



City of Vallejo

VALLEJO PARKING MANAGEMENT AND PARCS PLAN

Final Report

May 2013



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EXECUTIVE SUMMARY

This report represents a system-wide study of current downtown and waterfront parking conditions, which will help to guide both short- and long-term City action.¹ It includes an analysis of parking supply and availability, and evaluates strategies to manage both the supply and demand for parking while maximizing its efficiency and convenience. This plan also includes specific immediate parking management recommendations for the paid parking system at the City's waterfront, including the recently constructed Phase I parking garage. Additionally, various future parking management policies and programs are presented in conjunction with trigger points for City consideration and to guide long-term parking management. Finally, recognizing that wayfinding elements are crucial to a successful, vibrant downtown, this plan includes strategies for effective signage that will complement improved parking management, and instill a unique sense of place.

The contents of this report include:

- **Chapter 1: Introduction.** An overview of the planning goals, context, and process of the Vallejo Parking Management and Parking Access and Revenue Control System (PARCS) Plan.
- **Chapter 2: Existing Conditions.** A review of existing parking management policies in the City of Vallejo, existing parking supplies, utilization rates, and average length of stay, as well as the results of a ferry rider mode of arrival survey.
- **Chapter 3: Parking Goals and Best Practices.** A collection of best practices from other communities with similar parking issues as Vallejo, as well as goals for the waterfront and downtown parking system developed based on the existing conditions analysis of current parking challenges, best practices, input from the public, and interviews with stakeholders.
- **Chapter 4: Waterfront and Downtown Parking System Recommendations.** A suite of recommendations to manage both the supply and demand for parking, maximize its efficiency and convenience, and achieve other community goals such as a revitalized Waterfront and Downtown area.

SUMMARY OF EXISTING CONDITIONS

Nelson\Nygaard's parking analysis yielded various key findings related to parking supply, regulations, utilization, and turnover in the waterfront and downtown areas. In sum, finding on-street parking along a few "front door" block faces or lots can be difficult, especially during special events such as Giants game days and the Farmer's Market, but ample parking supply exists to meet current demand. Pockets of high demand and the perceived difficulty of parking Downtown and along the Waterfront are due to the lack of a coordinated parking management plan, not the

¹ This plan's study area includes all blocks to the west of Sonoma Boulevard, South of Florida Street, East of Mare Island Way, and north of Curtola Parkway.

need for significant additional parking supply. The specific findings of the parking analysis are summarized below:

Key Finding #1: Downtown Vallejo contains a large amount of parking, occupying a large amount of land area.

A total of 3,421 parking spaces exist in the various on- and off-street facilities in the overall study area. Overall, 30% of the existing supply is located on-street (1,025 spaces), and 70% is located in both public and private off-street lots (2,396 spaces). Surface parking currently consumes 22% of the study area's total land area.

Key Finding #2: Existing parking supplies meet current levels of demand, though some hot spots of high demand exist in the Downtown and Waterfront area. During peak demand periods (such as Giants game days), these utilization trends are exacerbated.

Taken as a whole, overall utilization rates are below target rates. Target "effective utilization" rates are 85% for on-street spaces and 90% to 95% for off-street spaces. In other words, using pricing and other parking management policies to maintain a 15% vacancy rate for on-street parking and 5-10% vacancy rates for off-street parking will help ensure that motorists can always find parking close to their destination within a reasonable amount of time and a minimal amount of time-wasting and congestion-inducing "circling" around searching for an available space. Utilization rates much below these targets indicate a diminished economic return on investments in new parking facilities.

Various hot-spots of high demand do exist, however; during the peak hour on Thursday, ferry commuter demand, combined with Giants game day demand caused some of the off- and on-street facilities closest to the ferry building to exceed a 90% utilization rate. Similarly, the Farmer's Market on Saturday resulted in various nearby on- and off-street facilities exceeding target rates. During both days, however, highly utilized facilities sat next to underutilized ones. These results indicate that in general there is an ample supply of parking in the study area during both weekdays and weekend days, and that any perceived challenges associated with parking are likely due to inefficient management of existing supply.

It should also be noted that current facility availability represents a point of constrained supply; the waterfront parking garage and its construction activities have closed once available on-street supplies, and the garage itself, with a capacity of 750 spaces, was not yet open at the time of these counts. Therefore, target utilization rates are not being met even with both ferry parking demand and a constrained supply; in other words, parking demand is still being met, even with ferry parking demand and fewer available off-street spaces than normal.

Key Finding #3: Average vehicle length of stay was above the posted time limit on some time limited blocks, indicating the need for increased enforcement.

While long-term parking in on-street spaces does not appear to be a major issue, some blocks may require more targeted enforcement in the future, especially during special events and when the ferry lots and the garage begin charging for parking. Average length of stay on some time limited blocks exceeded posted limits on both survey dates (Thursday and Saturday).

Key Finding #4: Demand for ferry rider parking is almost evenly split between Vallejo residents and non Vallejo residents, and not all ferry riders come via single-occupant vehicle.

The majority of the ferry rider survey respondents (55%), distributed as a part of this report, are Vallejo residents. The mode of arrival data suggest that using total daily ferry ridership to simplistically calculate daily ferry parking demand in a 1:1 relationship is inappropriate because approximately 32% of ferry passengers arrive at the ferry by some other mode than single-occupant vehicle (SOV).

PARKING GOALS AND BEST PRACTICES

The following parking goals were developed based on existing conditions analysis of current Waterfront and Downtown parking challenges, best practices from other communities with similar parking issues as Vallejo, input from the public, and interviews with key stakeholders.

- 1. Provide a parking system which is safe and secure for users at all times.**
Security in the Vallejo Station garage was rated as a high concern from stakeholders and members of the public.
- 2. Minimize cost for parking system users.** Set parking prices at the lowest possible level necessary to cover the operating and maintenance costs of the new parking structure and related parking facilities' costs. Minimize the impacts of parking prices on ferry riders through reduced price multi-day parking purchase options. Make some lower-priced all-day spots available at the periphery of the system, where spaces can be less expensively provided.
- 3. Make customer parking easy.** Access to the garage and payment methods should be as simple, understandable, and convenient as possible, since the majority of patrons will be extremely sensitive to any delays on their way to catch a ferry. In addition to providing a wide variety of payment methods, signage indicating the location of empty spaces can be of real benefit to people rushing to the ferry. The nearby Downtown District's commercial areas should preserve convenient parking spaces for customers, ensuring the highest turnover and productivity all along Georgia Street, with customers always able to find a space on their desired block throughout the day.
- 4. Provide value.** Work with local residents, merchants, and transit providers so that motorists feel they are receiving something of value if paying for parking.
- 5. Manage downtown and waterfront parking as a single, integrated system.** The parking supply for the Waterfront area and Downtown should be treated as a single, carefully managed pool. The Vallejo Station area benefits from a mix of uses, including transit hubs, offices, residences, restaurants and retailers which experience peak parking demand at different times of day. In order to utilize parking efficiently and minimize the costs of building new parking, sharing parking in this part of Vallejo should be a priority. This may require increased coordination between the city and privately-owned and -operated parking facilities to better utilize existing parking resources (e.g. encouraging shared parking in lots that are currently limited to use only by customers of the business that the lot belongs to), making them available to the public at times of day when spaces are not needed by their regular users.
- 6. Minimize parking spillover** into study area-adjacent neighborhoods.
- 7. Guide people to the right spot.** Minimize commuters parking in short-term spaces intended for downtown shoppers and visitors.

8. **Inform the garage users.** Provide appropriate information and signage so that motorists are able to understand parking regulations (such as hours of paid parking, time restrictions, etc.) with an appropriate level of enforcement so that scofflaws can't game the system.
9. **Enforce parking regulations.** A parking management plan can serve various users well, ensuring that long-and short-term parking spots are available. However, without consistent enforcement of parking regulations, no parking management plan can achieve its goals. Once a driver receives a citation for overstaying a time limit or for not paying for parking, they are far less likely to repeat that behavior. It is also important that enforcement be instituted as soon as paid parking is implemented in the garage, so it becomes part of the "parking culture" in the downtown and waterfront areas. A secondary benefit of parking enforcement is having a visible law enforcement presence that patron find reassuring.

By managing the Waterfront and Downtown parking system according to these goals and best practices, we believe that the City of Vallejo and its public- and private-sector partners will be able to ensure that the construction of the garage achieves its primary goals of supporting current and future ferry and bus transit ridership and the revitalization of Downtown and the Waterfront through redevelopment of surface parking lots.

RECOMMENDATIONS

The following suite of recommendations together seek to manage both the supply and demand for parking, and maximize its efficiency and convenience while also achieving other community goals such as a revitalized Waterfront and Downtown area. This plan recommends techniques to both address current challenges and also allow the City to be nimble in reacting to future parking challenges. Above all else, it proposes a parking management approach that utilizes policies and programs that will enable more efficient utilization of existing supply, while alleviating parking congestion in certain areas. Effective parking management can result in positive economic impacts for local businesses, as employees, residents, and visitors can all better utilize the parking supply to shop, dine, or recreate.

Recommendations are grouped into two types: those recommended for implementation in the immediate to medium term (within 5 years), and those for future consideration based upon various triggers and community support.

Short and Medium Term Recommendations

RECOMMENDATION #1: IMPLEMENT PAID PARKING IN THE NEWLY CONSTRUCTED WATERFRONT GARAGE AND EXISTING WATERFRONT LOTS.

We recommend the City institute paid parking in the newly constructed waterfront garage and the existing ferry parking lots. We also propose an initial grace period with no charge for parkers, so that users can get used to new garage. The City should provide clear communication that paid parking will be implemented within 3-6 months.

Paid parking in the waterfront garage and lots will cover the operations and maintenance costs of the new parking garage. We recommend setting parking prices at the lowest possible level

necessary to cover the operating and maintenance costs of the new parking structure and related parking facilities' costs, and minimizing the impacts of parking prices on ferry riders through reduced price multi-day parking purchase options.

RECOMMENDATION #2: ENFORCE AND EXPAND EXISTING TIMED ON-STREET RESTRICTIONS ON DOWNTOWN BLOCKS AND MONITOR DEMAND AND TURNOVER.

This recommendation entails expanding and streamlining on-street time restrictions Downtown to form a consistent and easily navigable regulatory environment, limit any potential spillover from ferry and employee parking demand, and ensure that prime “front-door” spaces are open for Downtown visitors and shoppers.

In parking, it is only possible to manage what is measured. This Plan also recommends that the City periodically collect parking occupancy data for both on- and off-street parking facilities, and additional turnover data for on-street spaces. This data will be essential for evaluating whether the policies recommended within this Plan are achieving their goals and when the City should consider implementing the medium/longer term Recommendations detailed in this Plan.

RECOMMENDATION #3: IMPLEMENT LICENSE PLATE RECOGNITION (LPR) ENFORCEMENT TECHNOLOGY.

License plate recognition parking enforcement systems replace the standard tire chalking process. Through a combination of license plate recognition, image capture, and GPS technology, the software records vehicle location, time/date, and license plate number.

The benefits of utilizing LPR technology include:

- Improves efficiency for enforcing time restricted parking, allowing parking enforcement officers to cover larger areas in less time and subsequently patrol on a more regular basis
- Increases revenues collected from parking citations
- Reduces injuries associated with chalking tires by hand
- Enables cities to better track scofflaws (people who have multiple outstanding unpaid parking tickets)
- Allows more flexibility over time and can be used for enforcement activities citywide (in both on- and off-street facilities)
- Can be used for planning studies
- Provides the most user friendly experience for monthly parkers as they don't have to interface with the payment machine each day

RECOMMENDATION #4: INSTITUTE NEW PARKING POLICIES FOR SPECIAL EVENTS, OVERSIZE VEHICLES, VALIDATIONS, AND PARKING RENTAL

The following recommendations and policies will further streamline the overall Downtown / Waterfront parking system, anticipating parking needs during special events, providing (within reason) for the needs of oversized vehicles, and complying with all ADA regulations:

Special Events: The City should monitor special event parking demand to ascertain whether any increase in parking demand can be accommodated with the existing Downtown/Waterfront

parking supply. If special event parking proves to be a problem, the City should consider the following actions (in order):

1. Work with owners of underutilized private parking facilities to make such facilities publicly-available during special events.
2. Work with organizers of special events to develop marketing materials intended to reduce parking demand by alerting attendees of other travel options and motorists of the locations of available parking.
3. Adjust parking pricing at on- and off-street facilities to better balance supply and demand.
4. Begin planning for the expansion of off-street parking facilities to add more supply in core demand areas.

Oversize Vehicles: The City should designate a limited number of off-street parking spaces (based on demand) for oversized vehicles. For un-priced and/or on-street parking, oversized vehicles will be allowed so long as they can fit within the marked spaces for a single without preventing other vehicles from parking in adjacent spaces or impeding / endangering travel by all modes (vehicles, buses, and bicycles) on the street where the curb parking space is located. Overnight parking of oversized vehicles on-street should be prohibited.

Parking Validations: Currently, most on- and off-street parking in the Vallejo Downtown/Waterfront areas is un-priced (free) but time limited. A validation program does not currently make sense in the context of free parking; offering such a program for the Waterfront garage and parking lots would reduce the parking fee revenues that are essential to cover the operating and maintenance costs for the garage.

ADA Parking Spaces and Payment: The City should continue to provide the required number of accessible / handicapped parking spaces in all on- and off-street public parking facilities, as stipulated under federal Americans with Disability Act (ADA) and California Building Code Title 24. In addition, the paths of travel from the accessible parking spaces should be fully accessible, per the ADA, California Building Code Title 24, US Access Board's Public Rights of Way Access Guidelines, and the City's ADA Transition Plan. Finally, parking payment machines in all waterfront parking facilities should be fully accessible, and motorists with disabilities will also be able to pay online and via phone to avoid visiting the physical payment stations altogether.

Businesses Renting Out Parking Spaces for Large Functions: The City should work with owners of underutilized private parking facilities that are not currently available to the public (e.g. employee-only parking) to make such facilities publicly-available during special events or other periods of peak parking demand.

RECOMMENDATION #5: INSTALL A COMPREHENSIVE SYSTEM OF PARKING-SPECIFIC WAYFINDING

Wayfinding strategies seek to efficiently coordinate movement within a district, pointing users of all modes of travel to the best access routes for their destination. Wayfinding is an important part of a comprehensive circulation and parking management strategy, improving the customer-friendliness of a neighborhood or district while also better distributing parking demand throughout a variety of parking facilities and directing visitors to major destinations.

The City should study potential locations for wayfinding signage, typically including:

- At the traditional entrances to Downtown or other districts
- At the entrances to major off-street facilities
- Along heavily used bicycle and pedestrian routes

Wayfinding is most effective when it is consistent, clean, and concise; all signage should be produced in a similar style. Regardless of the particular signage installation utilized, good design that is consistent with and supports the character of the neighborhood is critical for all signage elements.

RECOMMENDATION #6: IF AVERAGE RATES OF TURNOVER EXCEED POSTED TIME LIMITS ON DOWNTOWN BLOCKS, CONSIDER IMPLEMENTING AN EMPLOYEE PERMIT PARKING PROGRAM.

An employee parking permit program offers employers or employees the option to purchase a permit that provides priority parking in a designated area. Designated parking areas for employees can be located in off-street facilities, with employees eligible to park in those spaces during a specific time period. Ownership of a permit, however, does not guarantee the availability of a parking space. Employee permit programs are often established adjacent to major job centers or near commercial, retail, and entertainment districts.

Employee permit programs offer a number of key benefits to local businesses and employees, while helping to ensure that an area's parking supply is efficiently managed. These benefits include:

- Permits provide a consistent parking option for employees, reducing the need for an employee to "hunt" for a parking space or move their vehicle to avoid parking restrictions.
- Experience with other cities has shown that most employees will choose to pay for a permit that offers a reliable parking option over searching for free on-street parking and having to move their vehicle throughout the day.
- A convenient parking option makes it easier for employers to attract and retain employees.
- When employees park in popular on- or off-street spaces those spaces are no longer available for customers and visitors. Employee permits encourage participants to park in select areas while enhancing customer parking turnover at prime locations.

As a part of the City's ongoing parking data collection and evaluation, both occupancy and turnover data should be analyzed to make sure average length of stay does not exceed posted limits and that employees are not merely moving their vehicles to get around time limits. The City would have to employ the following implementation steps:

- Determine eligibility
- Designate specific on- and/or off-street facilities as an employee parking zone
- Determine the appropriate hours of operation
- Determine the appropriate permit cost
- Develop an effective enforcement program

RECOMMENDATION #7: IF OCCUPANCY LEVELS EXCEED 85% ON RESIDENTIAL BLOCKS, CONSIDER IMPLEMENTING A RESIDENTIAL PERMIT PARKING PROGRAM TO LIMIT SPILLOVER PARKING FROM FERRY RIDERS, DOWNTOWN VISITORS, AND EMPLOYEES.

The implementation of paid waterfront/ferry parking may cause spillover problems on residential streets, meaning on-street and off-street utilization may peak at rates higher than target rates. This would result in residents searching or “cruising” for parking in their own neighborhoods. This peaking of demand can also create resident frustration due to decreased availability of parking within close proximity to their homes. A Residential Permit Parking (RPP) program would eliminate spillover concerns and, coupled with routine enforcement, ensure that ferry parkers or long term visitors are not parking on residential streets and overwhelming the on-street supply.

A successful residential permit program should be guided by certain principles to ensure that the program not only reduces the impacts of spillover on residents, but also makes parking convenient for other users. These principles include:

- **Any permit program should be established with a high level of community support.** Most cities with an RPP require a minimum number of residents in the proposed RPP area to sign a petition of support.
- **The number of residential permits issued should not be unlimited.** If the number of permits issued far exceeds the actual parking supply, it is likely that residents will still find it difficult to park on-street.
- **Pricing of permits is a crucial component to success.** RPPs require city resources to develop, manage, and enforce. By law, cities are allowed to recover these administrative costs through the pricing of permits.
- **Do not waste excess parking supply.** Many streets with permit restrictions still have available parking supply at various times throughout the day. These spaces should not sit empty and underutilized, but should be made available to non-residents willing to pay for them.

If occupancy rates on residential on-street blocks exceed 85%, the City should undertake an RPP Action Plan, detailing the need for RPP and setting the appropriate RPP program components. These components include the following:

- Program boundaries
- Number of residential permits issued
- Residential guest parking
- Non-residential visitor parking
- Permit costs
- Permit types
- Days, hours, and type of operation
- Distribution system
- Staffing
- Initiation process
- Signage

- Eligibility and Requirements (such as proof of residency and/or DMV registration)

Recommendations for Future Consideration

The following recommendations are for future consideration and based upon various triggers (such as parking occupancy levels) and Community Support.

RECOMMENDATION #8: IF OCCUPANCY LEVELS EXCEED 85% ON DOWNTOWN AND/OR WATERFRONT BLOCKS, INSTALL METERS AND UTILIZE DEMAND-BASED PRICING TO MANAGE DEMAND.

This recommendation proposes the elimination of time limits on Downtown and Waterfront blocks that surpass 85% occupancy. Instead, it is recommended that the City install “smart” parking meters and price on-street parking as a means to make parking more convenient and accessible for residents and visitors. Motorists should be allowed to park in an on-street parking space for only a specific amount of time. A time limit will deter commuters (i.e. ferry riders) from parking on-street all day and direct them to utilize off-street parking, while providing flexibility to shoppers and visitors wishing to stay for more than just a few hours. More importantly, meter pricing will improve convenience by helping to ensure turnover and parking availability for customers. Meter prices would be based on length of stay and also adjusted to respond to seasonal fluctuations in demand so that when parking demand is higher or lower, prices would increase or decrease accordingly.

Target occupancy rates for on-street spaces should be 85% and 90% for off-street spaces, which would translate into approximately one space per block and several spaces per lot being available during peak hours.

The primary rationale for installing parking meters in Downtown Vallejo and the Waterfront area is to ***make parking more convenient and accessible for residents and visitors.***

Finding an on-street parking space in many parts of Downtown, especially during the summer and special events, can be very difficult because motorists will always attempt to seek out free on-street spaces rather than pay for parking in an off-street lot. By using moderate pricing levels, meters can effectively regulate demand and more evenly distribute vehicles among the other parking assets in Downtown. The use of the meters and pricing structures (described in proceeding sections) has been shown to reduce the incidence of parking violations and the number of tickets issued to motorists in other jurisdictions.

RECOMMENDATION #9: ESTABLISH A COMMERCIAL PARKING BENEFIT DISTRICT IN DOWNTOWN VALLEJO

Parking Benefit Districts (PBDs) are defined geographic areas, typically in downtowns or along commercial corridors, in which any revenue generated from on-street and off-street parking facilities within the district is returned to the district to finance neighborhood improvements. PBDs require local parking revenue to stay local, while financing neighborhood improvements. PBDs allow local merchants and property owners to clearly see that the monies collected are being spent for the benefit of their district, on projects that they have chosen. In turn, they become willing to support, and often advocate on behalf of, demand-based pricing.

RECOMMENDATION #10: ALLOW SHARED PARKING AMONG DIFFERENT LAND USES BY RIGHT

Vallejo should allow different land uses to share parking. In order to make the process of securing approval for shared parking less onerous for new development and adaptive reuse projects, the City should:

- Allow parking to be shared among different uses within a single mixed-use building by right
- Allow parking to be shared between residential buildings and an off-site parking facility by right, provided that the off-site facility is within 1,000 feet of the building entrance
- Off-site shared parking located further than 1,000 feet should be considered at the discretion of staff, so long as there is documentation that reasonable provision has been made to allow off-site parkers to access the principal use (e.g. a shuttle bus, valet parking service, free transit passes, etc.)
- Mandate that new non-residential parking be available to the public during non-business hours

This maximizes the use of existing parking facilities by exploiting the different periods of parking demand for different land uses.

RECOMMENDATION #11: ELIMINATE/REDUCE PARKING MINIMUMS, IMPLEMENT PARKING MAXIMUMS, AND ESTABLISH AN IN-LIEU FEE

In order for Vallejo to realize its goals for the ongoing revitalization of downtown, the City's parking policies must support those goals. Minimum parking requirements, however, have emerged as one of the biggest obstacles to many cities' efforts to encourage new residential and commercial development in their downtown areas. Minimum parking requirements typically require more than one square foot of parking area for every square foot of building. These requirements can be particularly damaging to uses, such as eating establishments, which help create vibrancy and life in the downtown area.

We recommend eliminating non-residential minimum parking requirements, reducing residential minimum requirements, instituting maximum requirements, and establishing an in-lieu fee. The maximum parking requirement for both commercial and residential uses should be set at a level to allow development flexibility while meeting the City's goals of creating a vibrant, walkable downtown and waterfront.

In addition, the City should institute maximum parking requirements for new development based on existing street capacity and traffic reduction goals. This strategy will promote a cohesive and walkable downtown area. Limits should be set high enough to accommodate future development.

The in-lieu fee program would provide an alternative to developers where providing required amounts of on-site parking is either cost prohibitive or undesirable.

1 INTRODUCTION

This report represents a system-wide study of current downtown and waterfront parking conditions, which will help to guide both short- and long-term City action.² It includes an analysis of parking supply and availability, and evaluates strategies to manage both the supply and demand for parking while maximizing its efficiency and convenience. This plan also includes specific immediate parking management recommendations for the paid parking system at the City's waterfront lots, including the recently constructed Phase I parking garage. Additionally, various future parking management policies and program are presented in conjunction with trigger points for City consideration and to guide long-term parking management. Finally, recognizing that wayfinding elements are crucial to a successful, vibrant downtown, this plan includes strategies for effective signage that will complement improved parking management, and instill a unique sense of place.

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CONTEXT AND GOALS

The City of Vallejo has determined through the Downtown Specific Plan and Waterfront Planned Development Master Plan that in order to revitalize the Downtown and Waterfront areas, surface

² This plan's study area includes all blocks to the west of Sonoma Boulevard, South of Florida Street, East of Mare Island Way, and north of Curtola Parkway.

parking (which currently consume 22% of the study area's land area) should be consolidated to allow for transit-oriented development. Having large areas for parking near the water serves one group of users – ferry riders – but during times when it is not used, the Waterfront area – which might be an attractive and lively place to visit, can seem empty and somewhat forbidding to pedestrians.

Figure 1-1 Downtown Specific Plan Rendering of a Future Virginia Street



Source: City of Vallejo Downtown Specific Plan

The City has constructed a parking garage to serve patrons of the Vallejo Ferry Terminal, many of whom arrive by car from other cities, and who need long-term parking in the waterfront area. At the same time, other users of services in the area need some short-term parking available to them throughout the day.

Balancing the needs of the long-term ferry parkers and the shorter-term shoppers and visitors can best be achieved when guided by sound principles of parking management. Parking can serve to meet community goals besides accommodating cars, such as making the downtown more walkable and pleasant, and releasing land for higher uses. Once ferry parking is accommodated in the structure, the surface lots can then be redeveloped to be more economically productive, and at the same time, to create a more friendly and lively downtown.

Development of the Waterfront and Downtown Area

The City of Vallejo has been working on plans for the redevelopment of downtown Vallejo and the waterfront for many years. These plans took on a heightened level of importance when the Mare Island Naval Shipyard shut down operations in 1996, creating both challenges and opportunities. At the present time, redevelopment activity in downtown and the waterfront has slowed due to the overall economic downturn; however, the city has moved forward with the construction of a new bus transit center (Vallejo Station) and an adjacent parking garage to replace the surface parking lot for the ferry terminal, making way for the transition of the city's downtown property, currently in surface parking, into more uses that attract and serve commuters, residents and visitors.

While the current state of the economy has slowed development, these short-term hurdles need to be balanced against the long-term forecast for a more robust, mixed-use downtown ferry station area. The demands on the new parking structure may change over time, so the parking management plan should build in flexibility and adaptability to serve potentially changing parking needs over time.

Impacts of the Ferry Terminal and Transfer Center

The Vallejo Ferry is the city's most direct connection to San Francisco. The ferry draws approximately 2,300 passengers every weekday,³ or about 1,150 passengers leaving from Vallejo. Just over 50% of ferry riders live in Vallejo itself, with most driving to the ferry from surrounding cities. Of the total passengers, 91% drive to the Vallejo ferry (23% in carpools and 68% alone), and just under 70% park there as well,⁴ creating traffic on surface streets and a large demand for parking. This has led to the allocation of large areas to parking lots, now being redesigned for other uses as the structure comes online.

Figure 1-2 The Vallejo Ferry Terminal (right) and Bus Transfer Center (left)



Source: Nelson\Nygaard

³ MTC Statistical Summary of Bay Area Transit Operators, 2008-2009

⁴ Nelson\Nygaard Vallejo Baylink Rider Survey, 2012

The bus transfer center is also an important generator of travel demand. Almost a quarter of bus system boardings occur Downtown, which represents the single greatest spot of boarding activity in the system. Downtown is already an important destination and future development will increase its importance.

The City previously provided ferry patrons with free parking for up to 1,200 cars in free surface parking lots and on unregulated public streets in the vicinity of the ferry terminal. Streets in the vicinity of the ferry and bus terminals provide a mix of restricted and unrestricted parking. With the implementation of paid parking in Waterfront facilities, an equivalent number of spaces will still be provided, though they will be paid facilities.

Ensuring convenient and available parking for ferry and bus riders is key for the success of the ferry, and by extension, the success of the waterfront and downtown redevelopment and the municipality. However, passengers are very concerned about the possibility of parking charges at the Vallejo Station/Downtown garage as this could increase their overall travel costs relative to driving for the entire commute trip.

Planning for Future Parking Demand

The City is building a 1,200 space parking structure intended to replace all surface parking that is currently used for ferry parking. The garage is being built in two phases: Phase I, now completed, provides 750 spaces; Phase 2 will add another 450 spaces in a second structure, for a total of 1,200 spaces.

Figure 1-3 Recently Completed Phase I Parking Garage



Source: City of Vallejo

The payment system will be put in place to generate just enough revenue for the operation, maintenance and capitalized maintenance costs of the parking structure. In other words, the City intends to charge the lowest possible price for parking to pay for the costs of running the garage.

There is a concern that ridership on the ferry may be discouraged by charging for ferry parking when parking has always been provided to ferry commuters for free. This parking management plan minimizes the financial impacts on ferry riders while this ensuring that ferry riders can always find a parking space.

PROCESS AND TIMELINE

In the summer of 2011, the City contracted with Nelson\Nygaard to complete a comprehensive Downtown/Waterfront Parking Management and Parking Access and Revenue Control Systems (PARCS) Plan, coinciding the with construction of a new waterfront parking garage. The effort included extensive community outreach, as chronicled in the proceeding section, beginning in the fall of 2011 and continued through the fall of 2012. Parking occupancy and turnover data was collected in the summer of 2011, and updated in the fall of 2012. The project was on hold between the winter and spring of 2012 as the City refined its costing estimates for operation and maintenance of the new garage. The project was reinitiated in the summer of 2012 and this document represents its conclusion.

COMMUNITY INPUT

Stakeholder Interviews

As a part of the existing conditions analysis, the Nelson\Nygaard team conducted a series of stakeholder interviews with community members identified by the City of Vallejo. In total, four stakeholders were interviewed representing the Vallejo Convention and Visitors Bureau, The Vallejo Chamber of Commerce, Vallejo Main Street, and the Ferry Riders Group. All interviewees were asked the same questions related to parking supply, parking management, and priorities for the downtown and ferry parking system. The results from these interviews included the following:

Stakeholder Issues/Concerns:

- High vacancy rate of downtown commercial space
- Crime/security
- Lack of police presence
- Maximizing the potential of the Waterfront
- Creating an atmosphere similar to that around the San Francisco Ferry Building
- Marketability of the City overall to visitors and businesses
- Availability of long term commuter parking

Stakeholder Ideas for Parking Management in Vallejo:

- Expansion of time-limited on-street parking regulations to limit long term parking in Downtown on-street facilities.
- Proper lighting, cameras, patrolling, and enforcement to ensure the safety and security of the parking system
- Use construction of the garage and the parking management plan as an opportunity to further the beautification of the Downtown and Waterfront area
- Initial free or reduced rate trial program of paid parking
- Discounted rate for regular ferry riders
- Signage indicating location and amount of vacant parking spaces
- Use technology to maximize the convenience of the parking system

Technical Advisory Committee

A Technical Advisory Committee (TAC) was also assembled as a part of the Parking Management and PARCs planning process. The TAC included various members of City departments, including Public Works, Planning, Finance, and Police. Representatives from Solano Transit (SolTrans) and the Water Emergency Transportation Authority (WETA) also served on the Committee. The role of the TAC was to provide input from the perspective of related City departments.

Public Workshops

Four separate workshops were held as a part of the Parking Management and PARCS Planning process, one each on the following dates:

- Wednesday August 31, 2011
- Wednesday October 5, 2011
- Thursday May 31, 2012
- Wednesday May 1, 2013

The workshops were attended by 35, 13, 20, and 3 members of the public, respectively. Publicity for the workshops included contacting Vallejo Ferry riders through the Vallejo Ferry Facebook page, WETA's Vallejo Ferry email list (~2000 people), posting on web sites for Vallejo Transit and BayLink, distribution of flyers to weekday ferry passengers, posters on the ferry, and announcements over the public address system on the ferries. The City notified the mayor and City Council of each meeting, sent an email announcement to their list of city-related groups, and also mailed the meeting flyer to all addresses within the study area. In addition, a display ad was placed in the Vallejo Times-Herald on the Sunday prior to each meeting, and an article on the workshop and the plan appeared in the Times-Herald the day prior to each workshop. All publicity materials included the project phone number and e-mail address to make sure that those who couldn't attend any of the workshops in person could still have the opportunity to provide input to the project team.

Following the May 2012 workshop, a forum was opened on the City of Vallejo's "Open City Hall" website where members of the public were asked to comment on the proposed parking plans and fees.

Figure 1-4 Third Public Workshop, Held on Thursday May 31st, 2012



Source: Nelson\Nygaard

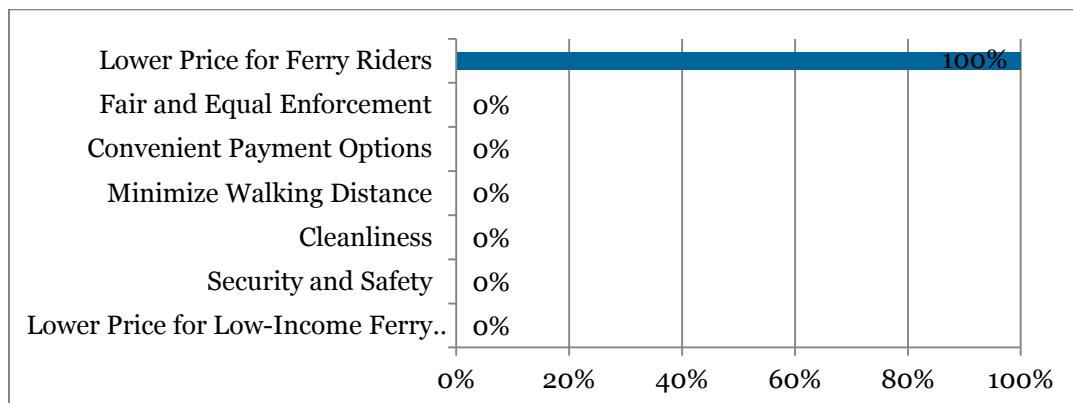
Questions and comments made during the workshops ranged from future pricing of the new waterfront parking garage to planned safety measures for the ferry parking system, and encompassed the following higher level themes:

- **Safety:** Many expressed concern about the safety of the current parking lots and the future garage. The City plans to hire additional security staff to monitor the paid lots and garage regularly. The garage was also constructed to be very open and will also have cameras that will be monitored by Vallejo Police Department
- **Pricing:** Many commented that regular ferry riders should be charged a lower price to use the garage than less frequent user. Others feared that a parking charge will discourage people from shopping downtown. Additional attendees insisted that the parking prices are set too high, and that parking should remain free. Finally, some suggested that the City should consider a 3-month trial at a lower rate. The cost to park for a month at the Vallejo ferry garage will be significantly less than the cost to park for a single day in downtown San Francisco. The cost to park for a year at the Vallejo ferry garage will be significantly less than the cost to park for a single month in downtown San Francisco/ The project team's goal based on stakeholder feedback was to charge the lowest daily and monthly parking charges that would cover (or come close to covering) annual garage O & M costs. The City also plans to institute a 3-month trial where all parking will be free of charge to help commuters get a sense for the new parking system. Based on usage data during this trial, the City may make adjustments to how the parking system is managed.
- **Regulations/hours of operation:** Many asked what the hours of operation and enforcement hours would be of the garage and paid parking system.
- **Monthly pass options:** Many suggested that a monthly pass option be available for frequent ferry riders.

- **Payment technology:** Various attendees asked what type of payment technology would be available, particularly given that ferry riders are particularly sensitive to time, given their need to catch a ferry. Payment will be completed via a pay by space revenue control system. This system requires the user to input a unique ID such as their license plate number. The user will park, go to the machine, input the unique ID such as their license plate number and pay for the time to be used. This unit does not need the user to return to their vehicle. This system may take credit cards, vouchers, merchant validations, or cash payment and works with pay by cell. Furthermore, the City will employ License Plate Recognition (LPR) technology for general enforcement, meaning those who purchase monthly passes will never have to wait in line at a pay station as enforcement will have monthly pass holder plate numbers and/or ID numbers on record.
- **Impacts of paid parking:** Some expressed concerns regarding the effects of paid parking on Downtown and adjacent neighborhoods, including a potential decline in shoppers and the potential for spillover parking onto currently unregulated residential streets. This parking management plan includes tools to prevent parking spillover and facilitate easy trips to Downtown given various parking occupancy and turnover trigger points.
- **Overnight parking:** Some asked whether users would be able to park their vehicles in the garage and lots overnight.
- **Sufficient parking supply:** Various attendees expressed concern that new development would exacerbate current parking availability. New development will be required to provide parking for its uses. Phase B of the garage will be constructed as the surface lots are developed to provide adequate amounts of commuter parking.

At the second workshop, attendees were asked to rate their number one priority from the following list: (1) lower prices for frequent ferry riders, (2) fair and equal enforcement, (3) convenient payment options, (4) minimized walking distance, (5) cleanliness, (6) safety and security, and (7) lower prices for low-income ferry riders. As shown in Figure 1-5, all attendees chose lower prices for ferry riders as their number one priority.

Figure 1-5 Workshop Attendee Priorities



2 EXISTING CONDITIONS

As a part of this report, an extensive existing conditions analysis was completed to gauge current parking management practices and utilization and turnover trends. Effective management of the area's parking is integral to maintaining and enhancing the ultimate success of the downtown area. By examining existing parking conditions, this section facilitates a better understanding of how people are utilizing Downtown's current parking facilities, highlights parking challenges and inefficiencies, and provides a framework for developing a targeted parking management plan.

RELEVANT PREVIOUS STUDIES

There have been several parking studies done in recent years, including an inventory of parking spaces in downtown Vallejo, which covered to varying degrees the current study area. These include:

- A 2005 study by Kimley-Horn included an inventory of on-street and public lot spaces, including the number of permit-only spaces, conducted in March, 2004. The study area for this parking study is a subset of the current study area, omitting the blocks north of Capitol Street.
- A 2007 study by Wilbur Smith and Associates provides newer parking inventory and occupancy data for the four blocks included in the study. Parking occupancy was observed during a ten-hour period from 9:00 AM to 7:00 PM on a weekday and weekend day. The Saturday Farmer's Market had opened by this time and was included in the study.
- A 2007 study by Carl Walker, Inc. included a complete inventory of on-street and off-street parking spaces, including the number of spaces in each lot reserved for specific uses (city vehicles, permit only, etc.). This inventory also included private off-street parking reserved for specific users, but did not include residential parking for housing complexes or driveways, since they do not add to the public inventory.

Figure 2-1 shows the relative sizes and areas for the previous and current study areas.

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Figure 2-1 Past and Current Study Area Boundaries



PARKING ANALYSIS

Effective management of the area's parking is integral to maintaining and enhancing the ultimate success of the downtown and waterfront area. By examining existing parking conditions, this section facilitates a better understanding of how people are utilizing Downtown's current parking facilities, highlights parking challenges and inefficiencies, and provides a framework for developing a targeted parking management plan. It includes an overview of existing parking management policies, an inventory of study area parking supplies and regulations, the results of the occupancy and turnover data collection effort, and analysis of a ferry rider mode of arrival survey.

Figure 2-2 Ferry Riders during Giants Game Day



Source: Nelson\Nygaard

Parking Inventory and Regulations

An inventory of parking facilities was undertaken as part of this study and past studies. This section provides a brief overview of the parking inventory, which identified the type and amount of parking, as well as parking regulations.

Methodology

Parking inventory and regulations were taken from previous studies. For areas not included in past studies, regulations were determined through field observations by Nelson\Nygaard staff, who walked the study area, counted parking spaces, and noted regulations on each block face and in each off-street facility. Along some blocks of the study area, the on-street inventory was not clearly delineated by striping. In these cases, surveyors made educated assumptions of inventory based on a common size for an on-street parking space, typically 20 feet, or observed utilization. Furthermore, only off-street facilities that were accessible (i.e. not gated or closed for construction) were counted.

Parking Type, Amount, and Regulations

A total of 3,421 parking spaces exist in the various on- and off- street facilities in the overall study area. The Waterfront sub-area, defined as the area within a quarter to half mile of the ferry station (see Figure 2-7), contains 2,156 of those total spaces. Overall, 30% of the existing supply is located on street (1,025 spaces), and 70% is located in both public and private off-street lots (2,396 spaces). Figure 2-3 shows the parking inventory by space type for both the overall study area and the Waterfront sub-area. Figure 2-5 maps the parking inventory by break point.

Figure 2-3 Parking Inventory by Type

	Open to Public	Reserved or Private	Total	% of Parking
<i>Overall Study Area</i>				
On-Street	1,025	-	1,025	30%
Off-Street	1,222	1,174	2,396	70%
Total	2,247	1,174	3,421	100%
<i>Waterfront Sub Area⁵</i>				
On-Street	587	-	587	27%
Off-Street	1,010	560	1,570	73%
Total	1,597	560	2,157	100%

On-street facilities in the study area include unregulated spaces and time limited spaces. Time restrictions range from 24 minutes, 1 hour, 2 hours, and 3 hours, as shown in Figure 2-6. Two time-limited (3 hours) publicly available off-street facilities exist immediately adjacent to the ferry terminal on the west side of Mare Island Parkway, and three other time limited (3 hours and 4 hours) lots exist along York Street. A two hour public lot also exists along Virginia Street. The remainder of the study area's publicly available lots are currently unregulated. Various private and reserved lots exist for local businesses and offices uses as well, which typically are reserved for customers or tenants only.

⁵ See Figure 2-7 for Waterfront Sub Area boundaries (roughly the area south of Florida Street, west of Main Street, north of Curtola Parkway, and east of the water as depicted in green in Figure 2-7)

Figure 2-4 A Time Limited Downtown Block



Source: Nelson\Nygaard

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Figure 2-5 Study Area Inventory by Break Point



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Figure 2-6 On-Street Parking Regulations



Parking Utilization and Turnover

Methodology

As mentioned in the preceding section, new parking utilization and turnover data was collected for the on- and off-street facilities within closest proximity to the Ferry Station. Existing data from past parking studies and survey efforts were used for all remaining downtown on- and off-street facilities, as follows:

- On- and off-street facilities located in the blocks bound by Florida Street, Sonoma Boulevard, Capitol Street, and Santa Clara Street: previously collected August 2011 data
- On- street facilities south of Capitol street and outside of the new collection area shown in Figure 2-7: data from the 2005 study by Kimley-Horn
- Public off-street facilities south of Capitol street and outside of the new collection area shown in Figure 2-7: data from the 2005 study by Kimley-Horn
- Private off-street facilities south of Capitol street and outside of the new collection area shown in Figure 2-7: data from the 2007 study by Carl Walker, Inc.

In the new collection area, Nelson\Nygaard staff conducted a comprehensive utilization and turnover study for both on- and off-street spaces using trained data collection workers. The count days and times were:

- Thursday, September 27th, 2012 from 8AM – 2PM, every hour
- Saturday, September 29th, 2012 from 10AM – 2PM, every hour

The survey times were intentionally chosen to capture peak parking demand from ferry riders and to directly correspond to past survey times. The survey days were chosen to also provide as wide a range of parking conditions as possible, as parking demand tends to fluctuate a great deal by day of week and time of day. The count periods specifically captured peak parking activity during a typical weekday and weekend, as well as times of peak demand (such as Giants game days and the Saturday Farmer's Market).⁶ Each block face and off-street lot was counted every hour at approximately the same time of each counting period.

Furthermore, only off-street facilities that were accessible (i.e. not gated or where surveyors were refused entry) were counted. Therefore, the State Farm insurance lot along Mare Island Parkway (between Florida Street and Capitol Street, lot ID #1), and the private apartment complex lot along Butte Street (lot ID #2) were not included in this analysis as surveyors were refused access to both lots. Previously collected 2011 data was used for these two facilities.

In addition to analyzing parking utilization, parking duration data was also collected to gauge how often each space experiences “turnover” in both on- and off-street facilities. This data was collected during the same periods as the utilization data and involved surveyors noting the last three digits of each license plate, which can be used to identify vehicles without collecting any personal information.

⁶ The Giants played at 12:35 PM on Thursday and 6:35 PM on Saturday.

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Figure 2-7 2012 Data Collection Area and Facility Identification Numbers



Findings

Utilization

Overall Study Area

Figure 2-10 and Figure 2-11 map utilization rates in the study area at the time of peak demand on Thursday (1 PM) and Saturday (12 PM), respectively. On Thursday, overall combined on- and off-street utilization peaked at 59% (1 PM), while on Saturday overall utilization peaked at 37% (12 PM). On-street utilization was 43% during Thursday's peak, and 46% during Saturday's peak. Conversely, off-street utilization was higher during Thursday's peak (71%) than Saturday's peak (32%).

Taken *as a whole*, these overall utilization rates are below target rates (although individual areas and/or facilities do experience high utilization rates). Target “effective utilization” rates are 85% for on-street spaces and 90% to 95% for off-street spaces. In other words, using pricing and other parking management policies to maintain a 15% vacancy rate for on-street parking and 5-10% vacancy rates for off-street parking will help ensure that motorists can always find parking close to their destination within a reasonable amount of time and a minimal amount of time-wasting and congestion-inducing “circling” around searching for an available space. Utilization rates much below these targets indicate a diminished economic return on investments in new parking facilities.

Various hot-spots of high demand do exist, however, as shown in Figure 2-10 and Figure 2-11. During the peak hour on Thursday, ferry commuter demand, combined with Giants game day demand caused some of the off- and on-street facilities closest to the ferry building to exceed a 90% utilization rate. Similarly, the Farmer’s Market on Saturday resulted in various nearby on- and off-street facilities exceeding target rates. During both days, however, highly utilized facilities sat next to underutilized ones. These results indicate that in general there is an ample supply of parking in the study area during both weekdays and weekend days, and that any perceived challenges associated with parking are likely due to inefficient management of existing supply.

Figure 2-8 Illegal Parking on Giants Game Day



Source: Nelson\Nygaard

Figure 2-9 Saturday Farmer's Market



Source: Nelson\Nygaard

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Figure 2-10 Peak Hour Utilization, Thursday 1 PM



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Figure 2-11 Peak Hour Utilization, Saturday 12 PM



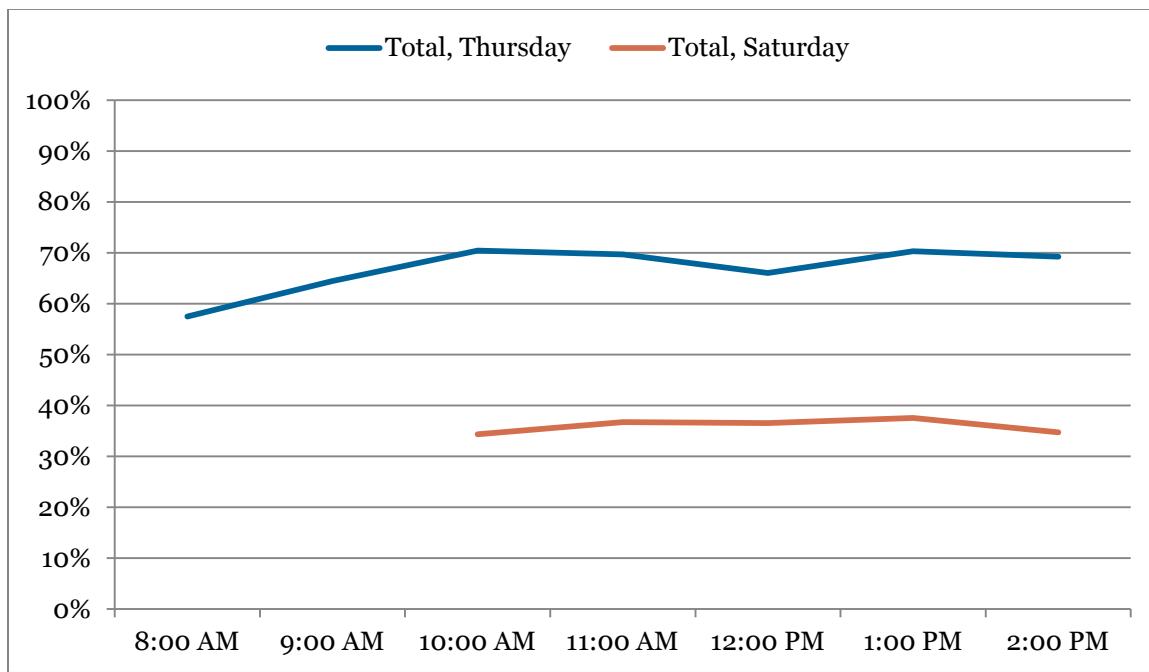
Waterfront Sub-Area

As shown in Figure 2-7, Nelson\Nygaard collected new occupancy and turnover data for the on- and off-street facilities within a convenient walk of the ferry building. This data collection area contains a total of 2,157 parking spaces, 587 of which are located in on-street block segments. The remaining 1,570 spaces are located in public and private off-street facilities throughout the study area. A total of 1,597 spaces are open to the public (i.e. not reserved or for private use only).

The overall utilization rate, as shown in Figure 2-12, was significantly higher on Thursday than on Saturday. In general, combined utilization for on- and off-street facilities was somewhat low, peaking at 70% (10 AM Thursday) and exhibiting a low of 34% (10 AM Saturday). Thursday's lowest utilization rate occurred at 8 AM (58%), while Saturday's peak utilization rate occurred at 1 PM (38%). Overall utilization numbers were higher on Thursday than Saturday during all count times.

It should also be noted that **current facility availability represents a point of constrained supply**; the parking garage and its construction activities have closed once available on-street supplies, and the garage itself, with a capacity of 750 spaces, was not yet open at the time of these counts. Therefore, target utilization rates are not being met even with both ferry parking demand and a constrained supply; in other words, parking demand is still being met, even with ferry parking demand and fewer available off-street spaces than normal.

Figure 2-12 Combined Waterfront Utilization (On- and Off-Street), by Day



As shown in Figure 2-13, off-street utilization was significantly higher than on-street utilization during Thursday's count period. On Saturday, however, on-street and off-street utilization rates roughly mirrored each other (as shown in Figure 2-14), likely due to the lack of time-limited regulations during weekend days.

Figure 2-13 Waterfront Utilization by Facility Type, Thursday

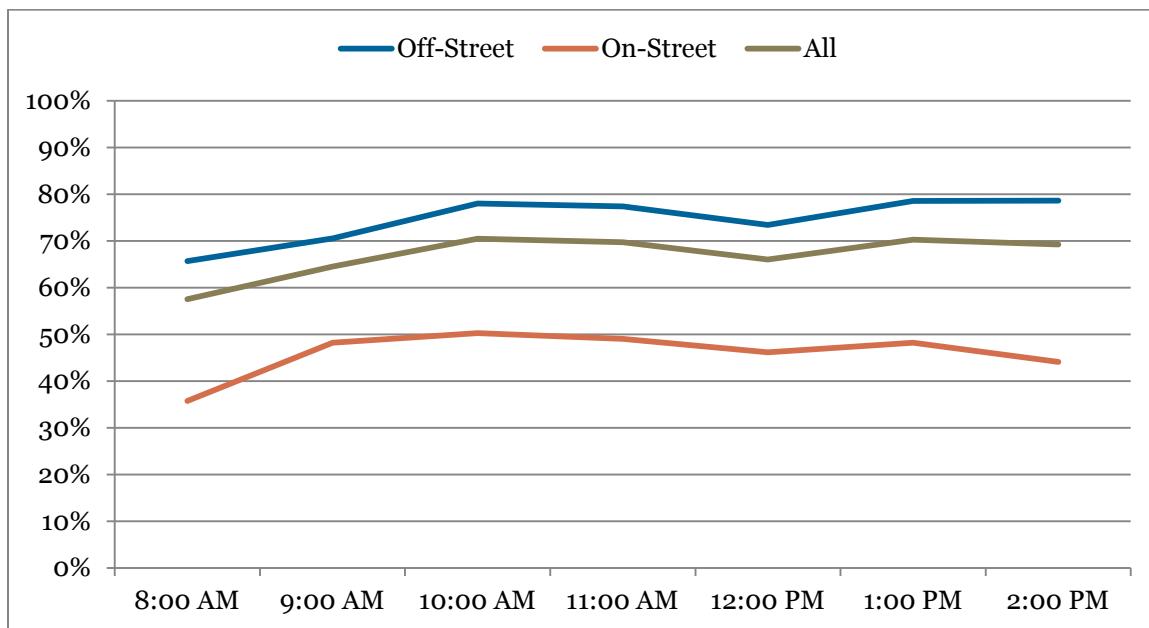


Figure 2-14 Waterfront Utilization by Facility Type, Saturday

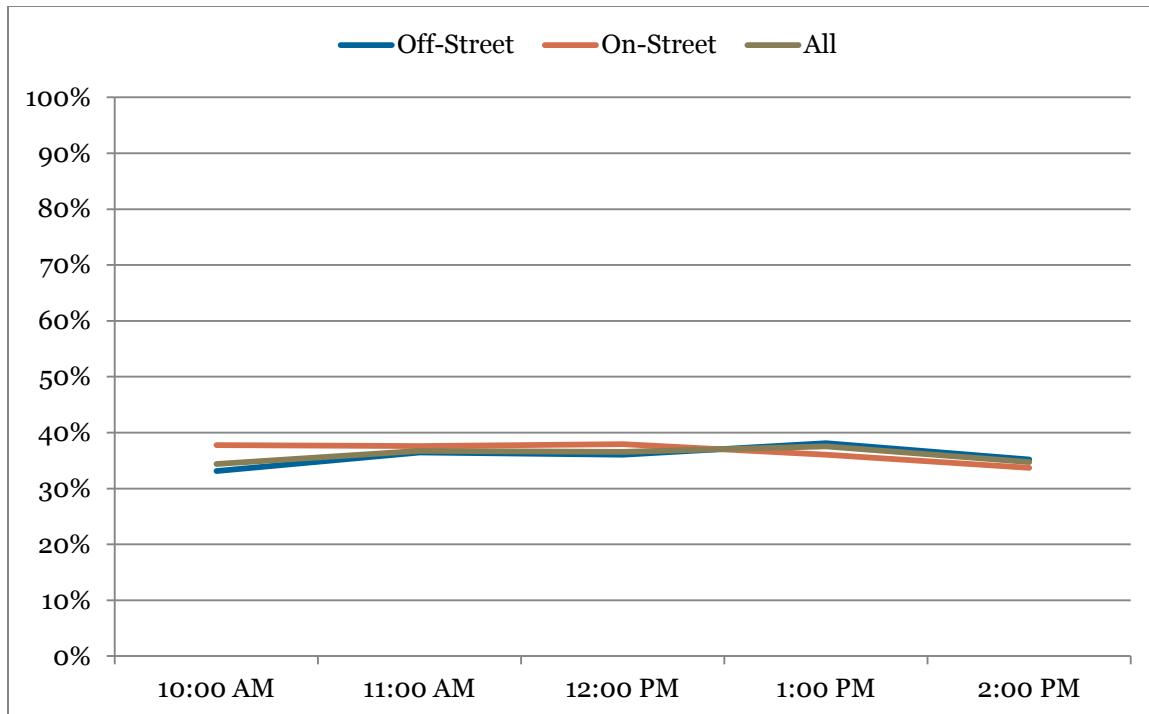
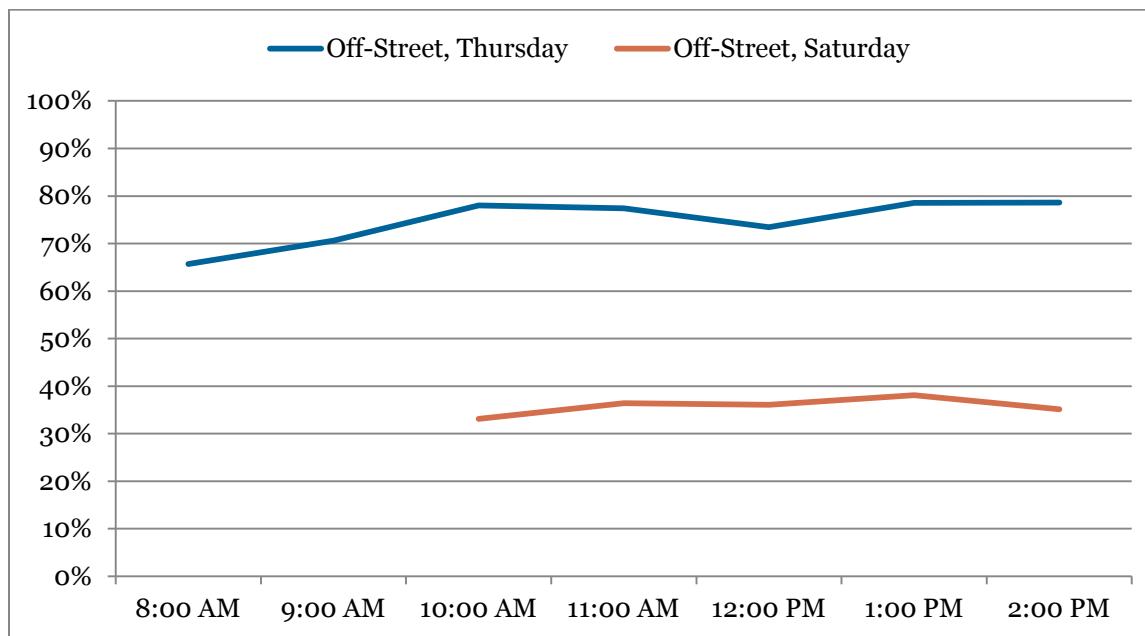


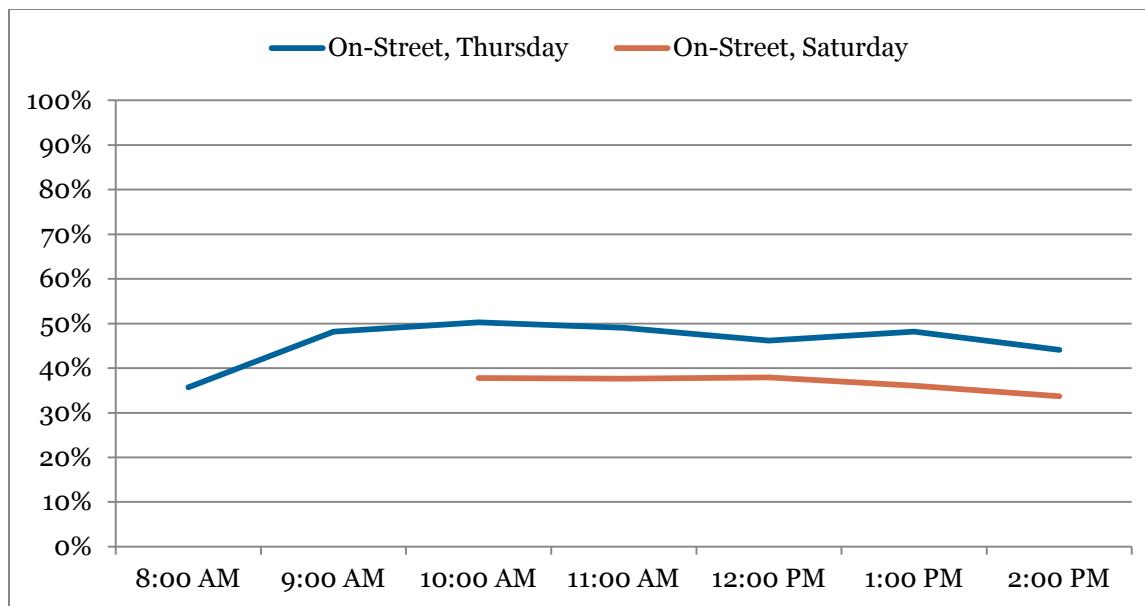
Figure 2-15 shows off-street utilization by count day. As mentioned above, off-street utilization rates were significantly higher on Thursday than on Saturday.

Figure 2-15 Waterfront Off-Street Utilization, by Day



Similarly, on-street utilization was also higher on Thursday, though not by as wide a margin. Figure 2-16 graphs on-street utilization by day.

Figure 2-16 Waterfront On-Street Utilization, by Day



During the peak hour on Thursday, ferry commuter demand, combined with Giants game day demand caused some of the off- and on-street facilities closest to the ferry building to exceed a

90% utilization rate. However, as noted previously, highly utilized facilities sat next to underutilized ones. These results indicate that in general there is an ample supply of parking in the study area during both weekdays and weekend days, and that any perceived challenges associated with parking are likely due to inefficient management of existing supply.

Figure 2-17 Waterfront Lot at Capacity



Source: Nelson\Nygaard

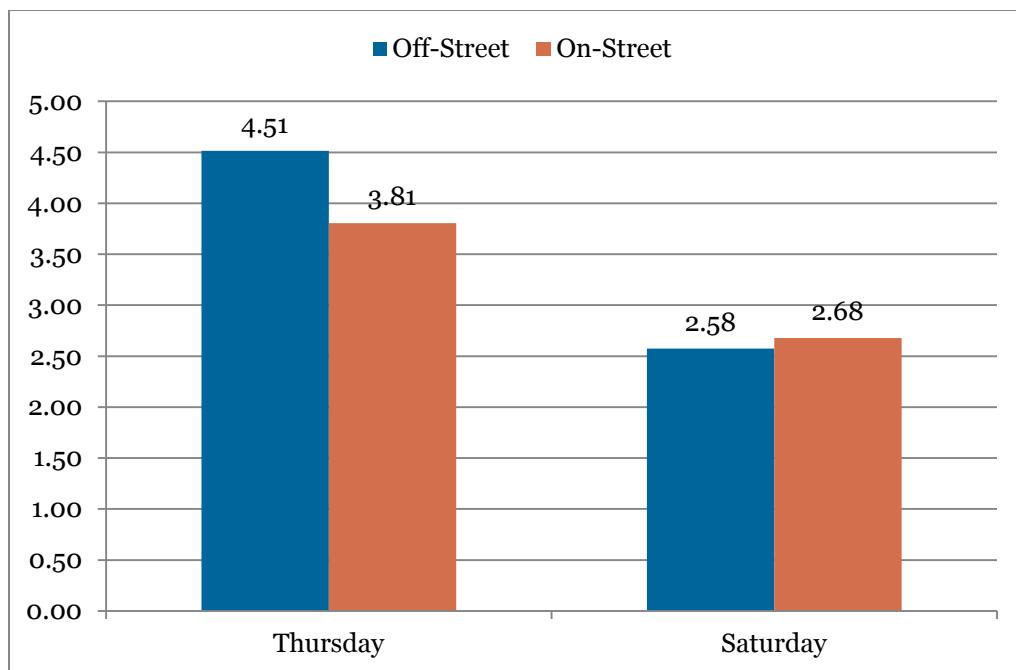
Turnover

The surveying effort also included an analysis of vehicle turnover. As shown in Figure 2-18, average vehicle length of stay was much longer on Thursday than Saturday for both on- and off-street facilities. This is likely due to the use of much of the parking in the waterfront/Downtown area by ferry commuters and Downtown employees (including City of Vallejo employees), whose vehicles tend to stay parked for longer portions of the day than other Downtown or Waterfront visitors. As the data collection area corresponds to the city's emphasis on collecting data related to parking demand generated by ferry riders, average length of stay values are also significantly higher than rates collected in previous studies (which included more traditional time-limited Downtown streets and lots, with lower average length of stays).

On Thursday, vehicles parked in off-street facilities stayed parked for an average of 4.51 hours, while those in on-street spaces stayed parked for an average of 3.81 hours. On Saturday, average length of stay was roughly equivalent between the area's on- and off-street facilities, at 2.68 and 2.58 hours, respectively. It is important to note that Figure 2-18 represents *average* parking duration *per space*. Therefore, while most vehicles appear to be observing posted parking restrictions, the data also shows that some vehicles were switching spots to avoid the posted time limits, and that others stayed well beyond the posted limits. It is possible that some employees of

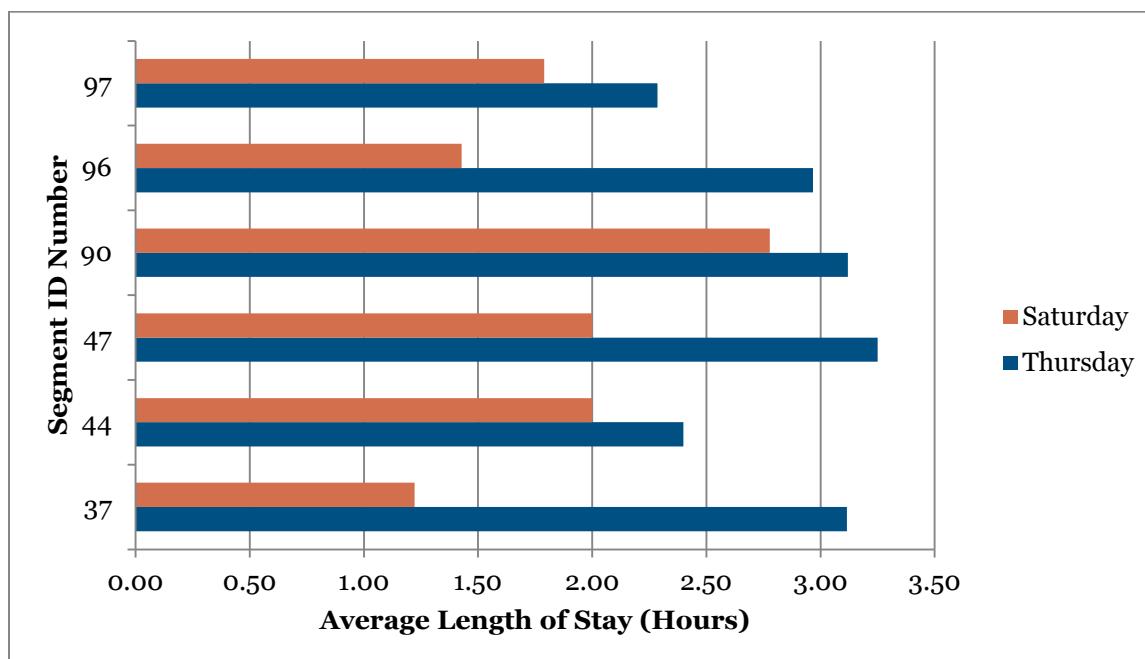
downtown businesses are parking in the free on-street spaces closest to their place of employment and moving their vehicles every two hours, representing an inefficient use of prime on-street parking. These types of spaces should be used by shoppers and visitors, not long-term parking for employees, which is better suited in off-street facilities.

Figure 2-18 Average Vehicle Stay (Hours) by Day and Facility Type



These parking restrictions are all enforced by parking control officers. While long-term parking in on-street spaces does not appear to be a major issue, some blocks may require more targeted enforcement in the future, especially during special events and when ferry lots and the garage begin charging for parking. More specifically, Figure 2-19 graphs the average length of stay for various time limited blocks in the waterfront Sub-Area. All segments limit parking to two hours except for segments 44 and 47, which limit parking to 24 minutes and three hours, respectively. Average length of stay on each of these blocks exceeded posted limits on Thursday, and two (segments 90 and 40) exceeded posted limits on Saturday as well.

Figure 2-19 Average Length of Stay for Time-Limited Blocks in Waterfront Sub-Area



Ferry Rider Survey

In addition to parking occupancy and turnover data collection, Vallejo Baylink ferry riders were surveyed by Nelson\Nygaard during both parking survey days. The survey asked about rider's community of residence (origin), estimated travel distance to the ferry, frequency of ferry use, and mode of arrival to the ferry terminal. This section provides an overview of the results from the Fall 2012 Vallejo Baylink ferry rider survey data collection effort. It includes a summary of the methodology and the key findings, as well as comparisons to past Vallejo Baylink mode of arrival data collected in 2010.

Methodology

During both parking count days, Nelson\Nygaard distributed and collected surveys to determine the mode split of ferry commuters accessing the ferry landing/waterfront area. The survey consisted of four written questions, printed on quarter cards, as shown in Appendix A. To encourage participation, ferry riders were informed that one respondent will be selected at random to win a \$25 gift card at Panama Red Coffee Company (the café located next to the Vallejo Ferry Building). Surveys were handed out on both days, to passengers boarding or waiting to board the following Vallejo to San Francisco ferries:

- Thursday – 7:00 AM, 7:45 AM, and 10:00 AM departures
- Saturday – 10:00 AM, 11:30 AM, and 2:00 PM departures

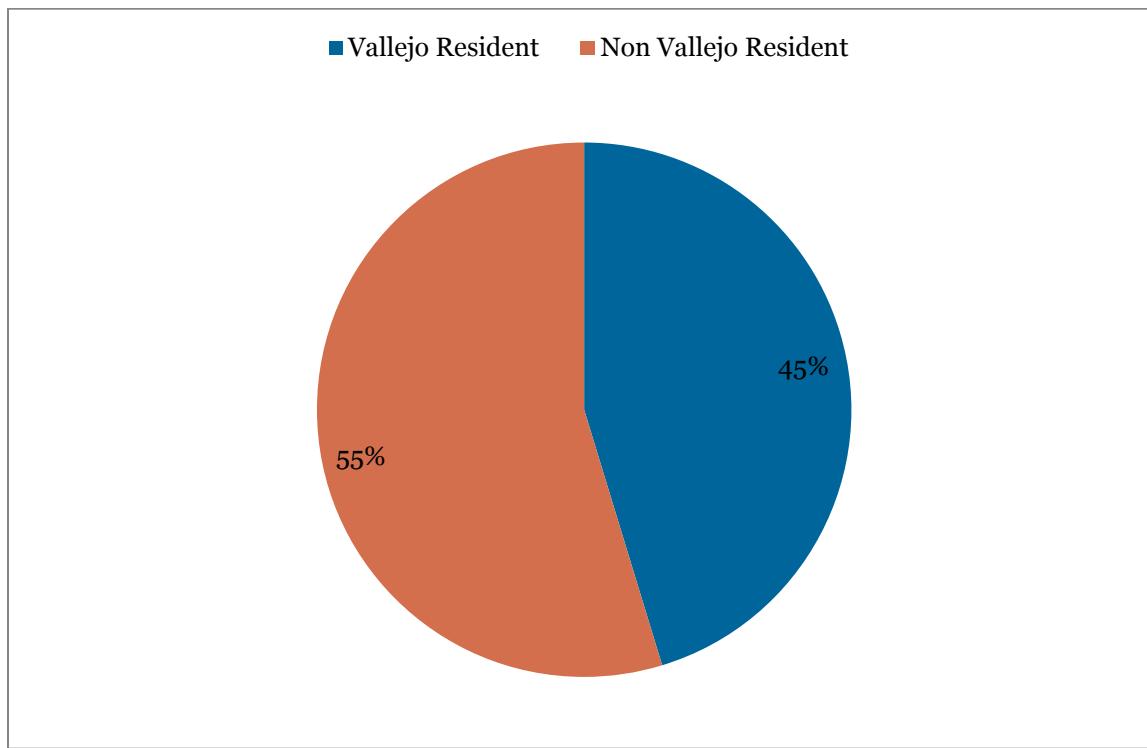
A total of 53 surveys were completed by ferry riders, representing an approximately 7% response rate.⁷

Findings

Community of Residence (Origin)

As shown in Figure 2-20, the majority of survey respondents (55%) are Vallejo residents. Of those coming from outside of Vallejo, the highest percentage (29%) came from Benicia, followed by Fairfield (25%), Napa (17%), and American Canyon (17%).

Figure 2-20 Survey Respondent Place of Residence



Estimated Travel Distance to Ferry

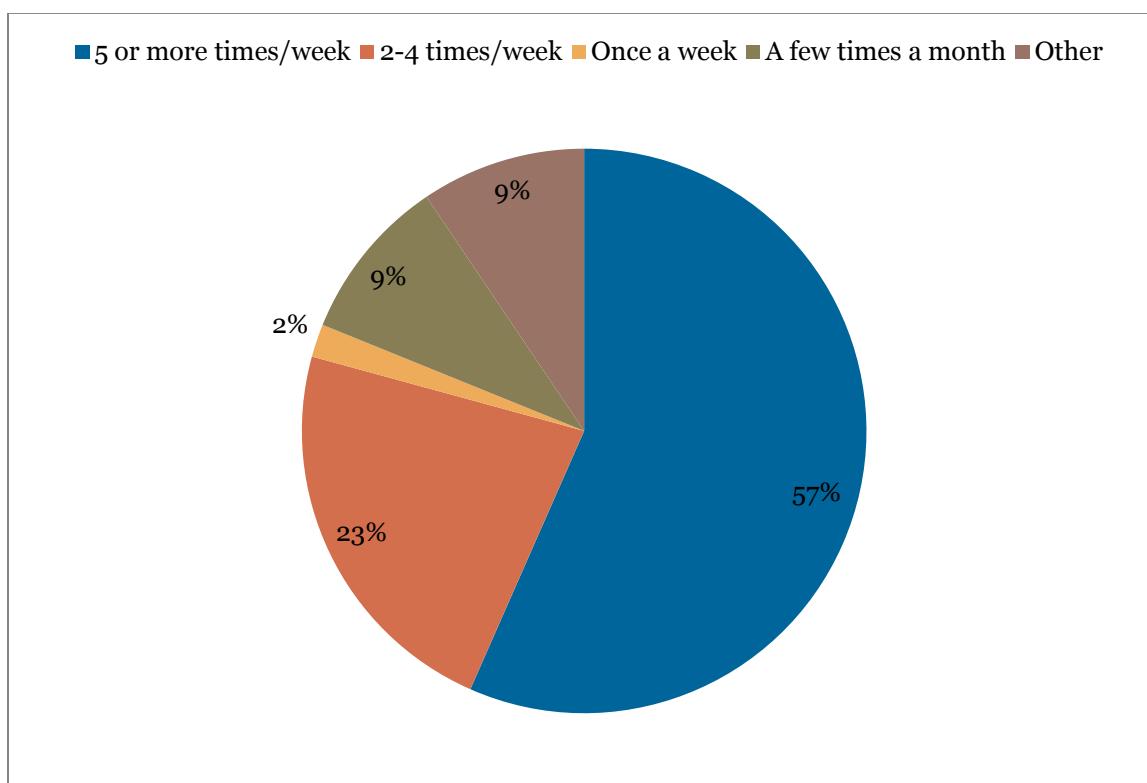
Survey respondents were also asked to report the approximate distance (in miles) between their place of residence and the Vallejo ferry terminal. Responses ranged from a high of 60 miles to a low of half a mile. The average of all survey responses was about 9.2 miles.

⁷ While ferry capacity is limited to 320 passengers, ridership numbers indicate an average of 130 total passengers per ferry during the departure times surveyed. As such, approximately 780 total passengers were present during the survey period.

Frequency of Ferry Use

As shown in Figure 2-21, most survey respondents (57%) ride the Vallejo Baylink ferry five or more times per week. Approximately 23% ride 2-4 times per week, 9% ride a few times a month, and 2% ride once a week. Those responding “other” to this question (9% total) indicated that this was either their first time riding the ferry (50%) or that they ride the ferry approximately once a year (50%). Given this distribution, it is clear that many ferry riders use the service to commute to work. At the same time, total weekly, monthly or annual ferry ridership can’t be used to simplistically calculate daily ferry parking demand in a 1:1 relationship because nearly 43% of ferry passengers do not ride the ferry every day.

Figure 2-21 Survey Respondent Frequency of Ferry Use

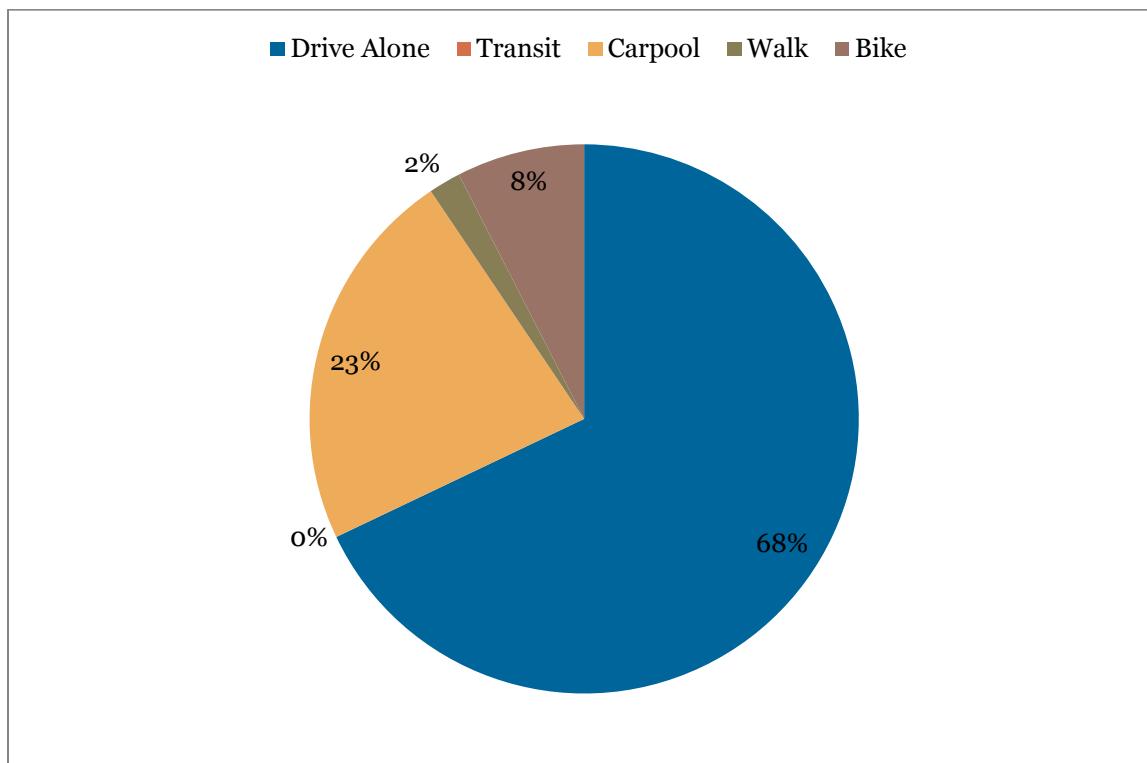


Mode of Arrival

Survey respondents were also asked how they accessed the Vallejo ferry terminal. As shown in Figure 2-22, the majority of respondents (68%) drove alone to access the ferry. Approximately 23% of respondents carpooled or were dropped off, while 8% biked to the station and 2% walked. In this survey, no survey respondent reported taking transit to access the Vallejo ferry terminal.

As with survey responses on frequency of ferry use, the mode of arrival data suggest that using total daily ferry ridership to simplistically calculate daily ferry parking demand in a 1:1 relationship is inappropriate because approximately 32% of ferry passengers arrive at the ferry by some other mode than single-occupant vehicle (SOV).

Figure 2-22 Survey Respondent Mode of Vallejo Ferry Building Access



Comparison of Fall 2012 Mode of Arrival Data to Fall 2010 Data

In November 2010, the Water Emergency Transportation Authority (WETA) contracted with Nelson\Nygaard Consulting Associates to conduct an on-board rider survey for Vallejo Baylink ferry. The survey was conducted on three days, Wednesday, November 17 and Saturday-Sunday, November 13-14. Surveys included a mode of arrival question for those accessing the Vallejo ferry terminal.

As shown in Figure 2-23, the 2010 data roughly mirrors the newly collected 2012 data with a few important exceptions. While the percentage of respondents reporting that they drove alone to access the ferry building was roughly equal (71% in 2010 and 68% in 2012), the percentage carpooling or dropped off was significantly higher in the 2012 data set (14% in 2010 and 23% in 2012).

Similarly, a significantly higher percentage of respondents reported biking to the ferry terminal in 2012 than did so in 2010 (1% in 2010 and 8% in 2012). Slightly fewer respondents reported walking to the ferry terminal and taking transit in 2012 as compared to 2010.

Figure 2-23 Mode of Arrival (2012 and 2010)

Mode of Arrival	2012 Data	2010 Data	% Point Change
Drove Alone	68%	71%	-3%
Carpool/Dropped Off	23%	14%	+9%
Walked	2%	4%	-2%
Biked	8%	1%	+7%
Transit	0%	2%	-2%
Other	N/A	7%	N/A

Possible explanations for the differences in mode splits include the increased costs of gasoline and other costs associated with driving, which could have prompted more commuters to either carpool or, if possible, bike to the ferry station.

Furthermore, as was mentioned by members of the public in numerous public meetings regarding the Vallejo Station Parking Management Plan, there exists a *perceived* shortage of parking in the ferry station area as a result of parking garage construction; this *perceived* shortage of parking could be encouraging ferry riders to carpool or be dropped off at the terminal as well.⁸

Additionally, the streetscape improvements along Mare Island Way (including the introduction of Class II bicycle lanes leading to the ferry terminal) could also encourage higher numbers of ferry riders to access the terminal via bicycle. The increase in access via bicycle could also simply mirror more general increases in bicycle use. Countywide, rates of bicycle commuting to work have been on the rise, generally. American Community Survey data revealed that daily bicycle work trips have nearly doubled between 2010 and 2011 (the most recent data available), though they still represent only 1% of all daily work trips.⁹

Synthesis of Parking Findings

As chronicled above, Nelson\Nygaard's parking analysis yielded various key findings related to parking supply, regulations, utilization, and turnover in the waterfront and downtown areas. In sum, finding on-street parking along a few "front door" block faces can be difficult, especially during special events such as Giants game days and the Farmer's Market, but ample parking supply exists to meet current demand. Pockets of high demand and the perceived difficulty of parking Downtown and along the waterfront are due to the lack of a coordinated parking management plan, not the need for significant additional parking supply. The specific findings of the parking analysis are summarized below:

Key Finding #1: Downtown Vallejo contains a large amount of parking, occupying a large amount of land area.

⁸ As documented in the Fall 2011 and Fall 2012 parking data collection summarized in this report, it is clear that there is ample parking available within close proximity to the ferry terminal to meet existing ferry parking demand.

⁹ 2011 American Community Survey 1-Year Estimates and 2010 American Community Survey 1-Year Estimates for Solano County

A total of 3,421 parking spaces exist in the various on- and off-street facilities in the overall study area. Overall, 30% of the existing supply is located on street (1,025 spaces), and 70% is located in both public and private off-street lots (2,396 spaces). Surface parking currently consumes 22% of the the study area's total land area.

Key Finding #2: Existing parking supplies meet current levels of demand, though some hot spots of high demand exist in the Downtown and Waterfront area. During peak demand periods (such as Giants game days), these utilization trends are exacerbated.

On Thursday, overall combined on- and off-street utilization in the entire study area peaked at 59% (1 PM), while on Saturday overall utilization peaked at 37% (12 PM). On-street utilization was 43% during Thursday's peak, and 46% during Saturday's peak. Conversely, off-street utilization was higher during Thursday's peak (71%) than Saturday's peak (32%). Taken *as a whole*, these overall utilization rates are below target rates (although individual areas and/or facilities do experience high utilization rates).

During the peak hour on Thursday, ferry commuter demand, combined with Giants game day demand caused some of the off- and on-street facilities closest to the ferry building to exceed a 90% utilization rate. Similarly, the Farmer's Market on Saturday resulted in various nearby on- and off-street facilities exceeding target rates. During both days, however, highly utilized facilities sat next to underutilized ones. These results indicate that in general there is an ample supply of parking in the study area during both weekdays and weekend days, and that any perceived challenges associated with parking are likely due to inefficient management of existing supply.

It should also be noted that current facility availability represents a point of constrained supply; the waterfront parking garage and its construction activities have closed once available on-street supplies, and the garage itself, with a capacity of 750 spaces, was not yet open at the time of these counts. Therefore, target utilization rates are not being met even with both ferry parking demand and a constrained supply; in other words, parking demand is still being met, even with ferry parking demand and fewer available off-street spaces than normal.

Key Finding #3: Average vehicle length of stay was above the posted time limit on some time limited blocks, indicating the need for increased enforcement.

While long-term parking in on-street spaces does not appear to be a major issue, some blocks may require more targeted enforcement in the future, especially during special events and when the ferry lots and the garage begin charging for parking. Average length of stay on some time limited blocks exceeded posted limits on Thursday and Saturday.

Key Finding #4: Demand for ferry rider parking is almost evenly split between Vallejo residents and non Vallejo residents, and not all riders come via single-occupant vehicle.

The majority of survey respondents (55%) are Vallejo residents. The mode of arrival data suggest that using total daily ferry ridership to simplistically calculate daily ferry parking demand in a 1:1 relationship is inappropriate because approximately 32% of ferry passengers arrive at the ferry by some other mode than single-occupant vehicle (SOV).

3 PARKING GOALS AND BEST PRACTICES

GOALS FOR THE WATERFRONT & DOWNTOWN PARKING SYSTEM

This section recommends goals and best practices for how the Waterfront and Downtown parking system can be managed to serve community goals. These goals were developed based on existing conditions analysis of current Waterfront and Downtown parking challenges, best practices from other communities with similar parking issues as Vallejo, and input from the public and interviews with stakeholders.

- 1. Provide a parking system which is safe and secure for users at all times.**
Security in the Vallejo Station garage was rated as the number one concern from stakeholders and members of the public.
- 2. Minimize cost for parking system users.** Set parking prices at the lowest possible level necessary to cover the operating and maintenance costs of the new parking structure and related parking facilities' costs. Minimize the impacts of parking prices on ferry riders through reduced price multi-day parking purchase options. Make some lower-priced all-day spots available at the periphery of the system, where spaces can be less expensively provided.
- 3. Make customer parking easy.** Access to the garage and payment methods should be as simple, understandable, and convenient as possible, since the majority of patrons will be extremely sensitive to any delays on their way to catch a ferry. In addition to providing a wide variety of payment methods, signage indicating the location of empty spaces can be of real benefit to people rushing to the ferry. The nearby Downtown District's commercial areas should preserve convenient parking spaces for customers, ensuring the highest turnover and productivity all along Georgia Street, with customers always able to find a space on their desired block throughout the day.
- 4. Provide value.** Work with local residents, merchants, and transit providers so that motorists feel they are receiving something of value when paying for parking.
- 5. Manage downtown and waterfront parking as a single, integrated system.** The parking supply for the Ferry Station area and Downtown should be treated as a single, carefully managed pool. The Vallejo Station area benefits from a mix of uses, including transit hubs, offices, residences, restaurants and retailers which experience peak parking demand at different times of day. In order to utilize parking efficiently and minimize the costs of building new parking, sharing parking in this part of Vallejo should be a priority.

This may require increased coordination between the city and privately-owned and - operated parking facilities to better utilize existing parking resources (e.g. encouraging shared parking in lots that are currently limited to use only by customers of the business that the lot belongs to), making them available to the public at times of day when spaces are not needed by their regular users.

6. **Minimize parking spillover** into downtown-adjacent neighborhoods utilizing permit programs and other parking management tools.
7. **Guide people to the right spot.** Minimize commuters parking in short-term spaces intended for downtown shoppers and visitors by implementing and enforcing time limits and utilizing an employee permit program.
8. **Inform the garage users.** Provide appropriate information and signage so that motorists are able to understand parking regulations (such as hours of paid parking, time restrictions, etc.) with an appropriate level of enforcement so that scofflaws can't game the system.
9. **Enforce parking regulations.** A parking management plan can serve various users well, insuring that long-and short-term parking spots are available. However, without consistent enforcement of parking regulations, no parking management plan can achieve its goals. Once a driver receives a citation for overstaying a time limit or for not paying for parking, they are far less likely to repeat that behavior. It is also important that enforcement be instituted once paid parking is implemented in the garage, so it becomes part of the "parking culture" in the downtown and waterfront areas. A secondary benefit of parking enforcement is having a visible law enforcement presence that patron find reassuring.

By managing the Waterfront and Downtown parking system according to these goals, we believe that the City of Vallejo and its public- and private-sector partners will be able to ensure that the construction of the garage achieves its primary goals of supporting current and future ferry and bus transit ridership and the revitalization of Downtown and the Waterfront through redevelopment of surface parking lots.

BEST PRACTICES

Vallejo is not alone in wanting to manage parking and development in a more comprehensive and integrated manner. Communities of all sizes have sought to rethink parking management in order to serve the greater good, and have implemented a variety of measures to do so. This section presents examples of communities who have implemented one or more measures similar to those proposed for Vallejo, and is intended to present a more detailed view into the real-world benefits of "smart parking" management measures.

Charging for Parking – Old Pasadena, California

Old Pasadena, a historic district of Pasadena, California, has gained a reputation for being a pedestrian-friendly, vibrant downtown, that combines a mix of uses with easy access by the automobile. Much of the area's success can be attributed to its parking management policies that have spawned a wide variety of streetscape improvements and new opportunities for increased transit ridership and development. Old Pasadena, however, was not always so prosperous.

By the 1970s, much of Pasadena's downtown had been slated for redevelopment, as the decaying neighborhood had become the city's "Skid Row." Since then, it has been revived as "Old Pasadena" – a revival in which extensive investments in the public realm, funded by parking meter revenue, have played a major role. In 2001, net parking meter revenue (after collection costs) amounted to \$1.2 million, all of which is used for public services in that part of the city.

Sales tax revenue in Old Pasadena increased more than tenfold over 10 years, to more than \$2 million per year in 1999. In contrast, sales tax revenue at the adjacent shopping mall, Plaza Pasadena, which provided free parking, has been stagnant. The mall was "turned inside out" and converted to mixed uses in 2001. Its blank walls were changed to storefronts that resemble those in Old Pasadena, while hundreds of apartments were added on top.



This revival has also been enabled by the City's policies on public parking, in-lieu fees, and adaptive reuse. According to Marsha Rood, former Development Administrator for Pasadena: "Without the parking structures, revitalization of Old Pasadena would not have happened – period." Stefanos Polyzoides, a local architect and urban designer and co-founder of the Congress for the New Urbanism, attributes much of the success of Old Pasadena to the "rules that allowed development to go forward with less than the traditional parking requirements. This has encouraged pedestrian activity in Old Pasadena, giving it a dynamic pedestrian environment." Shoup calculates that the Parking Credit program reduces the cost to the developer of parking provision for adaptive reuse projects to 2.5% of the cost of on-site provision.

Pasadena is continuing to exhibit strong growth. In March 2004, the City listed nine major development projects underway in Old Pasadena, both new construction and adaptive reuse. These include Ambassador Campus (1,431 residential units plus some office and neighborhood-serving retail), Boston Building (addition of a second story to create a mixed-use development), and Pasadena Place (38 residential units and 8,200 square feet of ground floor retail). This situation can be contrasted with that in communities such as South Central Los Angeles and Petaluma, where developers have cited parking requirements as one of the greatest barriers to rehabilitating historic buildings. (Both cities have recently enacted similar adaptive reuse ordinances.)

Old Pasadena has used a wide variety of parking management tools to achieve this success and revitalization. Most relevant to Vallejo is transitioning from free to paid parking. Until 1993, Old Pasadena had no parking meters, and proposals by City staff to install them were opposed by local merchants, who feared charges would drive customers away. The compromise solution was to install the meters, but to spend all the revenue on public investments in the district. A relatively high rate of \$1 per hour (including Sundays and evenings) was agreed. The City provided \$5 million in bond funding for street furniture, trees, tree grates and historic lighting fixtures, with the meter revenue stream used to repay the debt. In 2001, about one-third of meter revenue went to debt service, with the remainder used to fund new services such as marketing, mounted police

patrols, daily street sweeping and steam cleaning of sidewalks. Many of these services are provided through the Business Improvement District. The merchant's fear of driving customers away was not borne out. The Pasadena example shows that, perhaps counter-intuitively, charging for parking can actually increase business for local retailers. As Douglas Kolozsvari and Don Shoup point out:

If no curb spaces are available, reducing their price cannot attract more customers, just as reducing the price of anything else in short supply cannot increase its sales. A below-market price for curb parking simply leads to cruising and congestion. The goal of pricing is to produce a few vacant spaces so that drivers can find places to park near their destinations.

What charging does in this case is provide a basis for rationalizing the parking supply. When parking is free, employees, for example, who need to park all day, will use the available spaces, leaving none for customers. Even with enforced time limits, many employees perform the "two-hour shuffle", moving their cars every couple of hours to circumvent time restrictions. By charging for parking, employees will seek free or cheaper spaces a little farther away leaving the most convenient spaces available for customers. In Pasadena, the introduction of parking meters has forced employees to park further away, freeing up prime "front door" spaces for customers.

The city's "Parking Credit Program" allows property owners in Old Pasadena to enter into a contract with the city to buy "zoning parking credits", in lieu of constructing additional parking spaces to satisfy minimum parking requirements. However, this is not a typical "in-lieu fee" program. Former Pasadena Development Administrator Marsha Rood defines each parking credit as "an entitlement to apply parking spaces in a publicly available garage towards parking requirements for development." The Parking Credit Program has been particularly important in allowing adaptive reuse of historic buildings that were built without parking, where minimum parking requirements would be triggered by a change in use. Since few of the buildings in this historic part of the city have off-street parking, this removed one of the major barriers to adaptive reuse.

Shared Parking near Transit – Mockingbird Station, Dallas, Texas

Developed by UC Urban – now Hughes Development, LP – and opened to the public in 2001, Mockingbird Station is a transit-oriented-development (TOD) adjacent to a Dallas Area Rapid Transit (DART) station in Dallas, Texas. The \$105 million Phase I of this mixed-use project, which was entirely privately financed without public subsidy or partnership, includes 183,000 square feet of retail space, 137,000 square feet of office space, a multi-screen independent cinema, six restaurants, a bank, a dry-cleaner, and 211 loft-style apartments¹⁰. As one of the first mixed-use, TODs in the state, Mockingbird Station offers key lessons for developers of similar mixed-use projects, including the use of shared parking by office and retail tenants, use-based parking charges for office tenants, and parking that is partially unbundled from office and retail leases.

¹⁰ Sources: Urban Land Institute (2008), ULI Development Case Studies (see: www.casestudies.ulic.org)

Mockingbird Station was developed on a uniquely shaped and situated urban infill site located just four miles northeast of downtown Dallas. Consistent with urban infill principles, the project involved the adaptive reuse of two existing structures on site: an historic Western Union telephone assembly building, and an office building that has been significantly expanded. The narrow, trapezoidal 10-acre site is bounded on one side by the DART rail line, and on the other by the Central Expressway, making the project both transit and auto-oriented.

The front of the project is clearly oriented towards the DART station and its 700-space surface parking lot for commuters. This lot is slated for further mixed-use development in Phase II. Mockingbird Station also incorporates 1,580 parking spaces – mostly structured, or underground – for residents, shoppers, office workers and retail employees. While some of this off-street parking is limited to office and residential users, most is shared by office and retail tenants and open and accessible to the public.

All 1,580 parking spaces in the Phase I development at Mockingbird Station are owned by the Real Estate Capital Partners of New York, and managed by Capstar Commercial Real Estate Services, a third-party property management and commercial leasing firm, based in Dallas and Houston, Texas. In addition to the premium parking fees charged to office tenants (see ‘Office and Residential Parking,’ below), parking lot management, operations and maintenance are paid for through a Common Areas Maintenance Fee that is assessed to all commercial tenants on site. The fee for retailers is based on each tenant’s pro-rated share of the total square footage of leasable space in the complex, while office tenants are charged based on their pro-rated share of any increase in total maintenance and operations costs since the year they moved in (their own ‘base year’).

In addition to the shared surface parking lots, residential and office tenants have guaranteed access to parking structures that are segregated from the general parking supply. The lease for each residential loft on site comes with one parking space per bedroom¹¹, while the segregated office parking lots have capacity for up to 3.2 parking spaces for every 1,000 square feet of office space. However, unlike residential tenants, the rights to prime office parking are negotiated separately with each office tenant as part of lease negotiations¹². Within the office parking complex, a limited number of parking spaces are reserved, or dedicated for the use of individual



¹¹ For a mixed-use, new urban development, Nelson\Nygaard would recommend lower parking ratios than one parking space per bedroom,

¹² Personal communication with Pam Baker of Capstar Commercial Real Estate

offices or employees. Rights to these prime spaces can be purchased – separately from the office lease – for \$50 per month by office tenants on behalf of their individual employees.

Capstar Leasing has allowed its tenants to adjust to variable parking and transportation demand by offering usage based parking fees. With the escalation of gas prices to more than \$4.00 per gallon in 2008, many employees shifted to alternate modes of commute transportation. As employee parking demand declined, tenants began asking Capstar to refund part of their parking related lease fees. Since the office parking facilities are only accessible by card-key access during business hours, Capstar is able to track individual employee usage of the lots. With this ability to track usage by employee, and by tenant, Capstar has agreed to charge office tenants for parking based on day to day usage by their employees.

Retail, restaurant and cinema parking at Mockingbird Station is provided in shared underground and surface parking lots. These parking facilities are shared between tenants, all of whom have guaranteed access for customers and employees as part of their lease agreements. Retail employees are not allowed to park in the shared surface lots and are instead limited to underground and/or structured lots on site.

Capstar reports that the surface parking lots are only full during peak hours on selected nights and weekends. To make efficient use of parking resources in the complex, Capstar has negotiated with office tenants to make the office parking facilities open to overflow customer/visitor parking during periods of peak demand that occur outside of regular office business hours. In response to consumer demand, Mockingbird Station also now offers valet parking for retail, restaurant, and cinema customers.

Overall, the combination of transit-orientation and a shared parking strategy have been a boon to the marketability of retail, office and residential space at Mockingbird Station and transit service on the adjacent DART line. Retail space is 88% occupied; office space is 92% occupied, and residential rents and occupancies have both been consistently above average for the market since opening¹³. An analysis by the Urban Land Institute in 2008 found that the performance of the space has been “remarkably successful, particularly since TOD [transit-oriented-development] was an untried concept in Texas.” The ULI report found further that “[Mockingbird Station] has achieved what many once thought impossible: it has convinced many middleclass automobile-driving residents to use transit¹⁴.”

With development planned for the waterfront area of Vallejo, the example of sharing parking among uses may offer an example of how the return on the new parking garage could be extended beyond the day-use of ferry riders, to use of the garage by other users.

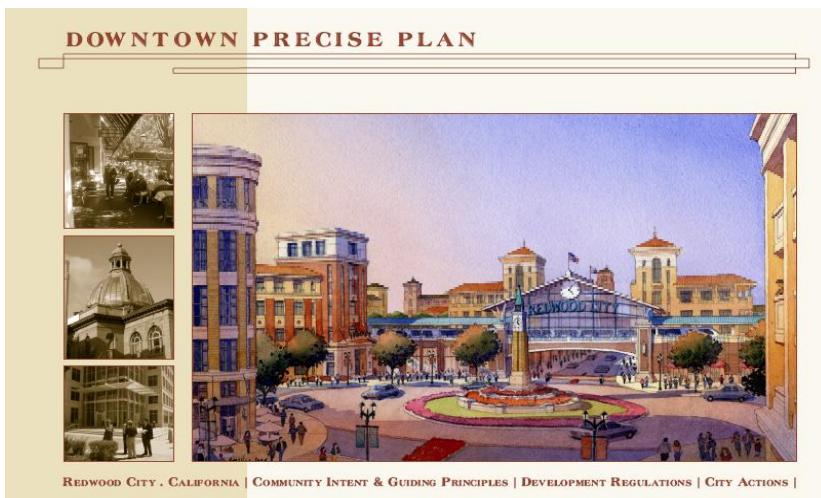
User-Friendly Parking – Redwood City, California

Redwood City is the seat of San Mateo County and is home to over 76,000 residents. In the 1990’s, the City implemented an aggressive plan to revitalize its downtown and knew that it would need to implement a progressive parking program to handle future demand. In working towards creating a lively downtown, the City undertook a Parking Management Study to determine how parking could be best managed with the goal of revitalizing the downtown, attracting visitors and businesses and creating a place for residents to come and gather.

¹³ Urban Land Institute (2008), *ULI Development Case Studies: Mockingbird Station*

¹⁴ Ibid.

While Redwood City never experienced an overall parking shortage, the prime downtown streets were chronically congested with drivers cruising for parking spaces close to their final destinations; this resulted in frustrated residents, visitors, and business owners. In response, the City set out to create a parking management system that would result in an 85 percent occupancy rate, ensuring that there would always be available spots.



Their plan, which won the 2008 California Public Parking Association Parking Program of the Year award, consisted of five parts: Simplify and Reduce Parking Requirements, Performance-Based Pricing, Eliminate Time Limits, Dedicate Surplus Parking Revenue to the Downtown Parking Meter Zone, and the Upgrading of Meters in the Busiest Areas to Multi-Space Meters.

Redwood City utilized its form-based code too simply and reduce parking requirements for the selected area. The City's parking ordinance set the "Target Occupancy Rate" for spaces at 85% and established the ability to change parking prices based on demand to attain and maintain an 85% occupancy level. The ordinance set limits on the price adjustments, namely that at least one but no more than four adjustments per year could be made, prices may only be changed in increments of \$0.25 and prices exceeding \$1.50 must receive prior approval from the City Council.

Prior to the implementation of the plan, the City had a complicated regime of time limits. However, with the program in place to regulate occupancy through pricing, the City eliminated all time-limits and believes this made the system more customer-friendly and was a trade-off for charging higher prices.

The City successfully dedicated surplus parking revenue to the downtown parking meter zone with the creation of a Parking Benefit District. All surplus parking revenue (after parking expenses are paid) was turned over to the district and in turn used to increase cleanliness through things like power-washing the sidewalks or more trash cans, safety, lighting, street furniture, and other amenities that improve the quality of the Downtown, making it a nicer place to live, work, eat, see a band, and shop.

The creation of a benefit district was crucial in obtaining the support of merchants who were concerned that charging for parking would hurt their business. However, with the elimination of time limits and the guarantee that parking revenues earned in the district would be returned to district and used for improvements, merchant support for the program was gained.

Meters in the busiest parts of Redwood City were upgraded to multi-space meters. The selected model is the "Luke" meter by Digital Payment Technologies, which facilitates a "Pay-by-Space" system and is designed to offer a visual cue as to its function as a payment device. The removal of old meters and installation of multi-meters improved the accessibility and appearance of the streetscape.

In terms of the functioning of the new system, initially some of the meters had technical glitches and there was some confusion on the part of users. At this time, there are around 3,000 successful transactions a day at the new meters and the price structure is working well as evidenced by better parking turn-over in busy areas, more parking shifted to the lower-priced locations, and main street occupancy decreasing from 100% to 82%. In addition, the average visit is 72 minutes, slightly longer than the previous time limit of 1 hour and monthly permit sales are up 50%.

For Redwood City, user-friendliness was a priority, achieved through modeling new signage and materials after standard parking signs for easy identification. In addition, signage indicating the parking space double as wayfinding mechanisms indicating in which direction the nearest meter can be found. During the first few months of the new meters, the City only issued warnings to motorists who neglected to pay for parking which educated the public while decreasing potential backlash from community members. The City also experienced some confusion on the part of the customer with the first iteration of payment signage, and have since implemented clearer signage.

4 WATERFRONT AND DOWNTOWN PARKING SYSTEM RECOMMENDATIONS

The following suite of recommendations together seek to manage both the supply and demand for parking, and maximize its efficiency and convenience while also achieving other community goals such as a revitalized Waterfront and Downtown area. This plan recommends techniques to both address current challenges and also allow the City to be nimble in reacting to future parking challenges. Above all else, it proposes a parking management approach that utilizes policies and programs that will enable more efficient utilization of existing supply, while alleviating parking congestion in certain areas. Effective parking management can result in positive economic impacts for local businesses, as employees, residents, and visitors can all better utilize the parking supply to shop, dine, or recreate.

Figure 4-1 shows all consultant team recommendations, by proposed timeline, including immediate actions (to be completed within 1 year), medium term actions (within next 5 years), and long term actions (within next 10 years). Detailed information on each recommendation includes a description of the measure or action, the rationale for its implementation, its benefits and tradeoffs, and necessary implementation steps as described in greater detail below.

Figure 4-1 Implementation Steps, Timeline, Lead Implementers, and Trigger Points

Rec. Number	Description	Lead Implementer(s)	Timeline	Trigger Point(s)
1	Paid Parking in New Garage and Waterfront Lots	City of Vallejo	Immediate (within 1 year)	N/A
2	Enforce and Expand Time Limited Parking and Monitor Demand and Turnover	City of Vallejo	Immediate (within 1 year)	N/A
3	LPR	City of Vallejo	Immediate (within 1 year)	N/A
4	New Parking Policies for Special Events, Oversize Vehicles, Validations, and Parking Rental	City of Vallejo	Immediate (within 1 year)	N/A
5	Parking Specific Wayfinding	City of Vallejo	Immediate (within 1 year)	N/A
6	Employee Permits	City of Vallejo	Medium Term (within 5 years)	If average turnover rates surpass posted time-limited restrictions, or if data collection reveals employees are moving their vehicles to get around time limits.
7	Study and Implement RPP	City of Vallejo	Medium Term (within 5 years)	(1) If complaints are received from neighborhood residents, conduct a targeted data collection effort (2) If occupancies surpass 85%
8	Install Downtown Meters and Utilize Demand-Based Pricing	City of Vallejo	Long Term (within 10 years)	If occupancies surpass 85%
9	Establish a Parking Benefit District	City of Vallejo	Long Term (within 10 years)	N/A

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Rec. Number	Description	Lead Implementer(s)	Timeline	Trigger Point(s)
10	Shared Parking	City of Vallejo	Long Term (within 10 years)	N/A
11	Eliminate/ Reduce Parking Minimums, Implement Parking Maximums, and Establish an In-Lieu Fee	City of Vallejo	Long Term (within 10 years)	N/A

Recommendations are grouped into two types: those recommended for implementation in the immediate to medium term (within 5 years), and those for future consideration based upon various triggers and community support (within 10 years).

SHORT AND MEDIUM TERM RECOMMENDATIONS

RECOMMENDATION #1: IMPLEMENT PAID PARKING IN THE NEWLY CONSTRUCTED WATERFRONT GARAGE AND EXISTING WATERFRONT LOTS.

Description

We recommend the City institute paid parking in the newly constructed waterfront garage and the existing ferry parking lots. We also propose an initial grace period with no charge for parkers, so that users can get used to new garage. The City should provide clear communication that paid parking will be implemented within 3-6 months.

Watry Design Inc. developed detailed revenue control, enforcement, and parking guidance recommendations which are summarized below. Watry's full analysis can be found in Appendix B.

Revenue Control

The technology for revenue control should be efficient, accountable and have the lowest possible operations cost. Parking technology is also selected based on the type of parker. For transit parking this includes daily users, monthly permit holders and space reservation capability. Payment method should include credit card, cash and pay by cell phone and a possibility of using Clipper and other possible methods of already established payment systems.

We recommend a pay by space revenue control system. This system requires the user to input a unique ID such as their license plate number. The user will park, go to the machine, input unique ID and pay for the time to be used. This unit does not need the user to return to their vehicle. Enforcement is required since the entrance to the lot is open. The machine will give the officer a list of paid for spaces by unique ID number such as license plate, the officer then searches for spaces where a vehicle is parked but not paid for. This system may take credit cards, vouchers, merchant validations, or cash payment and works with pay by cell.

Enforcement

We recommend the use of License Plate Recognition (LPR) technology for enforcement activities in the paid waterfront garage and lots, as well as existing permit programs and on-street time limits, as discussed in greater detail in Recommendation #3.

Parking Guidance

We recommend that at a minimum spaces be counted for the entire parking structure and signs at the entrances notify parkers if the structure is full. Counting stalls by level should be added to the program and signage provided inside the structure saying spaces available on each level. The highest level of a comprehensive parking guidance system would be to add counting at the ferry parking lots, however, because these lots will not be ferry parking forever, it may not be appropriate to install the system only to have to remove it later. These parking guidance systems

are recommended in tandem with district-wide parking wayfinding strategies, as detailed in Recommendation #7.

Rationale for Implementation

Paid parking in the waterfront garage and lots will cover the operations and maintenance costs of the new parking garage. We recommend setting parking prices at the lowest possible level necessary to cover the operating and maintenance costs of the new parking structure and related parking facilities' costs, and minimizing the impacts of parking prices on ferry riders through reduced price multi-day parking purchase options.

RECOMMENDATION #2: ENFORCE AND EXPAND EXISTING TIMED ON-STREET RESTRICTIONS ON DOWNTOWN BLOCKS AND MONITOR DEMAND AND TURNOVER.

Description

This recommendation entails expanding and streamlining on-street time restrictions Downtown to form a consistent and easily navigable regulatory environment, limit any potential spillover from ferry and employee parking demand, and ensure that prime “front-door” spaces are open for Downtown visitors and shoppers.

In parking, it is only possible to manage what is measured. This Plan also recommends that the City periodically collect parking occupancy data for both on- and off-street parking facilities, and additional turnover data for on-street spaces. This data will be essential for evaluating whether the policies recommended within this Plan are achieving their goals and when the City should consider implementing the medium/longer term Recommendations detailed in this Plan.

Rationale for Implementation

Consistent time restrictions on Downtown streets will help prevent any potential spillover parking effects of the implementation of paid Waterfront parking. Coupled with routine enforcement, citations will discourage ferry riders from seeking free parking in Downtown on-street facilities. Current regulations (as shown in Figure 2-6 on page 2-7) are incomplete and piecemeal. Establishing a district-wide time limit for non-residential downtown streets will streamline and make easier the parking experience of Downtown visitors and shoppers.

By developing a formal data collection process, the City will be able to better understand its parking supply and quickly make adjustments to its pricing and regulatory structure to respond to changes in parking demand. Doing so will also help better inform future City action relating to the timing of parking management programs recommended in this Plan, such as the potential for an Employee Parking Permit program (Recommendation #5) and a Residential Parking Permit program (Recommendation #6).

Benefits

Preventing spillover parking demand from ferry riders will keep prime, “front-door” Downtown parking spaces free for shopper and Downtown visitors. Routine enforcement typically increases the effectiveness of a parking management program, increasing collection rates and maximizing

citation revenue. The use of advanced enforcement technology aides the efforts and generally increases efficiency. Enforcement should be consistent and adequate to maintain a high level of compliance with regulations and restrictions.

However, when implementing new regulations in downtown districts, the use of a courtesy ticket for one-time offenders allows municipalities to gently remind parkers that they are in violation of posted parking restrictions. This courtesy ticket can be used as a marketing piece to thank the patron for frequenting the area, while also ensuring that one-time offenders do not become repeat offenders. Handheld devices allow enforcement officers to track license plate number and differentiate between first-time offenders and repeat offenders. Such a program can be temporary, ensuring a smooth transition to a new parking management system.

Routine enforcement by either public police or security personnel also tends to increase the perceived safety of off-street facilities. Enforcement personnel add a secure presence to surface lots and garages, especially during nighttime hours.

Furthermore, establishing an ongoing data collection, monitoring, and evaluation process:

- Provides better understanding of parking supply and parking behavior within Downtown
- Facilitates periodic adjustments to pricing and regulatory structures, allowing the City to meet target occupancy rates
- Improves transparency in decision-making and public understanding of parking behavior

Tradeoffs

- Requires additional City resources and staffing

Necessary Steps for Implementation

1. Develop a consistent data collection program that allows for easy comparison with the baseline data collected as part of this study and future data collection efforts.
2. Identify needed City resources and staffing plan.
3. Implement data collection and evaluation program.
4. Evaluate data and make program adjustments as needed.

The use of License Plate Recognition (LPR) technology makes it easier to monitor demand and turnover (see Recommendation #3 for more detail on LPR). Outlined below are the recommended parameters for an ongoing data collection and monitoring program for Downtown Vallejo.

Data to be Collected

The City should collect occupancy data for on- and off-street parking facilities. In addition, parking turnover data should be collected for on-street spaces. Above all, consistency is the most important part of any data collection effort as it allows for easy longitudinal comparisons. The baseline data collected as part of this study should serve as a foundation for future data collection efforts.

How to Collect Data

There are a number of potential methods by which the City could collect the necessary data, including:

- Manual counts conducted by trained surveyors.
- Automatic data provided by parking meters. Automatic collection of such data would depend on the type of meter ultimately installed for both on- and off-street facilities.
- For off-street spaces, the City should encourage private parking lot owners to collect occupancy data and share that data with the City.

Frequency of data collection

At a minimum, data should be collected and analyzed on an annual basis. For example, if manual counts are utilized, they should be done during the peak period of demand. It is recommended that both an hourly Thursday and Saturday count be conducted during a non-holiday week between Memorial Day and Labor Day.

If feasible, another count during the off-peak period should also be conducted to evaluate off-peak pricing and regulatory structures. Once again, consistency is most important and subsequent counts should take place at the same time each year.

Depending on the parking meters selected, however, it is also possible that occupancy data could be collected and analyzed much more frequently.

RECOMMENDATION #3: IMPLEMENT LICENSE PLATE RECOGNITION (LPR) ENFORCEMENT TECHNOLOGY.

Description

License plate recognition parking enforcement systems replace the standard tire chalking process. Through a combination of license plate recognition, image capture, and GPS technology, the software records vehicle location, time/date, and license plate number. When an enforcement officer returns to a specific block for a second time, the software scans plates again, notifying the officer when it detects a vehicle that has been parked longer than the posted time limits. The officer can then make a visual confirmation that the plate matches the pictures captured by the LRP system, and issue a citation. LPR cameras and software can be easily mounted to existing parking enforcement vehicles, including the standard Go-4 Interceptor (pictured below).

Figure 4-2 LRP system installed on a Go-4 Interceptor in Monterey, CA



Source: City of Monterey, CA

Rationale for Implementation

While the associated capital costs of an LPR system are rather high (between \$45,000 and \$70,000), many cities report that the increase in parking citation revenue can cover these expenses. For example, the City of Tampa, Florida estimates that their LPR system results in the collection of an additional \$20,000 of citation revenue per year.¹⁵

Benefits

- Improves efficiency for enforcing time restricted parking, allowing parking enforcement officers to cover larger areas in less time and subsequently patrol on a more regular basis
- Increases revenues collected from parking citations
- Reduces injuries associated with chalking tires by hand
- Enables cities to better track scofflaws (people who have multiple outstanding unpaid parking tickets)
- Allows more flexibility over time and can be used for enforcement activities citywide (in both on- and off-street facilities)
- Can be used for planning studies
- Provides the most user friendly experience for monthly parkers as they don't have to interface with the payment machine each day

¹⁵ City of Seattle Parking Management Study: <http://www.ci.seattle.wa.us/transportation/pdf/SeattleParkingStudyFinalReport.pdf>

Tradeoffs

- Privacy concerns
- Expensive – between \$45,000 and \$70,000
- Enforcement vehicle may obstruct traffic flow when driving slowly
- Difficult to read license plates when vehicles are parked very close together

Necessary Steps for Implementation

The City should contract with a qualified equipment vendor to purchase an LPR system that is best suited to City needs and current enforcement vehicles.

Figure 4-3 LRP Software in Boulder, CO



Source: City of Boulder, CO

RECOMMENDATION #4: INSTITUTE NEW PARKING POLICIES FOR SPECIAL EVENTS, OVERSIZE VEHICLES, PARKING VALIDATIONS, AND PARKING RENTAL

Description

Special Events: The City should monitor special event parking demand to ascertain whether any increase in parking demand due to special events can be accommodated with the existing Downtown/Waterfront parking supply. If special event parking demand regularly exceeds parking supply and is in turn affecting Downtown economic vitality and/or residential quality of life, we recommend the City work with:

1. Owners of underutilized private parking facilities that are not currently available to the public (such as employee-only parking) to make such facilities publicly-available during special events; and,
2. Organizers of special events to develop marketing materials intended to reduce parking demand by alerting attendees of other travel options and motorists of the locations of available parking (such as remote parking facilities connected by a shuttle, including the Curtola-Lemon Park-and-Ride).

If such measures do not bring special event parking supply and demand into alignment, the City should consider:

1. Adjusting parking pricing at on- and off-street facilities to better balance supply and demand. For example, parking facilities within close proximity to event sites would be priced higher, while remote parking could be free and connected to the Downtown/Waterfront area with a free shuttle); and, if the above measures are not successful,
2. Begin planning for the expansion of off-street parking facilities to add more supply in core demand areas.

Oversize Vehicles: The City should designate a limited number of off-street parking spaces (based on demand) for oversized vehicles. For paid and/or off-street parking facilities, a surcharge above the regular parking fee should be assessed on oversized vehicles, but overnight parking will be allowed with a limitation on the number of consecutive days the vehicle can be parked. For un-priced and/or on-street parking, oversized vehicles will be allowed so long as they can fit within the marked spaces for a single without preventing other vehicles from parking in adjacent spaces or impeding / endangering travel by all modes (vehicles, buses, and bicycles) on the street where the curb parking space is located. Overnight parking of oversized vehicles on-street should be prohibited.

Parking Validations: Currently, most on- and off-street parking in the Vallejo Downtown/Waterfront areas is un-priced (free) but time limited. A validation program does not currently make sense in the context of free parking; offering such a program for the Waterfront garage and parking lots would reduce the parking fee revenues that are essential to cover the operating and maintenance costs for the garage. At the same time, offering a validation program for the garage is unnecessary because there is typically a large supply of free parking in the Downtown/Waterfront area, save for special event days. In those cases, a validation program would still be counterproductive, as it would reduce the financial incentive for event attendees to take other modes of travel to the Downtown/Waterfront area and thereby contribute to parking and traffic congestion during special events.

ADA Parking Spaces and Payment: The City should continue to provide the required number of accessible / handicapped parking spaces in all on- and off-street public parking facilities, as stipulated under federal Americans with Disabilities Act (ADA) and California Building Code Title 24. In addition, the paths of travel from the accessible parking spaces should be fully accessible, per the ADA, California Building Code Title 24, US Access Board's Public Rights of Way Access Guidelines, and the City's ADA Transition Plan. Finally, parking payment machines in all waterfront parking facilities should be fully accessible, and motorists with disabilities will also be able to pay online and via phone to avoid visiting the physical payment stations altogether.

Businesses Renting Out Parking Spaces for Large Functions: The City will work with owners of underutilized private parking facilities that are not currently available to the public (e.g. employee-only parking) to make such facilities publicly-available during special events or other periods of peak parking demand.

Rationale for Implementation

The above recommendations and policies will further streamline the overall Downtown / Waterfront parking system, anticipating parking needs during special events, providing (within reason) for the needs of oversized vehicles, and complying with all ADA regulations.

RECOMMENDATION #5: INSTALL A COMPREHENSIVE SYSTEM OF PARKING-SPECIFIC WAYFINDING

Description

Wayfinding strategies seek to efficiently coordinate movement within a district, pointing users of all modes of travel to the best access routes for their destination. Wayfinding is an important part of a comprehensive circulation and parking management strategy, improving the customer-friendliness of a neighborhood or district while also better distributing parking demand throughout a variety of parking facilities and directing visitors to major destinations.

Rationale for Implementation

Currently, Vallejo exhibits various “hot-spots” of parking demand such as the facilities near the ferry terminal and various Downtown blocks. One reason for this concentration of demand is likely the lack of a consistent and adequate wayfinding system pointing motorists to other parking facilities, meaning many visitors are unaware of the proximity and availability of additional non-“front door” spaces, both on-street and off-street. Parking wayfinding signage would better distribute parking demand to currently underutilized on- and off-street facilities.

Benefits

In general, wayfinding is a particularly important strategy during peak summer months, when a large portion of those traveling to and through Vallejo are not familiar with the area. The general benefits of a wayfinding system include the following:

- Directs motorists to underutilized off-street facilities and satellite lots, freeing up the most convenient “front-door” curbside spaces, and maximizing the efficiency of a parking system.
- Reduces traffic caused by cars “cruising” for on-street parking.
- Dispels perceived (but not actual) shortages in parking
- Directs motorists, bicyclists, and pedestrians to the best access routes for their destination.
- Directs those on foot or on bike to the safest bicycle and pedestrian routes, as well as to the location of bicycle parking spaces, showers, changing facilities, and other bicycle and pedestrian amenities.
- Improves conditions for alternative modes, supporting various Transportation Demand Management (TDM) objectives, reducing vehicle trips to a specific area, and reducing the need for vehicle parking.



Parking Wayfinding
Source: SFpark

In sum, a coordinated wayfinding system for all modes of transportation will increase the customer-friendliness of Vallejo, pointing visitors to various destinations, amenities, and parking facilities.

Tradeoffs

- Additional capital costs for the City.
- Additional operational and maintenance costs for parking signage.

Necessary Steps for Implementation

The City should study potential locations for wayfinding signage, typically including:

- At the traditional entrances to Downtown or other districts
- At the entrances to major off-street facilities
- Along heavily used bicycle and pedestrian routes

Wayfinding is most effective when it is consistent, clean, and concise; all signage should be produced in a similar style. Regardless of the particular signage installation utilized, good design that is consistent with and supports the character of the neighborhood is critical for all signage elements.

RECOMMENDATION #6: IF AVERAGE RATES OF TURNOVER EXCEED POSTED TIME LIMITS ON DOWNTOWN BLOCKS, CONSIDER IMPLEMENTING AN EMPLOYEE PERMIT PROGRAM.

Description

An employee parking permit program would offer employers or employees in the study area the option to purchase a permit that provides priority parking in a designated area. Designated parking areas for employees can be located in off-street facilities, with employees eligible to park in those spaces during a specific time period. Ownership of a permit, however, does not guarantee the availability of a parking space.

Employee permit programs are often established adjacent to major job centers or near commercial, retail, and entertainment districts.

Rationale for Implementation

It is likely that, regardless of posted time limits, employees may try to “game the system,” and still utilize on-street spaces by continually moving their vehicle throughout the day. An employee parking permit program provides a direct incentive to eliminate this behavior, freeing up prime “front-door” spots for visitors and shoppers.

Benefits

Employee permit programs offer a number of key benefits to local businesses and employees, while helping to ensure that an area’s parking supply is efficiently managed. These benefits include:

- Permits provide a consistent parking option for employees, reducing the need for an employee to “hunt” for a parking space or move their vehicle to avoid parking restrictions.
- Experience with other cities has shown that most employees will choose to pay for a permit that offers a reliable parking option over searching for free on-street parking and having to move their vehicle throughout the day.
- A convenient parking option makes it easier for employers to attract and retain employees.
- When employees park in popular on- or off-street spaces those spaces are no longer available for customers and visitors. Employee permits encourage participants to park in select areas while enhancing customer parking turnover at prime locations.

Tradeoffs

- Additional cost for employers that wish to provide them to their employees
- For those employers that cannot afford to subsidize parking for their employees, costs for permits would fall to employees¹⁶

¹⁶ However, based on the proposed costs and given that there are an estimated 250 workdays per year, the cost to park per day would be approximately \$.20 per day.

- The proposed program would have more limited benefit to employees who only work at night or on the weekends

Necessary Steps for Implementation

As a part of the City's ongoing parking data collection and evaluation, both occupancy and turnover data should be analyzed to make sure average length of stay does not exceed posted limits and that employees are not merely moving their vehicles to get around time limits. The City would have to employ the following implementation steps:

- Determine eligibility
- Designate specific on- and/or off-street facilities as an employee parking zone
- Determine the appropriate hours of operation
- Determine the appropriate permit cost
- Develop an effective enforcement program

RECOMMENDATION #7: IF OCCUPANCY LEVELS EXCEED 85% ON RESIDENTIAL BLOCKS, CONSIDER IMPLEMENTING A RESIDENTIAL PERMIT PARKING PROGRAM TO LIMIT SPILLOVER PARKING FROM FERRY RIDERS, DOWNTOWN VISITORS, AND EMPLOYEES.

Description

A residential permit program (RPP) operates by exempting permitted vehicles from the parking restrictions and time limits for non-metered, on-street parking spaces within a geographic area. A conventional RPP is one that allows those without a permit to park for generally two to four hours during a specified time frame, such as 8:00 AM to 6:00 PM, Monday to Friday. Permit holders are exempt from these regulations and able to essentially store their vehicle on-street. Ownership of a permit, however, does not guarantee the availability of a parking space.

Rationale for Implementation

The primary goal of an RPP is to manage parking “spillover” into residential neighborhoods. RPPs work best in neighborhoods that are impacted by high parking demand from other uses, such as:

- Large employers
- Universities, colleges, neighborhood schools, or hospitals
- Transit stations
- Popular commercial, retail, entertainment, tourist, or recreational destinations

By managing spillover, RPPs can ensure that residential neighborhoods are not overwhelmed by commuters, employees, or visitors, thereby enabling local residents to park their vehicles on-street. RPPs are especially important in neighborhoods where residents have limited off-street parking.

Figure 4-4 RPP Signage in Mill Valley, CA



Source: Nelson\Nygaard

Benefits

The implementation of paid waterfront/ferry parking may cause spillover problems on residential streets, meaning on-street and off-street utilization may peak at rates higher than target rates. This would result in residents searching or “cruising” for parking in their own neighborhoods. This peaking of demand can also create resident frustration due to decreased availability of parking within close proximity to their homes. An RPP program would eliminate spillover concerns and, coupled with routine enforcement, ensure that ferry parkers or long term visitors are not parking on residential streets and overwhelming the on-street supply.

Tradeoffs

- Potential additional administrative, management, and enforcement costs for the City if the program is not priced appropriately
- Permits do not guarantee parking availability for residents, which may become a problem if too many permits are made available and sold

Necessary Steps for Implementation

A successful residential permit program should be guided by certain principles to ensure that the program not only reduces the impacts of spillover on residents, but also makes parking convenient for other users. These principles include:

- **Any permit program should be established with a high level of community support.** Most cities with an RPP require a minimum number of residents in the proposed RPP area to sign a petition of support.

- **The number of residential permits issued should not be unlimited.** If the number of permits issued far exceeds the actual parking supply, it is likely that residents will still find it difficult to park on-street.
- **Pricing of permits is a crucial component to success.** RPPs require city resources to develop, manage, and enforce. By law, cities are allowed to recover these administrative costs through the pricing of permits.
- **Do not waste excess parking supply.** Many times streets with permit restrictions still have available parking supply at various times throughout the day. These spaces should not sit empty and underutilized, but should be made available to non-residents willing to pay for them.

If occupancy rates on residential on-street blocks exceed 85%, the City should undertake an RPP Action Plan, detailing the need for RPP and setting the appropriate RPP program components. These components include the following:

- Program boundaries
- Number of residential permits issued
- Residential guest parking
- Non-residential visitor parking
- Permit costs
- Permit types
- Days, hours, and type of operation
- Distribution system
- Staffing
- Initiation process
- Signage
- Eligibility and Requirements (such as proof of residency and/or DMV registration)

RECOMMENDATIONS FOR FUTURE CONSIDERATION

The following recommendations are for future consideration and based upon various triggers (such as parking occupancy levels) and Community Support.

RECOMMENDATION #8: IF OCCUPANCY LEVELS EXCEED 85% ON DOWNTOWN AND/OR WATERFRONT BLOCKS, INSTALL METERS AND UTILIZE DEMAND-BASED PRICING TO MANAGE DEMAND.

Description

This recommendation proposes the elimination of time limits on Downtown and Waterfront blocks that surpass 85% occupancy. Instead, it is recommended that the City install “smart” parking meters and price on-street parking as a means to make parking more convenient and

accessible for residents and visitors. Motorists should be allowed to park in an on-street parking space for only a specific amount of time. A time limit will deter commuters (i.e. ferry riders) from parking on-street all day and direct them to utilize off-street parking, while providing flexibility to shoppers and visitors wishing to stay for more than just a few hours. More importantly, meter pricing will improve convenience by helping to ensure turnover and parking availability for customers. Meter prices could be based on length of stay and also adjusted to respond to seasonal fluctuations in demand so that when parking demand is higher or lower, prices would increase or decrease accordingly.

Target occupancy rates for on-street spaces should be 85% and 90% for off-street spaces, which would translate into approximately one space per block and several spaces per lot being available during peak hours.

Rationale for Implementation

The primary rationale for parking meters in Downtown Vallejo and the Waterfront area is to **make parking more convenient and accessible for residents and visitors**. Finding an on-street parking space in many parts of Downtown, especially during the summer and special events, can be very difficult because motorists will always attempt to seek out free on-street spaces rather than pay for parking in an off-street lot. By using moderate pricing levels, meters can effectively regulate demand and more evenly distribute vehicles among the other parking assets in Downtown and along the Waterfront. The use of the meters and pricing structures described below has been shown to reduce the incidence of parking violations and the number of tickets issued to motorists in other jurisdictions.

Benefits

One of the best ways to balance parking supply and demand and generate turnover is not through time limits, but with pricing structures that take into account *actual demand* for a parking space. By treating parking like any other scarce commodity, and requiring motorists to directly pay for use of a space, a jurisdiction can establish the “market value” for each parking space and adjust those prices depending on the level of demand. Just as hotel room rates increase or decrease based on availability, demand-based pricing for parking seeks to increase prices when and where demand is highest and reduce prices when and where demand is lowest. New advances in parking meter technology, such as wireless “smart” meters, make demand-based pricing a feasible option and can dramatically increase motorist convenience through new payment technologies.

The primary goal of demand-based pricing is to make it as easy and convenient as possible to find and pay for a parking space. By setting specific availability targets and adjusting pricing, demand can be effectively managed so that when a motorist chooses to park, they can do so without circling the block or searching aimlessly. Demand-based pricing can result in the following benefits:

- Consistent availability and ease in finding a parking space, especially near local businesses and ground floor retail uses
- Flexible time limits, thereby eliminating the need to move a vehicle to avoid time restrictions
- Convenient payment methods that eliminate the need to “plug the meter” and make it easier to pay for parking and avoid parking tickets (see sidebar on meters)
- Incentivizes long-term parkers and daily commuters to park in off-street lots

- Reduces search time for parking, resulting in less local congestion and vehicle emissions
- Reduces illegal parking and improves safety and street operations
- Provides a more equitable and efficient way to account for the real costs to a city for providing parking

Offers a potential revenue stream for the City that should be reinvested in local transportation and mobility improvements

Tradeoffs

While demand-based pricing and the removal of time limits have proven effective, there are some potential tradeoffs that the City may wish to consider when evaluating this recommendation. These include:

- **Resistance to change:** Demand-based pricing will represent a change in how parking is currently being managed and may generate local opposition. Business owners, residents and regular visitors may resist such changes, often arguing that parking should be “free” and new or expanded meters will “hurt local businesses.” Such arguments ignore the status quo, which has resulted in tangible parking, circulation, and quality of life challenges for Vallejo. Furthermore, numerous examples exist that demonstrate that demand-based pricing can improve the local economy and that most people are willing to pay for parking if it makes the experience more convenient.
Overcoming resistance to change may be the City’s biggest obstacle to reforming its parking policies and programs. The City should be aware of potential local opposition and take steps to proactively educate and inform local residents and businesses.
- **Implementation and management costs:** The City will have to make an investment to implement and manage a demand-based pricing program. In addition to the capital infrastructure required, it is likely that the City will need to allocate additional staffing resources, at least in the initial stages of implementation, to manage the program. While these costs are real, other jurisdictions have shown that such financial outlays are well worth the investment, resulting in dramatic improvements to the areas in which they have been applied. Furthermore, revenue generated from a demand-based pricing program can potentially be used to finance its start-up and ongoing costs, thereby minimizing the costs to the City.
- **Success can take time:** Demand-based pricing may take time to fully realize its positive effects, as it is unlikely that the initial meter rates will be the exact prices need to meet the target occupancy rates. It may take a few additional price adjustments (based on additional occupancy analyses) to find the right prices for the different levels of demand throughout the year. The City should be prepared for ongoing monitoring and adjustments, and establish specific processes by which those adjustments are made to ensure consistency and transparency.

Necessary Steps for Implementation

Before implementation, the City should conduct a comprehensive paid parking study to confirm parking trends, evaluate pricing options, and evaluate technology options. The paid parking plan should include the following:

- A comprehensive public input/outreach effort
- Recommendations regarding:

- Specific block segments to include in the program (given the results of the parking utilization and turnover data collection efforts)
- The parking rate(s)
- Hours of operation
- Seasons of operation
- Equipment procurement and staffing
- Enforcement
- The development of costing estimates and revenue forecasting for various scenarios (including specific equipment procurement, enforcement, and staffing options)
- The development of edits to the City Municipal Code needed to implement a paid parking program
- The development of a clear implementation plan, identifying lead agency responsibilities for each implementation step.

The California Vehicle Code (CVC Sec. 200258) allows local jurisdictions to set parking meter prices at fair market rates necessary to achieve 85% occupancy. California case law authorizes local jurisdictions to enact parking meter ordinances with fair market rates that “may...justify a fee system intended and calculated to hasten the departure of parked vehicles in congested areas, as well as to defray the cost of installation and supervision.”¹⁷ California case law has also recognized that parking meter fees are for the purpose of regulating and mitigating traffic and parking congestion in public streets, *and are not a tax for revenue purposes.*¹⁸

If prices are used to create vacancies and turnover in the prime parking spots, then what is the right price? A well-established, industry standard target occupancy rate for on- and off-street spaces is approximately 85% and 90%, respectively. At this level of occupancy, at even the busiest hour about one out of every seven spaces will be available, or approximately one empty space on each block face. This provides enough vacancies so that visitors can easily find a spot near their destination when they first arrive.

For each block and each parking lot in Vallejo, the right price is the price that will achieve these target rates. This means that pricing need not be uniform: the most desirable spaces may need higher prices, while less convenient lots are less expensive. Pricing can also be based on length of stay with a higher rate charged the longer one stays. In other words, the goal is not to ticket someone for wanting to stay longer than two hours, but allow them to stay as long as they are willing to pay for the space being used. Prices can also vary by season or day of the week.

It is important to understand that demand-based pricing does not need to change the parking behaviors of *every* motorist. Motorists can be thought of as falling into two primary categories: bargain hunters and convenience seekers. Convenience seekers (shoppers, diners, or tourists) are more willing to pay for an available front door spot, and are typically less sensitive to parking charges because they stay for relatively short periods of time. By contrast, many long-term parkers, such as employees, find it worthwhile to walk a few blocks to save on eight hours worth of parking charges. With proper pricing, the bargain hunters will choose currently underutilized lots, leaving the prime spots free for those convenience seekers who are willing to spend a bit more. The ultimate goal, therefore, is to shift the parking behaviors of not all, but *just enough* motorists to reach target occupancy levels.

¹⁷ DeAryan v. City of San Diego, 75 CA2d pp 292, 296, 1946.

¹⁸ Ibid.

Meter Technologies

Various new meter technologies exist beyond the conventional coin meters used for the better part of the 20th century. These include smart meters, multi-space meters, in-car meters, and wireless / pay-by-phone technology.

Single-space Meters

Conventional Coin Meters

These meters have been used by municipalities since the 1930s. They only accept change, and do not exhibit illuminated displays.

Smart Meters

Smart meters are very similar to conventional coin meters; however, they allow motorists to pay for parking via credit or debit card. They also have illuminated displays that allow viewing of parking rates, hours, time limits, and other important information. The ease of payment with smart meters tends to reduce parking and ticketing anxiety.

Furthermore, when combined with embedded roadway sensors, smart meters allow for demand based pricing schemes, as they can send and receive data regarding parking pricing and availability. Some are also pay-by-phone enabled (see section below). A single smart meter can cost around \$200-500.



Coin meter in Sausalito, CA
Source: Flickr user wuestenigel



Pay-by-phone meters in San Francisco, CA
Source: SFpark

Multi-space Meters

Pay-and-display Meters

Pay-and-display meters can be placed on existing light or utility poles and serve roughly 10 to 30 parking spaces each. People must park, walk to the meter where they receive a receipt and return to their vehicle to display the receipt on their dashboard. Pay-and-display meters cost approximately \$10,000 to \$12,000. These meters have minimal maintenance costs; operating costs vary depending on the type of power system used. Some pay-by-space meters can use solar-power, keeping operational costs very low and requiring no utility work for installation (battery powered meters are also available).

Pay-by-space Meters

Multi-space pay-by-space meters require on-street parking stalls be numbered. They are more convenient to motorists because they are not required to return to their cars. Similar to pay-and-display meters, operational and maintenance costs are minimal, and many new models can support pay-by-phone technology. Finally, such meters have substantially lower enforcement costs, as enforcement staff do not have to inspect each vehicle, and can instead utilize handheld devices. Although such meters require each space to be numbered, this can be done in an inexpensive and conspicuous manner, typically with stencils on the curb. Pay-by-space meters cost between \$7,000 and \$10,000 per unit.

In-car Meters

In-car meters are small mirror-hanging units that can be purchased from cities and that can store prepaid parking time. Users can turn the meters on when they leave their vehicle and turn it off when they return. In-car meters are popular because they work in real time and people can avoid over or underpaying. Some of these meters operate using cellular technology, allowing people to pay-by-phone with a credit card. Time is then credited to a central database and the in-car meter "calls" the central computer when the meter is in operation.

Wireless / Pay-by-phone

Pay-by Phone technology allows a driver to pay a parking fare via cell phone, mobile phone application, or computer. Motorists can receive a reminder text when their time is almost up, and can add time without returning to their vehicle or parking meter. Receipts are available via email. Typically these programs require pre-registration. Pay-phone technology reduces maintenance and operational costs associated with meters, fare collection, and ticketing.

These meters typically require wireless technology, which can increase setup and maintenance costs, but also offer the potential benefit of creating a free, publicly available wireless network for the area in which the meters are installed.



Pay-and-display meter in Portland, OR

Source: Flickr user Ian Broyles

RECOMMENDATION #9: ESTABLISH A COMMERCIAL PARKING BENEFIT DISTRICT IN DOWNTOWN VALLEJO

Description

Parking benefit districts (PBDs) are defined geographic areas, typically in downtowns or along commercial corridors, in which any revenue generated from on-street and off-street parking facilities within the district is returned to the district to finance neighborhood improvements.

Rationale for Implementation

Paying for parking can be unpopular for a number of reasons. One of the primary reasons is that when motorists feed the meter, their money seems to “disappear” and they feel they derive little benefit from the transaction. This is largely because most cities have traditionally sent their parking revenue into the general fund, and not necessarily to improving parking or enhancing the transportation system. In recent years, some cities have sought to reverse this dynamic by implementing PBDs.

Benefits

The primary goal of a PBD is to effectively manage an area’s parking supply and demand, so that parking is, above all, convenient and easy for motorists. PBDs typically employ a number of parking management techniques to manage parking supply and demand, including demand-based pricing and removal of time limits. However, experience has shown that in order to secure community and business support for new pricing of parking, the revenue needs to be reinvested back into the community. Drivers will always likely prefer not to pay for parking, but a PBD can create a new local constituency for pricing.

PBDs require local parking revenue to stay local, while financing neighborhood improvements. PBDs allow local merchants and property owners to clearly see that the monies collected are being spent for the benefit of their district, on projects that they have chosen. In turn, they become willing to support, and often advocate on behalf of, demand-based pricing.

Tradeoffs

- Additional administrative and management costs for the City
- Revenue can fluctuate from year to year depending on seasonal demand or overall health of local economy

Necessary Steps for Implementation

In practice, a successful PBD in Downtown Vallejo would be implemented in the following fashion and incorporate a number of key elements.

1. Adoption of city ordinance creating a Downtown PBD, stipulating that all parking revenue generated within the PBD be used to fund designated neighborhood improvements.
2. Establishment of an appropriate governing body to develop a program of expenditures and ensure proper oversight of PBD revenue. Any governing body should establish well-defined procedures for soliciting and incorporating resident input. This body and its structure will be determined pending additional study.

3. Implementation of parking meters and pricing structures that facilitate demand-based pricing (see Recommendation #4).
4. Adoption of a defined list of PBD revenue expenditures, which can include the following:
 - Purchase and installation costs of meters (e.g., through revenue bonds or a “build-operate-transfer” financing agreement with a vendor)
 - Shuttle services to remote park-and-ride facilities during peak periods
 - Valet parking services during peak periods
 - Leasing of private spaces
 - Construction of additional parking, if deemed to be necessary
 - “Mobility Ambassadors” to provide assistance to visitors as well as additional security
 - Landscaping and streetscape greening
 - Street cleaning, power-washing of sidewalks, and graffiti removal
 - Transit, pedestrian, and bicycle infrastructure and amenities
 - Additional parking enforcement
 - Marketing and promotion of PBD and local businesses
 - Management activities for the oversight entity
5. Development of a coordinated public relations plan, which would use wayfinding, signage, and public outreach to explain the role of demand-based pricing and articulate how parking revenue is being utilized to benefit Vallejo.
6. Ongoing evaluation and management of PBD policies and expenditures.

RECOMMENDATION #10: ALLOW SHARED PARKING AMONG DIFFERENT LAND USES BY RIGHT

Description

Vallejo should allow different land uses to share parking. In order to make the process of securing approval for shared parking less onerous for new development and adaptive reuse projects, the City should:

- Allow parking to be shared among different uses within a single mixed-use building by right
- Allow parking to be shared between residential buildings and an off-site parking facility by right, provided that the off-site facility is within 1,000 feet of the building entrance
- Off-site shared parking located further than 1,000 feet should be considered at the discretion of staff, so long as there is documentation that reasonable provision has been made to allow off-site parkers to access the principal use (e.g. a shuttle bus, valet parking service, free transit passes, etc.)
- Mandate that new non-residential parking be available to the public during non-business hours

Rationale for Implementation

Different land uses have different periods of parking demand. For example, a bank adjacent to a night club can quite easily share a common parking facility. This principle is widely accepted in transportation planning and should be permitted in the City's parking code. This allows the Planning Director to allow a reduction when two or more uses demonstrate their patrons can share parking spaces, the City will reduce cruising for on-street spaces and encourage more compact development. This strategy can reduce the parking space needs for new development between 40% and 60%.

As discussed above, in order to facilitate the addition of more publicly accessible spaces to the shared, downtown pool of parking, private parking spaces can be leased from willing businesses using PBD funds to maximize their use.

Benefits

Maximizes the use of existing parking facilities by exploiting the different periods of parking demand for different land uses.

RECOMMENDATION #11: ELIMINATE/REDUCE PARKING MINIMUMS, IMPLEMENT PARKING MAXIMUMS, AND ESTABLISH AN IN-LIEU FEE

Description

This recommendation entails reforming parking requirements by eliminating non-residential minimum parking requirements, reducing residential minimum requirements, instituting maximum requirements, and establishing an in-lieu fee. The maximum parking requirement for both commercial and residential uses should be set at a level to allow development flexibility while meeting the City's goals of creating a vibrant, walkable downtown and waterfront.

Rationale for Implementation

In order for Vallejo to realize its goals for the ongoing revitalization of downtown, the City's parking policies must support those goals. Minimum parking requirements, however, have emerged as one of the biggest obstacles to many cities' efforts to encourage new residential and commercial development in their downtown areas. Minimum parking requirements typically require more than one square foot of parking area for every square foot of building. These requirements can be particularly damaging to uses, such as eating establishments, which help create vibrancy and life in the downtown area.

In addition, the City should institute maximum parking requirements for new development based on existing street capacity and traffic reduction goals. This strategy will promote a cohesive and walkable downtown area. Limits should be set high enough to accommodate future development.

The in-lieu fee program would provide an alternative to developers where providing required amounts of on-site parking is either cost prohibitive or undesirable. The in-lieu fee is strictly an optional payment a developer can make in lieu of providing the minimum amount of parking required. The in-lieu fee monies can then serve as a revenue stream to go towards downtown transportation improvements such as improved signage, bicycle facilities, or other enhanced

features. The fee should be set at a reasonable level to both make it financially feasible for developers in special cases to meet the requirement and provide an income stream to either increase the public supply of parking or introduce alternative mode programs and improvements.

Benefits

- Removes barriers to new development downtown
- Encourages efficiently shared public parking rather than many small, inefficient private lots
- Creates a healthy market for downtown parking, where parking spaces are bought, sold, rented, and leased like any normal commodity.

Necessary Steps for Implementation

There are several key elements to address in devising an in-lieu fee price structure. The fee must serve the goals of the City, but it must also be flexible enough to encourage economic growth while providing an adequate pool of revenue for future parking facilities and alternative mode programs. An effective in-lieu fee program should seek to:

- **Avoid large up-front costs to developers that would deter investment.** Many cities make the mistake of creating a “simple” in-lieu fee structure based on large initial lump sum payments. These in-lieu fees can prove excessively costly to developers who ultimately forgo construction or build parking on-site that is not efficient in terms of parking or land resources.
- **Guarantee a revenue stream for the City.** A workable fee structure will both provide the City with enough initial funding to finance parking space construction (if necessary) and give the City a continuous long-term revenue stream for other transportation improvements.
- **Fully utilize existing parking capacity.** The actual fee amount should be based on the City’s individual circumstances. In the case of downtown Vallejo, there is already a large, vacant pool of parking for the City to take advantage of. Therefore, a fee structure that favors a long-term revenue stream over immediate funds for garage construction may be more effective.
- **Justify costs for both the City and developer.** Neither the City nor the developer should pay more than their fair share in constructing a shared pool of parking or financing alternative mode programs.

APPENDIX A

Ferry Rider Survey Instrument

Figure A-1 Ferry Rider Survey Instrument

	Vallejo Ferry Rider Mode of Arrival Survey
<p>The City of Vallejo is in the process of developing a Downtown and Waterfront Parking Management Plan, and is collecting data on the mode of arrival of ferry riders. Please take moment to fill out the following survey. Your responses are important and will help the City better understand ferry rider transportation habits. Survey participants will be entered into a drawing to win a \$25 gift card at Panama Red Coffee Co. (located at the Vallejo Ferry building).</p>	
1. What is your city of residence?	2. How far do you live from the Vallejo Ferry Terminal?
<input type="checkbox"/> Vallejo <input type="checkbox"/> Other: _____	_____ Miles
3. How often do you use the Vallejo Baylink Ferry?	
<input type="checkbox"/> 5 or more times per week	<input type="checkbox"/> 2-4 times per week
<input type="checkbox"/> Once a week	<input type="checkbox"/> A few times a month
<input type="checkbox"/> Other: _____	
4. When using the Vallejo Baylink Ferry today, how did you arrive at the Vallejo Ferry Terminal?	
<input type="checkbox"/> I drove alone	<input type="checkbox"/> I took transit
<input type="checkbox"/> I carpooled or got dropped off	<input type="checkbox"/> I walked
<input type="checkbox"/> I biked	<input type="checkbox"/> Other: _____
CHECK ALL THAT APPLY	
Thank you for participating. If you would like to be entered into the prize drawing, please list a phone number or email address at which you can be contact if you win:	
Name: _____	Phone or email: _____

APPENDIX B

PARCS Technology/Feasibility Memorandum



Date:	September 15, 2011	WDI No.:	11043.313
Project:	Vallejo PMP/PARCS		
From:	Michelle Wendler		
To:	Jeremy Nelson, Nelson Nygaard		
Regarding:	Tech. Memo: Preliminary PARCS Technology/Feasibility		

I. REVENUE CONTROL

Based on our discussions the technology preference for revenue control should be efficient, accountable and have the lowest possible operations cost. Parking technology is also selected based on the type of parker. For transit parking this includes daily users, monthly permit holders and space reservation capability. Payment method should include credit card, cash and pay by cell phone and a possibility of using Clipper and other possible methods of already established payment systems. Since one of the largest factors of operations costs for PARCS systems is labor, the following are possible options for PARCS that don't require significant manpower.

- a. **Pay on Foot** - The user walks up to machine follows instructions and receives a time stamped ticket to bring with them and pay prior to exiting the facility. The machines are typically located at areas such as stair entry points, elevator lobbies, or areas that are adjacent pedestrian entrances. Provision of the infrastructure is a lot more involved. Gate arms are also necessary for control as well. Collection of revenue is at each machine, less units equals less collection time. Enforcement is easier than other systems since the user cannot exit the facility unless they have paid the ticket and insert to a parking ticket verifier machine at exit lanes. However, it does require gate arms and ticket dispensers/accepters at all entrance locations to the parking system. This system may take credit cards, vouchers, merchant validations, or cash payment. (Sometimes this is combined with Central Cashiering where a patron can pay at a central location with a person, however, that requires more manpower.) Because of the gate arms at the entrance/exit it will slow down traffic and is therefore not recommended.
- b. **Pay by Space** - This system requires that you have assigned numbering posted at each parking stall or requires the user to input a unique ID such as their license plate number. The user will park, go to the machine, input the stall number or unique ID such as their license plate number and pay for the time to be used. This unit does not need the user to return to their vehicle. Enforcement is required since entrance to the lot is open. The machine will give the officer a list of paid for spaces by space number or unique ID number such as license plate, the officer then searches for spaces where a vehicle is parked but not paid for. This system may take credit cards, vouchers, merchant validations, or cash payment and works with pay by cell.
- c. **Pay in Lane** – This is an automated system where cars swipe a credit card at entrance and again at exit and the system charges them for the time used. Each machine is unmanned and can function as exit cashiering or pre-pay entry. At exit, the station processes the fee automatically and displays it on the LCD window. Payment options are either credit card vouchers, merchant validations, or cash. This is similar to pay on foot system in terms of enforcement and infrastructure. However, at a pay on exit lane the traffic will move a slower while patrons interact with the machine. We would not recommend this system for this project because traffic flow would be impeded.
- d. **Pay and Display** - This system is similar to the pay by space system and can handle multiple parking spaces; this system may take all forms of payment. Typically one or two machines per block depending on street configuration or the number of stalls in a lot. The user walks up to machine follows instructions and receives a time stamped ticket to display on the dashboard of the vehicle. This system requires the user to return to their vehicle to place the ticket. Collection of revenue is at each machine, less units equals less collection time.

Enforcement requires officers to look in each car to verify that a valid time ticket is still in effect. This system may take credit cards, vouchers, merchant validations, or cash payment and works with pay by cell phone. The advantage is in large on street systems where numbering every space is difficult. We would recommend the Pay by Space system over this system for customer convenience.

Recommendation

WDI recommends using the Pay by Space option for the following reasons.

1. The implementation is easier and less disruptive to the existing conditions.
2. Gate arms are not needed which require more infrastructure and affect queuing distance. There are multiple locations of entry into the parking system and the implementation of gate arms would be difficult in some cases.
3. It is also possible to use this in an on street configuration if that was ever necessary, this way all of the fee collection would be done by the same type of equipment which would make it easier to maintain.
4. This system can be configured to take credit cards vouchers, merchant validations, cash payment, pay by cell phone and other types of payment cards including possibly Clipper.
5. Pay stations should be located at each floor at each elevator lobby in the parking structure and in each lot for Ferry parking. For high volume areas a second machine may be needed. They should be located in the direction pedestrians leave the facility so in the parking lots this may include on the side toward the ferry and the side toward downtown.

Operational Decisions:

1. The payment system requires a server be located in a secure location that meets PCI-DSS compliance due the processing of credit cards. A computer terminal for the use of the person operating the garage where reports can be printed etc. can be located wherever is desirable. The location of the server and terminal needs to be decided.
2. Will parking payments be processed through the finance department, including credit card processing? It is possible to have a third party vendor process payment.
3. Will there be a City staff person responsible for monitoring the system on a daily basis for alarms and calling for service? It is possible to have this performed by a third party vendor.
4. Will City staff provide the way to purchase monthly and reserved parking or is it preferred a third party vendor provide this service on line. We recommend an on line third party vendor and have the cost included in the operations and maintenance costs of the ferry parking system.
5. The pay by cell phone payment option is run by a third party vendor and has a payment necessary. This cost can either be absorbed in the overall ferry parking system or the cost can be covered by a surcharge for only the parkers who choose to use this method of payment. Since this option is being added to make payment quicker and more convenient for frequent ferry parkers and they are the most likely users over the casual ferry rider we recommend amortizing the cost over the whole system to help keep the costs as low as possible and convenient for the frequent ferry rider.

II. ENFORCEMENT

To maximize the benefit of a pay by space system enforcement is necessary. Pay by Space systems work best when the enforcement officer gets real time data from the system. Then the officer doesn't have to

go to a pay station and doesn't have to go to every vehicle. Typically, this type of enforcement is done either with hand held devices or with drive by enforcement utilizing license plate technology. When using a hand held device it should have a wireless connection, then when the enforcement officer arrives at the lot and looks at their hand held device they can see if there are spaces that are not "paid" for and then they drive by those spaces and if a car is parked there they write a ticket.

It is also possible to add drive by enforcement for parkers who enter their license plate number in the pay station then a vehicle with a mounted camera can drive by reading license plates to see if they have paid.

For monthly or reserved transit parkers they would receive a code, token or card or register a license plate number when they purchase their parking and then they would punch in the space they parked in each day and then input their code, token or card number; or license plate technology allows them to register their license plate number so the enforcement officer would recognize a registered license plate as paid. The license plate option for monthly/reserved parkers require you to collect this information when they sign up for the program and you have to think about the ability to have more than one license plate per person.

Each parker will need to interface with the machine each time they park to make them valid in the system so they don't receive a ticket. That means all spaces must be numbered or the license plate system must be used.

Recommendation

WDI recommends the use of the license plate technology for the pay by space systems for the following reasons:

1. This system will provide the most user friendly experience for the monthly parker as they won't have to interface with the payment machine each day.
2. This system will not require all the spaces in the system to be numbered and users don't have to remember a different space number each day just their license plate number.
3. It will allow the system to be more flexible over time.
4. It will allow enforcement to become more efficient at covering large enforcement areas.
5. This system will also be beneficial for the enforcement of time limited parking in the rest of the downtown.
6. It can also be used improve the collection of unpaid vehicle infractions through scofflaw hot list identification.
7. It can be used to collect data as evidence against infractions and to optimize route management. It can also strengthen the safety and security of the city by automatically detecting stolen vehicles, or those belonging to felons.

Operational Decisions:

1. When a ticket is written off street, who processes the payment and citation follow up? We understand that currently the City uses a third party vendor to process citations and collect payments. We would recommend that this system be expanded to include the off street parking enforcement. If there is an additional cost for adding the off street parking to the contract then this cost should be worked into the operations and maintenance costs for the ferry parking.
2. Who is doing the on-street enforcement, and who is doing the garage enforcement? We recommend that the City Police Department continue to do the on street enforcement but that because the rigor of enforcement needs to be stepped up due to the ferry parking system that LPR technology be used for the on street enforcement as well as the off-street enforcement. We recommend that the current security contract for the ferry parking and waterfront be re bid and include the off street parking enforcement in that contract or this can all be included with a third party contract along with the payment operations above.

3. Who gets to keep the money? We recommend that the revenue from the on street enforcement be processed similarly to existing enforcement and the revenue from the off street enforcement be used to help offset the operations and maintenance costs of the parking structure.

III. PARKING GUIDANCE

Parking Guidance and Information (PGI) systems present drivers with real-time information on available parking. The system combines traffic and parking monitoring with variable message signs to provide the service. The system is designed to aid in the search for empty parking spaces by directing drivers to parking areas with available spaces. The objective of the PGI system is to reduce search time which in turn reduces congestion in the surrounding roads, parking lots and the parking structure. .

System Design:

The PGI system typically has four elements: Monitoring, Communication, Management Software and Variable Message Signs.

Monitoring equipment must be installed at parking entrances to establish the flow in and out of the parking lots and structure in order to calculate the number of spaces available. The parking count data is transmitted back to a central location and processed before being presented to the driver via the electronic message signs or other media such as web-sites or phone apps. The variable message signs should be located at suitable decision points so that the drivers can easily find available parking. The electronic message signs can display information such as “# of Spaces”, “Full”, “Closed” and parking rates “\$X.XX / day”.

It is also possible to monitor parking availability by specific area or individual space. This method is more costly to install and maintain because the number of monitoring devices are equal to the number of spaces provided and each device will eventually need maintenance. In these systems a device is installed on the ground on physical parking space itself or directly above it. The monitoring device can detect whether a vehicle is present or if the space is empty. The advantage of this system is that it allows for a more elaborate dynamic electronic signage system with LED illuminated arrows can guide drivers to a particular area or individual parking space rather than a parking level or zone. These systems can be provided for on-grade and structured parking.

The current parking structure contract provides loop detectors at all entrances and exit lanes to the parking structure so it is possible to count the total number of spaces in the parking structure by adding some backbone technology and signs. Counting spaces accurately by level will require modifications and additions to the existing design of the structure which include running conduit to locations at the ramps and adding additional sensors to connect to the backbone technology. To count spaces in each parking lot counting devices such as loop detectors would need to be installed at the entry/exit to each lot, currently conduit has been run to the entrance/exits in the A lots next to the parking structure as part of the parking structure contract. Sensor/loops would need to be added to the contract as well as signs.

Available Technologies:

Monitoring – It is important for a PGI system is to have accurate collection and assessment of ingress and egress flow at each parking lot or structure level. Data is collected from detectors placed at all vehicular entrances/exits and ramps. Different forms of detectors can be used including: Inductive loops, Microwave Radar and Infrared. All detectors are subject to error, and it is necessary to reset the counts recorded in the system from time to time. This can be done when the parking lots or structure are empty at night or early morning. A manual count of any cars that remained overnight can be taken and the

number in the system is changed to match the actual number. The accuracy of detection depends on existing design factors and can be improved by choice of detector.

Communications

PGI systems have a number of ways to transmit data to/from variable message signs and to a remote location where the management software is installed on a computer. Some systems use hardwired conduit to transfer data. Others use radio, microwave, infrared and wireless methods to transmit data to the centralized computer and electronic signs.

Variable Message Signs – These can be classed into two main categories:

Electronic Message Signs – These signs are able to display a full range of messages and symbols. Signs can be made with different numbers of characters and character sizes to suit the location and message to be displayed. These signs can be placed

Limited Function Signs – These signs are only able to display a very limited amount of information; the most common types have fixed messages such as “full” or “parking available”.

Recommendation:

1. We would recommend that at a minimum spaces be counted for the entire parking structure and signs at the entrances notify parkers if the structure is full.
2. For an enhanced system counting stalls by level should be added to the program and signage provided inside the structure saying spaces available on each level.
3. The highest level would be to add counting at the ferry parking lots, however, because these lots will not be ferry parking forever, it may not be appropriate to install the system only to have to remove it later. If the time frame is far enough in the future then adding this technology now could provide enough benefit to justify the installation.
4. An additional layer would be to provide guidance signs on the street prior to arriving at the parking lots saying which lots have how many spaces. Because all the parking is very close together this may not provide much benefit for the cost especially when eventually all the ferry parking will be consolidated in the parking structure.