



WATER TRANSPORTATION PIER-FERRY PROJECT PARKING AND TDM PLAN

Berkeley, CA

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Water Transportation Pier-Ferry Project Parking and TDM Plan **Berkeley, CA**

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CONTENTS

1.	Executive Summary	2
2.	Introduction	5
2.1.	Purpose of the Report	5
2.2.	Study Area	5
2.3.	MTC TOC Parking Management Policy	8
3.	Existing Conditions.....	10
3.1.	Existing Parking Management	10
3.2.	Existing Parking Utilization	12
3.3.	Time of Day Utilization.....	14
4.	Year 1 Ferry Conditions.....	16
4.1.	Year-One Ferry Conditions.....	16
4.1.1.	<i>Ridership Projections.....</i>	<i>16</i>
4.1.2.	<i>Mode Share Estimates.....</i>	<i>17</i>
4.1.3.	<i>Transportation Demand Management Estimates.....</i>	<i>18</i>
4.1.4.	<i>Year-One Parking Management Strategies.....</i>	<i>19</i>
4.1.5.	<i>Implementation & Enforcement of Time Limited Parking.....</i>	<i>24</i>
5.	Future Conditions	27
5.1.	Future Ferry Conditions	27
5.1.1.	<i>Ridership and Mode Share</i>	<i>27</i>
5.1.2.	<i>Transportation Demand Management Strategies.....</i>	<i>27</i>
5.1.3.	<i>Parking Management Strategies.....</i>	<i>28</i>
5.2.	Cumulative Conditions.....	29

LIST OF FIGURES

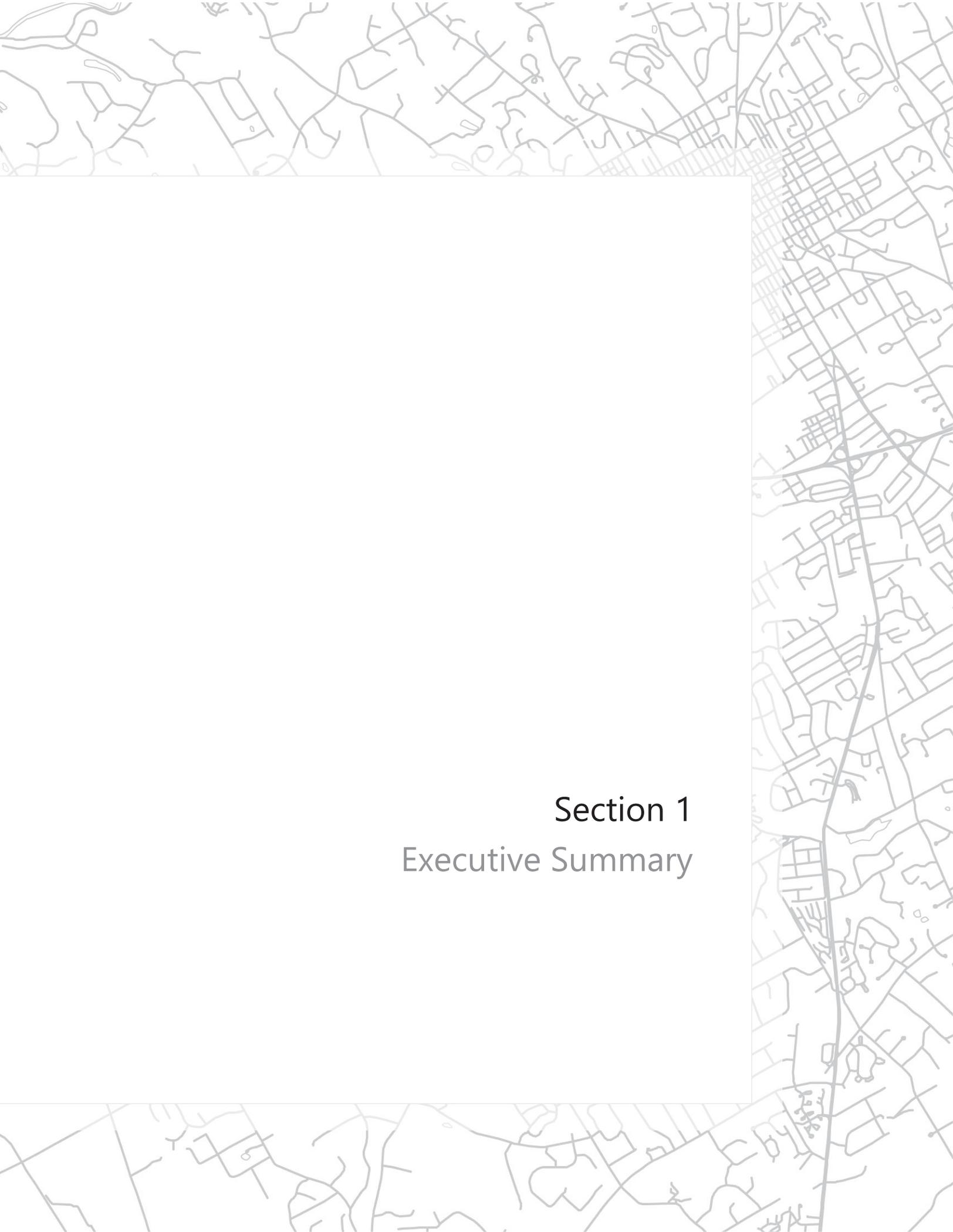
Figure 1: Study Area	6
Figure 2: Existing Businesses and Destinations	7
Figure 3: Average and Peak Utilization by Lot	13
Figure 4: Parking Utilization by Time of Day	14
Figure 5: Study Area with Year One Parking Management Strategies.....	21
Figure 6: Parking Wayfinding Example	23
Figure 7: Dynamic Wayfinding Signage Example	24
Figure 8: WSP Redevelopment Location - High Development Scenario	30
Figure 9: Weekday Parking Demand for Existing and Future Uses	34
Figure 10: Weekend Parking Demand for Existing and Future Uses	35

LIST OF TABLES

Table 1: Existing and Potential Parking Regulations	11
Table 2: June Parking Utilization at the Berkeley Marina, 2021-2023	12
Table 3: Ferry Ridership Estimates (Total Boardings)	16
Table 4: Mode Share Summary for Ferry Riders (no TDM)	17
Table 5: Estimated Year 1 Weekday Ferry Ridership by Mode and Parking Demand (no TDM)	17
Table 6: Estimated Effectiveness of Parking and TDM Strategies	18
Table 7: Future 2040 Ferry Mode Share and Parking Demand (no TDM).....	27
Table 8: Estimated Effectiveness of Parking and TDM Strategies	28
Table 9: Potential Maximum Waterfront Redevelopment Land Use Details	31
Table 10: Reconfiguration of Existing Parking Lots	32
Table 11: Weekday and Weekend Parking Demand	33

APPENDICES

APPENDIX A	- Baseline Parking Conditions
APPENDIX B	- Berkeley Waterfront Parking and TDM Toolkit
APPENDIX C	- TDM Vehicle Trip And Parking Reduction Methodology
APPENDIX D	- University Avenue Bicycle and Bus Stop Improvements
APPENDIX E	- Marina Boulevard Redevelopment Conceptual Plan

The background of the page is a light gray line-art map of a city street grid. The map shows a dense network of streets, with a prominent vertical thoroughfare on the right side. The lines are thin and gray, creating a subtle, textured background.

Section 1

Executive Summary

1. EXECUTIVE SUMMARY

The City of Berkeley completed a feasibility study for a ferry facility at the Berkeley Municipal Pier in December 2021 and is now progressing with detailed engineering and environmental studies for the Water Transportation Pier-Ferry (WTPF) Project. To support the proposed ferry service and potential future waterfront development, this Parking and Transportation Demand Management (TDM) Plan evaluates existing parking conditions and proposes strategies to address current and potential parking needs and current stakeholder concerns.

The Waterfront staff currently uses several parking and circulation management strategies, including a slipholder permit program, time-limited parking, gate controls, and paid parking. An analysis of parking counts conducted between May 2021 and February 2024 shows that peak weekday parking utilization Waterfront-wide was 50%, while peak Saturday utilization reached 72%. Certain lots, such as South Cove East/West, J&K lot, and Spinnaker Way lot, experienced near 100% utilization during specific times. However, even though this high utilization was occurring more than 300 parking spaces remained available across various other lots. The primary concern among some stakeholders during these peak periods is not finding a parking space at all, but finding one near the desired destination.

The Feasibility Study estimated 250 parking spaces at the 199 Seawall Drive lot (Hs Lordship) would be utilized by weekday ferry riders. The Water Emergency Transportation Authority (WETA) projects that 915 average weekday passengers per day will use the Berkeley ferry terminal initially, increasing to 1,055 by 2040. Based on WETA's onboard survey data and business plan methodology, Kittelson estimates that in the absence of TDM measures, 40% of ferry riders will drive alone, and 12% will carpool to the terminal. This results in a peak weekday parking demand of 421 spaces, 171 more than the baseline 250 spaces, without TDM measures.

TDM strategies, such as well-designed and convenient loading zones for family drop-off and rideshare vehicles, enhanced bicycle and pedestrian access, improved secure bike parking, expanded shared micromobility options (e.g., scooters, e-bikes, etc.), paid and time-limited parking could reduce parking demand by 65 spaces. Additionally, parking management strategies, including increased capacity at the 199 Seawall Drive lot, overflow parking, and wayfinding signage could provide the City with additional tools to manage potential increased demand for parking at the Waterfront.

The Plan also considers future waterfront development outlined in the Waterfront Specific Plan (WSP) that projects future parking demands. Recommendations include valet parking services, satellite parking lots, demand-based paid parking, and shuttle services. With full implementation of the development considered in the WSP the existing surface parking lots would be redeveloped for proposed developments which could reduce public parking capacity by 81 spaces. However, efficient lot redesign, and developer agreements could recover and potentially enhance the parking at the Waterfront.

The Plan concludes that the Waterfront will have sufficient parking spaces to accommodate the parking demand from future uses in the WSP. However, while the overall parking demand for the area can be met, there will be instances where individuals might not park near their desired destinations during peak times on peak days. This could be frustrating for Waterfront visitors, and this occurs on occasion in the current

environment at the Waterfront. Implementing dynamic wayfinding and clear messaging strategies could help enhance the overall parking experience of visitors.



Section 2

Introduction

2. INTRODUCTION

The City of Berkeley (City) completed the feasibility study for the ferry facility at Berkeley Municipal Pier (Feasibility Study) in December 2021 and is now beginning detailed engineering and environmental studies for the Water Transportation Pier-Ferry (WTPF) Project. This Parking and Transportation Demand Management Plan (Parking and TDM Plan) evaluates the existing parking conditions and parking demand for the proposed ferry service and future development at the Berkeley Waterfront.

2.1. Purpose of the Report

The Parking and TDM Plan aims to address stakeholder concerns related to parking. It provides the City with a comprehensive review of current parking conditions, as well as for Ferry and Cumulative Conditions. This document will serve as an actionable guide for the City, and provides strategies to address future parking needs with the implementation and phasing of a range of TDM measures at different phases of future development.

2.2. Study Area

The study area (Berkeley Waterfront or Waterfront) is the area west of the McLaughlin Eastshore State Park, bordered by Spinnaker Way to the north and South Sailing Basin to the south, see Figure 1. University Avenue provides vehicle connection between the Waterfront, Downtown Berkeley and Highway 80.

AC Transit Bus Route 51B connects the Waterfront and Rockridge BART via College Avenue, Downtown Berkeley BART, and University Avenue. Only one out of every three scheduled bus trips between 7 am and 9 pm serves the Waterfront; all other trips terminate at the Berkeley Amtrak station, resulting in a frequency of two (2) buses every hour to the Waterfront.

The San Francisco Bay Trail Extension provides bicycle and pedestrian access to the Waterfront from the intersection of University Avenue and Frontage Road. The bicycle and pedestrian bridge across I-80 connects the Waterfront with the City of Berkeley. Additionally, the Virginia Street Right-of-Way (a dirt pathway) offers another bike and pedestrian connection.

The Study Area is located entirely on public tidelands held in trust by the City. There are over 100 acres of uplands and 5 miles of pedestrian trails within the Waterfront. Centered within this landscape is the Berkeley Marina, the largest public marina in the San Francisco Bay with 1,000 boat slips. The Berkeley Waterfront also includes three public access docks, a boat launch ramp, nine public parking lots, five on-street parking facilities, slipholder permit lots and privately leased parking lots.

In addition to various recreation opportunities, current businesses and attractions include 1 hotel, 4 restaurants, 1 boatyard, a yacht club, two non-profit sailing clubs, a nature center, a two-story office building (commercially leased), and 9 restroom buildings (including both public and slip-holder only facilities), as shown in Figure 2.



LEGEND

- Solid Blue Area
- Dark Grey Area
- Light Green Area
- Dashed Line
- Dotted Line

Source: City of Berkeley, MTC

Figure 2: Existing Businesses and Destinations



Source: Draft Waterfront Specific Plan, 2023

The proposed ferry terminal at the Waterfront will be located at Berkeley Pier, ~1,100-feet of which will be reconstructed to provide a dual-purpose pier for both ferry and recreation access. The study focuses on the following nine (9) public parking lots and five (5) on-street parking facilities. Private, paid and slipholder only parking lots (Boat Launch Stalls – Paid, Doubletree Stalls – Private/Paid, and Berkeley Marine Center) were not included in the analysis, as it is assumed that neither ferry riders nor the general public will have utilize these locations for parking.

Public parking lots

1. Spinnaker Way Lot
2. J & K Lot
3. L Lot
4. M Lot
5. South Cove East Lot
6. South Cove West Lot
7. Seawall Drive Lot
8. Skates/N Lot
9. O Lot

On-street parking facilities

1. Spinnaker Way
2. Marina Blvd
3. University Ave Shoulder (at West Frontage Rd)
4. Seawall Drive North
5. Seawall Drive South

Slipholder Permit Lots

1. D&E Lot
2. F&G Lot
3. H&I Lot
4. Dry Boat Storage Lot

Limited Parking Area (Not included in the analysis)

1. Launch Ramp Paid (Public Lot)
2. Berkeley City Vehicle Parking
3. Berkeley PD Leased Lot
4. Doubletree Leased Lot
5. Marine Center Leased Lot

Potential future redevelopment is limited to the existing developed land at the Waterfront comprised of leased land and surface parking lots. Future redevelopment at the Waterfront over the next several decades may bring in more visitors and hence, an increase in the need for parking and TDM.

2.3. MTC TOC Parking Management Policy

The MTC Transit-Oriented Communities (TOC) parking management policy is designed to reduce automobile trips and prioritize the limited land near transit for shared and active transportation modes. Parking management complements increased residential and commercial density, supporting higher transit ridership on the region's existing and planned fixed-guideway transit systems.¹

To comply with the TOC Policy, MTC mandates adherence to parking standards based on the level of transit service. Ferry terminals, such as the Berkeley Ferry Terminal, qualify as Tier 4, requiring parking maximums of 4 spaces per 1,000 square feet or fewer for commercial developments and 1.5 spaces per unit or fewer for residential developments. Additionally, AB 2097 prohibits public agencies from imposing or enforcing parking minimums on residential, commercial, or other developments within ½ mile of a major transit stop.²

The design standards outlined in the Waterfront Specific Plan, combined with recommendations from this Parking and TDM Plan, ensure compliance with the MTC TOC parking management policy by meeting both residential and commercial parking maximum requirements.

¹ Metropolitan Transportation Commission. (2022). *Resolution No. 4530*. Retrieved from https://mtc.ca.gov/sites/default/files/documents/2022-10/MTC_Resolution_4530.pdf

²California State Legislature. (2022). *AB-2097 Housing development: parking requirements*. Retrieved from https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB2097



Section 3

Existing Conditions

3. EXISTING CONDITIONS

3.1. Existing Parking Management

Existing parking facilities at the Berkeley Waterfront are managed using a variety of parking regulations. Currently, 8 out of 14 parking lots have no parking restrictions beyond overnight parking restrictions and 72-hour limits set in the Berkeley Municipal Code. The remaining lots are restricted either using manual gate openings at peak periods or via permits for berth holders. Table 1 catalogues existing parking regulations at Waterfront parking facilities and proposes new time-limited regulations to reduce the impact of ferry users on other parking lots. While parking facilities on the North side of the Waterfront are unlikely to experience direct impacts from ferry vehicle trips, facilities in the Waterfront's South and Central facilities are within easy walking distance of the ferry terminal site and have regular visitation throughout the week that could be impacted by overflow ferry parking.

Table 1 should be considered preliminary, and public feedback from waterfront visitors will help the City develop parking restrictions that would best balance the needs of different users while ensuring that commuters cannot leave vehicles in those locations for the 8+ hour duration between morning and evening ferry commute trips.

Separate from ferry parking demand management, the City can evaluate the process for issuing parking permits to non-recreational or commercial visitors to the Waterfront, including boaters with a permit to live aboard their recreational vessel and employees at Waterfront businesses. One common piece of feedback from the parking intercept survey was that the permit parking procedures in the M Lot were opaque to frequent paddlers who were not slip holders. Clarifying and enforcing existing and/or changed permit parking restrictions and procedures would improve the overall parking experience for both frequent and occasional visitors (see Appendix A).

The City has the opportunity at the Berkeley Waterfront to regularly review and revise its parking restrictions and policies. In addition to revisions specifically related to the WTPF, parking regulations should be regularly updated to reflect parking practices among current Waterfront users, as determined from parking data collection, intercept surveys and public outreach and feedback. Generally, parking time restrictions are a powerful tool that should be implemented more broadly throughout the Waterfront, coordinated with the destinations and activities that are served by specific parking lots. Parking facilities optimal uses should be encouraged with parking regulations, such as time-limited parking.

Table 1: Existing and Potential Parking Regulations

#	Parking Lot / Street Parking	Waterfront Area	Existing Regulations ¹	Potential Regulations ²	Key Stakeholder Group
1	D&E Lot	North	Berther Permit Parking Only	No Change	Slip holders
2	Spinnaker Way Lot	North	No Additional Restrictions	No Change	General Recreation
3	Marina Blvd	North	No Additional Restrictions	No Change	General recreation
4	Spinnaker Way	North	No Additional Restrictions	No Change	General recreation
5	F & G Lot	North	Berther Permit Parking Only	No Change	Slip holders
6	H, & I Lot	North	Berther Permit Parking Only	No Change	Slip holders
7	J & K Lot	Central	No Additional Restrictions	No Change	Boaters / Diners
8	South Cove West Lot	Central	No Additional Restrictions	5-Hour Parking	Charters / Boaters / Adventure Playground / Shorebird Park
9	South Cove East Lot	Central	Limited access hours via manual gate operations	5-Hour Parking	Boaters / Adventure Playground / Shorebird Park
10	L ³ Lot	Central	Berther Permit Parking on weekends and between 8 pm and 10 am on weekdays	5-Hour Parking	Boaters / Nature Center
11	M Lot	Central	Berther Permit Parking on weekends and between 8 pm and 10 am on weekdays	5-Hour Parking	Boaters / Nature Center
12	O Lot	South	No Additional Restrictions	Slip Holder / Permit Parking	Slip holders, Yacht Club Visitors
13	Seawall Drive	South	No Additional Restrictions	3-Hour Parking	General Recreation / In-Car Bay Viewing
14	Skates/N Lot	South	No Additional Restrictions	3-Hour Parking	Diners / General Recreation
15	Seawall Lot	South	Open only during high use periods via manual gate operation	No Regulation	Diners / Pier & Ferry Access / Shorebird Park / General Recreation

Source: Kittelson & Associates, Inc. 2024

¹Excluding overnight parking restrictions, which vary by lot / location. All public parking has a maximum of 72-hour parking without a permit per Berkeley Municipal Code.

² Possible parking regulations. Final recommendations should account for measured parking turnover rates and stakeholder outreach. Paid parking is not included in this table, but should be considered by the City, in particular for full-day parking.

³ Does not include the Berkeley Police Department lot (gated)

3.2. Existing Parking Utilization

The City of Berkeley Waterfront Monitors have been consistently collecting daily parking counts at the Waterfront since May 2021. The data is collected by counting the number of occupied spaces at each lot at 10 am and 8 pm, with the results recorded on a paper survey form that is later entered into a spreadsheet maintained by Waterfront staff. The data collection methods have been refined over time to better support parking management objectives. Kittelson reviewed data from May 2021 to February 2024. During data processing, some lots had to be merged for various reasons, such as a lack of physical boundaries between them or combined data reporting for adjacent lots.

Limitations: The data may not reflect peak utilization which could occur at times other than 10 am and 8 pm. In Spring, 2024, staff began collecting data at additional time points (2 pm and 4 pm), which was not used for this study due to the comparatively limited number of data points,

Table 2 measures parking utilization by lot for average and peak weekdays and Saturdays. Across all lots, parking utilization averaged around 31% on weekdays and 49% on Saturdays. Peak weekday parking was 50% utilized, while peak Saturday parking was 79%. This Waterfront-wide peak period occupancy estimate is a conservative aggregation of each lot's individual peak utilization. It is therefore likely that, even during peak periods, the Waterfront has more than 300 available spaces, spread across various lots.

Table 2: June Parking Utilization at the Berkeley Marina, 2021-2023

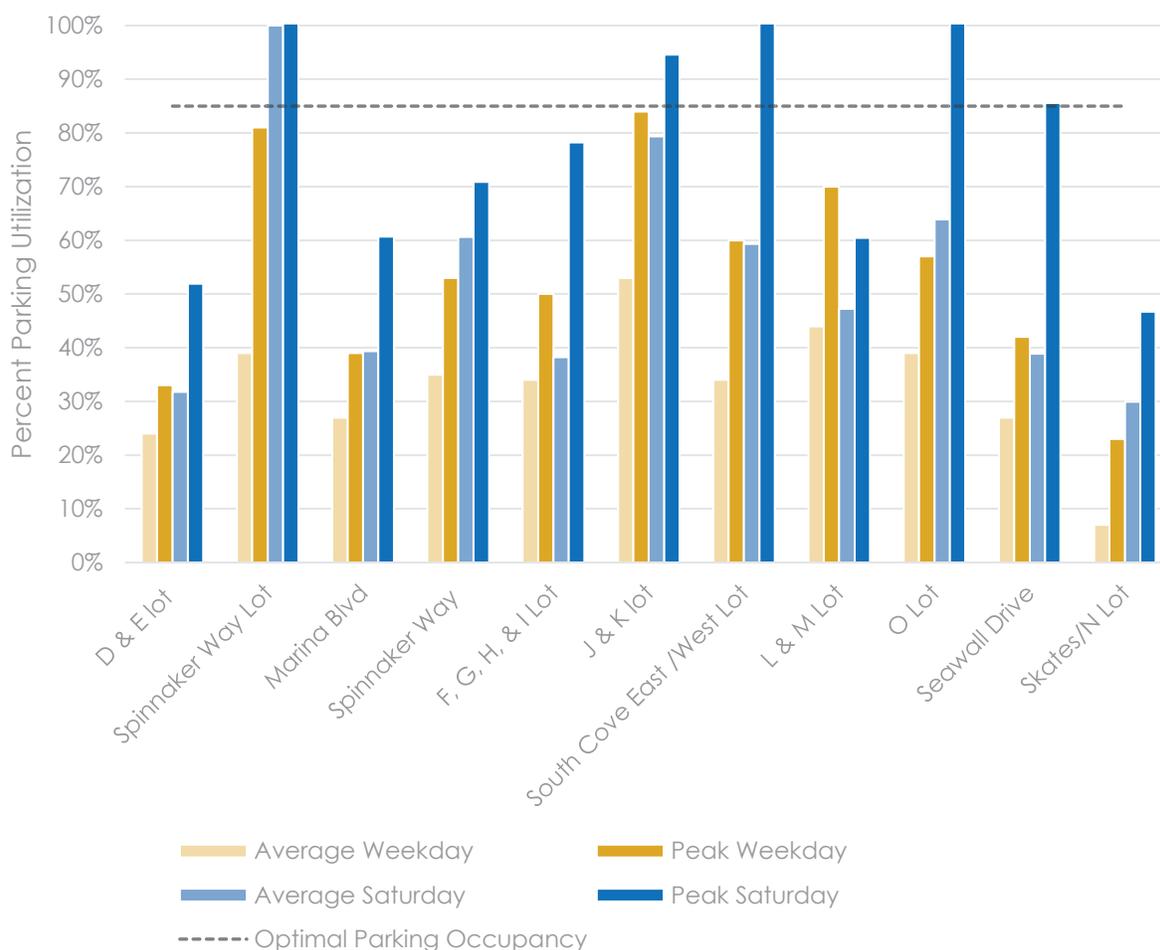
Parking Lot	Existing Capacity	Utilization (taken spaces, % of spaces occupied)							
		Average Weekday		Peak Weekday		Average Saturday		Peak Saturday	
D&E lot	129	31	24%	42	33%	41	32%	67	52%
Spinnaker Way Lot	36	14	39%	29	81%	36	100%	71	197%
Marina Blvd	150	41	27%	59	39%	59	39%	91	61%
Spinnaker Way	127	45	35%	67	53%	77	61%	90	71%
F, G, H, & I Lot	115	39	34%	57	50%	44	38%	90	78%
J&K lot	92	49	53%	77	84%	73	79%	87	95%
South Cove East /West Lot	182	62	34%	110	60%	108	59%	191	105%
L&M ³ Lot	91	40	44%	64	70%	43	47%	55	60%
O Lot	72	28	39%	41	57%	46	64%	87	121%
Seawall Drive	90	24	27%	38	42%	35	39%	77	86%
Skates/N Lot	137	10	7%	31	23%	41	30%	64	47%
Totals	1,221	383	31%	615	50%	603	49%	970	79%

Source: Kittelson & Associates, Inc. 2024

Note: The peak Saturday utilization for Spinnaker Way Lot exceeded the capacity due to data collection error in which some of the Launch Ramp Paid parking was counted as the adjacent Spinnaker Way Lot.

Figure 3 visualizes the same data, along with a dotted line marker at 85% parking utilization. As a rule of thumb, when parking occupancy is over 85%, drivers have to spend more time looking for parking, increasing congestion, and negatively impacting the experience of visiting a destination. Only the Spinnaker Way lot saw average June occupancies meet or exceed this optimal parking level. In addition, several other locations, including the J&K lot, South Cove East / West, O lot, and Seawall Drive saw individual, peak observation periods exceed this same threshold. This indicates that, while parking at the Waterfront is generally well below optimal utilization, there are periods when parking spaces are difficult to find in individual lots.

Figure 3: Average and Peak Utilization by Lot



Source: Kittelson & Associates, Inc. 2024

Note: The peak Saturday utilization for Spinnaker Way lot exceeded the capacity due to data collection error in which some of the Launch Ramp Paid parking was counted as the adjacent Spinnaker Way Lot.

When all of the Waterfront’s parking resources are considered together, peak parking utilization would reach just 72% of available spaces, with around 340 spaces unoccupied. Effective parking management strategies, including wayfinding, time restrictions, and permit holder restrictions could help to better distribute the demand for parking around the Waterfront. This would allow more visitors to park closer to their destination on a more predictable basis.

3.3. Time of Day Utilization

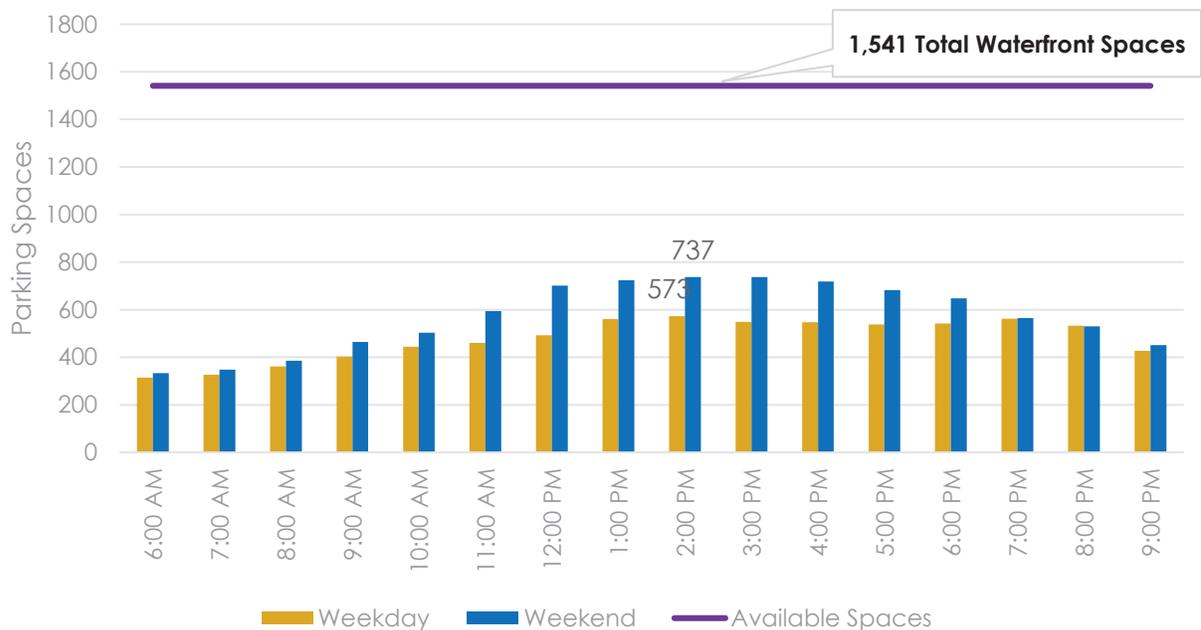
Kittelson retained Quality Counts (QC) to collect hourly parking counts between 5:30 am and 9:30 pm on Saturday, and 8 am to 10 pm on Thursdays on the following dates in 2024:

- Saturday, April 6
- Thursday, April 11
- Thursday, August 1
- Thursday, August 22
- Saturday, August 24

The counts were collected using go-pro dash cams while slowly driving through all parking lots once per hour during the count period. Post-processing involved the analysis of GoPro footage, the partial license plate, make, model, and color to demarcate specific individual vehicles and the time a vehicle remained in parking stall.

Figure 4 displays the number of parking spaces occupied at the Waterfront each day. As expected, the parking utilization was higher on weekends compared to weekdays, especially during midday hours (10 am – 2 pm). The peak usage occurred at 2 pm on weekends (48% occupied, 737 spaces) and weekdays (37% occupied, 573 spaces).

Figure 4: Parking Utilization by Time of Day



Source: Kittelson & Associates, Inc. 2024

Note: The total available spaces include 320 parking spaces on Seawall Lot, bringing the total to 1,541.



Section 4

Year 1 Parking Management and TDM Strategies

4. YEAR 1 FERRY CONDITIONS

3.4. Year-One Ferry Conditions

In this scenario, it is assumed that the Waterfront will continue to operate under typical baseline conditions, with the addition of the Project. The recommended parking and TDM strategies are specifically tailored to address the needs of the Project but are designed to provide benefits to the other uses at the Waterfront.

3.4.1. RIDERSHIP PROJECTIONS

The proposed ferry terminal at the Waterfront would be located at the Berkeley Pier, a portion of which would be reconstructed to provide both ferry and recreation access. WETA estimates a total of 1,830 average weekday boardings. Conservatively, this would result in 915 riders boarding at the Berkeley Terminal, assuming all riders are round-trip traveling between Berkeley and San Francisco and originating in Berkeley. WETA projects that the average weekday boardings could reach 2,110 by 2040, as shown in Table 3.

The Feasibility Study and WETA Business Service Plan separately estimated the travel mode share of future ferry riders, as shown in Table 4. The Feasibility Study estimated that 54% of the ferry riders would drive alone and 9% would carpool to the ferry terminal. The remaining ferry riders would arrive by bicycle, ride-share, public transit or other modes of transportation that would not require a vehicle parking space. The WETA Business Service Plan estimated that only 31% would be driving alone and 15% would be carpooling to the ferry terminal.

Kittelson reviewed updated on-board survey data from WETA, which included surveys conducted in 2022. Using the WETA Business Plan methodology and updated data, Kittelson estimated that approximately 44% of trips would be drive-alone, which is 13 percentage points higher than the WETA Business Service Plan estimate. Using the 2022 data, the results for the lower mode shares for walking (4%) and biking (11%), as well as public transit (2%), are very low, likely due to pandemic conditions, as people were avoiding public transportation.

The Kittelson recommended baseline mode share, shown in bold in Table 4, references the three sources and reflects the local context and our understanding of the existing travel patterns at the Waterfront. These baseline values represent the estimated mode share prior to the implementation of TDM strategies.

Table 3: Ferry Ridership Estimates (Total Boardings)

Year	San Francisco Only		San Francisco + Mission Bay	
	Weekday	Weekend	Weekday	Weekend
2020 ¹	1,830	1,310	2,020	1,440
2026	1,910	1,367	2,106	1,503
2035	2,036	1,457	2,241	1,602
2040 ²	2,110	1,510	2,320	1,660

Source: WETA Business Service Plan, 2022

¹2020 ridership estimates for San Francisco connection is used for year 1 travel assumptions.

²2040 ridership projections for San Francisco + Mission Bay is used for future conditions.

Table 4: Mode Share Summary for Ferry Riders (no TDM)

Source	Drive Alone	Carpool	Kiss-and-Ride ¹	Public Transit	Bike	Walk Only	TNC ² /Taxi	Other ³
WETA Business Plan, 2017-19	31%	15%	15%	5%	16%	8%	8%	2%
Feasibility Study (Baseline)	54%	9%	8%	4%	18%	3%	3%	1%
WETA Updated Survey - 2022	44%	8%	8%	2%	11%	4%	2%	21%
Baseline (no TDM)	40%	12%	8%	5%	16%	4%	5%	10%

Source: WETA Business Service Plan, 2022; WETA On-board Surveys, 2022 and Feasibility Study, 2021

¹Kiss-and-ride is drop off in personal vehicle; ²TNC is transportation network or “rideshare” company, e.g., Uber/Lyft; ³Other includes multiple modes and private shuttle. Note: Autonomous Vehicles (AV) have not been included.

3.4.2. MODE SHARE ESTIMATES

Using WETA’s projected ridership figures and the latest baseline mode share, it is estimated that without implementation of any TDM strategies there will be a weekday peak demand for 421 parking spaces after the implementation of ferry service (Table 5). The City and WETA have conceptually planned for 250 vehicle parking spaces in the Seawall Drive Lot (formerly known as HS Lordship lot) to be utilized by weekday ferry riders (i.e. commuters). The estimated demand for vehicle parking spaces, without implementation of any TDM measures, exceeds this number by 171 parking spaces. The following sections of this memorandum identify strategies to (1) reduce the number of vehicle trips and parking demand and (2) effectively manage and distribute the resulting parking demand.

Table 5: Estimated Year 1 Weekday Ferry Ridership by Mode and Parking Demand (no TDM)

Mode	Mode Share	PersonTrips ¹	Base Parking Demand for Ferry Riders ¹
Drive Alone	40%	366	366
Carpool	12%	110	55
Kiss-and-Ride	8%	73	0
Transit	5%	46	0
Bike	16%	146	0
Walk	4%	37	0
Taxi / TNC	5%	46	0
Other	10%	92	0
Total	100%	915	421

Source: Kittelson & Associates, Inc. 2024

Note: ¹A person trip is a trip taken by a ferry rider using any mode of transportation. Rounded to the nearest integer.

3.4.3. TRANSPORTATION DEMAND MANAGEMENT ESTIMATES

Based on the estimated ferry ridership and mode share, there will be a peak weekday demand for 421 vehicle parking spaces. With the implementation of TDM measures identified in the Berkeley Waterfront Parking and TDM Toolkit (see Appendix B), demand for parking in the ferry terminal lot could be reduced by between 8% and 15%, resulting in a demand for between 356 and 389 parking spaces each day.

The effectiveness of potential TDM strategies was estimated using formulas from the California Air Pollution Control Officer’s Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (CAPCOA Handbook), informed by case studies from peer projects and our understanding of the Waterfront. However, estimating the reduction in parking demand through TDM measures is challenging due to limited comparable studies, and none of the available studies are specific to the Waterfront context. Table 6 provides the methodology used for each strategy, and key assumptions are included in the Appendix C of this report. A conceptual design showing bicycle, pedestrian and bus stop improvements at University Avenue and Seawall Drive is included in Appendix D.

The calculated reductions in vehicle trips and parking demand associated with implementation of these TDM strategies is presented in Table 6. Based on these calculations, parking demand from ferry users could be reduced by 32 to 65 spaces. This analysis utilizes the higher range of this expected reduction to reflect the large-scale changes to travel patterns that the City expects as a result of improving bicycle network connections to the WTPF. This reduction would result in a weekday demand for 356 parking spaces at the ferry terminal parking lot, 106 more than the 250 spaces planned for in the Feasibility Study.

Table 6: Estimated Effectiveness of Parking and TDM Strategies

Strategy	Weekday Parking Lot Demand Reduction (spaces)	Ferry Demand	Calculation Source
Bicycle and pedestrian access		2	CAPCOA T-20
Improved bicycle facilities and secure bike parking		9–42	CAPCOA T-10
Shared micromobility expansion		12	CAPCOA T-22-B
Pick-up/drop-off zones		5	TNC user satisfaction and efficiency research
Transit subsidy for ferry riders		4	CAPCOA T-9
Reductions with Full TDM Implementation	32 – 65 parking spaces (8% - 15%)		

Source: Kittelson & Associates, Inc. 2024

CAPCOA Handbook- California Air Pollution Control Officer’s Association Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity; TNC - Transportation Network Companies

Appendix D includes bicycle and pedestrian improvements at University Avenue and Seawall Drive.

In addition to the strategies mentioned above, demand-based paid parking has proven to be highly effective in reducing vehicle trips and parking demand. The implementation of a paid parking program was the primary recommendation of the Berkeley Marina Area Specific Plan Parking and Mobility Framework. However, public feedback from parking intercept surveys conducted in Summer 2024 as part of this Plan indicates that many current Waterfront visitors are reluctant to pay for parking when visiting for recreational purposes. While this strategy is not included in the Plan, it has the potential to reduce parking demand by an additional 42 vehicles. Further details on paid parking and other TDM strategies can be found in Appendix C.

3.4.4. YEAR-ONE PARKING MANAGEMENT STRATEGIES

After the implementation of TDM strategies, the Waterfront will need to accommodate ferry rider demand for approximately 106 more parking spaces than are planned to be made available in the 199 Seawall Drive lot. The city can meet this excess demand by implementing three strategies for year-one of ferry operations, including 1) maximizing the number of spaces made available in the renovation of the 199 Seawall Drive lot, 2) by directing drivers to designated low-occupancy lots in other locations around the Waterfront to be used as overflow parking when 199 Seawall Drive reaches capacity, and 3) by establishing a wayfinding program that can help drivers locate parking that is best suited for their trip purpose, such as clarifying where all-day parking is and is not allowed.

It should be noted that it is very unlikely that the WETA projected Ferry ridership will actually be achieved within the first year of service. As ridership increases and all-day parking becomes less desirable for ferry riders, they are more likely to switch to alternative modes of transportation including bike, AC transit and ride shares. The approach to TDM planning should allow for a dynamic approach to implementation of TDM strategies based on actual mode shares and parking demand patterns over time. While not evaluated in this study, it should also be noted that the growth of Autonomous Vehicles in urbanized areas is anticipated to grow significantly in the next five to ten years, which is likely to reduce the need for all-day ferry parking at the Berkeley Waterfront.

1. Maximize Parking Capacity at 199 Seawall Drive Lot

The City of Berkeley will consider design strategies to maximize the number of parking spaces available in the 199 Seawall Drive lot, marked by #1 in Figure 5. By accommodating full-day parking in this area, the City can reduce the number of drivers who need to seek parking elsewhere in the Waterfront or who will have to adjust their travel habits to travel to the ferry earlier, when parking is available, or who will have to access the ferry terminal by other modes.

2. Provide Overflow Parking

The City of Berkeley can designate formal overflow lots to provide full-day parking spaces when the 199 Seawall Drive Lot becomes full. Overflow parking can be established in locations that have low existing parking utilization on weekdays and that are within walking distance of the Berkeley Pier, including possible sites at the Marina Boulevard lot or at the Skates/N Lot.

The public street parking on Marina Boulevard could serve as an ideal location for overflow parking (see #2 in Figure 5). On weekdays, the average parking utilization is below 40%, and even at peak occupancy of 53% (as shown in Table 2), it could provide up to 90 additional all day parking spaces. Current observations

indicate that much of the existing utilization is from employees and visitors of the Doubletree Hotel, which has existing parking within their leased premises. With additional management of those vehicles, Marina Boulevard will conservatively accommodate over 100 full-day parkers. However, the walking distance from this lot ranges from approximately 0.4 miles to 0.75 miles away from the Berkeley Pier, for walks of between 10 and 17 minutes respectively, according to Google Maps.

The Skates / N Lot has a similarly low weekday utilization of just 7% and a peak utilization of 22% and is located adjacent to the Berkeley Pier. At its peak 10:00 AM weekday occupancy, the Skates / N Lot can accommodate 108 additional vehicles. However, the Skates / N Lot serves the Skates on the Bay restaurant and is close enough to serve as an informal overflow lot for higher occupancy lots including the O Lot, L&M Lots, and South Cove Lots. Though it has a slightly higher weekday utilization rate, the Marina Boulevard lot may be better suited for use as a formally designated overflow area.

Using these two TDM strategies, the combined overflow capacity at both the Marina Boulevard Lot and Skates / N Lot can easily accommodate the unmet demand for 106 parking spaces from the 199 Seawall Drive Lot.

3. Implement Wayfinding Program

To successfully shift vehicles to overflow lots, the City can implement a Waterfront-wide wayfinding program to clarify parking options for full-day parkers who arrive later in the day, or for whom walking from an overflow lot is not a physical constraint. Key locations for year-one wayfinding are indicated by the circles marked with #3 in Figure 5. Instead of circling the 199 Seawall Drive lot looking for spaces on busy days, these riders would know that they could immediately park at a formally-designated overflow location. Wayfinding can also be used to improve current parking conditions by leading visitors to the lots closest to their destinations or to areas with existing capacity that are a short walk from more popular lots.

Wayfinding measures are split up into two categories, static and dynamic wayfinding. Static wayfinding consists of signage to direct drivers to lots that best suit their needs and most effectively distribute demand across the Waterfront. Static wayfinding is critical as well as cost-effective for managing parking at the Waterfront and should be implemented before or concurrent with the launch of the ferry service. Dynamic wayfinding would use parking occupancy sensors and message boards at key access points around the Waterfront to provide drivers of information regarding the relative occupancy levels of parking lots and direct them to lots with more availability. Dynamic wayfinding would be an addendum to static wayfinding and is not critical for year-one ferry operations. It would also involve installation, operations and maintenance costs that would need to be planned by the City.

Wayfinding improvements would allow the City to effectively distribute parking demand around the ample occupancy in Waterfront lots. A wayfinding plan for the Waterfront would allow the City to strategically direct drivers to available parking that they were not aware of. This strategy can reduce the locations where shorter duration recreational and commercial visitors compete with full-day parkers, and will also more effectively manage weekend and special event parking loads outside of peak commuting hours.



LEGEND

- Study Boundary
- Road
- Dock
- Path/Trail

- Slipholder Permit Parking
- Public Parking

Year One Parking Management Strategies

- 1** Maximize parking at 199 Seawall Drive
- 2** Provide overflow parking
- 3** Implement wayfinding program

Static Wayfinding

Improving wayfinding is a critical strategy for leveraging the existing resources of the Waterfront. The future ferry terminal site is immediately surrounded by low utilization parking lots. However, drivers pass some of the higher occupancy lots in the Marina on the way to the ferry terminal, including the J&K Lot and South Cove Lots. Improved wayfinding would help drivers find the parking facility that best suits their needs without infringing on the access of other visitors. To successfully implement a static wayfinding plan, the city must:

1. Update parking regulations based on best uses for each parking lot at the Waterfront (Table 1)
 2. Identify key wayfinding locations
 3. Install critical wayfinding signage as part of the WTPF project scope.
1. **Coordinate parking regulations.** Static wayfinding can direct drivers to specific lots, but the city must first determine the desired use for each lot at the Waterfront. For example, if the main desired usage of the South Cove lots is for access to watersports and Adventure Playground, then picnickers traveling toward Shorebird Park could be directed towards the M Lot or to spaces along Seawall Drive. Appropriate parking regulations should be aligned with the preferred uses at each parking lot. This step can be completed as part of the parking regulation review recommended in this report. See also Section 4.1.5 regarding types of implementation and enforcement for time-limited parking regulations.
 2. **Identify key wayfinding locations.** Following the classification of parking lot purpose and regulation, the city should identify key wayfinding decision points around the Waterfront where drivers make parking lot usage choices. Key location might include: the University Ave roundabout, lot entrances to Central Facilities along University Ave, and at the intersection of University Ave and Seawall Dr, show in Figure 5. These locations should be selected to ensure that all drivers who arrive at the Waterfront are presented with a series of options that can help them park in a location that is most convenient for them without inconveniencing other Waterfront visitors.
 3. **Implement a wayfinding program.** The City should implement a new wayfinding program before or concurrent with the launch of ferry service. This means that the capital investment in the program should be scaled to match the ferry service project timeline. More ambitious wayfinding could include new branding and features that would emphasize the difference between parking at the Waterfront and parking in the rest of the City. See a mockup of a wayfinding program in Estes Park, Colorado in Figure 6. In this wayfinding program, signs offer drivers a variety of parking options to suit their needs, including directions to specific destinations, directions to free parking with shuttle service, and paid parking closest to key destinations.

Figure 6: Parking Wayfinding Example



Source: e.holdings inc.

Note: This example is from the City of Estes Park, Colorado for implementation of a paid parking program. Notice signs to emphasize free parking, paid parking, and shuttle services.

Dynamic Wayfinding

Dynamic wayfinding techniques could serve as an additional tool to distribute parking effectively around the Marina and avoid excessive circling for spaces and illegal parking practices, especially during peak demand hours. Dynamic wayfinding could be implemented in select parking facilities as demand warrants and is not essential for year-one ferry operations.

Dynamic wayfinding systems use sensors to track parking occupancy across a parking facility. The number of available spaces can then be displayed at a remote wayfinding board before drivers make the decision to enter a facility.

Dynamic wayfinding at the Waterfront could be utilized to monitor the occupancy of spaces available for all day use by ferry riders. A dynamic wayfinding board could be installed in coordination with the provision of alternative parking locations of ferry riders, either to direct them to less occupied lots near the ferry, or to a satellite parking facility with shuttle service to the ferry terminal.

See Figure 7 for an example of dynamic wayfinding in Redwood City, California. In 2022, Redwood City completed a dynamic wayfinding project that monitors over 4,000 parking spaces throughout their downtown area. The occupancy of those spaces is then communicated to drivers at key locations as they approach the downtown area, including in the underpass under Caltrain tracks, as shown in Figure 7.³ These boards provide information that can improve the visitor experience of parking in Redwood City and more effectively utilize existing parking facilities and helps the City to avoid the need for costly expansion or restructuring of parking.

Figure 7: Dynamic Wayfinding Signage Example



Source: Google Streetview

Note: This example is from Redwood City, CA.

3.4.5. IMPLEMENTATION & ENFORCEMENT OF TIME LIMITED PARKING

Section 4.1.4 provides parking management strategies to manage the projected demand for parking through the use of over-flow full-day parking options. As described in Table 1, while some parking lots have hours of no parking (via either use of permits or gates), no parking lots have enforced time limited parking. In order to ensure that full-day parking for ferry riders only occurs at locations where such use has been planned for, the City will need to create and enforce a means of limiting parking access or duration in those areas where full-day parking by ferry riders is not intended.

³Redwood City Pulse. (2022). *Redwood City installs digital parking signs downtown*. Retrieved from <https://www.rwcpulse.com/express-newsletter-content/2022/05/17/redwood-city-installs-digital-parking-signs-downtown/>

Table 1 provides an example of what those time limits could be at various parking lots; actual durations for time-limited parking should be determined, and adjusted if needed, based on feedback from the public and Waterfront Visitors.

There are a variety of ways to implement time-limited or access-limited parking.

- **Free Time Limited Parking.** Many areas in Berkeley have 2-hour time limits for on-street parking unless a residential parking permit for that zone is displayed. A similar type of restriction and enforcement could be used in specific Waterfront parking lots. This approach has the advantage of not requiring infrastructure beyond signage, but enforcement is costlier since it requires multiple passes by parking enforcement staff. Berther parking that exceeds the time limit could be accommodated via permits.
- **Paid Parking.** Similar to many locations in the City, the use of paid parking with maximum time limits allows for enforcement via the issuance of parking passes. This approach would require installation and maintenance of kiosks/meters at parking lots where implemented and enforcement.
- **Gated Lots.** Use of manual gates to limit the period of access instead of time-limited parking spaces is currently used at the South Cove East Lot. The gate is not opened until after the early-morning boaters depart, ensuring that those primarily full-day parkers use Marina Blvd and South Cove West lot. This system could be refined and expanded in various ways. The use of gates requires staff time, which is costly due to frequent maintenance needs, and can be occasionally variable due to limited staff resources.



Section 5

Future Conditions

5. FUTURE CONDITIONS

5.1. Future Ferry Conditions

In this scenario, it is assumed that the Waterfront will continue to operate under typical baseline conditions with no new development but with an increase in ferry ridership. As outlined in Section 2.3.1, WETA anticipates that average weekday ridership will increase to 1,160 by 2040 under full service which includes connecting service between the San Francisco Ferry Terminal and Mission Bay, reflecting a growth of approximately 15%. These ridership projections are based on pre-COVID assumptions but have been adjusted to account for a "pandemic recovery" fare structure, as well as shifting commuter travel patterns and demand for services. Changes in costs, services, or overall economic conditions may impact these assumptions, so WETA will update the projections as new information becomes available. The City of Berkeley staff should also implement parking and TDM strategies based on the needs of ferry riders and Waterfront visitors. This section is intended for planning purposes, and the recommended strategies will be revisited in the future to assess how ferry ridership aligns with the projections.

5.1.1. RIDERSHIP AND MODE SHARE

This analysis conservatively assumes that the mode share will remain unchanged under future conditions. This would result in a parking demand of 534 spaces without implementing any TDM measures.

Table 7: Future 2040 Ferry Mode Share and Parking Demand (no TDM)

Mode	Mode Share	Person Trips ¹	Base Parking Demand for Ferry Riders ¹
Drive Alone	40%	464	464
Carpool	12%	139	70
Kiss-and-Ride	8%	93	0
Transit	5%	58	0
Bike	16%	186	0
Walk	4%	46	0
Taxi / TNC	5%	58	0
Other	10%	116	0
Total	100%	1,160	534

Source: Kittelson & Associates, Inc. 2024

Note: ¹A person trip is a trip taken by a ferry rider using any mode of transportation. Rounded to the nearest integer.

5.1.2. TRANSPORTATION DEMAND MANAGEMENT STRATEGIES

Applying the same TDM strategies from the Year 1 scenario, parking demand from ferry users could be reduced by 67 to 108 spaces, as shown in Table 8. The higher reduction is attributed to increased ridership, as more individuals would opt for more sustainable modes of accessing the ferry terminal instead of driving, thereby enhancing the effectiveness of the TDM strategies. This reduction would result in a weekday

demand for 467 parking spaces at the ferry terminal parking lot, 217 more than planned (250) for within the 199 Seawall Drive parking lot in the Feasibility Study.

Table 8: Estimated Effectiveness of Parking and TDM Strategies

Strategy	Weekday Parking Lot Demand Reduction (spaces)	Ferry Demand	Calculation Source
Bicycle and pedestrian access		3	CAPCOA T-20
Improved bicycle facilities and secure bike parking		14–55	CAPCOA T-10
Shared micromobility expansion		20	CAPCOA T-22-B
Pick-up/drop-off zones		14	TNC user satisfaction and efficiency research
Transit subsidy for ferry riders		16	CAPCOA T-9
Reductions with Full TDM Implementation	67 – 108 parking spaces (14% - 22%)		

Source: Kittelson & Associates, Inc. 2024

CAPCOA Handbook- California Air Pollution Control Officer’s Association Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity; TNC - Transportation Network Companies

5.1.3. PARKING MANAGEMENT STRATEGIES

Similar to the TDM strategies, the parking management strategies outlined in Section 4.1.4 for Year 1 Ferry Conditions will help address the additional peak parking demand of 217 spaces from ferry riders. To be conservative, it is assumed that these strategies will be as effective as they were under the Year 1 Ferry Conditions, which would reduce the need by 106 spaces. This means that under Future Ferry Conditions, additional parking management strategies will be necessary to accommodate the remaining demand of approximately 111 spaces.

Based on the Parking and TDM Toolkit presented in Appendix B, the following strategies in combination would be effective in addressing the remaining demand of 111 spaces.

5.1.4. Valet Service

Valet Service would maximize finite space in existing lots by allowing valet attendants to tandem park vehicles. Likewise, valet parking can turn underutilized parking lots into an efficient tool for parking management. Valet parking is well-suited for the Waterfront’s parking and usage patterns, which are characterized by an overabundance of parking capacity on most days and congestion and high occupancy levels in certain lots during events and peak periods of good weather and boating conditions. Additional details on the implementation of this strategy are provided in Appendix B.

5.1.5. Satellite Parking Facilities

The City could establish a satellite parking facility at Golden Gate Fields or other public parking lots that could be used by ferry riders or other visitors during special events. The satellite lot would be a tool for transferring parking demand away from Waterfront lots for those who have the flexibility to then proceed

to the Waterfront by shuttle, AC Transit service, or by biking and walking. A satellite parking facility could maximize the space devoted to vehicle parking for recreational uses at the Waterfront without limiting access to the ferry service. Additional details on the implementation of this strategy are provided in Appendix B.

5.1.6. Demand Based Paid Parking

Paid parking can be an effective tool for managing parking demand from ferry users. Its implementation should be carefully designed to accommodate the needs of ferry riders while ensuring sufficient availability for a wide range of Waterfront visitors. A well-executed paid parking program is anticipated to reduce the demand by approximately 53 parking spaces. Additional details on the implementation of this strategy are provided in Appendix B.

5.1.7. Shuttle Service to the Waterfront

A shuttle service to the Berkeley Waterfront that is aligned with the ferry schedule could serve as an alternative to car trips for ferry riders. This shuttle would need to connect commuters and visitors from various origins throughout Berkeley to the Waterfront. Currently, UC Berkeley operates a shuttle bus under the Bear Transit program that loops between the campus and the Downtown Berkeley BART Station.⁴ Another West Berkeley Shuttle, funded by Bayer HealthCare and Wareham provides a last-mile connection between Ashby BART Station and businesses in the West Berkeley Area.⁵

The City could consider extending this service to the Ferry Terminal, facilitating a seamless transfer for users. A shuttle service is anticipated to reduce the demand by approximately 53 parking spaces. Additional details on the implementation of this strategy are provided in Appendix B.

These two strategies would be sufficient to meet the future ferry ridership parking demand and transportation needs. However, the City could explore more strategies in the future based on the updated projections and changes to mode share splits that are not currently foreseeable.

5.2. Cumulative Conditions

This scenario considers the potential maximum development informed by the Draft Waterfront Specific Plan (WSP) combined with projected future ferry ridership. The Draft WSP is currently being developed by City staff in collaboration with Hargreaves Jones. As a part of this effort, the City desires to understand the potential impact of the development considered in the WSP on future Waterfront parking and transportation demands. Kittelson received land use data from City staff to evaluate the High Redevelopment Scenario, which anticipates 1.2 million square feet of development, including the existing 404,150 square feet of structures. The potential redevelopment locations and subareas are illustrated in Figure 8.

⁴ UC Berkeley. *Parking and Transportation*. Retrieved from <https://pt.berkeley.edu/BearTransit>

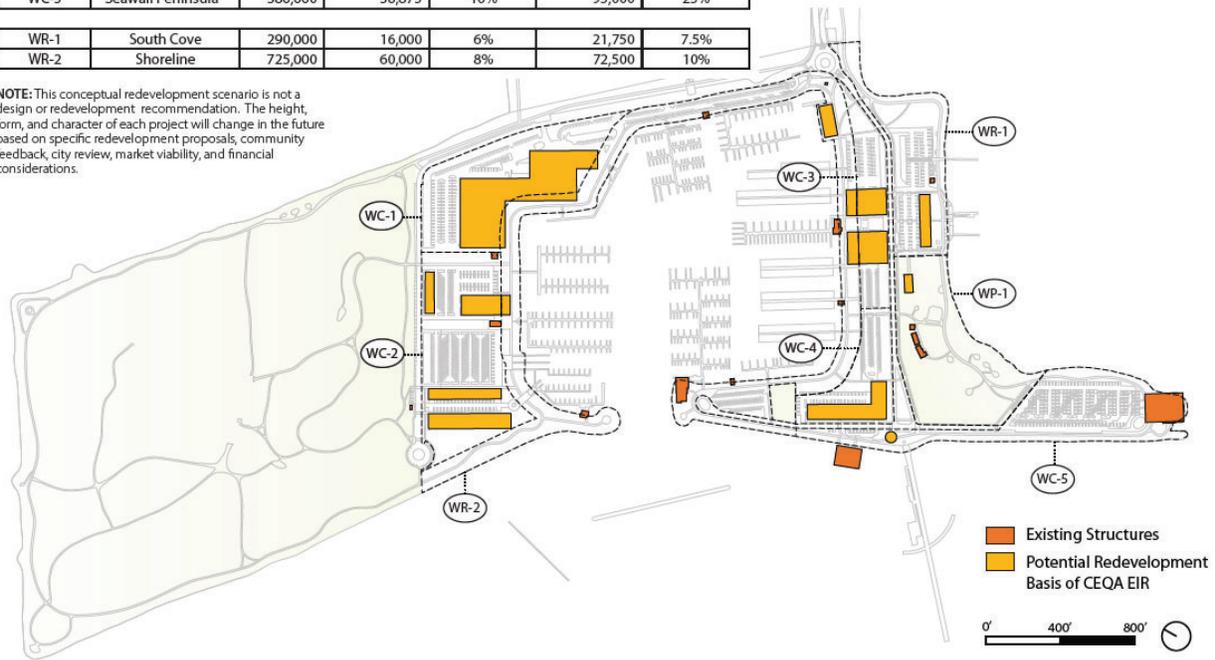
⁵ West Berkeley Shuttle. Retrieved from <https://www.westberkeleyshuttle.net/>

Figure 8: WSP Redevelopment Location - High Development Scenario

CEQA Programmatic EIR Basis of Study
Potential Future | Maximum Waterfront Redevelopment

SUBAREA	AREA SF	BASIS OF EIR STUDY LAND COVERAGE		DEVELOPMENT STANDARDS MAXIMUM LAND COVERAGE	
		BLDG SF	COVERAGE	BLDG SF	COVERAGE
WC-1	400,000	160,000	40%	160,000	40%
WC-2	460,000	92,000	20%	92,000	20%
WC-3	170,000	42,500	25%	42,500	25%
WC-4	170,000	42,500	25%	42,500	25%
WC-5	380,000	38,875	10%	95,000	25%
WR-1	290,000	16,000	6%	21,750	7.5%
WR-2	725,000	60,000	8%	72,500	10%

NOTE: This conceptual redevelopment scenario is not a design or redevelopment recommendation. The height, form, and character of each project will change in the future based on specific redevelopment proposals, community feedback, city review, market viability, and financial considerations.



Source: Hargreaves Jones, for the Waterfront Specific Plan, 2024

Table 9 includes a hypothetical configuration of descriptions and type of use that could potentially be developed at the Waterfront with an estimated size of development. It should be noted that any new development proposed in the WSP would be required to conduct a project-specific parking analysis based on the specific project details at the time of application.

Table 9: Potential Maximum Waterfront Redevelopment Land Use Details

SUBAREA	DESCRIPTION	HEIGHT	USE	EXISTING	POTENTIAL	CHANGE
				GSF	FUTURE GSF	
WC-1	N1 DoubleTree Hotel	4-6 story	Hotel & Food Establishment	256,900	450,000	193,100
WC-2	N2 Berkeley Marine Center	3 story	Maritime Visitor Services	24,500	80,000	55,500
	N3 B&C Restroom	1 story	Maritime Visitor Services	1,550	1,550	-
	N4 D&E Restroom	1 story	Maritime Visitor Services	600	600	-
	X1 Bay North Hotel	6 story	Hotel & Food Establishment	0	180,000	180,000
	X2 Recreation/F&B Complex	3-4 Story	Food Service Establishment & Commercial Recreation	0	55,000	55,000
	X3 F&B Café	1 story	Food Service Establishment	0	6,000	6,000
WR-2	N5 Berkeley Marine Center Fuel	1 story	Boat Fuel Station	1,350	1,350	-
WC-3	S1 Hana Japan & Sportsman's Center	3-4 story	Food Service Establishment & Commercial Recreation	22,000	50,000	28,000
	S2 125-127 University Ave	3-4 story	Office	19,000	60,000	41,000
WC-4	X4 Bay South Hotel	6 story	Hotel & Food Establishment	0	213,000	213,000
WC-5	S3 Skates	1 story	Food Service Establishment	13,700	13,700	-
	S4 Hs Lordship	1-2 story	Food Service Establishment	37,000	37,000	-
	X5 Ferry Terminal Kiosk	1 story			5,000	5,000
WR-1	S5 Aquatic Center / F&B Cal Adventure & Cal Sailing	1 story	Recreational Boating & Water Use	8,200	24,000	15,800
	S6 South Cove Restroom	1 story	Maritime Visitor Services	500	500	-
WR-2	S7 Waterfront Office	1-2 story	Maritime Office	2,700	2,700	-
	S8 F&G Restroom	1 story	Maritime Visitor Services	950	950	-
	S9 L&K Restroom	1 story	Maritime Visitor Services	650	650	-
	S10 N Restroom	1 story	Maritime Visitor Services	650	650	-
	S11 Berkeley Yacht Club	1-2 story	Club / Lodge	9,000	9,000	-
	X6 Old Ferry Dock F&B	1 Story	Food Service Establishment	0	16,000	16,000
WP-1	S12 Shorebird Park Nature Center	1 story	Museum / Cultural Center	3,800	3,800	-
	S13 Shorebird Park Maintenance Shed	1 story	Maintenance Facilities	1,100	3,000	1,900
TOTAL				404,150	1,214,450	810,300

Source: Hargreaves Jones, for the Waterfront Specific Plan, 2024

Note: Represents a hypothetical configuration of uses that could potentially be developed at the Waterfront with an estimated size of development.
F&B = food and beverage

The potential development would necessitate the redevelopment of the existing surface parking lots, leading to the reconfiguration of current parking spaces. Table 10 outlines the number of parking spaces affected by the future redevelopment as envisioned in the WSP. It is estimated that the Waterfront would experience a loss of four (4) public spaces, with an overall gain of 40 parking spaces due to the parking lots reconfiguration. Additionally, private parking is projected to increase by 150 spaces, whereas permit parking will decrease by 106 spaces.

However, efficient lot redesign, and developer agreements could recover and potentially enhance the parking at the Waterfront.

Table 10: Reconfiguration of Existing Parking Lots

Lot Location	Existing			Future			Change
	Public	Permit	Private	Public	Permit	Private	
North Facilities							
Marina Blvd	150			204			54
Spinnaker Way	127			127			0
Spinnaker Way Lot	36			36			0
D&E Lot		129			70		-59
F&G Lot		63			63		0
H & Lot		52			52		0
Doubletree Lot			408			408	0
Bay North Hotel	n/a	n/a	n/a			90	90
Launch Ramp Paid	76			76			0
Central Facilities							
J & K Lot	92			92			0
L Lot	14	47		47			-14
M Lot	77			77			0
South Cove East Lot	96			96			0
South Cove West Lot	86			80			-6
University Avenue	25			25			0
South Facilities							
Skates / N Lot	137			52		60	-25
O Lot	72			72			0
Seawall Drive North	6			6			0
Seawall Drive South	84			84			0
Seawall Lot	320			320			0
TOTAL	1,398	291	408	1,394	185	558	40
	2,097			2,137			

Source: Hargreaves Jones, for the Waterfront Specific Plan, 2024

Note: Estimate of change in parking spaces based on the conceptual Maximum Waterfront Redevelopment scenario shown in Figure 8; Includes Marina Boulevard Trail, Access and Shoreline Improvements, dated 7-9-2020.

The City of Berkeley has developed conceptual plans to realign and develop Marina Boulevard, increasing the total parking capacity from 150 to 204 spaces. Details of the conceptual plan can be found in Appendix E.

A parking demand analysis has been prepared to estimate the future parking needs associated with the proposed developments in the WSP, helping to evaluate the requirements for future parking facilities and management strategies. Only certain developments are expected to influence parking demand, while others, such as restrooms and cafés, are considered auxiliary uses that will not generate additional trips to the Waterfront. The developments anticipated to have an effect on parking demand include:

- X1 Bay North Hotel
- X2 Recreation/F&B Complex
- X4 Bay South Hotel
- S1 Hana Japan & Sportsman's Center expansion
- S4 199 Seawall (i.e. Hs Lordship)
- S5 Aquatic Center / F&B/ Cal Adventure & Cal Sailing
- X6 Old Ferry Dock F&B
- Among these developments, the two hotels (Bay North and Bay South) would be required to provide off-street parking at a rate of 0.5 spaces per room, as specified in the development standards section of the WSP. The other five recreational and food establishment uses would not be required to provide off-street parking and would rely on the public parking spaces currently available at the Waterfront. Kittelson conservatively estimated the peak parking demand for these uses using the ITE Parking Generation, 6th Edition. It is estimated during the weekday peak hour the demand would be 461 spaces and during the weekend peak hour demand would be 450 spaces. Different land-uses have varying parking demand across the day. Kittelson utilized the Urban Land Institute (ULI) Shared Parking model, 3rd edition, to estimate the time-of-day rates for each future use. Table 11 presents weekday and weekend parking demand calculations for uses that will rely on public parking spaces.

Table 11: Weekday and Weekend Parking Demand

Location	Description	ITE Land Use Code	Weekday Average Rate	Weekend Average Rate	Weekday Peak Parking Demand	Weekend Peak Parking Demand
X2	Recreation/F&B Complex ¹	Food Hall (928) & Recreational Community Center (495)	3.96	2.72	87	60
S1	Hana Japan & Sportsman's Center	Food Hall (928)	3.96	2.72	44	30
S4	Hs Lordship	Fine Dining Restaurant (931)	16.18	18.23	239	270
S5	Aquatic Center / F&B Cal Adventure & Cal Sailing ¹	Food Hall (928) & Recreational Community Center (495)	3.96	2.72	25	17
X6	Old Ferry Dock F&B	Fine Dining Restaurant (931)	16.18	18.23	65	73
Total					461	450

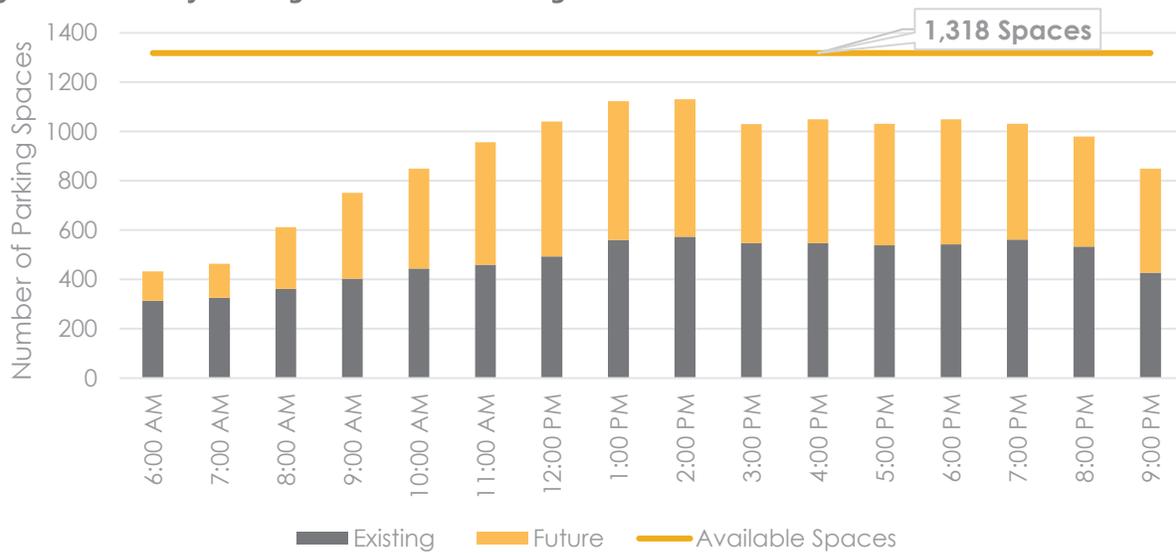
Source: ITE Parking Generation Manual, 6th Edition

Note: ¹It assumes that only 40% of the GFA will be allocated for Food Hall (928) and the remaining 60% will be used for recreational purposes. F&B = food and beverage

The ULI Shared Parking model considers that while each land use generates demand for a certain number of parking spaces, these parking demands fluctuate hour-by-hour and day-by-day and shared parking between land uses can minimize the amount of space and resources devoted to parking.

Figure 9 shows the average weekday parking demand for existing in addition to the future uses by time of day. The "future uses" included in this figure include both ferry riders and the WSP High Redevelopment scenario. The peak demand is expected to be around 2 PM, with 1,131 parking spaces occupied (86% utilization), which remains below the 1,318 publicly available future parking spaces, excluding 76 Launch Ramp Paid parking spaces.

Figure 9: Weekday Parking Demand for Existing and Future Uses



Source: Kittelson & Associates, Inc. 2024

Figure 10 illustrates the average weekend parking demand for existing and future uses at the Waterfront, compared to the available parking spaces by time-of-day. The peak demand occurs around 1 PM, with 1,169 spaces utilized (89% utilization), which remains slightly below the total available spaces.

Figure 10: Weekend Parking Demand for Existing and Future Uses



Source: Kittelson & Associates, Inc. 2024

Based on the parking demand analysis, it can be concluded that the Waterfront will generally have sufficient parking spaces to accommodate the parking demand from future uses in the WSP. However, while the overall parking demand for the area can be met, there will be instances where individuals cannot park near their desired destinations, mainly during peak days and times. This could negatively impact the parking experience and cause frustration for some visitors. Implementing dynamic wayfinding and clear messaging strategies could help enhance the overall parking experience for visitors to the Berkeley Waterfront.

As noted earlier, AB 2097 prohibits public agencies from enforcing parking minimums for developments within ½ mile of a ferry terminal. However, the City can still require developers to implement Transportation Demand Management (TDM) strategies, such as providing bicycle parking, transit subsidies, or contributing to shuttle service programs. Developers must also submit a project-specific TDM plan that aligns with the City’s monitoring and reporting requirements.⁶

⁶ Berkeley Municipal Code § 23.334.040. (n.d.). *Zoning regulations. Transportation Demand Management*. Retrieved January 2, 2025, from <https://berkeley.municipal.codes/BMC/23.334.040>



Appendix A : Baseline Parking Conditions

TECHNICAL MEMORANDUM

February 28, 2025

Project# 19867.006

To: Liza McNulty, PE, Capital Improvement Program Manager
City of Berkeley Parks, Recreation & Waterfront (PRW) Department
2180 Milvia Street, 3rd Floor.
Berkeley, CA 94704

From: Kittelson & Associates, Inc.

CC: Ali Endress and Roger Miller

RE: Berkeley WTPF Baseline Parking Conditions

1.0 Background

The City of Berkeley (City) completed the feasibility study for the ferry facility at Berkeley Municipal Pier (Feasibility Study) in December 2021 and is now beginning detailed engineering and environmental studies for the Water Transportation Pier-Ferry (WTPF) Project. Kittelson & Associates, Inc. (Kittelson) is working with the City to develop a Parking and Transportation Demand Management (TDM) Plan that will support the proposed ferry service and future development at the Waterfront ("Parking and TDM Plan").

The purpose of this technical memorandum is to establish a baseline condition for the Parking and TDM Plan. The memorandum is organized into the following sections:

- Study Area
- Review of Existing Documents
 - Parking Issues and Needs
 - Past and Current Parking Management Solutions
 - Historic Parking Utilization
 - Ridership and Mode Share Estimates
- Case Study Interviews
- Staff Working Group Sessions
- Review of Parking Counts
 - Parking Inventory
 - Historical Count Data
 - All Day Count Data
- Intercept Survey
 - Survey Response Summary

2.0 Study Area

The study area (Berkeley Waterfront or Waterfront) is the area west of the McLaughlin Eastshore State Park, bordered by Spinnaker Way to the north and South Sailing Basin to the south, see **Figure 1**. University Avenue provides vehicle connection between the Waterfront, Downtown Berkeley and Highway 80.

AC Transit Bus Route 51B connects the Waterfront and Rockridge BART via College Avenue, Downtown Berkeley BART, and University Avenue. Only one out of every three scheduled bus trips between 7 am and 9 pm serves the Marina; all other trips terminate at the Berkeley Amtrak station, resulting in a frequency of two (2) buses every hour.

The San Francisco Bay Trail Extension provides bicycle and pedestrian access to the Waterfront from the intersection of University Avenue and Frontage Road. The bicycle and pedestrian bridge across I-80 connects the Waterfront with the City of Berkeley. Additionally, the Virginia Street Right-of-Way (a dirt pathway) offers another bike and pedestrian connection.

The Study Area is entirely public tidelands held in trust by the City. There are over 100 acres of uplands and 5 miles of pedestrian trails within the Waterfront. Centered within this landscape is the Berkeley Marina, the largest public marina in the San Francisco Bay with 1,000 boat slips. The Berkeley Waterfront also includes three public access docks, a boat launch ramp, and 11 parking lots.

Current businesses and attractions include 1 hotel, 4 restaurants, 1 boatyard, a yacht club, two non-profit sailing clubs, a nature center, a two-story office building (commercially leased), and 9 restroom buildings, as shown in **Figure 2**.



LEGEND

- Solid Blue Area
- Dark Grey Area
- Light Green Area
- Dashed Line
- Dotted Line

Source: City of Berkeley, MTC

Figure 2: Existing Businesses and Landmarks



Source: Draft Waterfront Specific Plan, 2023

The proposed ferry terminal at the Waterfront will be located at the Berkeley Pier, which will be reconstructed to provide dual ferry and recreation access. The study focuses on the following nine (9) public parking lots and three (3) on-street parking facilities. Private, paid and slipholder only parking lots (Boat Launch Stalls – Paid, Doubletree Stalls – Private/Paid, and Berkeley Marine Center) were not included in the analysis, as it is assumed that ferry riders will not use these locations for parking.

■ **Public parking lots**

- Spinnaker Way Lot
- J&K Lot
- L&M Lot
- South Cove East/West Lot
- Seawall Drive Lot
- Skates/N Lot
- O Lot

■ **On-street parking facilities**

- Spinnaker Way
- Marina Blvd
- University Ave Shoulder (at West Frontage Rd)
- Seawall Drive North/South

■ **Slipholder Permit Lots**

- D&E Lot
- F&G Lot
- H&I Lot

Potential future redevelopment is limited to the existing developed land at the Waterfront comprised of leased land and surface parking lots. Future redevelopment at the Waterfront over the next several decades may bring in more visitors and hence, an increase in the need for parking and TDM.

3.0 Review of Existing Documents

The following relevant documents and programs were reviewed for this task:

- Berkeley Marina Ferry Parking & Transportation Demand Management Strategy (Appendix D), Nelson Nygaard, October 2021
 - Appendix A: Revised Short-Term Recommendations for Parking Management, December 2018
- WETA Berkeley Ferry Service, Business Plan Version 1.0, March 2022
 - The Business Plan is intended to be a “living” document that will be updated as needed to respond to new information, new data, and emerging ideas.
- Parking and Mobility Framework, Draft, Berkeley Marina Area Specific Plan, January 2022
- Draft Waterfront Specific Plan, November 2, 2023
- Traffic Assessment of University Avenue Concept Study, December 2017

The following relevant topics were summarized for each document.

- Parking issues and needs
- Past and current parking management solutions
- Historic parking utilization
- Ridership and mode share estimates

3.1 PARKING ISSUES AND NEEDS

The 2021 Berkeley Marina Ferry Parking & TDM Strategy was developed as part of the Feasibility Study to support the needs of future ferry riders travelling to and from the Waterfront. The study analyzed existing conditions and transportation facilities near the proposed ferry terminal location, and was based largely on the 2018 Short-Term Recommendations for Waterfront Parking Management (Appendix of the Feasibility Study). The following parking issues were highlighted in the 2018 Report:

- **Small Scale Ferry Service:** Small scale ferry service was initiated in 2017 by two independent providers (Tideline and Prop SF). Small scale ferry service increased the demand for all-day parking at the Waterfront, particularly surrounding K-Dock, where ferries depart. It should be noted that both of these services were suspended in 2020 during the COVID pandemic.
- **Overcrowding at South Cove lots due to mixed uses/user groups.** The South Cove lots have multiple users that come to the Waterfront at similar or overlapping times, resulting in peak periods in which the lots are full. Users of South Cove include public access for water activities, Cal Sailing and Cal Adventures, Adventure Playground patrons, small scale ferry passengers, charter boat customers, Hana Japan and Bait Shop customers, and employees who work on the Waterfront.

- **All-day visitors (charter and ferry customers) occupy parking spaces for relatively long periods of time.** Ferry and charter boat customers tend to arrive early and utilize the highest demand spots closest to K-Dock. Their vehicles remain in the prime spots in excess of eight hours per day and leave no room for turnover. This creates an issue for those making shorter trips to the South Cove for sailing and boating (Cal Sailing/Cal Adventures), Adventure Playground, Nature Center, Summer Camp drop off, and customers of the marina office, Berkeley Sportsman’s Center, and the 125-127 University Avenue office buildings. Many small-scale ferry and charter boat customers show a preference for the newly paved South Cove East Lot over the unpaved South Cove West Lot, in addition to J&K and M Lots. Ferry customers have not heeded recent [2018] City signage (placed on South Cove, J&K, and M Lots) to park on Marina Boulevard instead.
- **Locations needed for watersports community to park.** Many recreational watersports activities (such as windsurfing and winger watersports) require the use of the new green turf area on the northern edge of the South Cove East lot to prepare and rig their large equipment, the adjacent parking stalls (for convenient loading and unloading), and the adjacent wide path of travel (to access the launching docks in the South Sailing Basin). The parking spaces adjacent to the turf are also desirable for small scale ferry and charter customers because of their proximity to K-Dock and attractive appearance. Over the summer, some windsurfers reported that they were unable to find parking next to the turf on weekday afternoons. Several complaints by windsurfers seeking safe and convenient access to the rigging area from their vehicles were filed with PRW Staff in the months of June, July, and August of 2018. A-Frame signs placed in August 2018, were moderately effective at reserving the parking stalls adjacent to the turf for watersports users.
- **Importance of maintaining adequate slipholder parking close to docks.** Every dock at the Marina has a nearby shared parking lot. Some shared lots fill with the vehicles of other park users, limiting access for slipholders at peak times.
- **Importance of maintaining parking for Hana Japan customers in lot.** Hana Japan is only open for dinner when other Waterfront users tend to be leaving. However, in the summer, parking for Hana Japan customers often overflows to the unlit South Cove lots across University Avenue.

This 2024 Parking and TDM Plan will be reviewing and updating this information based on the changes that occurred during the past few years, in particular changes to parking management activities by the City and post COVID cuts to small scale ferry service.

3.2 PAST AND CURRENT PARKING MANAGEMENT SOLUTIONS

Since at least 2016, parking management at the Waterfront has been an evolving and dynamic effort, with the City implementing various lot-specific parking management strategies. This includes various pilot programs, some of which have been abandoned and others expanded based on their efficacy and public feedback. This section describes the parking management strategies that have previously been implemented or are currently in effect.

Slipholder Permit Program: This program became effective on June 4, 2018, for the three northern slipholder lots (D&E, F&G, H&I Lots).¹ The Program prohibits unpermitted overnight parking (12 am – 10 am). For slipholders at those locations, hangtag overnight permits are distributed by Marina staff, and guest permits are granted upon request. Waterfront staff have issued citations to vehicles parked overnight without a permit, or without payment in the Boat Launch Ramp lot. This Program was subsequently expanded to J&K lot and Skates/N Lot. A similar version of this program was implemented in L&M and O Lots, as a mix of public parking/slipholder only parking depending on time of day and day of week. Since the implementation of this permit program, vehicle counts in north facilities have indicated²:

- a 60% reduction of unpermitted parked vehicles.
- a reduction of total cars parked by up to 20%.

Time Limited Parking: In 2018, the City introduced time limited (i.e. maximum allowable parking duration) parking in J&K lot for 5 hours between 8 am and 8 pm. This was to ensure that the visitors to Hana Japan have spaces available and are not affected by all day parkers. This system was subsequently replaced with the Slipholder Permit Program described above. Throughout the Waterfront, virtually all public parking areas (streets and lots) have a maximum 72-hour parking limit (per Berkeley Municipal Code).

Gate Control: The Waterfront staff manage the opening and closing of gates at South Cove East and Seawall Drive as necessary, especially during peak summer months to prevent overnight parking.

Paid parking: There is a gate controlled paid parking at the Boat Launch ramp lot on the northern side of the Waterfront, charging \$15 per entry for 76 paid stalls. On the northern side of this lot, referred to as the Spinnaker Way lot, there are 36 free public stalls used primarily by visitors to Cesar Chavez Park. DoubleTree Hotel provides parking for \$8/hour or \$40/day for its 408 spots.

A summary of the existing parking rules currently enforced at the Waterfront is provided in **Appendix A**.

3.3 HISTORIC PARKING UTILIZATION

The parking utilization summary below and in Figure 3 is based on analysis conducted during the Feasibility Study, which used aerial parking utilization counts taken on several days between 2014 and 2018. **Figure 3** shows the specific days on which car counts were conducted for this analysis. The lots were divided into three subareas based on the geographic location of each facility.

- **Central Facilities** consist of L&M lot, J&K lot, South Cove West, South Cove East, and the “Small Boat Launch”. The 10 parking spaces in the small boat launch ramp area were permanently removed in 2020 to make way for improvements to the Bay Trail Extension and access road. During the peak parking demand periods, the J&K Lot and L&M Lot, experienced as much as 89% and 93%

¹ The Parking Permit Program does not apply to the paid launch ramp lot.

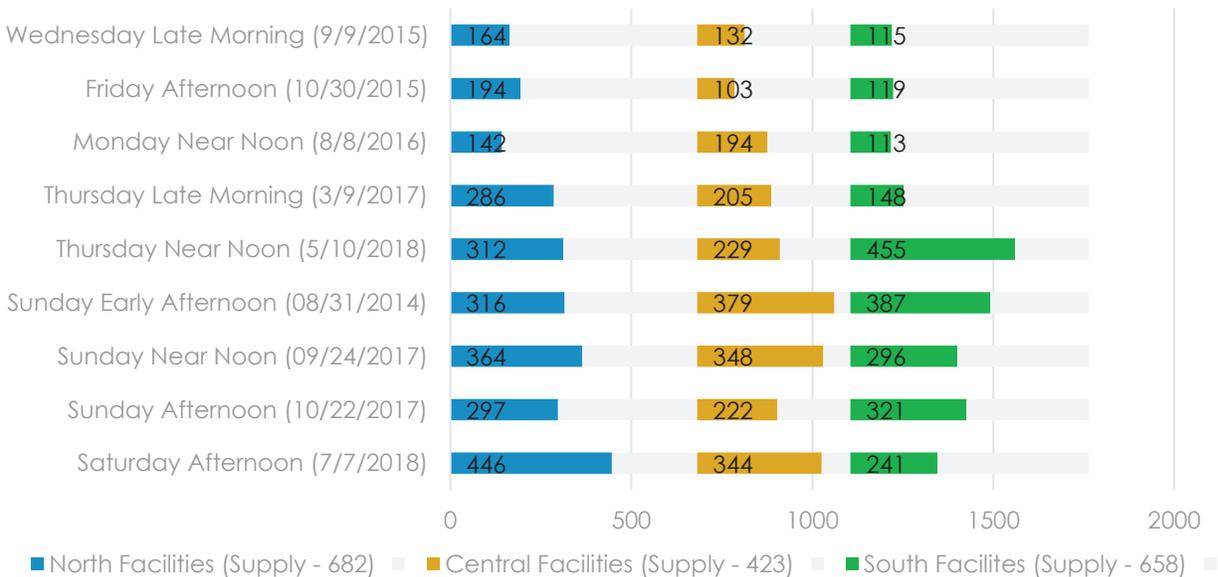
² Nelson\Nygaard. Revised Short-Term Recommendations for Waterfront Parking Management, 2018

occupancy, respectively. Overall, the Central Facilities experienced 81% occupancy on Saturday afternoon and 90% occupancy on Sunday afternoon during the peak July-August parking periods.

- **South Facilities** consists of Skates/N Lot, O Lot, 199 Seawall Drive Lot, and Seawall Drive. The peak parking period for south facilities was Thursday afternoon with 69% occupancy.
- **North Facilities** consists of D&E Lot, F&G Lot, H&I Lot, Marina Blvd, the Boat Launch Ramp, Spinnaker Circle, and Spinnaker Way. Spinnaker Way had 97% occupancy during the Saturday afternoon surveyed. In aggregate, the parking lot facilities in the north observed the highest demand during Saturday afternoon with 65% occupancy.

Figure 3 shows parking utilization by facilities and time of day.

Figure 3: Parking Utilization by Facilities by Time of Day (2015 – 2018)

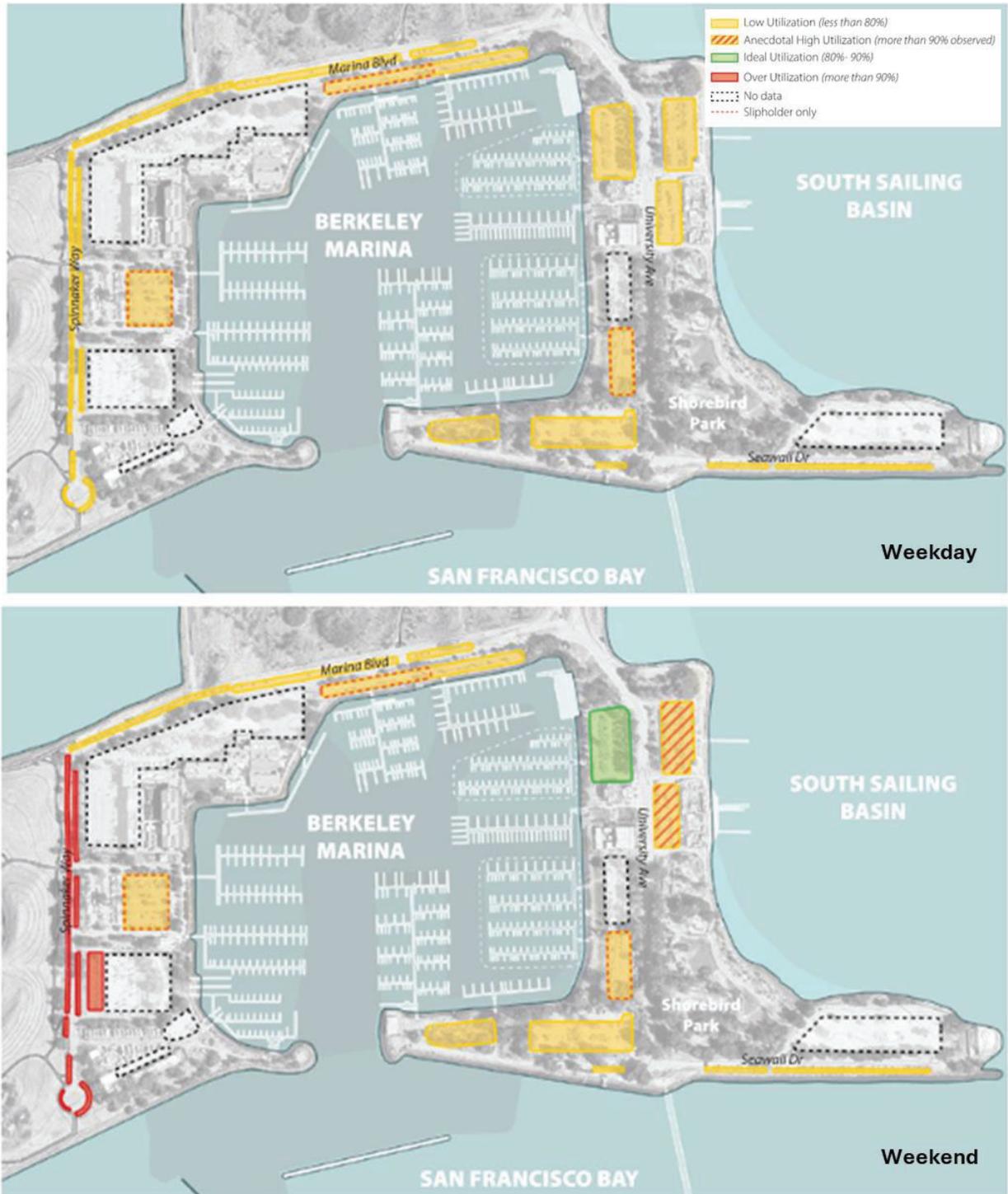


Source: Nelson\Nygaard. 2018. Berkeley Waterfront Parking Study. Appendix A

The data includes private lots such as the Marine Center Leased Lot, DoubleTree Leased Lot, Berkeley Police Department Leased Lot, and Berkeley City Vehicle Parking Lot, which results in the parking supply being 1,763 spaces higher than the public lots (1,566) analyzed in this report.

Figure 4 shows average weekday and weekend parking utilization based on the data collected for the Draft Waterfront Specific Plan in 2022-2023. During the weekend, the parking utilization was higher in the northern facilities – Spinnaker Way on-street parking and Spinnaker Way Lot. The figure also shows high utilization at South Cove lots during the weekend based on anecdotal information, including feedback provided from City staff and community members.

Figure 4: Average Weekday and Weekend Parking Demand (Draft Waterfront Specific Plan)



Source: Draft Waterfront Specific Plan, October 2023

3.4 RIDERSHIP AND MODE SHARE ESTIMATES

The proposed ferry terminal at the Waterfront will be located at the Berkeley Pier, which will be reconstructed to provide dual ferry and recreation access WETA estimates a total of 1,830 average weekday boardings. Conservatively, this would result in 915 riders boarding at the Berkeley Terminal, assuming all riders are round-trip traveling between Berkeley and San Francisco and originating in Berkeley. It is projected that the average weekday boardings would reach 2,110 by 2040.

The Feasibility Study and WETA Business Service Plan separately estimated the travel mode share of future ferry riders, as shown in **Table 1**. The Feasibility Study estimated that 54% of the ferry riders will drive alone and 9% will carpool to the Ferry Terminal. The remaining ferry riders will arrive by bicycle, ride-share, public transit or other modes of transportation that would not require a vehicle parking space. WETA Berkeley Ferry Service Business Plan estimates that only 31% will be driving alone and 15% will be carpooling to the Ferry Terminal.

Kittelson reviewed updated on-board survey data from WETA, which included surveys conducted in 2022. Using the WETA Business Plan methodology, Kittelson estimated the mode share based on the new data. The results estimate that 44% of trips were drive-alone, which is higher than the WETA business plan estimate. The 2022 estimates also estimate lower shares for walking (4%) and biking (11%). Public transit mode share was estimated at 2%, which could be largely attributed to pandemic conditions, as people were avoiding public transportation.

Comparing the three sources of data, Kittelson has recommended a baseline (i.e. pre-TDM implementation) mode-share that reflects the local context and our understanding of the existing travel patterns at Berkeley Waterfront. The baseline mode share, shown in bold in Table 1 below, represents the assumed mode share before implementation of new TDM strategies at the Waterfront. TDM strategies that further reduce the parking demand for Ferry Riders are in development.

Table 1: Mode Share Summary for Ferry Riders

Source	Drive Alone	Carpool	Kiss-and-Ride	Public Transit	Bike	Walk Only	TNC/Taxi	Other ¹
WETA Business Plan, 2017-2019	31%	15%	15%	5%	16%	8%	8%	2%
Feasibility Study (Baseline)	54%	9%	8%	4%	18%	3%	3%	1%
WETA Updated Survey - 2022	44%	8%	8%	2%	11%	4%	2%	21%
Recommended Baseline (no TDM)	40%	12%	8%	5%	16%	4%	5%	10%

Source: WETA Business Plan, 2022; WETA On-board Surveys, 2022 and Feasibility Study, 2021

¹Other includes multiple modes and private shuttle

4.0 Case Study Interviews

Kittelson conducted three case study interviews with agency staff who were either involved in implementing parking and transportation demand management strategies or are familiar with the parking management at the selected locations. The details of the interviews and key takeaways are presented in this section.

4.1 ALAMEDA HARBOR BAY FERRY PAID PARKING APPROACHES

- **Interview date:** August 8th, 2024
- **Participants:** Lisa Foster, Acting Transportation Planning Manager, City of Alameda

In an attempt to prevent spillover parking from the adjacent Harbor Bay Ferry Terminal, three home owners associations (HOAs) in the City of Alameda were given the authority to issue free residential parking permits to residents. The permits went into effect in 2017 with limited public oversight and subsequent turnover of City staff, and there is limited knowledge on the success of the program. As of now, the City of Alameda suspects that the HOAs are no longer issuing new permits for the permitted parking zones. Signs indicating the permit only parking restrictions are still present in the neighborhood, but it is unclear if enforcement is active.

In the meantime, the City moved forward with its own paid parking program to manage demand for parking at the Harbor Bay and Seaplane Lagoon ferry terminals. This plan was approved by the Alameda City Council prior to the pandemic, and was reauthorized in both 2022 and 2023.

The City of Alameda's ferry terminal management strategies offer important lessons for the parking management at the Berkeley Waterfront, including that:

- Paid parking may be most easily implemented at ferry terminals if introduced at the inception of a new service, or if there is regularly high occupancy at terminal parking lots.
 - The City of Alameda intended to introduce paid parking at the opening of the Seaplane Lagoon Ferry Terminal, but delayed due to the pandemic. The City is now in their third year of trying to implement paid parking at that location.
- The City of Alameda is partially reinvesting paid parking revenue to enhance security at parking lots. This serves to ease riders' concerns over theft and vandalism, as well as to ease public acceptance of new parking fees.
- Coordinating public bus or shuttle service can be difficult due to the relative infrequency of both ferry services and of bus routes that serve waterfront areas. AC Transit discontinued a shuttle service to the Seaplane Lagoon Ferry Terminal after low ridership and AC Transit Route 21 receives low ridership to the Harbor Bay Ferry Terminal.

4.2 BERRYESSA BART URBAN VILLAGE PLAN

- **Interview date:** August 16th, 2024
- **Participants:**
 - Jessie O'Malley Solis, Director of Real Estate and Transit Oriented Development, VTA
 - Charla Gomez, Planning Project Manager, City of San Jose
 - Wilson Tam, Transportation Planning Manager, City of San Jose

In 2021, the City of San Jose approved the Berryessa BART Urban Village Plan (UVP), which established guidance for mixed-use development around the newly opened Berryessa BART Station. One of the plan's main objectives is to enable high-density residential and commercial development around the station without overwhelming the project site with parking facilities which would diminish the urban character of the new development. The UVP's main goal is to plan for density around the BART station, and all of its parking recommendations are designed to support that goal.

The UVP's binding recommendations include the formation of a transportation management authority (TMA) to oversee parking and TDM policy in the new developments. The UVP also dovetails with a city-wide parking reform process that eliminated mandatory parking minimums³ and established TDM incentives for new development.

Key takeaways for the Berkeley Waterfront include:

- The Berryessa BART UVP's progressive parking policy recommendations were supported by ongoing citywide planning initiatives.
 - If the UVP's parking recommendations had been a standalone deviation from San Jose's parking guidelines, they would have been more difficult to adopt.
 - The City of Berkeley should consider how the introduction of mass transit service to the Waterfront interacts with the city's recent and ongoing land use and TDM planning processes, including the city's VMT criteria and thresholds.⁴
- Publicly owned land can provide important opportunities for setting the tone for new development.
 - The UVP was developed for land owned by VTA, which enabled more restrictive criteria for developments than if the land had been privately owned.
 - The City of Berkeley can capitalize on its public property at the Waterfront to ensure that any new development or transportation investments meet rigorous standards for sustainability and equity goals.

³ Since 1965, the City of San Jose's municipal zone code required new developments to build a minimum number of parking spaces based on size and land use type. With its 2022 parking reform, San Jose became the largest US city to eliminate parking minimums.

⁴ City of Berkeley, *VMT Criteria and Thresholds*. 2020.

4.3 EMERY GO-ROUND

- **Interview date:** August 21st, 2024
- **Participants:**
 - Daniel Olver, Executive Director, AITrans
 - Wendy Silvani, Principal, Silvani Transportation Consulting

The City of Emeryville has been running free public shuttle service since the 1990s to connect the city to MacArthur BART Station in Oakland. At first the service was funded by a few major employers, but eventually transitioned to a property-based improvement district (PBID) funding model, where all Emeryville residents contribute based on their property tax assessments. Today, 80% of Emery Go-Round's funding comes from the PBID, 11% from the City's budget, and the rest from state and federal grants.

Emery Go-Round consists of two routes that provide local service across Emeryville and provide more bus to rail transfers at MacArthur BART than AC Transit does. However, Emery Go-Round ridership is still recovering from the pandemic, when it lost 90% of its ridership in one year. As of May 2024, Emery Go-Round had recovered to just 40% of its 2019 weekday ridership, but was up to 80% of its weekend ridership.

Key takeaways for the Berkeley Waterfront include:

- Successful shuttle services tend to rely on robust private sector financing from major employers or commercial destinations. However, once established, funding for shuttles can be transitioned into public control using mechanisms like PBIDs.
 - Shuttle service to the Berkeley Waterfront would likely need to be subsidized by major private sector institutions in either Berkeley and/or in San Francisco. The current commercial activity at the Waterfront is not likely able to support a shuttle service on its own.
- Shuttle services tend to rely primarily on commute trips, which can be carefully coordinated around timetables at rail stations or ferry terminals, but are easily disrupted by changes to employment markets and commute travel patterns.

5.0 Staff Working Group Sessions

Kittelson met with the City and Waterfront staff on May 23, 2024, to discuss the vehicle parking issues and challenges at the Waterfront. Some of the key themes from this discussion are listed below:

Parking Management

- High tides and holidays affect parking lot usage as high tides attract regular sailors and holidays attract a surge of recreational users. Nature Center and Adventure Playground are closed on City holidays.
- Waterfront Monitors play a key role in managing parking and vehicle circulation during peak times.
- Slipholder lots (e.g., M) require overnight permits, but illegal parking is common during peak times.
- There is a need for wayfinding signage to help users access the lots that are underused. The University Roundabout was identified as a potential site for decision-making and parking.
- There is a need for designated passenger drop-off and pick-up and loading and unloading zones.
- Challenges with managing large groups and bus parking on weekends. Tour buses sometimes park without a permit at the Marina Boulevard lot.

Major Destinations

- Seawall Drive View, Restaurants (Hana Japan and Skates on the Bay), Cal Sailing Club and Cesar Chavez Park are major destinations.
- Adventure Playground is popular for birthday parties and there is a need for nearby parking and loading zones to accommodate pick-ups and drop-offs.
- Cal Sailing Open House introduces many new visitors, in particular UC Berkeley students, to the Berkeley Waterfront and generates a lot of visitors (many hundreds) on event days, which occur about 10 times per year.
- Roaming Bean Coffee primarily serves existing users.
- Fishing pier used to attract large number of visitors before it closed down.

Other Modes of Transportation

- There is a need for more bike parking spaces and enhanced wayfinding signage throughout the Waterfront and especially near recreational activities.
- Inner Harbor Walkway and other areas are used for biking.
- AC Transit Bus Route 51B is popular among the UC Berkeley Students and provides students and other visitors without cars a transportation option to the Waterfront.

Upcoming projects

- Projects include South Cove West Parking Lot, Cesar Chavez Perimeter Path and restroom, restrooms upgrades, replacing D&E dock and Harbor Entrance dredging.
- Identifying a new leaseholder for the former HS Lordship building at 199 Seawall Drive is a high priority.

Potential Solutions Brainstorm

- Charging for parking should be considered though it may not be a popular option for Waterfront visitors or businesses.

- Valet parking should only be considered if it is self-sustaining and does not require ongoing funding.
- Gated parking should be self-regulated, and the exit must be secured.
- Consider shuttle to offsite parking, e.g., at Golden Gate fields and other major destinations (Amtrak and Fourth Street).

Other Considerations

- Car break-ins have been an ongoing issue - the police department's presence has reduced criminal activity at the Waterfront.
- Camera surveillance and lift gates would enhance security.
- Integrate public art and placemaking along Seawall Drive promenade.
- Non-residents contribute significantly to the Waterfront revenue.
- Dry storage at D&E Lot generates revenue, however, there may be other uses that provide greater benefit.
- Install additional electric vehicle charging stalls.

6.0 Review of Parking Counts

The parking demand at the Waterfront is inherently variable and influenced by a range of environmental, seasonal, and human factors. For instance, on sunny days, the area is likely to experience a surge in visitors, including beachgoers, sailors, and recreational users, all of whom contribute to increased parking demand. Conversely, cloudy or rainy days can lead to a significant drop in visitors, reducing the need for parking.

Additionally, peak recreational use is closely linked to natural conditions such as tides, winds, and surfing seasons. For surfers, optimal conditions may not always align with predictable weather patterns or typical peak hours, leading to fluctuating demand that can be difficult to anticipate. Similarly, other water-based activities, like boating or fishing, can see spikes in participation based on favorable weather and tide conditions.

Given these dynamics, conducting a comprehensive parking study that accurately accounts for all these variables is challenging. Normal parking evaluation methodology relies on typical conditions and average usage rates, and will likely not completely capture the complexities introduced by fluctuating weather and seasonal recreational patterns. While this document can provide a baseline understanding, it has its limitation to predict demand with precision due to the highly variable nature of Waterfront use driven by weather and natural conditions.

Kittelsohn reviewed parking counts from two data sources — Historical Count Data from May 2021 to February 2024 and All-Day Counts collected for five days in 2024.

Historical Count Data: The City of Berkeley Waterfront Monitors have been consistently collecting daily parking counts at the Waterfront since May 2021. The data is collected by counting the number of occupied spaces at each lot at 10 am and 8 pm, with the results recorded on a paper survey form that is later entered into a spreadsheet maintained by Waterfront staff. The data collection methods have been refined over time to better support parking management objectives. Kittelsohn reviewed data from 2021 to

2024. During data processing, some lots had to be merged for various reasons, such as a lack of physical boundaries between them or combined data reporting for adjacent lots. The lots that were merged are:

- F&G and H&I Lots
- South Cove East and South Cove West Lots

Limitations: The data may not reflect peak utilization which could occur outside of the hours of 10 am and 8 pm. In Spring, 2024, staff began collecting data at additional time points (2 pm and 4 pm), which was not used for this study due to the comparatively limited number of data points,

All-Day Count Data: Kittelson in partnership with Quality Counts (QC) collected hourly parking counts between 5:30 am and 9:30 pm on Saturday, and 8 am to 10 pm on Thursdays on the following dates:

- Saturday, April 6
- Thursday, April 11
- Thursday, August 1
- Thursday, August 22
- Saturday, August 24

The counts were collected using go-pro dash cams while slowly driving through all parking lots once per hour during the count period. Post-processing involves reviewing the GoPro footage and recording each vehicle parked. QC recorded the partial license plate, make, model, and color to demarcate specific individual vehicles and the time a vehicle remained in parking stall.

Limitations: The data was collected on typical Thursdays and Saturdays with pleasant weather, chosen to reflect peak Waterfront activity while avoiding any events that might skew the results.

Additionally, Kittelson with the help of Waterfront monitors conducted parking intercept surveys to understand the trip purpose and travel behavior of the visitors. More information on Parking Intercept surveys is presented in the next section.

The following section summarizes key findings from the data analysis.

6.1 PARKING INVENTORY

Based on a field survey conducted in 2024 and validated by City staff, there are 1,566 public free vehicle parking spaces throughout the Waterfront. The survey was necessary due to the presence of unstriped parking lots, making it challenging to accurately determine the number of spaces. **Table 2** presents the parking inventory (number of vehicle spaces) by lot. The inventory does not include the paid parking spaces available at the Boat Launch or Double Tree Hotel. A summary of the parking counts by location is provided in **Appendix A**.

Table 2: Parking Inventory

Lot Location	Number of Spaces	Type	Surface Type
North Facilities			
Marina Blvd	150	Unstriped	Unpaved
Spinnaker Way	127	Striped	Paved
Spinnaker Way Lot	36	Striped	Paved
D & E Lot	129	Striped	Paved
F & G Lot	63	Unstriped	Paved
H & I Lot	52	Striped	Paved
Central Facilities			
J & K Lot	92	Striped	Paved
L Lot	14	Striped	Paved
M Lot	77	Striped	Paved
South Cove East Lot	96	Striped	Paved
South Cove West Lot	86	Unstriped	Unpaved
University Avenue	25	Unstriped	Paved
South Facilities			
Skates/N Lot	137	Striped	Paved
O Lot	72	Striped	Paved
Seawall Drive North	6	Unstriped	Paved
Seawall Drive South	84	Partially Striped	Paved
Seawall Lot	320	Striped	Paved
Total Public Parking Spaces	1,566		

Source: Kittelson & Associates, Inc.

6.1.1 Bicycle Parking Inventory

There are 149 short-term bicycle parking spaces located in racks across the site and 10 BikeLink lockers for secure bike storage located near the Bait Shop and Hana Japan. As shown in **Figure 5**, most of the bike parking is located near the major destinations near central and south vehicle parking facilities.



Source: Quality Counts, 2024, Source: City of Berkeley, MTC

LEGEND

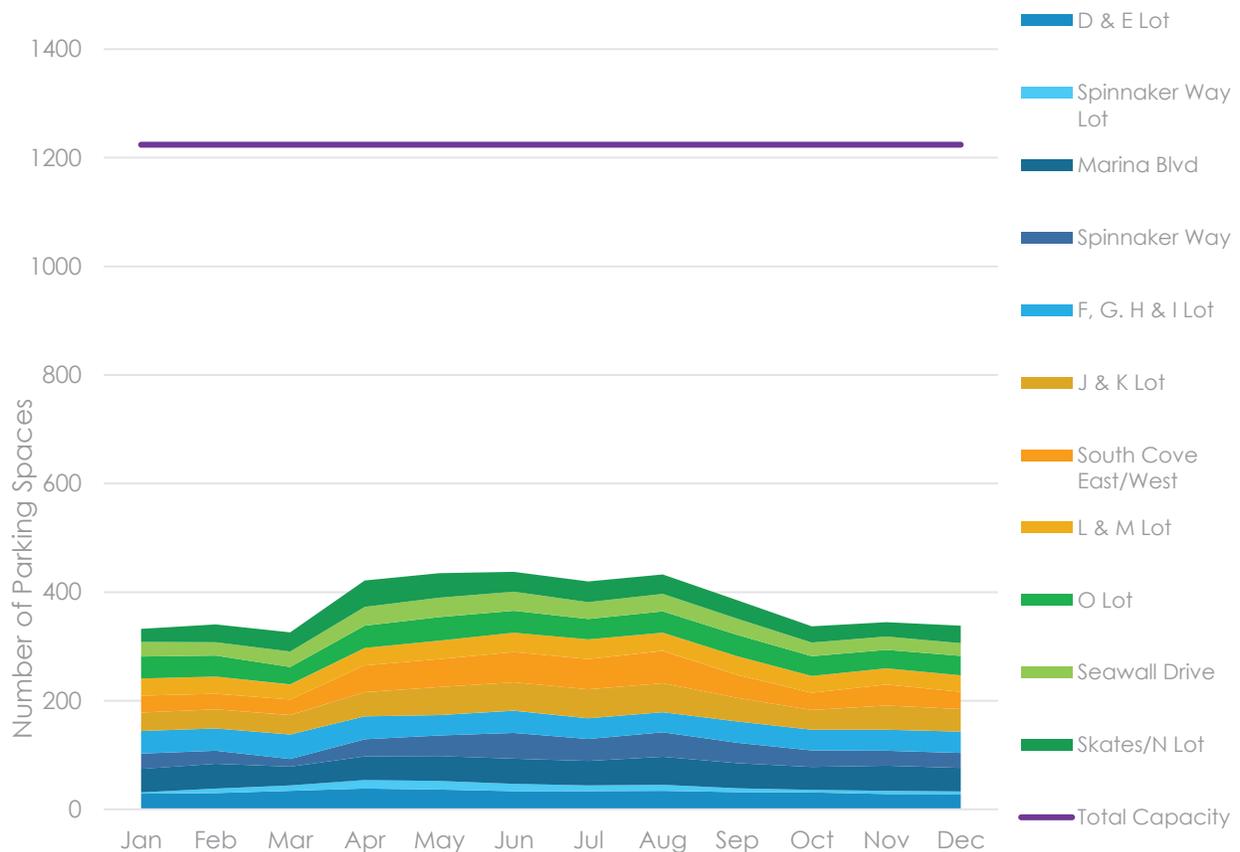
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6.2 HISTORICAL COUNT DATA

6.2.1 Parking Utilization by Month

Figure 6 shows the average monthly parking utilization at the Waterfront. The highest utilization occurs during the late spring and summer seasons, with the peak occurring in June, where 36% (440) of the total public parking spaces were occupied. Overall, the total occupancy rate fluctuates between 26% (318) and 36% (440) over the two time periods of data collection.

Figure 6: Parking Utilization by Month (2021-2024)



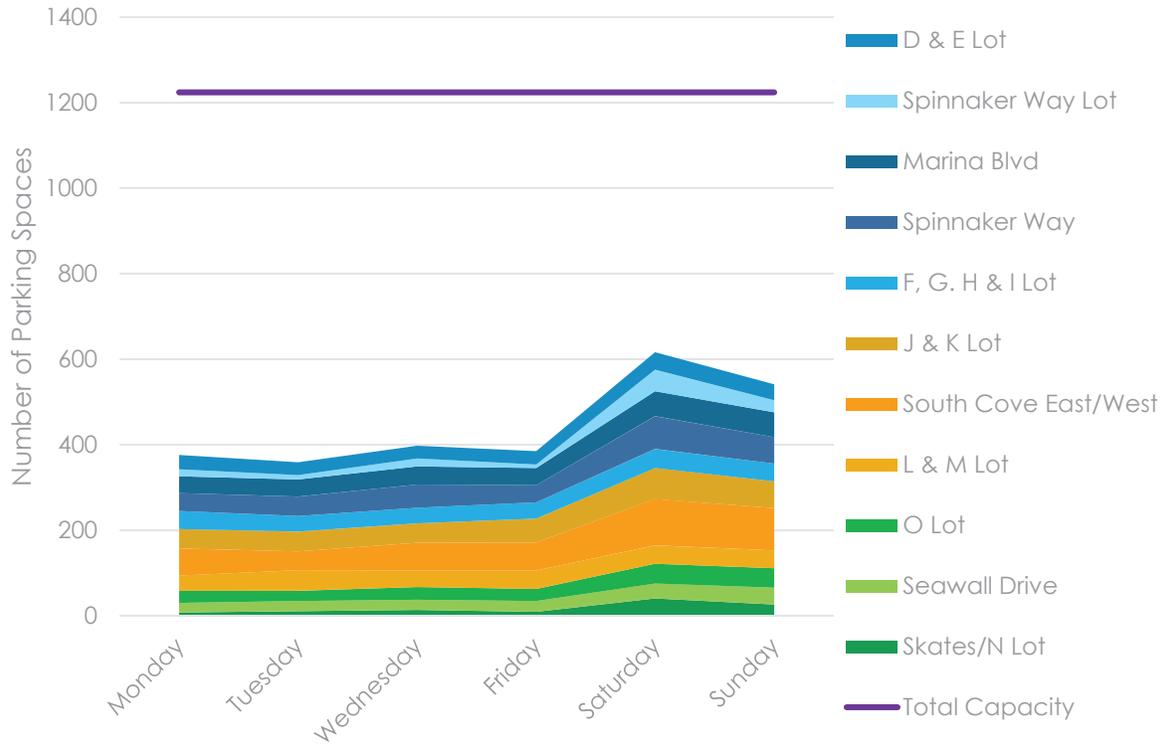
Source: Daily Parking Counts by Waterfront Staff 2021-2024, Data Compiled by Kittelson & Associates, Inc. 2024

Note: Data does not include Seawall Drive Lot and University Avenue (320 + 25 parking spaces) in counts or capacity.

6.2.2 Parking Utilization by Day

Figure 7 depicts daily parking utilization by day at the Waterfront for the peak month of June. Utilization peaks on weekends, with Saturday experiencing up to 50% occupancy across the entire waterfront. Significant increases in weekend usage are observed in the Launch Ramp-Public, J&K Lot, South Cove East and West, O Lot, and Skates/N Lot, likely due to the increase in the number of water-based recreational and restaurant visitors.

Figure 7: Parking Utilization by Day (June)



Source: Parking Counts by Waterfront Staff, Data Compiled by Kittelson & Associates, Inc. 2024

Note: Data does not include Seawall Drive Lot and University Avenue (320 + 25 parking spaces) in counts or capacity.

6.3.3 Parking Availability on Weekdays

Figure 8 shows the average parking occupancy by lots on weekdays. Only J & K Lot is more than 50% occupied during the peak month of June.



Source: City of Berkeley, MTC

LEGEND

- B
- D
- /

- 10%
- 10 - 50%
- 50%

6.3.4 Parking Availability on Weekends

As seen in **Figure 7**, the parking utilization during weekend is higher than weekdays. **Figure 9** shows the average parking occupancy on weekends during the month of June.

Figure 10 compares parking utilization on an average Saturday with that of the peak Saturday on April 1, 2023. The comparison reveals that certain lots had more than double the occupancy on the peak Saturday compared to an average Saturday. Nevertheless, even on the peak Saturday, overall Waterfront public parking was 75% occupied with 306 spaces remaining. During the peak Saturday, centrally located lots observed 82% occupancy, while South Cove East/West reached full occupancy at 100%.



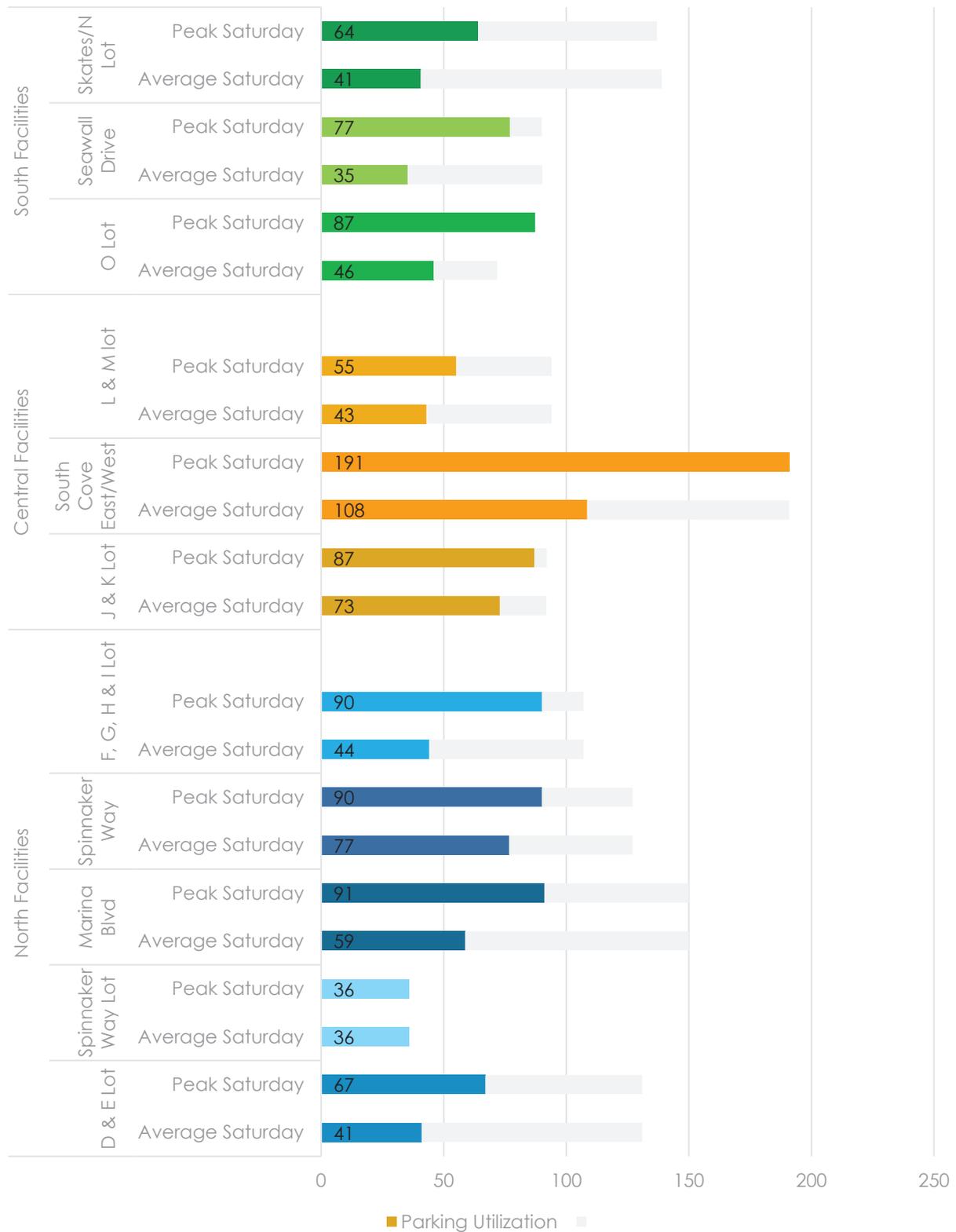
LEGEND

- B
- D
- /

- 40%
- 40 - 60%
- 60%

Source: City of Berkeley, MTC

Figure 10: Parking Utilization on Weekends (Average Saturday vs Peak Saturday)



Source: Parking Counts by Waterfront Staff, Data Compiled by Kittelson & Associates, Inc. 2024
 Note: Data does not include Seawall Drive/ Shorebird Lot.

6.3.5 Parking Utilization at Seawall Drive Lot

The Seawall Drive Lot (also commonly known as the HS Lordship Lot) was analyzed separately as the data collection was conducted on fewer days than other lots due to lot closures for public safety. The Waterfront staff will open the gates to the parking lot only as needed, for example, during peak summer months and during camp drop off times. Based on the available parking counts, the lot was 21% (67 spaces of 318 available) occupied on an average Saturday.

Figure 11: Gates at Seawall Drive Lot



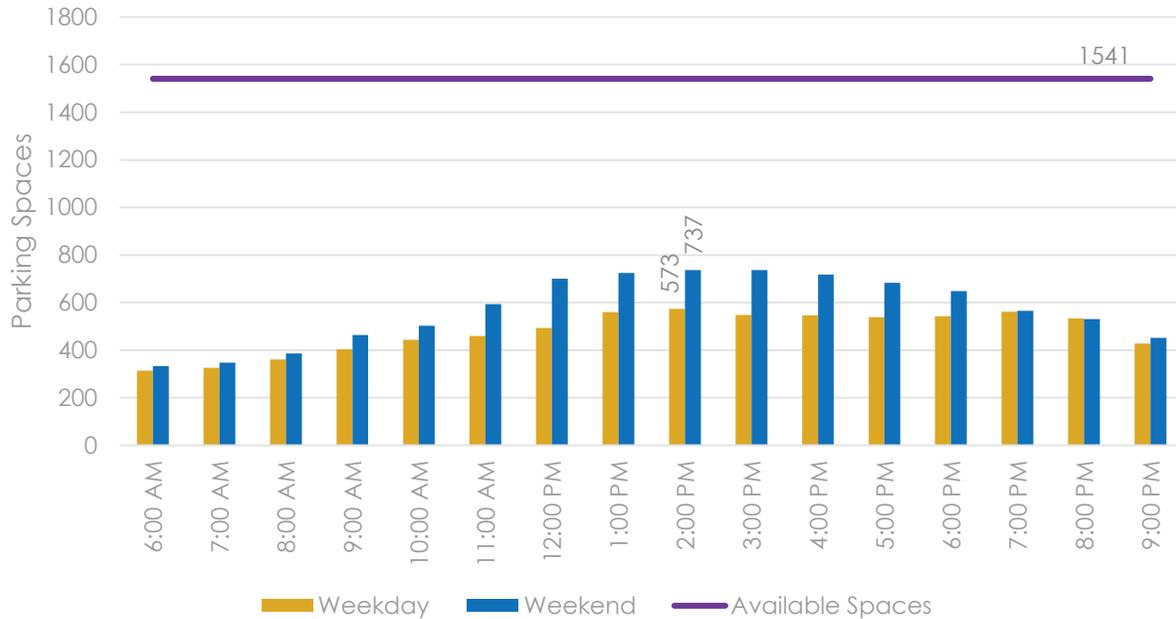
6.4 ALL DAY COUNT DATA

Quality Counts collected hourly parking counts on three weekdays and two weekends as mentioned in the introduction of this section. The hourly counts were collected to understand the parking turnover and duration at each public parking location.

6.4.1 Hourly Parking Demand

Figure 12 displays the number of parking spaces occupied at the Waterfront each day. The parking utilization is higher on weekends compared to weekdays, especially during midday hours (10 am – 2 pm). The peak usage occurred at 2 pm on weekends (48% occupied, 737 spaces) and weekdays (37% occupied, 573 spaces).

Figure 12: Parking Occupancy by Time of Day

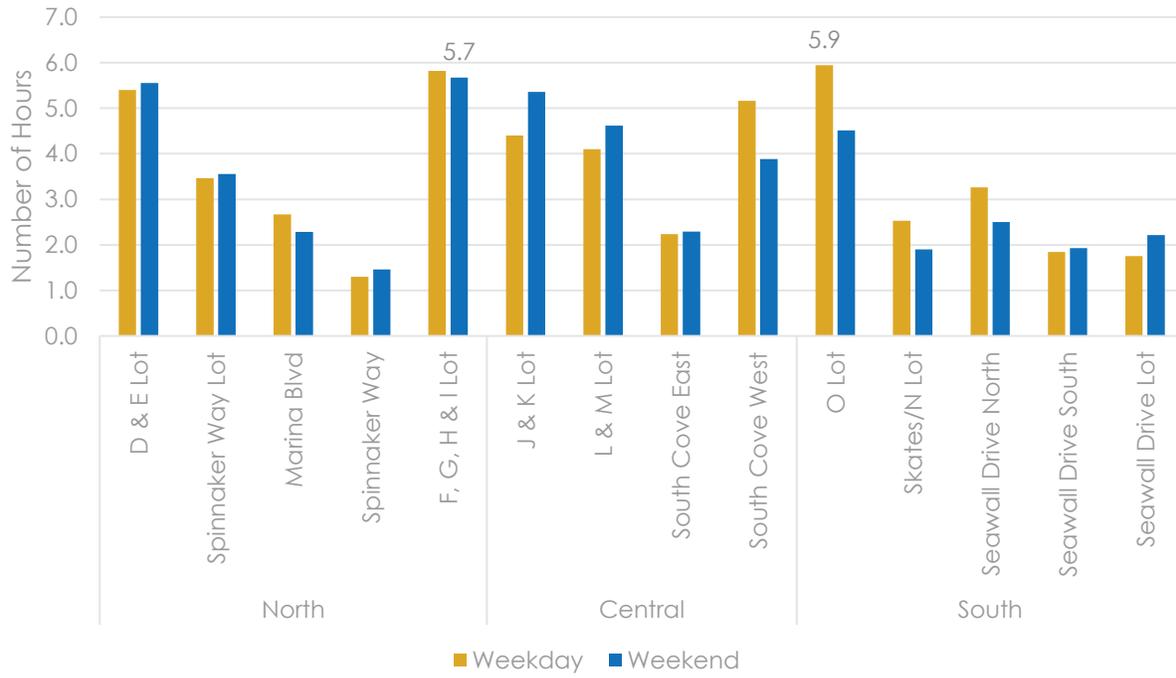


Source: Kittelson & Associates, Inc. 2024

6.4.2 Parking Duration

Parking duration indicates the average time a car remains parked in a space. **Figure 13, Figure 14** and **Figure 15** shows the parking duration by lot for both days. On Thursday, the O Lot had the highest average parking duration at approximately 6 hours. Additionally, the D&E Lot, F, G, H & I Lot, J & K Lot and L&M Lot all recorded vehicles being parked for over 4 hours on both days.

Figure 13: Parking Duration by Lot (Weekday vs Weekend)



Source: Kittelson & Associates, Inc. 2024



Source: City of Berkeley, MTC



LEGEND

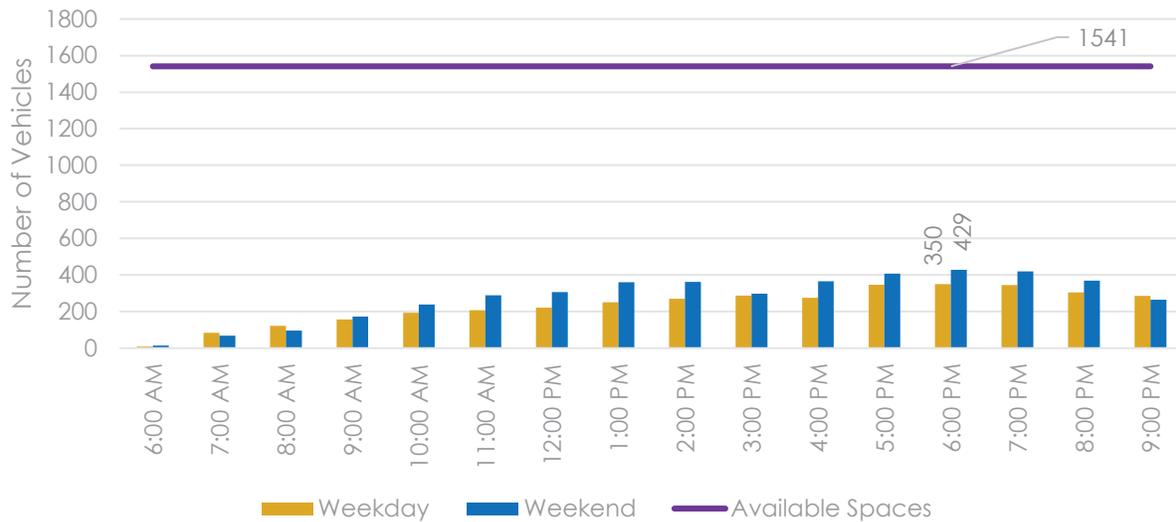
- | | |
|-------|-----|
| □ B | () |
| — D | 0-2 |
| - - / | 2-4 |
| | 4-6 |

Source: City of Berkeley, MTC

6.4.3 Parking Turnover

Parking turnover refers to the number of parking spaces that either become occupied or vacated within a given period, reflecting the rate of use of a facility. For example, if two cars leave a parking lot and two new cars park in the same lot, the turnover value for that lot would be 4. **Figure 16** shows the total waterfront public parking turnover by time of day. The turnover is higher on Saturday as compared to Thursday and between 4 pm and 7 pm. On weekends, the highest turnover occurred at 6 pm with 28% (429 turnovers) of the total available spaces.

Figure 16: Parking Turnover by Time of Day



Source: Kittelson & Associates, Inc. 2024

7.0 Intercept Survey

To understand the trip purpose and parking habits of Waterfront visitors, Kittelson, with the help of Waterfront monitors, conducted parking intercept surveys on seven days between April and August 2024. The dates and times of the completed surveys are listed in **Table 3**. The surveys were administered in-person to gather firsthand insights into participants' parking concerns. Respondents were given the option to skip questions if they felt uncomfortable answering them. This section presents summary of the findings from the analysis of 455 responses. The survey questionnaire is included in **Appendix B**.

Table 3: Parking intercept survey dates

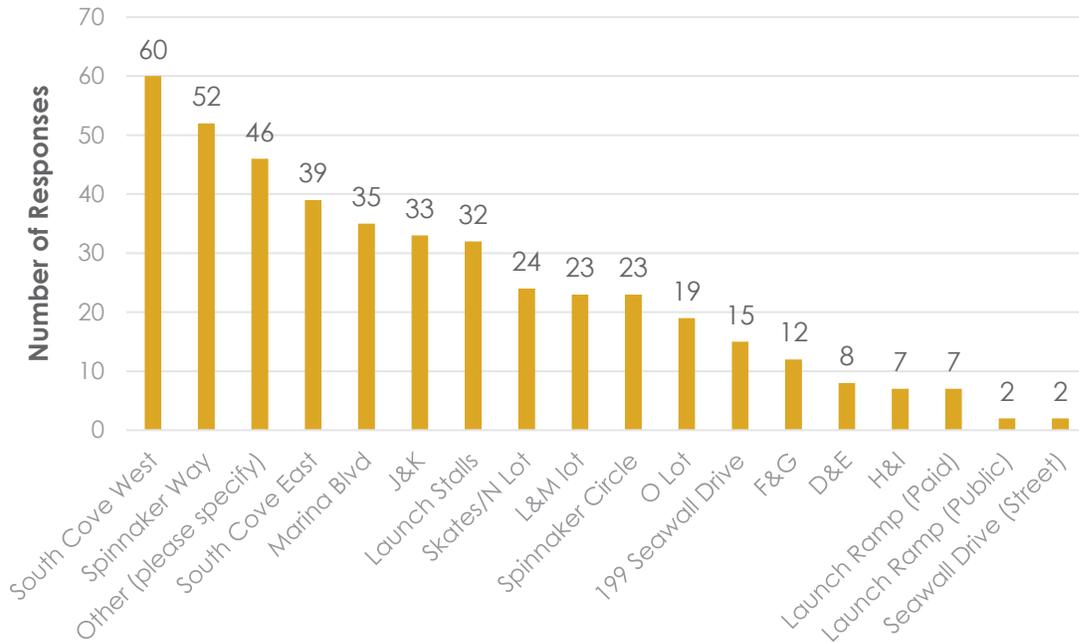
Survey No.	Survey Date	Survey Time
1	Saturday, April 6th	12:00 pm – 4:00 pm
2	Thursday, July 18th	3:30 pm – 7:30 pm
3	Thursday, August 1st	3:30 pm – 7:30 pm
4	Saturday, August 17th	12:00 pm – 4:00 pm
5	Thursday August 22nd	3:30pm – 7:30 pm
6	Saturday, August 22nd	12:00 pm – 4:00 pm
7	Tuesday, August 27th	3:30 pm – 7:30 pm

Source: Kittelson & Associates, Inc. 2024

7.1 SURVEY RESPONSE SUMMARY

Figure 17 shows the number of responses by lot names. The highest number of responses were received from the Northern facilities (41%), followed by Central facilities (35%).

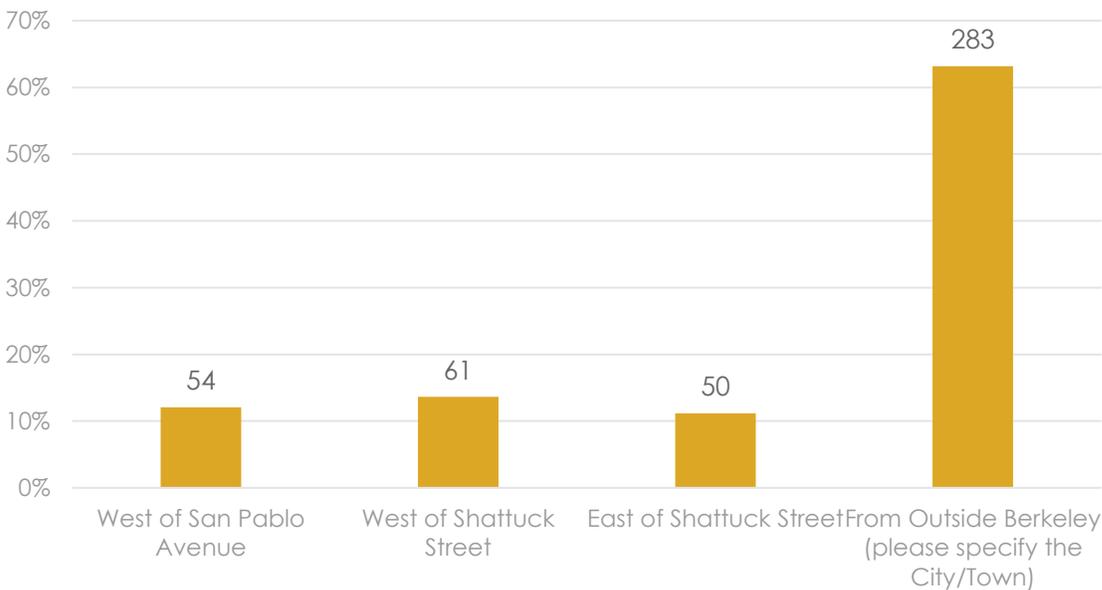
Figure 17: Parking lot location



Number of responses: 437
 Source: Kittelson and Associates, Inc. 2024

Figure 18 shows the location of the respondent. Approximately 63% (283) of the respondents came from Outside of Berkeley which included visitors from Oakland, San Francisco, Emeryville and Walnut Creek.

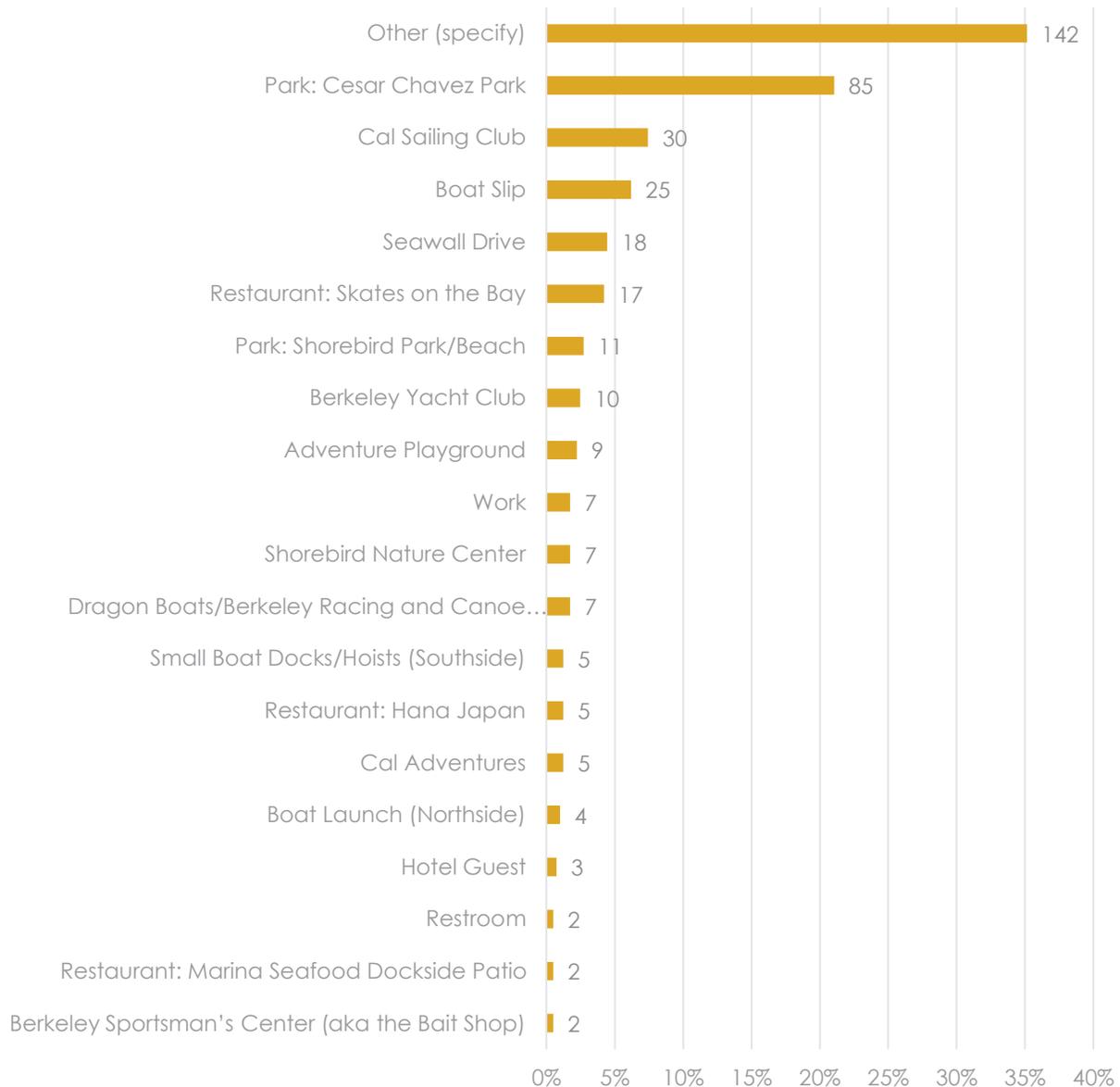
Figure 18: Where do you live?



Number of responses: 448
 Source: Kittelson and Associates, Inc. 2024

The parking intercept survey reached a wide range of Berkeley Waterfront visitors, with the most popular visitor destinations including Cesar Chavez Park (21% of respondents), Cal Sailing Club (7%), and boat slips (6%), as shown in **Figure 19**. The rest of responses were scattered across a wide array of destinations, including specific institutions at the Waterfront.

Figure 19: What is the name of the destination that you are visiting today?



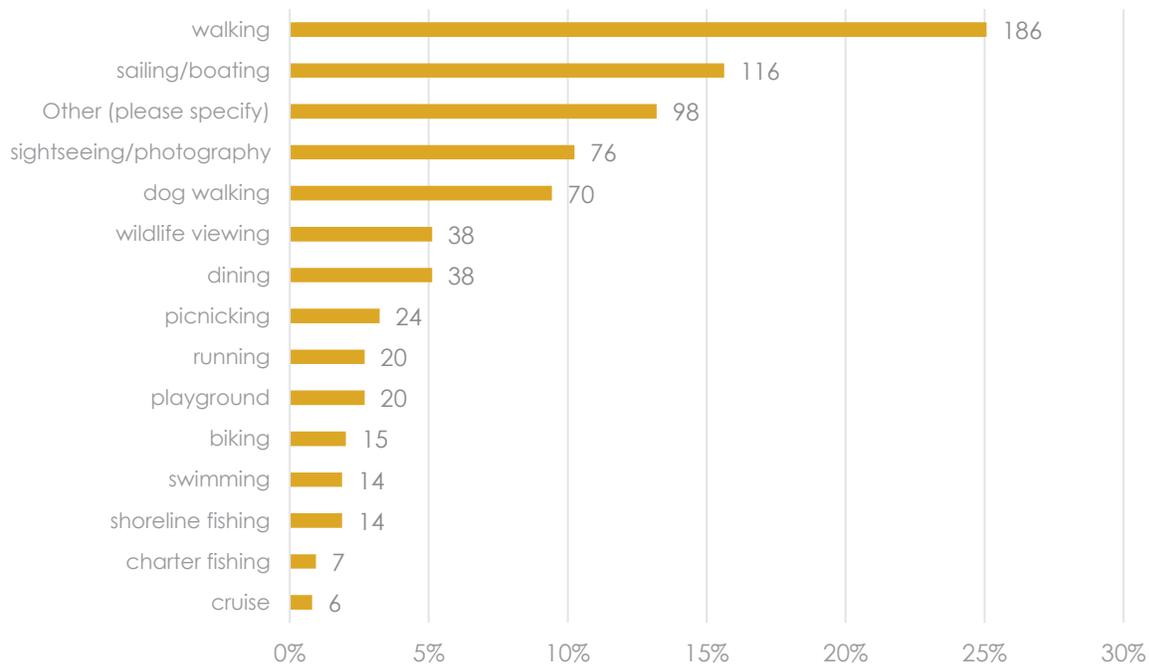
Note: 38% of respondents listed a destination not included in the set list of options. Chart only includes destinations listed more than once. "Work" category includes: "deck hand, commercial fishing captain, hotel employee, etc."

Number of responses: 404

Source: Kittelson and Associates, Inc. 2024

The most common activities were consolidated among outdoor recreation, including walking, sailing/boating, and sightseeing / photography, which together made up around 50% of responses, see **Figure 20**. However, respondents visited the Waterfront for a wide variety of reasons, with almost 100 noting that they made their trip for a reason other than options offered in the survey.

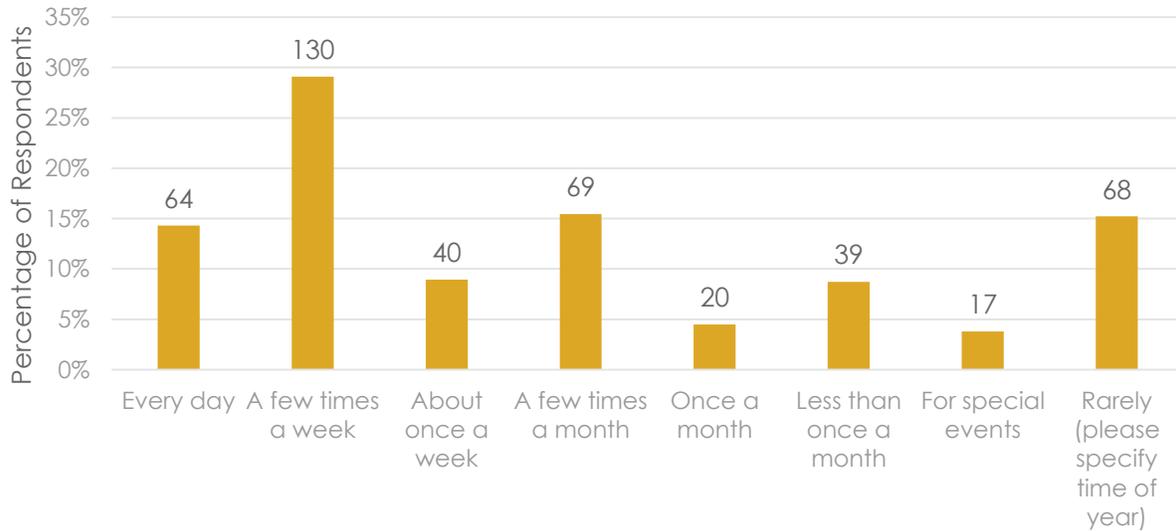
Figure 20: What brings you to the Waterfront?



Number of responses: 742 (Respondents were allowed to select multiple options)
Source: Kittelson and Associates, Inc. 2024

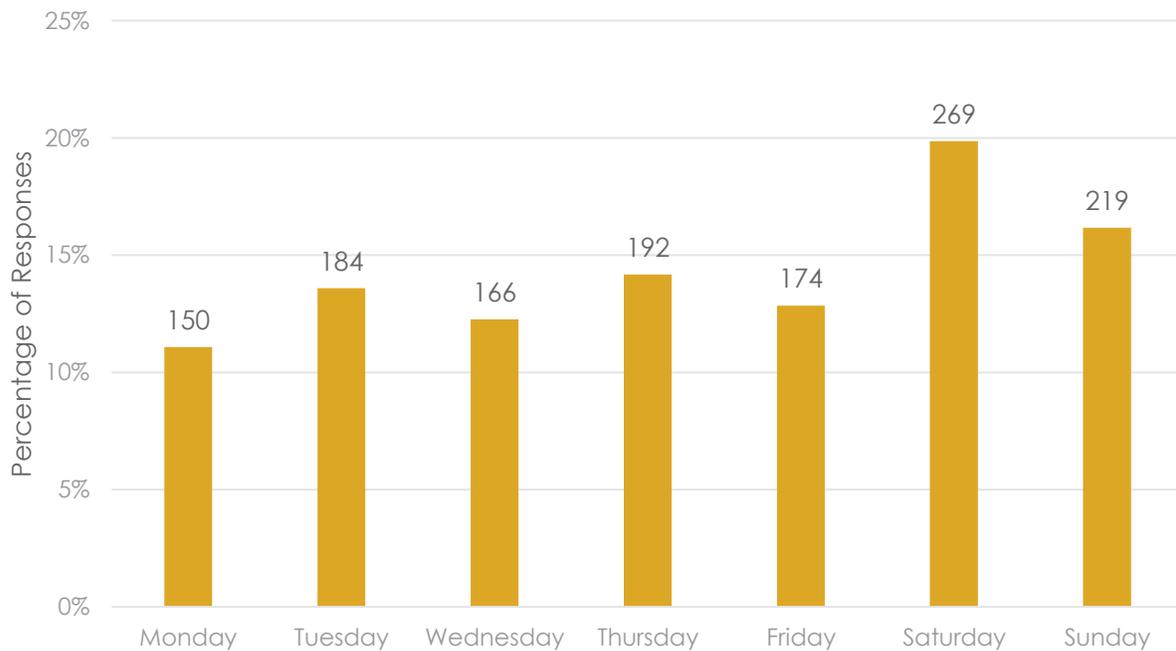
Respondents tended to visit the Waterfront often, with over 50% noting that they visited at least once a week or more (**Figure 21**), and with Saturday (approximately 20%) being the most visited day by the respondents (**Figure 22**).

Figure 21: How frequently do you visit the Waterfront?



Number of responses: 447
Source: Kittelson and Associates, Inc. 2024

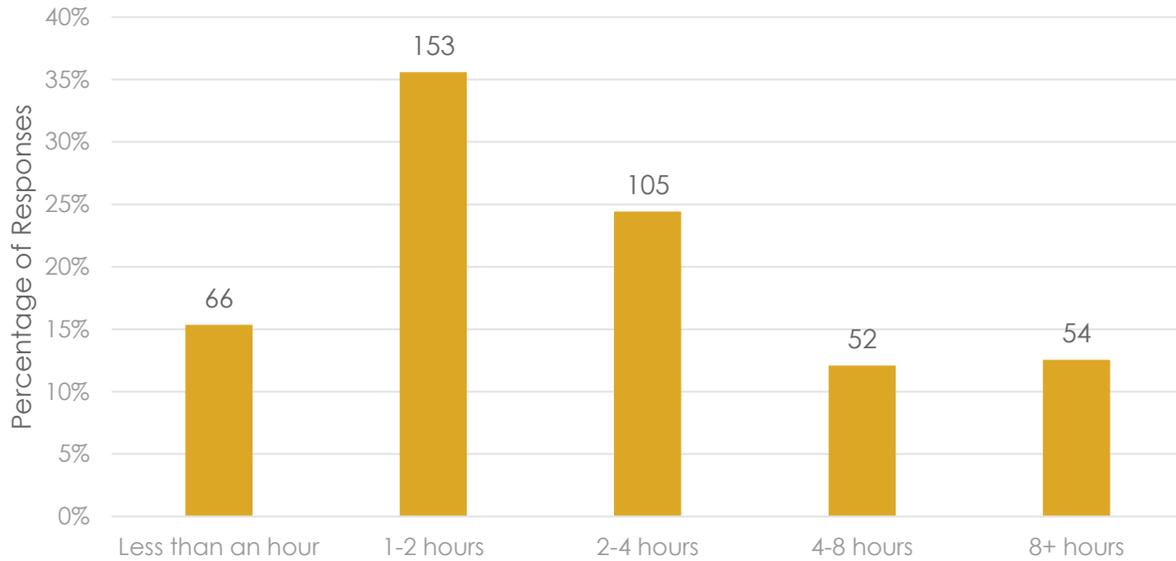
Figure 22: Typical days that you visit the Waterfront? (select all that apply)



Number of responses: 1,354 (Respondents were allowed to select multiple options).
Source: Kittelson and Associates, Inc. 2024

Figure 23 illustrates the duration of time respondents parked for their activities. The largest group (35%) parked for 1-2 hours, with 153 respondents. This is followed by 2-4 hours (24%), reported by 105 respondents.

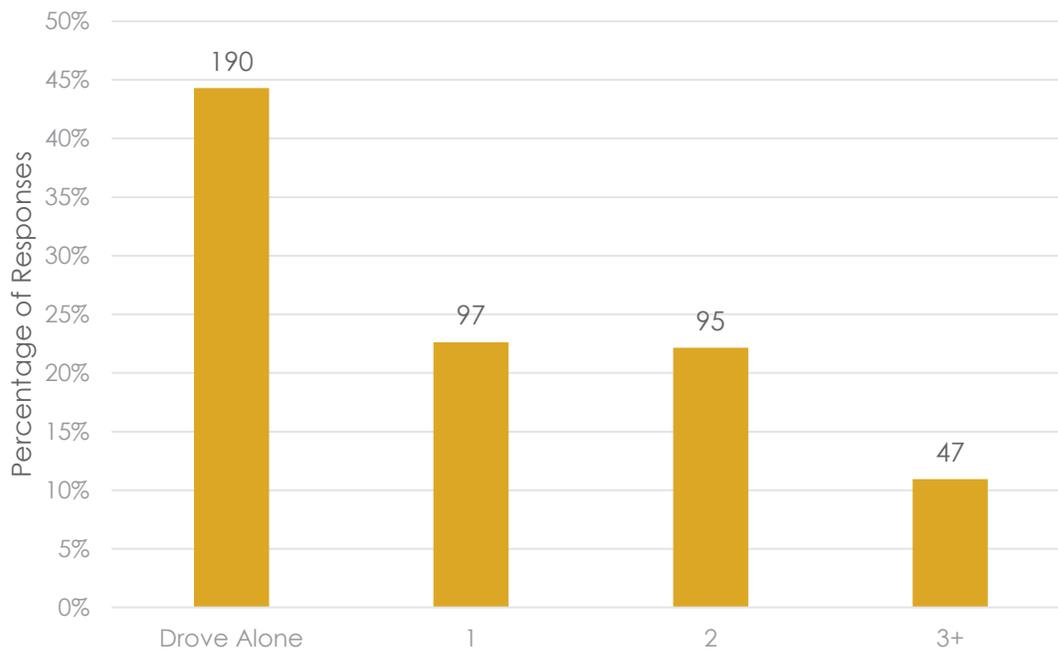
Figure 23: How long did you park for your activity today?



Number of responses: 430
Source: Kittelson and Associates, Inc. 2024

Respondents primarily drove alone to the Waterfront, with 44% stating that they had no other passengers in the vehicle, while 22% stated that they drove with one passenger (**Figure 24**).

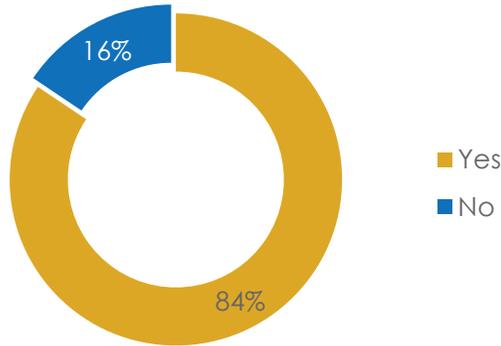
Figure 24: How many passengers other than you were there in your vehicle?



Number of responses: 429
Source: Kittelson and Associates, Inc. 2024

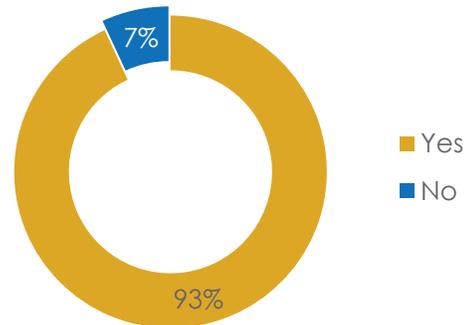
Waterfront visitors indicated that they have predictable and easy parking on their visits. 84% typically park in the same location, 93% said the parking is close to their destination, and 90% mentioned they were able to park quickly near their destination (**Figure 27**).

Figure 26: Do you normally park at this location?



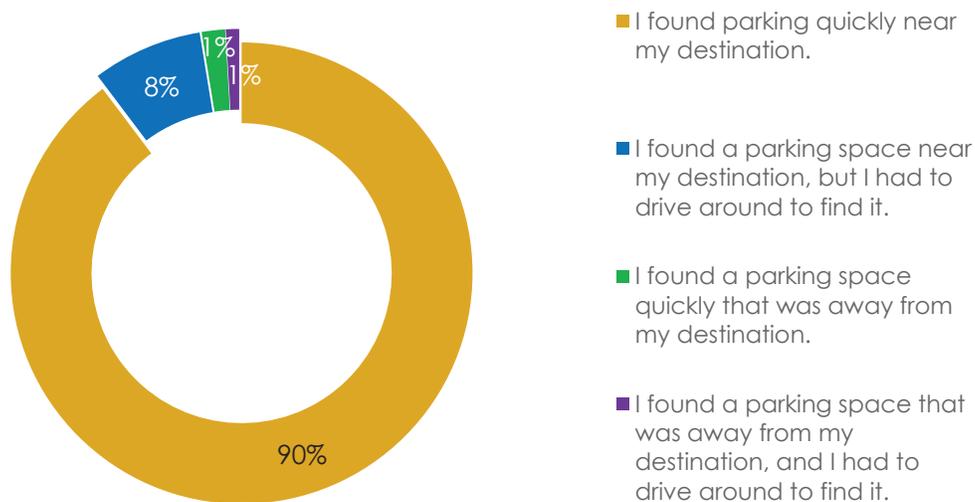
Number of responses: 417
Source: Kittelson and Associates, Inc. 2024

Figure 25: Did you park near your destination?



Number of responses: 419
Source: Kittelson and Associates, Inc. 2024

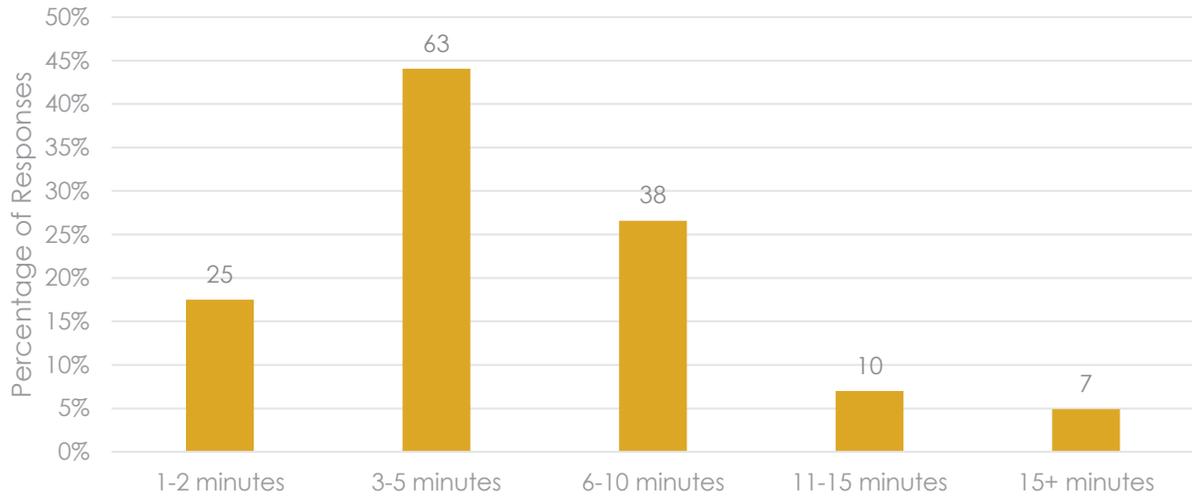
Figure 27: How was your experience of finding parking today?



Number of responses: 428
Source: Kittelson and Associates, Inc. 2024

Figure 28 illustrates how far respondents are willing to walk from their parking spot to their destination, based on 143 responses. The majority (44%) are willing to walk 3-5 minutes, followed by 27% who are comfortable with a 6–10-minute walk. The average reported walking time is 7.3 minutes, and the median is 5 minutes.

Figure 28: How far are you willing to walk from the parking spot to your destination?



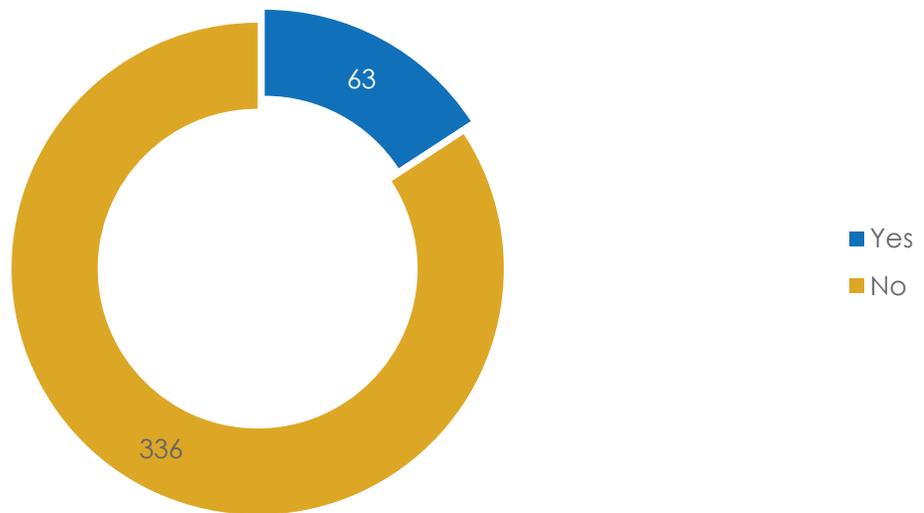
Note: Mean response = 7.3 minutes, median response = 5 minutes, responses answered in distance were converted to minutes based on an average walking pace of 3mph.

Number of responses: 143

Source: Kittelson and Associates, Inc. 2024

84% of respondents said that they had never cancelled a trip to the Berkeley Marina out of concern that they would be unable to park (Figure 29).

Figure 29: Have you ever cancelled your visit to the Waterfront because you could not park here?

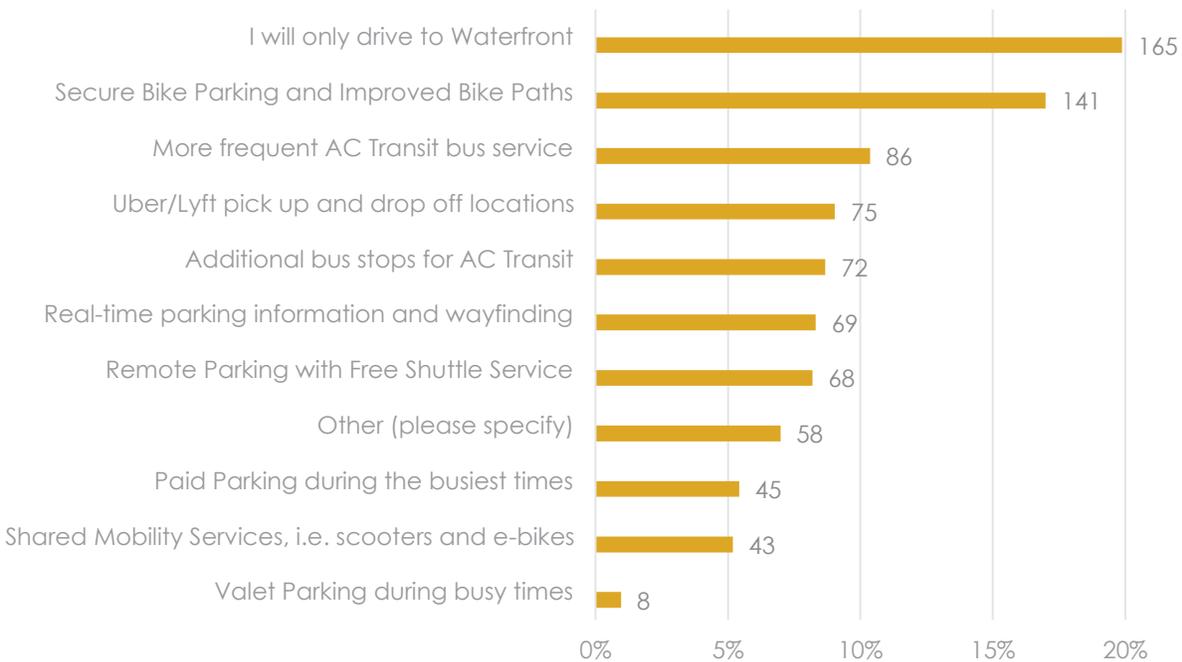


Number of responses: 399

Source: Kittelson and Associates, Inc. 2024

When asked about future methods for accessing the Waterfront, respondents were open to a variety of methods, including secure bike parking and improve bike paths (17%), more frequent AC Transit bus service (10%), and Uber/Lyft pick up and drop off locations (9%). However, a sizeable portion of respondents (20%) indicated that they would only ever drive to the Waterfront (**Figure 30**).

Figure 30: What method would you likely use in the future to reduce cars at the Waterfront? (Select all that apply)



Number of responses: 830, (Respondents were allowed to select multiple options)
Source: Kittelson and Associates, Inc. 2024

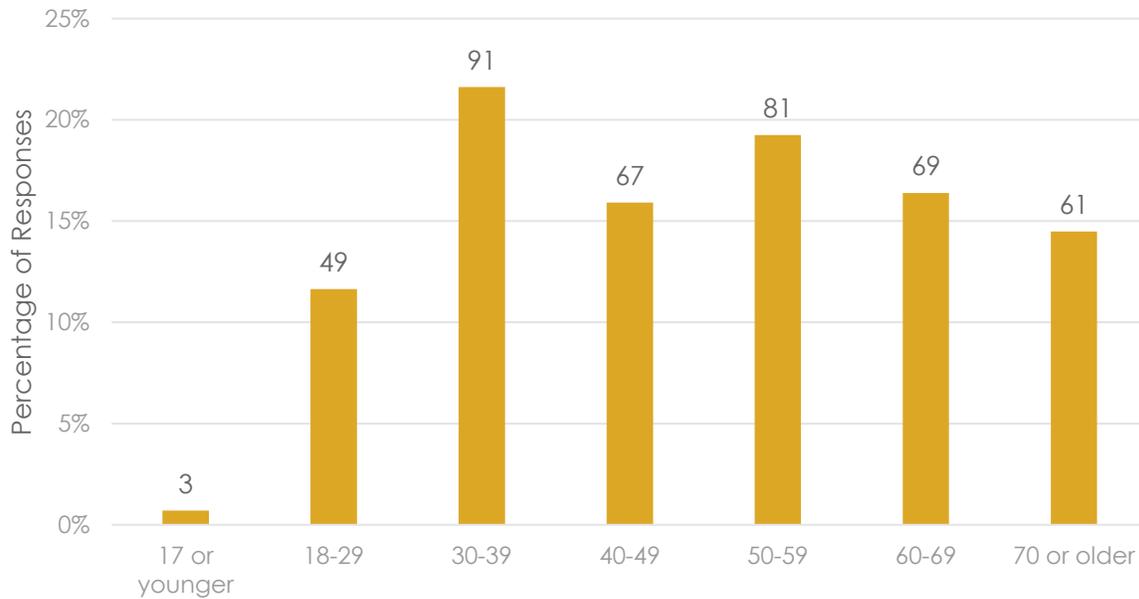
Along with the quantifiable responses to the parking intercept survey questions, respondents provided a plethora of written feedback and engaged in extensive conversation with surveyors about the Waterfront, the Pier Ferry Project, and their own travel patterns. Common responses include, “older people want to be able to drive, parking is usually plentiful,” indicating a trepidation over future limitations on accessibility. Many responses also called out the needs of specific waterfront hobbyists who feel they will be impacted by a ferry: “Please keep waterfront available and FREE to the Berkeley Community and open for boating and sailing people.” However, survey takers generally held the Berkeley Waterfront in high regard as a place where they could recreate peacefully and escape the bustle of their everyday lives, even if this often manifested in hostile attitudes towards the prospect of the Waterfront changing in any way. Many handwritten comments include frustration with the Pier Ferry Project and antagonism towards paid parking at the Waterfront, but very few cite parking occupancy as a problem. This dynamic is put simply but when respondent: “Parking isn't hard. Paid parking would be a deterrent.”

Based on the other results of the parking intercept survey, it appears that high parking occupancy is rarely, if ever a barrier for visitor access to the Waterfront. It seems that the existing parking facilities at the Waterfront are able to accommodate the Marina’s current recreational uses, and with tailored TDM strategies, could be minimally impacted by the introduction of ferry service to the Waterfront.

7.1.1 Demographics

Kittelsohn staff and Waterfront monitors were able to successfully reach a diverse set of respondents with the parking intercept survey. Each age bracket of driving age was represented by between 12% and 22% of respondents (**Figure 31**).

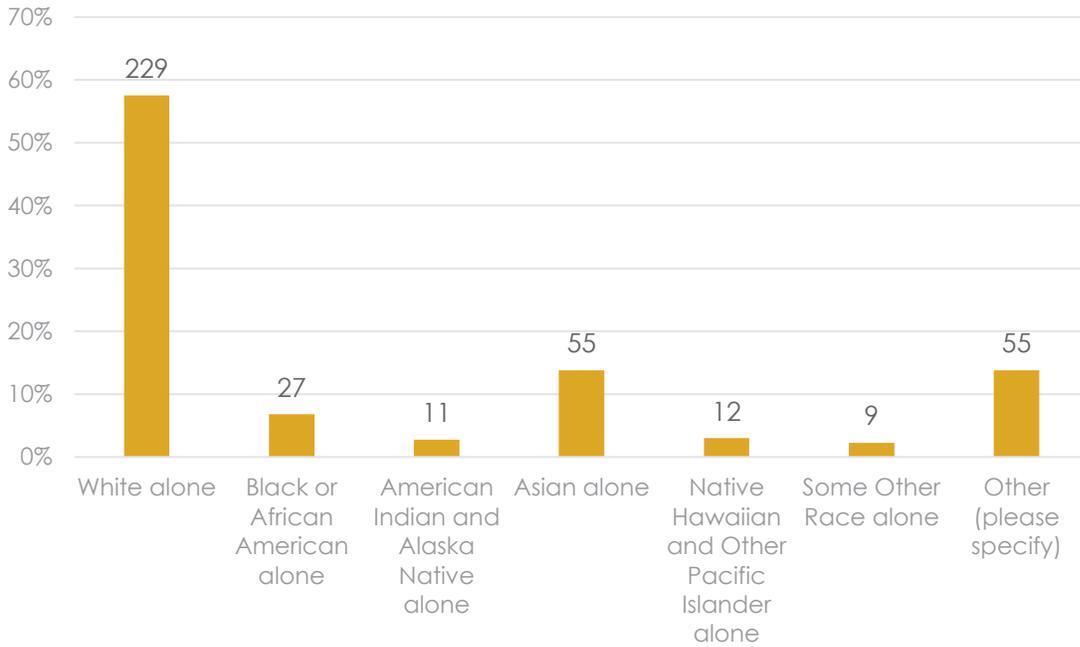
Figure 31: Which category below includes your age?



Number of responses: 421
Source: Kittelson and Associates, Inc. 2024

Figure 32 and **Table 4** show how, though respondents predominantly identified as White alone (58%), the general makeup of respondents roughly reflects that of the City of Berkeley. This is an important reference point, however visitation to the Waterfront does not necessarily reflect the demographics of the rest of the City. As shown in **Figure 18**, 63% of survey respondents noted that they lived outside of the City of Berkeley. Approximately 84% of respondents identified as non-Hispanic or non-Latino (**Figure 33**).

Figure 32: How do you identify your race/ethnicity?



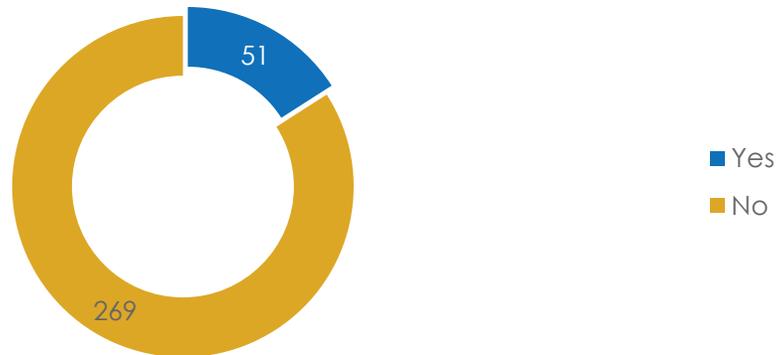
Number of responses: 398
Source: Kittelson and Associates, Inc. 2024

Table 4 Race and ethnicity of survey respondents, compared with City of Berkeley

Race / Ethnicity	Survey Responses	City of Berkeley
White alone	57.5%	55.5%
Black or African American alone	6.8%	7.8%
American Indian and Alaska Native alone	2.8%	0.7%
Asian alone	13.8%	20.8%
Native Hawaiian and Other Pacific Islander alone	3.0%	0.2%
Other (please specify)	16.08%	9.8%
Hispanic or Latino	15.9%	12.1%

Source: Kittelson and Associates, Inc. 2024, 2023 ACS 5-Year Estimates

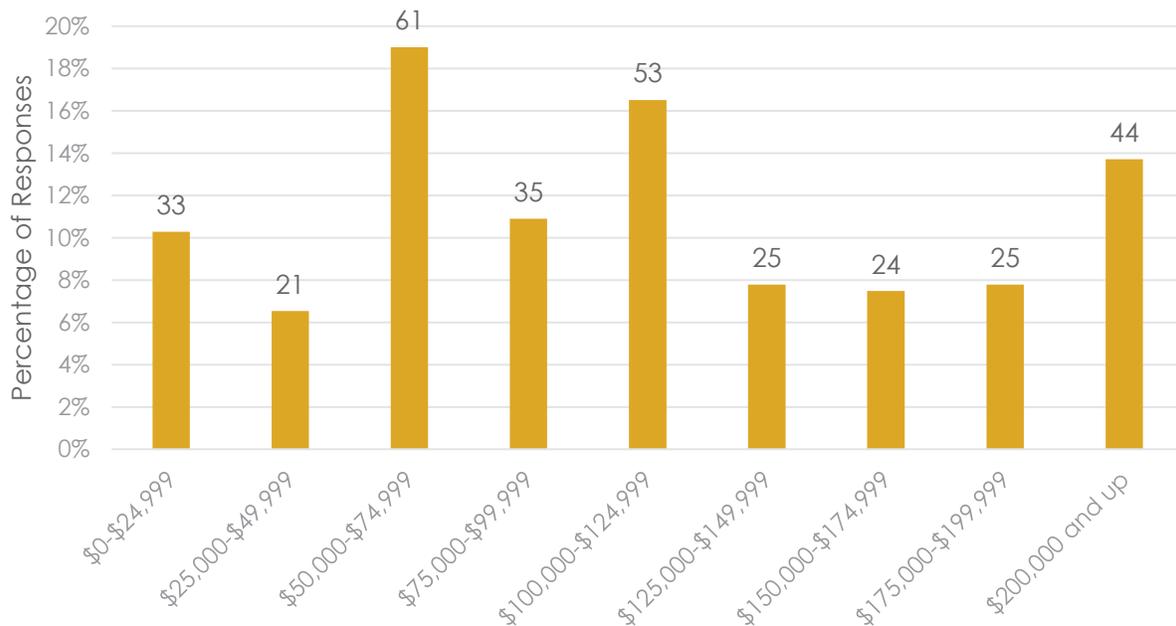
Figure 33: Are you of Hispanic or Latino origin or descent?



Number of responses: 320
Source: Kittelson and Associates, Inc. 2024

Figure 34 illustrates the average household income of the respondent. The largest group indicated that their household earned between \$50,000 and \$75,000, while the next two highest brackets were \$100,000 - \$125,000 and \$200,000+. These figures compare to a Berkeley median household income of around \$95,000 in 2023.⁵

Figure 34: What is your approximate average household income?



Number of responses: 321
Source: Kittelson and Associates, Inc. 2024

⁵ 2023 ACS 5-Year Estimate

Appendix A : Waterfront Parking Counts and Rules

Berkeley Waterfront Existing Parking Count & Rules | August 2024

Waterfront Parking Stalls	# Stalls	Percent of Total
Total Waterfront Parking Stalls	2219	100%

Public Street Name	# Stalls	Rules
Marina Blvd	150	No Parking 2am - 6am Max 72 hour*
Seawall Drive North	6	No Parking 2am - 6am Max 72 hour*
Seawall Drive South	84	No Parking 2am - 6am Max 72 hour*
Spinnaker Way	127	No Parking 2am - 6am Max 72 hour*
University Avenue	25	No Parking 2am - 6am Max 72 hour*
Public Street Spaces	392	18%

Public Lot Name	# Stalls	Rules
J & K Lot	92	Max 72 hour* Boater Permit required 12am to 10am
L Lot	14	Max 72 hour* Boater Permit required 12am to 10am
Launch Ramp Paid	76	Paid Boat Launch Access/Trailer Lot: \$17/day
M Lot	77	Max 72 hour* Boater Permit required 12am to 10am
O Lot	72	Max 72 hour* Boater Permit required 12am to 10am
Seawall Drive Lot	320	Open for periods of high demand
Skates/N Lot	137	Max 72 hour* Boater Permit required 12am to 10am
South Cove East Lot	96	Open 9am - 11pm weekdays and 5am-11pm weekends
South Cove West Lot	86	Max 72 hour*
Spinnaker Way Lot	36	Max 72 hour*
Public Lot Spaces	1006	45%

Boater Lot	# Stalls	Rules
D & E Lot	129	Boater Permit required Max 72 hour*
F & G Lot	63	Boater Permit required Max 72 hour*
H & I Lot	52	Boater Permit required Max 72 hour*
Dry Boat Storage Lot	73	No car parking/Boater Permit required
Boater Spaces	317	14%

Limited Parking Area	# Stalls	Rules
Berkeley City Vehicle Parking	10	No public parking
Berkeley PD Leased Lot	47	No public parking
Doubletree Leased Lot	408	Available to public \$8-\$38/day \$40/overnight
Marine Center Leased Lot	39	No public parking
Limited Parking Spaces	504	23%

*Per Berkeley Municipal Code. All other parking rules are City policy.

Created August 12, 2024



Appendix B : Survey Questionnaire

General Questions

1. Date and Time of Parking

- Date: _____
 Time: _____ am pm

2. Parking Lot Location

3. Where do you live? (see map)

- West of San Pablo Avenue
 West of Shattuck Street
 East of Shattuck Street
 From Outside Berkeley
(please specify the City/Town)



Destination and Duration

4. What is the name of the destination that you are visiting today?

5. What brings you to the Waterfront? (Select all that apply)

- | | |
|--|--|
| <input type="checkbox"/> sailing/boating | <input type="checkbox"/> swimming |
| <input type="checkbox"/> sightseeing/photography | <input type="checkbox"/> dining |
| <input type="checkbox"/> dog walking | <input type="checkbox"/> charter fishing |
| <input type="checkbox"/> shoreline fishing | <input type="checkbox"/> running |
| <input type="checkbox"/> picnicking | <input type="checkbox"/> playground |
| <input type="checkbox"/> biking | <input type="checkbox"/> walking |
| <input type="checkbox"/> wildlife viewing | |
| <input type="checkbox"/> cruise | |

Other (please specify)

6. How frequently do you visit the Waterfront?

- Every day
 A few times a week About once a week
 A few times a month Once a month
 Less than once a month For special events
 Rarely (please specify time of year)

7. Typical days that you visit the Waterfront? (Select all that apply).

- Monday Tuesday Wednesday
 Thursday Friday Saturday Sunday

8. How long did you park for your activity today?

- Less than an hour
 1-2 hours
 2-4 hours
 4-8 hours
 8+ hours

9. How many passengers other than you were there in your vehicle?

- Drove Alone 1 2 3+

10. Do you normally park at this location?

- Yes No

11. Did you park near your destination?

- Yes No

Parking Experience and Recommended Strategies

12. How was your experience of finding parking today?

- I found parking quickly near my destination.
- I found a parking space near my destination, but I had to drive around to find it.
- I found a parking space quickly that was away from my destination.
- I found a parking space that was away from my destination, and I had to drive around to find it.

13. How far are you willing to walk from the parking spot to your destination?

14. Have you ever cancelled your visit to the Waterfront because you could not park here?

- Yes No

15. What method would you likely use in the future to reduce cars at the Waterfront? (Select all that apply)

- Secure Bike Parking and Improved Bike Paths
- Uber/Lyft pick up and drop off locations
- Additional bus stops for AC Transit
- More frequent AC Transit bus service
- Real-time parking information and wayfinding
- Remote Parking with Free Shuttle Service
- Shared Mobility Services, i.e. scooters and e-bikes
- Paid Parking during the busiest times
- Valet Parking during busy times
- I will only drive to Waterfront
- Other (please specify)

16. Share additional thoughts related to access, parking, and circulation in the Waterfront.

Demographic Information

17. Which category below includes your age?

- 17 or younger
- 18-29
- 30-39
- 40-49
- 50-59
- 60-69
- 70 or older

18. How do you identify your race/ethnicity?

- White alone
- Black or African American alone
- American Indian and Alaska Native alone
- Asian alone
- Native Hawaiian and Other Pacific Islander alone
- Some Other Race alone
- Other (please specify)

19. Are you of Hispanic or Latino origin or descent?

- Yes No

20. What is your approximate average household income?

- | | |
|--|--|
| <input type="checkbox"/> \$0-\$24,999 | <input type="checkbox"/> \$25,000-\$49,999 |
| <input type="checkbox"/> \$50,000-\$74,999 | <input type="checkbox"/> \$75,000-\$99,999 |
| <input type="checkbox"/> \$100,000-\$124,999 | <input type="checkbox"/> \$125,000-\$149,999 |
| <input type="checkbox"/> \$150,000-\$174,999 | <input type="checkbox"/> \$175,000-\$199,999 |
| <input type="checkbox"/> \$200,000 and up | |



Appendix B

TDM Vehicle Trip And Parking Reduction Methodology

TDM Vehicle Trip and Parking Reduction Methodology

January 6, 2025

Project# 19867.006

To: Liza McNulty, Capital Improvement Program Manager

City of Berkeley

2180 Milvia Street, Berkeley, CA 94704

From: Kittelson & Associates, Inc.

CC: Ali Endress and Roger Miller; City of Berkeley

RE: Berkeley Waterfront – TDM Vehicle Trip and Parking Reduction Methodology - DRAFT

The following are the assumptions and calculations that inform the theoretical parking demand reduction. Three of the strategies were estimated using information gathered from peer case studies and from research papers on transportation demand management. The other strategies were estimated using formulas from the CAPCOA Handbook Chapter 3, Measures to Reduce GHG Emissions: Transportation.¹ This memo includes the CAPCOA formulas used, as well as the specific value inputs gathered from the CAPCOA handbook, from ACS 5-Year Estimates for the City of Berkeley, and from project mode share assumptions.

Shuttle service to the Waterfront and satellite parking facilities

- **Ferry parking demand reduction estimate:** 25-100 spaces

These estimates are based on case study interviews with the City of Alameda and Emery Go-Round (included in Attachment A).

- Limited circulator shuttle service around the Berkeley Waterfront would allow ferry riders to leave their vehicles at low-occupancy lots around the Waterfront (including golden gate fields parking lot) or nearby in the City of Berkeley and take a van or bus shuttle trip to the ferry.
- Low estimates account for a shuttle service run by a 12-seater van, which could run a minimum of two timed services to connect ferry riders to daily ferry departures and arrivals during year one operations.
- High estimates for vehicle trip reduction account for shuttle service to trip origins outside of the Waterfront, including to Downtown Berkeley and / or to satellite parking facilities.
- High estimates for vehicle trip reduction account for the use of 25 foot or equivalent buses to offer increased shuttle capacity.

¹ https://www.caleemod.com/handbook/chapter_3_1transportation.html

- Parking demand reduction could be on the higher end of the provided range if implemented alongside paid parking at the ferry parking lot. Shuttle service would give commuters the option to park for free if paid parking were implemented.

Paid parking program

- **Ferry parking demand reduction estimate:** 42 spaces

This estimate uses CAPCOA strategy T-12: Price workplace parking.

- Results in a 10% reduction in vehicle trips, or demand for 42 fewer parking spaces.
- CAPCOA formula: % *GHG Reduction* = $\frac{B-C}{C} \times E \times D \times F$ where:
 - $\frac{B-C}{C}$ = Rate of change in parking price = .25 (CAPCOA default for introduction of paid parking)
 - E = Elasticity of parking demand with respect to parking price = -.4 (CAPCOA)
 - D = Share of employees paying for parking = 100% (assumption that all ferry riders would be subject to the paid parking program)
 - F = Ratio of vehicle trip reduction to VMT = 1 (CAPCOA)
 - Results in projected 10% reduction in vehicle trips, or demand for 42 fewer parking spaces.

Valet parking

- **Ferry parking demand reduction estimate:** 50-100 spaces

This estimate is based on research on the efficiency of valet parking systems and the relative weekday occupancy of parking lots near the proposed ferry parking facility.

- Research shows that valet parking is able to achieve parking occupancy rates 25% higher than self-parked lots (Banzhaf, et al. 2017).²
- Valet parking options for ferry riders could be established within existing parking facilities in the Marina Boulevard Lot or in the Skates / N Lot. Both lots are within walking distance of ferry service and cater to dining or recreational trips that have minimal overlap with ferry parking.
- There were 98 available spaces in the Skates / N Lot and 109 available spaces in the Marina Blvd lot midday on a weekday during data collected in June 2024. If 40-80 of the available spaces in these lots were assigned for valet parking on peak days for ferry ridership, then they could accommodate 50-100 cars that otherwise would be turned away from the ferry parking lot.

Bicycle and pedestrian access

- **Ferry parking demand reduction estimate:** 2 spaces

This estimate uses CAPCOA strategy T-20: Expand bike network.

² Banzhaf, Holger & Nienhüser, Dennis & Knoop, Steffen & Zöllner, J.. (2017). The future of parking: A survey on automated valet parking with an outlook on high density parking. 1827-1834. 10.1109/IVS.2017.7995971.

- Results in a 0.4% reduction in vehicle trips, or demand for two fewer parking spaces. This figure would be as high as 40 fewer parking spaces if the calculation accounted for the ongoing implementation of the entire Berkeley Bike Plan.
- Length of bike network expansion set to .38 miles to represent the proposed addition of the “streetscape connector” cycling facility in Figure 2-27 of the September 2023 draft of the [Berkeley Waterfront Specific Plan](#). The streetscape connector would run from along University Ave from the Berkeley Pier to the point where the Bay Trail runs adjacent to the roadway, just west of the traffic circle.
- CAPCOA formula: $\% GHG Reduction = -1 \times \frac{(\frac{C-B}{B} \times D \times F \times H)}{E \times G}$ where:
 - $\frac{C-B}{B}$ = Change in bike network miles = .38 (estimated additional bikeway lane miles after implementation of Waterfront Specific Plan Draft “streetway connector” section on University Ave)
 - D = Bicycle mode share in plan/community = 6.2% (2023 ACS 5-Year Estimate)
 - E = Vehicle mode share in plan/community = 40% (project mode share estimate)
 - F = Average one-way bicycle trip length in plan/community = 2.1 miles (CAPCOA)
 - G = Average one-way bicycle trip length in plan/community = 12.4 miles (CAPCOA)
 - H = Elasticity of bike commuters with respect to bikeway miles per 10,000 population = 0.25 (CAPCOA)

Improved bicycle facilities and secure bike parking

- **Ferry parking demand reduction estimate:** 9 - 42 spaces

This estimate uses CAPCOA strategy T-10: Provide end-of-trip bicycle facilities.

- Results in a 2% reduction in vehicle trips with low bike mode adjustment factor and a 10% reduction with high bike mode adjustment factor, for demand for 9 to 42 fewer parking spaces.
- CAPCOA formula: $\% GHG Reduction = \frac{C \times (E - (B \times E))}{D \times F}$ where:
 - B = Bike adjustment mode factor (1.78 or 4.86, depending on facilities, CAPCOA)
 - Low bike mode share adjustment factor estimates for if only bike parking were provided.
 - High bike mode share adjustment factor estimates for if amenities including showers, lockers, secure bike parking, and bike repair tools were provided.
 - Year-one implementation could exceed the impacts of the low adjustment factor but is unlikely to reach the high adjustment factor. Trip reduction estimates should be somewhere in between.
 - C = Existing bicycle trip length for all trips in region (2.1 miles, CAPCOA)
 - D = Existing vehicle trip length for all vehicles in the region (12.4 miles, CAPCOA)
 - E = Existing bicycle mode share for work trips in region (6.2%, ACS 5-year estimate for Berkeley)
 - F = Existing vehicle mode share for work trips in region (40%, project mode share estimate)

Shared micromobility expansion

- **Ferry parking demand reduction estimate:** 12 spaces

This estimate uses CAPCOA strategy T-22-B: Implement electric bike share program.

- Results in a 3% reduction in vehicle trips, or demand for 12 fewer parking spaces.
- CAPCOA formula: % *GHG Reduction* = $-1 \times \frac{(C-B) \times D \times E \times F}{G \times H}$ where:
 - B = Percent of residents in community with access to system without measure = 0% (introduction of new service area)
 - C = Percent of residents in community with access to system with measure = 60% (Access to Baywheels across Berkeley)
 - D = Daily electric bike share trips per person = .021 (CAPCOA)
 - E = Vehicle to electric bikeshare substitution rate = 35% (CAPCOA)
 - F = Electric bikeshare one-way trip length = 2.1 miles (CAPCOA)
 - G = Daily vehicle trips per person = 2.7 (CAPCOA)
 - H = Regional average one way vehicle trip length = 12.4 miles (CAPCOA)
- Assumes implementation of electric, rather than conventional bike share and does not estimate effects of structuring scooter shared services at the Waterfront.

Pick-up / drop-off zones

- **Ferry parking demand reduction estimate:** 5 spaces

This estimate is based on research that identifies increases in transportation network company (TNC) trip satisfaction among riders when trips utilize designated pick-up and drop-off zones and increases in average traffic speed when TNC companies are provided with discrete pick-up / drop-off zones.

- Results in a 7% increase in TNC or kiss-and-ride trips due to shift from drive alone or carpool trips, or a demand for 5 fewer parking spaces.
- Research shows that dedicated pick-up /drop-off zones increased user satisfaction by as much as 7% to 11% (Shaheen, et al. 2021).³
- A traffic simulation experiment showed that, when TNC vehicles were provided with pick-up/drop-off locations on side streets, average traffic speeds increased by as much as 37% during peak periods (Stueger, et al. 2022).⁴
- Establishing dedicated pick-up / drop-off zones will improve the comfort of TNC users and the experience of park-and-ride drivers, encouraging them to avoid drive-along trips in personal vehicles to access the ferry.
- Pick-up / drop-off zones would also improve the experiences of non-TNC users, who may be more comfortable relying on being driven to the Waterfront.

³ Shaheen, S., Darling, W., Broader, J., & Cohen, A. (2021). Understanding Curb Management and Targeted Incentive Policies to Increase Transportation Network Company Pooling and Public Transit Linkages. *UC Berkeley: Transportation Sustainability Research Center*. Retrieved from <https://escholarship.org/uc/item/6gz9w0v9>

⁴ Stueger, P. N., Fehn, F., & Bogenberger, K. (2023). Minimizing the Effects of Urban Mobility-on-Demand Pick-Up and Drop-Off Stops: A Microscopic Simulation Approach. *Transportation Research Record*, 2677(1), 814-828. <https://doi.org/10.1177/03611981221101894>

- If the 7% satisfaction increase indicated by one study resulted in equal mode shift to TNC or kiss-and-ride from drive alone or carpool trips, then there would be a reduction in demand for parking at the ferry lot by 5 spaces.

Transit subsidy for ferry riders

- **Ferry parking demand reduction estimate:** 4 spaces

This estimate uses CAPCOA strategy T-9: Implement subsidized or discounted transit program.

- Results in a 1% reduction in vehicle trips, or demand for 4 fewer parking spaces.
- CAPCOA formula: $\% GHG Reduction = \frac{C}{B} \times G \times D \times E \times F \times H \times I$, where:
 - C = Subsidy amount = \$2.25 (Cost of AC Transit fare)
 - B = Average transit fare without subsidy = \$6.95 (\$2.25 for AC Transit + \$4.70 for ferry)
 - G = Elasticity of transit boardings with respect to transit fare price = -.43 (CAPCOA)
 - D = Percent of riders eligible for discount = 100% (project assumption)
 - E = Percent of project-generated VMT from riders = 100% (project assumption)
 - F = Transit mode share = Transit mode share of work trips = 14.4% (ACS 5-Year Estimate)
 - H = Percent of transit trips that would otherwise be made in a vehicle = 50% (CAPCOA)
 - I = Conversion factor of vehicle trips to VMT = 1 (CAPCOA)

Expanded AC Transit service

- **Ferry parking demand reduction estimate:** 7 spaces

This estimate uses CAPCOA strategy T-26: Increase transit service frequency.

- Results in 2% reduction in vehicle trips, or demand for 7 fewer parking spaces.
- CAPCOA formula: $\% GHG Reduction = -C \times \frac{B \times E \times D \times G}{F}$, where:
 - B = Percent increase in transit frequency = 100% (doubling of 51B service frequency to the Waterfront from 24 minutes to 12 minutes (matching frequency east of Berkeley Amtrak Station))
 - C = Level of implementation = 8% (represents treatment on one of twelve AC Transit routes with regular service schedules to Downtown Berkeley)
 - D = Elasticity of transit ridership with respect to frequency of service = .5 (CAPCOA)
 - E = Transit mode share in plan or community = 14.4% (ACS 5-Year Estimate)
 - F = Vehicle mode share in plan or community = 40% (project mode share estimate)
 - G = Statewide mode shift factor = 57.8 (CAPCOA)



Appendix C :
Berkeley Waterfront Parking and TDM
Toolkit

BERKELEY WATERFRONT PARKING AND TRANSPORTATION DEMAND MANAGEMENT TOOLKIT

This parking and transportation demand management (TDM) toolkit (referred to as the TDM toolkit) is part of an ongoing effort to manage access and circulation to and around the Berkeley Waterfront. TDM is the use of strategies to inform and encourage travelers to maximize the efficiency of our transportation systems leading to improved mobility, reduced congestion, and lower vehicle emissions.¹ TDM aims to provide all people with real transportation options that enable them to travel from their location to a destination in an affordable, efficient, and sustainable way.

This document presents parking and transportation demand management strategies for use at the Berkeley Waterfront, with a focus on managing the influx of commuters driving to the ferry terminal after implementation of new ferry service. The initial list of parking and TDM strategies under consideration for the Waterfront is presented in Table 1 (in no particular order / priority) and strategies are further described in the sections following the table.

Table 1: Parking and TDM Strategies

	Strategy	Effectiveness ¹	Ease of Implementation ²	Cost ³
Vehicle Management Strategies				
	Wayfinding	+	✓	\$\$
	Satellite parking facilities	++	✓	\$
	Shuttle service to the Waterfront	++	✓	\$\$\$
	Circulator shuttle service around the Waterfront	+	✓	\$\$
	Vehicle parking regulations	++	✓	\$
	Paid parking	+++	✓	\$
	Valet service (free or low cost)	+	✓	\$\$
	Parking Benefit District	+++	✓	\$
	Parking enforcement	+	✓	\$
Vehicle Reduction Strategies				
	Bicycle and pedestrian access	++	✓	\$\$
	Bicycle facilities	++	✓	\$\$
	Secure bicycle parking	++	✓	\$
	Shared micromobility	++	✓	\$
	Pick-up/drop-off zones	+	✓	\$
	Transit subsidy for ferry riders	++	✓	\$\$
	Expanded AC Transit service	+++	✓	\$\$
	Transportation Management Agency	+++	✓	\$\$\$

Notes:

1 Effectiveness: + small effect on mode shift; ++ moderate effect on mode shift; +++ highly effective at mode shift

2 Ease of implementation: ✓ easy, short timeline, minimal administrative costs; ✓ (medium, longer timeline, requires added administrative duties; ✓ difficult, politically or administratively difficult on any timeline

3 Cost: \$ low cost, short timeline; \$\$ medium cost; \$\$\$ high cost

¹ Association for Commuter Transportation. www.actweb.org

In selecting TDM strategies to address circulation and access to and around the Waterfront, it is useful to know how effective measures might be at changing travel behavior, how much they might cost, and how challenging they might be to implement. The empirical evidence on TDM effectiveness, cost, and ease of implementation is sporadic and incomplete. It is also difficult to compare across all measures, as the performance measures and method of evaluation vary from one measure to the next. Studies often lack controls, and external variables, such as the price of gasoline and unemployment rates, affect travel behavior changes. For comparison purposes, Table 1 and the following descriptions present a high-level qualitative rating of these factors (effectiveness, ease of implementation, and cost) based on a review of literature and research and conversations with implementing agencies. These strategies are not presented in any particular order, and have not been prioritized or ranked. The City intends to present these strategies and gather public feedback prior to ranking/prioritizing the various strategies.

VEHICLE MANAGEMENT STRATEGIES

WAYFINDING

Effectiveness: +

Ease of Implementation: ✓

Cost: \$\$

Overview: While the Waterfront has a variety of parking lot locations and types, the total volume of spaces are not well utilized, causing high occupancy at desirable lots when adjacent lots sit mostly empty. Improved wayfinding around the Waterfront can help drivers know where available lots are located and how they can access their destinations from those lots. Improved wayfinding will be an essential tool for managing the influx of new trips to the Waterfront for a new ferry service, and for managing flows of visitors at peak times. Digital parking monitoring tools can also be utilized to help drivers locate open spaces without having to circle multiple locations looking for them. Enhanced wayfinding and monitoring will improve visitors' experiences at the Waterfront and ease the strain on the most desirable parking locations.

For the greatest impact, wayfinding improvements should be paired with pedestrian improvements to ensure comfortable access between parking lots and destinations. Should wayfinding signs direct drivers to lower occupancy lots away further from their destinations, pedestrian improvements should ensure that trips to and from those lots are safe, comfortable, and intuitive.

Implementation: Improving wayfinding is a logistically easy and financially attainable parking management strategy. While technologically advanced parking occupancy counters and directions would increase the difficulty of implementation, basic wayfinding improvements could be made with improved physical signage and online information well in advance of new ferry service.

Internal pedestrian improvements are comparably more expensive and would have to be rolled out on a longer timeline. However, quick-build projects, including enhanced crosswalk paint and temporary pedestrian bulbouts can be used to enhance the effectiveness of wayfinding improvements in the meantime.

Figure 1 Example wayfinding signs



Source: BART, *Station Access Signage & Wayfinding Guidelines*, 2022.

SATELLITE PARKING FACILITIES FOR WATERFRONT VISITORS

Effectiveness: ++

Ease of Implementation: ✓

Cost: \$

Overview: The City could establish a satellite parking facility for the Waterfront, which could be used by ferry riders or by general Waterfront visitors. The satellite lot would be a tool for transferring parking demand away from Waterfront lots for those who have the flexibility to then proceed to the Waterfront by shuttle, AC Transit service, or by biking and walking. A satellite parking facility could maximize the space devoted to vehicle parking for recreational uses at the Waterfront without limiting access to the ferry service.

Implementation: Feasibility of establishing satellite lots depends on the location and ownership of lots, as well as the necessary complimentary measures needed to help users access the Waterfront – including, but not limited to, shuttle service and bike and pedestrian improvements. Implementation would be made easier if satellite lots were sited in less-used areas, where parkers could easily access the Waterfront’s recreational facilities, but wouldn’t take up spaces at in-demand parking locations. This proposition would be more convenient, reliable, and economical to satellite lots that are privately owned, or that are located a significant distance from the Waterfront.

Peer Case Studies: Muir Woods Shuttle

SHUTTLE SERVICE TO THE WATERFRONT

Effectiveness: ++

Ease of Implementation: ✓

Cost: \$\$\$



Figure 2 Temporary free shuttle offered from North Berkeley BART to the Solano Stroll event
(Source: Jonathan Zisk)

Overview: A shuttle service to the Berkeley Waterfront could replace car trips taken by ferry riders and could be coordinated with the ferry schedule to reduce the time penalties associated with transfers to / from local bus service. Shuttle service would need to link commuter and other visitors’ origins across Berkeley to their destinations at the Waterfront. This would require service to locations throughout the City of Berkeley, or to established satellite parking lots located outside the Waterfront.

Ease of access to the Waterfront for recreational and commercial users must be prioritized. Inefficient shuttle services would deter recreational users or restaurant patrons from using the service, while commuters and longer-term parkers are more easily able to schedule trips around shuttle service.

Implementation: Running a shuttle service is a logistically and financially difficult project. Shuttle services need regular operational funding, on top of startup costs. The necessary condition of an effective shuttle service is that its benefits – increased visitation, environment stewardship, equitable site access – must far outweigh its costs. When successful, shuttle services can enable significant cuts to on-site parking and reduction in single occupancy vehicle trips.

Based on our literature review and discussions with Emery Go-Round staff, peer regional shuttles are supported by robust private employers, commercial districts, and property-based improvement districts (PBIDs). While a shuttle service to the Berkeley Waterfront could be effective at shifting trips away from cars, it may not have the necessary private sector backing to support its operations.

Peer case studies: Emery Go-Round, Harbor Bay Business Park Shuttle, West Berkeley Shuttle, Muir Woods Shuttle

CIRCULATOR SHUTTLE SERVICE AROUND THE WATERFRONT

Effectiveness: +

Ease of Implementation: ✓

Cost: \$\$

Overview: Shuttles could also be used to improve parking utilization around the Waterfront. An internal circulator shuttle service would not replace car trips to the Waterfront but would enable visitors to park in underutilized lots within the Waterfront and then proceed to their destinations via complimentary shuttle service. The shuttle could operate on a fixed-route or provide on-call and demand-responsive service using vans, buses, or golf carts. Vehicles would be sized appropriately, and hours of operation and routes could be adjusted as needed. This kind of shuttle service could be an invaluable tool for distributing peak demand for parking during the summer and popular events. If well utilized, it could also delay the need for paid parking or other parking restrictions.

Implementation: Running a shuttle within the Waterfront would be comparatively easier than initiating and operating shuttle service between the Waterfront and other destinations, but it would still require investment in vehicles, equipment, and ongoing operations.

Peer case studies: Emery Go-Round, Harbor Bay Business Park Shuttle, West Berkeley Shuttle, Muir Woods Shuttle

VEHICLE PARKING REGULATIONS

Effectiveness: ++

Ease of Implementation: ✓

Cost: \$

Overview: This strategy would evaluate existing vehicle parking regulations and restrictions and identify opportunities to optimize use of existing parking lots. In 2019, the City implemented changes to parking permits and established time limits and regulations tailored to each Waterfront parking lot. The goal was to (1) maximize parking availability for recreational users and shorter term visitors, (2) maximize proximity to end-destinations, and (3) push the Waterfront's long-term parkers to less convenient parking lots, including staff serving various Waterfront businesses, charter fishing customers and small-scale ferry commuters who park at the Waterfront for the majority of a day. City staff shared that this was effective when paired with ample outreach prior to implementation, and with enforcement after the outreach effort. Without enforcement during Covid, the regulations became substantially less effective.

This strategy would anticipate the nature and volume of demand of ferry parking and set regulations accordingly. Factors that affect the demand for ferry-related parking spots include regularity and frequency of ferry service, infrastructure for accessing the ferry via alternative modes of transportation, and incentives for carpooling or shifting visitors away from single occupancy vehicle trips to the Waterfront. A key component in setting parking regulations is understanding how the amount and availability of parking shapes parking demand. By appropriately regulating the parking lots at the Waterfront, the City of Berkeley

can ensure that they both enable access to destinations and avoid causing negative effects to the surrounding natural features of the Waterfront and its recreational uses.

Implementation: Implementing modifications to existing vehicle parking regulations would require new signage and may be paired with driver education campaigns and increased enforcement.

Peer Case Studies: Berryessa BART Urban Village Plan



Figure 3 Parking facilities currently occupy 20% of the Waterfront’s in-demand space for natural recreation. Right-sizing and regulating parking facilities is a critical step in preserving both natural resources and visitors’ access to them. (Source: City of Berkeley, *Waterfront Specific Plan (Draft)*, 2023.)

DEMAND-BASED / PAID PARKING

Effectiveness: +++

Ease of Implementation: ✓

Cost: \$

Overview: Paid parking is an essential tool for managing occupancy in high-demand parking lots. Over the last decades, parking professionals have established that paid parking can increase the availability of parking spaces for those that need them the most, while helping shift other trips away from single occupancy vehicles.²

Implementation of a paid parking program was the first recommendation of the Berkeley Marina Area Specific Plan Parking and Mobility Framework. However, public feedback gathered as part of parking intercept surveys collected in Summer 2024 for this Waterfront Parking and Transportation Demand Management Plan effort indicates that many current Waterfront visitors are not willing to pay to park when accessing the Waterfront for recreational uses. Additionally, paid parking was proposed in 2019 at the South Cove parking lots in association with small scale ferry service and commuter charter service that was in operation at the time (the small-scale public ferry service closed during Covid).³ The public was not in

² <https://www.sfmta.com/getting-around/drive-park/demand-responsive-pricing/sfspark-evaluation>

³ <https://berkeleyca.gov/sites/default/files/documents/2019-04-30%20Item%2026%20New%20Marina%20Fee%20%E2%80%93%20South%20Cove.pdf>

support of any paid parking at that time, an alternative was identified, and the City did not proceed with paid parking implementation.

Despite the logistical hurdles involved in the separation of ferry riders from other Waterfront visitors, a paid parking program may be most effective if clearly tailored to meet the unique demands of ferry riders, while leaving other Waterfront users to continue to park for free, especially at off-peak times.

The objective of paid parking is to shift trips to more sustainable modes of transportation without negatively impacting overall access to the Waterfront. Any proposal for paid parking would be clearly tied to measurable benefits for visitors, including ease of access to recreation, restaurants, marina slips, and for the preservation of the Waterfront's natural resources. Paid parking fees at the Waterfront would be directly invested in the beautification, safety, and security projects within the vicinity of parking facilities.

Implementation: Paid parking may be the single most powerful tool for managing parking in a high demand site and would provide revenue that could be reinvested in the Waterfront. However, implementing paid parking presents a logistical and a political challenge.

The logistics of paid parking at the Berkeley Waterfront are eased by the pre-existing paid parking program at the boat launch ramps off Spinnaker Way, as well as by the potential ease of controlling vehicular access to the Waterfront along University Avenue. The political challenges of implementing paid parking are much more complex. To facilitate implementation of a paid parking program, the City could coordinate paid parking with the launch of new ferry service. This would allow paid parking to piggy-back on other changes to the Waterfront and would clarify the relationship between paid parking and expected increases in Waterfront visitation.

Peer case studies: City of Alameda [Ferry Terminal Paid Parking Program](#)

The City of Alameda planned to implement paid parking at the 2021 launch of the Seaplane Lagoon Ferry Terminal but opted not to due to decreased ridership resulting from the Covid-19 Pandemic. Alameda plans to launch its paid parking program at both the Seaplane Lagoon and Harbor Bay terminals in the near future.

VALET SERVICE FOR FERRY RIDERS

Effectiveness: +

Ease of Implementation: ✓

Cost: \$\$

Overview: Valet service at the Berkeley Waterfront would maximize finite space in existing lots by allowing valet attendants to tandem park vehicles. Likewise, valet parking can turn underutilized parking lots into an efficient tool for parking management. Valet parking is well-suited for the Waterfront's parking and usage patterns, which are characterized by an overabundance of parking capacity on most days and congestion and high occupancy levels in certain lots during events and peak weather conditions.

Implementation: Valet parking is a relatively infrastructure-light and flexible way of managing parking supply. A valet program could be run only on the highest demand days, while self-parking would be allowed at all other times. In valet parking, traffic management costs are paid through staff expenses, rather than through long-range infrastructure improvements. For this reason, valet parking could be a niche solution for a period with increased visitation at the Waterfront. Likewise, the associated costs of valet service could be borne by the user, the City, the ferry, or the end-user destinations, such as restaurants.

ESTABLISH A PARKING BENEFIT DISTRICT

Effectiveness: +++

Ease of Implementation: ✓

Cost: \$

Overview: A parking benefit district (PBD) is an entity that would manage parking revenue and allow for direct policy and financial input from a broader group of stakeholders and oversight from community members. PBDs typically have a broad mandate that includes supporting parking maintenance and operations and investing in other transportation systems and services. Establishing a PBD is an effective strategy for generating stakeholder buy-in and support for paid parking initiatives. Stakeholders' involvement with a PBD would allow them to reinvest parking proceeds directly to improvement projects around the Waterfront, including for facility modernization, parking lot maintenance, and beautification projects.

Implementation: To establish a PBD, the City would need to organize a group of enthusiastic and dedicated stakeholders in the Waterfront, including commercial businesses, clubs, and regular users of the Waterfront. Once the PBD was established, it would theoretically manage most of its own affairs, with some assistance from and collaboration with the City. Balancing the interest of various stakeholders in the Waterfront would be a difficult long-term task, especially when current stakeholders at the Waterfront may have opposing stances on the need for increased visitation and parking management. The waterfront has relatively few of these entities relative to other locations, i.e. downtowns or shopping districts, where this has been successful.

Figure 4 A parking meter in the Old Pasadena parking benefits district reminds parkers that their fees are reinvested directly to the place where they just parked Source: Mike Linksvayer, via Flickr



PARKING ENFORCEMENT

Effectiveness: +

Ease of Implementation: ✓

Cost: \$

Overview: Enforcement of vehicle parking permits, time limits, and other restrictions would encourage adherence with parking regulations. Increased enforcement of existing restrictions could be a key strategy for delaying or avoiding the need for further restrictions or for paid parking.

Implementation: The Waterfront could shape its parking climate and occupancy without implementing paid parking initiatives by increasing parking enforcement. Key points of enforcement would include enforcing permit / slip holder parking areas, overnight parking, and time-limited parking. The Waterfront's hosting of the city's parking enforcement fleet could serve to ease the demands of increased enforcement.

VEHICLE REDUCTION STRATEGIES

BICYCLE AND PEDESTRIAN ACCESS

Effectiveness: ++

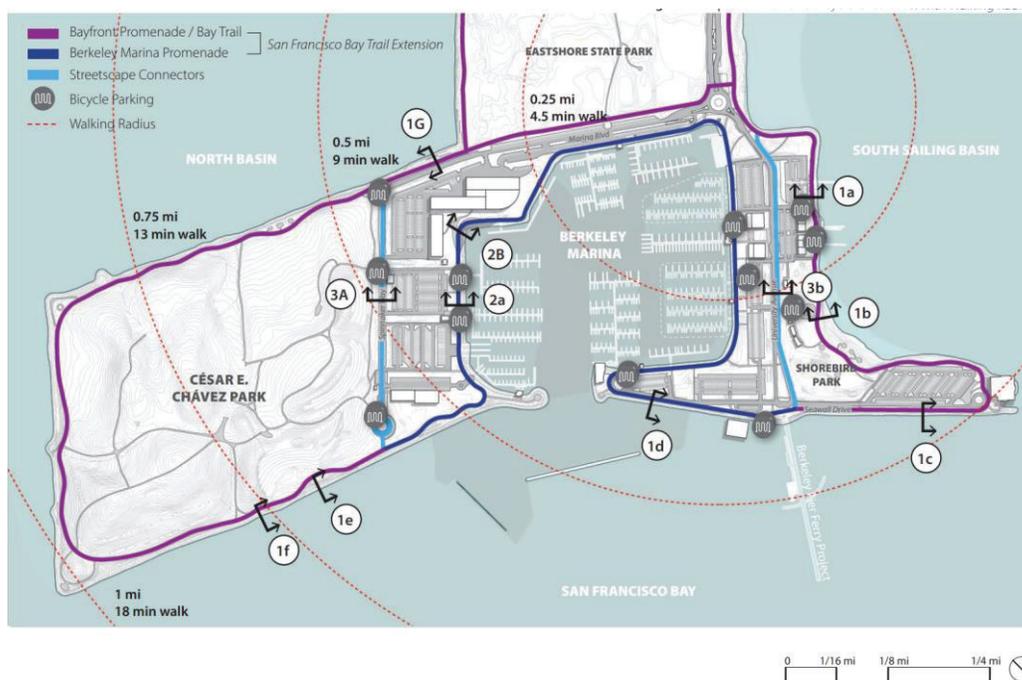
Ease of Implementation: ✓

Cost: \$\$

Overview: The Berkeley Waterfront’s geographic isolation from the rest of the City poses several challenges for bicycle and pedestrian access. While this planning process can recommend improvements for bicycle and pedestrian facilities in the Waterfront, it cannot do the same for facilities in the rest of Berkeley. Nevertheless, connectivity is of critical importance – safe, comfortable facilities at the Waterfront will not shift trips away from cars without compatible infrastructure off-site. This TDM measure considers both what bicycle and pedestrian improvements can be made at the Waterfront, and how those internal improvements can connect to and enhance improvements outside the Waterfront.

Bicycle and pedestrian infrastructure at the Waterfront: The Waterfront already hosts an extensive series of low-stress, class I, cycling trails. Closing the gaps in this network, as proposed by the draft Waterfront Specific Plan, would continue to establish the Waterfront as a safe and inclusive space for recreational walkers and cyclists.⁴

Figure 5 Pedestrian and Bicycle Circulation within Walking Radius (Source: Figure 2-51 from the Waterfront Specific Plan Public Draft)



Bicycle and pedestrian infrastructure to the Waterfront: Under current conditions, bicyclists and pedestrians access the Berkeley Waterfront via the Bay Trail and Pedestrian/Bicycle Bridge over I-580 just south of University Avenue, and a new pedestrian bridge over I-580 at Gilman Street. While these access points provide low stress connections, they are indirect and require bicyclists and pedestrians to travel out of their way to access the Waterfront. University Avenue would be a more direct method of accessing the waterfront

⁴ <https://berkeleyca.gov/your-government/our-work/capital-projects/waterfront-specific-plan>

for cyclists and pedestrians. However, the University Avenue bridge does not currently have any bicycle or pedestrian facilities on it. Likewise, University Avenue is on the Berkeley's High Injury Network for most of its length, from Oxford Street to Frontage Road, all of which lies outside of the direct purview of the Berkeley Waterfront.⁵ If implemented, recommendations in the 2020 Berkeley Pedestrian Plan would improve safety and comfort for vulnerable road users along University Avenue, who might be traveling to or from the Waterfront. Coordinating bicycle and pedestrian improvements in the Waterfront with those in the rest of the City will be a key factor in shifting more trips away from cars.

There are ongoing and planned improvements to Berkeley's cycling network that will make it easier for cyclists to access the Waterfront. On Gilman Street, the City is constructing a cycletrack, (class IV bike facility) which allows for two-way bicycle traffic, protected from vehicular traffic by concrete curbs. The complete portions of the cycletrack are already providing a better, safer path for cyclists traveling to and from the Waterfront on the Gilman Side of the overpass. Planned improvements to the City's cycling network in the 2017 City of Berkeley Bicycle Plan include two projects that would significantly enhance access to the Waterfront. One proposal is for the study of a cycletrack on University Avenue to the east of I-580, and another for the extension of a neighborhood bikeway on Addison Street, between the Bay Trail Bridge and Downtown Berkeley.⁶

Implementation: Creating direct, low stress bike and pedestrian connections to the Waterfront would be a long-term goal involving projects both in and outside of the Waterfront. Fortunately, there are ongoing planning processes to pursue both of those types of improvements. Existing recreational trails at the Waterfront can be supplemented with quick-build enhancements to bike and pedestrian access to the Berkeley Pier. Likewise, this planning process can lend its recommendations to the buildout of the 2017 Berkeley Bicycle Plan and 2020 Berkeley Pedestrian plan which, would neatly align with internal bicycle and pedestrian facilities if completed. A more difficult and longer-term project would be to pursue improvements to bike and pedestrian facilities on the elevated portion of University Avenue, between Sixth Street and Frontage Road, and would have to plan interventions around I-580 freeway ramps. Projects in this stretch of road are outside of the Waterfront, but shape the experience of accessing its many destinations.



Figure 6 Two-way protected cycletrack on Fulton St in Downtown Berkeley. Cycletracks (class IV bike facilities), like those recently constructed in Downtown Berkeley, would be key for the Waterfront's long-range reduction in single occupancy vehicle trips. (Source: Jonathan Zisk)

⁵ <https://berkeleyca.gov/your-government/our-work/adopted-plans/pedestrian-plan-2020>

⁶ <https://berkeleyca.gov/your-government/our-work/adopted-plans/berkeley-bicycle-plan>

BICYCLE FACILITIES AT FERRY TERMINAL

Effectiveness: ++

Ease of Implementation: ✓

Cost: \$\$

Overview: Travel by bicycle, much like commutes by car, can be limited by parking presence and availability at the destination. Providing secure bike parking and amenities, including: bike repair stations, lockers (such as those currently at the Berkeley Waterfront Park Office area), and other supporting facilities can make biking a more feasible option for many. Increasing the share of people who access the ferry by bike can help mitigate the overall demand for vehicle parking and reduce the greenhouse gas emissions.⁷

Implementation: The difficulty of implementation varies widely depending on the type and scale of amenities. Well-positioned bike racks and bike maintenance stations could be readily implemented before or concurrent with the implementation of ferry service. However, more secure bicycle parking and facilities, including changing rooms would be more effective at shifting trips to bike. These amenities would also require more space and would be more expensive to construct and operate.

INCREASED SECURE BICYCLE PARKING THROUGHOUT THE WATERFRONT

Effectiveness: ++

Ease of Implementation: ✓

Cost: \$

Overview: There are currently 20 secure BikeLink lockers in the Waterfront, located on University Ave in front of the Berkeley Waterfront Park Office.⁸ For a small fee, those lockers allow cyclists to access the Waterfront without worrying about bike theft or damage. As visitation to the Waterfront grows, increasing the availability of similar bike locker services around the Waterfront would encourage regular and occasional visitors to the Waterfront to choose to ride their bikes rather than traveling by other modes. Ensuring that expanded secure bicycle lockers can accommodate e-bikes and cargo bikes will also encourage families and riders of all abilities to ride to the Waterfront.



Figure 7 BikeLink lockers installed at the Santa Clara Caltrain station. Secure bike parking is an essential and attainable strategy for increasing cycling trips. Source: Caltrain

Implementation: Secure bike lockers can be developed via multiple means, either by a third party like BikeLink, which is the main supplier of secure bike parking around the Bay Area, or directly by a public agency. Though the City of Berkeley does not currently provide secure bike parking directly, there is an active movement for the City to develop its own secure bike parking facilities.⁹ Provision of secure bike parking is a feasible and cost-effective strategy for encouraging and improving the overall experience of cycling to the Waterfront.

⁷ California Air Pollution Control Officers Association, *Handbook for Analyzing Greenhouse Gas Emission and Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, pp 95.

⁸ <https://www.bikelink.org/maps>

⁹ <https://berkeleyca.gov/sites/default/files/documents/2023-03-21%20Item%2025%20Referral%20%20On-Street%20Secure%20Bike%20Storage.pdf>

EXPAND SHARED MICROMOBILITY SERVICES

Effectiveness: ++

Ease of Implementation: ✓

Cost: \$



Figure 8 Veo scooters parked at the Waterfront.
Source: Amanda Leahy

Overview: There are several different ways that visitors can access the Berkeley Waterfront via shared micromobility, including using Bay Wheels bikes, Veo, and Lyft electric scooters. While these devices can be found parked at bike racks around the Waterfront, there is currently no micromobility-specific infrastructure present at the Waterfront. Designating scooter drop-off sites, areas for bike share, and clearly posted shared-micromobility regulations can increase the overall ease and comfort of shifting trips away from cars.

Implementation: The City of Berkeley would work with operators to implement and administer shared micromobility programs at the Waterfront. Bay Wheels has already expanded their docks as far as Addison Street and Fourth Street and is adding 24 new docks in

the East Bay this year.¹⁰ Bay Wheels has also shown a recent commitment to expanding bike share service into recreational areas, with the 2023 expansion of bike docking stations into Golden Gate Park.¹¹

ESTABLISH PICK-UP/DROP-OFF ZONES

Effectiveness: +

Ease of Implementation: ✓

Cost: \$

Overview: Establish pick-up/drop-off zones near activity centers, such as the new ferry terminal, Cesar Chavez Park, and Adventure Playground. Establishing clearly marked pick-up/drop-off and loading zones can help visitors with diverse needs accessing the Waterfront, including those with mobility impairments, and those utilizing ride share services. Clearly marked loading zones can allow those with picnic supplies or boating equipment to unload near their destinations before parking slightly further away, thereby reducing the demand for parking in the immediate vicinity of key Waterfront destinations.

Implementation: The City can quickly and cheaply identify suitable pick-up/drop-off zones near destinations around the Waterfront. Zones can be marked with new wayfinding and road paint, before eventually being permanently built into roadways. This has already been conducted successfully during special events at the Waterfront.

FREE/REDUCED TRANSIT PASSES OR MICROMOBILITY SERVICE MEMBERSHIPS FOR FERRY RIDERS

Effectiveness: ++

Ease of Implementation: ✓

Cost: \$\$

Overview: This TDM measures would entail the subsidization of public transit fares and micromobility service memberships to encourage the use of bus or micromobility (e.g., bike share, scooter share).

¹⁰ <https://mtc.ca.gov/news/mtc-lyft-kick-bay-wheels-east-bay-expansion>

¹¹ <https://www.sf.gov/news/san-francisco-announces-expansion-lyfts-bike-share-program-golden-gate-park>

Removing some of the out-of-pocket cost of transit travel would be an effective way of shifting trips to non-auto modes, reducing VMT, and reducing the vehicle parking demand at the Berkeley Waterfront. There has been a recent movement towards integrating fare structures between regional transit operators, including through the pilot Clipper Bay Pass program.¹² The success of that program could be used as inspiration for coordinating fare payments for riders who use AC Transit to access a ferry at the Waterfront.

Implementation: The difficulty of this strategy varies widely, depending on who subsidizes transit fares. If discounts can be applied directly to riders' Clipper cards, then logistical hurdles may be minimal. Micromobility solutions in the City (i.e. VEO scooters) also provide reduced fee programs for those in need. Negotiations with AC Transit, WETA, and any other parties would likely be the major challenge of implementing this strategy. The Parks, Recreation & Waterfront Department would need to work closely with the City's Transportation Department to determine if this is a feasible measure.

EXPANDED AC TRANSIT SERVICE TO THE WATERFRONT

Effectiveness: +++

Ease of Implementation: ✓

Cost: \$\$

Overview: Currently, as of September 2024, AC Transit's Route 51B runs just one third of its routes to the Berkeley Waterfront, with the rest terminating around one mile to the east on University Avenue, at Berkeley Amtrak station. This alternating schedule results in service to the Waterfront only once every 30 minutes. Increasing the frequency of AC Transit service to the Waterfront could be an important step in shifting trips away from single occupancy vehicles. Frequent transit service is especially important when riders have to transfer between vehicles that each run infrequently, increasing the likelihood of long layovers and discouraging transit ridership.

Implementation: Ferry service at the Berkeley Waterfront may be cause enough for AC Transit to increase its usage of the Berkeley Waterfront as a terminus for Route 51B, especially if facilities at the pier can serve as layover facilities for bus operators. Otherwise, increasing transit frequency to the Waterfront would require significant coordination with AC Transit, and potentially subsidies from the City. Fortunately, there is existing 51B bus route infrastructure at the Waterfront, so the major hurdle would be securing increased operating resources for the expanded service.

ESTABLISH A TRANSPORTATION MANAGEMENT AGENCY

Effectiveness: +++

Ease of Implementation: ✓

Cost: \$\$\$

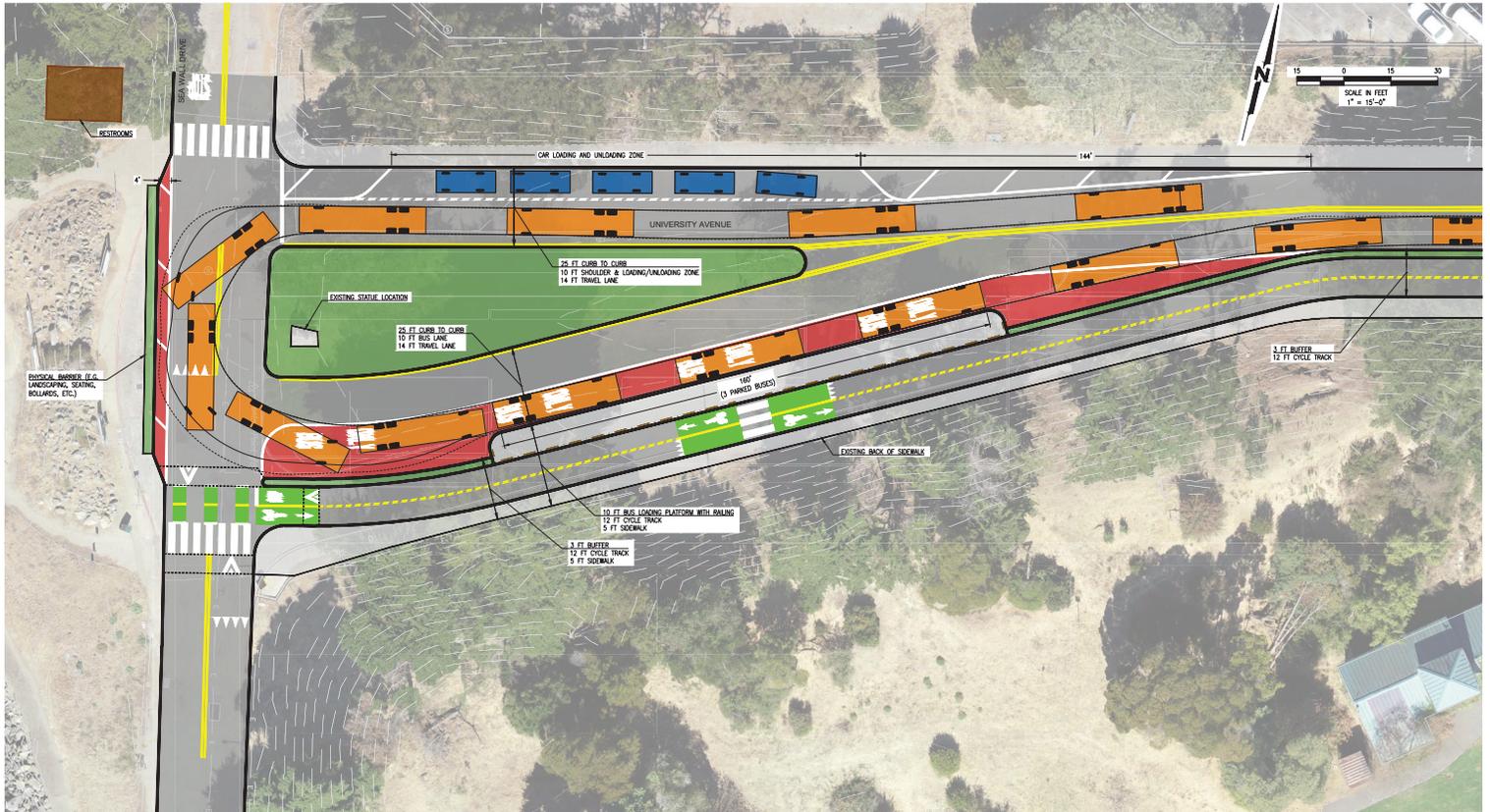
Overview: A transportation management agency (TMA) would be responsible for reducing single-occupant vehicle trips, reducing congestion and demand for vehicle parking, and improving access and circulation to and around the waterfront by increasing transportation options. A TMA would operate independently from the City and receive funding through various sources, including the City of Berkeley, board member dues, and the private sector.

Implementation: The success of establishing a TMA would depend on securing ongoing funding and committed participation of employers, businesses, and other interested parties who face parking and traffic challenges at the waterfront. Finding a balance between TMA activity and City staff would be a significant challenge, given the extensive role that the City of Berkeley already plays in managing the Waterfront.

¹² <https://mtc.ca.gov/operations/traveler-services/clipperr/clipperr-baypass>



Appendix D :
University Avenue Bicycle and Bus Stop
Improvements



SIMULATION SOFTWARE - AUTODESK VEHICLE TRACKING 2022

- SIMULATION DETAILS**
- AASHTO BUS-40
 - SPEED - 50MPH
 - NO STEERING LIMIT
 - LIMIT FORWARD TURN RATE
 - LIMIT TURNING FOR DYNAMIC EFFECTS AASHTO TABLE 3-13B (US)



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CITY OF BERKELEY
BERKELEY WATER TRANSPORTATION PIER FERRY
PROJECT
UNIVERSITY AVENUE AND SEAWALL DRIVE BUS STOP

FIGURE
1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SD	1421.01.55	FH/JRS	11/14/2024	



Appendix E :
Marina Boulevard Redevelopment
Conceptual Plan

