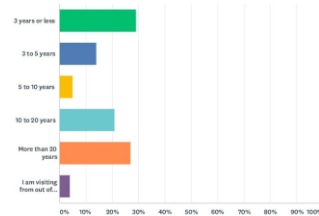
ANSWER CHOICES	RESPONSES
18-25	54.00% 54
26-35	24.00% 24
36-45	7.00% 7
46-55	6.00% 6
56-65	8.00% 8
65+	1.00% 1
TOTAL	100

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P Street User Survey

Q2 I have lived in the Lincoln area for...

Answered: 100 Skipped: 0



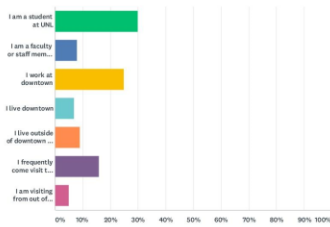
ANSWER CHOICES	RESPONSES
3 years or less	29.00% 29
3 to 5 years	14.00% 14
5 to 10 years	5.00% 5
10 to 20 years	21.00% 21
More than 20 years	27.00% 27
I am visiting from out of town	4.00% 4
TOTAL	100

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P Street User Survey

Q3 Select one of the following as your best descriptor:

Answered: 100 Skipped: 0



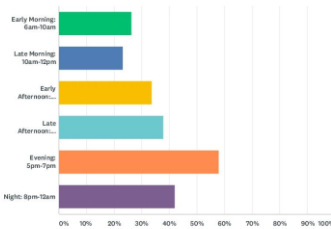
ANSWER CHOICES	RESPONSES
I am a student at UNL	30.00% 30
I am a faculty or staff member at UNL	8.00% 8
I work at downtown	25.00% 25
I live downtown	7.00% 7
I live outside of downtown but I shop downtown	9.00% 9
I frequently come visit the museums and entertainment venues downtown	16.00% 16
I am visiting from out of town	5.00% 5
TOTAL	100

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P Street User Survey

Q4 What time of day do you typically visit P street?

Answered: 95 Skipped: 5



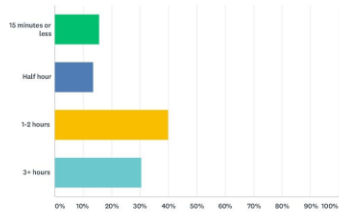
ANSWER CHOICES	RESPONSES
Early Morning: 6am-10am	26.32% 25
Late Morning: 10am-12pm	23.16% 22
Early Afternoon: 12pm-2pm	33.68% 32
Late Afternoon: 3pm-5pm	37.89% 36
Evening: 5pm-7pm	57.89% 55
Night: 8pm-12am	42.11% 40
Total Respondents: 95	

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P Street User Survey

Q5 When you visit P Street, how long do you typically stay?

Answered: 95 Skipped: 5

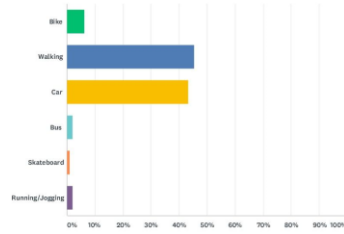


ANSWER CHOICES	RESPONSES
15 minutes or less	15
Half hour	13
1-2 hours	38
3+ hours	29
TOTAL	95

P Street User Survey

Q6 I mostly travel to P Street via

Answered: 97 Skipped: 3



ANSWER CHOICES	RESPONSES
Bike	6
Walking	44
Car	42
Bus	2
Skateboard	1
Running/Jogging	2
TOTAL	97

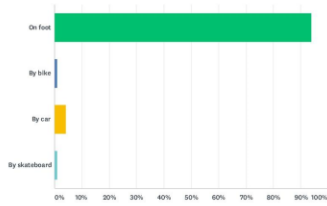
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P Street User Survey

Q7 Once I get to P Street, I move around...

Answered: 98 Skipped: 2



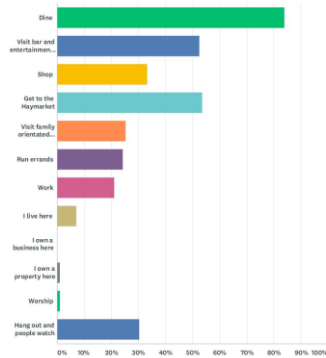
ANSWER CHOICES	RESPONSES
On foot	82
By bike	1
By car	4
By skateboard	1
TOTAL	98

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P Street User Survey

Q8 I utilize P street and the surrounding district to... (select all that apply)

Answered: 99 Skipped: 1



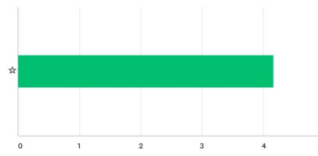
ANSWER CHOICES	RESPONSES
Dine	83
Visit bar and entertainment venues (nightlife)	52
Shop	33
Get to the Haymarket	53
Visit family orientated venues (museums, theaters, etc.)	25
Run errands	24
Work	21
I live here	7
I own a business here	0
I own a property here	0
Worship	0

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P Street User Survey

Q9 How would you rate the appearance of P Street today?

Answered: 100 Skipped: 0



	VERY POOR	POOR	NEUTRAL	GOOD	VERY GOOD	TOTAL	WEIGHTED AVERAGE
☆	0.00%	2.00%	18.00%	42.00%	38.00%	100	4.16
	0	2	18	42	38		

P Street User Survey		
I own a business here	0.00%	0
I own a property here	1.01%	1
Workshop	1.01%	1
Hang out and people watch	38.36%	39
Total Respondents:	99	

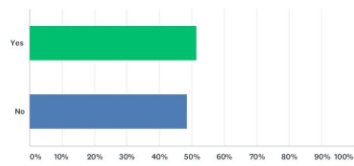
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P Street User Survey

Q12 Are you familiar with what P Street looked like before the 2014 renovation?

Answered: 99 Skipped: 1



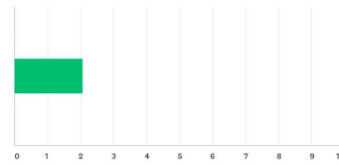
ANSWER CHOICES	RESPONSES
Yes	51.52% 51
No	48.48% 48
TOTAL	99

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P Street User Survey

Q13 Do you find walking on P street easier or more difficult after the reconstruction? -5 being difficult and 5 being easier.

Answered: 58 Skipped: 42



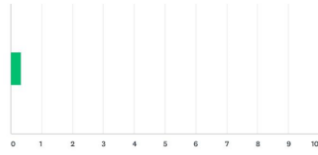
ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	2	120	58
Total Respondents: 58			

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P Street User Survey

Q14 Do you find biking on P street easier or more difficult after the reconstruction? -5 being difficult and 5 being easier.

Answered: 36 Skipped: 64

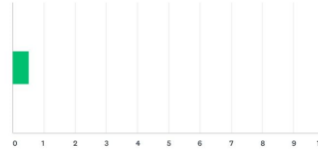


ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
0	0	12	36
Total Respondents: 36			

P Street User Survey

Q15 Do you find driving on P street easier or more difficult after the reconstruction? -5 being difficult and 5 being easier.

Answered: 53 Skipped: 47



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
1	1	28	53
Total Respondents: 53			

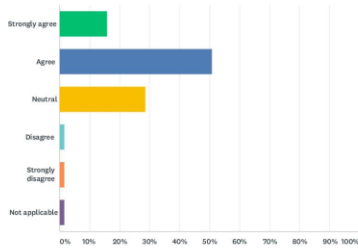
15 / 32

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P Street User Survey

Q16 I feel safer and more comfortable using P Street as a pedestrian after the reconstruction

Answered: 63 Skipped: 37



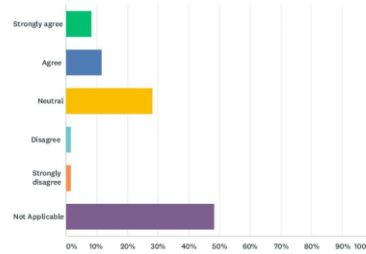
ANSWER CHOICES	RESPONSES
Strongly agree	15.67%
Agree	50.79%
Neutral	28.57%
Disagree	1.59%
Strongly disagree	1.59%
Not applicable	1.59%
TOTAL	63

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P Street User Survey

Q17 I feel safer and more comfortable using P Street as a biker after the reconstruction

Answered: 60 Skipped: 40



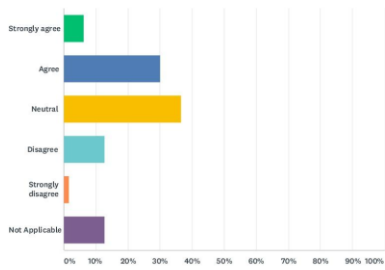
ANSWER CHOICES	RESPONSES
Strongly agree	8.33%
Agree	11.67%
Neutral	28.33%
Disagree	1.67%
Strongly disagree	1.67%
Not Applicable	48.33%
TOTAL	60

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P Street User Survey

Q18 I feel safer and more comfortable using P Street as a driver after the reconstruction

Answered: 63 Skipped: 37



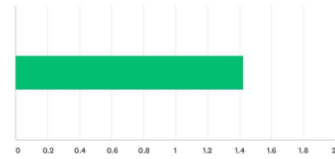
ANSWER CHOICES	RESPONSES	
Strongly agree	6.35%	4
Agree	30.16%	19
Neutral	36.51%	23
Disagree	12.70%	8
Strongly disagree	1.59%	1
Not Applicable	12.70%	8
TOTAL		63

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P Street User Survey

Q19 How often do you shop on P Street after the reconstruction

Answered: 52 Skipped: 48



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	1	74	52
Total Respondents: 52			

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P Street User Survey

Q20 How often do you dine on P Street after the reconstruction?

Answered: 58 Skipped: 42



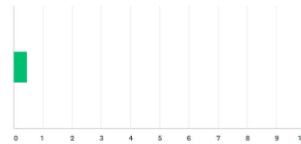
ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	3	151	58
Total Respondents: 58			

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P Street User Survey

Q21 How is traffic after the reconstruction?

Answered: 56 Skipped: 44



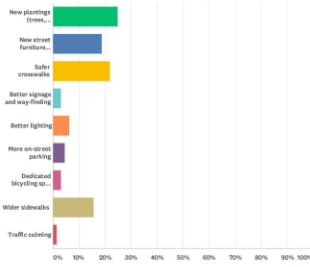
ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	0	26	56
Total Respondents: 56			

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P Street User Survey

Q22 The single most important improvement made to P Street was...

Answered: 64 Skipped: 36



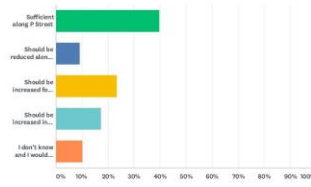
ANSWER CHOICES	RESPONSES
New plantings (trees, etc.)	25.00% 16
New street furniture (benches, bike racks, etc.)	18.75% 12
Safer crosswalks	21.88% 14
Better signage and way-finding	3.13% 2
Better lighting	6.25% 4
More on-street parking	4.69% 3
Dedicated bicycling space in roadway	3.13% 2
Wider sidewalks	13.63% 10
Traffic calming	1.56% 1
TOTAL	64

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P Street User Survey

Q23 Within the P Street District, I feel the quantity of parking is...

Answered: 96 Skipped: 2



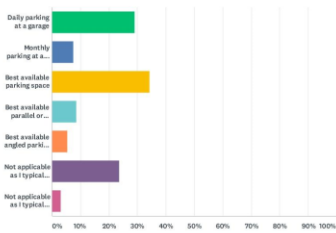
ANSWER CHOICES	RESPONSES
Sufficient along P Street	39.58% 38
Should be reduced along P Street to add more public space for pedestrian activities like outdoor seating/cafes	9.38% 9
Should be increased for commercial purposes along P Street	23.47% 23
Should be increased in the form of parking garages	17.36% 17
I don't know and I would like to know more.	10.20% 10
TOTAL	96

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P Street User Survey

Q24 Where do find yourself typically parking?

Answered: 93 Skipped: 7



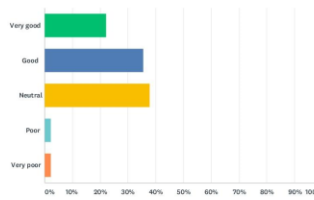
ANSWER CHOICES	RESPONSES
Daily parking at a garage	29.03% 27
Monthly parking at a garage	7.53% 7
Best available parking space	34.41% 32
Best available parallel or angled parking space	8.60% 8
Best available angled parking space	5.38% 5
Not applicable as I typically walk	23.66% 22
Not applicable as I typically use public transportation	3.23% 3
Total Respondents: 93	

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P Street User Survey

Q25 How would you rate your satisfaction with the amount of bike parking on P Street?

Answered: 45 Skipped: 55



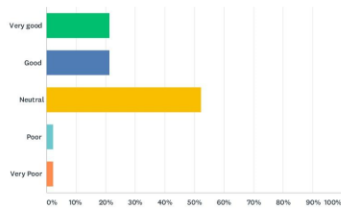
ANSWER CHOICES	RESPONSES
Very good	22.22% 10
Good	35.56% 16
Neutral	37.78% 17
Poor	2.22% 1
Very poor	2.22% 1
TOTAL	45

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P Street User Survey

Q26 How would you rate your satisfaction with the location of the bike parking on P Street?

Answered: 42 Skipped: 58



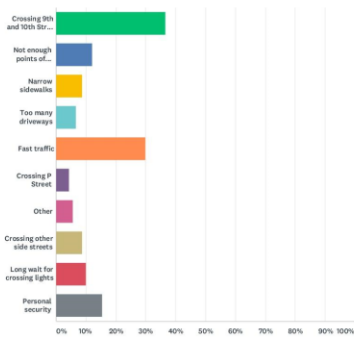
ANSWER CHOICES	RESPONSES
Very good	21.43% 9
Good	21.43% 9
Neutral	52.38% 22
Poor	2.38% 1
Very Poor	2.38% 1
TOTAL	42

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P Street User Survey

Q29 When you are walking on P Street, what safety issues concern you most? (select all that apply )

Answered: 90 Skipped: 10



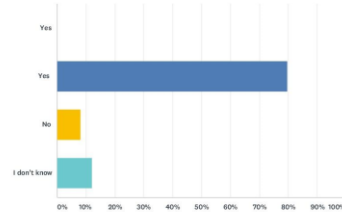
ANSWER CHOICES	RESPONSES
Crossing 9th and 10th St.	36.67% 33
Not enough points of interest	12.22% 11
Narrow sidewalks	8.89% 8
Too many driveways	6.67% 6
Fast traffic	30.00% 27
Crossing P Street	4.44% 4
Other	5.56% 5
Crossing other side streets	8.89% 8
Long wait for crossing lights	10.00% 9
Personal security	15.56% 14

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P Street User Survey

Q28 Do you feel safer crossing the street?

Answered: 99 Skipped: 1



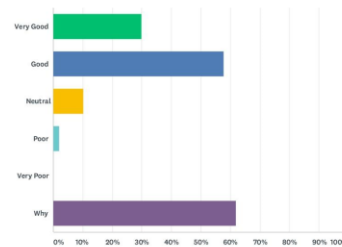
ANSWER CHOICES	RESPONSES
Yes	0.00% 0
Yes	79.80% 79
No	8.08% 8
I don't know	12.12% 12
TOTAL	99

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P Street User Survey

Q30 How would you rate your satisfaction with the sidewalk widths on P Street? Why?

Answered: 97 Skipped: 3



ANSWER CHOICES	RESPONSES
Very Good	29.90% 29
Good	57.73% 56
Neutral	10.31% 10
Poor	2.06% 2
Very Poor	0.00% 0
Why	61.86% 60
Total Respondents: 97	

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## 6. Appendix B: Locally Owned Street Front, No Significant Benefit Found

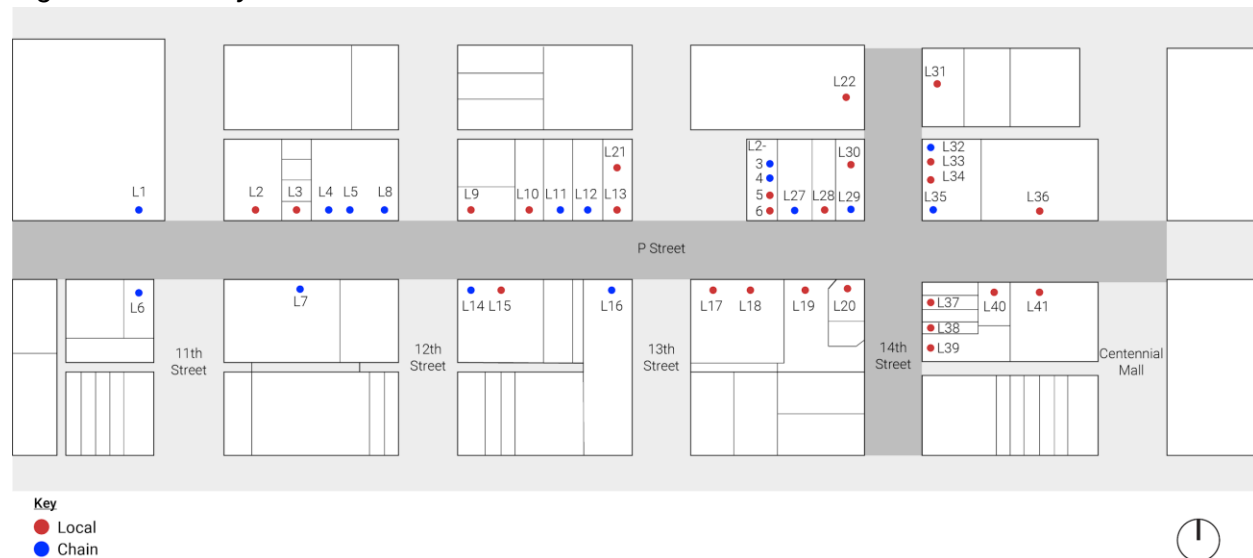
- **Increased locally-owned street front presence from 58% to 58.5%**

### Methods:

P Street Corridor is known for unique locally-owned stores and businesses which give the area a distinct character. Increased pedestrian traffic and dwell time may have lent itself to supporting new local businesses. All businesses along the corridor were recorded as either “Local” or “Chain” (see Table 5.1). Vacant properties and areas under construction were removed from this inventory. A direct comparison was made between a pre and post project count of locally-owned street front businesses (see Table 5.2). The primary design firm recorded a locally owned street front presence of 58% at the time of the Master Plan.

Figure 5.1: Locally Owned Street Front Presence

Author: Brandon Zambrano



### Calculations:

Table 5.1: Locally Owned Inventory

	Business Name	Local	Chain
Location 1	Embassy Suites		x
Location 2	Misty's	x	
Location 3	Husker Headquarters	x	
Location 4	T Mobile		x
Location 5	Qdoba		x
Location 6	YMCA		x
Location 7	Marcus Theaters		x
Location 8	Panera		x

Location 9	Swanson + Russell	x	
Location 10	Lan House	x	
Location 11	Toppers Pizza		x
Location 12	Five Guys		x
Location 13	Fly Fitness	x	
Location 14	Starbucks		x
Location 15	Threads Footloose and Fancy	x	
Location 16	Wells Fargo		x
Location 17	Rococo Theater	x	
Location 18	Captain's Chair	x	
Location 19	Ruby's Begonias	x	
Location 20	Jake's Cigars	x	
Location 21	Brown Immigration Law	x	
Location 22	Larson Building	x	
Location 23	Opendorse		x
Location 24	Bulu Box		x
Location 25	Bison Witches		x
Location 26	The Coffee House	x	
Location 27	Buffalo Wild Wings		x
Location 28	Stogies Bar	x	
Location 29	Canes		x
Location 30	Foundry Non-profit	x	
Location 31	NBC Nebraska Bank of Commerce	x	
Location 32	Jersey Mike's Subs		x
Location 33	Freezing Thai Rolled Ice Cream	x	
Location 34	Chezhay	x	
Location 35	Noodles and Co		x
Location 36	Lincoln Children's Museum	x	
Location 37	The Post and Nickel	x	
Location 38	The Zoo Bar	x	
Location 39	Honest Abe's	x	
Location 40	1421 P Street Apts.	x	
Location 41	Nebraska History Museum	x	
		<b>Total # of Locally Owned Businesses: 24</b>	<b>Total # of Chains:17</b>

*Table 5.2: Locally Owned Streetfront Presence*

Total # of Locally Owned Street fronts:	Total # of Street fronts:	% of locally owned streetfront
24	41	58.5%

*Sources:*

Design Workshop Pre-project Inventory

*Limitations:*

1. The baseline study area was much larger than the built project.

## 7. Appendix C: 2018 Vacancy Status

*Table 6.1: 2018 Vacancy Status*

	Business Name	Occupied	Vacant
Location 1	Embassy Suites	x	
Location 2	Misty's	x	
Location 3	Husker Headquarters	x	
Location 4	T Mobile	x	
Location 5	Qdoba	x	
Location 6	YMCA	x	
Location 7	Marcus Theaters	x	
Location 8	Panera	x	
Location 9	Swanson + Russell	x	
Location 10	(Apts. under construction)	x	
Location 11	Lan House	x	
Location 12	Toppers Pizza	x	
Location 13	Five Guys	x	
Location 14	Fly Fitness	x	
Location 15	Starbucks	x	
Location 16	Threads Footloose and Fancy	x	
Location 17	Wells Fargo	x	
Location 18	Rococo Theater	x	
Location 19	Captain's Chair	x	
Location 20	Ruby's Begonias	x	
Location 21	Jake's Cigars	x	
Location 22	Brown Immigration Law	x	

Location 23	Larson Building	x	
Location 24	Opendorse	x	
Location 25	Bulu Box	x	
Location 26	Bison Witches	x	
Location 27	The Coffee House	x	
Location 28	Buffalo Wild Wings	x	
Location 29	Stogies Bar	x	
Location 30	Canes	x	
Location 31	Foundry Non-profit	x	
Location 32	NBC Nebraska Bank of Commerce	x	
Location 33	Jersey Mike's Subs	x	
Location 34	Freezing Thai Rolled Ice Cream	x	
Location 35	Chezhay	x	
Location 36	Noodles and Co	x	
Location 37	Wahoo's Fish Tacos		x
Location 38	Lincoln Children's Museum	x	
Location 39	The Post and Nickel	x	
Location 40	The Zoo Bar	x	
Location 41	Honest Abe's	x	
Location 42	1421 P Street Apts.	x	
<b>Location 43</b>	Nebraska History Museum	x	
			<b>Total # of Vacant Properties: 1</b>