

# BEFORE-AFTER STUDY RESIDENTIAL PERMIT PARKING ON KINGSTON AVENUE AND VICINITY

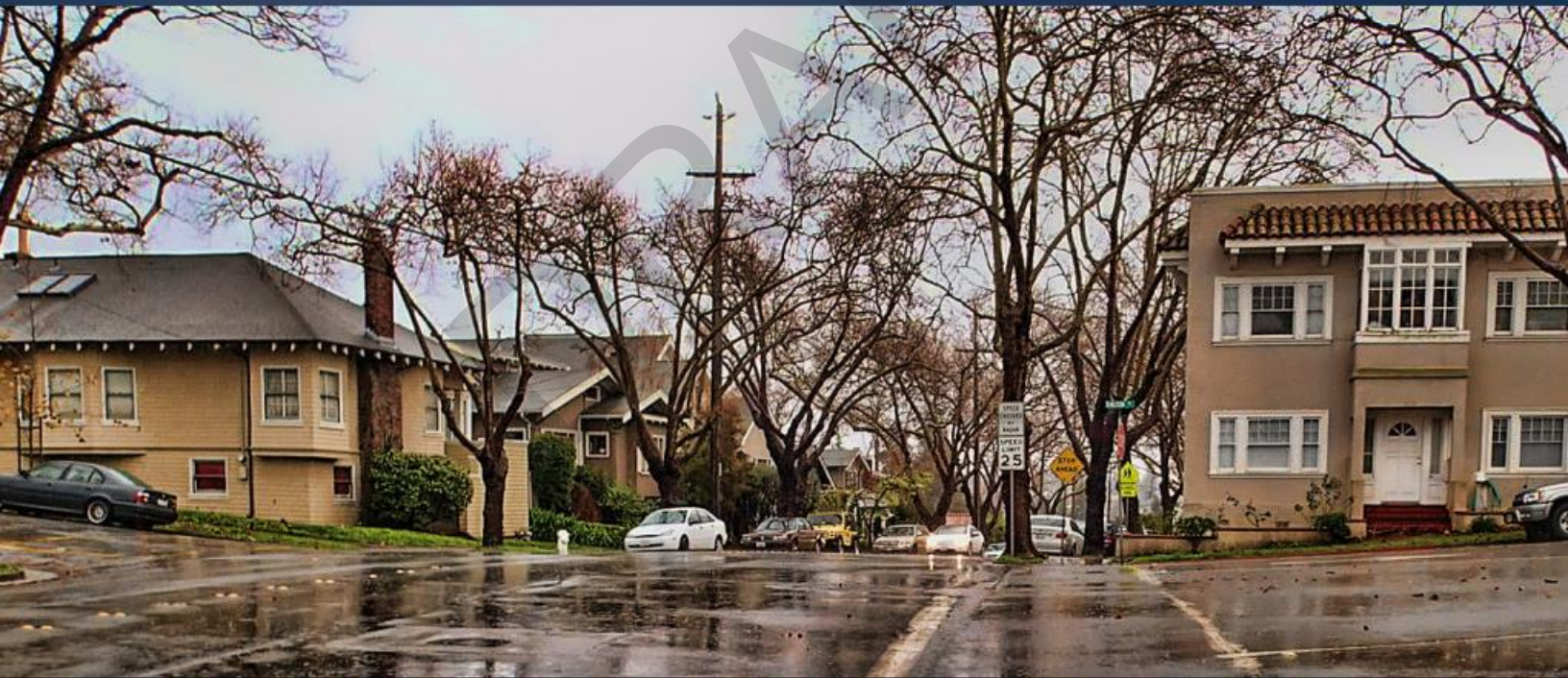
Piedmont, California  
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## SUMMARY

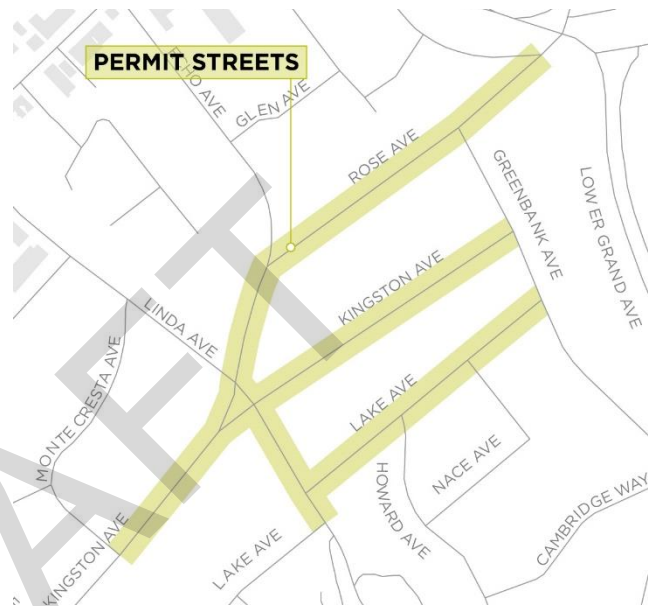
This before-after study summarizes the impact of the implementation of permit parking on the availability of on-street parking on Kingston Avenue and vicinity. Figure 1 shows the extent of the permit parking district that was evaluated. Permit parking was implemented in early 2018 and is only enforced between 10 PM and 7 AM (i.e., overnight), every day.

The findings of this before-after study show that the residential parking permit program increased the number of available spots on permit streets across all periods collected—including a noon observation when permit parking was not enforced. The data show a clear reduction in visitor parking during enforcement hours.

An analysis of parking on streets *adjacent* to those in the permit parking area show an increase in parking activity, although the adjacent streets (as a whole) had more than 40 percent of parking spaces still available. Upon closer inspection, parking patterns on adjacent streets were generally unchanged except for Greenbank Avenue, which saw a notable increase in both daytime and nighttime parking. The increase in parking activity on adjacent streets is mostly due to more parking by neighborhood residents—as opposed to visitors.

It is suggested that additional feedback be collected from neighborhood residents and that parking activity on Greenbank Avenue continue to be monitored.

**Figure 1: Permit Streets**



## BACKGROUND

This section summarizes the community outreach effort conducted as part of the additional research summarized in this addendum.

### JUSTIFICATION FOR PERMIT PARKING

In 2015-2016, a data-driven assessment of parking conditions in the study area was performed in response to a resident petition signed by 25 residents of the 900 block of Kingston Avenue. The findings of the assessment suggested that on-street parking in the study area was constrained during middays on weekdays, and that non-residents are a large contributor to the scarcity of parking spots.

The study found that the implementation of a permit parking program would improve access to on-street parking spaces by study area residents, and that it was justified by the data collected for the study. The study recommended that the City of Piedmont work with residents of the study area to find the right mix of rules for a residential permit parking program.

### IMPLEMENTATION

Additional data collection in 2017—which included working with the California DMV for license plate matching—helped shed light on remaining questions regarding parking on Greenbank Avenue and overnight visitor parking.

The inclusion of Greenbank Avenue into the study area was not justified as parking was easy to find, and most parked vehicles belonged to residents of the study area.

On the matter of overnight parking occupancy, it was a borderline scenario with busy nights like Friday falling just over the threshold of justification and normal nights like Wednesday falling under the threshold. Nevertheless, it was clear that a substantial share of overnight parking (about one quarter) was due to non-residents.

City of Piedmont staff worked with the community to identify a set of initial rules for the permit parking program. After some deliberation, the parking program was launched in early 2018, with the following defining characteristics:

- Two parking permits per eligible household.
- Residents of single-family homes and apartments in buildings of eight (8) or fewer units were eligible for permits.
- Permit parking would only be enforced between 10 PM and 7 AM (i.e., overnight), every day.



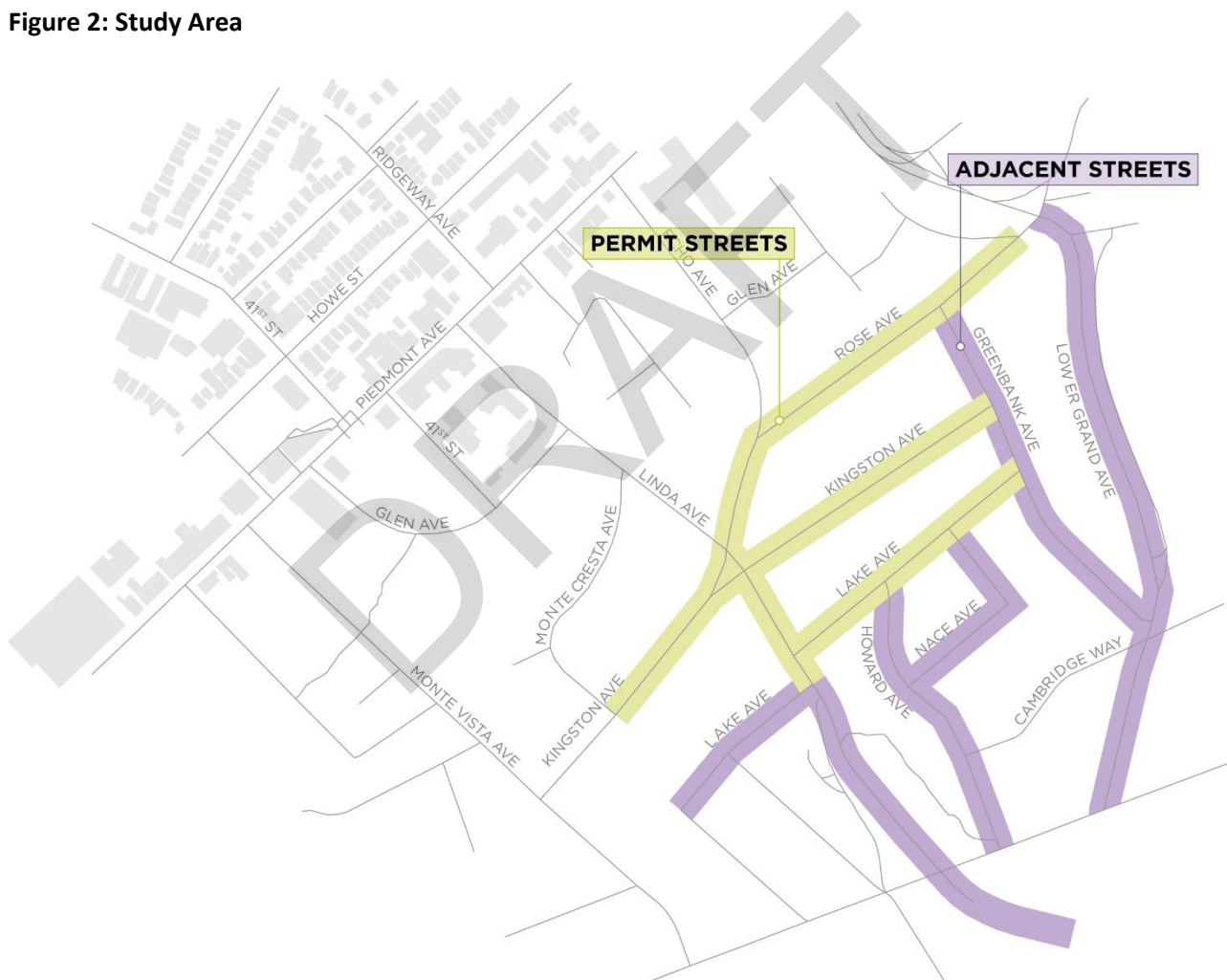
## DATA COLLECTION

This section describes the data collection process, which included manual license plate surveys and obtaining vehicle registration data from the California Department of Motor Vehicles (DMV). The data collection was performed for the permit streets as well as adjacent streets. Data from adjacent streets are used to inform on the effect that permit parking had on parking patterns outside of the permit parking area.

## STUDY AREA

Figure 2 below shows the boundaries of the study area.

**Figure 2: Study Area**



## PARKING DATA

Parking data were collected before and after the implementation of the permit parking program. The data were collected for five (5) one-hour data collection periods, as shown in Figure 3. To ensure the data set would be representative of different parking conditions during the week, data collection tours were conducted during a busy time when non-residents are believed to park in the area late at night (i.e., Friday), and a set of data collection tours were conducted during a “normal” evening time (i.e., Wednesday).

Quality Counts, LLC (Quality Counts), a subconsultant to Kittelson & Associates, Inc., performed most of the field data collection. During the study periods shown in Figure 3, Quality Counts staff documented the license plate number and location of all vehicles parked on the streets in the study area. Table 1 presents a sample of the data collection format.

**Figure 3: Dates and Times for Parking Data Collection**

**BEFORE**

Friday, February 10, 2017	
9:00pm	Busy Night
Saturday, February 11, 2017	
5:00am	Busy Night
Wednesday, February 15, 2017	
9:00pm	Normal Night
Thursday, February 16, 2017	
5:00am	Normal Night
12:00pm	Heavy Non-Resident

**AFTER**

Wednesday, May 16, 2018	
9:00pm	Normal Night
Thursday, May 17, 2018	
5:00am	Normal Night
12:00pm	Heavy Non-Resident
Friday, May 18, 2018	
9:00pm	Busy Night
Saturday, May 19, 2018	
5:00am	Busy Night

**Table 1: Data Sample**

Submission Date	License Plate <sup>1</sup>	State	Study Street	Geolocation <sup>2</sup>
2/16/2017 5:51	7----7	CA	Kingston Avenue	37.82575, -122.24654
2/16/2017 5:17	6----3	CA	Rose Avenue	37.82684, -122.24678
2/16/2017 5:22	7----3	CA	Rose Avenue	37.82500, -122.22989

<sup>1</sup> License plates truncated for privacy

<sup>2</sup> Geolocation was obtained from the data collection device’s GPS unit



## VEHICLE REGISTRATION DATA

The registered addresses of vehicles parked on-street during the data collection tours were obtained from the California Department of Motor Vehicles (DMV) through the Piedmont Police Department. The license plate “scan” returned addresses for approximately 80 percent of the observed vehicles. Of the license plates for which matching addresses were identified, about 10 percent are registered more than 30 miles from Piedmont, with many registered in Southern California. The share of registered addresses far from Piedmont can be attributed to people delaying updating their vehicle registration or people driving a vehicle owned by a friend or relative. The quality of the data obtained through this DMV scan is reflected in the moderate number of vehicles with “unknown” residency.

## PARKING SUPPLY INVENTORY

On-street parking spaces were inventoried to determine the amount of on-street parking available in the neighborhood. Within the permit parking area, 310 on-street parking spaces are available. On adjacent streets, 326 on-street parking spaces are present<sup>1</sup>. Appendix A presents the parking supply data collected in the field.

DRAFT

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<sup>1</sup> These figures represent the implemented permit parking area. Prior to implementation—but after the “Before” dataset was collected—the permit parking area was extended slightly to cover an additional 32 spaces on Rose Avenue.

## FINDINGS

The findings of the before-after data collection and analysis are presented separately for the permit streets and the adjacent (i.e., non-permit) streets.

### PERMIT STREETS

As shown in Figure 4, the residential parking permit program increased the number of available spots across all periods collected. The largest increases in available parking spots were observed on Friday night and Saturday morning, when the parking occupancy dropped from upward of 80 percent to approximately 60 percent. Even though parking is not restricted during daytime hours, a noon observation indicates that there are more available spots during the daytime as well.

Regarding compliance, about 80 percent of vehicles parked in study streets had a permit during enforcement hours.

**Figure 4: Parking Occupancy on Permit Streets by Time Period**

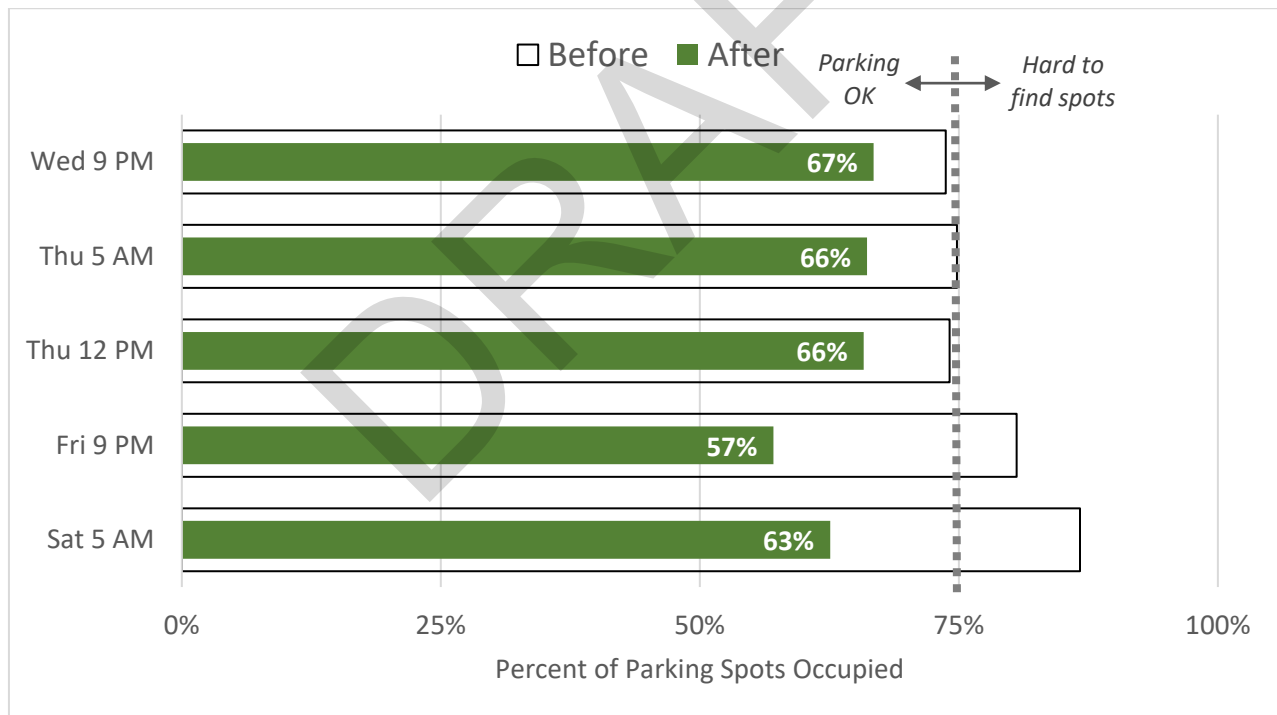
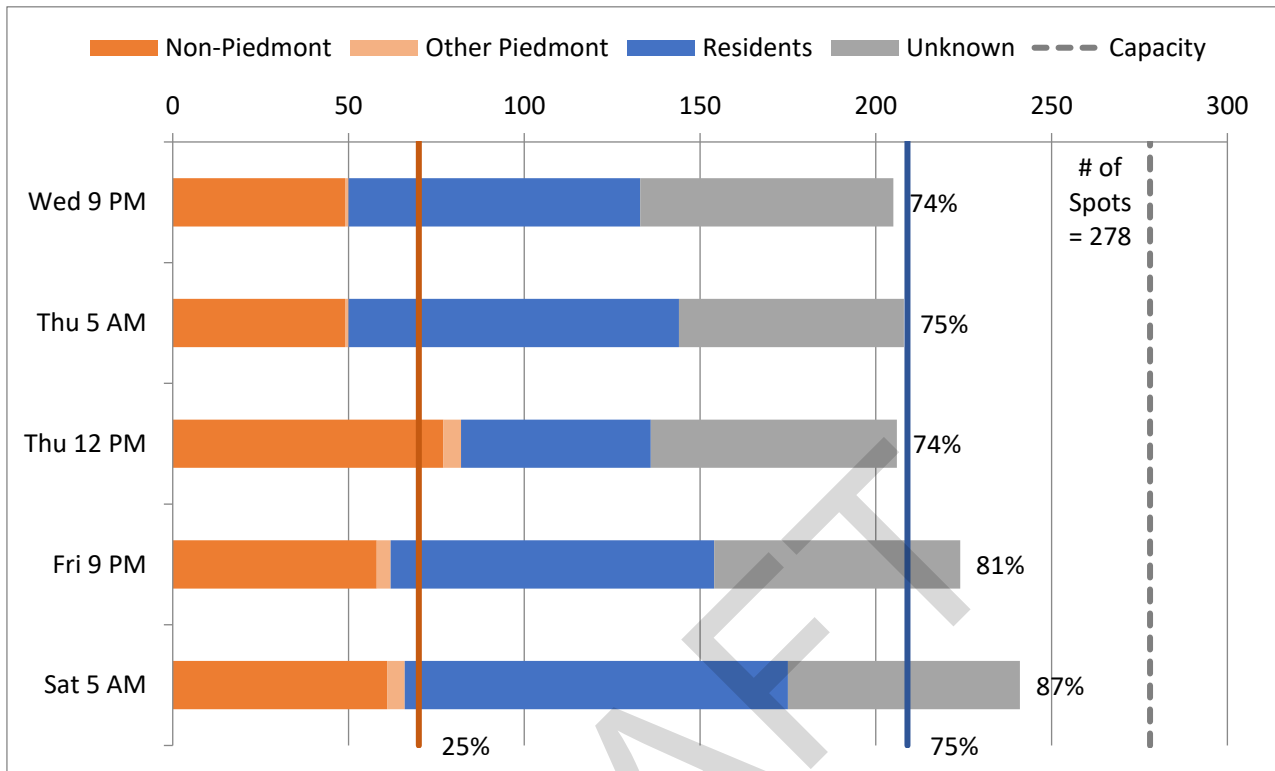


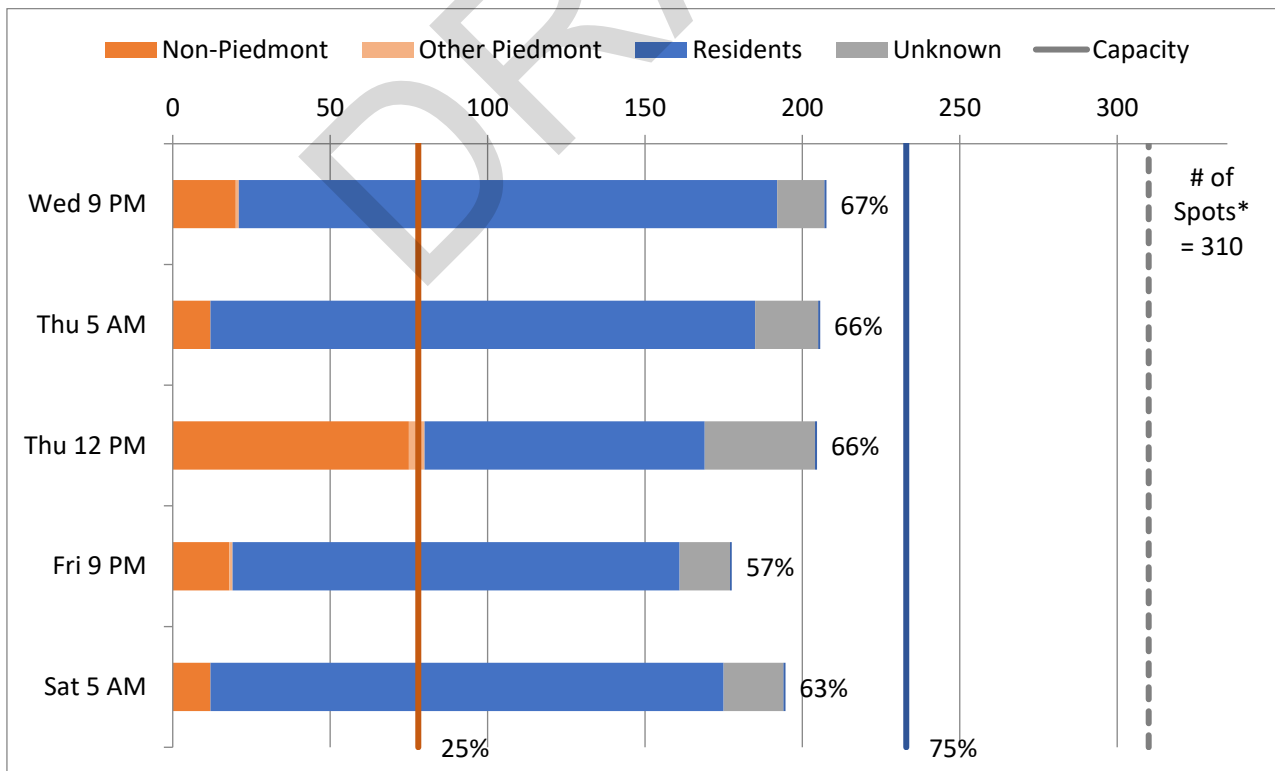
Figure 5 and Figure 6 provide additional detail by differentiating between residents and visitors—before and after the implementation of the permit parking program. Figure 6 shows a clear reduction in visitor parking during enforcement hours. The Thursday noon observation—when parking is unrestricted—shows slightly lower visitor activity when compared to the “Before” condition.



**Figure 5: Parking Occupancy on Permit Streets by Time Period and Residence (Before)**



**Figure 6: Parking Occupancy on Permit Streets by Time Period and Residence (After)**



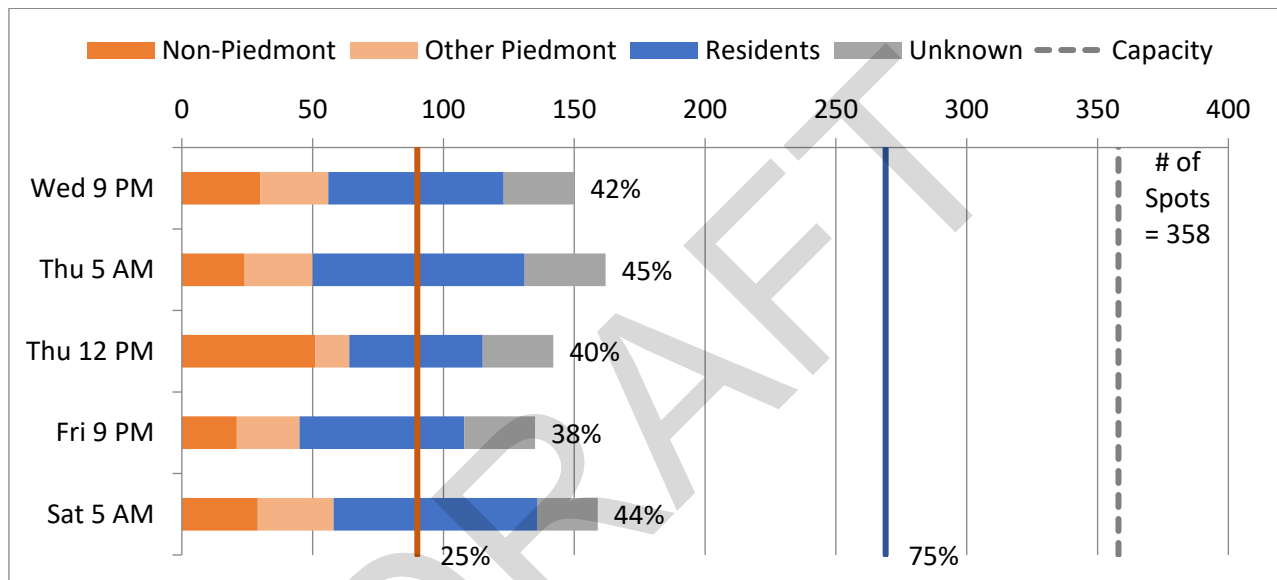
\* The "After" number of spots include 32 additional spots on Rose Avenue resulting from an expansion of the permit area.



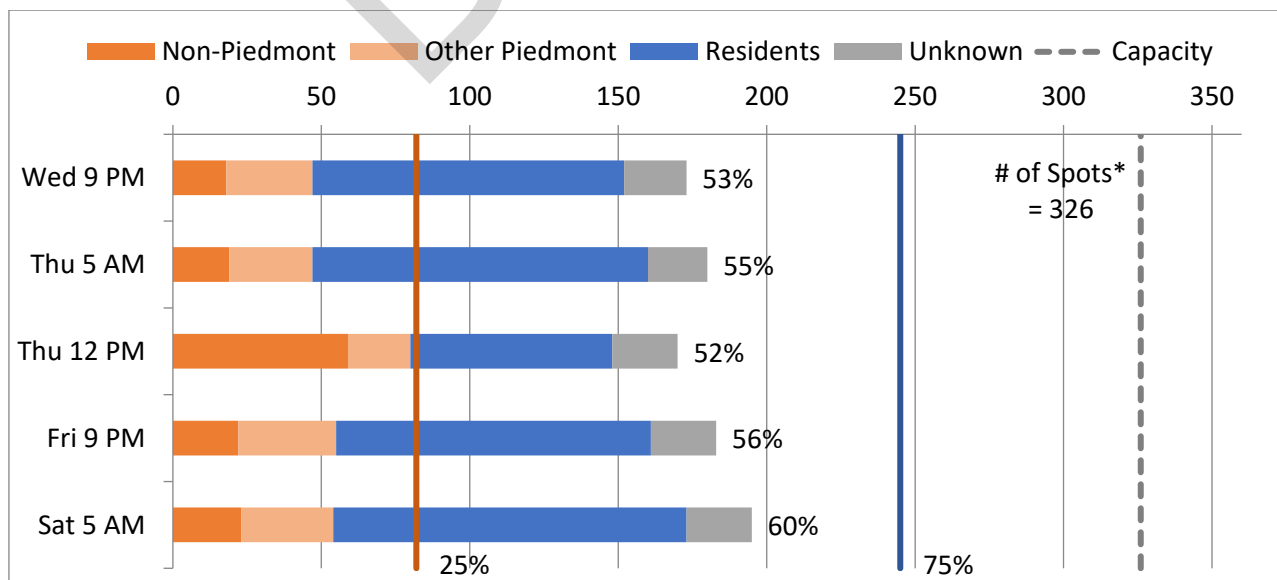
## ADJACENT STREETS

Parking occupancy on streets adjacent to those in the permit parking program were surveyed “Before” (Figure 7) and “After” (Figure 8) the permit program implementation. All time periods observed showed an increase in parking activity, although the adjacent streets (as a whole) had more than 40 percent of parking spaces still available. As shown in the figures below, the increase in parking activity on adjacent streets is mostly due to more parking by neighborhood residents—as opposed to visitors. Because the permit program limited the number of permits and eligible households, it is likely that some residents of permit streets have shifted their parking to adjacent streets.

**Figure 7: Parking Occupancy on Adjacent Streets by Time Period and Residence (Before)**



**Figure 8: Parking Occupancy on Adjacent Streets by Time Period and Residence (After)**

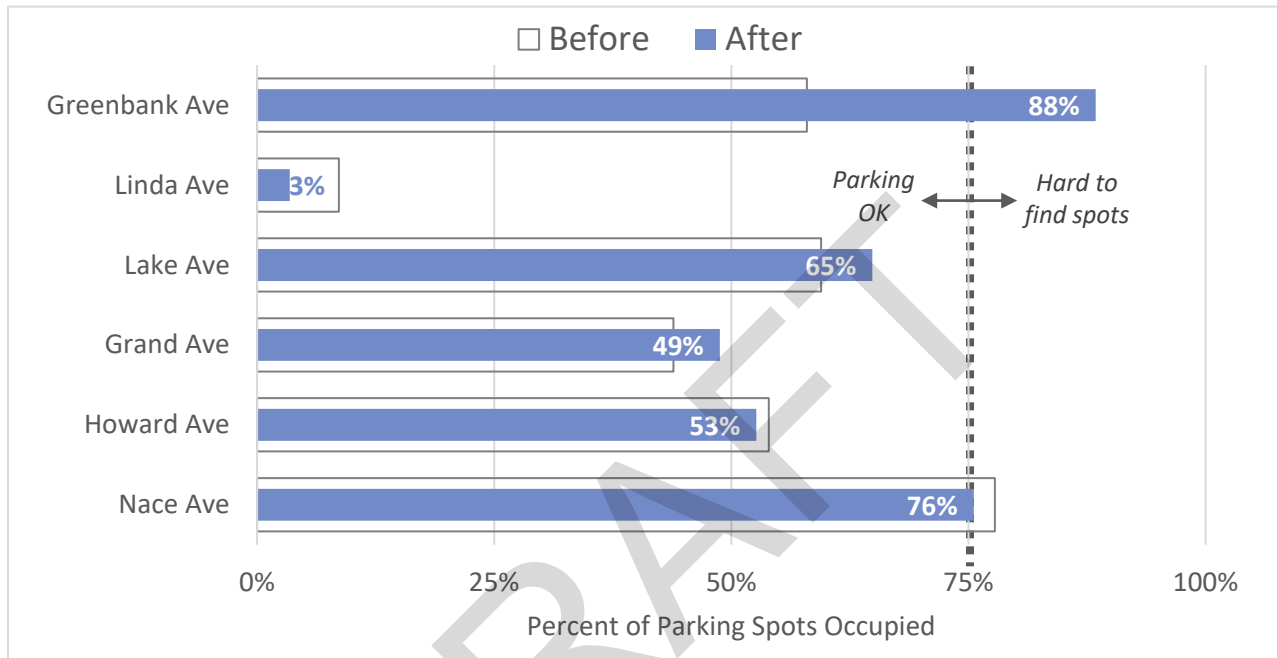


\* The “After” number of spots exclude 32 spots on Rose Avenue that were added to the permit area.

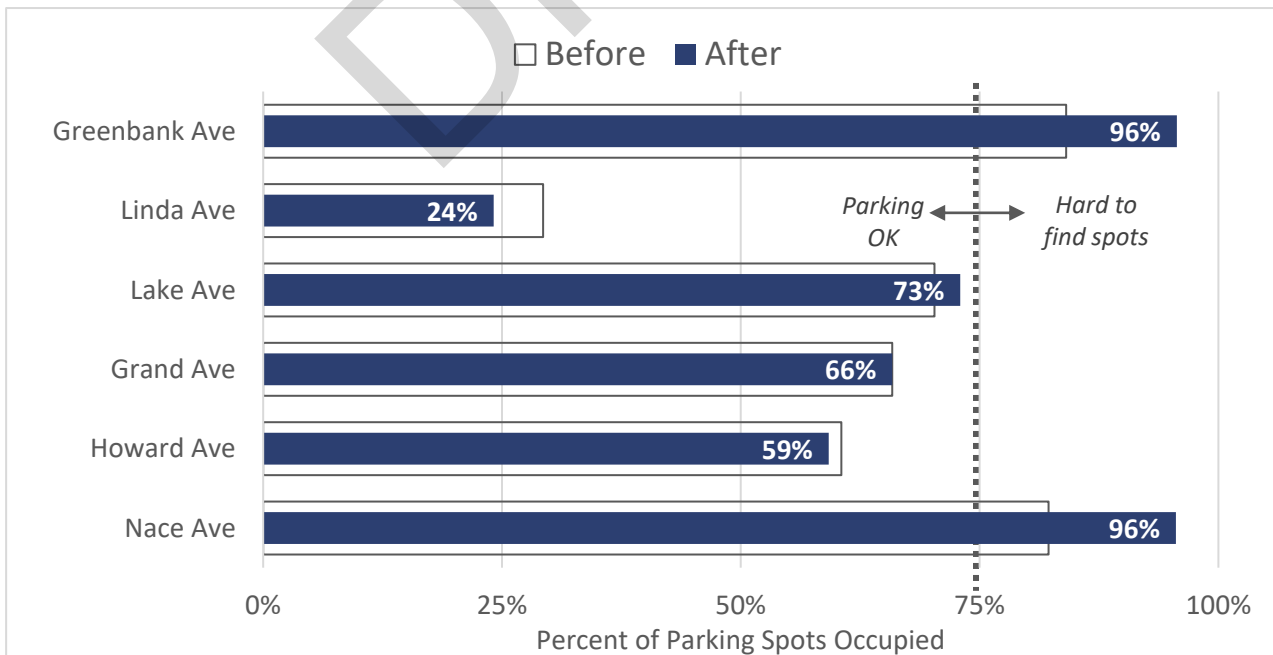


Figure 9 and Figure 10 provide additional detail on the median and maximum parking occupancy observed on each of the adjacent streets. Table 2 presents the numerical change in parked vehicles by street and time period. These charts show that parking patterns were generally unchanged except for Greenbank Avenue, which saw a notable increase in both daytime and nighttime parking. In other words, the increased parking activity noted in Figure 8 is concentrated along Greenbank Avenue.

**Figure 9: Median Parking Occupancy on Adjacent Streets by Street**



**Figure 10: Maximum Parking Occupancy on Adjacent Streets by Street**



**Table 2: Change in Parking Occupancy on Adjacent Streets**

Street	# of Spots	Wed 9 PM	Thu 5 AM	Thu 12 PM	Fri 9 PM	Sat 5 AM
Greenbank Ave	69	+10	+5	+11	+27	+29
Linda Ave	58	0	-6	-7	-2	+9
Lake Ave	37	+1	+3	+5	+4	-11
Grand Ave	41	-3	-9	+2	+4	+21
Howard Ave	76	-1	-2	-1	+1	-11
Nace Ave	45	0	-3	+1	0	+8

Fewer cars  More cars

## CONCLUSION

The findings of this before-after study show that the residential parking permit program increased the number of available spots on permit streets across all periods collected—including a noon observation when permit parking was not enforced. The data show a clear reduction in visitor parking during enforcement hours.

An analysis of parking on streets *adjacent* to those in the permit parking area show an increase in parking activity, although the adjacent streets (as a whole) had more than 40 percent of parking spaces still available. Upon closer inspection, parking patterns on adjacent streets were generally unchanged except for Greenbank Avenue, which saw a notable increase in both daytime and nighttime parking. The increase in parking activity on adjacent streets is mostly due to more parking by neighborhood residents—as opposed to visitors.

It is suggested that additional feedback be collected from neighborhood residents and that parking activity on Greenbank Avenue continue to be monitored.

## APPENDIX A: PARKING SUPPLY INVENTORY

### Streets in the Permit Area

STREET NAME	TOTAL	SPACE LOCATED				DATE
		N	S	E	W	
Kingston Ave	133	62	71	0	0	12/17/2015
Lake Ave	51	24	27	0	0	12/17/2015
Rose Ave	76	36	40	0	0	12/17/2015
Rose Ave (extension)	32	16	16	0	0	5/16/2018
Linda Ave	18	0	0	10	8	12/17/2015
<b>INVENTORY TOTALS:</b>	310					

### Greenbank Avenue

STREET NAME	TOTAL	SPACE LOCATED				DATE
		N	S	E	W	
Greenbank - West	30	17	13	0	0	2/16/2017
Greenbank - East	39	19	20	0	0	2/16/2017
<b>INVENTORY TOTALS:</b>	69					

### Other Adjacent Streets

STREET NAME	TOTAL	DATE
Nace Ave	45	5/16/2018
Howard Ave	76	5/16/2018
Grand Ave	41	5/16/2018
Lake Ave	37	5/16/2018
Linda Ave	58	5/16/2018
<b>INVENTORY TOTALS:</b>	257	