## Emeryville Parking Management Plan DRAFT Final Report

Prepared for the City of Emeryville

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Exhibit A

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## Executive Summary

This report provides an update to the Emeryville Parking Management Plan, based on analysis of recently collected parking utilization data and surveys of parking users and business owners (details are provided in Chapter 1 of this report). The original plan was completed in 2010, and at that time the City Council accepted the plan, but decided to defer its implementation because the economy was in recession. The original plan focused on the North Hollis, Doyle, and Triangle areas, while this updated plan covers the entire city.

Figure E. 1 Study Area and Neighborhoods


## Parking Data Analysis

There were 4,563 on-street parking spaces counted for this study, and 2,516 spaces in off-street facilities were included. A large majority ( 85 percent) of the on-street parking throughout the City is currently unregulated, with no parking fees or time limits. Off-street facilities studied are generally privately owned and operated, but offer free or paid parking that is open to the public. The Watergate residential/office tower complex and structured parking dedicated to residential or employee use only were not included in the study. The key findings of this analysis are:

- Parking Occupancy
- Citywide parking occupancy peaks at 10 AM with 72 percent occupancy citywide.
- On-street parking has higher occupancy than off-street, with 82 percent occupancy citywide at the peak, and 90 percent occupancy sustained from 9 AM to 2 PM in the North Hollis and Doyle areas where hourly parking data was collected.
- Off-street occupancy peaks at 56 percent citywide, possibly due to the fact that offstreet parking is less visible to drivers, but also because off-street facilities are more likely to be priced or restricted to certain users. The off-street facilities also include lots on the Peninsula, which have low utilization during the weekday.
- The neighborhoods with the highest utilization during the 10 AM peak are North Hollis and Park Avenue, while the Triangle and Peninsula have relatively low occupancies.
- Compared to 2010, parking occupancies have increased throughout most of the city, with the largest increase in the Doyle residential neighborhood.
- Parking User Types
- On-street parking throughout Emeryville is used by a variety of parkers with differing needs.
- Customer and short-term visitor needs are highest in the Central, Park Avenue, and South Emeryville areas
- Employees are a large proportion of the parkers in the North Hollis and Park Avenue areas.
- The Triangle neighborhood is the only area where more than half of parking users are residents, but residents make up at least 15 percent of parkers in all neighborhoods in the City.
- Areas near transit nodes, such as AC Transit Transbay bus service stops, appear to attract park-and-ride activity from commuters, many of whom drive from outside the City.
- Parking Duration and Turnover
- While there is demand for both long-term and short-term parking in the North Hollis and Doyle neighborhoods, a lack of enforcement means that spaces currently designated for short-term parking are often used by long-term parkers. Improved enforcement and parking management strategies will help increase availability in short-term spaces while providing options for long-term parkers


## Parking Management Plan

The Parking Management Plan makes recommendations for parking throughout the City, to be implemented in phases. The recommendations include the following regulations for public parking:

- Short-Term Metered: $\$ 2$ per hour for the first two hours with a sharp increase after the first two hours to encourage turnover
- Mid-Term Metered: $\$ 1$ per hour for the first four hours, with a sharp increase after this to encourage mid-length stays. Businesses may also purchase permits for employees to park in these areas
- Long-term Metered: $\$ 0.50$ per hour all day.
- Residential permit parking: two residential permit parking areas allow free 2-hour parking for all vehicles, and residents may purchase parking permits at $\$ 66$ per year for the first vehicle, $\$ 132$ per year for the second vehicle, and $\$ 200$ per year for the third vehicle. Businesses may also purchase permits in these areas
- Business permits are available for employees in certain mid-term and residential permit areas, priced between $\$ 100$ and $\$ 500$ per year based on the size of the business and number of permits requested

Figure E. 2 on the next page shows the plan and the specific parking space designation for the full implementation of the parking program.

It is important to note that the fees recommended for the residential and business permits are estimates developed for the purposes of this plan and the related financial analysis. The actual fees will be set by resolution after the City Council has enacted the enabling ordinances to establish both permit programs. This process will include confirmation that the rates set comply with the requirements of California Proposition 26, which requires permit fees to be cost neutral.

Figure E. 2 Full Parking Management Implementation Plan


## Chapter 1.

## Parking Data Analysis

This study is an update to the Emeryville Parking Management Plan prepared by CDM Smith for the City of Emeryville in 2010. The 2010 study recommended a pricing plan which was not implemented because the economy was in recession. However, the city has recently been awarded funding from the Alameda CTC to implement a parking management program including paid parking and residential permit parking in the North Hollis Parking District. Before implementing this program, there is a need to update the 2010 plan with current parking conditions and needs and make recommendations for later phases of parking pricing and permitting Citywide.

This report describes the results of the existing conditions analysis, which included parking occupancy and license plate data collection as well as parking user and Emeryville business owner surveys Citywide. Below is a summary of findings, followed by detailed descriptions of the methodology and results of the parking data collection and survey.

## Study Area

To identify patterns in parking usage and behavior, parking data was collected in October 2017, including all on-street parking spaces in the study area and public off-street facilities. The data collection effort largely replicated that conducted in 2010 for a consistent comparison of results, with an expanded study area to provide citywide results in addition to the original study area.

Figure 1.1 shows the study area blockfaces and off-street facilities for which parking occupancy data was collected. The data collection was intended to collect all public parking within Emeryville, excluding large lots for regional retail not in the study area. The outlined off-street facilities were not studied in 2017 due to changes of use, construction, or, in two locations, a lack of permission from the property owner. The parking data collection occurred before construction at the Public Market was completed, which realigned the streets near the Public Market added approximately 50 on-street parking spaces. Additional parking that was not included in the data collection, but is controlled by the city and included in the parking management recommendations, includes 259 uncharacterized on-street spaces as follows:

- Beneath the Powell Street overpass at Horton Street - 58 spaces
- East Side of La Coste Street - 44 spaces
- Cross streets 100 feet east of Adeline Street and San Pablo Avenue north of $36^{\text {th }}$ Street and south of $47^{\text {th }}$ Street -94 spaces
- Emery Street, Peralta Street, Watts Street, and W MacArthur Boulevard in South Emeryville - 63 spaces

Figure 1.1: Emeryville Parking Study Data Collection Areas


## Parking Inventory

Table 1.1 shows the data collection parking inventory by space type, including on- and off-street facilities. Approximately one-third of the off-street parking and 85 percent of the on-street parking in the study area is public, unregulated parking. In off-street facilities, 24 percent of the spaces are permit-only spaces, and 10 percent are reserved spaces, which are generally reserved for customers or employees of specific businesses. On-street, only 3 percent of spaces are permit spaces, designated in the residential permit parking program, and 1 percent are reserved,
indicating areas where businesses are using their building setbacks as private parking for employees, visitors, or official vehicles. 22 percent of off-street spaces are in privately owned garages which charge for the public to use. Approximately 7 percent of the on-street parking spaces in Emeryville are time-limited at one or two hours. Loading spaces make up approximately two percent of on-street spaces, and a small number of short-term spaces, including 12-minute, 20 -minute, 30 -minute, and 45 -minute spaces, are located throughout the study area. The "Other" category includes spaces reserved for school use, valet parking, trailer spaces at the Marina, ZipCar spaces BikeShare and motorcycle spaces.

Table 1.1: Study Area Inventory by Space Type

|  | Off-Street |  | On-Street |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Total | Percent | Total | Percent |
| Unregulated | 900 | $36 \%$ | 3,657 | $85 \%$ |
| Permit | 598 | $24 \%$ | 121 | $3 \%$ |
| Private Paid | 564 | $22 \%$ | 0 | $0 \%$ |
| Reserved | 261 | $10 \%$ | 42 | $1 \%$ |
| 2-Hour | 21 | $1 \%$ | 264 | $6 \%$ |
| 1-Hour | 0 | $0 \%$ | 45 | $1 \%$ |
| Loading | 0 | $0 \%$ | 82 | $2 \%$ |
| Short Term < 45 min | 0 | $0 \%$ | 19 | $0 \%$ |
| ADA | 85 | $3 \%$ | 27 | $1 \%$ |
| Uncharacterized ${ }^{1}$ | 0 | 0 | 259 | $6 \%$ |
| Other | 87 | $\mathbf{3 \%}$ | 47 | $1 \%$ |
| Total | $\mathbf{2 , 5 1 6}$ | $\mathbf{1 0 0 \%}$ | $\mathbf{4 , 5 6 3}$ | $\mathbf{1 0 0 \%}$ |

${ }^{1}$ Spaces not included in the data collection but included in the parking management plan.
Parking supply and occupancy are also analyzed by neighborhood. Figure 1.2 on the next page shows the neighborhood borders used for this study, and Tables 1.2 and 1.3 show the parking inventory by neighborhood and space type. The largest sub-area in terms of number of spaces is North Hollis with the only permitted parking off-street. This area also had the most unregulated spaces, but almost all of the spaces in the Doyle and Triangle sub-areas were unregulated as well. On the Peninsula, a large number of spaces were permit or reserved spaces. Time-limited parking was primarily found in the Central, North Hollis, and South Emeryville neighborhoods.

Table 1.2: Study Area Inventory by Neighborhood and Space Type - On-Street

|  | Total | Unregulated | 2-Hour | 1-Hour | Short Term <45 Min | Loading | Permit | Reserved | ADA | Uncharacterized ${ }^{1}$ | Other |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Central | 624 | 75\% | 4\% | 2\% | 0\% | 4\% | 10\% | 0\% | 1\% | 0\% | 4\% |
| Doyle | 757 | 95\% | 2\% | 0\% | 1\% | 1\% | 1\% | 0\% | 0\% | 0\% | 0\% |
| North Bayfront | 275 | 79\% | 0\% | 1\% | 0\% | 1\% | 0\% | 0\% | 0\% | 16\% | 3\% |
| North Hollis | 1201 | 70\% | 13\% | 2\% | 0\% | 2\% | 3\% | 3\% | 1\% | 5\% | 0\% |
| Park Avenue | 726 | 92\% | 3\% | 0\% | 1\% | 3\% | 0\% | 0\% | 0\% | 0\% | 1\% |
| Peninsula | 107 | 100\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
| South Emeryville | 180 | 34\% | 17\% | 4\% | 1\% | 0\% | 0\% | 0\% | 1\% | 42\% | 0\% |
| Triangle | 703 | 81\% | 1\% | 0\% | 1\% | 0\% | 2\% | 0\% | 1\% | 13\% | 1\% |
| Citywide | 4563 | 80\% | 6\% | 1\% | <1\% | 2\% | 3\% | 1\% | 1\% | 6\% | 1\% |

${ }^{1}$ Spaces not included in the data collection but included in the parking management plan.

Table 1.3: Study Area Inventory by Neighborhood and Space Type - Off-Street

|  | Total | Unreg- <br> ulated | 2-Hour | Private <br> Paid | Permit | Reserved | ADA | Other |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Doyle | 65 | $0 \%$ | $0 \%$ | $0 \%$ | $97 \%$ | $0 \%$ | $3 \%$ | $0 \%$ |
| North Hollis | 1,726 | $37 \%$ | $1 \%$ | $33 \%$ | $17 \%$ | $5 \%$ | $3 \%$ | $4 \%$ |
| Peninsula | 725 | $35 \%$ | $0 \%$ | $0 \%$ | $34 \%$ | $24 \%$ | $4 \%$ | $3 \%$ |
| Total | $\mathbf{2 , 5 1 6}$ | $\mathbf{3 6 \%}$ | $\mathbf{1 \%}$ | $\mathbf{2 2 \%}$ | $\mathbf{2 4 \%}$ | $\mathbf{1 0} \%$ | $\mathbf{3 \%}$ | $\mathbf{3} \%$ |

Figure 1.2: Emeryville Neighborhoods


## Parking Occupancy

The tables in this section show the citywide percent occupancy throughout the day, as well as peak period comparisons with the 2010 study. This analysis uses the common practical capacity threshold of 85 percent occupancy for determining when a facility is too full for an arriving driver to easily find parking close to their destination. Experience shows that at occupancies over 85 percent, a driver is likely to circle for parking and to have to park farther from their destination than is ideal. In the following tables, occupancies over 85 percent are shaded pink. This section includes citywide occupancies and a comparison by neighborhood with the 2010 data. Detailed occupancy tables for each neighborhood are included in Appendix $A$.

Table 1.4 shows the citywide parking occupancy for the three time points collected for most facilities: $4 \mathrm{AM}, 10 \mathrm{AM}$, and 3 PM. Overall, parking was most well-used at 10 AM , with 72 percent of spaces overall and 82 percent of on-street spaces utilized. Utilization in off-street facilities is generally quite low throughout the City. This is expected, as it is common for on-street parking to
fill up first, as it is more convenient and visible for drivers, and, in this case, the same price or cheaper than private, off-street facilities. Drivers may not realize there is availability in off-street facilities, or may not be willing to pay for parking in fee garages. Additionally, the off-street parking includes lots on the Peninsula, were there is less activity during the weekday compared to evenings and weekends when people are more likely to visit the restaurants, park, and marina.

Table 1.4: Citywide Occupancy

|  | \# of <br> Spaces | 4 AM | 10 AM | 3 PM |
| :---: | :---: | :---: | :---: | :---: |
| All Spaces | 6,820 | $33 \%$ | $72 \%$ | $62 \%$ |
| On-Street | 4,304 | $43 \%$ | $82 \%$ | $73 \%$ |
| Off-Street | 2,516 | $17 \%$ | $56 \%$ | $43 \%$ |

Hourly data was also collected in the North Hollis, Doyle, and Central neighborhoods from 7 AM to 6 PM. Table 1.5 shows the observed hourly occupancy in these three areas. Overall occupancy peaked at 11 AM and 1 PM with 83 percent occupancy. On-street parking was above the practical capacity threshold between 9 AM and 3 PM . Off-street occupancy was under 60 percent throughout the day.

Table 1.5: Observed Hourly Parking Occupancy

|  | $\#$ of <br> Spaces | $\mathbf{4}$ <br> AM | $\mathbf{7}$ <br> AM | $\mathbf{8}$ <br> AM | $\mathbf{9}$ <br> AM | $\mathbf{1 0}$ <br> AM | $\mathbf{1 1}$ <br> AM | $\mathbf{1 2}$ <br> PM | $\mathbf{1}$ <br> PM | $\mathbf{2}$ <br> PM | $\mathbf{3}$ <br> PM | $\mathbf{4}$ <br> PM | $\mathbf{5}$ <br> PM | $\mathbf{6}$ <br> PM |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| All Spaces | 3,475 | $22 \%$ | $36 \%$ | $46 \%$ | $65 \%$ | $74 \%$ | $76 \%$ | $71 \%$ | $76 \%$ | $73 \%$ | $60 \%$ | $60 \%$ | $46 \%$ | $38 \%$ |
| On-Street | 1,684 | $39 \%$ | $62 \%$ | $76 \%$ | $87 \%$ | $90 \%$ | $90 \%$ | $89 \%$ | $90 \%$ | $89 \%$ | $80 \%$ | $71 \%$ | $60 \%$ | $56 \%$ |
| Off-Street | 1,791 | $6 \%$ | $11 \%$ | $17 \%$ | $45 \%$ | $59 \%$ | $62 \%$ | $54 \%$ | $62 \%$ | $58 \%$ | $42 \%$ | $50 \%$ | $33 \%$ | $21 \%$ |

Note: Includes on-street spaces in Central, Doyle, and North Hollis and off-street spaces in Doyle and North Hollis.
Occupancy for the 10 AM peak period is also shown by blockface in Figure 1.3. The busiest areas are around the commercial centers of North Hollis and Park Avenue, but there are blocks with high occupancies throughout the city, including in the primarily residential Triangle neighborhood. San Pablo Avenue has relatively low usage at this time of day, as does most of the Peninsula, except the north side of Powell St and the narrow lot serving Emery Cove Harbor. Maps showing occupancies at other times of day are attached in Appendix B.

Figure 1.3: 10 AM Occupancy Map


Compared to the 2010 occupancy observations, there were generally higher occupancies in most of the study area in 2017. Table 1.6 shows the 10 AM peak occupancy results by neighborhood compared with the 2010 data. Some of the blocks observed in 2017 were not included in the 2010 study, but on average, the occupancies can be compared.

Occupancies increased in all but three neighborhoods. The Central neighborhood had a 3 percent decrease in occupancy, likely due to the fact that in 2010, most of the blocks collected in this area were near Pixar, in a busier area, compared to the 2017 study, which collected all blocks in the
neighborhood. North Bayfront had the same overall occupancy in both years. South Emeryville only included one block in 2010, so the 100 percent occupancy is likely not representative of all parking in that area. The largest increase in parking occupancy was in the Doyle neighborhood, indicating increased demand for residential parking and/or increased spillover from the North Hollis business and commercial areas.

Table 1.6: 10 AM On-Street Occupancy Comparison by Neighborhood

| Area | $\mathbf{2 0 1 0}$ | $\mathbf{2 0 1 7}$ | Change |
| :--- | :---: | :---: | :---: |
| Central | $71 \%$ | $68 \%$ | $-3 \%$ |
| Doyle | $71 \%$ | $87 \%$ | $+16 \%$ |
| North Bayfront | $89 \%$ | $89 \%$ | $0 \%$ |
| North Hollis | $87 \%$ | $90 \%$ | $+3 \%$ |
| Park Avenue | $83 \%$ | $88 \%$ | $+5 \%$ |
| Peninsula | $\mathrm{N} / \mathrm{A}$ | $97 \%$ | $\mathrm{~N} / \mathrm{A}$ |
| South Emeryville | $100 \%^{1}$ | $67 \%$ | $\mathrm{~N} / \mathrm{A}$ |
| Triangle | $63 \%$ | $71 \%$ | $+8 \%$ |
| Citywide ${ }^{2}$ | $79 \%$ | $82 \%$ | $+3 \%$ |

${ }^{1}$ Only one block surveyed in 2010, so 2010 and 2017 data are not compared directly
${ }^{2}$ In 2010, the Citywide average only includes surveyed blocks, and thus North Hollis is over-represented as more blocks were collected there than the rest of the city.

A comparison of occupancies by blockface and facility is also included in Figure 1.4. Consistent with the above results, occupancies are heavier in most areas throughout the city.
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Figure 1.4: 10 AM Occupancy Comparison 2010-2017


## Parking User Type

In order to understand what kinds of users are likely using parking in each neighborhood, license plate data was used to approximate the user type of parkers. Vehicles parking in on-street spaces were assigned one of three user types, resident, employee/long-term visitor, or customer/shortterm visitor, based on which of the three data collection time points the vehicle was observed in. Table 1.7 below shows how the parking behavior of individual vehicles was linked to user types.

Table 1.7: User Type Assignments by Utilization Pattern

|  | 4 AM | 10 AM | 3 PM | Assumed User Type |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Resident |
|  |  |  |  | Resident |
|  |  |  |  | Resident |
|  |  |  |  | Resident |
|  |  |  |  | Employee/Long-Term Visitor |
|  |  |  |  | Customer/Short-Term Visitor |
|  |  |  |  | Customer/Short-Term Visitor |

Using these definitions, a user type was assumed for each observed vehicle parked in on-street spaces, which was then summarized by neighborhood, as shown in Figure 1.5 below. The Triangle neighborhood is the only one in which a majority of parkers are likely to be residents, but in Doyle, North Bayfront, Peninsula, and South Emeryville around 40 percent of parkers are likely residents. Parkers in the Central, Park Avenue, and South Emeryville neighborhoods are more than 50 percent customer and short-term visitor. The areas with the highest percentages of employee or long-term parkers are North Hollis and Park Avenue, but in both of these areas, a higher percentage of parkers are visitors or short-term parkers. There are no areas in which one user type dominates, confirming the fact that street parking in each neighborhood in Emeryville serves a variety of users.

Figure 1.5: User Types by Neighborhood (on-street parkers only)


## Duration and Turnover

The data collected also allows estimation of average duration and turnover of vehicles in areas with hourly data collection, and approximation of user type based on the times a vehicle was parked in the entire study area.

Parking duration is the length of time a vehicle is parked in a single area and parking turnover is the number of unique vehicles that use a space throughout the day. These measurements can be made in the North Hollis and Doyle area, where license plate data was collected hourly from 8 AM to 6 PM. Duration is calculated by adding up the total occupancy for each hour during the day and dividing by the number of unique vehicles. The calculated duration may be a slight overestimation of duration, as a vehicle is assumed to have stayed for a full hour for each hour that it was observed. Turnover is calculated by dividing the number of unique vehicles by the number of parking spaces. For high-turnover blocks, the turnover estimation may be an underestimation of the actual turnover, as vehicles that parked for short durations between data collection times would not have been observed. Average vehicle duration and turnover for these two areas are shown in Tables 1.9 and 1.10 below.

In unregulated spaces, vehicles parked on average for around 3.5 hours, with slightly longer average durations in North Hollis compared to Doyle. Turnover in these spaces was 2 to 2.5 vehicles per space per day on average in the two neighborhoods. Durations in 2 -hour spaces in North Hollis were slightly higher than in unregulated spaces, indicating a lack of enforcement of time limits as well as demand for long-term parking in these areas. The vehicle turnover in these spaces, however, was higher than in unregulated spaces, at almost 2.6 vehicles per day, which can happen if there is a small portion of spaces where vehicles are staying for very long durations, while there is high turnover in the remaining spaces. The discrepancy may also be caused by vehicles parking for less than one hour, which would not have been observed with hourly data collection. The results indicate there are a few long-term parkers using the 2-hour spaces, but most 2 -hour spaces are used by short-term visitors, and that there may be more demand for
short-term parking than was observed by the hourly data collection. Improved enforcement could ensure that there is parking availability for short-term parking and direct long-term parkers to appropriate facilities.

In the Doyle neighborhood, durations and turnover are slightly lower for 2-hour parking compared to unregulated parking, indicating vehicles are staying for shorter durations but fewer vehicles overall are parking in these spaces. This is consistent with the residential character of the neighborhood, which might mean short-term parking spaces are less attractive.

In the North Hollis area, the 1-hour and loading spaces have short average durations, indicating these spaces are meeting a need for short term parking. The estimated turnover in these spaces is also low, but it is difficult to estimate the actual turnover rate in very short-term spaces when data is only collected every hour. Permit and reserved parking is generally used by employees or residents, thus resulting in long average durations and low turnover.

Figure 1.9: North Hollis On-Street Duration and Turnover by Space Type

| Space Type | Inventory | Average Duration <br> (Hours) | Turnover <br> (Vehicles/Space/Day) |
| :---: | :---: | :---: | :---: |
| Unregulated | 842 | 3.71 | 2.05 |
| 2-Hour | 161 | 4.00 | 2.58 |
| 1-Hour | 20 | 1.85 | 1.65 |
| Loading | 28 | 0.60 | 1.71 |
| Permit | 39 | 3.92 | 1.36 |
| Reserved | 42 | 4.26 | 1.93 |

Figure 1.10: Doyle On-Street Duration and Turnover by Space Type

| Space Type | Inventory | Average Duration <br> (Hours) | Turnover <br> (Vehicles/Space/Day) |
| :---: | :---: | :---: | :---: |
| Unregulated | 506 | 3.43 | 2.50 |
| 2-Hour | 16 | 2.85 | 2.06 |

## Citywide Vehicle Ownership

Vehicle ownership data was also collected from the Census to understand how many vehicles households will need to park in Emeryville. Figure 1.6 shows average household vehicle ownership for Emeryville and other geographies. Emeryville has lower average per household

Figure 1.6: Emeryville vehicle ownership compared to other geographies


Source: US Census American Community Survey
vehicle ownership than Oakland, Berkeley, Alameda County, the Bay Area, and the state of California. Emeryville also has less of a difference in vehicle ownership rates when comparing renters and homeowners than any other geography considered.

Figure 1.7 shows vehicle ownership for each of the Census tracts within Emeryville, with the approximate neighborhood identified. North Hollis has the highest vehicle ownership rate whereas South and East Emeryville has the lowest. This pattern is similar for home owners and renters.

Figure 1.7: Vehicle ownership by Emeryville Neighborhood


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## Chapter 2.

## Parking Management Program

Based on the results of existing conditions data collection, driver and property owner surveys, and two public workshops, recommendations were developed for on-street parking policies throughout Emeryville. This chapter describes the recommendations for parking meter pricing and technology, permit programs, and on-street parking designations. The recommendations include parking meters and permits throughout the city, but the meters and permits would be implemented in phases, with opportunity to adjust the plan as conditions change and drivers respond to the new management solutions.

The recommendations are an update to those developed for the 2010 Emeryville Parking Management Plan. Overall, the locations where parking is most heavily used have not shifted since 2010, and while occupancies have increased throughout the City, the types of parking management needed in each neighborhood have remained similar.

All recommendations in this report are intended to set out the initial pricing, block designations, and permit structure. The program will be reviewed at regular intervals after the plan is implemented, and prices or treatments may be updated to ensure program goals are being met.

## Parking Designation Summary

This plan recommends that most on-street parking in the City be assigned one of five parking designations, which include residential permit parking, three different metered parking designations, and unregulated parking. This section summarizes these parking designations. The block-by-block designations for full implementation of the plan are mapped in Figure 2.1. Detailed recommendations for phasing, pricing, and implementing permits and meters are described in the following sections. The five parking designations are:

- Residential Permit Areas: To expand the city's Residential Permit Parking (RPP) program, this plan designates most residential streets in the city as RPP parking. This designation is intended for residential areas and mixed-use areas with significant residential uses. In these locations, parking would be unmetered, but with a 2 -hour time limit for non -permit holders. Vehicles with a parking permit would be exempt from the time limits. Permits would be available to residents on RPP blocks, up to a maximum of three permits per dwelling unit, and to businesses within the RPP areas for employee use. There are four residential permit areas recommended: North Hollis/Doyle and Triangle/South Hollis in Phase 1, Park Avenue in Phase 2, and the Peninsula in Phase 3 (phasing of the plan is discussed in further detail in the following section). Businesses within the North Hollis/Doyle and Triangle permit areas will be allowed a limited number of permits for employees.
- Short Term Metered: In these locations, parking would be metered with an hourly parking rate. A variable pricing scheme is recommended to encourage two-hour parking without an enforced time limit. This designation is used in commercial areas visited heavily by customers who do not need to spend a long time at their destination. Businesses would
benefit from the increased parking availability created by higher vehicle turnover. Details on potential meter technology and recommended pricing are described in the "Parking Meters" section below. Clear signage and description of the pricing variation is integral to selfenforcement in areas expected for high turnover. The variable pricing scheme is preferred as it reduces enforcement costs from becoming prohibitive and it allows for flexibility in responding to changes in parking behaviors.
- Mid-Term Metered/Business Permit: In these locations, parking would be metered, as above, with a variable hourly rate which encourages parking durations of four hours or less. Most of the mid-term meter areas also include a business parking permit (BPP) overlay, which will allow businesses within specified areas to purchase annual permits that allow employees to park without having to pay at a mid-term meter. This designation is recommended in areas where some turnover is preferred, but the short-term rates are deemed inappropriate, and where there is significant need for on-street employee parking. This includes areas commercial areas in the Park Avenue, North Bayfront, and North Hollis areas where short-term parking is unlikely to be sufficient for visitors. Mid-term meters are also recommended for Powell Street on the Peninsula where visitors to the park, marina, or residential towers need mid-length parking. Details on potential meter technology and recommended pricing are described in the "Parking Meters" section below.
- Long Term Metered: In these locations, parking would be metered with a relatively low hourly rate and no variable pricing or time limit. This designation is used in commercial areas where parking is used primarily by employees or long-term visitors, or in area adjacent to commercial locations where employees can park for longer periods of time. Details on potential meter technology and recommended pricing are described in the "Parking Meters" section below.
- Unregulated/No Meters: In these locations, parking would be unmetered and unregulated. This designation is intended for blocks with primarily industrial uses, and where parking meters are not viable due to a lack of sidewalks and other infrastructure. In many of these areas, businesses use their building setbacks to provide parking for employees, visitors, and company vehicles. Adding public parking on these blocks would create complications with these existing uses. On these blocks, no changes are recommended to the current conditions.

All existing ADA accessible parking spaces, blue curbs, loading zones, and red curbs or other noparking zones would remain as they currently are designations, and would not be affected by new parking designations. Construction parking impacts on available parking to residents and visors was raised as a concern by the Public. A Construction Parking Zone is not proposed for citywide treatments rather the City is advised to review its Public Works Encroachment process for development to seek mitigations of construction impacts on limited off street parking.

All parking designations would be enforced Monday through Friday, 9 AM to 5 PM. In addition to these designations, a bus priority corridor with additional parking restrictions during the peak hours is recommended to be studied for Hollis Street during Phase 1.

Figure 2.1 All Recommendations


## Phasing

The parking recommendations include a phasing plan for rolling out meters, pricing, and permits throughout the city. Phasing of the improvements allows for a manageable approach to implementing the changes and then monitoring their performances so that refinements can be made as a part of the next phase.

- Phase 1: The first phase includes all designations within the North Hollis and Doyle neighborhoods, the Triangle area, and the South Emeryville/MacArthur Boulevard area. Recommendations in the North Hollis area are largely similar to those made in the 2010 parking study, with some alterations based on changes in land use and public feedback, and the addition of the Triangle/South Emeryville Areas. In Phase 1 the North Hollis/Doyle and Triangle RPP areas, and the 67 th Street and Powell overpass BPP areas will be established. The proposed Hollis Street Bus Corridor will also be studied concurrently with Phase 1 implementation. Phase 1 would be implemented in early 2019. The areas included in phase 1 are shown in Figure 2.2.
- Phase 2: The second phase includes all parking designations in the remainder of the city, excluding the Peninsula. This includes the Park Avenue, Central Emeryville, and North Bayfront areas. In Phase 2 the Park Avenue RPP area and the Park Avenue and North Bayfront BPP areas will be established. Phase 2 could be implemented in 2020 or later, after evaluation of Phase 1, completion of the Highest and Best Use of Curb Technical Assistance Grant, and identification of funding. The areas included in phase 2 are shown in Figure 2.3.
- Phase 3: The third phase will implement designations for the Peninsula, which includes a mix of residential permits and Mid-Term Meters for Powell Street west of I-80. No treatment is currently recommended for the Marina lot, but time limits may be considered. In Phase 3, the Peninsula RPP area will be established. Phase 3 will be implemented after evaluation of both prior phases, completion of the Highest and Best Use of Curb Technical Assistance Grant, identification of funding, and completion of the sewer replacement project at Watergate, anticipated in 2023. The areas included in phase 3 are shown in Figure 2.4.

Figure 2.2 Phase 1 Recommendations


Figure 2.3 Phase 2 Recommendations


Figure 2.4 Phase 3 Recommendations


## Residential Parking Permits

This study recommends expanding the Residential Parking Permit (RPP) program in the city. The goals of RPP are to:

- Improve residents' and employees' access to on-street parking close their home or worksite, when needed;
- Increase turnover along commercial corridors to allow more customer access by providing alternatives for long-term parkers;
- Reduce commuter and special event parking in residential areas;
- Increase use of available off-street parking; and
- Increase the share of residents and employees using commute modes other than a private vehicle.

Many residential areas in the City experience high parking demand throughout the day, and many residents have trouble parking their cars near their homes. In these areas, the City wishes to prioritize residents, reduce spillover parking from commercial areas, and discourage all-day parking for those who neither live nor work in Emeryville but take advantage of free parking and transit accessibility. Currently, the City operates an RPP program to manage parking in these areas, but this has only been implemented on a few blocks. Under the current parking permit program, parking is restricted to permit holders. Permits can be purchased by residents and businesses in the area at an annual cost of $\$ 58$ per vehicle, limited to three vehicles per household and one per business. Residents and businesses may purchase one visitor permit per year for $\$ 150$. Costs and details of RPP programs in nearby cities are detailed in Appendix C.

This section recommends improving the RPP program and expanding it, in phases, to single family residential areas throughout the city. The existing RPP program is underutilized because the process for approval is cumbersome and there are few resources to enforce. The recommendations include two defined permit areas within which RPP would be implemented by the City, without residents needing to request the program. In the first phase of the parking plan, the North Hollis/Doyle and Triangle RPP areas will be implemented. In the second phase of the plan, the Park Avenue RPP area will be implemented, and in Phase 3 the Peninsula RPP area will be implemented. The RPP areas are shown on the map in Figure 2.5.

Due to continued high demand on residential streets, and because parking demand on residential streets is likely to increase if nearby streets become metered, this plan recommends that the price per permit be increased to be consistent with nearby cities, and that a tiered pricing scheme be implemented with a higher price for additional permits after the first purchased by each household. Permits, which would be limited to 3 per housing unit, are recommended to be priced as follows:

- \$67 per year for the first permit
- $\$ 132$ per year for the second permit
- $\$ 200$ per year for the third permit

A $50 \%$ discount will be offered for qualifying low-income households who are at or below $50 \%$ of the area median income. Permits will be available to all households on permit blocks regardless of whether it is a single-family home or multi-family building, and regardless of the amount of parking provided on-site. Exceptions to the permit limit may be granted for circumstances relating to household size or lack of availability of off-street parking. The process for granting and appealing exceptions will be defined in the ordinances, regulations, and administrative instructions created to implement the parking program. If the demand for permits is high, it may be necessary in the future to limit the number of permits available to households with available off-street parking.

Based on the parking user survey, respondents slightly preferred to purchase visitor parking permits on an as-needed basis rather than including it with their annual permit purchase for an increased fee. Single-day visitor permits would be available to residents at a recommended cost of $\$ 5$ per day. As currently, the permits would only be enforced Monday through Friday, 9 AM to 5 PM, during which time free 2-hour parking would still be available to non-permitted vehicles. Therefore, parking would remain free for:

- Residents who only park their car in their neighborhood overnight after 5:00 pm,
- Short-term visitors (less than 2 hours), and
- Evening or weekend visitors, none of whom would need a permit.

The proposed permit costs are compared with existing private residential parking costs in Table 2.1 below. As the table shows, for two vehicles, the proposed RPP rates are lower than any existing lots that charge for parking. On average, private lots cost $\$ 113$ per month.

Table 2.1: Monthly Costs of Permits in Private Residential Lots

| Location | Cost/vehicle/month | Second Vehicle | Total for 2 Vehicles |
| :--- | :---: | :---: | :---: |
| Icon | $\$-$ | $\$-$ | $\$-$ |
| Proposed RPP Rates | $\$ 5.58$ | $\$ 11.08$ | $\$ 16.67$ |
| Bridgecourt | $\$-$ | $\$ 75.00$ | $\$ 75.00$ |
| Artistry unsecured lot | $\$ 40.00$ | $\$ 40.00$ | $\$ 80.00$ |
| Avenue 64 | $\$ 50.00$ | $\$ 50.00$ | $\$ 100.00$ |
| Parc on Powell | $\$ 50.00$ | $\$ 75.00$ | $\$ 125.00$ |
| Artistry secured lot | $\$ 65.00$ | $\$ 65.00$ | $\$ 130.00$ |
| Bakery Lofts | $\$ 100.00$ | $\$ 50.00$ | $\$ 150.00$ |
| Bay Street | $\$ 75.00$ | $\$ 75.00$ | $\$ 150.00$ |
| Emme | $\$ 75.00$ | $\$ 75.00$ | $\$ 150.00$ |
| 3900 Adeline | $\$ 125.00$ | $\$ 125.00$ | $\$ 250.00$ |
|  |  |  | $\$ 65.50$ |
| Average | $\$ 53.48$ |  | $\$ 113.03$ |

## Business Parking Permits

Businesses located within the North Hollis/Doyle and Triangle permit areas as well as the MidTerm metered areas with business permit overlays may purchase permits for use on these blocks. These eligibility area for these permit areas are described in Table 2.2 below and shown on the map Figure 2.5.

The total number of permits allowed in each area is also summarized in Table 2.2. In residential areas, this cap is based on the number of spaces and number of residential units. There are 590 onstreet spaces proposed for residential permitting in the North Hollis/Doyle permit area, and approximately 330 housing units on these blocks, including about 180 single family homes and 150 units in multi-family buildings. Assuming that on average residents will use one on-street parking space per unit (though residents are allowed up to three permits, some have off-street parking spaces available or do not own cars), approximately 260 additional spaces will remain available for other users. It is recommended that 200 business permits be made available to avoid overselling the parking supply and to maintain some parking availability. There are 450 spaces in the Triangle permit area and approximately 330 housing units on these blocks. Assuming one on-street space per unit, approximately 120 additional spaces will be available. It is recommended that 100 business permits be made available in the Triangle neighborhood.

In Mid-Term metered areas, the parking permit cap was determined based on the estimated revenue expected if the maximum number of permits were purchased and used on a daily basis. The revenue analysis showed that if all parking spaces in Mid-Term/BPP areas were used by permit holders rather than hourly meter users, these parking areas would lose money and need to be subsidized heavily by other metered areas. However, if only $75 \%$ of the spaces were used by permit holders, the net revenue loss at these spaces would be much lower, and it would be easier for the parking program overall to break even. Thus, the business permit cap is recommended to be $75 \%$ of the total Mid-Term metered spaces in each area.

Table 2.2

| Permit Area | Business Eligibility Area | Permit Cap | Remaining Spaces (minus Res. \& Bus. Permits) |
| :---: | :---: | :---: | :---: |
| RPP Area 1: North Hollis/Doyle | All businesses within the North Hollis District | 200 | 60 |
| RPP Area 2: Triangle/S. MacArthur | All businesses located in the Triangle or Reverse Triangle | 100 | 20 |
| BPP Area 1: $67^{\text {th }}$ Street | All businesses on $67^{\text {th }}$ or $66^{\text {th }}$ Streets east of Hollis Street and west of the Greenway. | 36 | 12 |
| BPP Area 2: North Bayfront | All businesses on Christie Avenue between Shellmound Way and $64^{\text {th }}$ Street or on $64^{\text {th }}$ Street between Shellmound Street and La Coste Street | 85 | 28 |
| BPP Area 3: Powell Overpass | All businesses located in the North Hollis District | 50 | 17 |
| BPP Area 4: Park Avenue | All Businesses in the Park Avenue District | 460 | 152 |

Figure 2.5: Residential and Business Permit Areas


To ensure that permits are affordable to small businesses and to prevent larger businesses from purchasing all permits available in a particular area, business permits are priced and capped based on the size of the business and the number of permits purchased. Business permits are priced and capped as follows, and summarized in Table 2.3:

- Businesses with 55 or fewer employees can purchase a total of 40 permits. The first 25 permits will be priced at $\$ 100$ each per year, and an additional 15 permits (up to 40 permits total) will be priced at $\$ 200$ each per year.
- Businesses with 56 to 100 employees can purchase a total of 60 permits. The first 25 permits will be priced at $\$ 200$ each per year, an additional 15 permits (up to 40 permits total) will be priced at $\$ 300$ each per year, and the final 20 permits (up to 60 permits total) will be priced at $\$ 400$ each per year.
- Businesses with more than 100 employees can purchase a total of 50 permits. All permits offered to these businesses will be priced at $\$ 500$ each per year.

Table 2.3 Summary of Tiered Pricing

| Business Size <br> (Number of Employees) | Total Permit Cap | Price per Permit per Year |
| :---: | :---: | :---: |
| 1 to 55 | 40 | $1^{\text {st }}$ to $25^{\text {th }}: \$ 100$ <br> $26^{\text {th }}$ to $40^{\text {th }}: \$ 200$ |
| 56 to 100 | 60 | $1^{\text {st }}$ to $25^{\text {th }}: \$ 200$ |
| $26^{\text {th }}$ to $40^{\text {th }}: \$ 300$ |  |  |
| $41^{\text {st }}$ to $60^{\text {th }}: \$ 400$ |  |  |

As with residential permits, exceptions to these limits and criteria may be applied by staff with an appeal process to the Public Works and Transportation Committee. This process will be defined in the ordinances, regulations and administrative instructions that will be created to implement the parking program.

## Metered Parking

The plan recommends installing parking meters in the short-term, mid-term, and long-term parking areas throughout the city. The goals of metering and pricing parking are to

- Improve parking turnover and availability for customers while maintaining affordable longterm parking for employees,
- Support citywide mode-shift and sustainability goals, and
- Ensure financial sustainability of the parking program.

Potential pricing and technology options are discussed in this section.

## Variable Pricing

For the recommended meter pricing detailed below, variable on-street pricing is recommended. Variable on-street pricing is intended to increase vehicle turnover in spaces that are close to retail and commercial destinations without imposing strict time limits, by varying the hourly rate based on how long a vehicle is parked in the same area. The variable pricing strategy recommended in Emeryville charges a relatively low rate for the first two or four hours, for short-term and mid-term parking respectively, then has a sharp increase in price, so that any additional hours parked cost much more. This provides an economic incentive for long-term parkers to move to peripheral parking, which is recommended to have a low, constant price. Parkers are allowed to stay as long as they need to allow for flexibility and reduce enforcement needs, but would pay steep costs for this flexibility, while not increasing enforcement costs unnecessarily.

## Pricing Policy Recommendation

The pricing recommendations in this document would be adopted as the initial parking rates, along with a pricing policy, which would set for the process for increasing or decreasing rates after implementation. The pricing policy will:

- Target $85 \%$ occupancy throughout the city and review occupancy rates at least annually.
- Require the city to review occupancy, turnover, citywide modal use changes, and complaints at least annually, and bi-annually as needed, particularly in the first year after changes are implemented.
- Set occupancy thresholds for raising or lowering parking prices within each metered parking category.
o It is recommended that meter prices be lowered when average occupancy within each metered parking designation (short-, mid-, and long-term) falls below a low occupancy threshold, recommended to be 65\% occupancy during the peak period, and raised when occupancy rises above a high occupancy threshold, recommended to be $85 \%$ occupancy during the peak period.
o The city should also review blockfaces within each area to determine if individual blocks should be re-designated to a different meter category or if additional meter categories should be created to allow for differing needs throughout the city.
- Set the increment by which parking prices are raised or lowered according to the occupancy thresholds.
o The increment is recommended to be low to avoid dramatic changes to parking prices, but high enough to change behavior. $\$ 0.50$ is recommended as a reasonable increment. Variable increments may also be set based on the magnitude by which observed occupancies differ from the occupancy thresholds. Maximum and minimum parking rates should be set citywide, recommended to be $\$ 10$ per hour maximum and $\$ 0.50$ per hour minimum.

The hourly prices for short-term and mid-term parking were chosen to be similar to prices for Oakland and Berkeley. In Oakland, most on-street parking is currently $\$ 2$ per hour. Short term (2hour) parking in Berkeley ranges from $\$ 3.00$ to $\$ 3.50$ per hour depending on the location, midterm (3- to 4 -hour) parking ranges from $\$ 1.50$ to $\$ 2.50$ per hour, and long-term ( 8 -hour) parking is $\$ 2.50$ per hour.

Long-term parking is recommended to be set at a low, constant rate of $\$ 0.50$ per hour for employees and visitors who wish to park for extended periods of time. This equates to $\$ 84$ per month if a drivers parks for 8 hours a day, 21 weekdays a month. This rate is lower than most public parking garages in Emeryville, which range from $\$ 252$ to $\$ 966$ per month and average $\$ 435$ per month (detailed in Table 2.4).

Table 2.4: Garage/Fee Lots Rates in Emeryville

| Location | Cost/vehicle/month | Spaces |
| :--- | :---: | :---: |
| GlasHaus (65th and Hollis) | $\$ 0$ | 50 |
| Proposed Long Term Meters | $\$ 84$ | NA |
| Marchant Garage | $\$ 252$ | 535 |
| Towers Lot | $\$ 315$ | 1,816 |
| Bay Street | $\$ 336$ | 1,939 |
| 5858 Horton | $\$ 483$ | 180 |
| Hollis Business Center | $\$ 504$ | 627 |
| Proposed Mid Term Meters | $\$ 588$ | NA |
| EmeryStation West | $\$ 630$ | 125 |
| Terraces Garage | $\$ 630$ | 800 |
| Heritage Sq. Garage, 6100 Horton | NA | 675 |
| Proposed Short Term Meters | $\$ 966$ | NA |
| Average | $\$ 435$ | 750 |
| Total | NA | $\mathbf{6 , 7 4 7}$ |

Note: Assumes drivers pay posted prices for 8 hours per day and 21 days per month. Lots may have lower monthly rates which are not posted publicly.

Table 2.5 summarizes the three proposed pricing schedules for short-term, mid-term, and longterm on-street parking meters. As described above, short-term and mid-term areas are priced to encourage parkers to stay for under 2 hours or under 4 hours, respectively, while long-term parking is intended for all-day parkers. In short-term and mid-term areas, a single jump in price is recommended after a vehicle stays in the same space for longer than the preferred length. The selected prices would be set as the initial prices for the program. After implementation, it is recommended that the City continue to monitor occupancy and adjust prices to meet occupancy targets at least annually, and bi-annually as needed, particularly in the first year after changes are implemented.

Table 2.5: Recommended Initial On-Street Pricing

| Hour | \$/Hour |  |  |  |  |  |  |  | \$/day | \$/week | \$/month |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |  |  |  |
| Short Term | \$2.00 | \$2.00 | \$7.00 | \$7.00 | \$7.00 | \$7.00 | \$7.00 | \$7.00 | \$46.00 | \$230.00 | \$966.00 |
| Mid Term | \$1.00 | \$1.00 | \$1.00 | \$1.00 | \$6.00 | \$6.00 | \$6.00 | \$6.00 | \$28.00 | \$140.00 | \$588.00 |
| Long Term | \$0.50 | \$0.50 | \$0.50 | \$0.50 | \$0.50 | \$0.50 | \$0.50 | \$0.50 | \$4.00 | \$20.0 | \$84.00 |

Note: Assumes drivers pay posted prices for 8 hours per day and 21 days per month. Lots may have lower monthly rates which are not posted publicly.

## Technology

There are two types of meters that can be used for on-street parking.

- Single-Space Meters are the more traditional type of parking meter, and would be located at each parking space. Modern smart meters can accept credit cards or coins. These could be implemented on single-head meters or double-head meters covering two adjacent parking spaces. A dual head meter uses a single pole, reducing sidewalk impacts and minimizing distance to payment, while creating diffused payment options, in case of equipment failure as compared to a multi-space payment kiosk.
- Multi-space meters can be kiosks that serve multiple parking spaces. Parkers can pay at the kiosk and return to their car to display the receipt on the dashboard, or enter a space number or their license plate number and do not need to return to their vehicle, depending on how the City chooses to set up the kiosks. Multi-space meters can accept credit cards, cash, or coins. Based on feedback received during the public workshops, and to be relatively consistent with neighboring Oakland's technology, dual-head meters are recommended for Emeryville.

In addition to the physical meters, mobile payment technology is recommended to be implemented along with the meters. This allows drivers to pay via a smartphone app using a credit card. Drivers can check how much time they have remaining and add money to their meter without returning to their vehicle. Mobile payment is compatible with both single-space and multi-space meters.

## Hollis Street Bus Corridor

The City is considering restricting parking availability along Hollis Street during the peak commute times, approximately 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, to allow for the provision of
special bus-only lanes. This could provide faster, more reliable bus service which would promote increased transit use, and is consistent with the designation of Hollis Street as a transit street in the General Plan. Hollis Street is used primarily by the Emery-Go-Round routes as well as the AC Transit route 29. The route is also under consideration for a new transbay service operated by AC Transit.

At many intersections along Hollis, parking lanes are currently used for right turns or as a shifted through lane to allow dedicated left turn movements. Transit conflicts or restrictions related to these parking lane uses must be considered prior to implementation of a bus only lane in the parking lane. Additionally, signage, signal modifications, pavement markings, other capital improvements and user education and enforcement would be required and need further review to ensure feasibility before this could be implemented.

Parking along Hollis Street is recommended to be a mix of short-term and long-term parking. Restricting parking during the morning peak would have a small effect on short term parking availability during the bus lane hours, but may prevent some long-term parkers from being able to park in the morning or the afternoon for work or other purposes. Consequently, this requires additional study.

## Parking Management Plan Costs and Revenues

Implementing the above parking strategies would require purchasing parking meters and enforcement equipment as well as the cost of enforcement, maintenance, collections, and administrative support. Potential costs and revenues for this program were estimated using a proforma model based on the recommendations, observed parking demand, and expected costs. The results of this analysis are summarized in this section.

The financial analysis applies the meter and permit parking prices recommended above to the observed parking demand to estimate parking revenues, and estimates labor, capital, and operational costs to estimate a net income for the program. The analysis assumes that the first phase will be implemented in 2019, the second phase will be implemented in 2020, and the third phase will be implemented in 2023. From these estimates an annual net income was estimated for the first ten years of the program.

The revenue analysis conservatively assumes that parking will be used, on average, at approximately the same occupancy rates as was observed for on-street spaces in the existing conditions analysis. In the revenue model, existing demand for short-term, mid-term, and longterm spaces from the parking occupancy data is used. Average parking demand was calculated as the total number of occupied hours from 9 AM to 5 PM divided by the revenue hours (the total number of spaces multiplied by eight hours). Short-term occupancy was adjusted down approximately $30 \%$, and long-term parking was increased by an equivalent amount, to conservatively reflect an expected shift toward lower-cost pricing. The analysis also includes a ten percent decrease in demand during the first year as drivers take fewer trips or other modes in response to the new parking pricing and technology. After the first year, demand for parking is expected to increase due to increased space availability, and the occupancy is assumed to stay
constant at the existing observed rates. The assumed occupancy rates by space location and phase are shown in Table 2.6.

Table 2.6 Assumed Daily Average Occupancy Rates

|  | Short <br> Term | Mid <br> Term | Long <br> Term | Citywide <br> Average |
| :--- | :---: | :---: | :---: | :---: |
| Phase 1 spaces with 10\% year-1 <br> decrease | $61 \%$ | $75 \%$ | $77 \%$ | $64 \%$ |
| Phase 2 \& 3 spaces (citywide) | $61 \%$ | $82 \%$ | $82 \%$ | $76 \%$ |

These occupancies are multiplied by the hourly parking rates described in the recommendations above, assuming all vehicles in short- and mid-term parking spaces stay for the recommended time limit, two and four hours respectively, to avoid paying the higher rate. Meter rates are also assumed to stay constant for the analysis period, and the number of metered spaces is assumed to decrease at a rate of $2.5 \%$ per year to account for changes in curb use such as drop off zones, bus lanes, parklets, etc. Both of these assumptions result in a conservative revenue estimate, as no revenue is assumed to be garnered from those overstaying at meters and the revenue is expected to decrease with the assumed loss of metered spaces.

Labor costs for administering and enforcing the program, summarized in Table 2.7 below, were estimated using salaries obtained from the City and approximate full-time equivalent (FTE) hours based on the level of administration and enforcement required for each phase. The annual hours and total costs shown are for all positions within each department, including overhead and benefit costs. Contractors for meter maintenance and collection were assumed instead of inhouse collections, with a high-end annual contracting cost included for a conservative estimate. The annual hours and full-time equivalents for each position are detailed in Appendix D. Labor costs are assumed to escalate at a rate of $5 \%$ per year.

Table 2.7 Labor Cost Summary

|  | Phase 1 - North Hollis \& Triangle |  | Phases 2 \& 3 - Citywide |  |
| :---: | :---: | :---: | :---: | :---: |
| Labor Category | Total FTE | Annual Cost | Total FTE | Annual Cost |
| Operations and Maintenance (Contract) |  |  |  |  |
| Maintenance Contractor | - | \$100,000.00 | - | \$200,000.00 |
| Collections Contractor | - | \$100,000.00 | - | \$200,000.00 |
| Administration and Enforcement |  |  |  |  |
| Finance | 0.125 | \$25,560 | 0.175 | \$34,330 |
| Public Works | 0.25 | \$64,230 | 0.15 | \$41,030 |
| Police | 4 | \$882,050 | 5 | \$1,060,170 |
| Policy and Planning* | 0.3 | \$74,010 | 0.15 | \$37,010 |
| Total Labor and Operations |  | \$1,245,850 |  | \$1,572,540 |

*Policy and planning staff needs assumed to end after the second year of phase 2.
Capital costs for both phases include purchasing a total of 2,583 parking meter heads, four license plate-recognition (LPR) enabled vehicles, handheld enforcement units, and signage. In total,
capital costs for phase 1 are estimated to be approximately $\$ 1.49$ million (approximately $\$ 1.19$ million for North Hollis and $\$ 0.3$ million for the Triangle), for phase 2 are estimated to be $\$ 1.55$ million, and are $\$ 77,000$ for phase 3. The capital costs are detailed in Table 2.8. These capital costs are annualized for the cost and revenue comparison assuming a full replacement after 10 years. Additional software and contracting costs for mobile payment, permit management, and system integration are also included in the proforma analysis. Parking citation revenues and associated court and processing costs are excluded from the model.

Table 2.8 Capital Cost Details

|  | Phase 1 |  | Phase 2 |  | Phase 3 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number of new Units | Total Cost | Number of new Units | Total Cost | Number of new Units | Total Cost |
| Meters | North Hollis: 943 Triangle: 221 | $\begin{aligned} & \$ 962,000 \\ & \$ 225,000 \end{aligned}$ | 1,354 | \$1,409,000 | 65 | \$72,000 |
| LPR Vehicle | 3 | \$110,000 | 4 | \$37,000 | - |  |
| Handheld Units | 3 | \$4,600 | 4 | \$1,600 | - |  |
| Signs | North Hollis: 217 <br> Triangle: 98 | $\begin{aligned} & \$ 27,000 \\ & \$ 12,000 \end{aligned}$ | 194 | \$24,000 | 9 | \$1,200 |
| Software setup cost (one-time) | - | \$75,000 | - | - | - | - |
| Subtotal |  | \$1,416,000 |  | \$1,472,000 |  | \$73,000 |
| Contingency (5\%) |  | \$70,000 |  | \$74,000 |  | \$4,000 |
| Total |  | \$1,486,000 |  | \$1,546,000 |  | \$77,000 |

*Unit costs differ between phases due to inflation.
The estimated revenues and costs are summarized in Table 2.9. During the first phase in 2019, costs are slightly higher than revenues, but for the following six years, the project is expected to make money. After 2025, due to the assumed inflation rates and gradual loss of parking spaces, revenues would decrease below the costs. Increased meter rates could be considered to cover the cost increases. It is important to note that these estimates are based on a number of assumptions about user behavior and economic conditions which are difficult to predict. For example, an economic downturn, or an increase in inflation could substantially impact revenues or costs. The estimates assume current behaviors regarding auto ownership and use of private autos for commuting and other types of trips will not change in any major way. For example, it is not well understood how the eventuality of autonomous, self-driving vehicles will impact auto ownership and parking demand in the future.
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Table 2.9 Parking Management Plan 10-year Cost and Revenue Projection

|  | Phase 1 | Phase 2 |  |  | Phase 3 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
| Revenues Short term meters | \$775,000 | \$896,000 | \$874,000 | \$852,000 | \$830,000 | \$810,000 | \$789,000 | \$770,000 | \$750,000 | \$732,000 | \$713,000 |
| Mid term meters | \$70,000 | \$543,000 | \$529,000 | \$516,000 | \$609,000 | \$594,000 | \$579,000 | \$565,000 | \$551,000 | \$537,000 | \$523,000 |
| Long term meters | \$505,000 | \$1,011,000 | \$986,000 | \$961,000 | \$937,000 | \$913,000 | \$891,000 | \$868,000 | \$847,000 | \$825,000 | \$805,000 |
| Permit income | \$177,000 | \$178,000 | \$176,000 | \$173,000 | \$174,000 | \$171,000 | \$169,000 | \$166,000 | \$164,000 | \$162,000 | \$159,000 |
| Total Revenues | \$1,527,000 | \$2,628,000 | \$2,565,000 | \$2,502,000 | \$2,550,000 | \$2,488,000 | \$2,428,000 | \$2,369,000 | \$2,312,000 | \$2,256,000 | \$2,200,000 |
| Expenses |  |  |  |  |  |  |  |  |  |  |  |
| Capital costs | \$132,000 | \$278,000 | \$278,000 | \$278,000 | \$285,000 | \$285,000 | \$285,000 | \$285,000 | \$286,000 | \$286,000 | \$286,000 |
| Labor | \$1,098,000 | \$1,293,000 | \$1,357,000 | \$1,380,000 | \$1,449,000 | \$1,522,000 | \$1,598,000 | \$1,678,000 | \$1,762,000 | \$1,850,000 | \$1,942,000 |
| Contractors and Software | \$237,000 | \$478,000 | \$478,000 | \$478,000 | \$481,000 | \$481,000 | \$481,000 | \$482,000 | \$482,000 | \$483,000 | \$483,000 |
| Total Expenses | \$1,467,000 | \$2,049,000 | \$2,113,000 | \$2,136,000 | \$2,215,000 | \$2,288,000 | \$2,364,000 | \$2,445,000 | \$2,530,000 | \$2,619,000 | \$2,711,000 |
| Total Expenses + Contingency | \$1,540,350 | \$2,151,450 | \$2,218,650 | \$2,242,800 | \$2,325,750 | \$2,402,400 | \$2,482,200 | \$2,567,250 | \$2,656,500 | \$2,749,950 | \$2,846,550 |
| Annual Net Income | (\$13,350) | \$476,550 | \$346,350 | \$259,200 | \$224,250 | \$85,600 | (\$54,200) | $(\$ 198,250)$ | $(\$ 344,500)$ | (\$493,950) | $(\$ 646,550)$ |
| Internal borrowing from other funds | \$13,350 | (\$13,350) |  |  |  |  |  |  |  |  |  |
| Balance | \$0 | \$463,200 | \$809,550 | \$1,068,750 | \$1,293,000 | \$1,378,600 | \$1,324,400 | \$1,126,150 | \$781,650 | \$287,700 | $(\$ 358,850)$ |

## Appendix A.

Inventory and Occupancy by Neighborhood
The following tables detail the parking inventory in each neighborhood in Emeryville.

Table C.1: Central Parking Inventory

| Central |  |  |
| :---: | ---: | ---: |
| Space Type | Count | Percentage |
| On-Street |  |  |
| Unregulated | 354 | $79 \%$ |
| $\mathbf{2}$ Hour | 66 | $15 \%$ |
| $\mathbf{1}$ Hour | 8 | $2 \%$ |
| Loading | 16 | $4 \%$ |
| ADA | 2 | $0 \%$ |
| Other | 3 | $1 \%$ |
| Total | 449 | $100 \%$ |

Table C.2: Doyle Parking Inventory

| Doyle |  |  |
| :---: | ---: | ---: |
| Space Type | Count | Percentage |
| On-Street |  |  |
| Unregulated | 725 | $95 \%$ |
| 2 Hour | 16 | $2 \%$ |
| Short Term | 5 | $1 \%$ |
| Loading | 6 | $1 \%$ |
| Permit | 7 | $1 \%$ |
| ADA | 1 | $0 \%$ |
| Total | 760 | $100 \%$ |
|  | Off-Street |  |
| Permit | 63 | $97 \%$ |
| ADA | 2 | $3 \%$ |
| Total | 65 | $100 \%$ |

Table C.3: North Bayfront Inventory

| North Bayfront |  |  |
| :---: | ---: | ---: |
| Space Type | Count | Percentage |
| On-Street |  |  |
| Unregulated | 218 | $96 \%$ |
| 1 Hour | 2 | $1 \%$ |
| Loading | 2 | $1 \%$ |
| ADA | 1 | $0 \%$ |
| Other | 5 | $2 \%$ |
| Total | 228 | $100 \%$ |

Table C.4: North Hollis Inventory

| North Hollis |  |  |
| :---: | ---: | ---: |
| Space Type | Count | Percentage |
| On-Street |  |  |
| Unregulated | 743 | $82 \%$ |
| 2 Hour | 65 | $7 \%$ |
| 1 Hour | 12 | $1 \%$ |
| Short Term | 3 | $0 \%$ |
| Loading | 22 | $2 \%$ |
| Permit | 20 | $2 \%$ |
| Reserved | 40 | $4 \%$ |
| ADA | 6 | $1 \%$ |
| Total | 911 | $100 \%$ |
|  | Off-Street |  |
| Unregulated | 83 | $19 \%$ |
| 2 Hour | 21 | $5 \%$ |
| Permit | 291 | $66 \%$ |
| Reserved | 17 | $4 \%$ |
| ADA | 13 | $3 \%$ |
| Other | 15 | $3 \%$ |
| Total | 440 | $100 \%$ |

Table C.5: Peninsula Inventory

| Peninsula |  |  |
| :---: | ---: | ---: |
| Space Type | Count | Percentage |
| On-Street |  |  |
| Unregulated | 107 | $100 \%$ |
| Total | 107 | $100 \%$ |
| Off-Street |  |  |
| Unregulated | 241 | $31 \%$ |
| Permit | 244 | $31 \%$ |
| Reserved | 173 | $22 \%$ |
| ADA | 99 | $13 \%$ |
| Other | 18 | $2 \%$ |
| Total | 775 | $100 \%$ |

Table C.6: South Emeryville Inventory

| South Emeryville |  |  |
| :---: | ---: | ---: |
| Space Type | Count | Percentage |
| On-Street |  |  |
| Unregulated | 62 | $59 \%$ |
| 2 Hour | 31 | $30 \%$ |
| 1 Hour | 8 | $8 \%$ |
| Short Term | 2 | $2 \%$ |
| ADA | 2 | $2 \%$ |
| Total | 105 | $100 \%$ |

Table C.7: Triangle Inventory

| Triangle |  |  |
| :---: | ---: | ---: |
| Space Type | Count | Percentage |
| On-Street |  |  |
| Unregulated | 511 | $92 \%$ |
| 2 Hour | 6 | $1 \%$ |
| Short Term | 4 | $1 \%$ |
| Loading | 2 | $0 \%$ |
| Permit | 14 | $3 \%$ |
| ADA | 9 | $2 \%$ |
| Other | 8 | $1 \%$ |
| Total | 554 | $100 \%$ |

Table C.8: Central On-Street Occupancy

|  | \# of Spaces | 4 AM | $\mathbf{1 0}$ AM | 3 PM |
| :---: | :--- | :--- | :--- | :--- |
| Unregulated | 510 | $26 \%$ | $70 \%$ | $63 \%$ |
| $\mathbf{2}$ Hour | 15 | $0 \%$ | $87 \%$ | $73 \%$ |
| $\mathbf{1}$ Hour | 8 | $0 \%$ | $75 \%$ | $50 \%$ |
| Loading | 28 | $0 \%$ | $4 \%$ | $21 \%$ |
| Permit | 61 | $11 \%$ | $103 \%$ | $84 \%$ |
| ADA | 6 | $0 \%$ | $0 \%$ | $0 \%$ |
| Other | 22 | $36 \%$ | $23 \%$ | $59 \%$ |
| Total | $\mathbf{6 5 0}$ | $\mathbf{2 3 \%}$ | $\mathbf{6 8 \%}$ | $\mathbf{6 2 \%}$ |

Table C.9: Doyle Occupancy, On- and Off-Street

|  | \# of Spaces | 4 AM | $\begin{gathered} 7 \\ \text { AM } \end{gathered}$ | $\begin{gathered} 8 \\ \text { AM } \end{gathered}$ | $\begin{gathered} 9 \\ \text { AM } \end{gathered}$ | $\begin{gathered} 10 \\ \text { AM } \end{gathered}$ | $\begin{gathered} 11 \\ \text { AM } \end{gathered}$ | $\begin{aligned} & 12 \\ & \text { PM } \end{aligned}$ | $\begin{gathered} 1 \\ \text { PM } \end{gathered}$ | $\begin{gathered} 2 \\ \text { PM } \end{gathered}$ | $\begin{gathered} 3 \\ \text { PM } \end{gathered}$ | $\begin{gathered} 4 \\ \text { PM } \end{gathered}$ | $\begin{gathered} 5 \\ \text { PM } \end{gathered}$ | $\begin{gathered} 6 \\ \text { PM } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| On Street |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Unregulated |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hourly | 506 | 70\% | 74\% | 81\% | 91\% | 93\% | 94\% | 90\% | 96\% | 95\% | 89\% | 81\% | 75\% | 67\% |
| Timepoint | 216 | 67\% | - | - | - | 79\% | - | - | - | - | 69\% | - | - |  |
| 2-Hour | 16 | 0\% | 13\% | 56\% | 63\% | 81\% | 81\% | 81\% | 88\% | 81\% | 69\% | 75\% | 56\% | 56\% |
| Loading | 6 | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 17\% | 33\% | 33\% | 50\% | 50\% | 33\% |
| Permit | 7 | 0\% | 14\% | 14\% | 14\% | 71\% | 57\% | 57\% | 57\% | 57\% | 43\% | 43\% | 57\% | 57\% |
| Short Term | 5 | 80\% | 60\% | 80\% | 80\% | 40\% | 40\% | 60\% | 80\% | 80\% | 80\% | 80\% | 60\% | 0\% |
| ADA | 1 | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% | 0\% |
|  | 544 | 66\% | 69\% | 78\% | 87\% | 90\% | 91\% | 87\% | 93\% | 92\% | 87\% | 79\% | 73\% | 65\% |
| Off-Street |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total | 65 | 0\% | 3\% | 14\% | 51\% | 65\% | 75\% | 72\% | 78\% | 75\% | 72\% | 62\% | 43\% | 20\% |

Note: 2 of the off-street spaces are ADA spaces, the remainder are permit spaces.

Table C.10: North Bayfront On-Street Occupancy

|  | \# of Spaces | 4 AM | 10 AM | 3 PM |
| :---: | ---: | ---: | ---: | ---: |
| Unregulated | 218 | $64 \%$ | $92 \%$ | $83 \%$ |
| 1-Hour | 2 | $0 \%$ | $0 \%$ | $0 \%$ |
| Loading | 2 | $0 \%$ | $0 \%$ | $0 \%$ |
| Other | 9 | $0 \%$ | $56 \%$ | $60 \%$ |
| Total | $\mathbf{2 3 1}$ | $\mathbf{6 0 \%}$ | $\mathbf{8 9 \%}$ | $\mathbf{8 0 \%}$ |

Table C.11: North Hollis Occupancy, On- and Off-Street

|  | \# of Spaces | $\begin{gathered} 4 \\ \text { AM } \end{gathered}$ | $\begin{gathered} 7 \\ \text { AM } \end{gathered}$ | $\begin{gathered} 8 \\ \text { AM } \end{gathered}$ | 9 AM | $\begin{gathered} 10 \\ \text { AM } \end{gathered}$ | $\begin{array}{r} 11 \\ \text { AM } \end{array}$ | $\begin{aligned} & 12 \\ & \text { PM } \end{aligned}$ | 1 PM | 2 PM | 3 PM | $\begin{gathered} 4 \\ \text { PM } \end{gathered}$ | $\begin{gathered} 5 \\ \text { PM } \end{gathered}$ | $\begin{gathered} 6 \\ \text { PM } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| On-Street |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Unregulated | 828 | 23\% | 61\% | 80\% | 91\% | 93\% | 94\% | 96\% | 93\% | 90\% | 80\% | 68\% | 54\% | 46\% |
| 2-Hour | 65 | 26\% | 72\% | 85\% | 86\% | 88\% | 83\% | 72\% | 88\% | 83\% | 75\% | 66\% | 43\% | 49\% |
| 1-Hour | 10 | 50\% | 20\% | 40\% | 50\% | 50\% | 50\% | 50\% | 50\% | 60\% | 50\% | 50\% | 30\% | 20\% |
| Short Term | 3 | 0\% | 33\% | 33\% | 33\% | 100\% | 67\% | 67\% | 67\% | 33\% | 0\% | 0\% | 0\% | 0\% |
| Loading | 27 | 4\% | 7\% | 11\% | 33\% | 37\% | 30\% | 37\% | 52\% | 30\% | 26\% | 15\% | 11\% | 7\% |
| Permit | 51 | 12\% | 49\% | 53\% | 59\% | 73\% | 71\% | 73\% | 71\% | 73\% | 67\% | 63\% | 63\% | 25\% |
| Reserved | 42 | 31\% | 52\% | 67\% | 98\% | 98\% | 93\% | 100\% | 98\% | 117\% | 107\% | 83\% | 76\% | 19\% |
| ADA | 8 | 13\% | 13\% | 38\% | 38\% | 38\% | 25\% | 25\% | 50\% | 38\% | 38\% | 63\% | 25\% | 25\% |
| Total | 1034 | 23\% | 59\% | 76\% | 87\% | 90\% | 90\% | 91\% | 90\% | 87\% | 78\% | 66\% | 53\% | 42\% |
| Off-Street |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Unregulated | 643 | 17\% | 26\% | 36\% | 58\% | 75\% | 74\% | 76\% | 76\% | 69\% | 67\% | 61\% | 49\% | 34\% |
| 2-Hour | 21 | 0\% | 5\% | 10\% | 33\% | 48\% | 81\% | 52\% | 67\% | 71\% | 62\% | 43\% | 33\% | 19\% |
| Permit | 35 | 0\% | 0\% | 29\% | 31\% | 80\% | 74\% | 74\% | 63\% | 57\% | 51\% | 49\% | 29\% | 29\% |
| Reserved | 88 | 1\% | 10\% | 16\% | 19\% | 34\% | 25\% | 16\% | 26\% | 24\% | 22\% | 18\% | 18\% | 8\% |
| ADA | 307 | 1\% | 6\% | 12\% | 31\% | 48\% | 53\% | 56\% | 54\% | 56\% | 53\% | 46\% | 29\% | 17\% |
| Other | 632 | 0\% | 0\% | 1\% | 44\% | 52\% | 55\% | 33\% | 56\% | 51\% | 10\% | 44\% | 21\% | 10\% |
| Total | 1726 | 6\% | 11\% | 17\% | 45\% | 59\% | 61\% | 53\% | 62\% | 58\% | 41\% | 50\% | 33\% | 21\% |

Note: occupancies over 100 percent occur when the number of cars observed exceeds the estimated number of spaces based on curb length. This may be due to cars parking close together to fit more than the average space length on each block, or due to cars parking in driveways or red-curb areas.

Table C.12: Park Avenue On-Street Occupancy

|  | \# of Spaces | 4 AM | $\mathbf{1 0}$ AM | 3 PM |
| :---: | :--- | :--- | :--- | :--- |
| Unregulated | 608 | $22 \%$ | $89 \%$ | $76 \%$ |
| Short Term | 2 | $0 \%$ | $100 \%$ | $100 \%$ |
| Loading | 13 | $0 \%$ | $38 \%$ | $31 \%$ |
| ADA | 1 | $0 \%$ | $0 \%$ | $100 \%$ |
| Other | 8 | $0 \%$ | $100 \%$ | $88 \%$ |
| Total | $\mathbf{6 3 2}$ | $\mathbf{2 2 \%}$ | $\mathbf{8 8 \%}$ | $\mathbf{7 5 \%}$ |

Table C.13: Peninsula Occupancy, On- and Off-Street

|  | Inventory | 4 AM | 10 AM | 3 PM | 7 PM |
| :---: | :--- | :--- | :--- | :--- | :--- |
| Off-Street |  |  |  |  |  |
| Unregulated | 364 | $57 \%$ | $74 \%$ | $74 \%$ | $83 \%$ |
| Permit | 244 | $55 \%$ | $48 \%$ | $39 \%$ | $36 \%$ |
| Reserved | 173 | $12 \%$ | $27 \%$ | $32 \%$ | $24 \%$ |
| ADA | 32 | $16 \%$ | $28 \%$ | $19 \%$ | $28 \%$ |
| Other | 19 | $26 \%$ | $26 \%$ | $26 \%$ | $21 \%$ |
| Total | 832 | $45 \%$ | $54 \%$ | $52 \%$ | $53 \%$ |
| On-Street |  |  |  |  |  |
| Unregulated | 107 | $64 \%$ | $97 \%$ | $86 \%$ | $80 \%$ |

Table C.14: South Emeryville On-Street Occupancy

|  | \# of Spaces | 4 AM | 10 AM | 3 PM |
| :---: | :--- | :--- | :--- | :--- |
| Reg | 89 | $38 \%$ | $66 \%$ | $63 \%$ |
| 2h | 31 | $71 \%$ | $74 \%$ | $77 \%$ |
| 1h | 8 | $50 \%$ | $75 \%$ | $88 \%$ |
| Short Term | 3 | $67 \%$ | $100 \%$ | $33 \%$ |
| ADA | 2 | $0 \%$ | $50 \%$ | $0 \%$ |
| Total | $\mathbf{1 0 5}$ | $\mathbf{5 3 \%}$ | $\mathbf{6 5 \%}$ | $\mathbf{6 6 \%}$ |

Table C.15: Triangle On-Street Occupancy

|  | \# of Spaces | 4 AM | 10 AM | 3 PM |
| :---: | :--- | :--- | :--- | :--- |
| Reg | 568 | $84 \%$ | $72 \%$ | $68 \%$ |
| 2h | 6 | $33 \%$ | $33 \%$ | $100 \%$ |
| Short Term | 4 | $25 \%$ | $25 \%$ | $75 \%$ |
| L | 2 | $0 \%$ | $100 \%$ | $50 \%$ |
| P | 14 | $29 \%$ | $79 \%$ | $64 \%$ |
| ADA | 9 | $44 \%$ | $33 \%$ | $44 \%$ |
| Other | 8 | $50 \%$ | $38 \%$ | $38 \%$ |
| Total | $\mathbf{6 1 1}$ | $\mathbf{8 1 \%}$ | $\mathbf{7 1 \%}$ | $\mathbf{6 7 \%}$ |

Appendix B. Occupancy Maps






Appendix C.
Residential and Business Permit Programs in Comparable Cities


## Oakland

Employees of business establishments within RPP area may obtain one permit for each vehicle they own, subject to the following criteria for eligibility:

- Inadequate off-street parking and no financially feasible way of creating off-street parking
- Total number issued less than $60 \%$ of employees present on a weekday or total \# of unrestricted parking spaces along the building frontage, whichever is lower.
- Initial sale limited if total number of permits sold would exceed number of spaces
- Distribution done through a designated representative of business

Public Works can also designate commercial streets that would be impacted by establishment of RPP on adjacent street. Residents or employees on these designated blocks would then be allowed to participate in that program, if their building does not provide off-street parking.

## Berkeley

Merchants/business owners in select areas (some specific blockfaces in RPP areas or in commercial zoning districts) can purchase 1 permit per business. Community facilities (church, school, or senior center) can purchase permits for employees if:

- there is inadequate off-street parking and no financially feasible way of providing
- no nearby off-street parking available for lease
- total number of permits does not exceed $60 \%$ of enterprise's employees (some exceptions for schools)
- distribution done through designated representative of enterprise.


## San José

In certain RPP zones, businesses may request parking permits dependent on availability of off-site parking and visitor parking needs (I didn't find additional details on how parking permits are dependents on needs and availability). Max number of permits is number of employees on the business tax certificate or employee directory, whichever is lesser, though the exact number approved may be determined by the DOT director.

## Palo Alto

Downtown RPP Program: Employees can purchase one annual decal or employers can purchase a transferrable permit. Downtown divided into 10 zones, total number of permits in each zone is limited, but any business/employee in downtown can purchase from any zone, so if one zone sells out quicker, they can get a permit from farther away.

- Must upload proof of employment location, and employer must be registered with Palo Alto Business Registry.
- Individuals can only purchase one employee permit, but there doesn't seem to be a perbusiness limit on transferrable hangtags


## Washington, DC

DC has proposed (but not yet enacted, the bill may have stalled due to public opposition) a special parking permit class for small businesses, defined as businesses with one location, 10 or fewer employees, and no parking which it controls. Only small business which abut blocks already designated as RPP would be eligible. Excludes home based businesses.

Appendix D. Cost and Revenue Calculations
Emeryville Parking Revenue Analysis DRAFT Summary - For Discussion 6/28/2018

|  | Phase 1 | Phase 2 |  |  | Phase 3 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
| Revenues |  |  |  |  |  |  |  |  |  |  |  |
| Short term meter income | \$775,000 | \$896,000 | \$874,000 | \$852,000 | \$830,000 | \$810,000 | \$789,000 | \$770,000 | \$750,000 | \$732,000 | \$713,000 |
| Mid term meter income | \$70,000 | \$543,000 | \$529,000 | \$516,000 | \$609,000 | \$594,000 | \$579,000 | \$565,000 | \$551,000 | \$537,000 | \$523,000 |
| Long term meter income | \$505,000 | \$1,011,000 | \$986,000 | \$961,000 | \$937,000 | \$913,000 | \$891,000 | \$868,000 | \$847,000 | \$825,000 | \$805,000 |
| Permit income | \$177,000 | \$178,000 | \$176,000 | \$173,000 | \$174,000 | \$171,000 | \$169,000 | \$166,000 | \$164,000 | \$162,000 | \$159,000 |
| Total Revenues | \$1,527,000 | \$2,628,000 | \$2,565,000 | \$2,502,000 | \$2,550,000 | \$2,488,000 | \$2,428,000 | \$2,369,000 | \$2,312,000 | \$2,256,000 | \$2,200,000 |
| Expenses |  |  |  |  |  |  |  |  |  |  |  |
| Capital costs | \$132,000 | \$278,000 | \$278,000 | \$278,000 | \$285,000 | \$285,000 | \$285,000 | \$285,000 | \$286,000 | \$286,000 | \$286,000 |
| Labor | \$1,098,000 | \$1,293,000 | \$1,357,000 | \$1,380,000 | \$1,449,000 | \$1,522,000 | \$1,598,000 | \$1,678,000 | \$1,762,000 | \$1,850,000 | \$1,942,000 |
| Contractors and Software | \$237,000 | \$478,000 | \$478,000 | \$478,000 | \$481,000 | \$481,000 | \$481,000 | \$482,000 | \$482,000 | \$483,000 | \$483,000 |
| Total Expenses | \$1,467,000 | \$2,049,000 | \$2,113,000 | \$2,136,000 | \$2,215,000 | \$2,288,000 | \$2,364,000 | \$2,445,000 | \$2,530,000 | \$2,619,000 | \$2,711,000 |
| $\begin{array}{\|l\|} \hline \text { Total Expenses + Contingency } \\ \text { Net Income } \\ \hline \end{array}$ | $\begin{array}{r} \hline \$ 1,540,350 \\ (\$ 13,350) \end{array}$ | $\begin{gathered} \hline \$ 2,151,450 \\ \$ 476,550 \end{gathered}$ | $\begin{array}{r} \hline \$ 2,218,650 \\ \$ 346,350 \end{array}$ | $\begin{array}{r} \hline \$ 2,242,800 \\ \$ 259,200 \end{array}$ | $\begin{array}{r} \hline \$ 2,325,750 \\ \$ 224,250 \end{array}$ | $\begin{array}{r} \hline \$ 2,402,400 \\ \$ 85,600 \\ \hline \end{array}$ | $\begin{array}{r} \hline \$ 2,482,200 \\ (\$ 54,200) \\ \hline \end{array}$ | $\begin{array}{r} \hline \$ 2,567,250 \\ (\$ 198,250) \end{array}$ | $\begin{array}{r} \hline \$ 2,656,500 \\ (\$ 344,500) \end{array}$ | $\begin{gathered} \hline \$ 2,749,950 \\ (\$ 493,950) \\ \hline \end{gathered}$ | $\begin{array}{r} \hline \$ 2,846,550 \\ (\$ 646,550) \end{array}$ |
| Payments to/from other funds Balance | $\begin{array}{r} \$ 13,350 \\ \$ 0 \end{array}$ | $\begin{aligned} & (\$ 13,350) \\ & \$ 463,200 \end{aligned}$ | \$809,550 | \$1,068,750 | \$1,293,000 | \$1,378,600 | \$1,324,400 | \$1,126,150 | \$781,650 | \$287,700 | ( $\$ 358,850$ ) |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Total Capital Upfront costs (incl. Contingency) | Total | \# meters | Meters | LPR | Handheld | \# signs | Signs | Software setup | Subtotal | Contingency |  |
| Phase 1A - N Hollis | \$1,191,000 | \$943 | \$961,860 | \$110,160 | \$4,590 | \$217 | \$26,500 | \$75,000 | \$1,178,110 | \$1,237,015 |  |
| Phase 1B - Triangle | \$295,000 | \$221 | \$225,420 |  |  | \$98 | \$12,041 |  | \$237,461 | \$249,334 |  |
| Phase 2 | \$1,546,000 | \$1,354 | \$1,408,702 | \$37,454 | \$1,561 | \$194 | \$24,221 |  | \$1,471,937 | \$1,545,534 |  |
| Phase 3 | \$77,000 | \$65 | \$71,765 |  |  | \$9 | \$1,192 |  | \$72,958 | \$76,606 |  |

Assumptions:

1. Meter Technology is Dual Head Meters
2. Phase 1 assumed to be implemented in 2019, Phase 2 assumed to be implemented in 2020, and Phase 3 in 2023
3. Capital Costs assumed to inflate $2 \%$ per year, and are annualized assuming a 10 -year equipment lifespan (complete replacement after 10 years) 5. Labor costs assumed to inflate $5 \%$ per year
4. Meter rates assumed to be constant, but may be subject to adjustment
5. Number of parking spaces assumed to decrease $2.5 \%$ per year
6. Mid-term area business permits assumed to cost the same as RPP business permits and be purchased for $75 \%$ of Mid-term spaces 9. Equipment and software costs collected from companies between 2016 and 2018 and are estimates for an average implementation
7. Parking citation revenue and court costs not included


|  | $\stackrel{\circ}{\stackrel{\circ}{\wedge}}$ | $\begin{aligned} & \circ \\ & \hline 0 \\ & \infty \end{aligned}$ | $\stackrel{\sim}{\infty}$ | 80 |
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|  |  |  |  |  |

Base occupancies from existing conditions analysis.

| Technology Costs | Low | High |
| :--- | ---: | ---: |
| Multi-Space Meters | 6500 | 8500 |
| Single Space Meters | 600 | 1000 |
| LPR |  |  |
| Enforcement Vehicle | 27000 | 36000 |
| Enforcement PDA | 1500 | 1500 |
| Mobile Payment - 3rd <br> Party Setup | 0 | 1500 |
| Mobile Payment - Per <br> Transaction | 0 | 0.35 |
| Signs | 80 | 120 |
| Permit management <br> and processing - per <br> transaction | 0.3 | 0.3 |
| Enforcement software <br> \& integration - per <br> month per enforcer | 99 | 99 |
| Integration software <br> setup cost per space |  | 71.49666 |
| integration software <br> annual cost (high <br> end) | 20.85816 |  |
|  | 0.05 |  |


| \% |  |
| :---: | :---: |
|  |  |

Emeryville Parking Inputs

| Number of Spaces |  |  |  |
| :---: | :---: | :---: | :---: |
| Type | Phase 1 | Phase 2 | Phase 3 |
| Short Term - Total | 454 | 538 | 538 |
| Short Term - Bus Lane | 0 | 0 | 0 |
| $\begin{aligned} & \text { Mid Term - No } \\ & \text { Permit } \end{aligned}$ | 0 | 0 | 65 |
| Mid Term - BPP | 115 | 840 | 840 |
| Long Term - Total | 595 | 1140 | 1140 |
| Long Term - Bus Lane | 0 | 0 | 0 |
| Residential Permit | 1245 | 1293 | 1335 |
| Business Permit Cap - RPP Areas | 300 | 300 | 300 |
| Annual decrease in number of spaces | 0.025 |  |  |

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| Labor - Effort By Tas | d Job Type | ssumption |  |  | Total FTE <br> Phase 1 <br> (North Hollis) | Total FTE <br> Phase 2 \& 3 <br> (Citywide) | Phase 1 |  |  |  |  | Phase 3 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Annual Salary | Benefits | Overhead | Total |  |  | Total FTE <br> Phase 3.5 <br> (end EDH <br> labor) | Short-Term <br> Meters | Mid-Term Meters | $\begin{array}{\|c} \begin{array}{c} \text { Long-Term } \\ \text { Meters } \end{array} \\ \hline 595 \\ \hline \end{array}$ | RPP Permit | Short-Term Meters | Mid-Term <br> Meters |  | Long-Term Meters |
| Labor |  |  |  |  |  |  |  | 454 | 115 |  | 1245 | 538 |  | 905 |  |
| O\&M - Contract |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Maintenance Contractor |  |  |  | \$200,000.00 | 0.5 | 1 |  | 0.20 | 0.05 | 0.26 |  | 0.21 |  | 0.35 | 0.44 |
| Collections Contractor |  |  |  | \$200,000.00 | 0.5 | 1 | 1 | 0.20 | 0.05 | 0.26 |  | 0.21 |  | 0.35 | 0.44 |
| Annual Subtotal |  |  |  |  | \$ 200,000 | \$ 400,000 | \$ 400,000 | \$ 78,007 | \$ 19,759 | \$ 102,234 | \$ | \$ 83,314 | \$ | 140,147 | \$ 176,539 |
| Administration \& Enforcem |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Finanace |  |  |  |  | 0.125 | 0.175 | 0.175 | \$ 25,560.84 |  |  |  | \$34,330.02 |  |  |  |
| Finance Director | \$182,967.00 | \$37,280.00 | \$100,652.88 | \$320,899.88 | 0.025 | 0.025 | 0.025 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 |  | 0.01 | 0.01 |
| Finance/Accounting Staff | \$81,768.00 | \$38,605.00 | \$55,010.46 | \$175,383.46 | 0.1 | 0.15 | 0.15 | 0.03 | 0.00 | 0.02 | 0.04 | 0.04 |  | 0.03 | 0.04 |
| Public Works |  |  |  |  | 0.25 | 0.15 | 0.15 | \$ 64,228.49 |  |  |  | \$41,034.95 |  |  |  |
| PW Staff | \$118,326.00 | \$40,861.00 | \$72,748.46 | \$231,935.46 | 0.2 | 0.1 | 0.1 | 0.06 | 0.01 | 0.04 | 0.09 | 0.02 |  | 0.02 | 0.03 |
| PW Deputy Manager | \$196,991.00 | \$47,915.00 | \$111,922.04 | \$356,828.04 | 0.05 | 0.05 | 0.05 | 0.02 | 0.00 | 0.01 | 0.02 | 0.01 |  | 0.01 | 0.01 |
| Police |  |  |  |  | 4 | 5 | 5 | \$ 882,047.40 |  |  |  | \$1,060,165.65 |  |  |  |
| /Supervisor (sworn officer) | \$156,324.00 | \$82,312.00 | \$109,056.65 | \$347,692.65 | 1 | 1 | 1 | 0.32 | 0.04 | 0.21 | 0.43 | 0.24 |  | 0.21 | 0.26 |
| Staff/PST | \$82,572.00 | \$39,678.00 | \$55,868.25 | \$178,118.25 | 3 | 4 | 4 | 0.95 | 0.12 | 0.62 | 1.30 | 0.98 |  | 0.82 | 1.03 |
| Policy and Planning |  |  |  |  | 0.3 | 0.15 | 0 | \$ 74,010.06 |  |  |  | \$37,005.03 |  |  |  |
| EDH Manager | \$149,254.00 | \$46,520.00 | \$89,468.72 | \$285,242.72 | 0.1 | 0.05 |  | 0.03 | 0.00 | 0.02 | 0.04 | 0.01 |  | 0.01 | 0.01 |
| EDH Staff | \$112,692.00 | \$43,402.00 | \$71,334.96 | \$227,428.96 | 0.2 | 0.1 |  | 0.06 | 0.01 | 0.04 | 0.09 | 0.02 |  | 0.02 | 0.03 |
| Annual Subtotal |  |  |  |  | \$ 1,045,847 | \$ 1,172,536 | \$ 1,135,531 | \$ 331,690 | \$ 42,009 | \$ 217,352 | \$ 454,795 | \$ 285,829 | \$ | 240,404 | \$ 302,830 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total Labor - Annual |  |  |  |  | \$ 1,245,847 | \$ 1,572,536 | \$ 1,535,531 | \$ 409,697 | \$ 61,769 | \$ 319,586 | \$ 454,795 | \$ 369,143 | \$ | 380,551 | \$ 479,369 |






$$
\text { Costs - Alt } 1 \text { Dual Head _ }
$$




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| Projection of Cost and Revenue for RPP Program |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 |
| Revenucs |  |  |  |  |  |  |  |  |  |  |  |
| RPP Permit | \$88,807 | 588,250 | 577,52 | 57,922 | 577,949 | \$77,359 | 572,834 | 570,372 | \$67,971 | 965,631 | \$66,348 |
| Business Permit-RPP Area | 590,000 | 99\%,000 | 990,000 | \$96,000 | \$90,000 | \$90,000 | 596,000 | 590,000 | S96,000 | 596,000 | 596,000 |
| Toat Rev. | S17,807 | s178,250 | S17,552 | s172,922 | s17,949 | s17,359 | S168,834 | S166,372 | 516,971 | S16, 631 | SIL5,348 |
| Costs |  |  |  |  |  |  |  |  |  |  |  |
| Capital Costs | 55,75 | 55,375 | 55,470 | 85,66 | 55,94 | 55,75 | 55,977 | 56,002 | 56,108 | ¢6,217 | ${ }_{56,288}$ |
| Other costs | \$1,581 | \$1,488 | \$1,477 | \$1,507 | \$1,537 | \$1,568 | \$1,599 | \$1,631 | \$1,664 | \$1,67 | 91,731 |
| Labor \& Administration | \$477,535 | ¢378,679 | \$397,013 | S404,317 | \$424,533 | S445,760 | 5468,048 | 5491,450 | 5516,023 | ${ }_{\text {S541, } 224}$ | \$568,915 |
| Total Cost | \$884,875 | S385,502 | \$ 904,559 | \$411,390 | \$331,764 | \$453, 122 | \$475,544 | \$499,083 | \$523,795 | 5549,738 | \$576,974 |
| Total Cost + Contingency | S509, 119 | \$40, 777 | \$224,787 | \$431,960 | \$453,352 | \$475,778 | S499,321 | S524,037 | S549,984 | \$577,225 | S605,822 |
| Net Rev. | (5332,312) | (5226,52] | ( 5249,235$)$ | ( 525,038$)$ | (\$279,403) | ( 3084.419$)$ | ( 3330,487 ) | ( 8357,665$)$ | (5386,013) | (5415,544) | (\$446,474) |
| Rer./Cost Ratio | 0.35 | 0.41 | 0.41 | 0.40 | 0.38 | 0.36 | 0.34 | 0.32 | ${ }^{0.30}$ | 0.28 | 0.26 |
| Cucultions | Y19 | \%20 | \% | \%22 |  |  |  |  |  |  |  |
| Pecmit Spaces | 125 | ${ }_{120}^{123}$ | ${ }_{121}^{123}$ | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | $\underline{129}$ |
| ${ }^{\text {Perminit spacess }}$ - Deflated | 1245 | 1262 | 1230 | 1200 | 1212 | 1181 | 1152 | 1123 | 1095 | 1068 | 1041 |
| Labor \& Administration | \$477,535 | \$37,679 | \$397,613 | \$404,317 | \$424,533 | 5445,700 | \$468,048 | \$491,450 | 5516,023 | \$541, 23 | \$568,915 |
| Number of enforcement vechices/PDAs | 1.30 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 |
| RPP Fists Pemit Rates/ yr . | \$67 | \$67 | ${ }_{567}$ | \$67 | 867 | ${ }^{967}$ | 867 | ${ }^{967}$ | ${ }^{667}$ | 567 | ${ }^{967}$ |
| RPP Second Permit Rates yrt | $\$ 133$ | $\$ 133$ | $\$ 133$ | $\$ 133$ | $\$ 133$ | $\$ 133$ | $\$ 133$ | $\$ 133$ | \$133 | \$133 | $\$_{133}$ |
| RPP Third Permit Rates/yr. | 5220 | 5220 | ${ }_{5220}$ | 5220 | ${ }_{5220}$ | ${ }_{5220}$ | ${ }_{5220}$ | ${ }_{5220}$ | ${ }_{5220}$ | ${ }_{5220}$ | 5220 |
| Business Permit Rates/yt | ${ }^{3} 32$ | \$320 | 5320 | \$320 | \$320 | ${ }^{532}$ | ${ }^{532}$ | 5320 | \$230 | \$320 | 5320 |
| RPP Spaces | 1245 | 1262 | 1230 | 1200 | 1212 | 1181 | 1152 | 1123 | 1095 | 1068 | 1041 |
| Business Permit Cap | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| \% Spaces for Businesses | 24\% | 24\% | $24 \%$ | 25\% | 25\% | 25\% | 26\% | 27\% | 27\% | 28\% | 29\% |
| RPP Permits purchased | 945 | 962 | 930 | 900 | 912 | 881 | 852 | 823 | 795 | 768 | 741 |
| RPP Permit Revenue | \$80,006.95 | \$82,249,93 | \$77,552,36 | 576,222.22 | \$77,949,26 | \$75,559.21 | \$72,833.90 | \$70,371.73 | \$67,971.11 | \$65,30.51 | \$66,388,42 |
|  | ( 900000 | ( $\begin{array}{r}300 \\ 96000\end{array}$ | (396000 | ( $\begin{array}{r}300 \\ \text { 96000 }\end{array}$ | (39000 | (300 $\begin{array}{r}3000 \\ \text { 90600 }\end{array}$ | 3900 | 300 $\begin{array}{r}3000 \\ 996000\end{array}$ | 300 596000 | ( 300 | (396000 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| MID-TERM BPP CALCULATIONS - USED ON MID-TERM METER TAB |  |  |  |  |  |  |  |  |  |  |  |
| Mid Tem Parking Pemmit Spaces | 115 | 840 | 840 | ${ }^{840}$ | ${ }^{840}$ | ${ }^{840}$ | ${ }^{840}$ | ${ }^{840}$ | ${ }^{840}$ | 840 | 840 |
| Mid.Tem Parking Spaces- - efiated | 115 86,25 | ${ }_{68}^{837}$ |  | ${ }_{597}^{796}$ | ${ }_{582}^{776}$ | ${ }_{567}^{756}$ | ${ }_{553}^{7388}$ | ${ }_{519}{ }_{5}$ | ${ }_{526}^{701}$ |  | ${ }_{5}^{660}$ |
| Mid-Tem Busness permits purchased NidTem Buseses pemit cevence |  |  |  |  |  |  | ${ }_{5}^{53}$ | ${ }^{539}$ | ${ }_{5}^{526}$ | ${ }_{513}$ |  |
| NidT-Tem Business pemit revenue | \$27,600.00 | \$200,910 | \$195,887 | \$100,900 | \$186,215 | \$181,560 | \$177,021 | \$172,595 | S168,281 | \$164,074 | \$159,972 |
| cst of 3rd party permit processing | 5399 | 5567 | ${ }_{5553}$ | ${ }_{5539}$ | 5538 | ${ }_{5} 55$ | s511 | \$490 | 486 | \$474 | 546 |



[^1]
[^0]:    Source: US Census American Community Survey

[^1]:    

