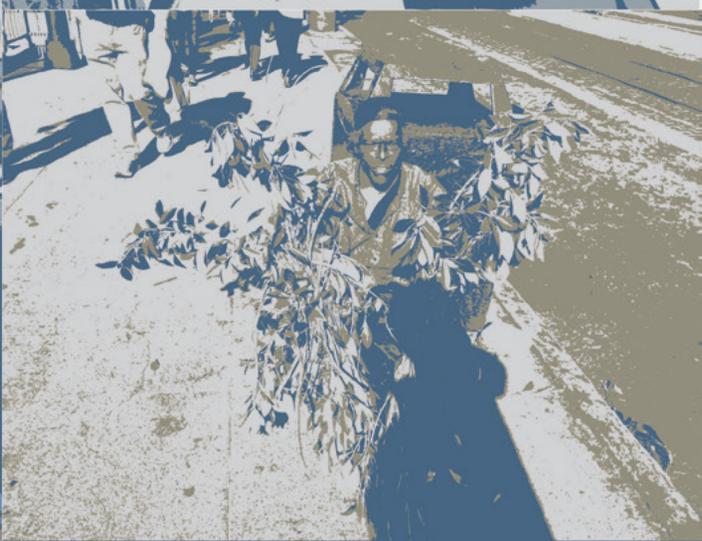


**POST IMPLEMENTATION
ASSESSMENT OF
STREETScape IMPROVEMENTS**
Public Space & Public Life Study

For the Planning Department of
The City and County of San Francisco



Without great support of Robin Abad and Neil Hrushowy it would be not possible to do this research. I would like to thank them and the many staff of the Planning Departments of the City and County of San Francisco who helped me in this process.

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INTRODUCTION

A look at the past 30 years of San Francisco real estate boom and bust cycles shows the market gained a new peak value in 2014. This has resulted in more financial opportunities for investment in the City's infrastructure and public realm for a better quality of life for San Franciscans. The evaluation of the qualities of public spaces – both pre and post-occupancy – can inform the decision-makers of appropriate design investment and consequently, better new projects.

The evaluation of public space quality began in the 1960's in the United States and Europe (e.g. the works of Jane Jacobs and William H. Whyte). In most of assessment reports, environmental factors such as streetscape features and micro climate characteristics, and user attributes such as stationary activities and different modes of transportation are highlighted. One of the most widely-used methods is Gehl's Public Space and Public Life survey that has been implemented in many different cities all around the world. These studies usually consist of three parts – quality evaluation of the built environment, recording of human behaviors, perceptions and demographics and, based on these two parts, recommendations for improvements.

This study has adapted Gehl's method with some modifications. This study is an attempt to evaluate three streetscape projects in San Francisco in regards to their impact on activities in public open space. The study areas are between a thousand to two thousand feet along three street corridors: Jefferson Street (two blocks with improved streetscape, and two adjacent blocks without any physical intervention on their streetscape to be the control blocks), Valencia Street (three blocks out of four improved blocks), and Leland Avenue (all improved blocks).

This study does not evaluate all different socio-economic impacts of streetscape projects; therefore, this study does not determine the success or failure of projects. However, it highlights some changes in public open space activities before and after intervention, and discusses the possible reasons behind these changes. It should be noted that an increase in public space activities is not necessarily expected after any physical improvement of streetscape. Streetscape improvements can have different impacts on different segments of the same street. The number and diversity of factors (land use, street furnishings, social and demographic, etc.) that have impact on public space activities makes streetscape improvements a puzzling topic

to study. In addition, using a standard instrument to capture the truthful, spontaneous and diversity of life is also challenging. However, documenting observed activities before and after intervention helps provide a general understanding about the scope of impact on public spaces from physical interventions. Also, with close observation of activities at different hours of day in weekdays and weekends, for different sidewalks within the larger study area, we can gain a valuable knowledge about the parts of the street that are more active and the parts that could be activated. This information, combined with a surveys of streetscape features survey and land uses can also inform decision makers on "how" to activate a space. This step is beyond the scope of this study and requires an independent research with more information about all other impacting factors (land-use and physical environment and etc.). However, the richness of information in this study can greatly guide the second phase projects for each site.

CASE STUDIES

The three streetscape projects studied here were completed between 2010-2013. They are the 100 to 400 blocks of Jefferson Street, located between Hyde Street and Mason Street; the 600 to 800 blocks of Valencia Street, located between 16th and 19th streets; and the 1 to 200 blocks of Leland Avenue, between Bayshore Boulevard and Rutland Street. The study areas replicate the same extents as pre-implementation studies and surveys. In fact, the availability of pre-implementation survey data was an important factor for choosing the study areas. The Leland Avenue and Valencia Street pre-implementation study was done in 2007 by Chee F. Chan, during his internship with the Planning Department of San Francisco. Jefferson's study was part of a larger Public Space and Public Life study of Fisherman's Wharf that Gehl Architects conducted in 2008 for the City and County of San Francisco. All three streets are commercial corridors but at a different functional scale. Leland is a neighborhood commercial corridor, Valencia is a district level and to some extends citywide, and Jefferson is functioning at a global scale, having tourists from all over the world visiting one of the most touristic destinations of San Francisco. The diversity of our case studies is a chance to compare the impact of streetscape projects for different commercial corridor types.

SCHEDULE OF CONSTRUCTION

Jefferson's construction began in January 2013 and completed June 2013. Valencia's construction began in August 2009 and construction completed July 2010. Leland's construction began in August 2009 and construction completed in September 2010.

FUNDING

Total cost for the Jefferson streetscape project is \$4.95 million. The majority of project was funded through the general fund and the remainder from the 2006 State Prop 1B. Total cost for the Valencia streetscape project is \$6.1 million. The project was funded through a combination of a multi-year federal transportation bill called the Safe Accountable Flexible Efficient Transportation Equity Act ("SAF-E TEA") and two Transportation for Livable Communities (TLC) federal grants with local matching funds. The Leland streetscape project was funded through a combination of two Transportation for Livable



Communities (TLC) federal grants with local matching funds to total \$4.1 million. Cost per 100 feet for the Jefferson streetscape project is \$0.53 million, for the Valencia streetscape project is \$0.26 million, and for the Leland streetscape project is \$0.37 million.

PROJECT TEAM

Jefferson Street: Department of Public Works, SF Planning Department

Valencia Street: Department of Public Works, Municipal Transportation Agency (SFMTA)

Leland Avenue: Department of Public Works, SF Planning Department, SF Public Utilities Commission (SFPUC), Municipal Transportation Agency (SFMTA).

IMPROVEMENT PROJECTS

The Jefferson Streetscape improvements are part of the larger Fisherman's Wharf Public Realm Plan, which was a community driven process to reimagine the Jefferson Street corridor and the Fisherman's Wharf area. Improvements included upgrades for a universally accessible street along the entire length of Jefferson Street that prioritizes pedestrians; improved intersections and street segments, pedestrian corner plazas, shortened crossing distances, pedestrian scale lighting and other amenities. In addition, the key component of the project was converting Jefferson from one-way west-bound to two-way traffic which slowed traffic and improved function of street as part of Bay Trail for cyclists. The first phase of this project which is from Hyde Street to Jones Street was constructed in 2013. The second phase will be from Jones Street to Powell Street, to the east of the completed streetscape.

Improvements for the Valencia streetscape project include removal of the striped center median, sidewalk widening, bulb-outs, more accommodating curbside loading zones for trucks, improved traffic, parking and bicycle lane alignments, pedestrian scale lighting, art elements, bike racks, and new street trees. The project included the replacement and addition of 76,000 square feet of sidewalk and the installation of pedestrian bulb-outs to provide traffic calming, facilitate street crossing and add space for gathering. Additional improvements included the planting of 106 Brisbane Box and London Plane trees along the sidewalks, new trash receptacles, 69 bike

racks, 32 wheel chair accessible curb ramps, 26 roadway-scale lights and 46 pedestrian-scale lights. Four Victorian-themed street posts, uniquely designed for Valencia Street through the San Francisco Arts Commission, were also installed. A public art feature entitled 'Valencia Street Post' was installed by artist Michael Arcega.

The Leland Avenue Streetscape Improvement Project includes 63 newly planted trees, 30 accessible curb ramps, 15 corner bulb-outs and 45 pedestrian light fixtures. In addition, the street and sidewalks were repaved and now include decorative-stamped crosswalks to promote pedestrian safety, sidewalk furniture and public art entitled "Street Life" (commissioned by the SF Arts Commission and designed by Rebar). DPW collaborated closely with the SF Public Utilities Commission to include stormwater management facilities as part of the streetscape improvements, including bulb-outs that capture rain runoff during storms and reduce strain on the city's sewer system. (source: DPW website, <http://sfdpw.org/index.aspx?page=1105>)



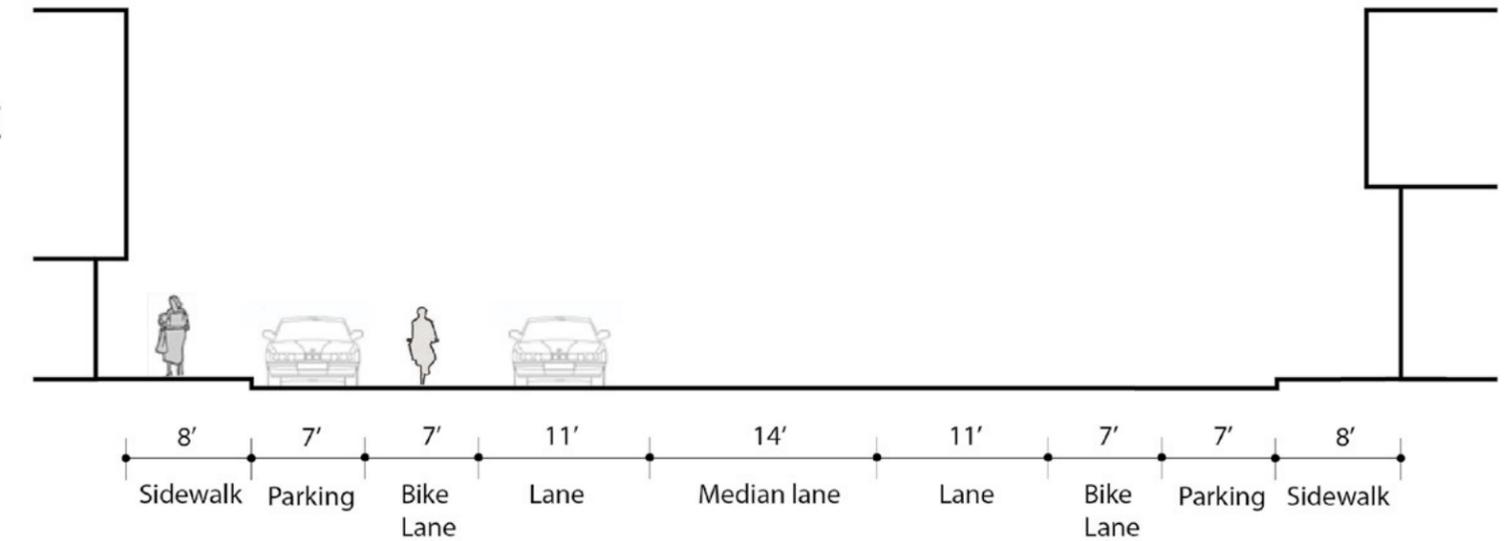
Pavement construction on Jefferson Street between Leavenworth St. and Jones St.



Photo taken 21/7/2014

STREET LAYOUT TRANSFORMATION: VALENCIA STREET

BEFORE



AFTER

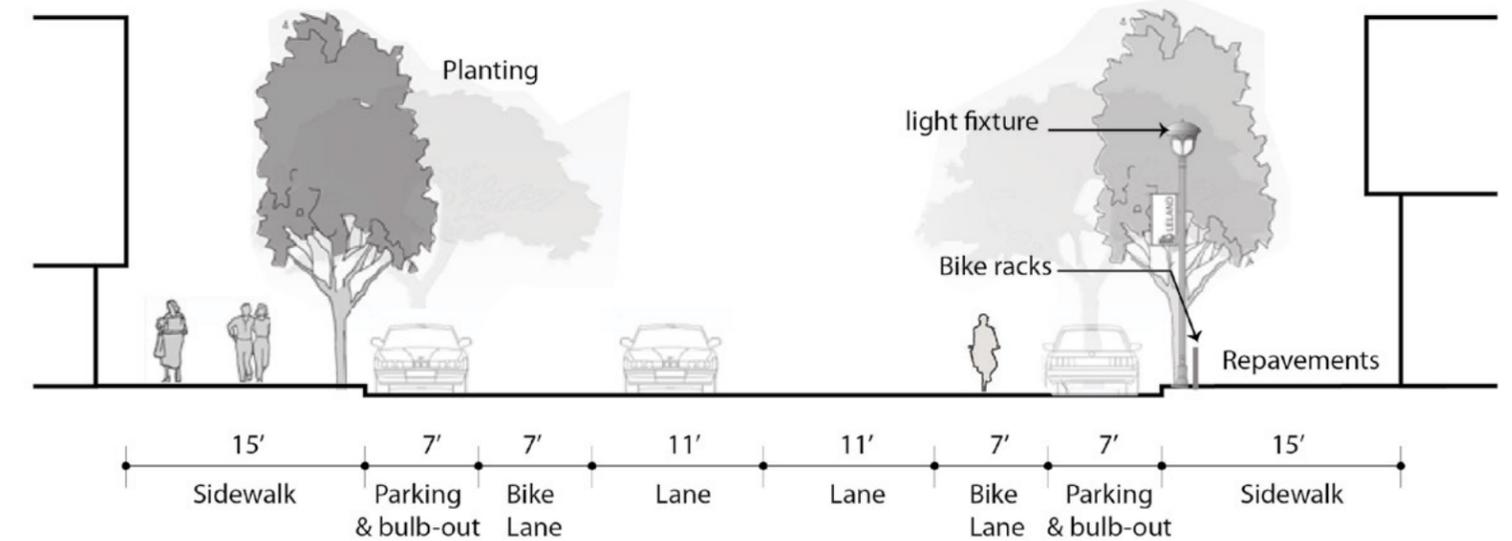
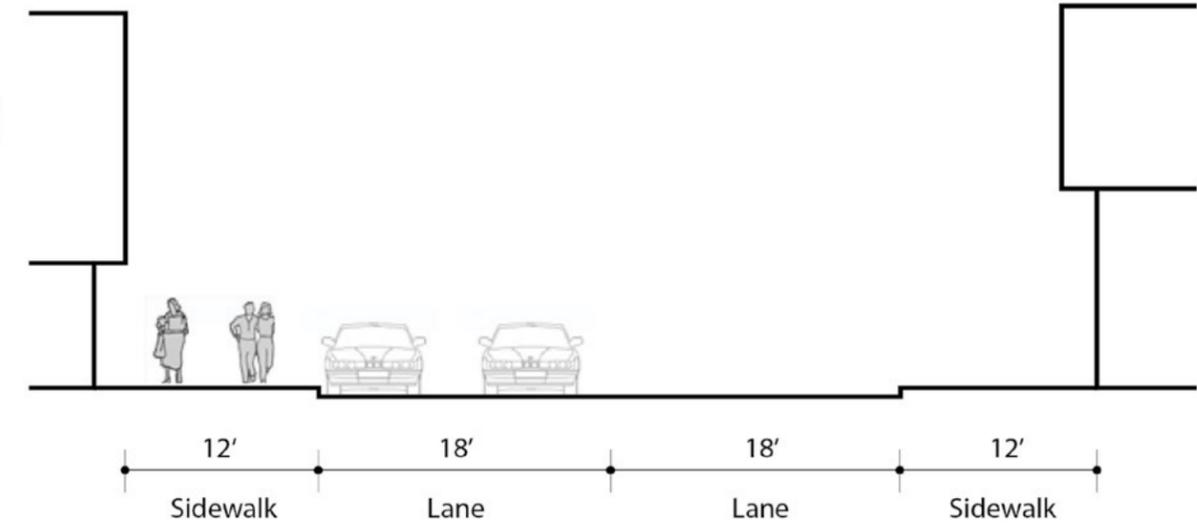




Photo taken 16/7/2014

STREET LAYOUT TRANSFORMATION: LELAND AVENUE

BEFORE



AFTER

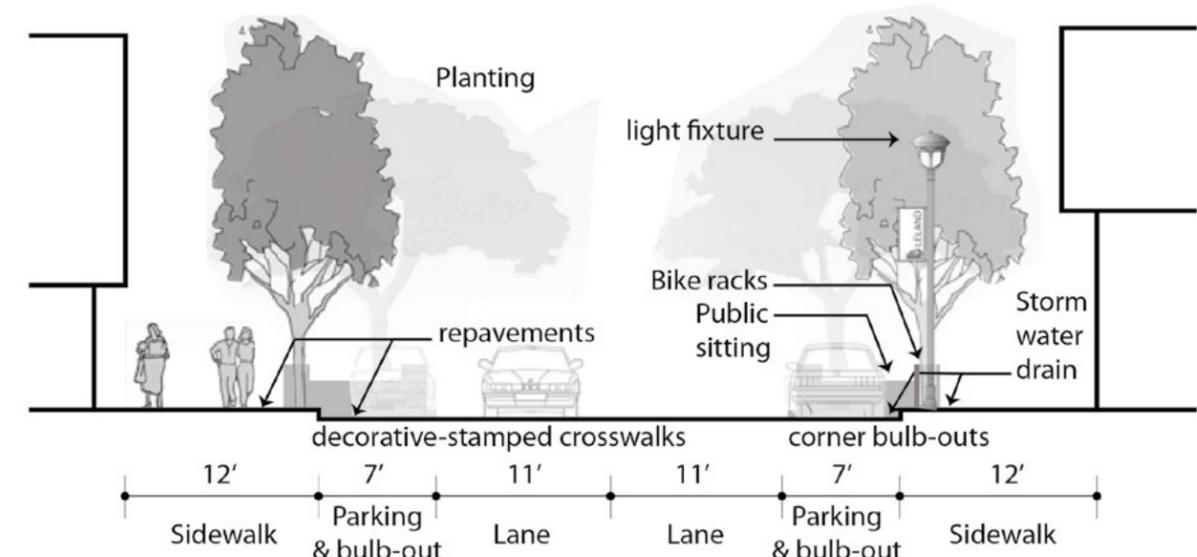
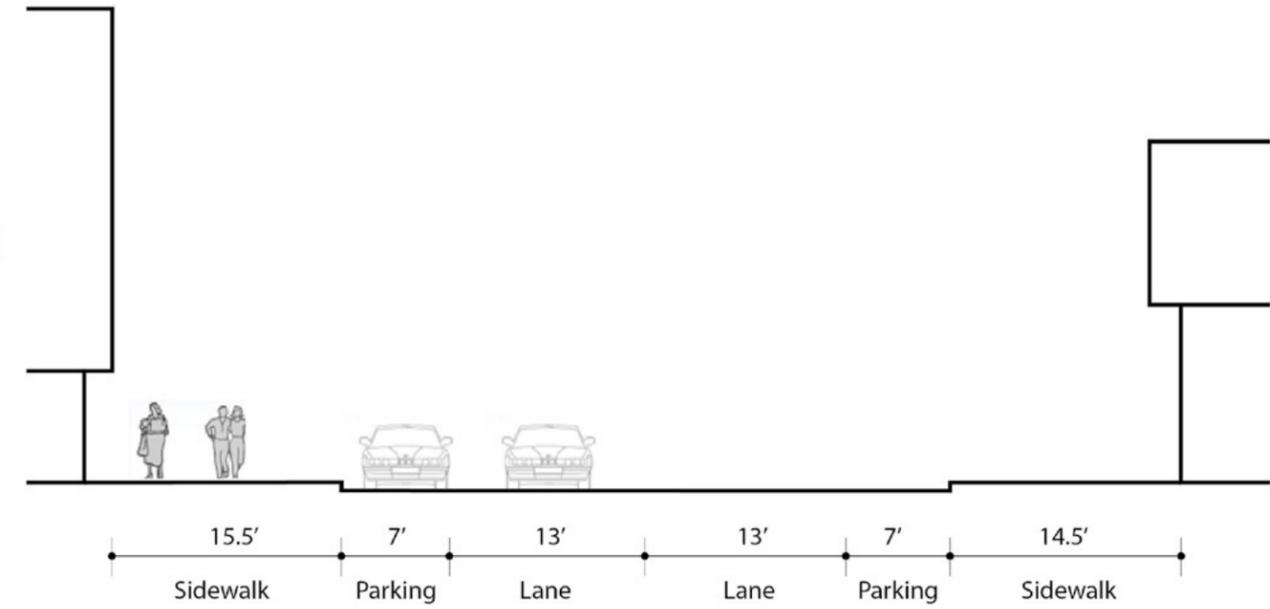




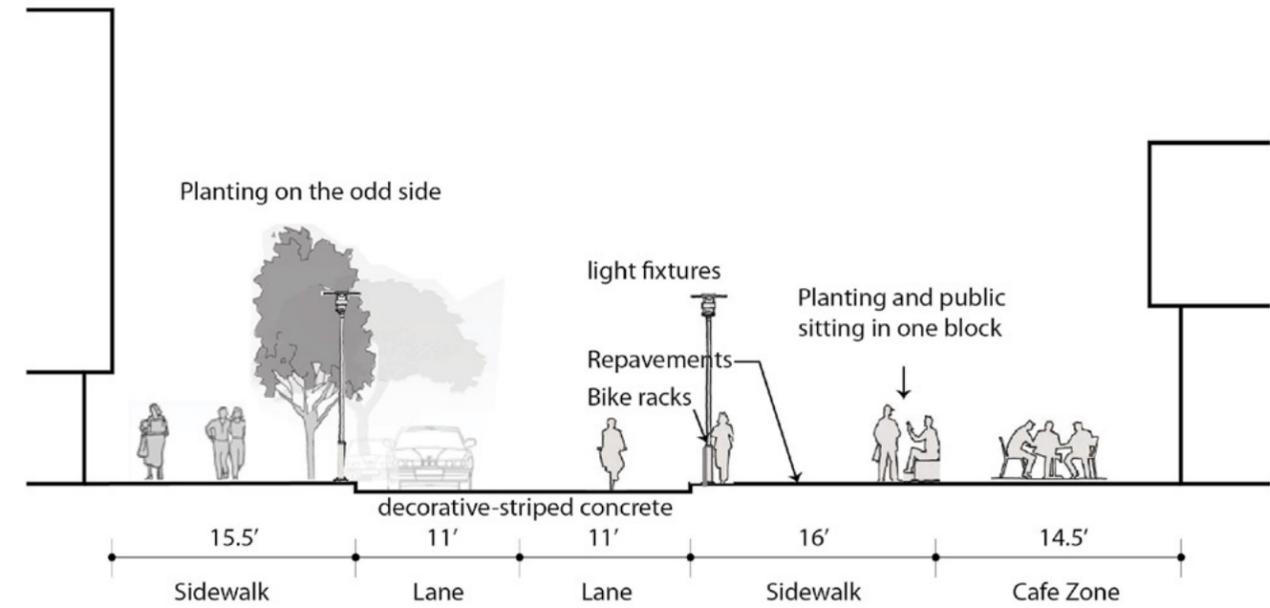
Photo taken 4/7/2014

STREET LAYOUT TRANSFORMATION: JEFFERSON STREET

BEFORE



AFTER





METHODOLOGY

DATA COLLECTION PROCESS

Data collection was in June and July of 2014 on Saturdays, Tuesdays, and Wednesdays. Mondays and Fridays were dedicated to train a group of volunteers for field survey. The following table shows the scope and timeframe of surveys for each street. The main factor for deciding on the survey timeframe was the data availability on 2007/2008 Public Life Studies.

- Pre-occupancy
Pedestrian/Bike Count
- Pre-occupancy
Pedestrian/Bike Count & Activitiy Scan
- Post-occupancy
Pedestrian/Bike Count & Activitiy Scan

SCOPE OF FIELD SURVEY

	JEFFERSON		LELAND		VALENCIA	
	WEEKDAYS	WEEKENDS	WEEKDAYS	WEEKENDS	WEEKDAYS	WEEKENDS
8-9	●	●				
9-10	●	●				
10-11	●	●	●	●	●	●
11-12	●	●	●	●	●	●
12-1	●	●	●	●	●	●
1-2	●	●	●	●	●	●
2-3	●	●	●	●	●	●
3-4	●	●	●	●	●	●
4-5	●	●	●	●	●	●
5-6	●	●	●	●	●	●
6-7	●	●			●	●
7-8	●	●			●	●
8-9	●	●			●	
9-10	●	●			●	
10-11	●	●			●	

Volunteer Orientations

Fieldwork Days

ORIENTATION + FIELDWORK DAYS

JUNE						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JULY						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

DATA COLLECTION INSTRUMENTS

Pedestrian and bicycle counts, stationary counts and observations are used to assess the changes in public space activities in these three sites.

PEDESTRIAN AND BICYCLE COUNTS

Pedestrian and Bicycle counts were conducted in June, July, and August of 2014, on Saturdays, Tuesdays and Wednesdays. Data collection was conducted only when the weather was generally nice and no special event such as Pride Parade was taking place. Pedestrian and Bicycle counts were taken for exactly 10 minutes at midblock screenline locations. Two screenline locations were identified for each streetscape project. For Jefferson Street, one location was on an improved (first-phase construction) block and the other location was on the unimproved (second-phase construction) block as a control block. For Valencia Street and Leland Avenue, both screenline locations were located on improved blocks. The screenline locations were those from pre-implementation studies. Jefferson's screenline locations were between Hyde Street to Leavenworth Street (improved block) and Jones Street to Taylor Street (control block). Valencia's count locations were positioned between 16th and 17th Street, and 18th and 19th Street Leland's screenline locations were positioned between Desmond Street / Alpha Street and Bayshore Blvd. and Peabody Street / Alpha Street and Rutland Street

10 minute count intervals were taken sometime within each hour and multiplied by six to represent the pedestrian and bicycle volumes for that hour. Different time periods were considered for each street depending on the general activities at that street. These periods replicated the pre-implementation studies on these sites. Jefferson, with the highest number and diversity of activities throughout the day, had the longest period of pedestrian and bicycle counting, from 8 AM to 11 PM. On Valencia Street, counts were conducted from 10 AM to 11 PM. On Leland Avenue, pedestrian and bicycle counts were conducted from 10 AM to 6 PM. Pedestrian and bicycle counts were conducted for both weekdays and weekends on Jefferson street and Valencia Street; but for Leland Avenue pedestrian and bicycle counts were only conducted on weekdays due to the lack of activities and low number of pedestrians.

PEDESTRIAN AND BICYCLE SCREENLINE COUNT

STREET NAME: _____ ADDRESS RANGE: _____

ODD SIDE OF STREET EVEN SIDE OF STREET

DATE: _____ WEEKDAY WEEKEND

NAME: _____

WEATHER CONDITION: Sunny Partly Cloudy Cloudy Rain Windy Storm

TEMPERATURE: _____

TIME IN: _____ TIME OUT: _____
(FOR EXACTLY 10 MINS)

TINYURL.COM/SF-ST-PED-COUNT

PEDESTRIANS

DIRECTION OF TRAVEL*		LEFT TO RIGHT →		← RIGHT TO LEFT		SUBTOTAL	TOTAL
MALE	→						♂
FEMALE	→						♀
15 YEARS OLD AND UNDER							≤15
OVER 65 YEARS OLD							65+
RUNNING/ JOGGING							🏃
SKATEBOARDS, ROLLERBLADES, ETC.							🛹
WHEELCHAIR/ SPECIAL NEEDS							♿

CYCLISTS

DIRECTION OF TRAVEL*		LEFT TO RIGHT →		← RIGHT TO LEFT		SUBTOTAL	TOTAL
MALE	→						♂
FEMALE	→						♀
15 YEARS OLD AND UNDER							≤15
OVER 65 YEARS OLD							65+
COUNTER-TRAFFIC							🚲
ON SIDEWALK							🚲
NO HELMET							🚲

*MUST ADD UP TO 100% OF SAMPLE

NOTES: _____

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Environmental conditions weather condition and temperature were recorded during each count sample; as was the exact time period of each ten-minute sample. Pedestrian attributes such as gender and direction of travel (for example male walking from left to right, or female biking from right to left, and so on), age categories (15 years old and under and over 65 years old), runners/joggers, skateboards, rollerblades, etc., and also persons with special needs and disabilities. Cyclist attributes included counter-traffic riding, no helmet, and sidewalk riding was also recorded.

STATIONARY ACTIVITY COUNTS

Stationary activity on the street was also recorded once per hour during the same hours of the day as pedestrian and bicycle counts. This was done by walking from one end of the block to the other, while recording stationary activities of people lingering on the streets and sidewalks. For busy streets like Jefferson at a peak hour, this exercise took up to 8 minutes; but for Leland with low activities on the sidewalks, this exercise often took less than three minutes. This survey represents a snapshot of stationary activities during the sampled hour. Activity scans were conducted on each block side of Jefferson Street from Hyde Street to Mason Street; for Valencia Street from 16th Street to 19th Street; and for Leland Avenue from Bayshore Avenue to Rutland Boulevard.

The attributes recorded for each stationary pedestrian include gender, estimated age category (10 years old and under, 10 to 15 years old, and over 65 years old), posture (standing, standing-leaning, public sitting, private sitting, lying, and sitting improvised), number of people in pair and groups of three and more people, activities (eating/drinking, talking with one another, people watching, using electronic device, children playing, performance and cultural activities, waiting for transit, commerce, and accompanied by pet), nuisance behaviors (smoking, intoxication, sleeping, panhandling). During the stationary activity count, the observer also counted the number of vehicles parked at the curb, vehicles double-parked, empty parking spaces; the number of bikes on sidewalk racks, bikes on other fixtures, empty bike racks.

SIDEWALK ACTIVITY SCAN

STREET NAME: _____

ADDRESS RANGE (E.G. "400'S"): _____ SIDE OF ST. ODD EVEN

CROSS-STREETS: _____

YOUR NAME: _____

DATE: _____ DAY OF WK WEEKDAY WEEKEND

TIME IN: _____ TIME OUT: _____

NOTES: _____

INPUT DATA AT: TINYURL.COM/SF-SIDEWALK-ACT-SCAN

SCAN ONE SIDEWALK LENGTH AT A TIME. RECORD EACH SIDE OF STREET ON DIFFERENT SIDES OF THIS FORM. RECORD PARKLET AREA ON SEPARATE FORM.

SIDEWALK ACTIVITY SCAN AREAS

PERSON OR OBJECT	GENDER		AGE			POSTURE				GROUP		ACTIVITIES				OTHER ACTIVITIES		NUISANCES		# VEHICLES PARKED AT CURB																		
	MALE	FEMALE	0-9	10-15	16-64	65+	STANDING	STANDING-LEANING	PUBLIC SITTING	PRIVATE SITTING	LYING	PAIR	GROUP	EATING/DRINKING	TALKING WITH ONE ANOTHER	PEOPLE WATCHING	CHILDREN PLAYING	PERFORMANCE/CULTURAL	WAITING FOR TRANSIT		COMMERCE	ACCOMPANIED BY (PET)	SMOKING	INTOXICATION	SLEEPING	PANHANDLING	URRIDE/DEFECATION	LETTER/DIBBIS	# VEHICLES DOUBLE-PARKED	# EMPTY PARKING SPACES	# BIKES ON SIDEWALK RACKS	# BIKES ON OTHER FIXTURES	# EMPTY BIKE RACKS					
1																																						
2																																						
3																																						
4																																						
5																																						
6																																						
7																																						
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V2014A ROBIN.ABAD@SFGOV.ORG

PEDESTRIAN INTERCEPT SURVEYS

The goal of this survey was to obtain information regarding the potential change in the purpose of peoples’ visit and their perception and satisfaction with the street design. Pedestrian surveys during the pre-implementation studies were only conducted on Valencia Street and Leland Avenue and not for Jefferson Street. For the post-implementation study, pedestrian surveys were only conducted on Valencia Street and Leland Avenue. However, our response rate for Leland Avenue was very low due to different factors such as demographic composition of area (language barrier with the mainly Chinese residents), low number of pedestrians in general, and time constraints to conduct the survey. 100 surveys were conducted on Valencia Street in 2007 (pre-implementation) and 100 surveys were conducted in 2014 (post-implementation). In 2007, surveys were carried out from Monday through Saturday, with the majority coming from weekdays. In 2014 surveys were conducted only on Saturdays, Tuesdays and Wednesdays. In both studies, randomness in the survey sampling was attempted by asking every person who walked by to respond to the survey until a willing respondent stopped.

The Pedestrian intercept survey includes different types of questions, such as multiple choice questions, scale rating questions, and open-ended questions. Demographic questions for each respondent recorded age, gender, ethnicity, and race. Questions about visitation queried transit mode, transit time, frequency of visit, and typical amount of money spent per visit. Perceptual ratings asked sidewalk cleanliness, physical condition of sidewalk, safety from vehicles and physical attractiveness; comfort relaxing, socializing, walking, and shopping. One open-ended question is also included in this survey which is not directly relevant to this research, but it is valuable information to collect for future studies. The question is: Do you have a favorite small public space (in any city you have lived or visited)? Where it is and what do you like about it?

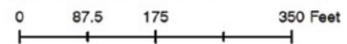
	RESPONDENT 1	RESPONDENT 2	RESPONDENT 3	RESPONDENT 4	RESPONDENT 5
WHICH STREET IN SAN FRANCISCO IS THE BEST TO WALK ALONG?					
COMPARED TO THAT STREET, HOW WOULD YOU RATE THIS STREET?	UNSATISFIED - 1 2 3 4 5 - SATISFIED				
SIDEWALK CLEANLINESS	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
PHYSICAL CONDITION OF SIDEWALK	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
SAFETY FROM VEHICLES	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
PLACES TO STOP, RELAX, SOCIALIZE	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
PHYSICAL ATTRACTIVENESS	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
EASE OF WALKING	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
A PLACE TO SHOP	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
WHEN YOU VISIT, ARE YOU EVER ACCOMPANIED BY ANYONE?	A - OFTEN B - SOMETIMES C - NEVER				
UNDER 16 YEARS OLD?	O S N	O S N	O S N	O S N	O S N
OVER 65 YEARS OLD	O S N	O S N	O S N	O S N	O S N
MOBILITY ASSISTED OR DISABLED?	O S N	O S N	O S N	O S N	O S N
A FAMILY MEMBER?	O S N	O S N	O S N	O S N	O S N
WHAT IS THE CLOSEST INTERSECTION TO YOUR NEXT DESTINATION?					
WHAT YEAR WERE YOU BORN?					
WHAT IS YOUR GENDER IDENTITY?	M / F / OTHER	M / F / OTHER	M / F / OTHER	M / F / OTHER	M / F / OTHER
WHAT IS YOUR ETHNIC IDENTITY?					
HL - HISPANIC OR LATINO NHL - NON-HISPANIC	HL NHL	HL NHL	HL NHL	HL NHL	HL NHL
WHAT IS YOUR RACIAL IDENTITY?					
W - WHITE A - ASIAN B - BLACK N - NATIVE AMERICAN PI - NATIVE HAWAIIAN/PACIFIC ISLD.	W A B N PI	W A B N PI	W A B N PI	W A B N PI	W A B N PI

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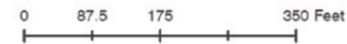
SURVEY LOCATIONS: VALENCIA STREET



SURVEY LOCATIONS: LELAND AVENUE



SURVEY LOCATIONS: JEFFERSON STREET





RESULT

The following analytical maps show the results of field surveys. For Jefferson Street and Valencia Street, maps are presented in pairs, to ease the comparison of weekday and weekend data. Maps are self-explanatory through their legend. Therefore, only a brief description of main findings is presented here:

VALENCIA STREET

THE LIST OF PUBLIC LIFE SURVEY RESULT MAPS FOR VALENCIA STREET (BOTH WEEKENDS AND WEEKDAYS)

- Pedestrian counts classified by gender
- Pedestrian counts classified by gender and direction
- Bicycle counts classified by gender and direction
- Number of pedestrians classified as special category
- Stationary pedestrians classified by their posture
- Stationary activities
- Stationary pedestrians classified by their gender
- Number of parked bicycles on bike racks and other fixtures
- Comparing 2007 and 2014 pedestrian counts
- Comparing 2007 and 2014 bicycle counts
- Comparing 2007 and 2014 the total number of stationary activities
- Comparing 2007 and 2014 stationary activities
- Comparing 2007 and 2014 satisfaction rating of street users
- Comparing 2007 and 2014 reason for visit

KEY FINDINGS

- Significant increase in pedestrian and bicycle volume, and public space activities
- Significant improvement in the perception of the street users

LELAND AVENUE

THE LIST OF PUBLIC LIFE SURVEY RESULT MAPS FOR LELAND STREET (JUST WEEKDAYS)

- Pedestrian counts classified by gender
- Pedestrian counts classified by gender and direction
- Comparing 2007 and 2014 pedestrian counts
- Stationary pedestrians classified by their posture
- Comparing 2007 and 2014 Stationary activities

KEY FINDINGS

- No significant increase on pedestrian and bicycle volume
- Very low increase on public space activities
- From unstructured observations by surveyors, local residents have some complaints about the project such as: the storm water management system is not working well, trees are not well maintained, the landscaping rocks have been used as weapons and gentrification's threat for local retailers. To be more

confident about these findings, an organized survey from residents and merchants is required.

JEFFERSON STREET

THE LIST OF PUBLIC LIFE SURVEY RESULT MAPS FOR JEFFERSON STREET (BOTH WEEKENDS AND WEEKDAYS)

- Pedestrian counts
- Pedestrian counts classified by gender and direction
- Bicycle counts classified by gender and direction
- Stationary pedestrians classified by their posture
- Stationary activities
- Stationary pedestrians classified by their gender
- Comparing 2007 and 2014 pedestrian counts
- Comparing 2007 and 2014 the total number of stationary activities
- Comparing 2007 and 2014 stationary activities

KEY FINDINGS

It's more difficult to evaluate the Jefferson Street project mainly because of these three reasons: 1) No pre-occupancy record for activities of intervened blocks and street users' perception survey; 2) data collection in 2008 was all in one sunny weekday and one sunny weekend. In 2014, data collection was in random eight days with different weather conditions; 3) It is relatively a new project and its impact specifically on land-use may change over time.

POSITIVE SIGNS:

- Significant use of public realm specially on the north side of the street
- General satisfaction of local retailers and artist vendors about the project. The source of this finding is from the unstructured observations of surveyors. For more confidence in this finding, systematic survey from residents and merchants is required.
- Increase in their revenue after the completion of project. Source: the survey conducted by the Fisherman's Wharf Community Benefit District in 2014.

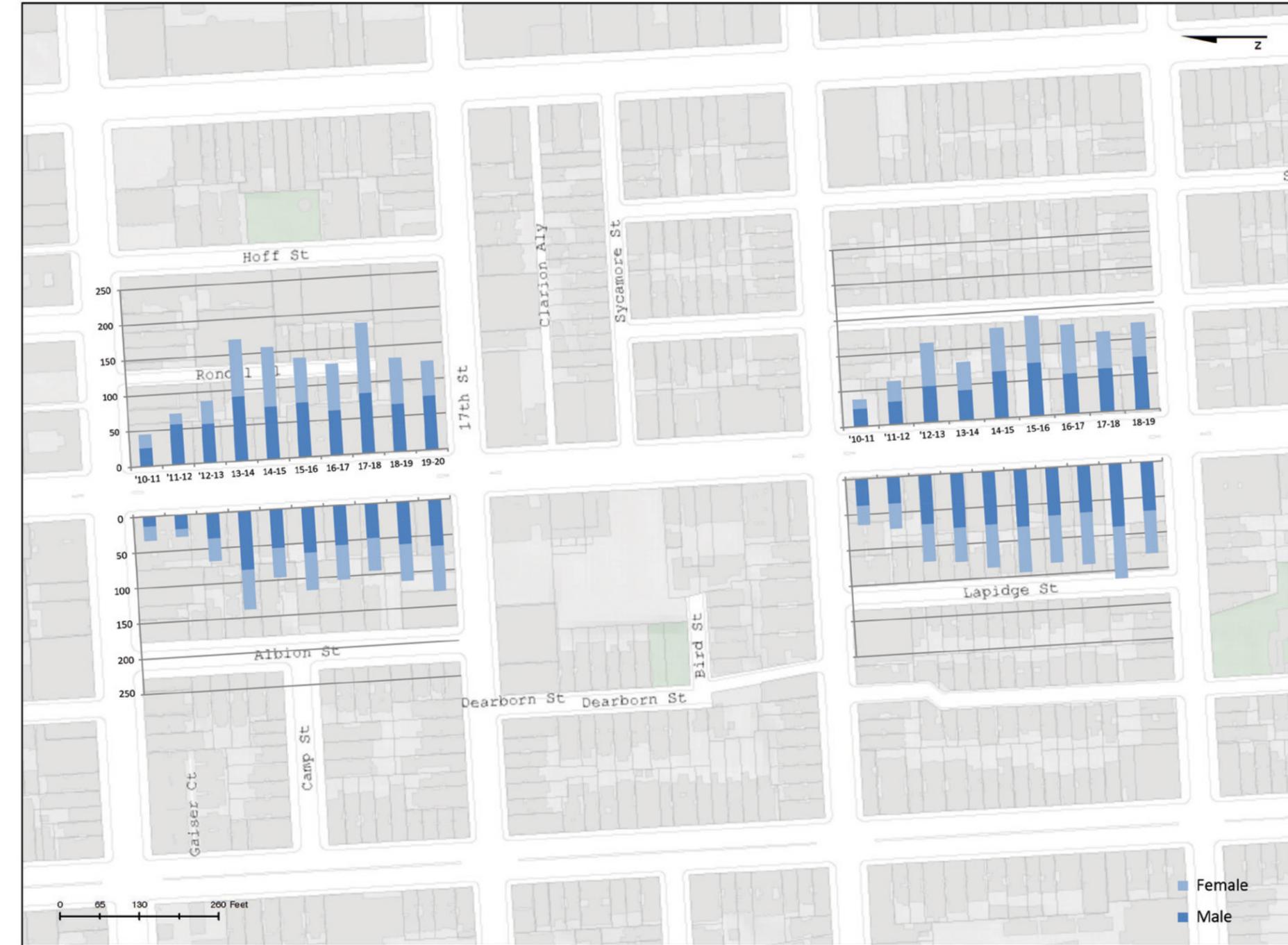
NEGATIVE SIGNS:

- A decrease on the pedestrian volume of intervened blocks since 2008. This is a surprising result. Essentially the pedestrian volume was still significantly high in 2014 and it is difficult to imagine more activities with narrower sidewalks in 2008. Three possible explanations can be imagined for this finding. 1) The 2008 data may not be collected accurately. 2) Other influential factors such as weather or public events could shift the number of people between one day and the next. 3) The pedestrian flow may be shifted to adjacent streets due to land use and transit changes. Based on the collected data of this study, it is not possible to identify the most probable scenario.
- Lower number of public space activities on the intervened blocks compare to the control blocks on weekends.

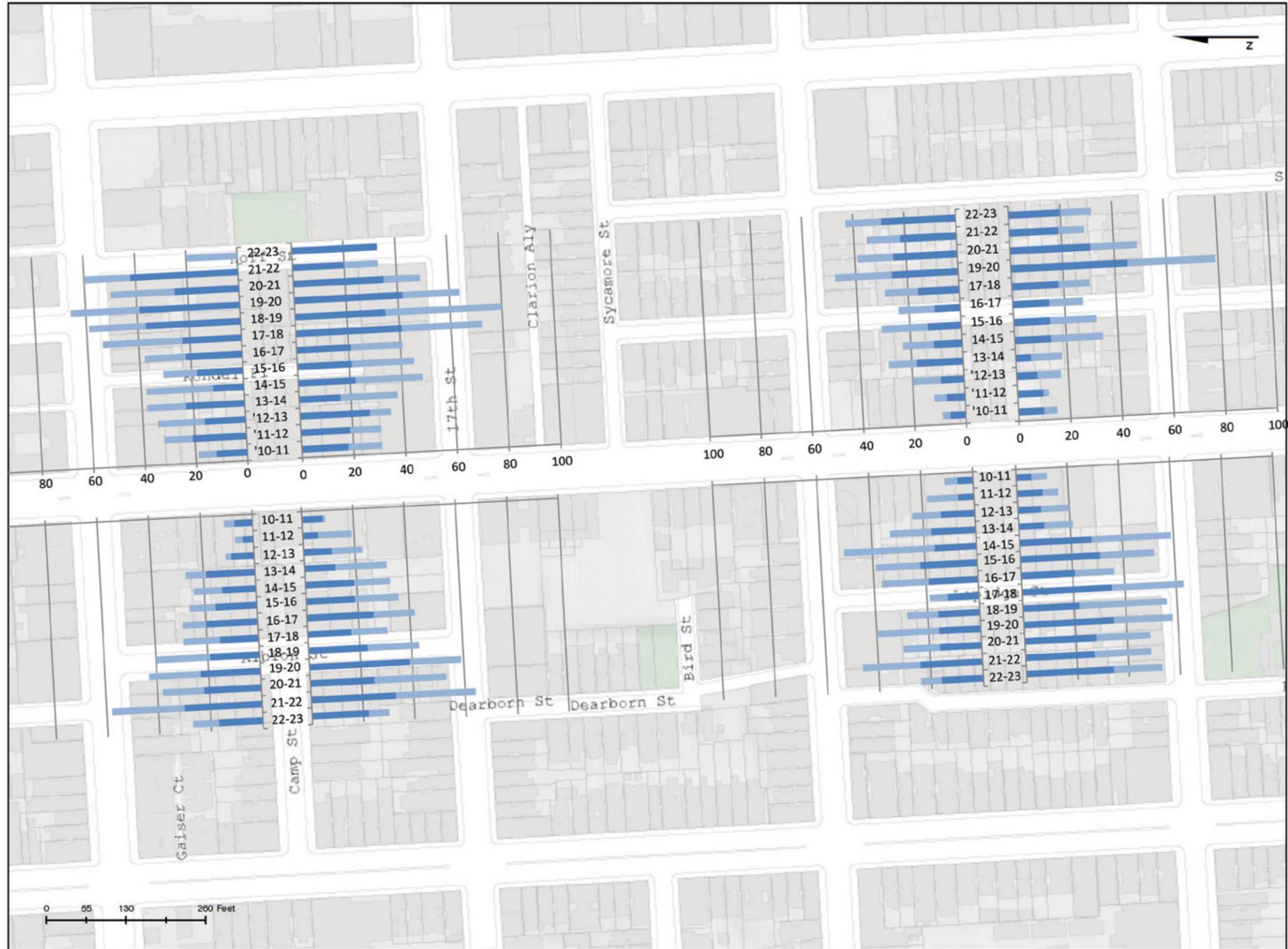
Pedestrian Counts in 10 minutes classified by Gender from 10 am to 23 pm on a Weekday 2014 - Valencia Street



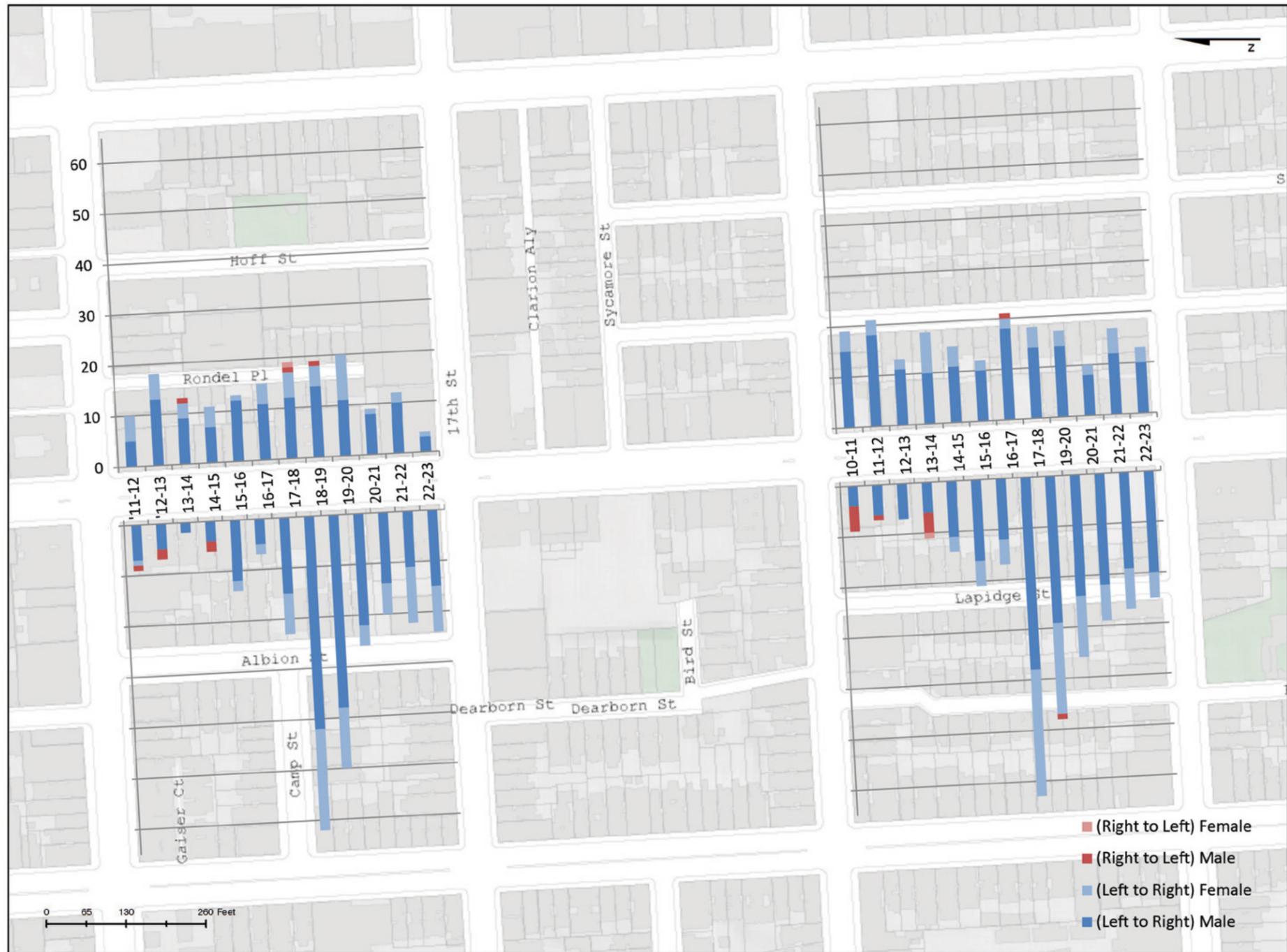
Pedestrian Counts in 10 minutes classified by Gender from 10 am to 20 pm on a Weekend 2014 - Valencia Street



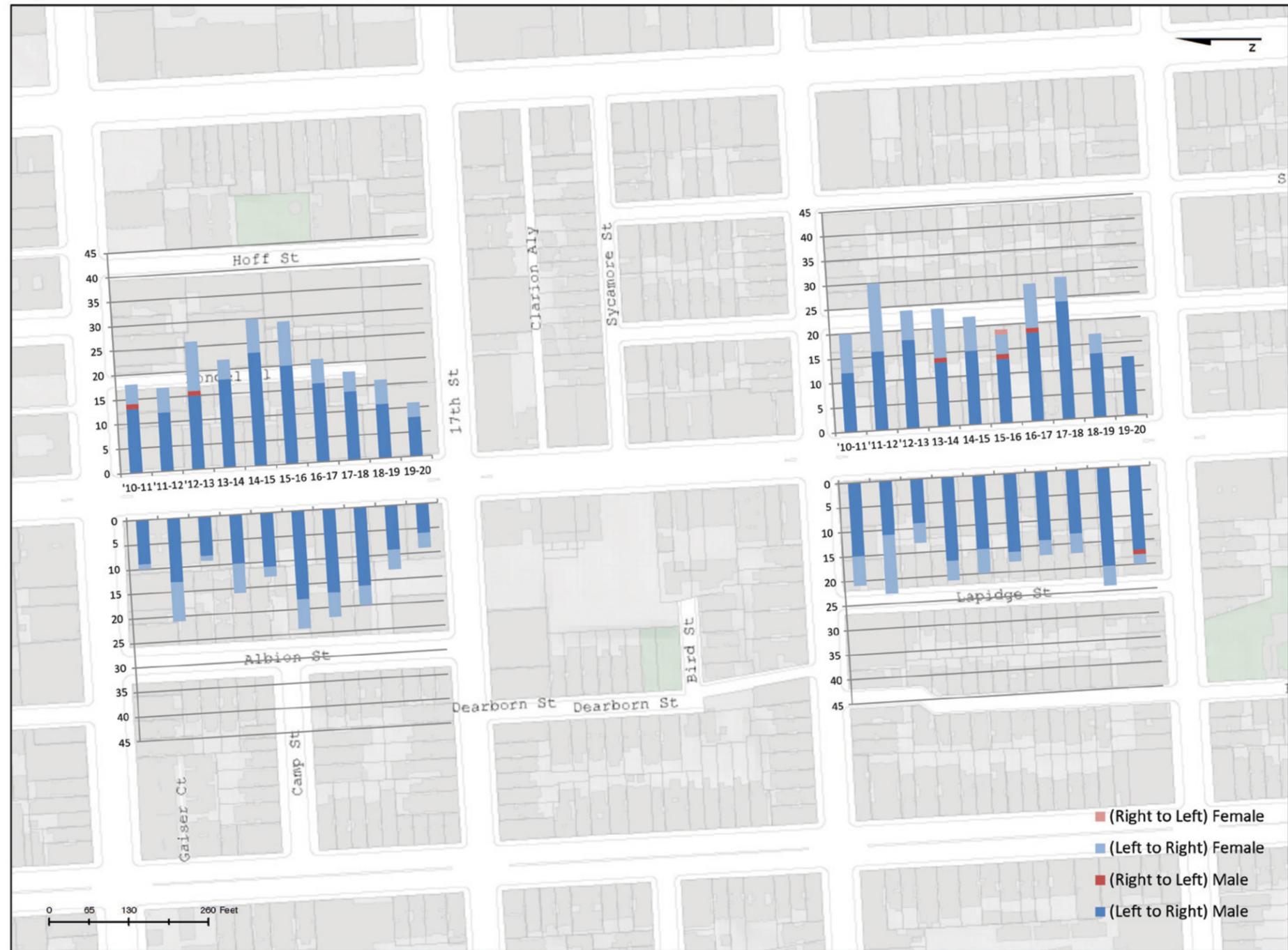
Pedestrian Counts in 10 minutes classified by Gender and Direction from 10 am to 23 pm on a Weekday 2014 - Valencia Street



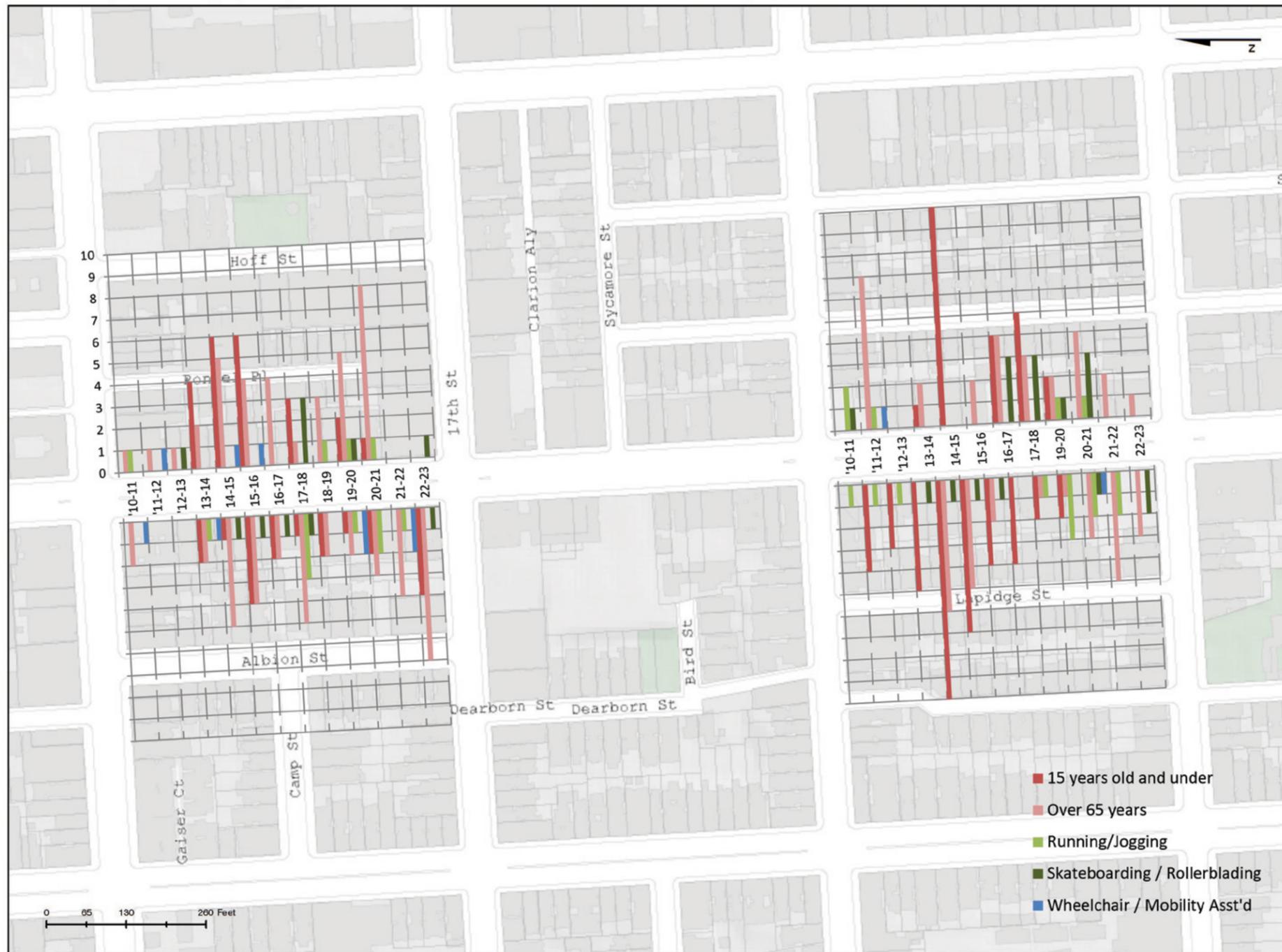
Bicycle Counts in 10 minutes classified by Gender and Direction from 10 am to 23 pm on a Weekday 2014 - Valencia Street



Bicycle Counts in 10 minutes classified by Gender and Direction from 10 am to 20 pm on a Weekend 2014 - Valencia Street



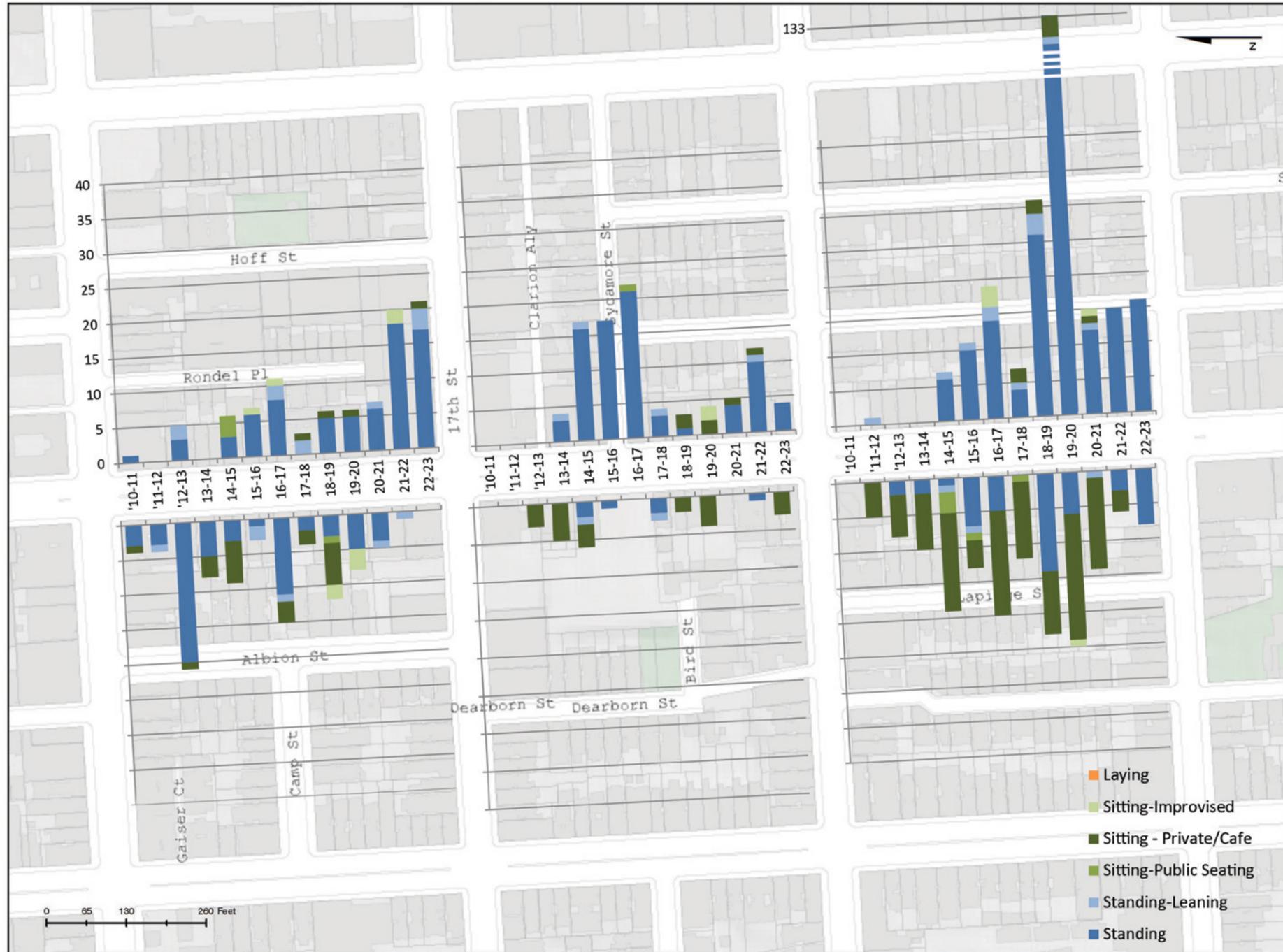
Observed Special Category People in 10 minutes from 10 AM to 23 PM on a Weekday 2014 - Valencia Street



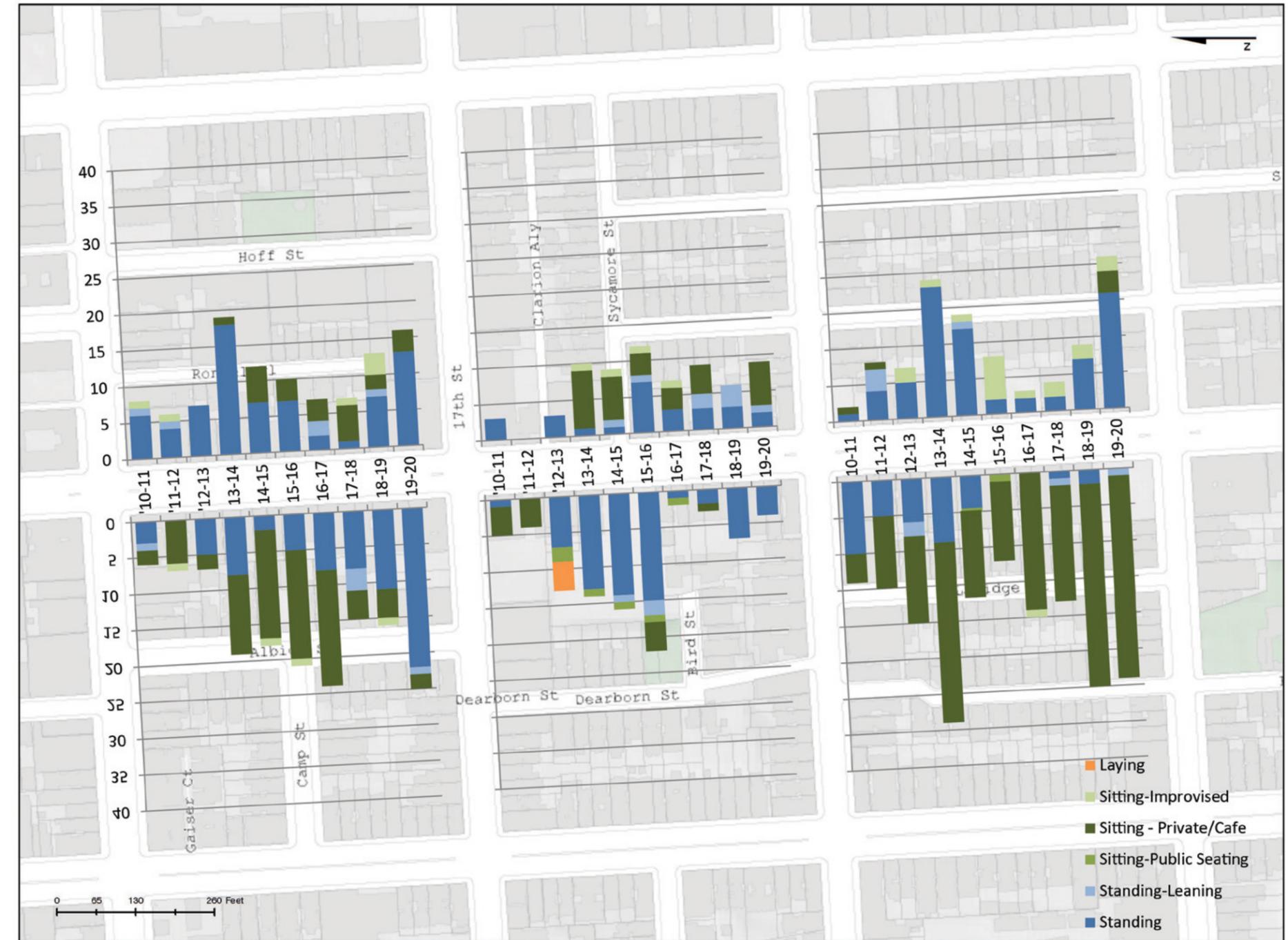
Observed Special Category People in 10 minutes from 10 AM to 23 PM on a Weekend 2014 - Valencia Street



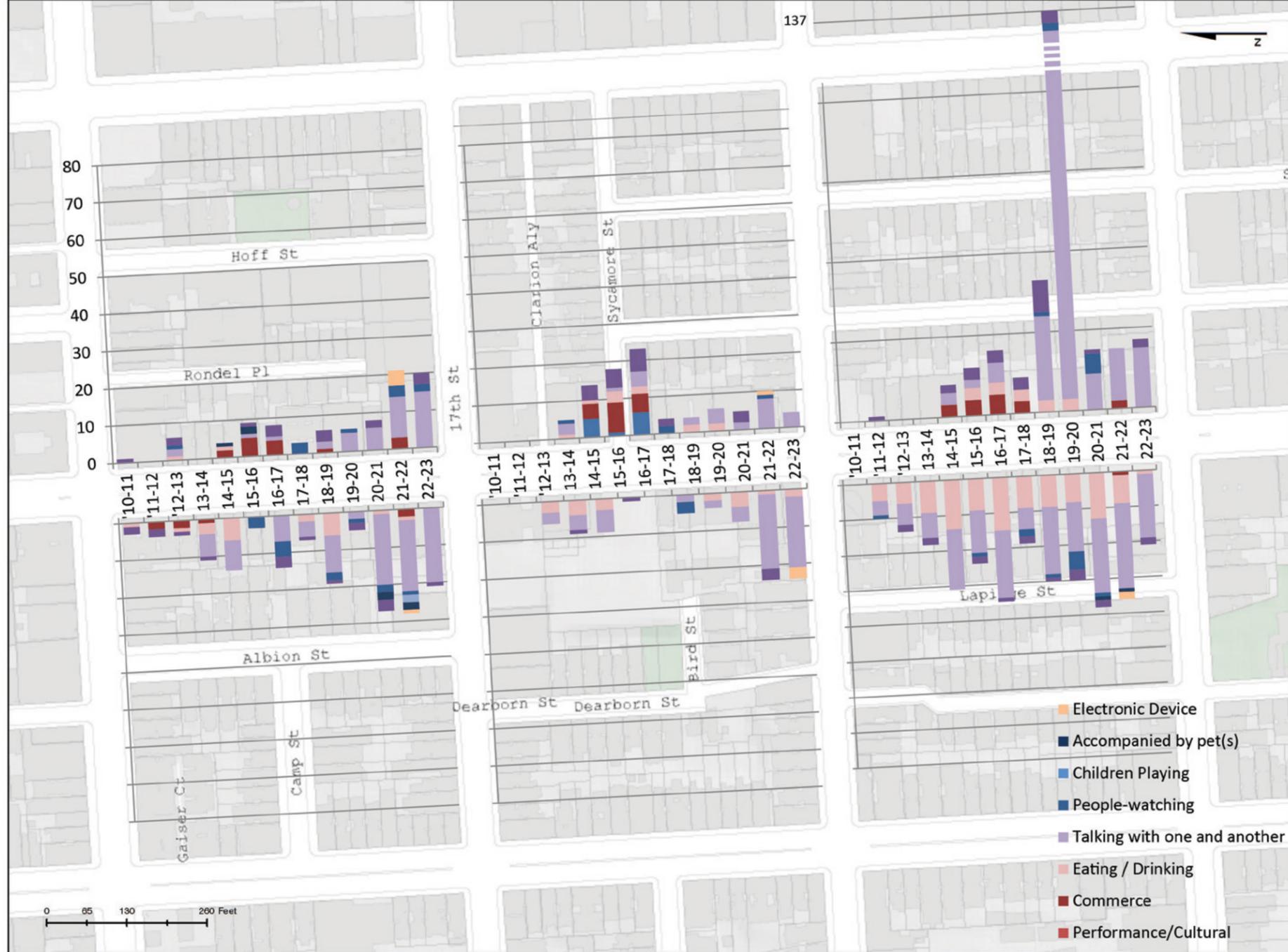
Stationary Pedestrians Classified by their Posture along Valencia Street from 10 AM to 23 PM on a Weeday



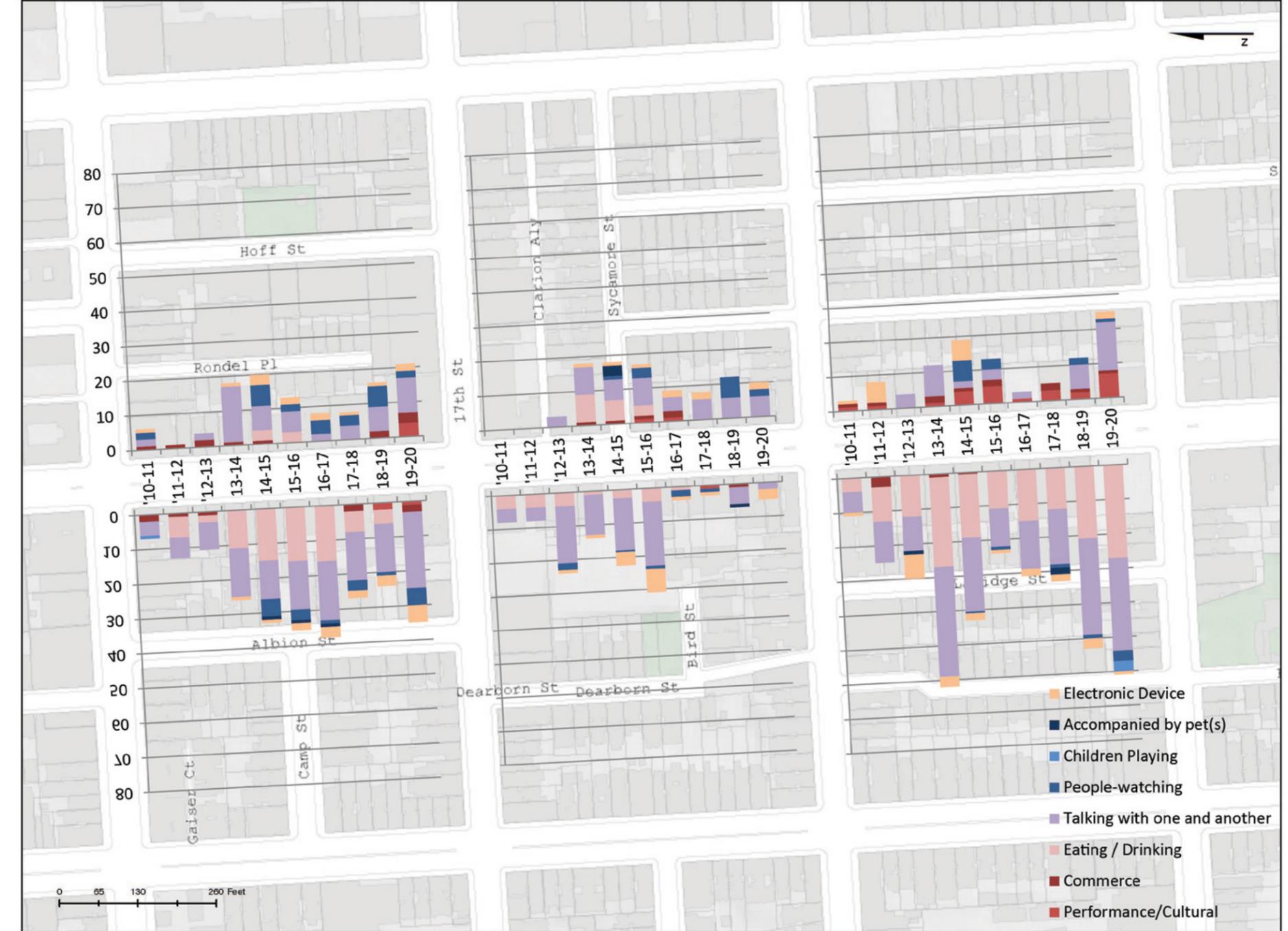
Stationary Pedestrians Classified by their Posture along Valencia Street from 10 AM to 20 PM on a Weekend



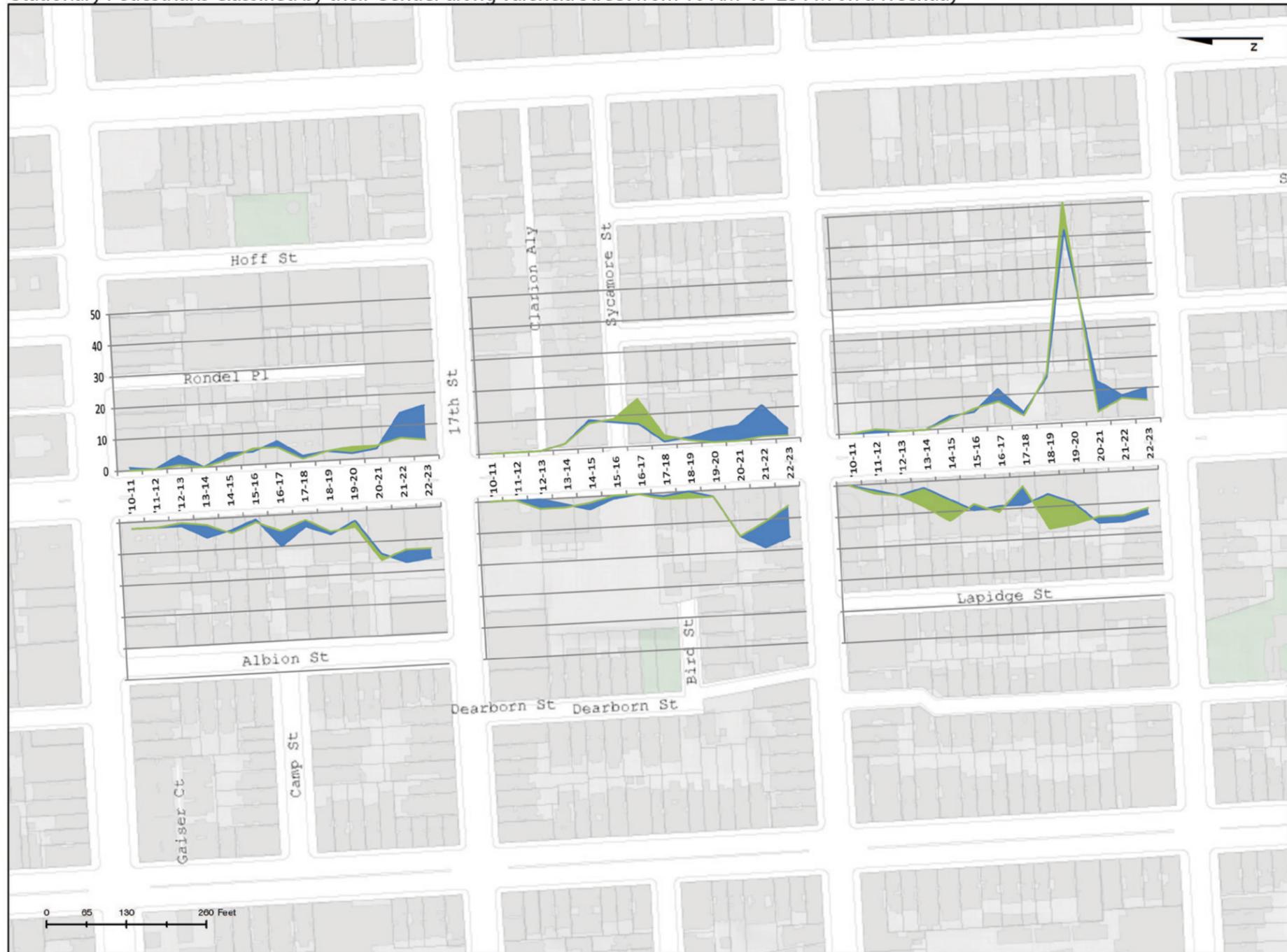
Stationary Activities along Valencia Street from 10 AM to 23 PM on a Weekday



Stationary Activities along Valencia Street from 10 AM to 20 PM on a Weekend



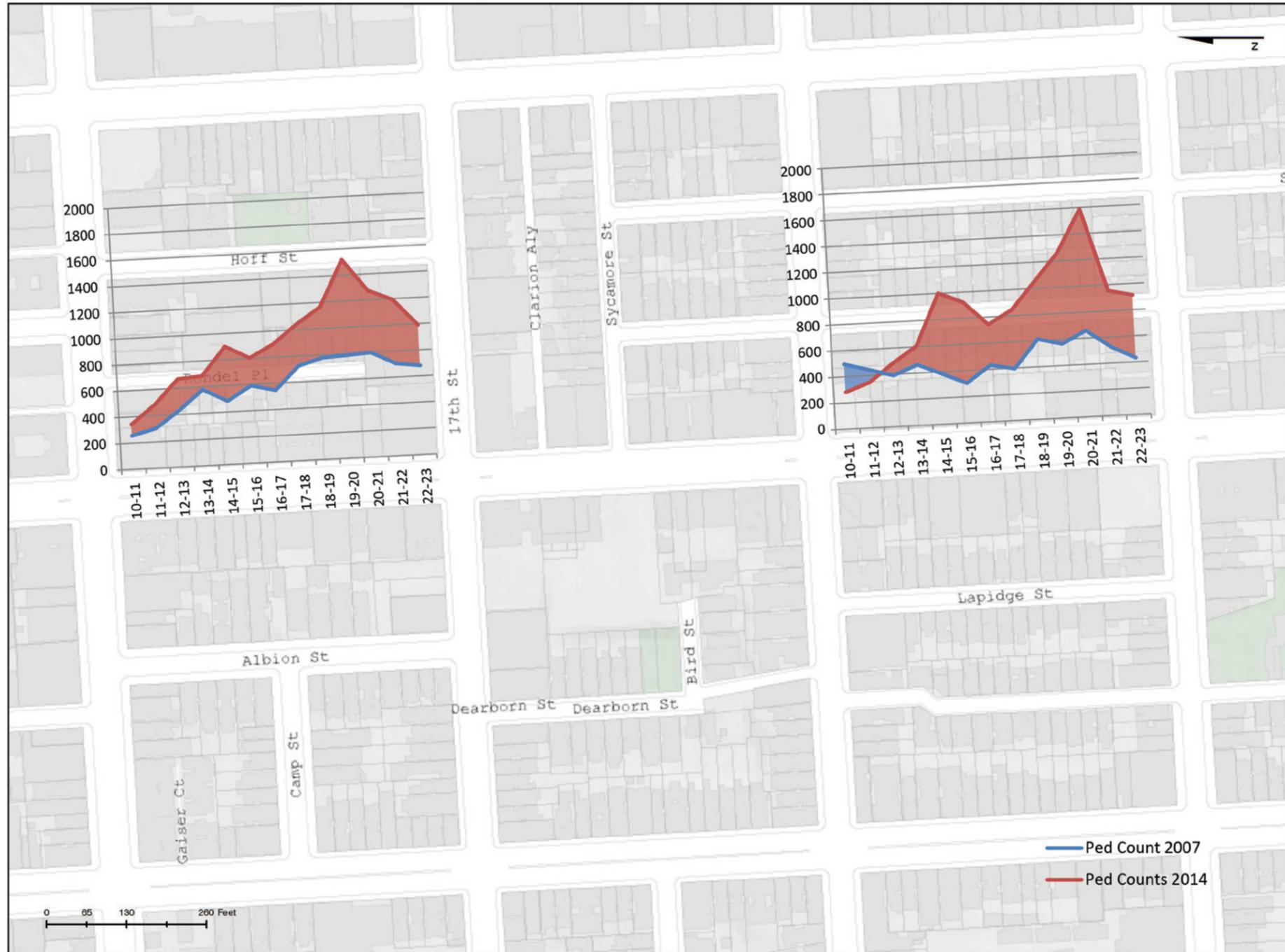
Stationary Pedestrians Classified by their Gender along Valencia Street from 10 AM to 23 PM on a Weekday



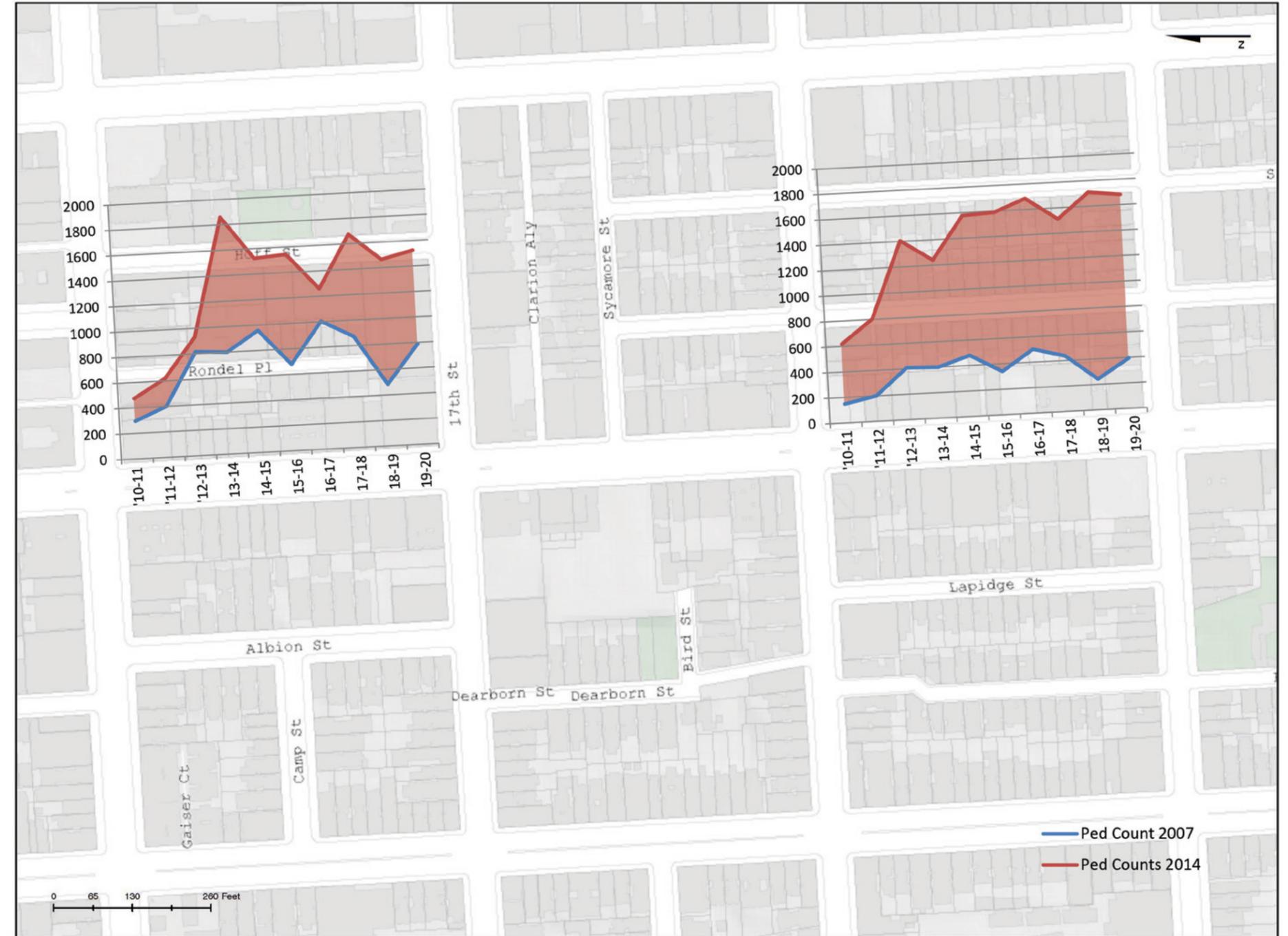
Stationary Pedestrians Classified by their Gender along Valencia Street from 10 AM to 20 PM on a Weekend



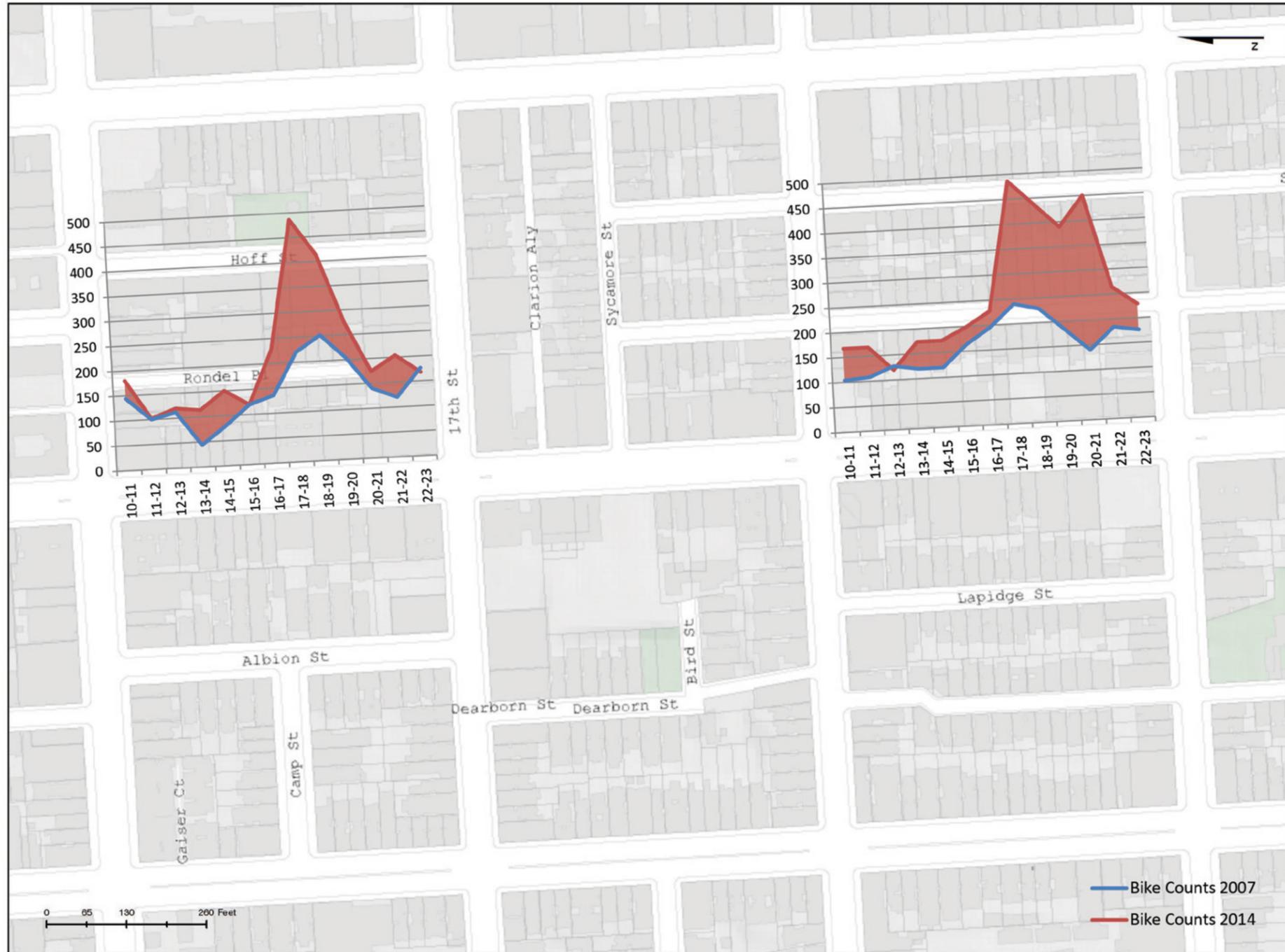
Pedestrian Counts from 10 AM to 23 PM on a Weekday in 2007 and 2014 - Valencia Street



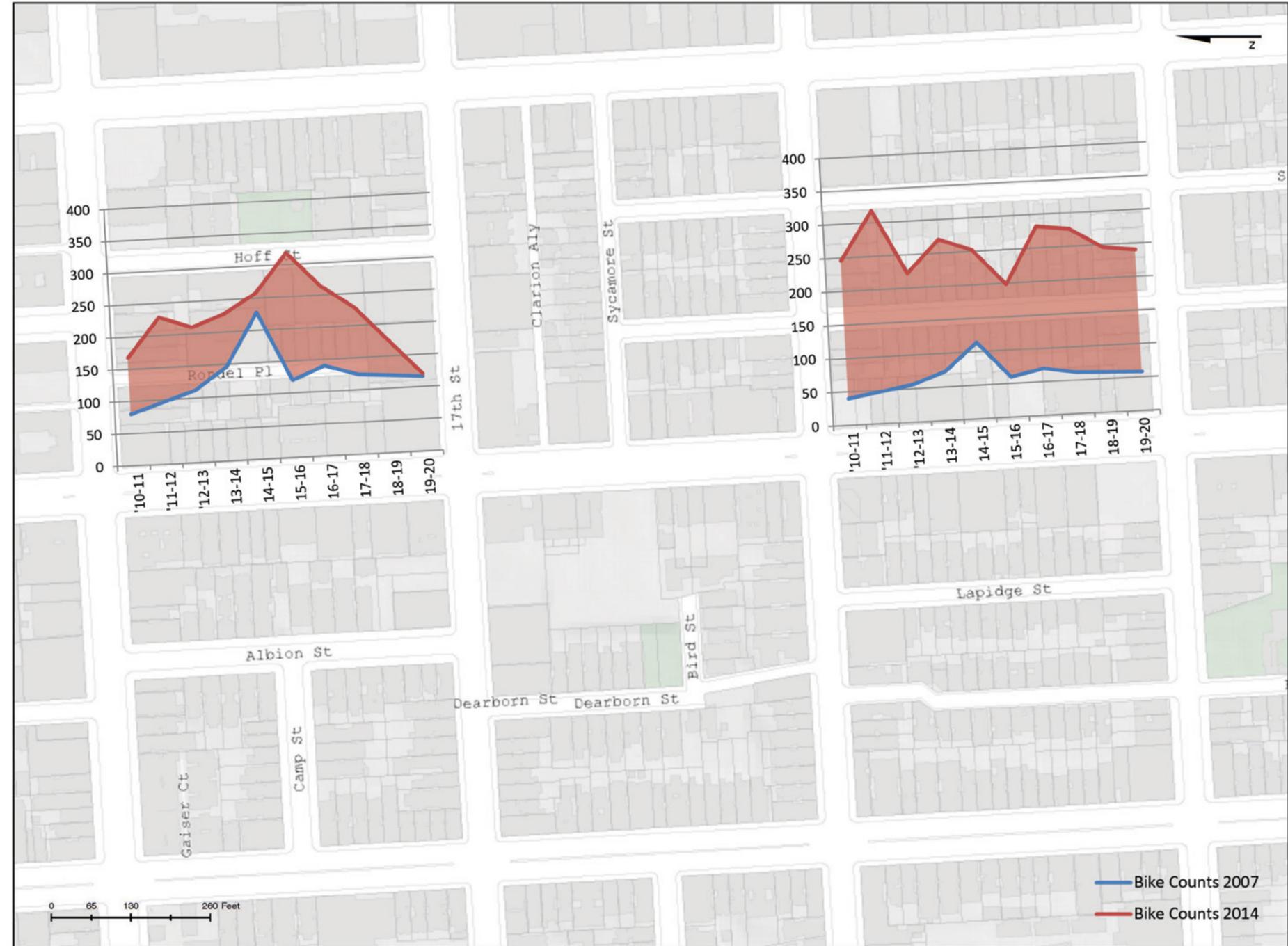
Pedestrian Counts in an hour from 10 AM to 20 PM on a Weekend in 2007 and 2014 - Valencia Street



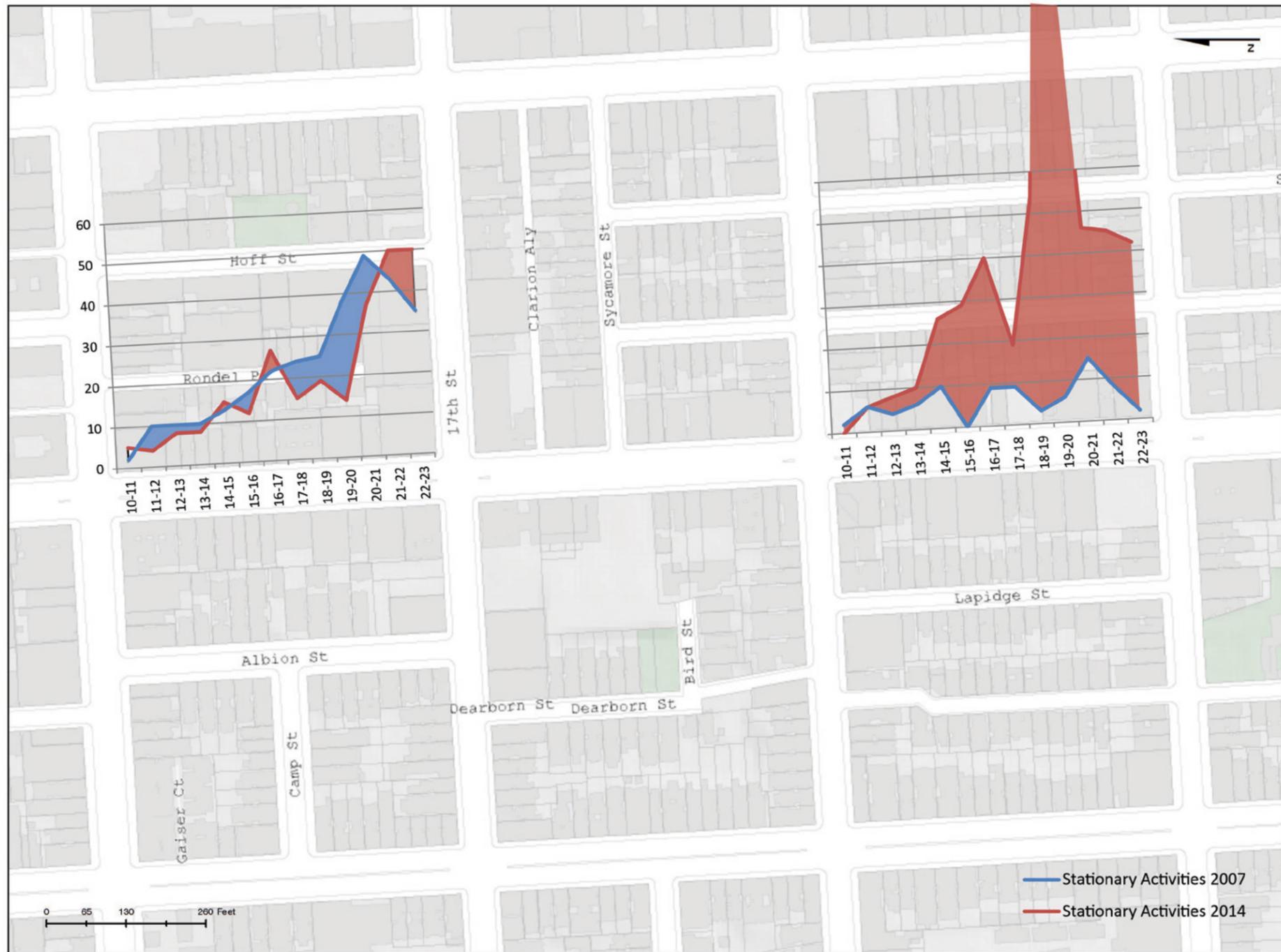
Bike Counts from 10 AM to 23 PM on a Weekday in 2007 and 2014 - Valencia Street



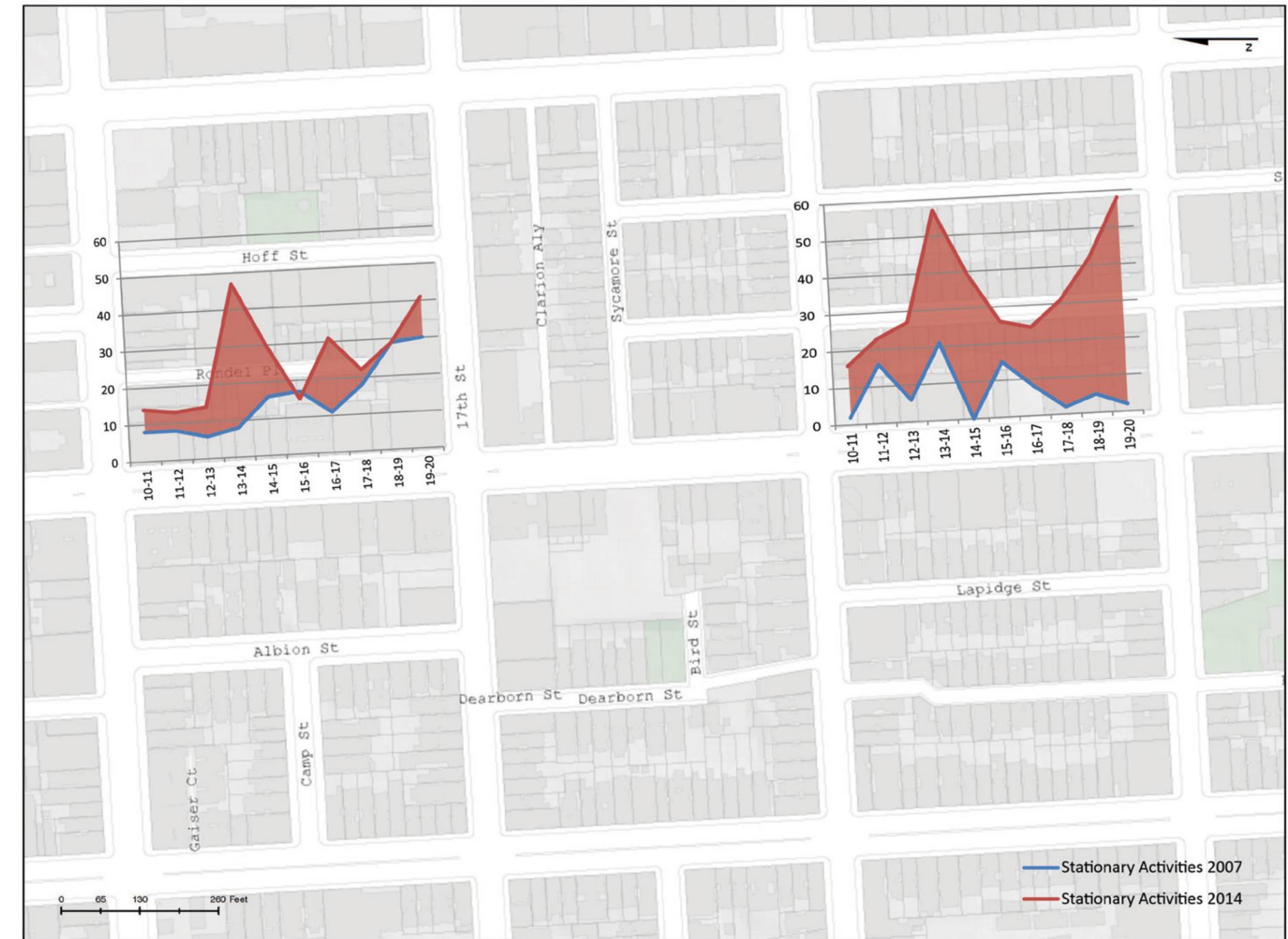
Bike Counts in an hour from 10 AM to 20 PM on a Weekend in 2007 and 2014 - Valencia Street



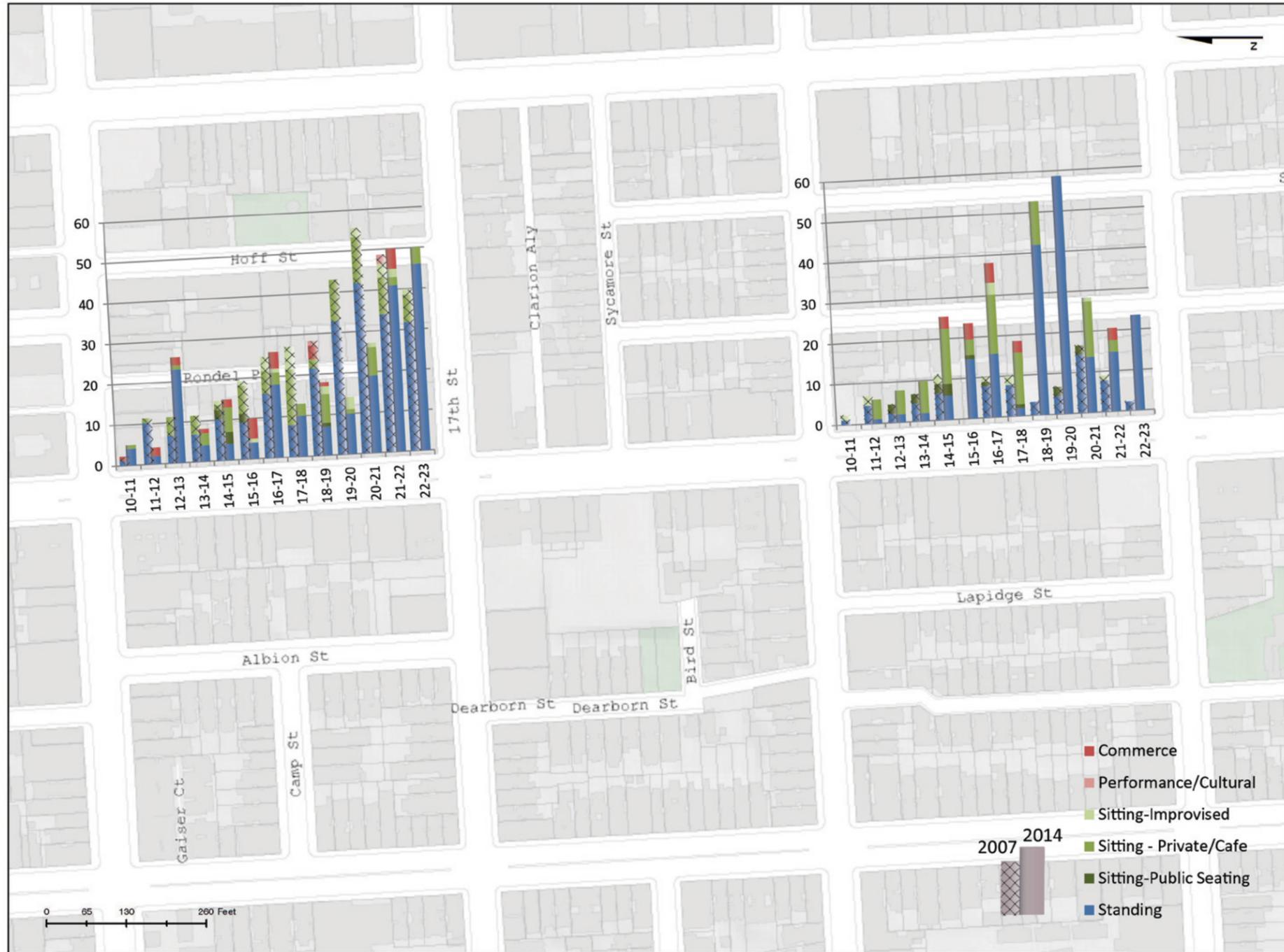
Stationary Pedestrians from 10 AM to 23 PM on a Weekday in 2007 and 2014 - Valencia Street



Stationary Pedestrians from 10 AM to 20 PM on a Weekend in 2007 and 2014 - Valencia Street



Stationary Pedestrians Categorized by their Activities from 10 AM to 23 PM on a Weekday in 2007 and 2014 - Valencia Street

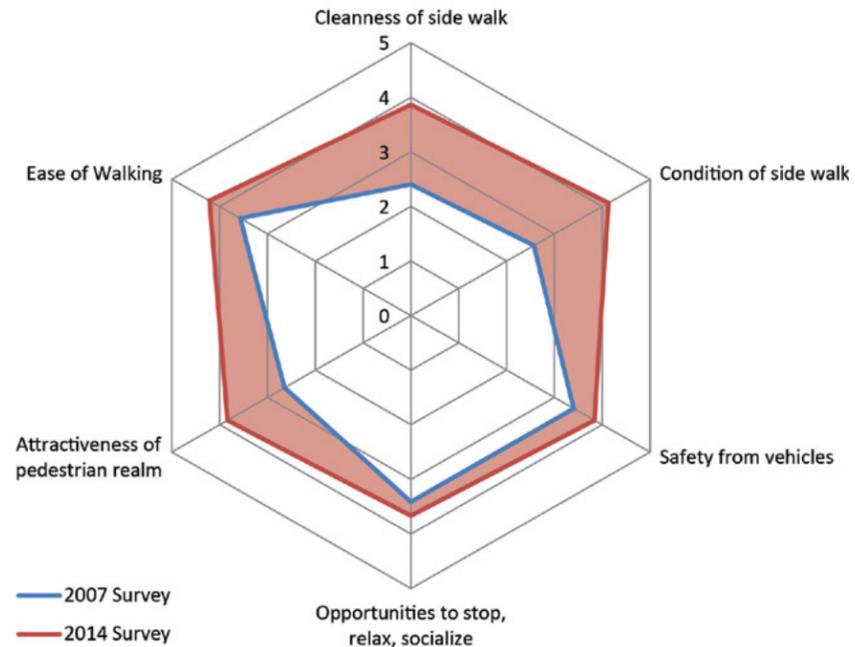


Stationary Pedestrians Categorized by their Activities from 10 AM to 20 PM on a Weekend in 2007 and 2014 - Valencia Street



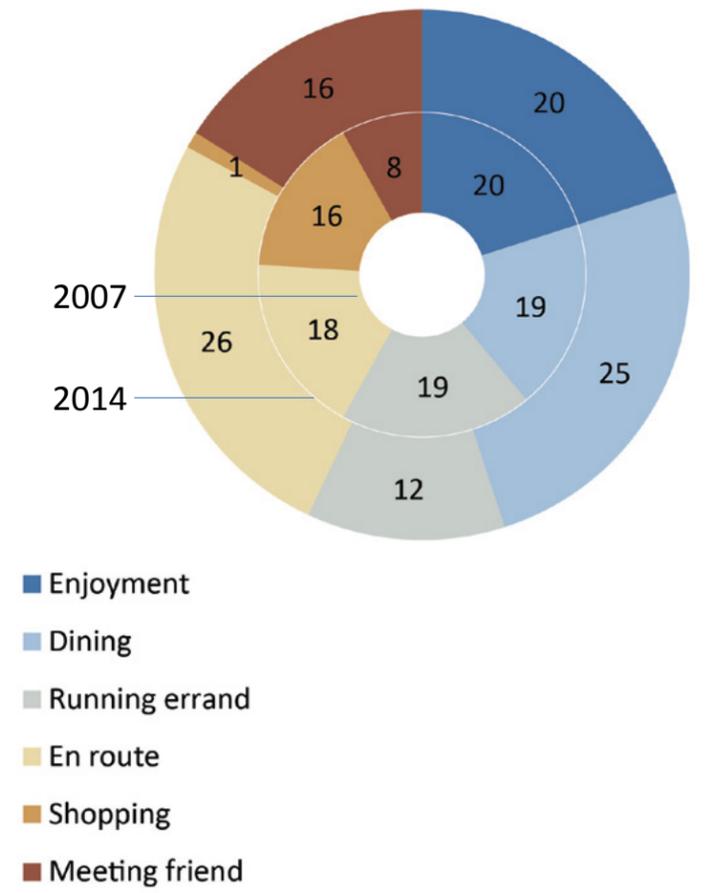
From Valencia St. Pedestrian Survey:
 (the total number of respondents is 100 in 2007 and 70 in 2014)

HOW SATISFIED STREET USERS ARE IN THE SIX CATEGORIES: COMPARING SURVEY RESULTS IN 2007 AND 2014



From Valencia St. Pedestrian Survey:
 (the total number of respondents is 100 in 2007 and 70 in 2014)

WHAT IS THE REASON TO VISIT, (PERCENTAGE OF RESPONDENTS): COMPARING SURVEY RESULTS IN 2007 AND 2014



Pedestrian Counts classified by gender from 10 Am to 6 Pm on a Weekday 2014 - Lower and Upper Leland

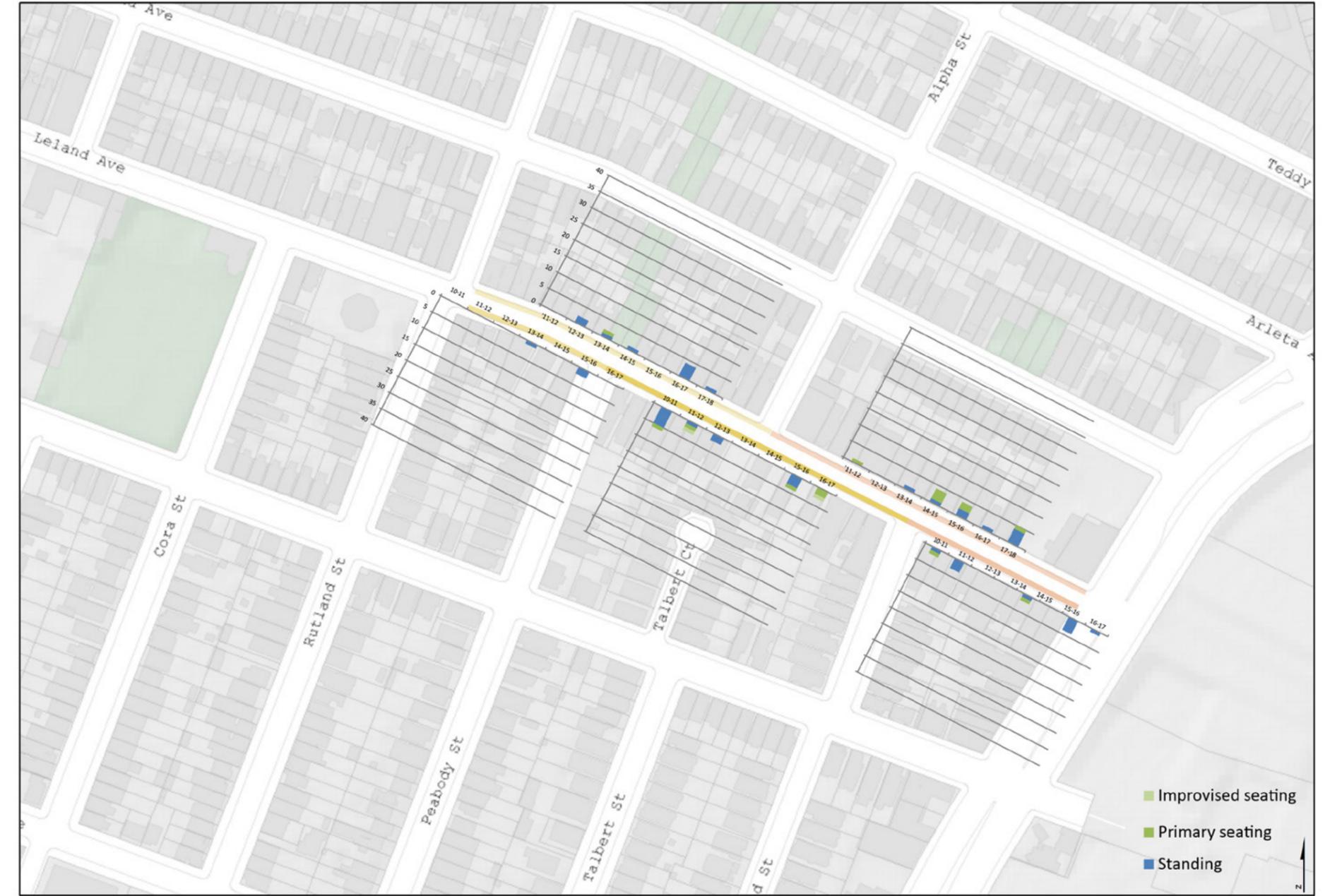


Pedestrian Counts classified by direction and gender from 10 Am to 6 Pm on a Weekday 2014 - Leland



0 87.5 175 350 Feet

Stationary Pedestrians from 10 Am to 6 Pm on a Weekday in 2014 - Each block side of Leland Avenue



0 87.5 175 350 Feet

Pedestrian Counts from 10 Am to 6 Pm on a Weekday in 2007 and 2014 - Lower and Upper Leland



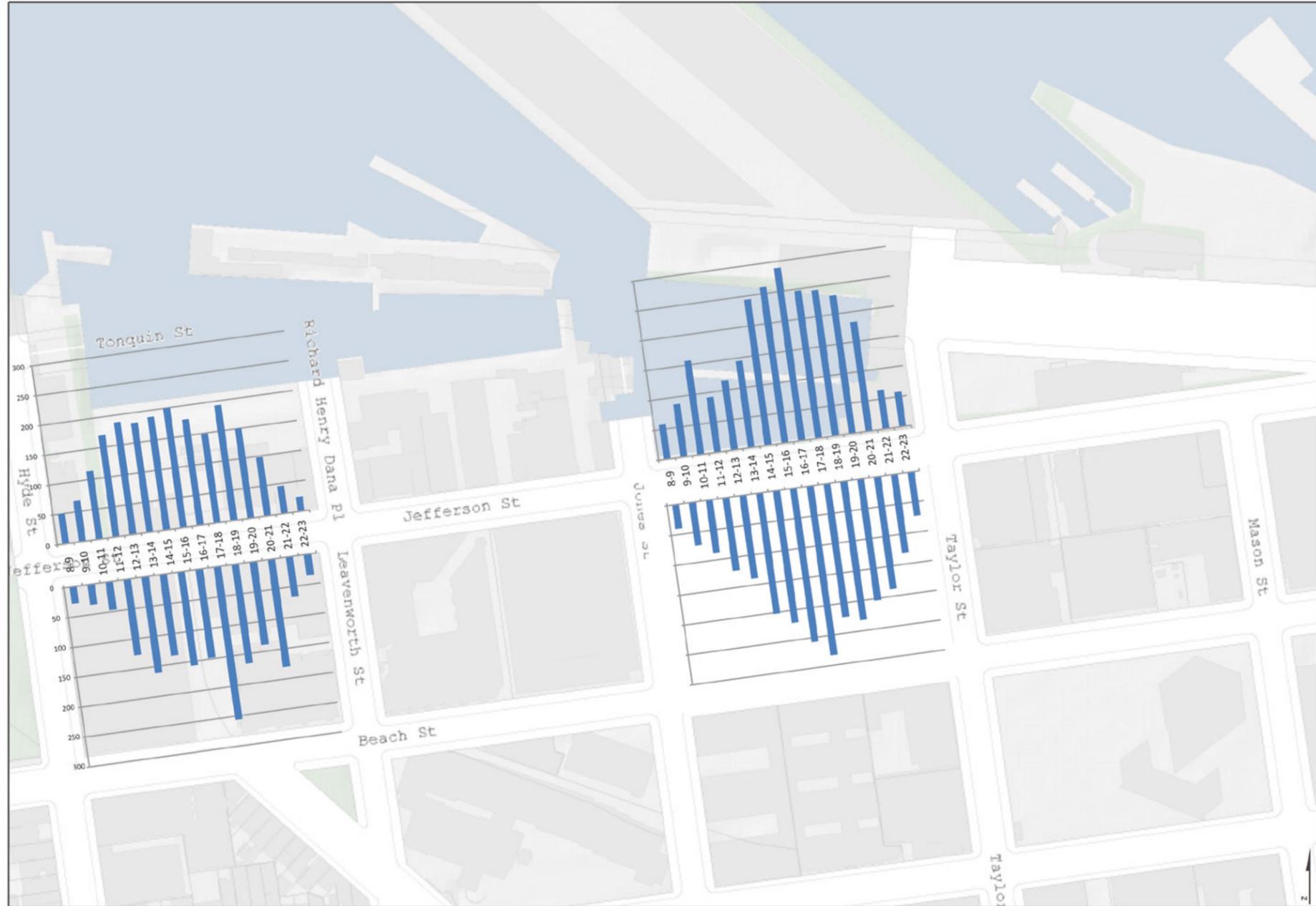
0 87.5 175 350 Feet

Stationary Pedestrians from 10 Am to 6 Pm on a Weekday in 2007 and 2014 - Leland Avenue

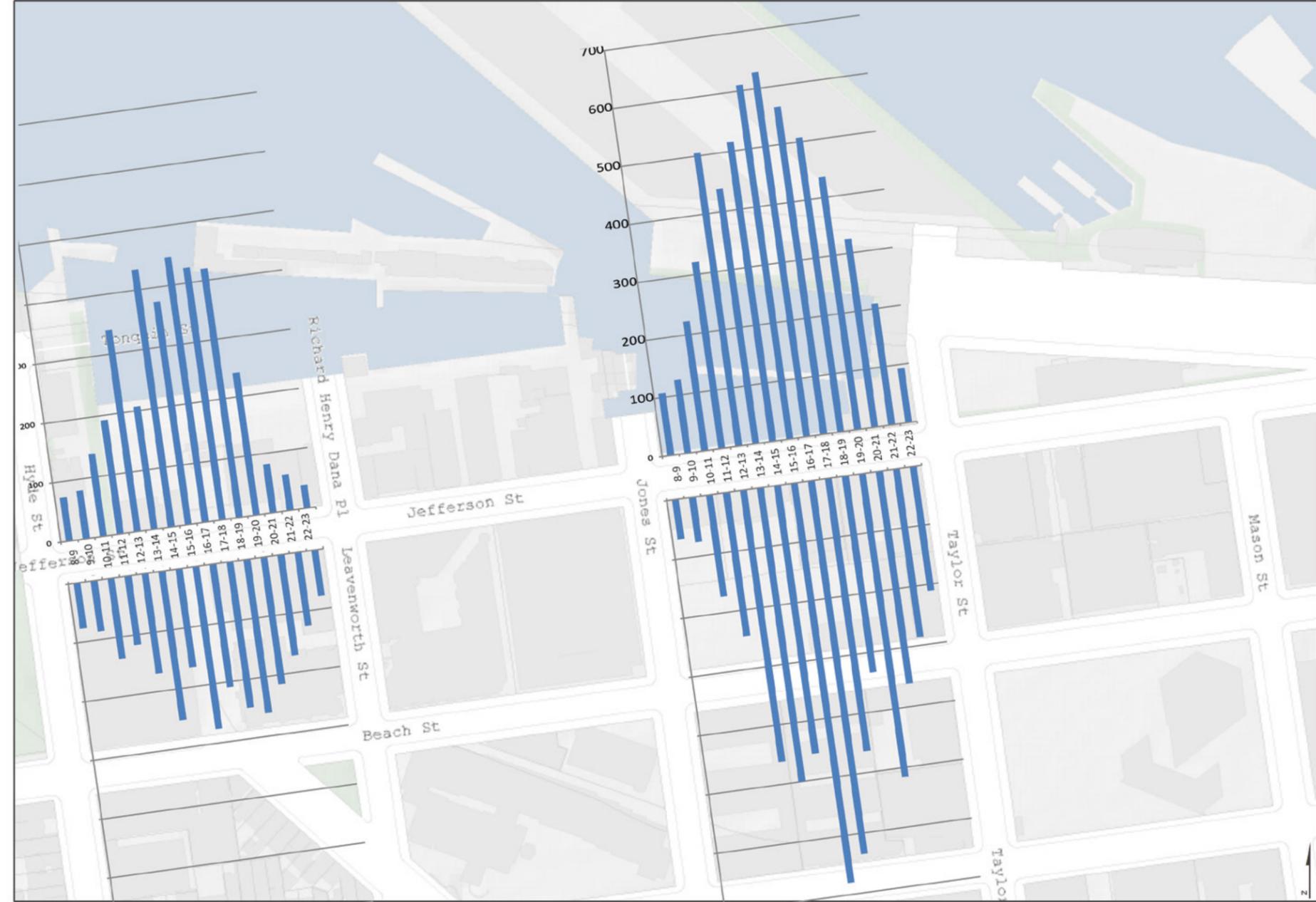


0 87.5 175 350 Feet

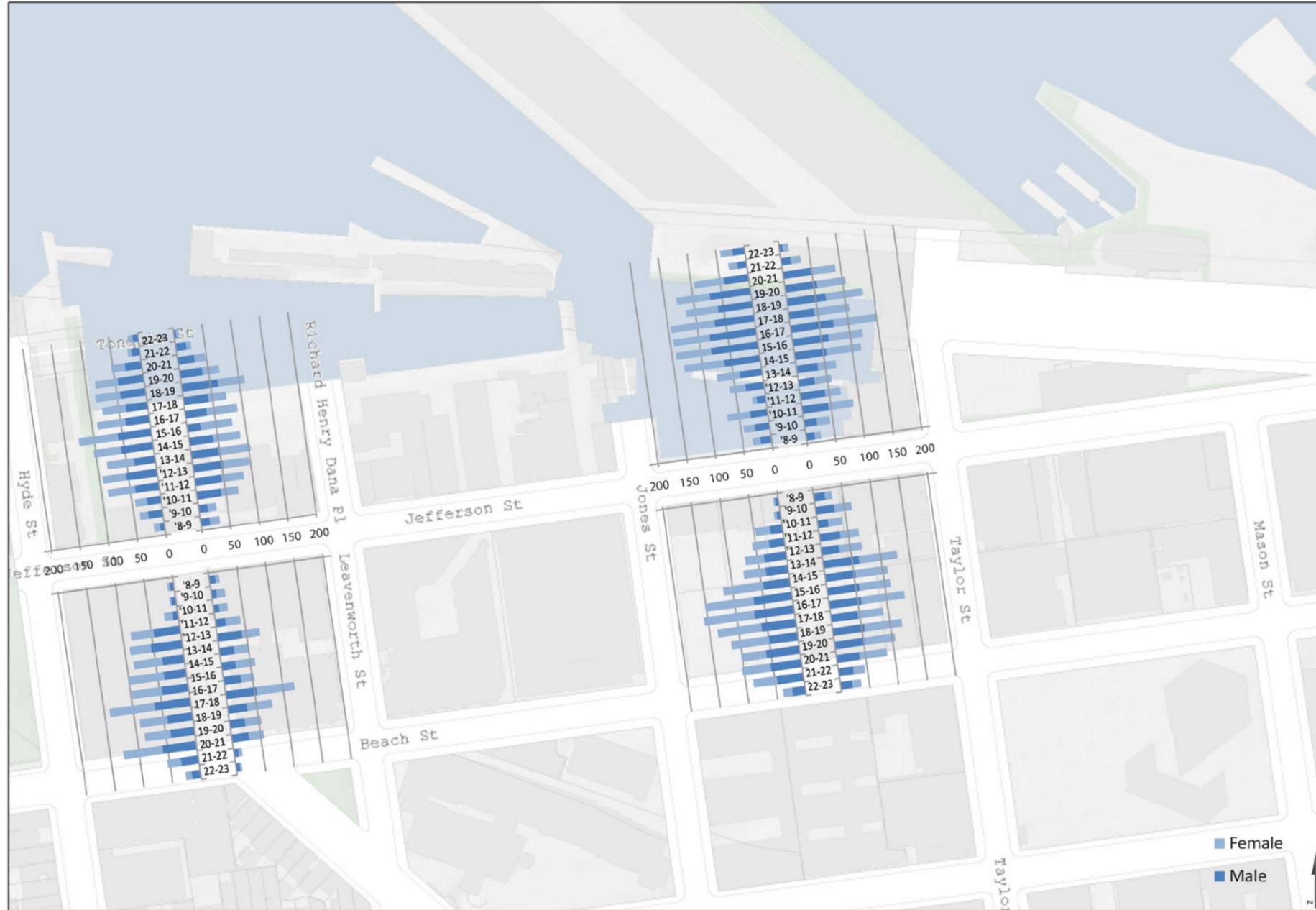
Pedestrian Counts Per 10 minutes along Jefferson Street from 8 Am to 11 Pm on a Weekday



Pedestrians 10 minutes Counts along Jefferson Street from 8 AM to 11 PM on a Weekend

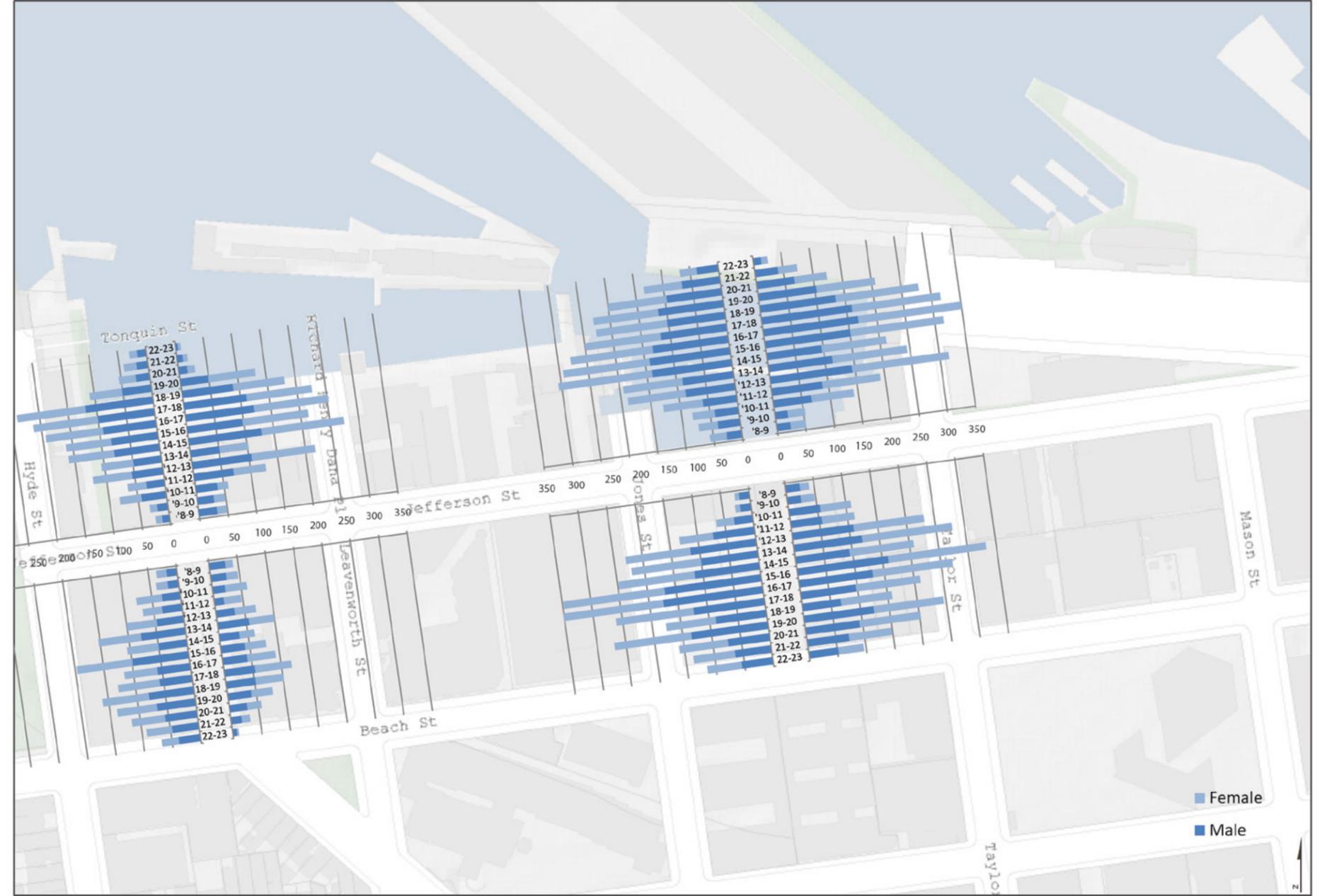


Pedestrian Counts Classified by Direction and Gender along Jefferson Street from 8 AM to 11 PM on a Weekday



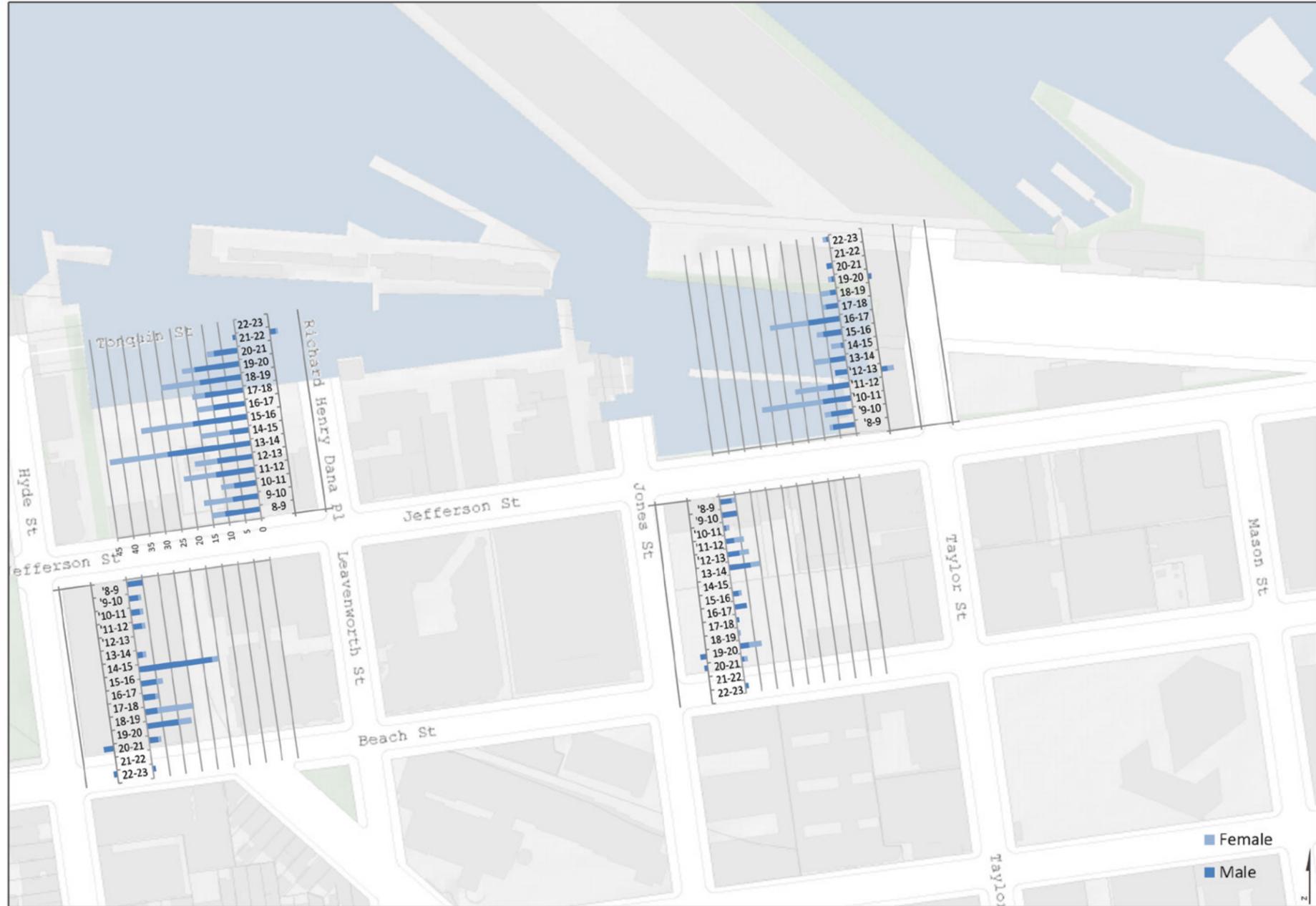
0 87.5 175 350 Feet

Pedestrians 10 minutes Counts Classified by Direction and Gender from 8 AM to 11 PM on a Weekend



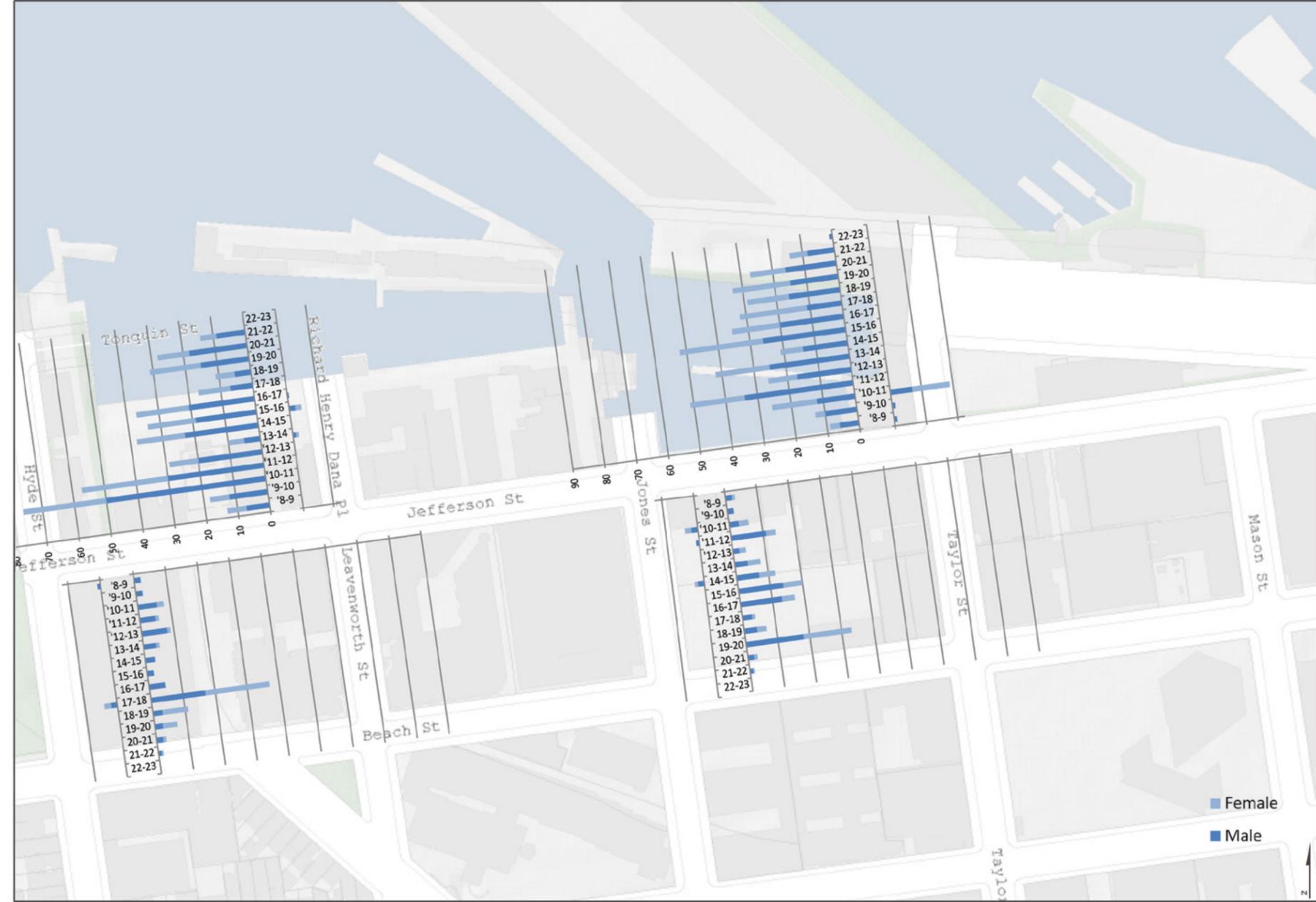
0 87.5 175 350 Feet

Bike counts along Jefferson Street from 8 Am to 11 Pm on a Weekday



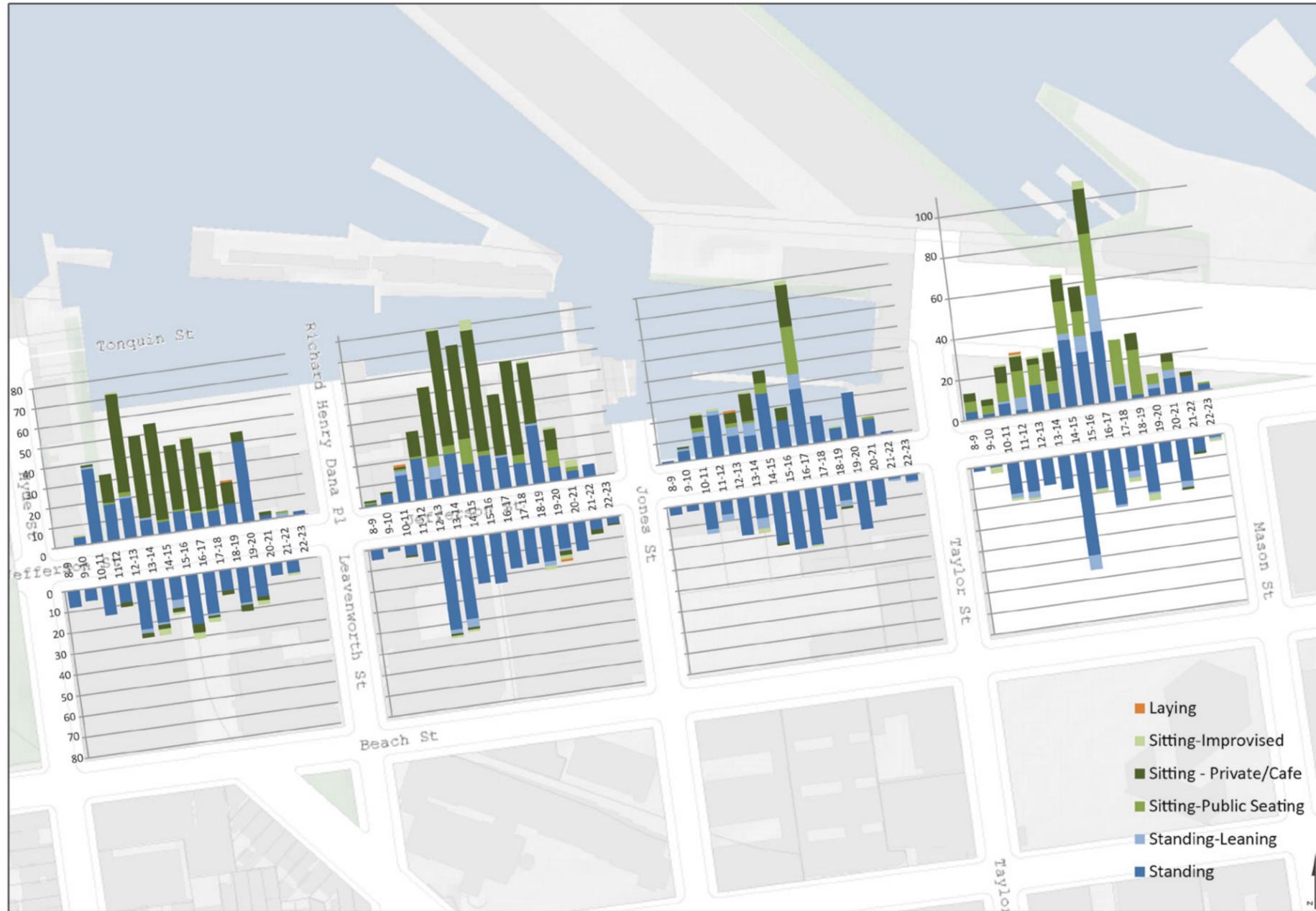
0 87.5 175 350 Feet

Bike counts 10 minutes per hour along Jefferson Street from 8 AM to 11 PM on a Weekend



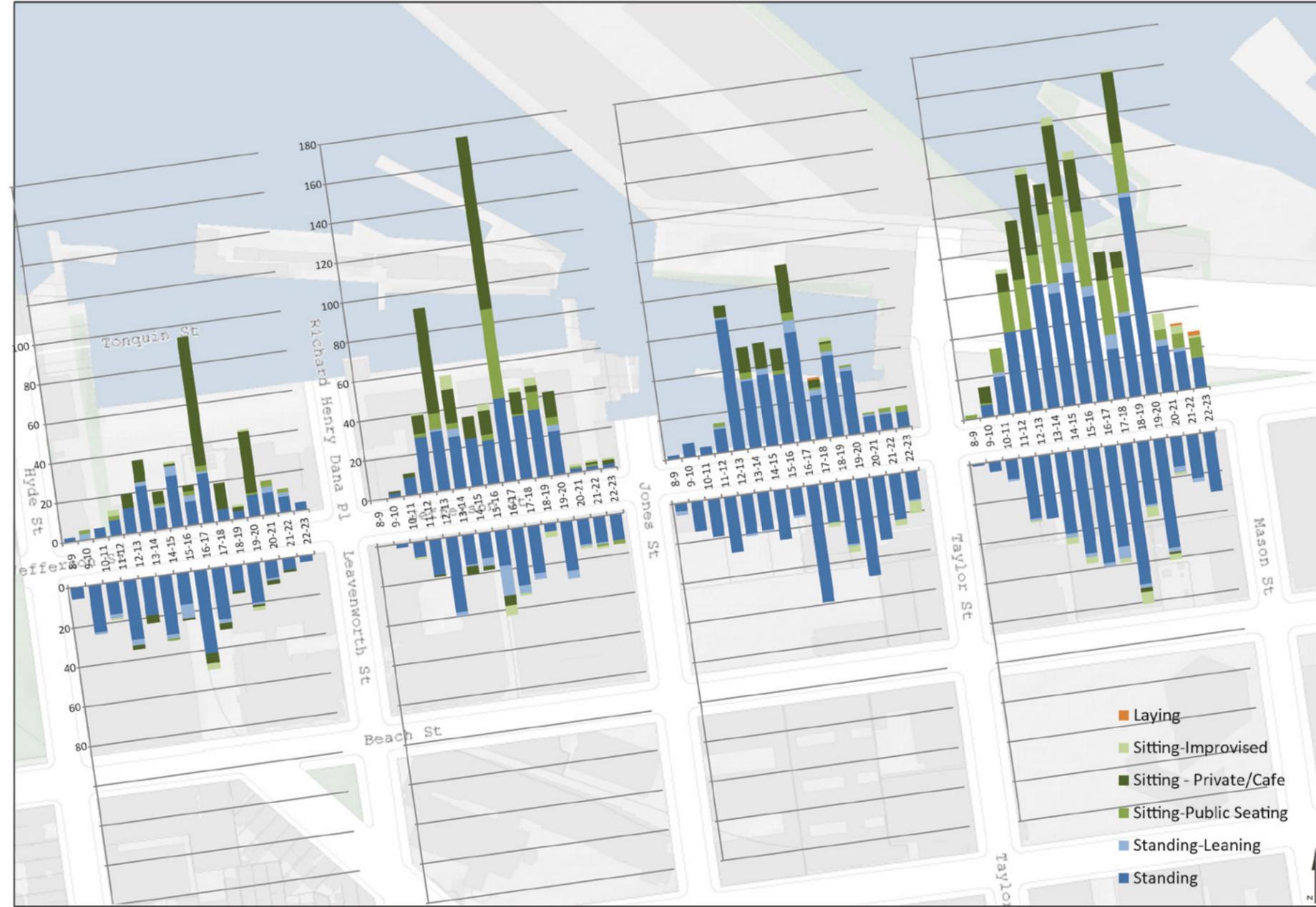
0 87.5 175 350 Feet

Stationary Pedestrians Classified by their Posture along Jefferson Street from 8 AM to 11 PM on a Weekday



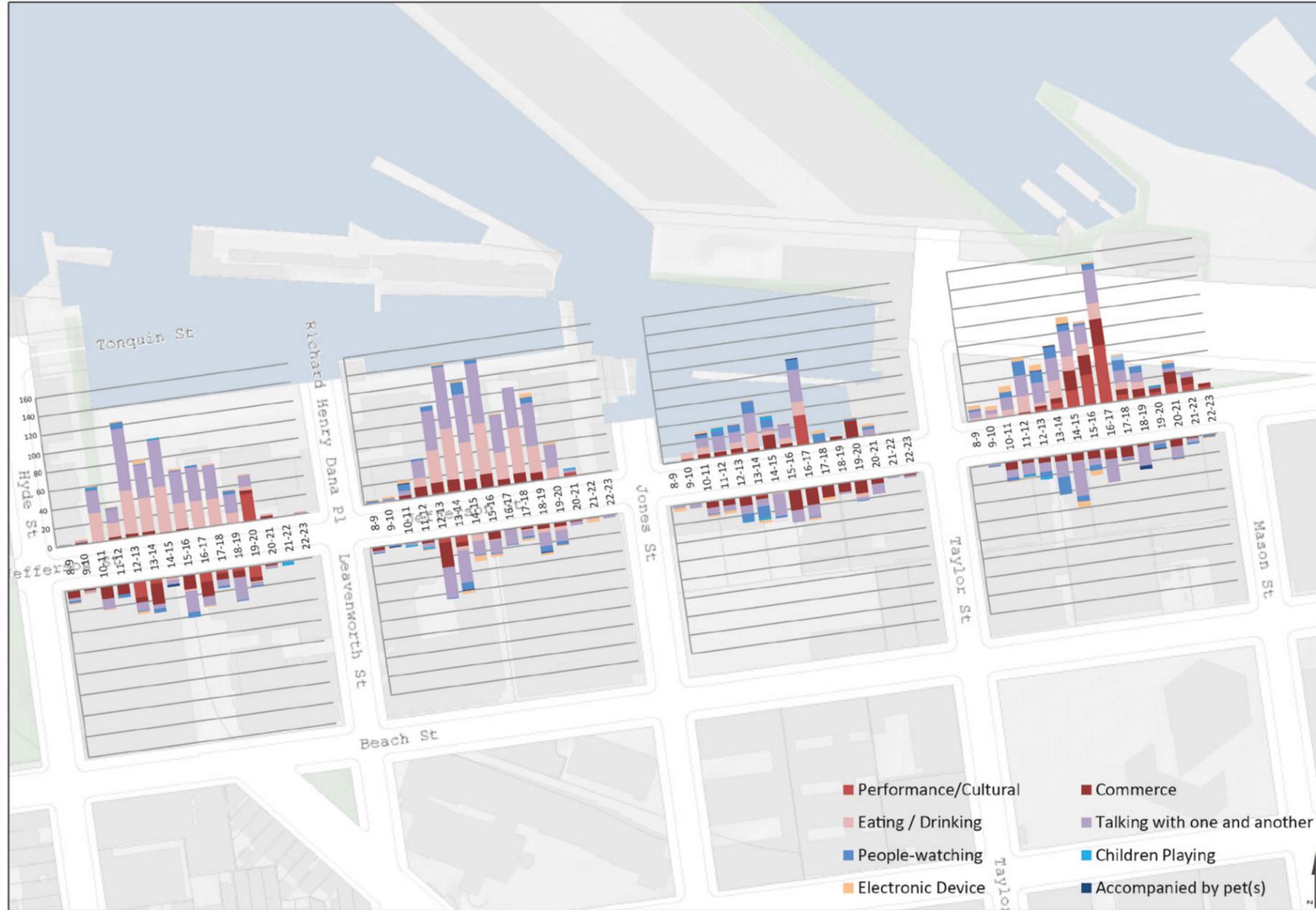
0 87.5 175 350 Feet

Stationary Pedestrians Classified by their Posture along Jefferson Street from 8 AM to 11 PM on a Weekend

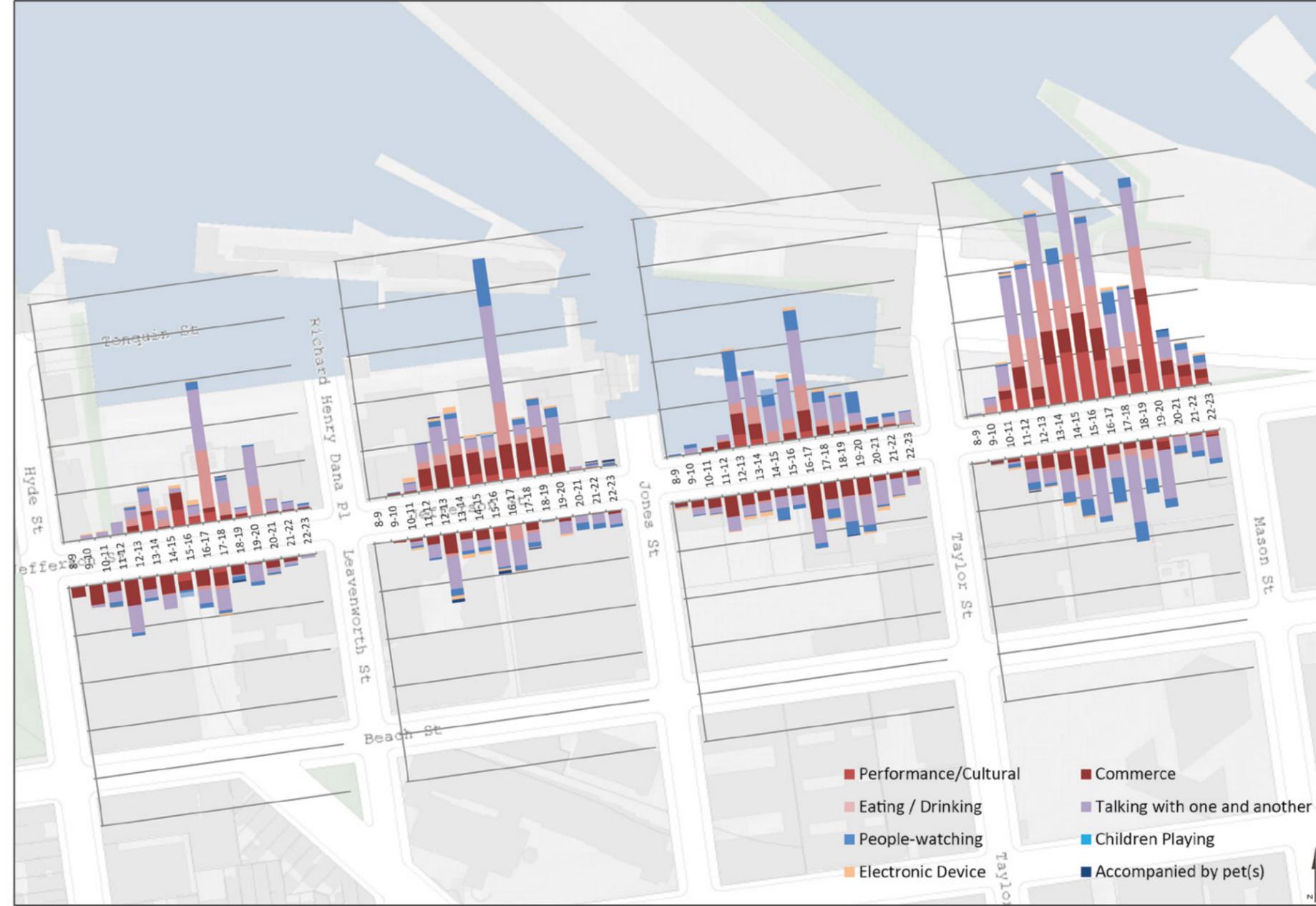


0 87.5 175 350 Feet

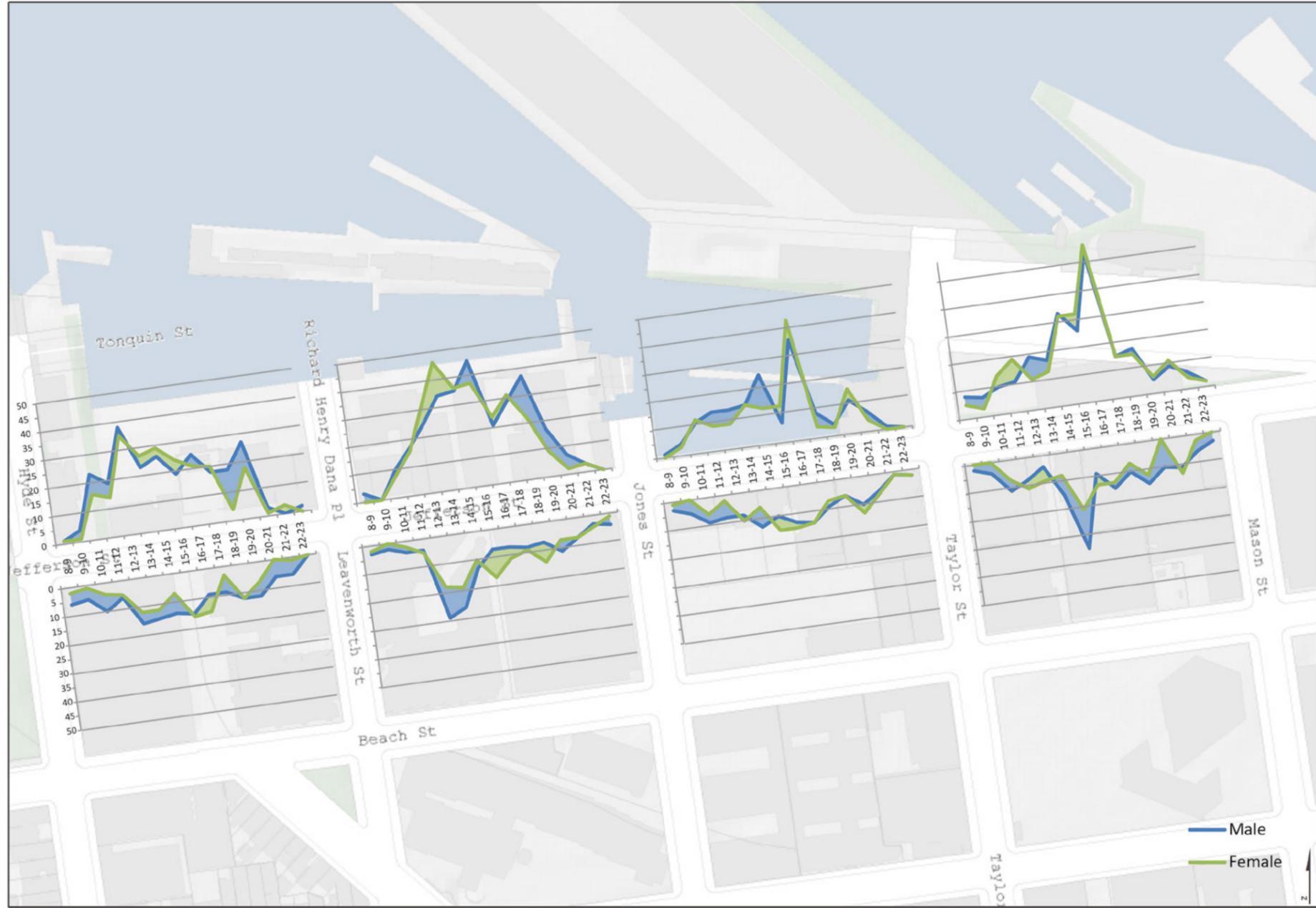
Stationary Activities along Jefferson Street from 8 AM to 11 PM on a Weekday



Stationary Activities along Jefferson Street from 8 AM to 11 PM on a Weekend

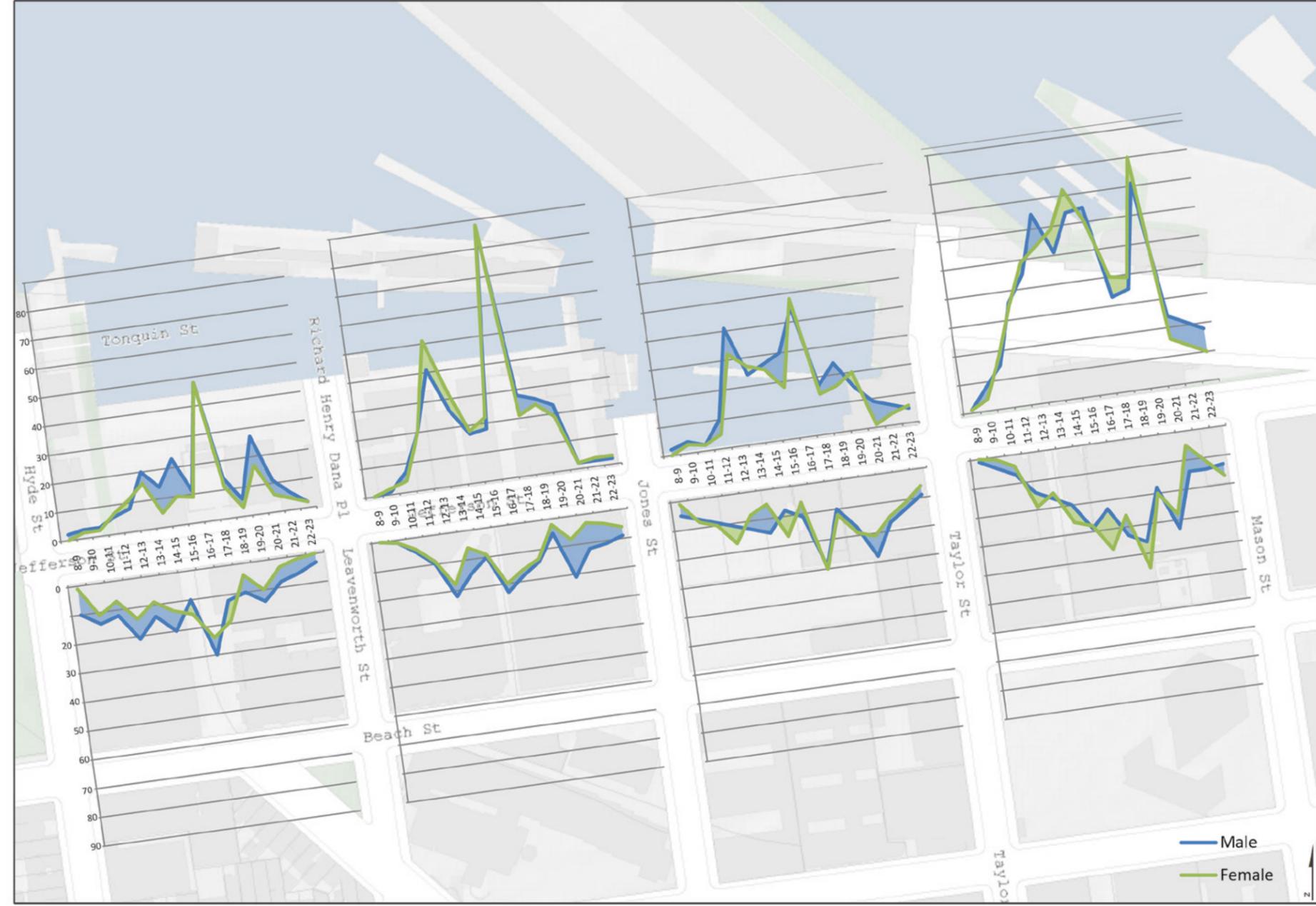


Stationary Pedestrians Classified by their Gender along Jefferson Street from 8 AM to 11 PM on a Weekday



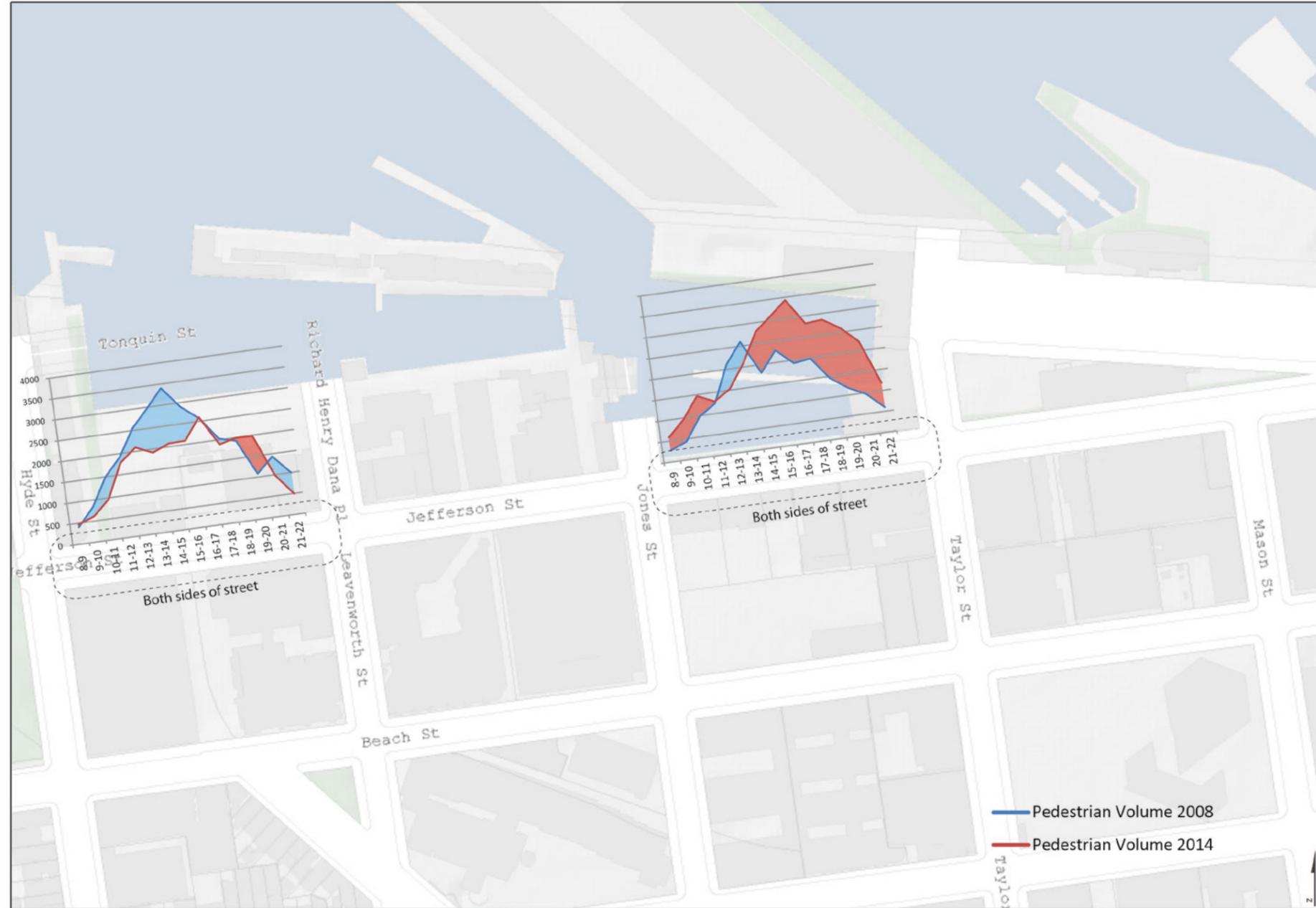
0 87.5 175 350 Feet

Stationary Pedestrians Classified by their Gender along Jefferson Street from 8 AM to 11 PM on a Weekend



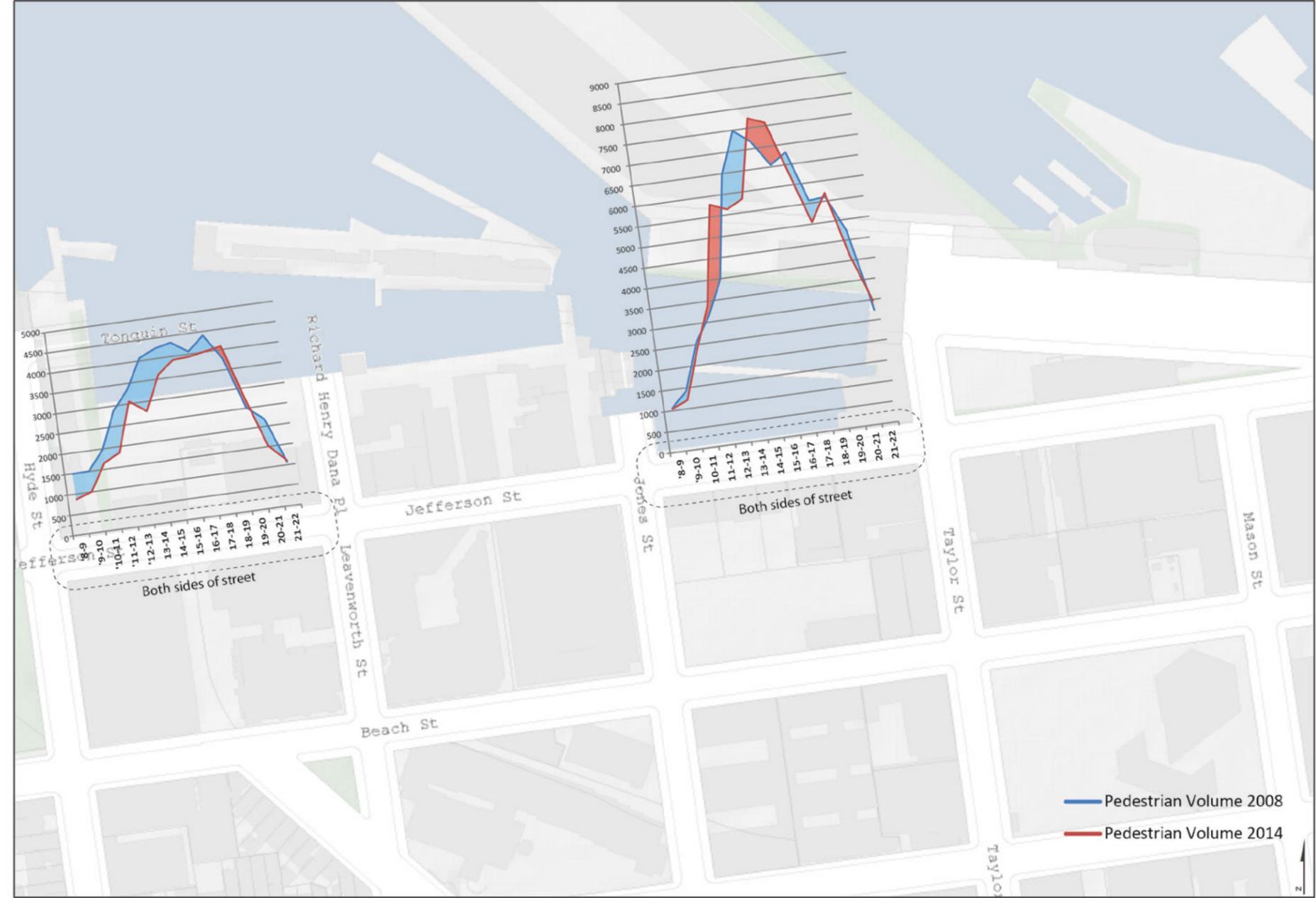
0 87.5 175 350 Feet

Pedestrian Counts per Hour from 8 AM to 10 PM on a Weekday in 2008 and 2014



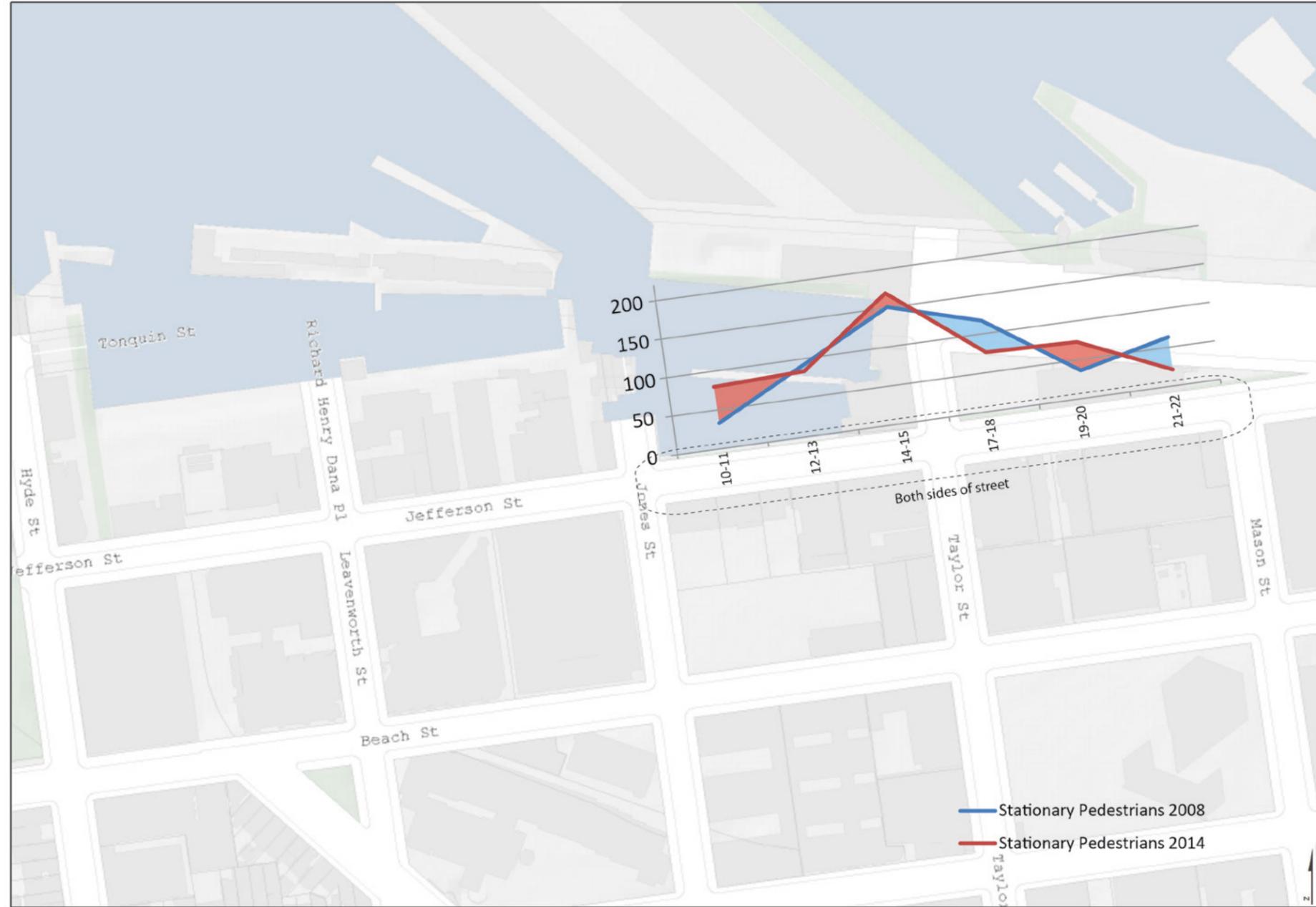
0 87.5 175 350 Feet

Pedestrian Counts per Hour from 8 AM to 10 PM on a Weekend in 2008 and 2014

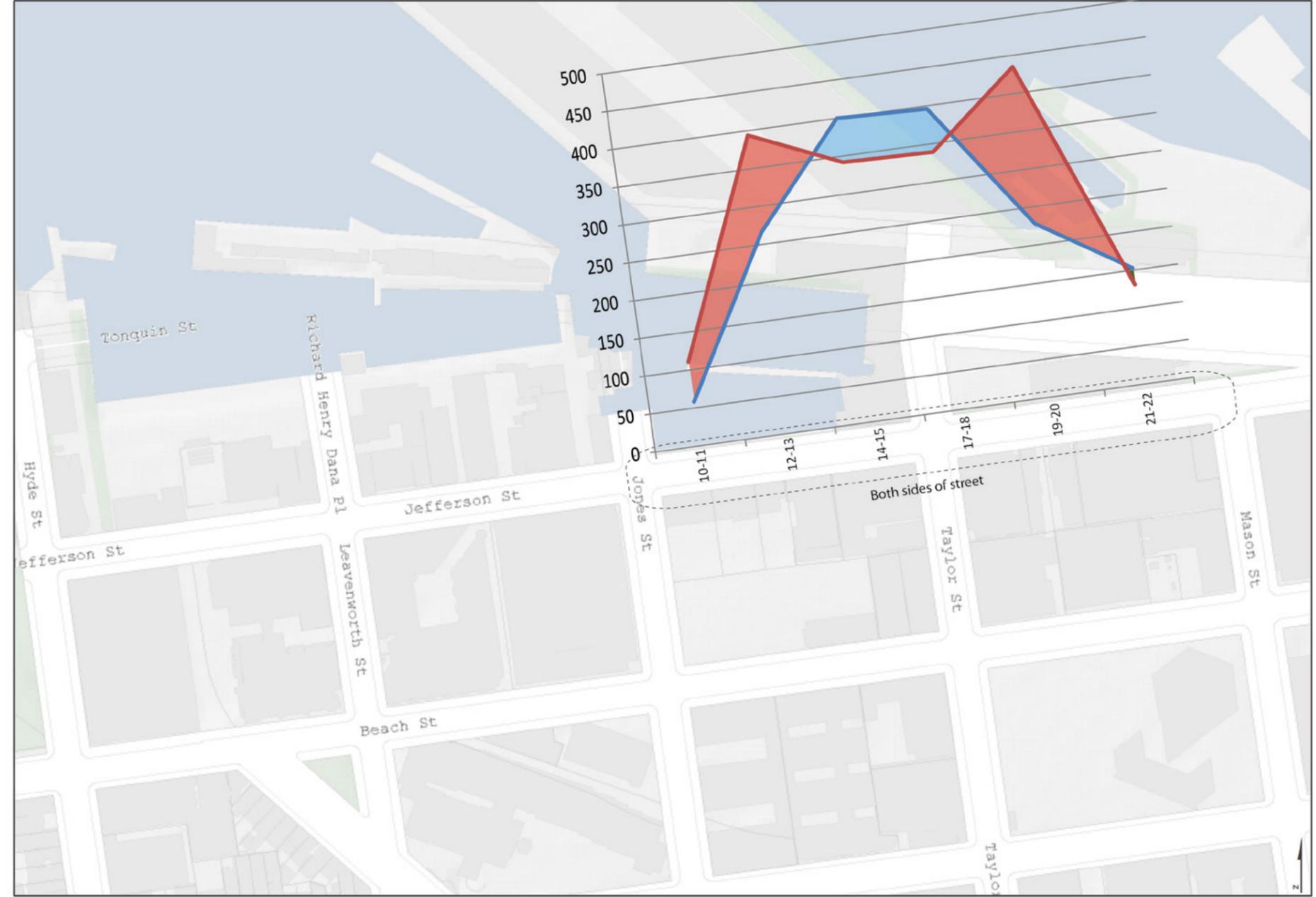


0 87.5 175 350 Feet

Stationary Pedestrians from 9 Am to 10 Pm on a Weekday in 2008 and 2014



0 87.5 175 350 Feet

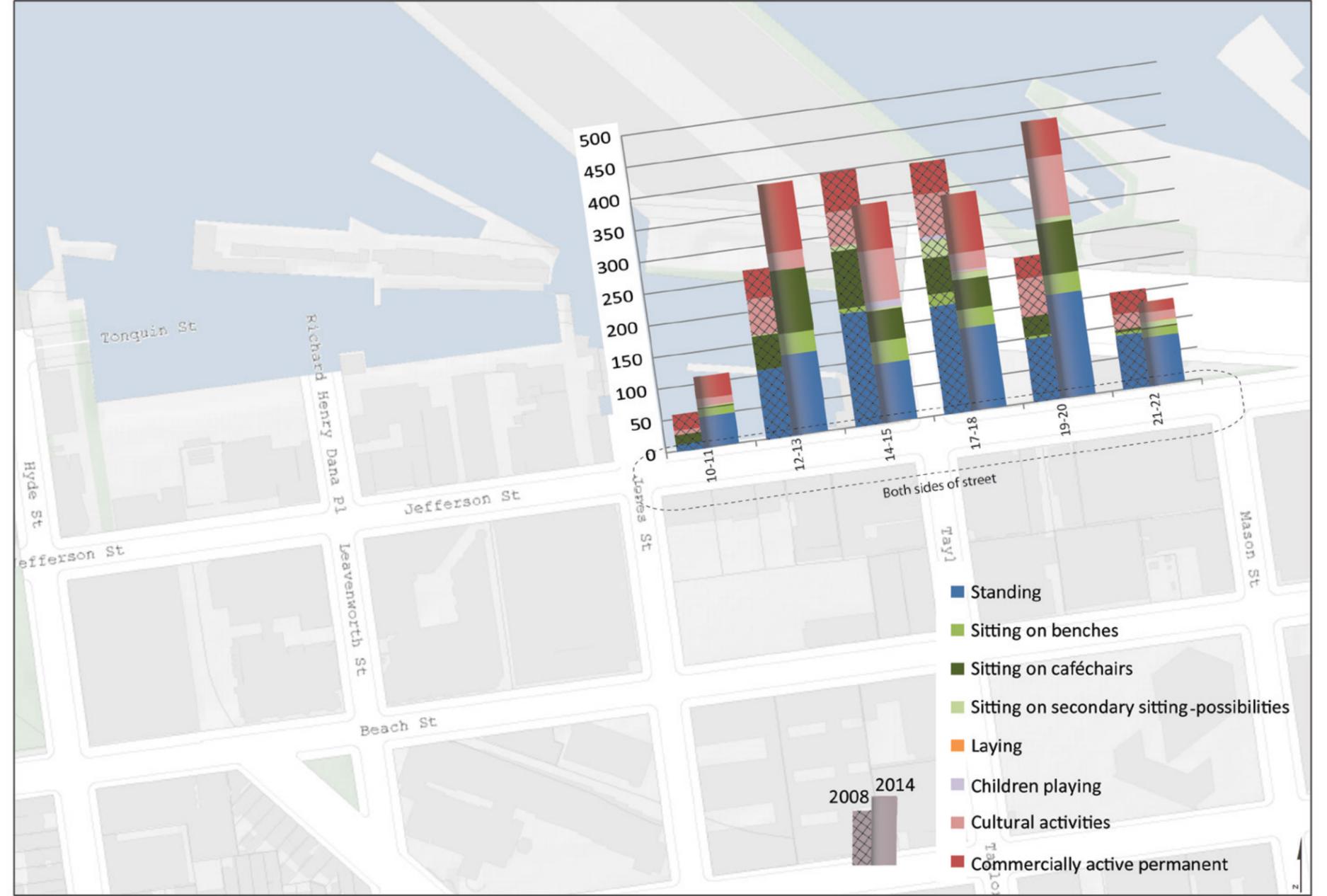


0 87.5 175 350 Feet

Stationary Pedestrians from 9 Am to 10 Pm on a Weekday in 2008 and 2014



Stationary Pedestrians from 10 AM to 9 PM on a Weekend in 2008 and 2014





DISCUSSION

The present study collected data on pedestrian volumes, stationary activities, and cycling traffic on portions of Jefferson Street, Valencia Street and Leland Avenue. It has also compared the changes on pedestrian and bicycle volume and stationary activities between pre-implementation and post-implementation phases. The opinions of street users on a host of issues regarding the quality of pedestrian environment were surveyed and compared with the similar study prior to the streetscape improvements – but only on Valencia Street. Besides evaluating the use of public open spaces in these streets, some valuable lessons can be learned from this study. These lessons are categorized into design and planning considerations for future streetscape projects.

DESIGN CONSIDERATIONS FOR STREETScape PROJECTS

Providing public seating is a common recommendation for activating public spaces, but more public/café seating doesn't necessarily lead to more use of space.

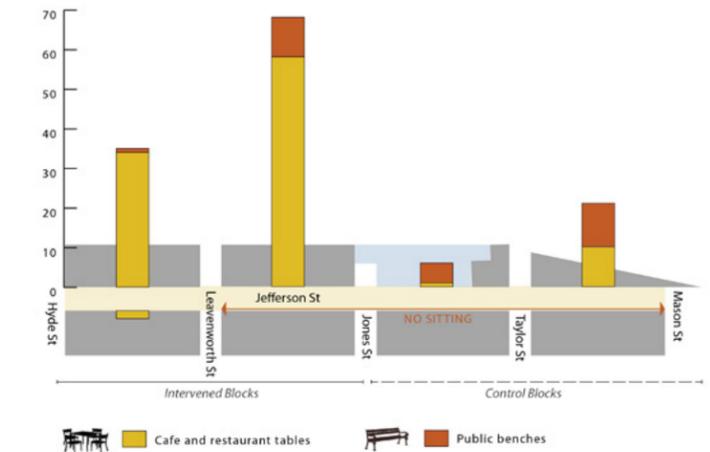
The underused public seating at Leland Avenue is a good example to show more public/café seating does not necessarily lead to more use of space. However, streetscape projects typically have a long lifespan. That is why the underused public seating may not remain an issue in 5 or 10 years, only if the appropriate activity and land-use changes occur.



LELAND AVENUE-UNDERUSED PUBLIC SEATINGS
Photo taken 16/7/2014

West Jefferson (the segment which received the streetscape improvements) has four times more seats than the east side, and on a sunny day it is all active and well-used. However on a relatively cold or windy day, the east segment is more active; mainly because of the ground-level activities on the east segment. For example Boudin Bakery's snacks and soups can be eaten much faster than the foods of local restaurants on the east; so

PUBLIC AND PRIVATE SITTINGS



Public space design depends highly on its interaction with adjacent buildings and their design. Transparency, accessibility, permeability of fronting architecture are contributing factors to a successful public space.

A recognized opinion in urban design is that the number of building (retail) entrances has impact on the vitality of sidewalks. On Jefferson Street, the level of activity on the sidewalk between Taylor Street and Mason Street (Even-side) is very high, despite having only one building with one entrance on the block. That building (Boudin Bakery) is a good case study that shows how building design can have impact on the vitality of public realm: High level of transparency at the ground level, direct and visible connection between Jefferson Street and the port through the entrance of the building, making private café seating accessible for the public and also providing public benches along the sidewalk. In addition, having visual and vocal communication between the bakers and pedestrians was a brilliant idea that considerably increased the vitality of sidewalk.



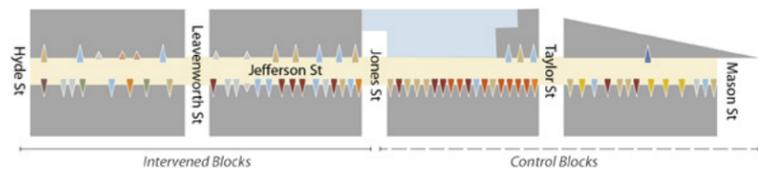
JEFFERSON STREET- BOUDIN BAKERY- WEEKDAY 10:30 PM - Photo taken 16/7/2014

Streetscape designs should not consist of purely standard or generic elements. Each neighborhood needs some unique physical features and character. However, character and place-making through streetscape design is a creative practice that may be susceptible to failure.

For example, Leland Avenue has three unique features: a storm water management system, a sculpture, and crafted public seating. All three are not working as well as they should. The storm water management system is not well maintained. The sculpture is not a character-defining feature it was intended to become for the neighborhood. And its public seating is considerably underused. On the other hand, Jefferson Street had a successful experience with a series of unique short walls that are comfortable for sitting and not for sleeping. In addition, the designers of Jefferson Street deliberately kept the street design simple and refined. The goal was to reduce visual and physical clutter since the district is so busy. Also, in Valencia Street the bulbouts for bicycle racks are well-used and distinct feature of the street.

GROUND FLOOR ACTIVITIES AND ENTRANCES

- ▲ Bakery
- ▲ Bar & restaurant
- ▲ Food retailer such as winery, chocolate, ice cream, sauce or hand rolls
- ▲ Bike rental
- ▲ Hotel
- ▲ Other retailers such as camera and digital shop, bath and body care, and sunglass shop
- ▲ Art Gallery
- ▲ Ticket activity center
- ▲ Entertainment center
- ▲ Gift shop
- ▲ Fish company
- ▲ Vacant



LELAND AVENUE
Photo taken 16/7/2014



JEFFERSON STREET
Source: San Francisco Planning Dept.
Photo taken June 2013

PLANNING CONSIDERATIONS FOR STREETScape PROJECTS

Think about this question first: What is the real purpose of the streetscape project?

Valencia Street is located in the Mission district, a neighborhood which has been going through intense redevelopment since before the streetscape project. The streetscape project was a project at a right place in a right time. It was essentially a physical manifestation of the continuing positive socioeconomic changes in the neighborhood. For Leland Avenue, the streetscape project was proposed as an economic stimulator for a low income neighborhood. This kind of project is usually more ambitious, challenging, and sometimes unpredictable, because its goal is to have socio-economic impacts via physical interventions. For Jefferson Street, the streetscape project was proposed to provide expanded functional areas for local merchants and restaurateurs, to improve pedestrian/cycling safety and comfort, to enrich the perception of Fisherman's Wharf for both visitors and locals and ultimately to keep Jefferson Street as one of the most visited places in San Francisco. The biggest challenge for this project was to make a good place even greater. Overall, it seems that each streetscape project was initiated with a unique backstory that played a huge role on its success or failure after implementation. Therefore, it is essential to define the purpose of streetscape projects clearly from the beginning, because the main purpose of the project can influence the design and implementation choices in a clear manner.

Monitoring land use changes at the corridor and the neighborhood level can increase the feasibility of the remaining aspects or phases of streetscape projects.

Investment on the streetscape of a commercial corridor is going to pay off well only if the corridor maintains its commercial identity. Therefore, it is essential to monitor land use change at the corridor level and the neighborhood level. Studying the land use changes at Leland Avenue and Valencia Street from 2008 to 2013 at the corridor level and the quarter mile buffer reveals that Valencia Street was successful in maintaining its commercial identity despite of significant increase in the residential uses

at the ¼ mile buffer. On the other hand, in Leland Avenue the percentage of parcels that has changed to residential is much higher at the corridor level than the ¼ mile buffer. It is not easy to determine the cause and effect relationship in these cases; the streetscape projects could expedite the land-use changes, or they might have insignificant impact on these changes. However, it is clear that the success of the projects highly depends on desirable/planned land use changes. Therefore, it is a wise decision to monitor land use changes to increase the feasibility of the remaining aspects or phases of streetscape projects.

LAND USE CHANGE - ADJACENT TO VALENCIA STREET AND IN A 1/4 MILE BUFFER

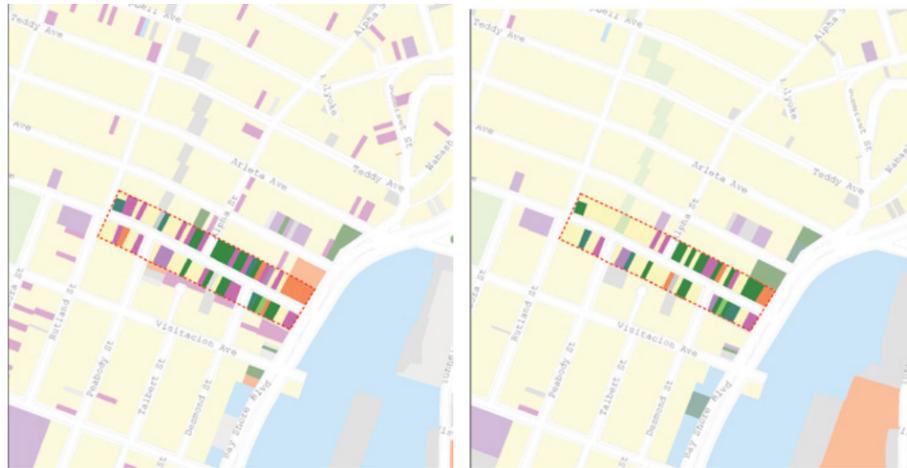


Parcels adjacent to the improved sidewalks

LANDUSE	# 2008	# 2013	# Change	% Change
CIE	3	2	-1	-1.5
MIPS	4	1	-3	-4.6
MIXED	1	3	2	3.1
MIXRES	19	17	-2	-3.1
PDR	6	5	-1	-1.5
RESIDENT	15	19	4	6.2
RETAIL/ENT	14	14	0	0
VACANT	2	3	1	1.5

Parcels in a ¼ mile buffer from street centerline

LANDUSE	# 2008	# 2013	# Change	% Change
CIE	43	45	2	0.1
MED	4	4	0	0.0
MIPS	24	13	-11	-0.6
MIXED	47	45	-2	-0.1
MIXRES	341	174	-167	-9.1
PDR	38	44	6	0.3
RESIDENT	1178	1363	185	10.1
RETAIL/ENT	107	86	-21	-1.1
VACANT	18	40	22	1.2



2008

2013

Parcels adjacent to the improved sidewalks

LANDUSE	# 2008	# 2013	# Change	% Change
CIE	4	3	-1	-1.5
MED	1	1	0	0.0
MIPS	5	3	-2	-2.9
MIXED	4	3	-1	-1.5
MIXRES	17	8	-9	-13.2
OpenSpace	0	2	2	2.9
RESIDENT	24	37	13	19.1
RETAIL/ENT	12	11	-1	-1.5
VACANT	1	1	0	0.0

Parcels in a 1/4 mile buffer from street centerline

LANDUSE	# 2008	# 2013	# Change	% Change
CIE	22	20	-2	-0.1
MED	1	1	0	0.0
MIPS	9	4	-5	-0.3
Missing Data	20	0	-20	-1.2
MIXED	5	5	0	0.0
MIXRES	98	15	-83	-5.0
OpenSpace	1	27	26	1.6
PDR	11	14	3	0.2
RESIDENT	1448	1521	73	4.4
RETAIL/ENT	24	19	-5	-0.3
VACANT	47	41	-6	-0.4

- CIE - Cultural/Institutional/Educational
- MED
- MIPS - Management/Information/Professional/Services
- MIXED - Mixed use with no residential
- MIXRES - A lot with any use combined with residential
- Missing Data
- OPENSACE - Public Openspace
- OpenSpace - Public Openspace
- PDR - Production/Distribution/Repair
- RESIDENT - Residential
- RETAIL/ENT - Retail/Entertainment
- VACANT
- VISITOR - Hotel or Motel

Taking into account a potential delay for related projects, can increase the feasibility and the chance of success for streetscape projects.

Low pedestrian volume may be a key factor for Leland Avenue in losing its commercial characteristics. This low level of activities on Leland Avenue was not expected by planners. This project was planned as a piece of larger master plan to be an economic incentive for the neighborhood. For example, a high density residential development immediately south of the Leland and Bayshore intersection was proposed at the same time of the streetscape project of Leland Avenue. That project has not been constructed yet. The streetscape improvements on Leland Avenue could have had different impact on the vitality of public realm, if that development had been constructed according to the initial plan.



LELAND AVENUE PROJECT AREA AND RELATED PROJECTS

Planning process and public participation require unique strategies depending on the demographic characteristics of neighborhood.

Having public participation for the design process is an essential component for any large scale project. However, different communities face their own challenges and opportunities in this regard. For example, Leland Avenue is located in a low income neighborhood, with two significant demographic changes over the years (From an Italian community to an African-American community, and now dominantly Chinese community) and therefore, potentially low sense of belonging and engagement. In contrast, Jefferson Street is located at Fisherman's Wharf, a high income and well-established commercial neighborhood with high sense of belonging and engagement. In one of my interviews, Kathy, a vendor/artist/ activist at Jefferson Street explained how she raised awareness about saving 25 London Plane trees on the south side of Jefferson Street. The trees are the favored habitat of the native butterfly, the Western Tiger Swallowtail. "We all worked together to make this happened. We all did it together, and now we should tell the world how we did it!" said Kathy. The owner of Cioppino's restaurant also explained how much he and other business owners were involved in the Jefferson project and he said: "the second phase of this project is inevitable. Everyone wants it!" In another interview, Sue a merchant at Leland Avenue explained how she worked very hard for almost 20 years at her store, so that her children could get a proper education. "We all face many economic problems in this community that the maintenance of trees and public spaces cannot be our priorities."



Photo taken 21/7/2014

Kathy Hallinan, a vender/artist/ activist at Jefferson St.: "We all worked together to make this happened. We saved 25 London Plane trees on the south side of Jefferson. They are the favored habitat of the native butterfly, the Western Tiger Swallowtail. We all did it together, and now we should tell the world how we did it!"



Photo taken 16/7/2014

Sue, a merchant at Leland Ave.: "I worked very hard at this store for almost 20 years, so that my children can get a proper education. But after this project, the rents went up and it has been tough on my business."

CONCLUSION

The objective of Streetscape projects by the City and County of San Francisco is to create vibrant public places while improving the functionality of infrastructure to support dense urban living. These projects has potential to create pedestrian and bike friendly environments, facilitate social interaction at public spaces, enhance aesthetic qualities of public realm, stimulate local economy, reduce the urban heat island effect, implement stormwater management, improve human health and wildlife habitat and other numerous environmental and social benefits. Although all these objectives cannot be achieved by every project, it is wise to prioritize projects with higher social, financial and environmental capacities to address most of these objectives.

Through its Public Life Program, the City and County of San Francisco has monitored the activities of numerous public spaces. This study as part of Public Life Program evaluates the multifunctional goals of three streetscape projects with emphasis on public space activities. This study shows different outcomes from relatively same physical improvements. Streetscape project at Valencia Street was a clear success in terms of public realm vitality. On the hand, Leland Avenue's public spaces remained highly underused. Jefferson Street project is the newest and the most complex one. While we can see full use of public realm especially on the north side of the street, our field survey shows a decrease on the pedestrian volume of intervened blocks since 2008.

Based on the structured and unstructured observations of these streetscape projects, three design and four planning considerations are proposed for future streetscape projects. Design considerations are: 1) providing public seating is a common recommendation for activating public spaces, but more public/café seating doesn't necessarily lead to more use of space. 2) Public space design depends highly on its interaction with adjacent buildings and their design. Transparency, accessibility, permeability of fronting architecture are contributing factors to a successful public space. 3) Streetscape designs should not consist of purely standard or generic elements. Each neighborhood needs some unique physical features and character. However, character and place-making through streetscape design is a creative practice that may be susceptible to failure.

And finally planning considerations are:1) Think about this question first: What is the real purpose of the streetscape project? 2) Monitoring land use changes at the corridor and the neighborhood level can increase the feasibility of the remaining aspects or phases of streetscape projects. 3) Taking into account a

potential delay for related projects, can increase the feasibility and the chance of success for streetscape projects. 4) Planning process and public participation require unique strategies depending on the demographic characteristics of neighborhood.