



Final Draft Report for Public Review

2008-09 Downtown Parking Study

For the City of Vacaville

August 6, 2009



Vision That Moves Your Community

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I. Introduction and Summary

Introduction

The City of Vacaville retained TJKM to evaluate existing parking conditions and to determine near term and future parking needs in Downtown Vacaville. The study area and vicinity are shown in Figure 1. Future parking needs will be driven by several developments planned within the downtown area over the next several years, the most significant of which are the mixed-use Opportunity Hill developments, which were evaluated as part of a recent specific plan. This study also affords the opportunity to revisit parking recommendations made since the last TJKM study in 2001.

The purpose of this study is to determine existing parking needs, determine future parking needs based on projected development in the downtown, and provide recommendations for the provision of additional parking as needed through various measures. If study findings determine need, additional parking supply may be provided through development of new public parking lots or structures and/or public or private parking lots on the sites of future downtown developments. Other measures that promote improved management of current public parking supply can also serve to increase available supply.

This study consists of a review of existing public and private parking conditions in the downtown; analysis of parking demand based on existing and buildout land uses; documentation of public comments on downtown parking from a variety of downtown stakeholders; and recommendations that meet existing and future parking needs of diverse downtown parking users that include merchants, employees, and customers. The study also documents previous findings and recommendations of the 2001 TJKM study and subsequent evaluations of downtown parking that the City conducts periodically.

Summary

Parking Observation Results

TJKM surveyed a total of 3,039 spaces in the downtown Vacaville study area, including 931 on-street curbside spaces, 949 spaces in City operated or affiliated off-street lots, and 1,159 off-street spaces in private lots serving various nonresidential land uses. Public parking therefore provides the majority of parking spaces within the study area at approximately 62 percent (1,880 public of 3,039 total), including 31 percent each for off-street City lot spaces and on-street curb spaces. The private lot spaces represent the balance of study area parking supply at approximately 38 percent (1,159 of 3,339 total).

Based on the results of a field occupancy survey on typical Fridays in November and December 2008, TJKM found the following trends for specific categories of parking spaces during the peak noon hour:

- 55 percent overall (1,660 of 3,039 spaces)
- 52 percent for on-street curbside spaces (480 of 931 spaces)
- 67 percent for off-street City lot spaces (636 of 949 spaces)
- 47 percent for off-street private lot spaces (544 of 1,159 spaces)

In general, the on-street areas of highest occupancy were in the core retail areas of downtown, where most blocks along Main Street, Parker Street, and Dobbins Street experienced occupancies of 85 percent or greater. This result indicates that these blocks were effectively full. These high

occupancy blocks were offset by very low occupancies generally found south of Mason Street. The neighborhoods south of Mason Street, which consist primarily of residential and converted commercial uses, experienced occupancies of less than 50 percent. Finally, a field review of the commercial and recreational complex southeast of Davis and Mason Streets indicates that parking demand within this complex is sufficiently self-contained such that it does not cause spillover effects on parking elsewhere within the study area.

TJKM additionally conducted duration surveys of five City-operated lots to determine how each lot is being utilized in terms of time limits. In Lot 3, users appear to be parking in this lot for durations that are shorter than the posted time limits. In Lot 4, there is an approximately equal distribution between short- and long-term parking. In Lot 6, parking utilization currently matches well with the distribution of time limits (no limit, 2-hour, and 5-hour). In Lot 7, current utilization suggests a possible increase in time limits to four hours and ten hours may be necessary. In the Senior Lot, most parking utilization is short term, which is logical based on the typical short duration of classes and other activities at the Senior Center.

Recommended Near Term Parking Strategies

Based on the results of both the existing parking demand surplus analysis and the parking duration surveys, TJKM recommends the following changes to time limits within public lots:

Lot 3: Consider a modification to the original 2001 TJKM recommendation of redesignating time limits within the lot. First, all three-hour spaces should be converted to four-hour time limits. This modification eliminates the only instance of three-hour time limits in downtown and thereby addresses a public comment that the City reduce the number of different time limits within downtown. Second, similar to the 2001 recommendation, 10 spaces should be converted from 10-hour to four-hour time limits at the southern end of the lot (2001 had recommended conversion to three-hour), and concurrently, convert 10 four-hour spaces to 10-hour time limits along the row closest to Dobbins Street. This modification is expected to eliminate the current parking deficit for short term spaces and maintain the current adherence to parking time limits within the lot. The intent is to satisfy the demand for shorter term parking in the southern portion of the lot that is closer to the nearby retail businesses along Kendal Street.

Lot 4: Based on the results of the duration and occupancy surveys, which indicate demand for both short term and long term parking within this lot, it is recommended that the City consider converting the parking spaces that currently have no time limits (147 total) to 40 percent 2-hour (59 spaces) and 60 percent 10-hour (88 spaces). Based on current utilization patterns in the lot, the two-hour spaces would allow for the short term parking needs of Town Square customers, library patrons, and other visitors. The short term space allocation would also alleviate current pressure on the nearby Main Street blocks in the vicinity of the lot, where on-street 2-hour parking spaces are currently operating at capacity (100 percent occupancy). It is recommended that following implementation of these new time limits, parking field surveys should be conducted to verify that observed parking demand reasonably matches the expected parking durations within this lot.

At the same time, the proposed allocation of 88 spaces in Lot 4 to 10-hour time limits would remove the current deficit of long term spaces within the lot and provide an adequate amount of parking for library staff, Vacaville Sanitary staff, and other employees in downtown. It would also discourage overnight parking.

Lot 6: Reallocate time limits for the 39 five-hour spaces to 15 two-hour spaces and 24 no limit spaces. This would result in 35 total two-hour spaces and 56 total no limit spaces. This change is expected to create a surplus of long term parking currently lacking within Zone C31, the zone in which Lot 6 is located. This was a concern raised by employees who use or wish to use this lot for long term parking. Also, the additional two-hour parking supply is expected to alleviate the high demand areas of two-hour curb parking surrounding Lot 6. This recommendation would also simplify the range of time limits within the lot, which was a concern of DVBD.

Lot 7: Reallocate 20 of the 2-hour spaces and 10 of the 4-hour spaces to 30 spaces with 10-hour time limits. This would change the 2-hour space total within the lot from 77 to 57 spaces and the 4-hour space total from 57 to 47 spaces. This modification would utilize most of the current available surplus of 2-hour parking within the lot (+21) to alleviate the current shortage of longer term parking, thereby providing additional parking for employee purposes, which was requested by area employees via written surveys and public meetings.

A concern was raised via written surveys and public meetings about the effect of any Lot 7 time limit changes on the adjacent private US Bank lot. Field occupancy surveys indicate that the US Bank lot was at 39 percent occupancy during the peak Friday noon hour (15 of 38 spaces occupied). Because of this low occupancy and because the proposed Lot 7 conversion uses an available short term parking surplus, there are no adverse spillover effects expected for the US Bank lot.

It should be noted that Lots 8, 11, and 12 each have minor shortages of three spaces (without time limits). However, no modifications are considered necessary, given that these lots are located in zones with overall surpluses of long term parking. In Zone C28, where Lots 8 and 11 are located, there is an overall surplus of 55 long term spaces. In Zone C56, where Lot 12 is located, there is only an overall surplus of 4 long term spaces. However, the proposed time limit conversions in Lot 4 (also within Zone C56) would provide an added surplus of long term parking to further offset the minor long term shortage in Lot 12.

Finally, although there are minor spot shortages along on-street locations within various sections of downtown, there are spot surpluses generally available within one to two blocks walking distance to alleviate these shortages. It is expected that the modifications to current time limits in the above public off street lots would be sufficient to satisfy existing parking needs without development of additional parking supply in the near term. This conclusion stems from the results of the existing parking demand surplus / deficit calculation, whose main assumption is that it is based on the worst-case peak Friday noon parking activity within downtown.

In summary, based on observed near term parking demand for the typical downtown peak on Fridays between 12:00 p.m. and 2:00 p.m., it is expected that the proposed time limit changes in the public parking lots would meet current estimated overall demand for long term parking, while at the same time providing sufficient supply to meet the current estimated demand of customers and other short term users in the downtown.

Recommended Long Term Parking Strategies

Opportunity Hill

Zone C24

Under current City code, Project F in Zone C24 would require 484 off-street spaces when code parking requirements are considered separately for the proposed retail, office, and residential uses on the project site. However, the mixture of these three distinct land uses provides an opportunity for shared parking, since parking for each land use peaks at different times of day – residential during overnight, and office and retail during the day. Thus, if 484 spaces were provided, it would be reasonable to expect large numbers of parking spaces within the development being underutilized virtually all day.

Therefore, it is recommended that off-street parking serving the entire Project F development be supplied at the rate of 1.7 spaces per residential unit, or 340 total off-street spaces. During the evening, when residential parking activity peaks and office/retail parking activity is low, this would provide at least one space per residential unit (200 overall), with 140 parking spaces available for any combination of additional resident vehicles, residential guests, and retail / office parking activity. The parking ratio of 1.7 spaces per residential unit is therefore expected to provide adequate onsite parking supply that meets typical future Project F peak residential parking demand during evenings. Also, the combination of Project F onsite parking supply and nearby public on-street parking supply is expected to meet the estimated demand of residential guests and other users during the typical residential evening peak.

It should be noted that Table 14.09.128.01 of the Vacaville Municipal Code establishes required off-street parking for multifamily dwellings. Required parking rates range from 1.5 to 2 spaces per unit depending on the number of bedrooms, but the table also stipulates that no less than 1.75 spaces per unit can be provided for the overall development. Revisions to the off-street parking requirements in the Opportunity Hill area are being considered based on the above recommended off-street parking supply rate of 1.7 spaces per residential unit.

During the daytime, the proposed Project F off-street parking supply of 340 spaces would accommodate the peak office and retail activity that requires 84 spaces to City code, leaving 256 available during the day for residential activity. In terms of residential parking, the Urban Land Institute estimates that residential parking demand during a typical midday is 65 percent of the overnight peak, so the available 256-vehicle off-street surplus within the development would be more than sufficient for residents during the day.

This proposed provision of 340 off-street spaces in Project F would more than offset the estimated future parking deficit found in Zone C24 of 70 spaces overall, including 45 short term and 25 long term spaces, which is based on the assumption of future developments in Zone C24 utilizing existing effective public parking supply. Therefore, the provision of 340 off-street spaces within Project F would more than offset this potential future deficit. It should be noted that the future surplus calculation includes the parking supply of City Lot 10, which consists of 127 spaces overall but only operates as a public lot after 5:00 p.m. during weekdays.

The proposed Project B in Zone C24, consisting of 24,000 square feet (sq. ft.) of office use, would require 80 off-street spaces by City code. Since this is a single land use, it is expected that this can be accommodated within the development.

Zone C23

Project G within Zone C23 is another mixed use development proposed within the Opportunity Hill Master Plan area, consisting of 251 multifamily residential units and 8,000 sq. ft. of retail use. Since the mixed use characteristics are similar to Project F in Zone C24, a reduced off-street parking requirement is also recommended for Project G. If a 1.7 space per residential unit off-street parking rate is applied to the entire development (same as Project F), this would yield an off-street supply on the Project G site of 427 spaces. During the peak evening residential activity, at least 251 spaces could be made available to residents (one space per unit), with 176 spaces available for additional resident vehicles, residential guests, and retail / office parking activity. During daytime, retail activity peaks, and the City code would require the retail component to have 27 spaces at the rate 3.3 spaces per 1,000 sq. ft. With residential activity lower during the daytime, this leaves 400 spaces available to residents and potentially other users.

Given the anticipated future parking deficits of 74 short term and 167 long term spaces (241 total) during the peak Friday noon hour within Zone C23, which assumed future land-use generated parking demand would utilize existing available effective parking supply, provision of this off-street parking for Project G would more than offset these future deficits. This would yield a net surplus of 186 total spaces ($-241+427=186$).

Other Future Project Locations

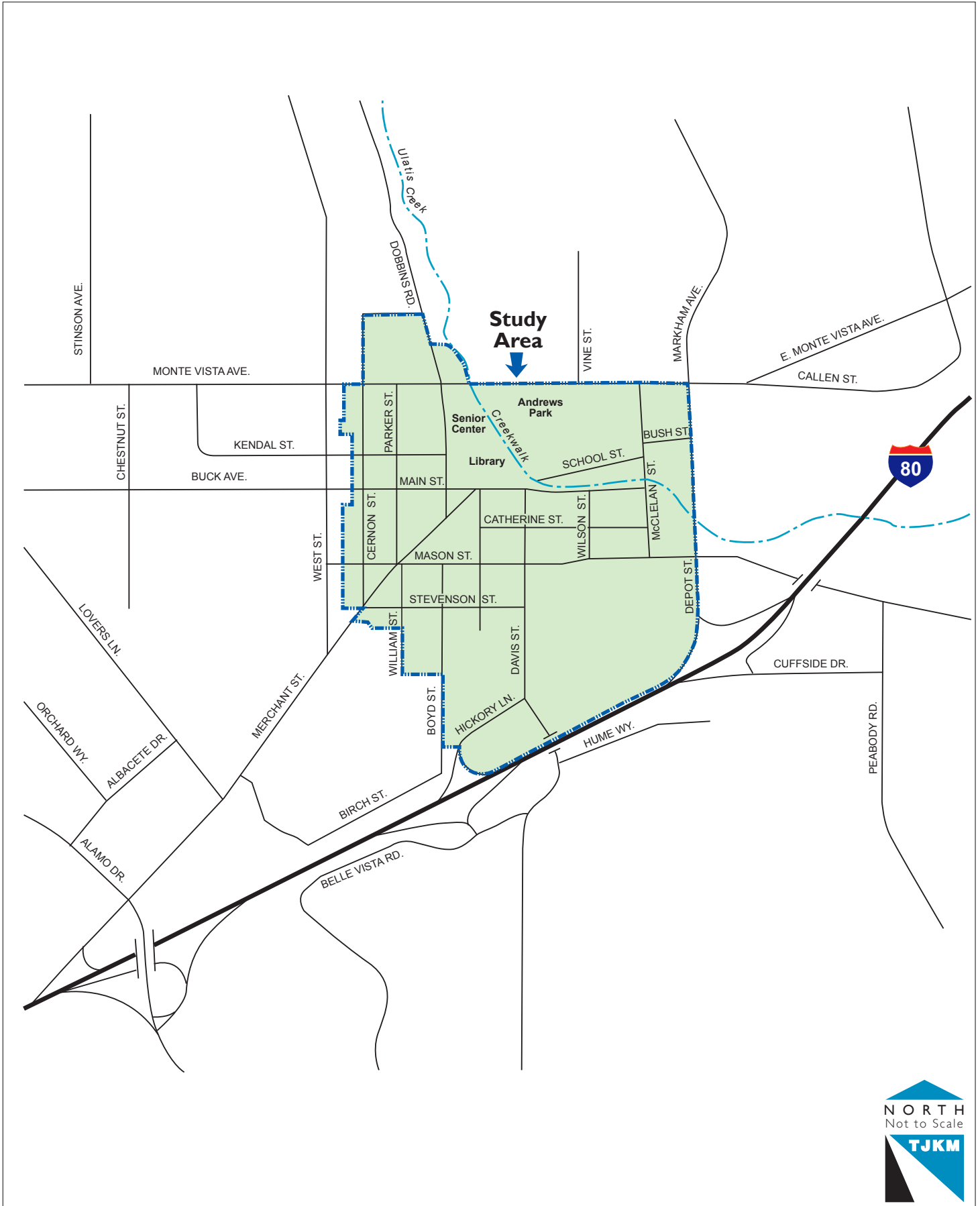
In Zone C25, Project E would replace current Vacaville Unified School District office and school uses with a 180 multifamily residential unit development. Based on the future parking surplus analysis and the net change in existing to future land uses within this zone, a net deficit of 193 spaces (48 short term and 145 long term) is expected. Since this zone includes no current public on- or off-street parking supply, it is expected that this multifamily development will need to provide onsite parking.

Based on current code requirements, 360 spaces would need to be provided for Project E on site to satisfy the two spaces per unit requirement, assuming all two-bedroom units. This requirement is subject to the final composition of multifamily units in terms of number of bedrooms, as the City code has differing City code off-street parking requirements depending on the number of bedrooms in each unit. If Project E provides 360 spaces on site, this would eliminate the future parking deficit in Zone C25, yielding a surplus of 167 spaces ($-193+360=167$). It should be noted that a reduced off-street parking rate was not considered appropriate for this development, since only a single land use is proposed on the site, rather than mixed uses as with other Opportunity Hill developments.

In Zone C56, Projects H and I are the primary generators of future parking demand. Project H, which includes 9,600 sq. ft. of office use on two stories, would require 32 off street spaces based on current City code requirements. However, based on the current site location between two public lots, Lot 2 and Lot 3, it is not apparent whether the site would be able to meet this requirement. However, the proposed changes to parking time limits in Lot 4 under existing conditions, which is located across Dobbins Street from Project H, may be able to absorb this requirement.

The current TJKM recommendation for Lot 4 is to provide 59 2-hour (short term) and 88 10-hour (long term) spaces. The short term and long term spaces created by this proposed modification would offset the anticipated future deficits of 33 short term and 31 long term spaces within Zone C56. These net deficits already include the expected future parking demand generated by Project H. Therefore, if Project H is unable to provide off street parking to City code requirements, it is expected that the Lot 4 modification would be able to accommodate the future Project H parking demand.

Finally, Project I, a proposed 6,000-sq. ft. restaurant located at the southeast corner of Dobbins Street and Monte Vista Avenue and immediately north of the Senior Center, would require 30 off-street spaces based on the current City code parking rate of 5 spaces per 1,000 sq. ft. This site is located just outside the downtown parking exception zone, so under City code requirements the project would need to provide this amount of off-street parking on site. Based on the site characteristics, it is anticipated that the project would be able to satisfy the City code requirement.



2. Existing Parking Conditions

This section of the report documents existing parking conditions within the study area, including parking inventory and utilization in Downtown Vacaville. Utilization includes occupancy and duration surveys that TJKM conducted in the field. This section also documents previous studies conducted in downtown, including evaluation of parking conditions and whether previous study recommendations were implemented.

Study Area

The project study area has been expanded since the 2001 TJKM study to include the entire Downtown Vacaville Business Improvement District (DVBID) boundary. The DVBID boundary, shown in Figure 2, is formed by Monte Vista Avenue to the north, Depot Street to the east, Interstate 80 (I-80) and Stevenson Street to the south, and Boyd Street and Cernon Street to the west.

Previous Downtown Parking Studies and Recommendations

TJKM (2001)

TJKM previously conducted a parking inventory and evaluated occupancy in downtown Vacaville in 2001. This study focused on the public parking supply, in terms of on-street curb spaces and also City-maintained off-street parking lots. The study area was within the Central Business District (CBD), which is bounded by Monte Vista Avenue to the north, McClellan Street to the east, Stevenson Street to the south, and Cernon Street to the west. This boundary is also shown in Figure 2. It should be noted that this study was conducted as initial plans for the Town Square area (including Lot 4) were being considered.

The 2001 study inventoried approximately 700 on-street parking spaces and 700 off-street spaces in 11 City lots within the study area. TJKM estimated occupancy levels for a typical Friday in December, with 12:00 to 1:00 p.m. established as the peak hour of parking demand.

Findings

TJKM found that parking demand exceeded effective available parking supply (described as 90 percent of on-street spaces and 85 percent of off-street spaces in a given location) in specific areas throughout downtown, with a majority of those areas clustered on or within an area bounded by Main Street (north), Wilson and Elizabeth Streets (east), Catherine and Mason Streets (south) and Merchant and Dobbins Streets (west). In addition, parking demand exceeded effective supply on Elizabeth Street between Mason and Stevenson Streets, as well as the 34-space addition to Lot 6 constructed prior to 2001. In general terms, when effective parking supply at a given location is exceeded, strategies are necessary to manage this demand, develop new parking supply, or a combination of both. The 2001 strategies suggested by TJKM are included later in this section.

In terms of specific findings, the 2001 study found that the following on-street locations experienced an occupancy rate of 90 percent or more (which by the effective supply definition indicates that such locations are effectively “full”):

- Main Street (south side) between Dobbins Street and Merchant Street
- Main Street (both sides) between Elizabeth Street and Davis Street
- Catherine Street between Elizabeth Street and Wilson Street
- Merchant Street between Dobbins Street and Main Street

- Mason Street (north side) between Cernon Street and Parker Street
- Cernon Street (east side) between Mason Street and Merchant Street
- Boyd Street (west side) between Mason Street and Stevenson Street
- Elizabeth Street (both sides) between Mason Street and Stevenson Street

In addition, there were two additional street segments experiencing 90 percent or greater occupancy where the parking configuration has since been modified. A segment of Kendal Street that was located east of Dobbins Street is now part of the City's expanded Lot 4, while the segment of Davis Street between Main Street and Catherine Street is now signed for no parking. In terms of the City operated public lots, the 2001 study found that certain parking spaces designated by time limit experienced very high (90 percent or more occupancy) as follows:

- Lot 2: No Limit spaces
- Lot 3: 10-hour spaces
- Lot 7: All spaces – 20-minute, 2-hour, 4-hour, and handicapped accessible
- Lot 8: No Limit spaces

As part of the 2001 study, TJKM evaluated various parking strategies and improvements that would address short- and long-term parking supply deficiencies and continue to promote the adequate provision of parking supply for customers, merchants, employees, and other downtown visitors. For the purposes of discussion, short term parking supply refers to spaces with time limits of 2 hours or less (including 20-30 minute green curb and loading), while long term refers to time limits of more than 2 hours (i.e. 3 hours, no time limit, handicapped, etc.). In the downtown, short term parking generally is attributed to customers and loading activity, whereas long term parking generally is attributed to shop owners and employees. Following are both near- and long-term strategies that TJKM recommended in 2001 for possible City implementation.

Near Term Recommendations - Parking Designation Revisions

TJKM recommended the following revisions to public lot time limits in 2001:

- Lot 3: Redesignate 10 spaces within the lot from 10-hour to 3-hour designation in order to position more of the existing shorter-term 3-hour spaces closer to adjacent businesses along Kendal Street, which include beauty salons. In order to preserve the existing totals of 3-hour and 10-hour spaces within the lot, TJKM proposed redesignating 10 3-hour spaces in the row immediately adjacent to Dobbins Street as 10-hour spaces. At the time, the intent was to address merchant concerns over the availability of short-term parking within the lot for customers. The City has not implemented this shifting of spaces since the 2001 study. Based on 2008 parking occupancy and duration field surveys, however, TJKM is revisiting this recommendation, which will be discussed later in this report.
- Lot 4: Convert all 53 no-limit spaces to 2-hour limit (3 handicapped spaces to remain). This modification was intended to provide more short-term parking within City traffic analysis zone (TAZ) 252, where in 2001 there was an estimated short-term (2 hours or less) deficit of 60 parking spaces, primarily in the business and restaurant areas along Main Street. The City did not implement the recommended time limit change at the request of DVBD pending an identification of alternative long term parking supply locations to compensate for the loss of long term parking in Lot 4. Since 2001, Lot 4 has expanded from 56 to 154 total parking spaces as part of the recent Town Square project; however, the lot has remained without time limits. Utilization of spaces without time limits has increased from 81 percent in 2001 (43 of 53 spaces) to 91 percent in 2008 (132 of

147 spaces), with the growth driven primarily by the development of Town Square. In 2008, parking shortages are much less in the vicinity of Lot 4; however, 2008 lot utilization indicates that not only 2-hour spaces are warranted, but also longer-term spaces of ten hour limits. This is discussed later in the near term improvement section of the report.

- Lot 8: Convert 20 spaces from no limit to 12 two-hour limit and 8 three-hour limit (one handicapped space to remain). This modification was intended to provide more short-term parking within City traffic analysis zone (TAZ) 255, where in 2001 there was an estimated short-term supply deficit of 9 parking spaces. The three-hour conversion was intended to accommodate customers of nearby personal service businesses, such as spas and beauty salons. Similarly to Lot 4, at the time the City did not implement this change pending DVBD's request for identification of alternative long term parking supply locations. In 2008, field parking occupancy results indicate that Lot 8 is utilized at 95 percent. However, analysis of 2008 parking supply indicates that surpluses of both short-term and long-term parking spaces exist within one to two-blocks of this lot. This result suggests that the 2001 recommendation for Lot 8 does not need to be implemented.
- Lot 10: Convert all 54 four-hour spaces to 10-hour limit to accommodate the additional longer term parking expected to be displaced upon the recommended implementation of shorter time limits in Lots 4 and 8. In 2008, TJKM's field observation confirmed that the four-hour limit in Lot 10 has been removed, although those spaces were converted to no-limit spaces rather than 10-hour spaces. In effect, the no-limit conversion is similar to a 10-hour conversion with respect to all day parking for downtown employees. There appears to be no appreciable effect from the implementing this change in time limit designation. In 2001, Lot 10 overall was observed at 14 percent occupancy, whereas in 2008, the overall lot was observed at 27 percent occupancy. This appears to be due to the continued low development intensity in the immediate vicinity of the lot and the lack of proximity to many of the downtown businesses along Main Street.

Near Term Addition of Parking Facilities

TJKM found both short-term and long-term parking shortages in Lot 7 and examined the potential for expanding parking supply in the lot. TJKM's recommendation in 2001 for Lot 7 was to add 9 two-hour spaces and 40 ten-hour spaces in a second level above the existing surface lot. However, the construction of deck parking in Lot 7 was determined to be infeasible based on the irregular shape of the surface lot. Also, there were limited opportunities for acquiring adjacent properties for surface lot expansion.

At the time, there were also existing and projected parking shortages in traffic analysis zone (TAZ) 252, which includes Lot 4. However, Lot 4 at the time had not yet been expanded to accommodate the Town Square Project. Also, TJKM identified Redevelopment Agency parcels adjacent to Lots 8 and 11 in TAZ 255, which had the potential to accommodate additional parking near Lot 7. However, the total spaces in both Lots 8 and 11 are unchanged since 2001. It should be noted additionally, however, that the City established a temporary surface lot on a Redevelopment Agency site known as the Klotz property, which included a former auto parts store and now provides 43 no limit spaces.

Other Near Term Recommendations

The 2001 study provided other near term recommendations related generally to management strategies for the downtown parking supply. Recommendations were made with respect to education programs, enforcement strategy, parking meters, on-street access configurations related to both on- and off-street parking, and installation of public parking signage.

In terms of access configuration, TJKM recommended a conversion of Elizabeth Street between Main Street and Mason Street from one-way southbound to two-way traffic. The main reason was the potential for vehicles seeking a parking space within Lot 7 to exit onto Elizabeth Street and proceed in the wrong direction (northbound). Although Elizabeth Street was not converted to two-way traffic, the City implemented other TJKM circulation recommendations for Lot 7, which included two-way internal circulation aisles and also one-way couplets for the access driveways at Mason Street.

In terms of signage, in Lot 7 the City has installed internal guide signs and signs denoting Lot 7 as municipal parking as recommended. The City has also installed signs denoting municipal parking within other City-operated lots as recommended. With respect to TJKM's recommendation to install directional signage for off-street public parking lots in the downtown, since 2001 the City has recently installed several directional signs and is planning to install more.

City of Vacaville (2006)

In 2006, the City inventoried parking spaces within the downtown parking district. Overall, 1,435 public parking spaces were surveyed, including both on- and off-street. Of this total, 41 percent (580 spaces) had no time limits, while 39 percent (560) consisted of two-hour limits. The City recommended conversion of 22 spaces on East Main Street from two-hour limit to no limit in order to encourage potential employee parking on the east side of the downtown area. The City implemented this conversion on the north side of East Main Street between Wilson Street and McClellan Street. Based on 2008 TJKM field occupancy surveys, this conversion does not seem to have changed the low level of utilization (less than 50 percent) on this particular block that was also found in the 2001 TJKM study. It appears that utilization has not changed along this section of East Main Street because it is adjacent to Ulatis Creek and there are no buildings fronting this section, compared to other sections of Main Street west of Wilson Street.

In addition, the City recommended two other modifications to the parking supply. One recommendation was to convert 148 spaces in Lot 4 to 94 four-hour and 54 two-hour spaces, and the other was to convert all no limit spaces in Lot 8 (21 total) to 4-hour limits. To date, neither recommendation has been implemented. At the time of the City's study, the City was working with DVBID to implement these proposed conversions of spaces from long term to short term time limits. However, DVBID requested that the City not implement these changes until acceptable alternatives for meeting long term parking needs were established. As mentioned earlier, the 2008 parking occupancy results do not indicate a need for converting the no limit spaces in Lot 8, since analysis of current parking supply indicates that surpluses of both short-term and long-term parking spaces exist within one to two-blocks of this lot. This result suggests that the City's 2006 recommended conversion of Lot 8 to 4-hour limits is not warranted based on current conditions.

Parking Inventory (2008 TJKM)

TJKM consulted the City's most recent downtown inventory of both on-street and off-street public parking spaces conducted in 2006. Since the study required an inventory of all public and private spaces located within the DVBID boundary, TJKM conducted supplemental field inventories in November and December 2008 that verified the 2006 stall counts and included additional public on-street spaces and private (non-residential) off-street spaces not included in the 2006 inventory. The public on- and off-street inventory is shown in Figure 3, while the private off-street lot inventory is shown in Figure 4.

TJKM surveyed a total of 3,039 spaces in the study area, including 931 on-street curbside spaces, 949 spaces in City operated or affiliated off-street lots, and 1,159 off-street spaces in private lots serving various nonresidential land uses. Public parking therefore provides the majority of parking spaces within the study area at approximately 62 percent (1,880 public of 3,039 total), including 31 percent each for off-street City lot spaces and on-street curb spaces. The private lot spaces represent the balance of study area parking supply at approximately 38 percent (1,159 of 3,339 total).

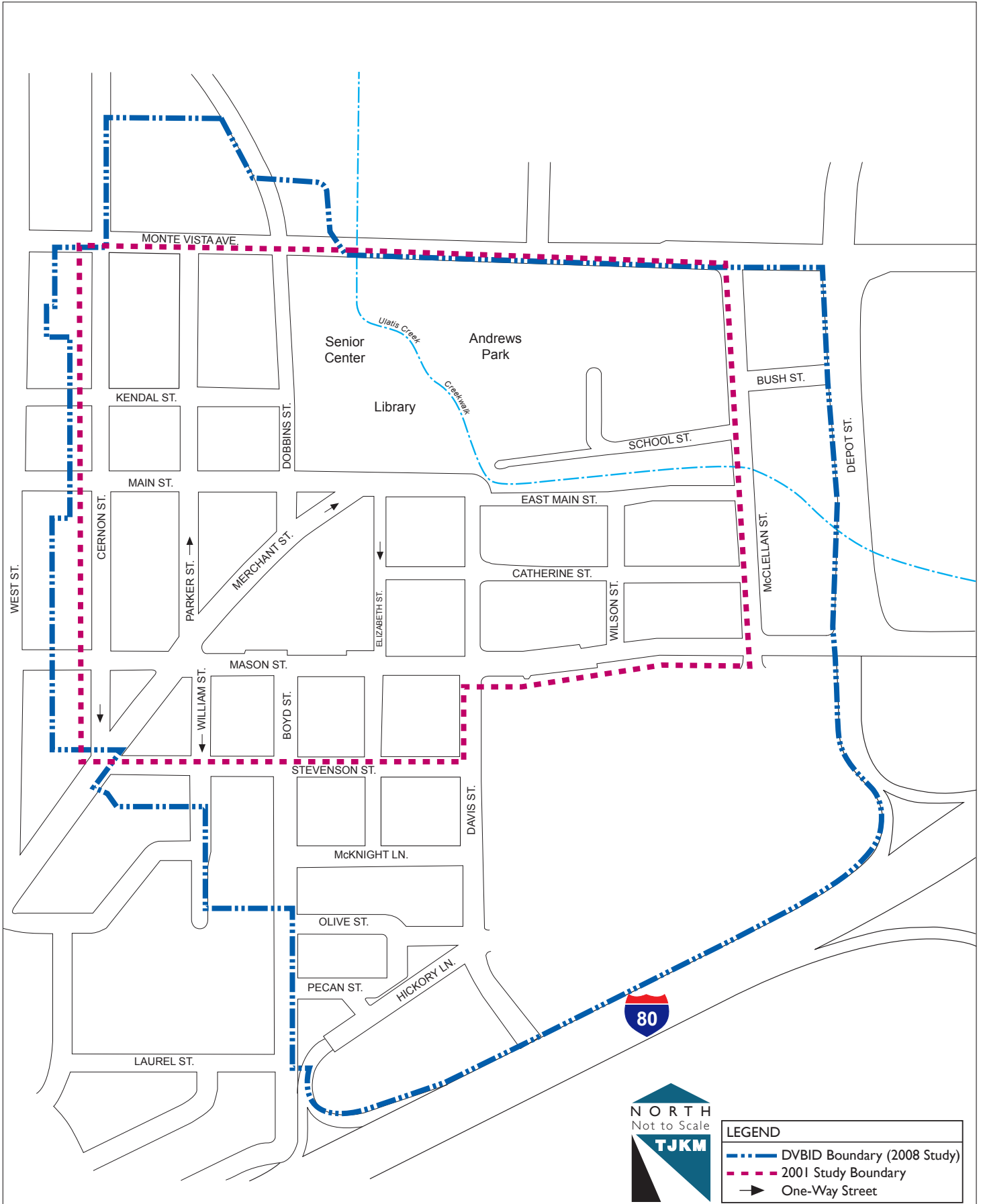


Table I shows a comparison of downtown parking inventories conducted for the 2001 and current TJKM studies. The current inventory has greatly expanded since the 2001 study, reflecting a larger study area encompassing the entire DVBID boundary and that includes an extensive private lot inventory (1,159 spaces in 59 lots). In terms of public inventory, TJKM also surveyed additional on-street parking supply within the DVBID boundary not included in the 2001 study. The vast majority of these additional on-street spaces are located south of Stevenson Street, which was the southern boundary of the 2001 study. In addition, the higher current inventory in Lot 4 reflects the additional spaces created by the Town Square development built after 2001. The inventory of Lot 10, a private lot which operates as a public lot by agreement after 5:00 p.m. weekdays and on weekends and holidays, also increased. The Senior Lot was added to the current inventory. Finally, the former auto parts store parking lot at Catherine and Davis Streets is now owned by the City Redevelopment Agency.

Appendix A includes the entire 2008 study area inventory by individual block face and parking space type (on-street, off-street, unregulated, two-hour limit, 20/30-minute limit, handicapped accessible, etc.).

Table I: Overall Public and Private Parking Inventory

Parking Location	2001 Inventory		Current Inventory (2008)	
	Spaces	Percent of All Types	Spaces	Percent of All Types
On-Street (Curb)	685	51	931	31
Off-Street (City Lots)*	668	49	949	31
Off-Street (Private Lots)	- ¹	- ¹	1,159	38
Total	1,353	100	3,039	100
City Lot Inventory (* from above)	Spaces	Percent of City Lot Spaces	Spaces	Percent of City Lot Spaces
Lot 2	30	4	31	3
Lot 3	61	9	58	6
Lot 4 ²	56	8	154	16
Lot 5	90	13	90	9
Lot 6	98	15	97	10
Lot 7	145	22	143	15
Lot 8	22	3	22	2
Lot 9	64	10	65	7
Lot 10 ³	56	8	127	13
Lot 11	46	7	46	5
Lot 12	- ⁴	- ⁴	21	2
Senior Center	- ⁵	- ⁵	52	5
Former Auto Parts Store (Redevelopment site)	- ⁶	- ⁶	43	5
Total	668	100	949	100

Notes: ¹ Private lots were not inventoried in 2001. 2008 private inventory excludes commercial complex located southeast of Davis and Mason Streets, which was surveyed and analyzed separately.

² 2008 inventory includes additional spaces installed as part of Town Square development built after 2001.

³ Lot 10 is a privately owned and maintained lot, but public parking is allowed after 5:00 pm on weekdays and on weekends and holidays by easement.

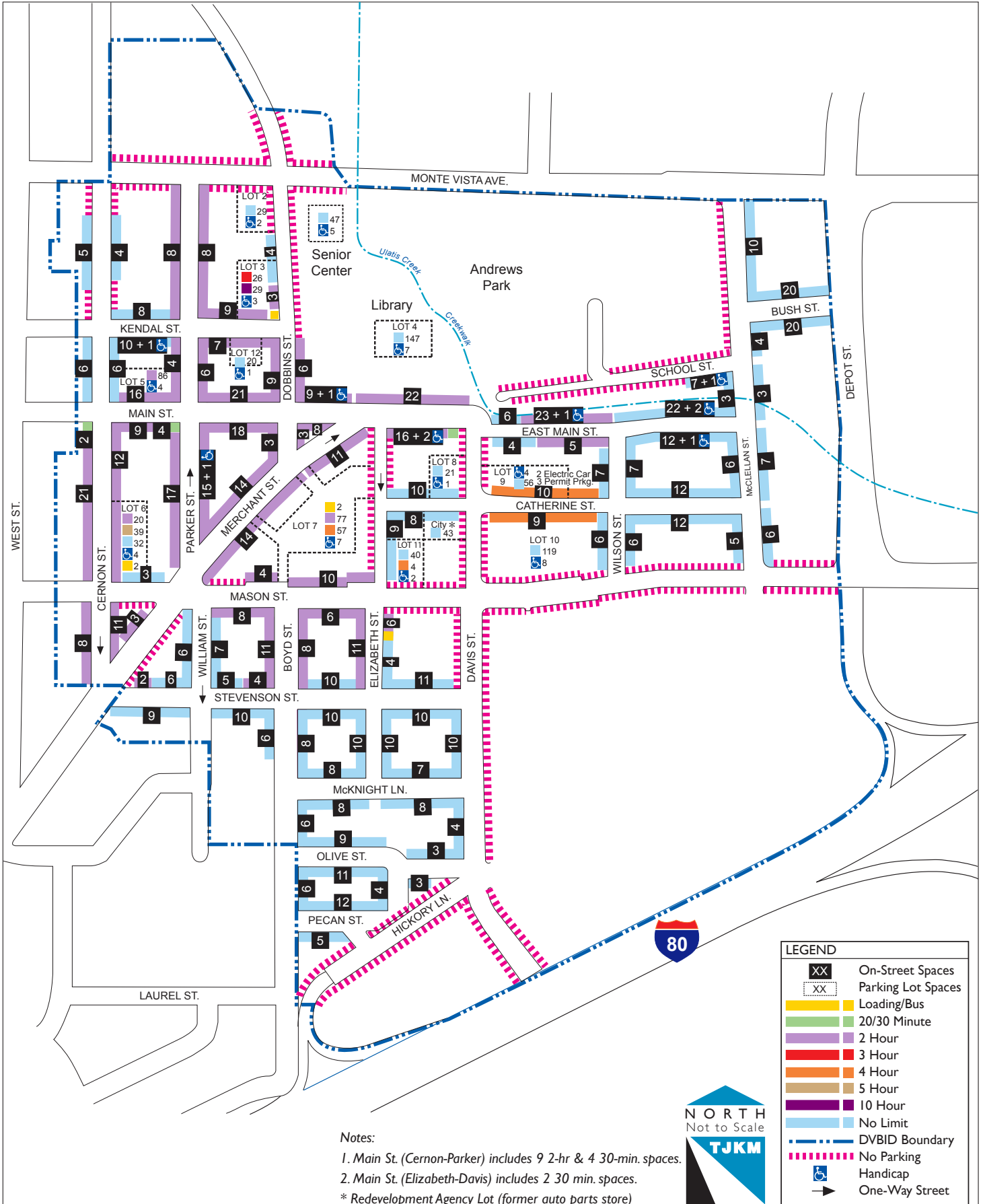
⁴ Lot 12 did not exist in 2001.

⁵ Senior Center lot not inventoried in 2001.

⁶ Auto Parts lot was operational business in 2001 and thus part of private parking not inventoried.

City of Vacaville - Downtown Parking Study Public Parking Inventory (On and Off Street)

Figure
3



City of Vacaville - Downtown Parking Study
Private Parking Inventory (Off-Street)

Figure
4

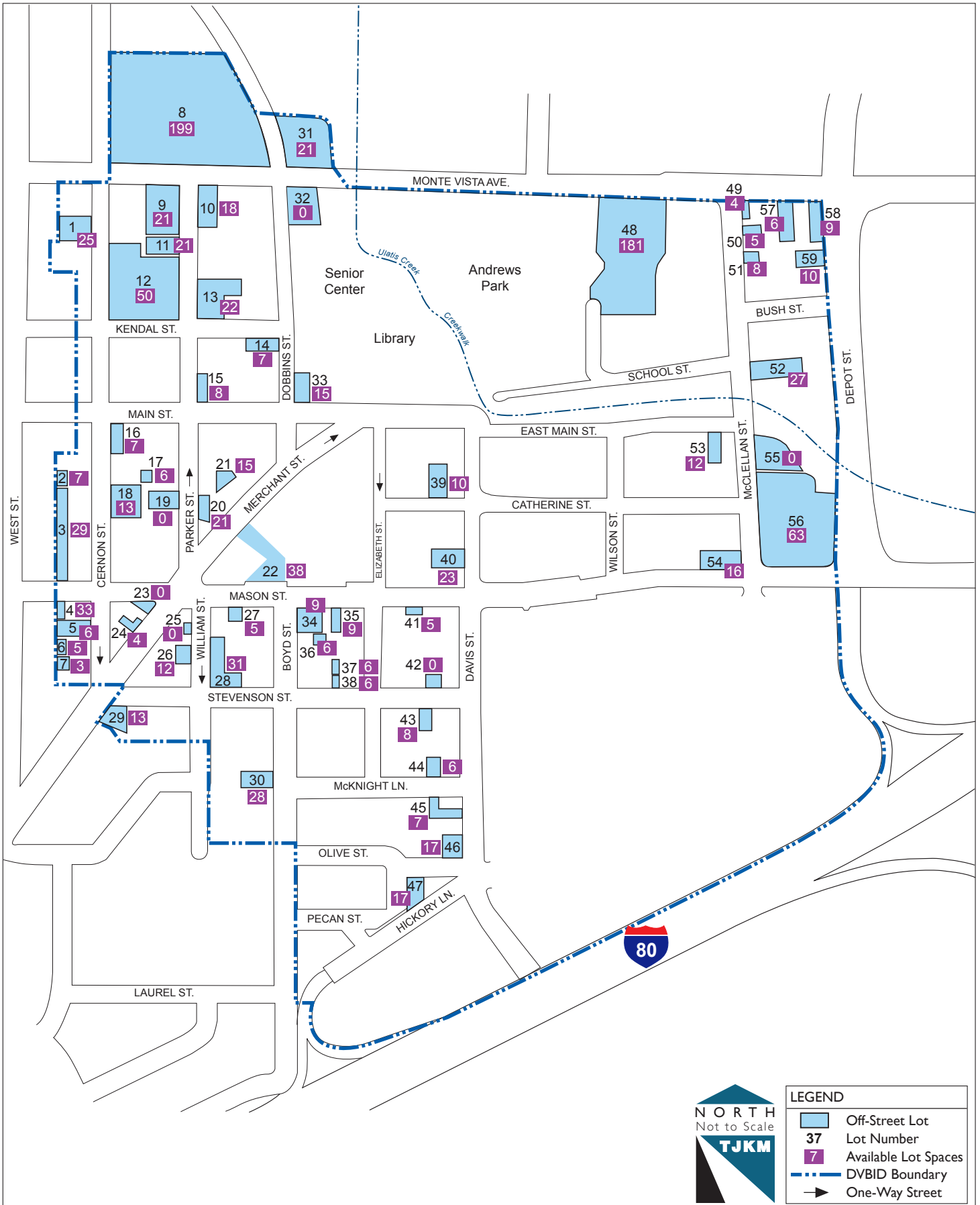


Table II shows a further breakdown of the surveyed public parking spaces in the 2008 study area. The majority of all inventoried on-street spaces (52 percent) are unregulated (no time limits), while 44 percent have a two-hour time limit between 9:00 a.m. and 6:00 p.m., excluding Sundays and holidays. The remaining four percent includes spaces with four-hour and 20- to 30-minute time limits, as well as loading and handicapped accessible spaces.

In terms of the public off-street parking supply that includes City owned and operated lots, nearly 60 percent consist of no time limits. Two-hour limits constitute 19 percent of this total, while about 16 percent consists of longer time limits ranging from three to ten hours. The balance of the total includes five percent handicapped accessible spaces as well as four loading spaces.

Table II: Existing Public Downtown Parking Inventory

Space Type	On-Street Supply		Off-Street Supply		Total Supply	
	Number	Percent of All Types	Spaces	Percent of All Types	Spaces	Percent of All Types
Unregulated	480	51.6	559	58.9	1039	55.3
10-hour	0	0.0	29	3.1	29	1.5
5-hour	0	0.0	39	4.1	39	2.1
4-hour	19	2.0	61	6.4	80	4.3
3-hour	0	0.0	26	2.7	26	1.4
2-hour	412	44.3	183	19.3	595	31.6
20- to 30-minute (Green Curb)	6	0.6	0	0.0	6	0.3
Loading (White or Yellow Curb)	3	0.3	4	0.4	7	0.4
Handicapped Accessible (HC)	11	1.2	48	5.1	59	3.1
Total	931	100.0	949	100.0	1,880	100.0

Parking Occupancy

Methodology

Occupancy is the percentage of vehicles that are parked within a given parking space inventory, which is calculated for the overall study area as well as individual block faces and parking lots. Based on past City and TJKM experience, the Friday midday period tends to have the highest occupancy and was therefore chosen for the occupancy observations.

TJKM conducted an occupancy survey of the entire public stall inventory in the study area (excepting the Senior Center Lot and former auto parts store now owned by the City Redevelopment Agency) on Friday, November 14, 2008. An additional occupancy survey consisting of the above two public lots and also the entire private stall inventory in the study area was done on Friday, December 5, 2008. On both days, TJKM staff recorded occupancies of each stall every two hours, with the first observation at 10:00 a.m. and the final observation at 6:00 p.m.

It should be noted that in the future, a portion of the currently public Redevelopment lot is proposed for conversion to private development, with some public parking also provided. This future development is discussed further in the future parking needs section of this report.

Results and Trends

Based on TJKM field observations, it was confirmed that for the overall study area the survey period between 12:00 and 2:00 p.m. experienced the highest occupancy on both Fridays. Appendix B provides detailed occupancy survey results for public on-street locations, public off-street lots, and private off-street lots. The observed peak occupancies for the overall study area as well as on- and off-street spaces by location type were as follows:

- 55 percent overall (1,660 of 3,039 spaces)
- 52 percent for on-street curbside spaces (480 of 931 spaces)
- 67 percent for off-street City lot spaces (636 of 949 spaces)
- 47 percent for off-street private lot spaces (544 of 1,159 spaces)

Figure 5 shows peak parking occupancy during the Friday peak period between 12:00 and 2:00 p.m. for both individual on-street blocks and the public parking lots. Figure 6 shows this same information for the private off-street parking lots in the study area. As Figure 5 illustrates, most blocks in the primarily residential areas south of Mason Street are at less than 50 percent occupancy, as well as most of McClellan, Catherine, and Wilson Streets. This accounts for the 52 percent occupancy rate overall for on-street spaces despite the high occupancies (85 percent or higher) shown on most blocks along Main Street, Parker Street, and Dobbins Street in the core commercial area of downtown.

Commercial Center – Southeast of Davis and Mason Streets

TJKM additionally conducted a separate survey of parking occupancy at the commercial complex located in the southeast corner of the DVVID area and bounded by I-80, Davis Street, Mason Street, and the I-80 Westbound Ramps. The purpose was to determine whether parking demand within this complex is sufficiently self-contained such that it does not cause spillover effects on parking elsewhere within the study area.

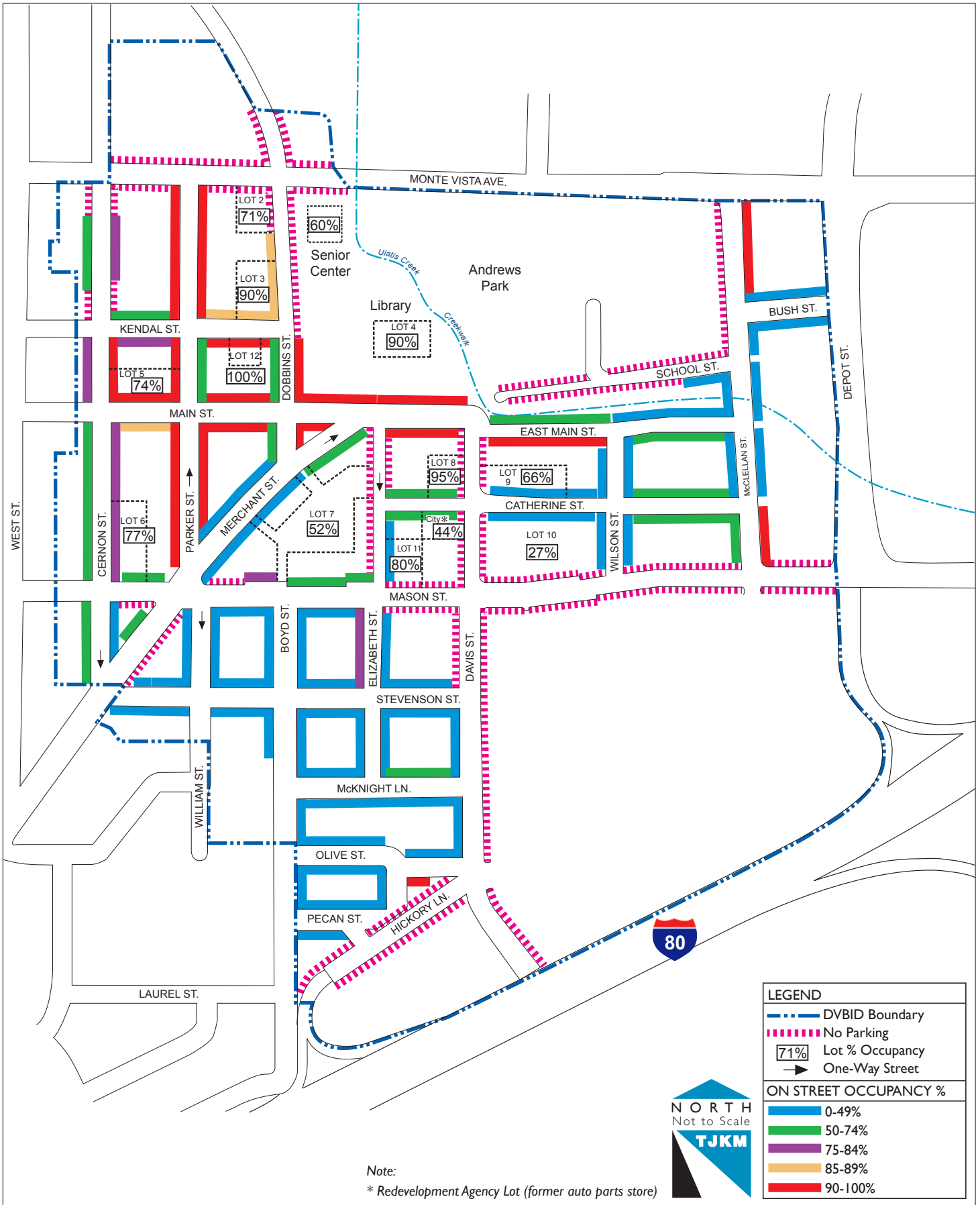
The complex consists of a variety of land uses, including restaurants, offices, a movie theater, a gas station, a hotel, and a community ice sports center. TJKM sampled occupancy within the complex during the November 14, 2008 field surveys between 12:00 p.m. and 2:00 p.m., which is the peak period for parking demand within the overall study boundary. Figure 7 shows the complex layout as well as the parking occupancy and inventory. Table III shows that of the 1,707 spaces within this complex, about 29 percent were occupied during a typical Friday peak period. This low occupancy indicates that there are no likely spillover effects in terms of parking demand elsewhere in the study area, since there are 1,209 available spaces on site during the peak period.

Table III: Commercial Center Parking Occupancy (Southeast of Davis / Mason Intersection)

Land Use	Spaces	Noon – 2:00 p.m. Demand	Occupancy Percentage
Ice Sports Center	533	39	7.3
McDonald's / Gas Station	31	21	67.7
Brendan Movie Theater / Starbucks / Various Restaurants	420	193	46.0
Office Complex (SE Corner of Davis / Mason)	121	59	48.8
Financial & Medical Offices	449	165	36.7
Hampton Inn	153	21	13.7
Total	1,707	498	29.2

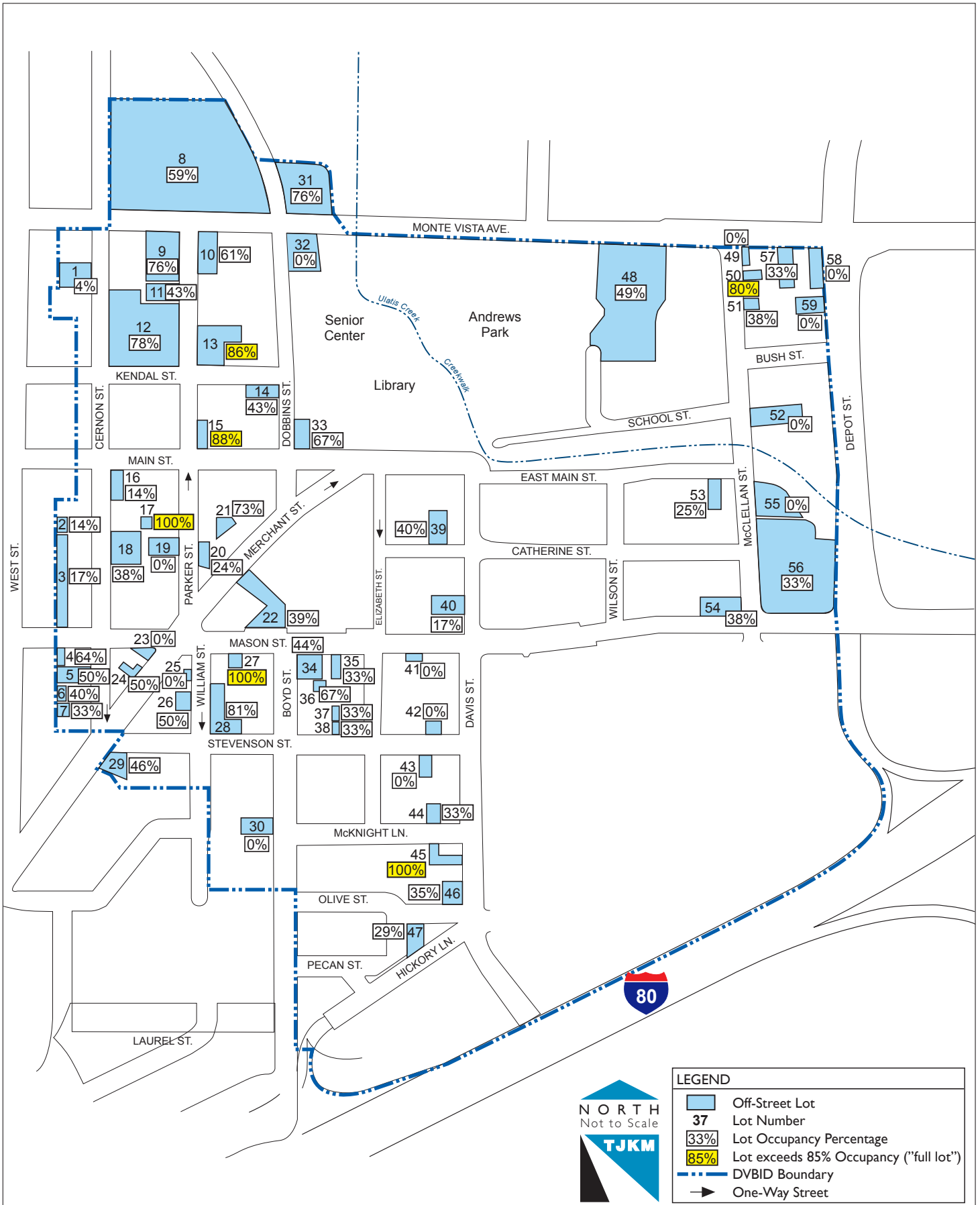
City of Vacaville - Downtown Parking Study
 Public Parking Occupancy (November/December 2008, Friday 12-2 P.M.)

Figure
 5



Note:
 * Redevelopment Agency Lot (former auto parts store)





Overall Complex: $\frac{498 \text{ occupied spaces}}{1,707 \text{ total spaces}} = 29\% \text{ occupancy}$



LEGEND	
39	Occupied Spaces
533	Parking Supply
7%	Parking Occupancy

Parking Duration / Turnover

Methodology

Parking duration surveys provide insight into how well utilized individual parking spaces are within a given block or lot, by determining how often each space “turns over” for a new vehicle during a given observation period. TJKM consulted with City staff to determine appropriate locations for parking duration field surveys based on past parking studies in the downtown as well as the 2008 TJKM occupancy surveys. The focus was on City owned and maintained off-street lots that historically have experienced high levels of utilization on a typical Friday. Therefore, TJKM conducted duration surveys on Friday, December 12, 2008 at the Senior Center lot, as well as City Lots 3, 4, 6, and 7. There are a total of 508 spaces within these lots collectively.

The field survey method was to record the last three digits of license plates for each individual space every two hours, with the first observation at 10:00 a.m. and last observation at 6:00 p.m.

Overall Duration by Lot and Space Type

TJKM reviewed the survey results to determine the average duration of vehicles parked in each lot, both overall and by each time limit. Table IV shows these durations for each observed parking lot. The averages demonstrate to what extent vehicles are turning over in spaces given various lot time limits. It should be emphasized that the average durations are based on the two hour interval of observation for all lots. Appendix C includes detailed duration observations for each lot as well as overall parking space utilization.

According to the results, vehicles parked in Lot 3 averaged 3.4 hours duration overall. In particular, the 10-hour spaces in this lot averaged 3.8 hours duration, indicating that the majority of vehicles parking in these spaces turned over more frequently than ten hours. The average duration of the 3-hour spaces was 3.1 hours, indicating that a few more users violated the time limit than those parking within the time limit.

In Lot 4, the 147 spaces without time limits averaged 3.9 hours duration. A closer look at observed vehicle parking durations in these spaces indicate that a majority of lot users are parked for less than four hours on average.

In Lot 6, the average duration of 6.9 hours in the no limit spaces suggests the spaces are mostly used by downtown employees working full time during the day. For the two-hour spaces, the 2.5-hour average duration indicates some level of violation of this short term limit. The five-hour spaces experienced an average duration of 4.2 hours, which indicates a majority of spaces within this time limit category turned over more frequently than five hours.

In Lot 7, average duration for the two-hour spaces was 2.9 hours (exceeding the time limit), while average duration was 3.9 hours for the four-hour spaces (slightly under the time limit)). However, these averages include both short term users and those exceeding current time limits.

In the Senior Lot, where there are currently no time limits, vehicles on average were parked for 3.1 hours duration. This indicates that most parked vehicles are parked for short term and very few are parked all day. As such, the lot is likely more utilized by visitors to the Senior Center than staff.

A further statistical breakdown of duration for each parking space type in all five lots is included in the next section.

Table IV: Average Overall Duration by Lot and Space Type

City Public Lot	Space Type	Total Spaces Surveyed	Average Duration (minutes)	Average Duration (Hours)
Lot 3	3-Hour	26	183.1	3.1
	10-Hour	29	230.3	3.8
	ADA	3	120.0	2.0
	Overall Lot	58	203.4	3.4
Lot 4	No Limit	147	232.2	3.9
	ADA	7	135.0	2.3
	Overall Lot	154	227.1	3.8
Lot 6	No Limit	32	411.9	6.9
	2-Hour	20	150.5	2.5
	5-Hour	39	249.7	4.2
	ADA	4	120.0	2.0
	Loading	2	90.0	1.5
	Overall Lot	97	274.1	4.6
Lot 7	2-Hour	77	175.7	2.9
	4-Hour	57	233.7	3.9
	ADA	7	162.9	2.7
	Loading	2	0.0	0.0
	Overall Lot	143	195.7	3.3
Senior Center	Overall Lot	52	184.8	3.1

Distribution of Parking Duration for Individual Spaces

TJKM conducted a closer examination of the average duration of individual spaces within each lot to determine how spaces under different time limits were utilized during the observation day. For all five lots, average durations for each individual space were aggregated into ranges, including two hours or less, greater than two to three hours, greater than three to four hours, and more than four hours.

Lot 3

Table V shows the distribution of average duration for all space types in Lot 3. For the 3-hour spaces, 66 percent on average were parked at or under the time limit. However, the remaining 34 percent (9 of 26) exceeded the 3-hour time limit. A possible reason for lot users exceeding this limit is that the lot is adjacent to a shopping plaza that includes beauty salons and other shops where customers may stay longer than three hours. It is also likely that employees of these shops or other off-site locations are parking in these spaces. Lot 3 is located across Dobbins Street from the Senior Center Lot and Lot 4, which serves the Library. As will be described later, some Library staff have noted via surveys that they sometimes will use Lot 3 as a spillover lot when Lot 4 is full.

The 10-hour spaces in Lot 3 appear to be utilized more frequently for shorter-term parking. Nearly three-quarters (72 percent) of the 10-hour spaces have an average duration of four hours or less, indicating that most of these spaces are turning over at least once during the day. The remaining 28 percent of the 10-hour spaces (8 of 29) had an average duration of more than four hours, including three spaces in which a single car was parked all day.

Table V: Parking Duration by Space Type – Lot 3

Average Duration for Individual Space	Lot 3 Space Type						Totals	
	3-Hour		10-Hour		Handicapped Accessible			
	Count	%	Count	%	Count	%	Count	%
2 Hours or less	15	58	11	38	3	100	29	50
2+ to 3 Hours	2	8	4	14	0	0	6	10
3+ to 4 Hours	5	19	6	20	0	0	11	19
More Than 4 Hours	4	15	8	28	0	0	12	21
Total	26	100	29	100	3	100	58	100

Lot 4

Table VI shows the distribution of average duration for all space types in Lot 4. Lot 4 (Library Lot) currently consists of 147 spaces with no time limits and seven that are handicapped accessible. On the observation day, the spaces without time limits varied in average duration, with nearly equal distribution among the four duration categories. Currently, this lot serves multiple users, including library staff (full- and part-time) and patrons; Vacaville Sanitary Service employees; and employees and customers of the various restaurants, retail, and offices that are part of the Town Square development. These shared uses are reflected in the wide variation in average duration for the no-limit spaces.

According to the results, 76 percent of the spaces without time limits experienced durations of four hours or less. These results indicate that most users on average are parking in Lot 4 for short durations, since only one-quarter (36 of 146) of the lot spaces averaged more than four hours duration. Based on these duration results and the results of an existing parking surplus analysis to be described later in this report, a reallocation of time limits appears to be warranted, and a proposed modification will be discussed later in this report.

Table VI: Average Parking Duration by Space Type – Lot 4

Average Duration for Individual Space	Lot 4 Space Type				Totals	
	No Limit		Handicapped Accessible			
	Count	%	Count	%	Count	%
2 Hours or less	41	28	7	100	48	31
2+ to 3 Hours	39	27	0	0	39	26
3+ to 4 Hours	31	21	0	0	31	20
More Than 4 Hours	36	24	0	0	36	23
Total	147	100	7	100	154	100

Lot 6

Table VII shows the distribution of average duration for all space types in Lot 6. Of the five lots surveyed for duration, Lot 6 has the greatest variation in space type, with no limit, two-hour, five-hour, handicapped accessible, and loading spaces. For the 32 spaces without time limits, 94 percent experienced average durations greater than three hours, and three-quarters were greater than four hours. This suggests that the no-limit spaces are almost exclusively being used for long term parking.

The 20 two-hour spaces, on the other hand, were occupied by many vehicles exceeding the posted time limit. Only 55 percent of these spaces experienced average durations of two hours or less.

Most of the remaining spaces (40 percent) experienced average durations between two and four hours, indicating that some users were exceeding the two-hour time limit.

For the five-hour spaces, 69 percent (27 of 39) of users were parked for four hours or less on average. Of the 12 remaining five-hour spaces with average durations more than four hours, a closer look at the data revealed that eight of those spaces averaged durations between six and eight hours, and therefore parked vehicles in those eight spaces were exceeding the five-hour time limit.

Table VII: Average Parking Duration by Space Type – Lot 6

Average Duration for Individual Space	Lot 6 Space Type										Totals	
	No Limit		2-Hour		5-Hour		Handicapped Accessible		Loading			
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
2 Hours or less	1	3	11	55	5	13	3	75	1	50	21	22
2+ to 3 Hours	1	3	3	15	5	13	0	0	1	50	10	10
3+ to 4 Hours	6	19	5	25	17	43	0	0	0	0	28	29
More Than 4 Hours	24	75	1	5	12	31	1	25	0	0	38	39
Total	32	100	20	100	39	100	4	100	2	100	97	100

Based on the above duration results, Lot 6 appears to have an adequate balance of time limits, with a small number of violations observed for the 2-hour and 5-hour spaces. This is evident from the nearly equal numbers of vehicles exceeding time limits in the 2-hour spaces (9 total) and those parking two hours or less in the 5-hour spaces (5 total). However, based on an existing parking surplus analysis described later, it appears that a reallocation of time limits is warranted. This modification is described later in this report.

Lot 7

Table VIII shows the distribution of average duration for all space types in Lot 7. In this lot, only slightly more than half (51 percent) of the two-hour spaces had average durations of two hours or less, indicating that on average nearly half of these spaces were occupied by vehicles exceeding the two-hour time limit. For the four-hour spaces, time limit compliance was greater, as 74 percent of spaces experienced average durations of four hours or less. Based on these results, it appears that with some modifications to time limits, most users of Lot 7 would comply with time limits. A proposal to modify current time limits within this lot is discussed later in this report.

Table VIII: Average Parking Duration by Space Type – Lot 7

Average Duration for Individual Space	Lot 7 Space Type								Totals	
	2-Hour		4-Hour		Handicapped Accessible		Loading			
	Count	%	Count	%	Count	%	Count	%	Count	%
2 Hours or less	39	51	13	23	3	43	2*	100	57	40
2+ to 3 Hours	9	11	11	19	1	14	0	0	21	14
3+ to 4 Hours	16	21	18	32	3	43	0	0	37	26
More Than 4 Hours	13	17	15	26	0	0	0	0	28	20
Total	77	100	57	100	7	100	2	100	143	100

Note: * Two loading spaces were not occupied during observation day.

Senior Lot

Table IX shows the distribution of average durations for the Senior Center Lot located adjacent to Dobbins Street. Nearly all spaces in the lot were parked for average durations of four hours or less (92 percent, or 48 of 52 spaces). Based on this result, it appears that most users of the lot are parking short term for various classes and activities, either as City guests or part-time City staff, with the remaining four spaces being utilized by full-time staff.

Table IX: Average Parking Duration by Space Type – Senior Lot

Average Duration for Individual Space	Senior Lot Space Type	
	No Limit Spaces	
	Count	Percentage
2 Hours or less	21	40%
2+ to 3 Hours	16	31%
3+ to 4 Hours	11	21%
More Than 4 Hours	4	8%
Total	52	100%

Public Input on Downtown Parking Issues

In order to better understand the issues facing users of parking in the downtown and to focus the overall study, TJKM facilitated separate meetings with City staff, downtown business owners, and the general public. These meetings provided multiple opportunities to identify and discuss concerns and to determine the major issues regarding parking in downtown Vacaville.

DVBID and Chamber of Commerce

On November 14, 2008, TJKM and City staff met with both the DVBID and Vacaville Chamber of Commerce to discuss parking issues facing downtown business owners and customers. At the DVBID meeting, members identified the following primary issues and concerns with respect to downtown parking:

- During special events, visitors and retail customers in the downtown sometimes compete for limited parking spaces
- The recent unfavorable economic situation may be affecting the level of downtown business activity and related parking demand
- There is tension between the need for available on-street customer parking in front of retail businesses and the use of those spaces by shop owners and employees. A suggestion was made to encourage employees to park on the edge of downtown to free up parking in the downtown core for customers
- Promoting efficient use of current downtown parking supply should be a higher priority than construction of a new parking structure
- If recommended, how would the City fund additional parking lots or structures in the downtown?
- Parking enforcement needs improvement

At the meeting with the Vacaville Chamber of Commerce on November 14, three main suggestions for downtown parking were identified:

1. Identify areas for employee parking within downtown, together with a possible solution of developing an employee permit parking program. The Chamber concurs with DVBID that a new structure is not necessarily a top priority in the downtown.
2. If a new parking structure is recommended and developed, it should be integrated with new ground-floor retail and perhaps top-floor residential units. This way, the parking structure can be self-sustaining. According to the Chamber, the City Council is open to this idea.
3. Consider less variation in downtown parking limits. Currently, there is a wide variation in the types of limits, which the Chamber believes is not enforceable. Time limits currently include 2-hour, 3-hour, 4-hour, 5-hour, and 10-hour, plus a few short term spaces of about 30 minutes. In the past, the DVBID parking committee has suggested a simplified time limit range of 2-hour, 4-hour, and one longer-term limit. The City has noted that the 10-hour limit is mainly intended to discourage overnight parking.

General Public Meeting

The City and TJKM jointly conducted a public meeting on November 20, 2008 at the Vacaville Senior Center to solicit input from the general public on downtown parking issues. Among the issues raised were the following:

- Convenient parking for employees is needed in the downtown, backed up with regular, consistent enforcement.
- Lot 7, which is located adjacent to the California-Hawaii Building and is bounded by Mason, Merchant, and Elizabeth Streets, often reaches capacity early on a typical day. The two-hour and four-hour time limits present an issue for both customers and employees. There is concern that a spillover effect from Lot 7 may be affecting available customer parking at the adjacent private lot serving US Bank, where there may be parked cars that do not have bank-related business. One suggestion was made to increase parking capacity in Lot 7 by adding a second level, which TJKM considered in the 2001 study but found infeasible due to Lot 7's irregular shape and configuration.
- The need to consider City priorities for future downtown development when making parking recommendations. In particular, the City should require new developments planned in the Opportunity Hill area of downtown to satisfy their own parking needs as much as possible, such that they will not impact available on-street supply in the downtown.
- There is concern that some current land uses are not suited to downtown in terms of the parking demands they generate. There are a majority of businesses that have more employees than customers, which leads to some employees and customers competing for parking spaces in the downtown. By local business group estimates, over 900 employees currently work in the downtown.
- Some business owners in attendance cited a persistent problem with owners and employees parking in front of their own businesses, which forces customers to park further away. One owner also noted that some employees, especially those finishing shifts late at night, prefer parking closer to their business for safety reasons.
- The study should consider as part of the proposed solutions a monthly employee permit program in the downtown. The aim would be to designate certain areas in the downtown for employee parking and have employees avoid leaving their businesses frequently during the day to move their cars to avoid parking violations.

- Based on current and possible future parking demand, up to two new garages downtown may need to be considered.
- Special events in the downtown present a problem in terms of available parking for business owners, staff, and customers.

Stakeholder Surveys – Business Owners and Customers

TJKM additionally developed written surveys for completion by business owners and customers in downtown to understand their specific parking concerns and needs. On TJKM's behalf, the City collected a total of 57 surveys, including 33 from business owners and 24 from customers. In addition, 10 staff members of the Downtown Vacaville Library submitted responses. Appendix D includes all individually received response forms from downtown business owners, while Appendix E includes all responses from downtown customers.

The business owner survey consisted of several questions related to parking in the downtown, including number of employees, where owners and staff park in the downtown, the maximum distance that owners perceive staff and customers would be willing to walk from their parked car to their businesses, whether they perceive a parking problem, and if so, what is a suggested solution. The customer survey consisted of the same applicable questions, with the additional question of how many businesses the customer planned to visit in downtown that day (including the business in which they filled out the survey).

Business Owner Survey Results

Of the 32 owners reporting staff totals for their respective businesses, 26 (81 percent) stated they have fewer than ten employees. One of the remaining six businesses has 60 employees, while the other five have between 10-20 employees.

Business owners and their staff park in a variety of off-street parking lots and on-street locations, depending on the business location and size of staff. Staff for a few individual business split between public and private parking. The survey asked whether owners and their staff park on-street, in a public lot, in a private lot, and/or arrive to downtown by other means such as walking or carpooling. Of the 32 responses to this question, business owners and staff park as follows:

- 59 percent in public lots (including the Redevelopment lot at Catherine/Davis)
- 44 percent in private lots
- 8 percent in on-street spaces
- 2 percent arrive by carpool, bicycle or walking

It should be noted that the above figures do not total 100 percent since owners were asked to specify all parking types that applied to their specific business. In some cases, merchants have employees that park in more than one type of parking space, with some also arriving by other non-auto mode.

Owners were also asked whether they perceive a parking problem in the downtown. Of the 31 responses to the question, 25 (81 percent) stated there is a problem, while the remainder did not believe there is a problem. Four of the affirmative responses cited special events in the downtown as the reason for a parking problem. Two of the respondents stated a downtown parking problem exists only during special events, while the other two believe that a parking problem exists during both special events and otherwise.

The survey also asked owners about the greatest distance that they would like their customers and staff to walk from a parking space to their businesses. A city block in Vacaville is approximately 300 feet. For customers, the preferred walking range is 75 to 600 feet (one-quarter to two blocks), which translates to an average of 244 feet (approximately one city block). For owners and staff, the preferred walking range is zero to 900, with an average of 375 feet, or slightly more than one city block.

Finally, respondents were asked to suggest improvements to parking in the downtown if they perceived a problem. The three main suggestions from business owners were to develop additional downtown parking, establish a permit program for employees, and extend current parking time limits. Suggestions for additional downtown parking included a new public garage, developing an existing City lot into a multi-level structure (e.g. Lot 5 or Lot 7), and developing new parking lots on vacant downtown parcels. In terms of time limits, many owners felt that the two-hour on street limit should be extended, while a few others felt that more spaces should be converted to two-hour limits. Some owners suggested no time limits during business hours in such areas as Main Street, Merchant Street, and Lot 7. Many who suggested extended time limits stated having to move their cars frequently during business hours to avoid parking tickets.

Customer Survey Results

Of the 23 responses to the question of downtown customer parking locations, 13 customers (57 percent) stated that they parked in a public off-street lot (either Lot 4 or Senior Center Lot), while the remainder (10 customers or 43 percent) parked in an on-street space. Most of the surveyed customers parking on-street parked on either Main Street or Merchant Street (between Parker Street and Wilson Street). Others parked on Kendal Street (between Parker and Dobbins) or Parker Street (between Merchant and Main).

According to the survey responses, customers on average visit two businesses during a single trip to downtown. The number of individual businesses visited range from one to five businesses. Of the 21 responses to this survey question, 62 percent visited either one or two businesses on their visit.

Customers were also asked whether they perceive a parking problem in the downtown. Of the 22 responses to the question, 18 (82 percent) stated there is a problem, while the remainder did not believe there is a problem. Four of the affirmative responses cited special events as the reason for a downtown parking problem, including one response that stated a parking problem exists only during special events.

Eleven of the 24 respondents provided dates and times for their survey, with six responding on Wednesday or Thursday and five on the weekend. Nearly all weekday responses ranged from 9:45 a.m. to 12:30 p.m. (one at 5:00 p.m.), while weekend responses ranged from 9:00 a.m. to 12:30 p.m.

The survey also asked customers about the greatest distance that they would walk from a parking space to their first destination in downtown. Customers stated a preferred walking range of 100 to 1,500 feet (one-third to five city blocks), for an average of approximately 600 feet (three blocks). For owners and staff, the preferred walking range is zero to 900, with an average of 375 feet, or slightly more than one city block.

Finally, customers were asked to suggest improvements to parking in the downtown if they perceived a problem. The two primary suggestions, similar to the business owner surveys, were to

provide additional off-street parking or extend current time limits in the downtown (three hours or more). Suggestions for additional parking included a multi-level public garage or conversion of vacant parcels to new surface lots. Other individual suggestions included consideration of angle parking to increase parking supply, as well as non-supply measures. These measures include encouraging employees to avoid parking in front of their businesses in order to free up spaces for customers, as well as having customers accept longer walking distances during peak parking activity in the downtown.

Additional Survey Results

The City additionally received separate survey responses from ten staff members of the City Library. On any given day, 15 staff members (eight full-time and seven half-time) work at the library. The ten staff members responding to the survey stated that generally they are able to find available parking in Lot 4 adjacent to their building, although during occasional days of high parking demand will park at Lot 3 across Dobbins Street from the library. Staff have also observed that the parking spaces in Lot 4 immediately adjacent to the neighboring Senior Center are regularly full during weekdays between 9:30 a.m. and 11:00 a.m. This period coincides with Center meetings and classes. Lunch breaks are often taken between 1:15 p.m. and 2:30 p.m. to avoid losing spaces during the peak parking hour of 12:00 p.m. Safety and convenience of parking adjacent to the library were also cited as important to staff, who often carry items leaving the library and conclude their shifts twice a week at 9:00 p.m. (Tuesdays and Thursdays). Finally, it was noted that staff from Vacaville Sanitary Service, who occupy the second floor of the library, also park in Lot 4.

3. Current Parking Needs

TJKM analyzed current parking conditions based on land use zones within the downtown study area, in terms of both field-observed occupancy data and City-provided land use data for existing conditions. There are 14 Downtown Vacaville Business Improvement District (DVBID) land use zones completely contained within the study area, and six that are partially bounded within the study area. Figure 8 shows the boundaries of these 20 total zones, including the results of a parking surplus analysis discussed in the next section.

Near Term Parking Demand by DVBID Zone (Existing Land Use Estimates)

As a comparison to existing field-observed parking demand, TJKM estimated peak Friday noon hour parking demand based on current estimates of City land use within the study DVBID zones and rates contained in the standard parking references Shared Parking (Urban Land Institute (ULI)) and Parking Generation (Institute of Transportation Engineers (ITE)). Table X lists the parking demand rates based on these references, as well as adjustments based on time of day and floor area ratio (FAR).

The time of day adjustment takes into account the variation in peak demand for various land uses during the peak Friday noon hour. For example, ULI estimates that residential parking demand during a typical weekday noon hour is 65 percent (0.65) of the peak demand for the entire weekday. This logic is reflected in the low parking occupancies that TJKM observed in the primarily residential neighborhood south of Stevenson Street in the study area. Similarly, commercial service and retail uses are usually at 100 percent (1.0) of typical weekday peak demand due to customer activity. According to ULI, office uses are typically at 90 percent (0.9) during a typical weekday noon hour, whereas they are typical at 100 percent during mid-morning and mid-afternoon periods.

Institutional land uses under City General Plan classification include hospitals and churches. Only churches are within the DVBID zones in the study area. Churches typically have their highest parking activity on Sunday mornings. Since there is minimal ULI or ITE information on church parking generation during a typical weekday noon hour, TJKM used the ITE parking rate for light industrial land use to estimate parking generation. Light industrial has a lower parking rate compared to other downtown land uses. Also, use of the light industrial rate is consistent with a previous assumption for the 2001 parking study.

Nonresidential City land use information is expressed in acres. In order to estimate parking generation for these uses, many needed to be converted to square feet, which is the unit basis for estimating parking generation. These land uses include office, retail, commercial service, and institutional. Therefore, a floor area ratio (FAR) factor was used, which helps estimate the amount of gross floor area based on a given lot area. Based on City recommendation, a FAR of 0.3 was used that is consistent with development in much of downtown.

Table X: Parking Demand Rates and Adjustments (Peak Friday 12:00-2:00 p.m.)

<i>Land Use Type</i>	<i>Parking Demand Rate</i>	<i>Time of Day Factor</i>	<i>FAR</i>	<i>Adjusted Parking Demand Rate (Friday Noon Hour)</i>
Single-Family Residential	1.85 per DU	0.65	- *	1.20 per DU
Multi-Family Residential (Apartments)	1.65 per DU	0.65	- *	1.07 per DU
Commercial Service (Light Industrial)	0.75 per KSF	1.0	0.3	0.23 per KSF
Office	3.77 per KSF	0.9	0.3	1.02 per KSF
General Retail	3.6 per KSF	1.0	0.3	1.08 per KSF
Institutional (Church / Hospital)	0.75 per KSF	1.0	0.3	0.23 per KSF
Elementary School	0.28 per student	1.0	- *	0.28 per student
High School	0.26 per student	1.0	- *	0.26 per student
Park	5.9 per acre	1.0	- *	5.9 per acre
Restaurant	18.0 per KSF	0.75	0.3	4.05 per KSF

Notes: * FAR adjustment made only for nonresidential land uses that required area conversion from acreage to square feet.

1) DU = Dwelling unit

2) KSF = 1,000 square feet

3) FAR = Floor Area Ratio, or ratio of gross building floor area to overall site area

4) FAR of 0.3 based on consultation with City staff

Sources: *Shared Parking* (2nd Edition, ULI 2005) and *Parking Generation* (2nd Edition, ITE 2003)

Table XI shows a comparison of estimated parking demand based on current City land use estimates with existing field observed public and private parking demand. Appendix G contains the land use based parking demand calculations for each DVBID zone under both existing and buildout conditions. The same DVBID zones analyzed for the observed demand calculation were analyzed for the estimated demand calculation. It should also be noted that the observed existing demand shown for comparison purposes in Table XI includes all surveyed public and private parking within the study area.

Based on the results shown in Table XI, the field observed parking demand is less than the estimated demand based on land use for the overall study area as well as the majority of zones. For the overall study area, the observed demand is 86 percent of the land use estimated demand. This is because many of the published parking rates are based on suburban land uses where single-purpose trips are more common, for example at a “big box” retail store. In a downtown setting such as in Vacaville, however, multi-purpose trips are more common, in which people park once and visit multiple destinations. An example is an employee who parks near his/her place of employment for the day and then later walks to shopping and dining destinations.

Table XI: Comparison of Observed Existing Parking Demand with Estimated Existing Parking Demand Based on Land Use

DVBID Zone	Observed Existing Parking Demand (Total Public and Private Occupancy)	Estimated Existing Parking Demand (Existing Land Use Based)
C14	69	141
C19	32	134
C23	23	108
C24	145	135
C25	88	118
C27	101	167
C28	289	224
C29	69	89
C31	180	156
C54	7	45
C55	192	155
C56	411	293
NW10	133	252
Total	1,739 (86% of Estimated)	2,021

Sources for Land Use Based Demand: *Shared Parking (2nd Edition, ULI 2005)*; *Parking Generation (3rd Edition, ITE 2004)*

- Notes:
- 1) Total observed occupancy includes demand for public and private parking supplies.
 - 2) Zone C15 consists of I-80 park and ride lot that was not surveyed and analyzed.
 - 3) Zones C16, C 17, and C18 (partial) consist of commercial area southeast of Mason / Davis intersection that was surveyed separately.
 - 4) Zone C26 effectively encompasses Andrews Park, which includes no allowable curb parking, no public lots, and no surveyed private lots.
 - 5) Zone C30 excluded – partial zone consisting of one private lot within study area, with no public parking.
 - 6) Zone C53 is a very small partial zone that effectively contains no parking.

Based on the higher overall parking demand predicted for current land uses by published parking rates and the multi-purpose trip characteristics of downtown, it is recommended that the existing demand based on observed parking occupancies be used as the basis for near term downtown parking strategies. This approach is consistent with conventional parking analysis methodologies as identified in *Parking* (Weant and Levinson). Results from this approach are discussed in the next section.

Near Term Parking Demand Based on Field Observed Parking Occupancy

Based on the above approach, TJKM aggregated field-observed Friday noon peak hour parking occupancy data by DVBID zone to determine current parking space surpluses and/or shortages for three types of parking: public on-street, public off-street, and private off-street. These data were compared with effective parking supply as defined in *Parking*. The concept of effective parking supply in relation to parking occupancy level takes into account factors such as parking turnover, time lost in searching for available spaces and competition with other drivers for preferred parking spaces. These and other factors diminish the likelihood that 100 percent of the parking supply would be used at any one time. On this basis, the reference *Parking* has defined 85 percent as the threshold at which an off-street parking lot is considered effectively “full”. Similarly, 90 percent occupancy of on-street spaces on a given block is considered effectively “full”.

Table XII shows the field observed parking occupancy for the Friday noon peak hour in relation to the effective public parking supply, both on- and off-street within each land use zone, further stratified by short-term and long-term parking durations as defined earlier in this report. Figure 8 shows the effective overall surpluses and/or deficits of available parking, both public and private,

within each zone. Appendix F contains the parking surplus calculations, broken down further by on-street block face, public lots, and private lots, as well as short and long term parking demand and supply. While private parking was field surveyed as part of this study, for the purposes of this near term analysis, TJKM only compared occupancy based public parking demand to the existing effective public parking supply, which includes both on-street and off-street spaces. This was based on the assumption that existing private parking supply is satisfying current private parking demand, as evidenced by the private parking surpluses in all zones, shown in Figure 8. A separate demand / supply analysis of private parking, however, is included as part of Appendix F.

It should be noted that this demand analysis excludes six zones within the study area, either because parking adequacy was determined separately or because the zones effectively contained no parking. Zone C15 consists entirely of an Interstate 80 park and ride lot that is considered self-sufficient in providing adequate parking for commuters. Zones C16, C17, and C18 are part of the multi-use retail, restaurant, and office complex located southeast of the Mason Street / Davis Street intersection. These three zones were surveyed in the field separately and found to be well under capacity during the peak Friday noon hour. The self-sufficiency of parking supply in Zones C16, C17, and C18 is also evident since parking capacity on study area streets west of Davis Street and north of the park and ride lot were found to be generally well under capacity. Zone C26 encompasses Andrews Park near downtown and contains no off-street or curb parking. Finally, Zones C30 and C53 both consist of one private lot served by its own private off-street parking.

Table XII: Existing Effective Public Parking Surplus (Deficit) by DVBD Land Use Zone

DVBD Zone	Effective Public Parking Supply			Existing Observed Public Parking Occupancy (Demand)			Existing Public Parking Surplus (Deficit)		
	Short Term	Long Term	Total	Short Term	Long Term	Total	Short Term	Long Term	Total
C14	0	159	159	0	43	43	0	116	116
C19	0	11	11	0	11	11	0	0	0
C23	0	51	51	0	14	14	0	37	37
C24	25	288	314	13	123	136	12	165	178
C25	0	0	0	0	0	0	0	0	0
C27	70	25	95	19	6	25	51	19	70
C28	121	234	355	87	179	266	34	55	89
C29	55	1	56	51	1	52	4	0	4
C31	89	66	155	68	66	134	21	0	21
C54	0	10	10	0	6	6	0	4	4
C55	110	30	140	105	22	127	5	8	13
C56	90	273	363	92	269	361	-2	4	2
NW10	0	0	0	0	0	0	0	0	0
Total	560	1,149	1,709	435	740	1,175	125	409	534

- Notes:
- 1) Short term parking supply and demand totals based on utilization of spaces with time limits of 2 hours or less.
 - 2) Long term parking supply and demand totals based on utilization of spaces with time limits greater than 2 hours and including handicapped, loading, and no limit spaces.
 - 3) Zone C15 consists of I-80 park and ride lot that was not surveyed and analyzed.
 - 4) Zones C16, C17, and C18 (partial) consist of commercial area southeast of Mason / Davis intersection that was surveyed separately.
 - 5) Zone C26 effectively encompasses Andrews Park, which includes no allowable curb parking, no public lots, and no surveyed private lots.
 - 6) Zone C30 excluded – partial zone consisting of one private lot within study area, with no public parking.
 - 7) Zone C53 is a very small partial zone that effectively contains no parking.
 - 8) Effective parking supply based on reference *Parking*, which indicates on-street parking is effectively full at 90 percent occupancy and off-street parking is effectively full at 85 percent occupancy.

Table XII shows some level of parking surplus for each parking space type in each of the 14 zones, with one exception. Zone C56 shows a short-term deficit of two on-street spaces (2-hour limit). This result is logical given that this zone contains Main Street between Parker and Davis Streets, which experiences occupancies of 90 percent or higher on peak Fridays and is thereby effectively full. In addition, a surplus of only four spaces exists in Zone C56 for long term parking, located within the public off-street lots. Although Lot 2 was observed at 71 percent occupancy during the Friday noon hour, Lots 3, 4, 12, and the Senior Center Lot experienced occupancies in the range of 87 to 100 percent. As noted earlier, Lots 2, 4, 12, and the Senior Lot currently do not have time limits.

A small public surplus of four spaces, all short term, was found in Zone C29. This zone includes some blocks that are effectively full at 90 percent or greater, such as Parker Street between Main Street and Merchant Street and portions of Main Street between Parker and Merchant Streets near the western edge of the study boundary.

Larger public parking surpluses exist to the south and east of downtown, including Zones C14 (+116, all long term), C23 (+37, all long term), C24 (+178, with +165 long term), and C27 (+70, with +51 short term). Zone C27 consists of primarily residential uses that include some homes converted to business use. As would be expected, this is due to low levels of residential parking activity during a typical Friday noon hour. In Zone C14, the surplus is even higher, reflecting a greater concentration of residential uses and fewer converted businesses in this zone.

Zones C23 and C24, the locations of the future Opportunity Hill developments, currently have high public parking surpluses (+37 and +165, respectively, all long term) due to low development intensity. As a result, there are low parking occupancies even though most on-street spaces within these two zones have no time limits. Another likely reason for low occupancies has to do with acceptable walking distance. As mentioned earlier, many business owners and customers in the written surveys stated that they desire walking distances from car to destination of about a block, or 300 feet. Walking distance from the Main Street / Davis Street intersection to points within Zone C24 range from 300 feet (one block) to approximately 1,000 feet. This range likely explains why a significant amount of the available parking in this zone is underutilized. Similarly, all of the on-street parking in Zone C23 is at greater than 1,000 feet from the Main Street / Davis Street intersection.

In terms of public off-street parking, the largest surplus is found in Zone C24 (+84 in Lots 9 and 10 combined). The lot that primarily accounts for the surplus in Zone C24 is Lot 10, which was observed at 27 percent occupancy during the peak Friday noon hour. Virtually all spaces in this lot consist of no time limits. It should be noted that Lot 10 is a privately owned and maintained lot, but an easement allows for public parking during weekdays after 5:00 p.m. and also on weekends and holidays. Similarly in Zone C28, Lot 7 was observed at 52 percent occupancy, although there is a mix of time limits.

It should also be noted that private parking surpluses exist in every downtown zone. The surpluses are smaller in zones such as C29 (+15) and C56 (+10), which include the historic Main Street core and generally consist of fewer and smaller private off-street parking lots. The largest surpluses currently exist in Zone C14 (+50 in a residential-commercial zone), C23 (+50 in a primarily light industrial area), C31 (+44 in southwest corner of downtown), and NW10 (+65 in partial zone consisting entirely of a shopping plaza that includes Longs Drugs and First Pacific Credit Union).

Parking Supply Surplus (Deficit) by Individual Block Face

TJKM took a closer look at the overall public parking surplus totals during the Friday noon peak hour within each zone to determine whether there are currently any spot shortages based on the effective parking supply standards described earlier. Below is a list of specific locations within each zone where there are current supply shortages during the peak hour and also shows comparable nearby parking supply if available:

On Street

- C19: McClellan Street (East Side), Mason to Catherine – short one no limit space, however adjacent segment on east side from Catherine to Main has an available no limit space (within one block)
- C23: McClellan Street (East Side), Monte Vista to Bush – short one no limit space, but adjacent segment on east side from Bush to School has four available no limits spaces (within one block)
- C24: East Main Street (North Side), Davis to Wilson - short one no limit space, but adjacent north side segment from Wilson to McClellan has 21 available no limit spaces (within one block). The south side of the Davis to Wilson segment is also short one 2-hour space, but 13 2-hour spaces are available directly opposite on the north side.
- C28: Main Street (South Side), Elizabeth to Davis – short one 2-hour space, but the south side of Merchant Street between Dobbins and Main has three 2-hour spaces available within one block.
- C29:
 - Main Street (South Side), Dobbins to Merchant – short one 2-hour space
 - Main Street (South Side), Parker to Dobbins – short one 2-hour space
 - Parker Street (East Side), Mason to Main – short two 2-hour spaces
 - Available nearby 2-hour supply: seven 2-hour spaces on the north side of Merchant Street between Parker and Dobbins, within a block of all three shortage locations
- C31: Parker Street (West Side), Mason to Main - short one 2-hour space, but the west side of Cernon Street from Mason to Main has five available 2-hour spaces (within one to two blocks)
- C55:
 - Cernon Street (East Side), Main to Kendal - short one no limit space, but one no limit space available on next block, east side from Kendal to Monte Vista.
 - Parker Street (West Side), Kendal to Monte Vista – short one 2-hour space
 - Main Street (North Side), Cernon to Parker – short one 2-hour space
 - Available nearby 2-hour supply: Lot 5 (Gold's Gym lot) with six available 2-hour spaces (within one to two blocks)
- C56:
 - Parker Street (East Side), Kendal to Monte Vista – short one 2-hour space, but one 2-hour space available on next block, east side of Main to Kendal
 - Dobbins Street (East Side), Main to Kendal – short one 2-hour space, but two 2-hour spaces available across the street on the west side
 - Kendal Street (South Side), Parker to Dobbins – short one 2-hour space
 - Main Street (North Side), Dobbins to Merchant – short one 2-hour space
 - Main Street (North Side), Elizabeth to Davis – short two 2-hour spaces
 - For the one Kendal Street block and two Main Street blocks above, these shortages do not have comparable supply within one to two blocks on street. Later in this report, TJKM will describe a recommended reallocation of time limits in nearby Lot 4, which is within one to two blocks of these locations

Off Street

- C28:
 - Lot 7 has a shortage of seven 4-hour spaces, while there is a surplus of 21 2-hour spaces
 - Lot 8 has a shortage of three no limit spaces
 - Lot 11 has a shortage of three no limit spaces, while there is a surplus of three 4-hour spaces
- C31: Lot 6 has a shortage of one 5-hour space and one no limit space, while there is a surplus of six 2-hour spaces
- C56:
 - Lot 3 is short three 3-hour spaces. However, this may be resolved by a reallocation of time limits within the lot, which is discussed later in the recommendations section
 - Lot 4 is short seven no limit spaces. However, this may be resolved by a reallocation of time limits within the lot, to be discussed later
 - Lot 12 is short three no limit spaces

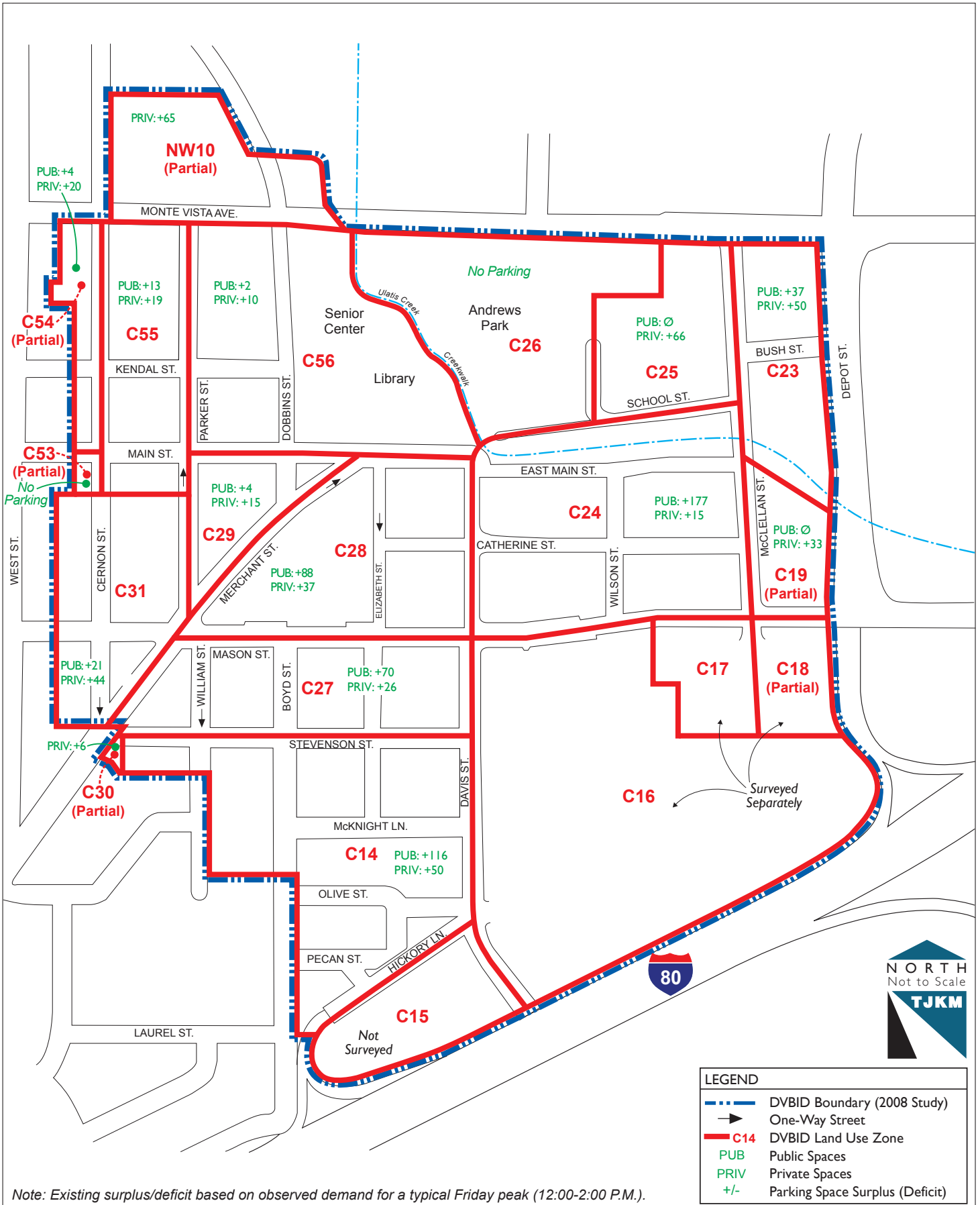
Conclusion

As a result of the preceding existing parking surplus/deficit analysis based on an existing worst-case peak parking demand on a typical Friday between 12:00 and 2:00 p.m., TJKM has found that currently there does not appear to be a basis for increasing public parking supply in the downtown. Therefore, based on current typical peak parking demand, construction of a new public parking structure in the downtown does not appear to be warranted.

City of Vacaville - Downtown Parking Study

Existing Parking Surplus (Deficit) by DVBD Land Use Zone

Figure 8



Note: Existing surplus/deficit based on observed demand for a typical Friday peak (12:00-2:00 P.M.)

4. Future Parking Needs

Methodology

Using the same procedure for existing land use, TJKM estimated peak Friday noon hour parking demand for buildout conditions (2030) in the study area based on both ULI and ITE parking generation rates. Buildout land use consists of two components – expected background land use growth by DVBD zone and also specific projects anticipated by the City Redevelopment Agency. The City has identified ten specific development projects that are anticipated to be a part of City buildout by 2030. Accordingly, the City provided TJKM with buildout land use estimates that were adjusted for buildout conditions according to the acreages allocated to the specific development projects proposed in downtown.

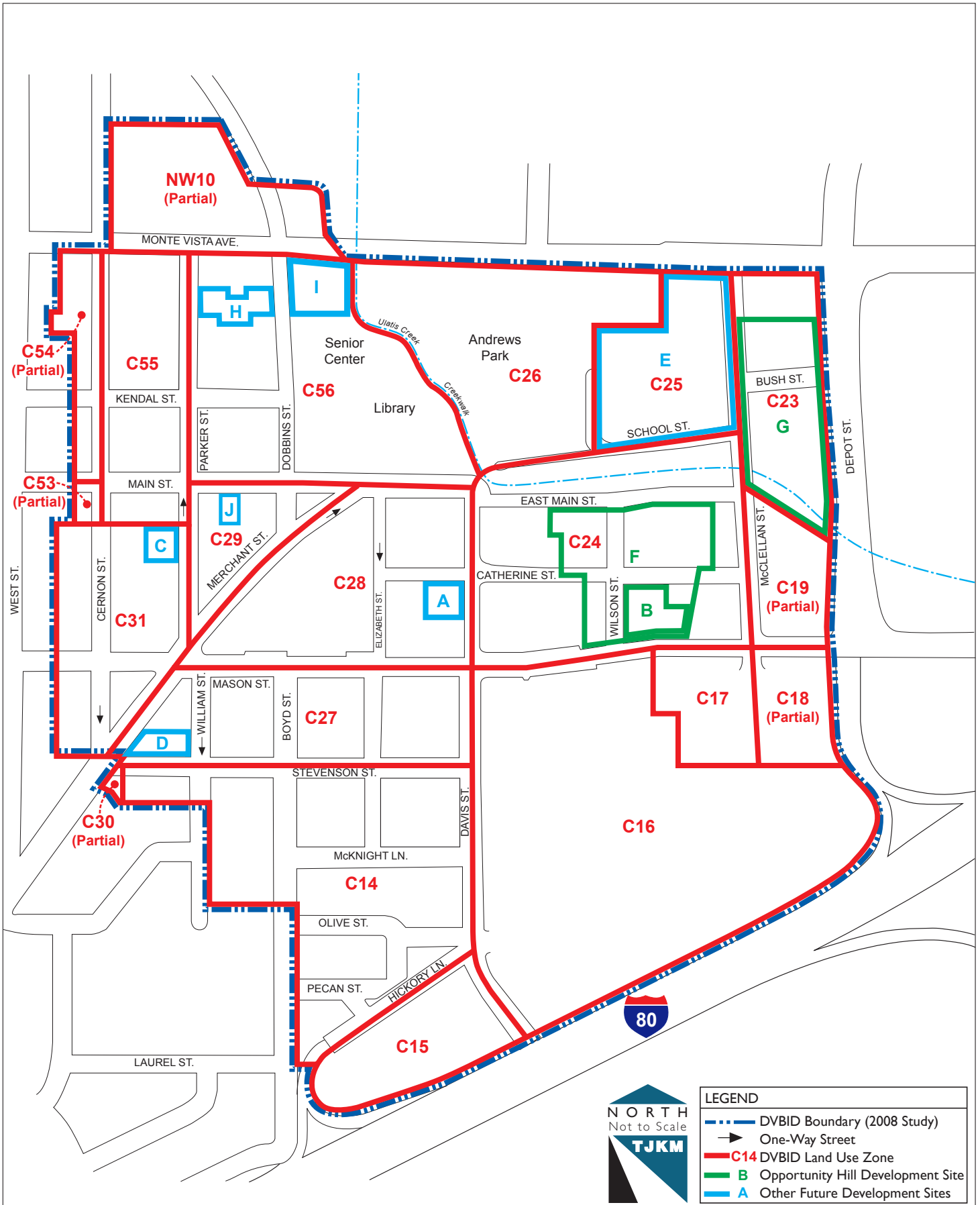
Future Development Projects in Downtown

Table XIII lists ten specific development projects that are expected to be in place by buildout conditions. Figure 9 shows the location of each project site relative to the DVBD land use zones and the overall study area. Appendix G contains the land use based parking demand calculations for each DVBD zone under buildout conditions. Many of the developments listed in Table XIII are mixed-use projects that include combinations of office, retail, and multi-family residential dwelling units. The future Opportunity Hill sites, B, F, and G, are included in this list. Site B includes 24,000 sq. ft. of office on three stories. Site F includes 20,000 sq. ft. of retail, 5,000 sq. ft. of office, and 200 multi-family residential units. Site G includes 8,000 sq. ft. of retail and 251 multi-family residential units.

Table XIII: Anticipated Developments within DVBD by Redevelopment Zone

Site	Zone	Address / Location	Current Use	Acre	Projected Use
A	C28	300 Davis Street	Temporary Parking (Former Auto Parts Store Lot owned by Redevelopment)	0.36	2,000 sq. ft. retail plus public parking lot
B	C24	Mason / Wilson: Banks Project	Vacant & Shelter	1.1	24,000 sq. ft. office (3 stories)
C	C31	Parker: Bank	Former Bank Building	0.38	4,000 sq. ft. retail (2 stories) plus 14 dwelling units
D	C27	Merchant: Lanfere / Merchant Place	Vacant	0.44	9,326 sq. ft. retail / office (3 stories) plus 3 dwelling units
E	C25	Monte Vista / McClellan: School District	Vacaville Unified School District offices / school	5.0	180 dwelling units
F	C24	Mason / Wilson: Opportunity Hill	Various & Vacant	3.08	20,000 sq. ft. retail, 5,000 sq. ft. office, and 200 dwelling units
G	C23	Bush / McClellan: Opportunity Hill	Various & Vacant	3.86	8,000 sq. ft. retail, 251 dwelling units
H	C56	Parker / Dobbins	Vacant	0.64	9,600 sq. ft. office (2 stories)
I	C56	Monte Vista / Dobbins	Vacant	1.57	6,000 sq. ft. restaurant
J	C29	308 Main Street	Theater	0.13	1,700 sq. ft. retail (2 stories), 5 dwelling units

Note: sq. ft. = square feet



Estimated Future Parking Demand

TJKM estimated buildout parking demand based on the City-provided buildout land use projections and using the same parking rates and adjustments that were used for the existing demand estimation. Table XIV shows the resulting estimates of expected future buildout parking demand that includes demand for short term users (e.g. retail customers) and long term users (e.g. employees and shop owners). Future parking demand is calculated by taking the 2008 field observed parking occupancy (demand) and adding the expected incremental parking demand, which is based on the difference of existing and future land use projections and the various ULI / ITE parking rates and factors described earlier.

Table XIV: Estimated Land Use Based Future Buildout Parking Demand by Zone

DV/ID Zone	Existing Public Parking Demand (Observed Occupancy)			Incremental Buildout Parking Demand			Future Parking Demand		
	Short Term	Long Term	Total	Short Term	Long Term	Total	Short Term	Long Term	Total
C14	0	43	43	0	0	0	0	43	43
C19	0	11	11	0	0	0	0	11	11
C23	0	14	14	74	204	278	74	218	292
C24	13	123	136	57	190	247	70	313	383
C25	0	0	0	48	145	193	48	145	193
C27	19	6	25	94	19	113	113	25	138
C28	87	179	266	30	7	37	117	186	303
C29	51	1	52	-2	3	1	49	4	53
C31	68	66	134	2	11	13	70	77	147
C54	0	6	6	0	0	0	0	6	6
C55	105	22	127	0	0	0	105	22	127
C56	92	269	361	31	35	66	123	304	427
NW 10	0	0	0	0	0	0	0	0	0
Total	435	740	1,175	334	614	948	769	1,354	2,123

- Notes:
- 1) Incremental buildout parking demand based on net comparison of existing land use and future background land use growth including specific proposed developments (Sites A-J).
 - 2) Future parking demand = existing parking demand (occupancy) plus incremental buildout parking demand.
 - 3) Zone C15 consists of I-80 park and ride lot that was not surveyed and analyzed.
 - 4) Zones C16, C 17, and C18 (partial) consist of commercial area southeast of Mason / Davis intersection that was surveyed separately.
 - 5) Zone C26 effectively encompasses Andrews Park, which includes no allowable curbside parking, no public lots, and no surveyed private lots.
 - 6) Zone C53 is a very small partial zone that effectively contains no parking.

Based on the above results, there are six zones that are expected to have a net incremental growth in parking demand of at least 37 vehicles: C23, C24, C25, C27, C28, and C56. In these zones, the larger expected buildout parking demands that are anticipated are driven primarily by the specific development projects listed in Table XIII. The two largest expected parking demand increases are located in Zones C23 and C24, the locations of the three future Opportunity Hill developments. With the addition of Project G in Opportunity Hill and additional future land use growth in Zone C23, an incremental parking demand of 278 vehicles is expected in addition to current existing parking demand. In Zone C24, the addition of Projects B and F (both part of Opportunity Hill) plus additional future land use growth is expected to add a demand for 247 parked vehicles.

The next largest increments in expected parking demand growth under buildout conditions are in Zone C25 (+193 based on Project E, which replaces all current development within the zone), C27 (+113 based on Project D and background land use growth), C56 (+66 based on Projects H and I and background land use growth), and C28 (+37 based on Project A and background land use growth).

The remaining seven of the 13 zones analyzed show virtually no change in parking demand, due to few anticipated changes in land use between now and future buildout conditions. Such zones include the partial Zones C19 and C54 within the study area. Zone C19 consists of the Les Schwab Tires facility and its private parking, while Zone C54 includes a built-up area of homes and businesses on the western edge of the study boundary along Cernon Street. Therefore, the very small increments of buildout land use in these zones are expected to have no detectable impact on the current downtown parking supply.

Estimated Future Parking Surplus / Deficit by DVBD Zone

Based on the expected net increments of land use to be added in the study area boundary by buildout conditions, TJKM determined the expected future parking surpluses (or deficits) within downtown by DVBD zone. Since all zones show an existing effective surplus of available private off-street parking dedicated to individual land uses, TJKM compared the overall expected future parking demand that was previously calculated with the public parking surplus found under existing conditions. This provides a basis for determining the extent to which parking generated by buildout development can be accommodated within the existing public supply, as well as the amount of dedicated private off-street parking.

Table XV shows the overall results of the future parking surplus calculation, further stratified by short term and long term parking. Figure 10 shows the expected overall future parking surplus or deficit by DVBD zone. It should be noted that existing effective public parking supply in Zone C28 was reduced due to Project A, which as proposed will displace approximately 14 long term spaces currently located in the City's Redevelopment Lot at Catherine and Davis Streets. Long term spaces are reduced by 12 in the table to account for effective supply adjustments ($14 \times 85\% = 12$).

The future parking surplus results in Table XV indicate that the majority of DVBD zones, with the exception of six, are expected to have continued public parking surpluses with the addition of incremental buildout development to the study area. The zones expected to have public parking deficits without the provision of additional parking are C19, C23, C24, C25, C27, and C56. All of these zones, except C19, have at least one of the specific future development projects planned in downtown. Zones C23 and C24 primarily consist of the three Opportunity Hill projects. The deficit in Zone C19 is only two parking spaces, and therefore it is expected that the current parking supply can absorb this deficit.

Buildout growth in Zone C25 consists entirely of Project E, which based on the current development proposal of 180 multifamily residential units is expected to generate a net future parking deficit of approximately 193 vehicles. This deficit includes 48 short term and 145 long term spaces, based on current estimated parking demand generated by the Vacaville Unified School District within this zone.

Table XV: Estimated Future Parking Surplus (Deficit) by Zone

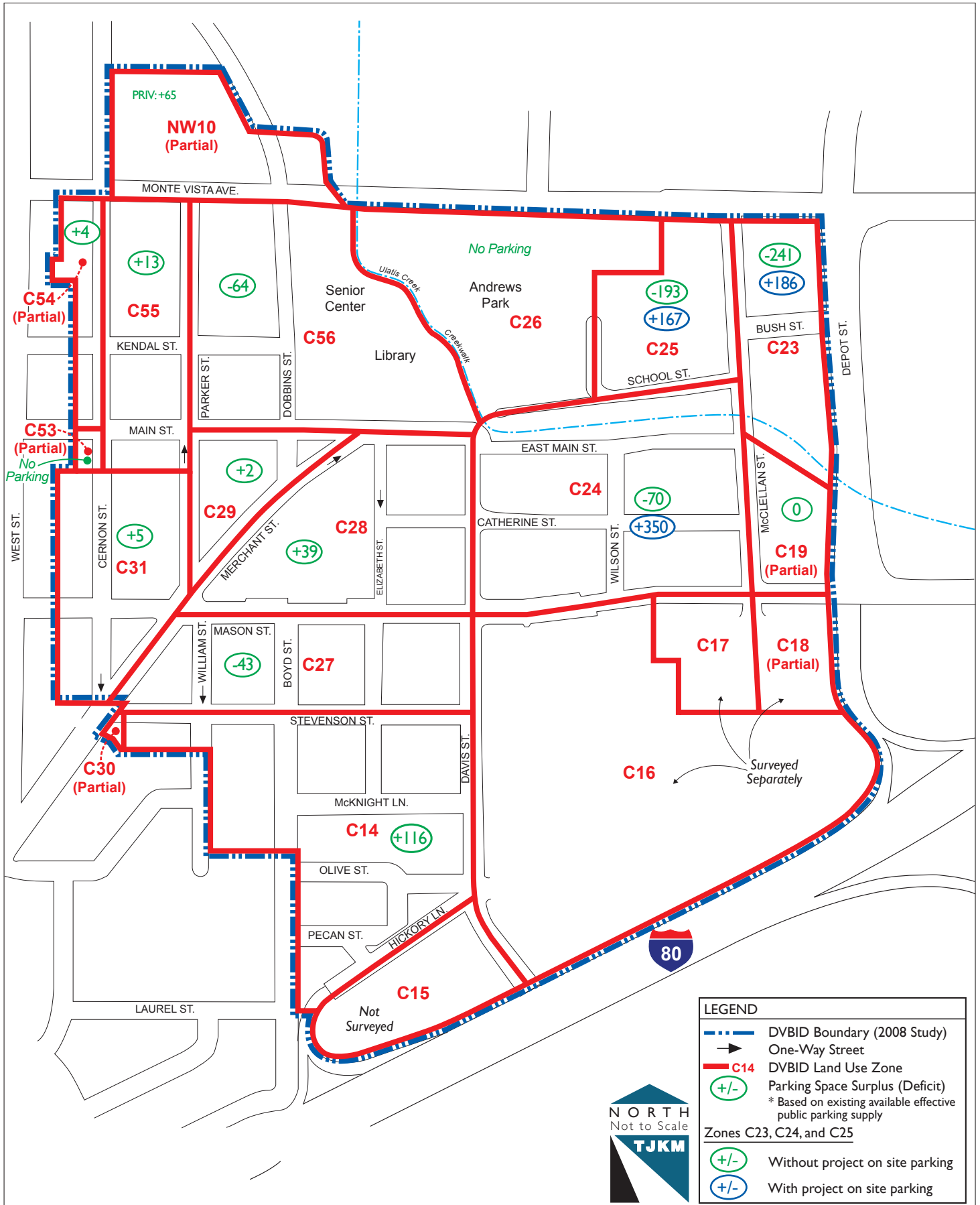
DVBID Zone	Effective Existing Public Parking Supply			Future Parking Demand			Future Parking Surplus (Deficit)		
	Short Term	Long Term	Total	Short Term	Long Term	Total	Short Term	Long Term	Total
C14	0	159	159	0	43	43	0	116	116
C19	0	11	11	0	11	11	0	0	0
C23	0	51	51	74	218	292	-74	-167	-241
C24	25	288	314	70	313	383	-45	-25	-70
C25	0	0	0	48	145	193	-48	-145	-193
C27	70	25	95	113	25	138	-43	0	-43
C28	121	222 *	343 *	117	186	303	4	36	40
C29	55	1	56	49	4	53	6	-3	3
C31	89	66	155	70	77	147	19	-11	8
C54	0	10	10	0	6	6	0	4	4
C55	110	30	140	105	22	127	5	8	13
C56	90	273	363	123	304	427	-33	-31	-64
NW 10	0	0	0	0	0	0	0	0	0

- Notes:
- 1) Future parking demand = existing field observed demand + incremental future buildout demand
 - 2) Zone C15 consists of I-80 park and ride lot that was not surveyed and analyzed.
 - 3) Zones C16, C 17, and C18 (partial) consist of commercial area southeast of Mason / Davis intersection that was surveyed separately.
 - 4) Zone C26 effectively encompasses Andrews Park, which includes no allowable curb parking, no public lots, and no surveyed private lots.
 - 5) Zone C30 excluded – partial zone consisting of one private lot within study area, with no public parking.
 - 6) Zone C53 is a very small partial zone that effectively contains no parking.
- * Zone C28 effective existing public parking supply adjusted to account for loss of 12 long term public parking spaces (effective supply = 14 eliminated long term spaces X 85%) due to future development of Project A on the current City Redevelopment owned parking lot.

In Zone C27, a net future parking deficit of 43 spaces, all short term, is expected based on buildout land use growth that includes Project D. This project is expected to drive most of the growth in short term parking demand, as this project consists of 9,326 sq. ft. combined retail and office uses.

In Zone C56, buildout growth is expected to create a net future parking deficit of 64 spaces, including 33 short term and 31 long term spaces. Under existing conditions, this zone has a deficit of eight spaces. The future net parking deficit is created in part by Project H (9,600 sq. ft. office use) and Project I (6,000 sq. ft. restaurant).

Parking strategies for buildout conditions based on these future projected parking conditions, particularly with respect to the future Opportunity Hill developments, are discussed later in the long term parking strategies section of the report.



Parking Demand in Opportunity Hill

TJKM took a closer look at the incremental parking demand growth for the Opportunity Hill projects. These projects are potentially the largest generators of future parking demand in the downtown. Project G in Zone C23, which consists of 251 multifamily residential units and 8,000 sq. ft. of retail, is expected to generate a peak Friday noon parking demand of 278 vehicles based on industry rates. The largest portion of this demand comes from the multifamily units, which contribute a demand of 269 vehicles. Similarly, Project F in Zone C24, which consists of 20,000 sq. ft. of retail, 5,000 sq. ft. of office, and 200 multifamily residential units, is expected to generate a peak Friday noon parking demand of 242 vehicles. The multifamily units in this project are expected to contribute 215 vehicles to the overall demand.

Based on a strict interpretation of the development site parking requirements of the Vacaville Municipal Code, Section 14.09.128.080, the Opportunity Hill projects would need to provide significant amounts of off-street parking. For example the residential component of Project G would need to provide 502 off-street spaces, assuming all units consisted of two bedrooms. Similarly, the Project F residential component would need to provide potentially 400 off-street spaces assuming all two-bedroom units.

In addition, the Opportunity Hill Master Plan and Design Guidelines suggest exploring an alternative parking requirement that reflects the mixed-use character of these developments. Many local jurisdictions, including the City of Healdsburg for example, have allowed for available on-street parking supply to count towards meeting development parking requirements. In downtown Healdsburg, an exception zone was created which exempts new developments from providing off-street parking at city code levels where it is desirable to maintain the historic character of buildings and promote a walkable downtown. Later in this report, off-street supply for the Opportunity Hill developments based on a modified parking requirement will be considered.

Conclusion

As a result of the preceding parking surplus/deficit analysis based on future development projections and a worst-case peak parking demand on a typical Friday between 12:00 and 2:00 p.m., there does not appear to be a need for increasing downtown parking supply beyond what is expected to be provided on the sites of proposed future developments in downtown. Therefore, future construction of a new public parking structure or development of public surface parking lots in the downtown does not appear to be warranted at this time.

However, even with this determination based on the current surplus/deficit analysis, it is recommended that, as specific future downtown developments are proposed over the next few years, the City monitor and review downtown parking supply and demand together with expected parking demand from the proposed developments. The purpose of these reviews is to confirm that new development-related parking demand does not impact the downtown parking supply. If impacts that would negatively affect downtown parking are determined during such an analysis, the addition of a downtown parking structure or development of public surfaces lots that serves expected downtown parking demand may be considered. Evaluating existing and future parking demand is a common basis for determination of need for additional parking in most jurisdictions, but City decision makers will have final discretion to determine whether the addition of surface parking lots or parking structures that serve expected downtown parking demand is warranted.

5. Potential Parking Improvement Strategies

This section details potential strategies for addressing current and future parking needs in downtown Vacaville. Strategies range from development of additional off-street parking to parking management measures that manage current and project demand without added parking supply. Such measures include revision of current parking time limits, enhancing current enforcement, and establishing a comprehensive education program.

Near Term Strategies

Parking Designations & Time Limits

TJKM reviewed the results of both the existing parking demand surplus analysis and the parking duration surveys to determine opportunities for improving current parking designations and time limits. The duration surveys focused on key off-street public lots in which there was interest in the level of utilization for parking spaces of various time limits.

Existing parking occupancy results discussed earlier found that spot on-street parking shortages are generally small (1-2 spaces) and are almost entirely alleviated by similar parking within a block or two walking distance of each. Larger parking shortages were found in some of the public off-street lots, which are discussed below. This discussion also includes recommendations for reconfiguring some lots which, although not experiencing shortages, can have time limits reallocated within them to alleviate some pressure on on-street parking supply along surrounding streets, some of whose parking is effectively full at 90 percent occupancy or more.

It should be noted that since the previous TJKM study, the City has implemented some minor changes to on-street time limits throughout the study area. In reviewing the occupancy results for downtown, it appears that current on-street time limit designations are adequate as constituted. This includes the location of two-hour spaces, which are appropriately located in the core retail areas of the downtown and promote parking space turnover for retail customers.

Lot 3

In Lot 3, duration results indicate that time limits are largely being followed and also enforced. It was also apparent that a majority of 10-hour spaces were being utilized for short term purposes, i.e. three hours or less. This also seems to be revealed from the occupancy surveys, which indicated a parking supply shortage of three 3-hour spaces. The results suggest that currently there is a greater demand for shorter term parking in the southern portion of the lot that is closer to the nearby retail businesses along Kendal Street.

It is therefore recommended that the City consider a redesignation of time limits similar to the TJKM recommendation in 2001. First, all three-hour spaces should be converted to four-hour time limits. This modification eliminates the only instance of three-hour time limits in downtown and thereby addresses a comment from the public and DVBD that suggested that the City reduce the number of different time limits within downtown. Second, similar to the 2001 recommendation, 10 spaces should be converted from 10-hour to four-hour time limits at the southern end of the lot (2001 had recommended conversion to three-hour), and concurrently, convert 10 four-hour spaces to 10-hour time limits along the row closest to Dobbins Street. This modification is expected to eliminate the current parking deficit for short term spaces and maintain the current adherence to parking time limits within the lot.

Lot 4

The results of the duration and occupancy surveys indicate that there is demand for both short term and long term parking within this lot. In particular, the occupancy surveys for Lot 4 indicate a parking shortage of seven no limit spaces. It is therefore recommended that the City consider converting the parking spaces that currently have no time limits (147 total) to 40 percent 2-hour (59 spaces) and 60 percent 10-hour (88 spaces). This conversion does not include the seven existing handicapped parking spaces. Based on current utilization patterns in the lot, the two-hour spaces would allow for the short-term parking needs of Town Square customers, library patrons, and other visitors. The short term space allocation would also alleviate current pressure on the nearby Main Street blocks in the vicinity of the lot, where on-street 2-hour parking spaces are currently operating at capacity (100 percent occupancy). It is recommended that following implementation of these new time limits, parking field surveys be conducted to verify that observed parking demand reasonably matches the expected parking durations within this lot.

At the same time, the proposed allocation of 88 spaces in Lot 4 to 10-hour time limits would remove the current deficit of long term spaces within the lot and provide an adequate amount of parking for library staff, Vacaville Sanitary staff, and other daytime employees at nearby businesses in Town Square and on Main Street. It is also intended to discourage overnight parking. This recommended distribution of parking space time limits is similar to the 2006 City recommendation to convert 148 spaces in Lot 4 to 94 four-hour (64 percent) and 54 two-hour (36 percent) spaces. However, the 10-hour limit is recommended instead of the 4-hour limit. While both time limits essentially promote long term parking for employees and business owners in downtown, the 10-hour time limit is more effective in this regard and is far less likely to be violated during a typical business day.

Lot 6

Based on the duration survey results, Lot 6 appears to have an adequate balance of time limits, with a small number of violations observed for the 2-hour and 5-hour spaces. The spaces without time limits are almost exclusively being used for long term parking. From the occupancy-based parking surplus analysis, Lot 6 currently has a shortage of one 5-hour space and one no limit space, while there is a surplus of six 2-hour spaces. The above results, as well as comments from DVVID and the general public, suggest that the City should institute a reallocation of parking time limits within Lot 6. It is recommended that all 39 five-hour spaces be changed to 15 two-hour spaces and 24 no limit spaces. This would result in 35 total two-hour spaces and 56 total no limit spaces.

There are several reasons for this recommendation. First, there is no current surplus of long term parking spaces within Zone C31, the zone in which Lot 6 is located. Second, while there is a 21-space short term surplus in Zone C31, adjacent blocks of two-hour parking on both Parker Street and Cernon Street are experiencing high occupancies of 83 percent or more, indicating that there are few available two-hour spaces for businesses in the vicinity. Third, the DVVID has suggested simplifying the range of time limits within downtown, and removing the 5-hour time limit would meet this goal. Although the 5-hour time limit promotes long term parking for employees in downtown, removing the time restriction would have the same effect. Fourth, written surveys from downtown employees indicated a desire for additional long term parking. As a result, the recommendation for Lot 6 is expected to accommodate the range of parking activity, both short and long term, occurring within this lot.

Lot 7

Based on the parking occupancy surplus analysis, there is currently a surplus of 21 2-hour spaces within the lot and a shortage of seven 4-hour spaces. The duration surveys indicated that 49 percent of the 2-hour spaces (38 of 77) on average had parked vehicles exceeding the time limit. Further, some employees, particularly those in the adjacent California-Hawaii Building on Mason Street, have stated via written surveys and public meetings that time limits are too short within the lot.

Based on the above results, it is recommended that 20 of the 2-hour spaces and 10 of the 4-hour spaces be converted to 30 spaces with 10-hour time limits. This would change the 2-hour space total within the lot from 77 to 57 spaces and the 4-hour space total from 57 to 47 spaces. This modification would utilize the available surplus of 2-hour parking currently within the lot to alleviate the current shortage of longer term parking, thereby providing additional parking for employee purposes.

A concern was raised about the effect of any Lot 7 time limit changes on the adjacent private US Bank lot. Field occupancy surveys indicate that the US Bank lot was at 39 percent occupancy during the peak Friday noon hour (15 of 38 spaces occupied). Because of this low occupancy and because the proposed Lot 7 conversion uses an available short term parking surplus, there are no adverse spillover effects expected for the US Bank lot.

In order to implement the above recommended time limit modifications in Lots 3, 4, 6, and 7, relative costs are expected to be about the same in each lot. Typical costs to implement time limit changes are primarily associated with the relocation of existing signage, installation of new signage, and pavement restriping where appropriate.

Lots 8, 11, and 12

Lots 8, 11, and 12 each have minor shortages of three spaces under the no limit category. However, no modifications are considered necessary, given that these lots are located in zones with overall surpluses of long term parking. In Zone C28, where Lots 8 and 11 are located, there is an overall surplus of 55 long term spaces. In Zone C56, where Lot 12 is located, there is only an overall surplus of 4 long term spaces. However, the proposed time limit conversions in Lot 4 (also within Zone C56) would provide an added surplus of long term parking to further offset the minor long term shortage in Lot 12.

Parking Management

Beyond developing new off-street parking supply, a critical component of any downtown parking program is management of existing supply. Increasingly, cities are looking beyond meeting off-street parking requirements and examining alternatives to developing new parking to address potential parking shortages in the future. Based on the need to shift long term parked vehicles away from the short-term spaces for the benefit of retail customers downtown, management strategies in Downtown Vacaville should include a combination of education, enforcement, and information.

Education

The City should consider implementation of an educational program that provides information on areas of public parking in the downtown and on appropriate areas to park in general for downtown customers, employers, and employees. Many businesses already provide information to employees in terms of directing them to park in locations on the fringes of downtown that effectively free up short term on-street spaces for retail customers. The City could work with the DVBID and the

Vacaville Chamber of Commerce on a more comprehensive program that informs employees of areas where long-term parking is appropriate.

The DVVID has developed a downtown map with limited parking information on its website. Based on a brief review, it is recommended that DVVID, in conjunction with the City, consider providing a more comprehensive map indicating parking information, transit information, merchant information, and other key landmarks. Such a map would ultimately serve as a promotional tool for downtown merchants. An example is in downtown Berkeley, where the Downtown Berkeley Association has developed a map showing public parking lots and available hours of use; merchant locations; transit stop locations; and landmark buildings. The map would be intended primarily for use by visitors and could help optimize customer utilization of short-term on-street spaces near retail stores in Downtown Vacaville.

Enforcement and Fine Structure

Currently, the Patrol / Field Services Division of the City Police Department employs one-full time Community Services Officer (CSO) that is responsible for enforcement of parking restrictions in the downtown on weekdays. The results of the duration field surveys provide a basis for the need to provide a greater level of enforcement with respect to long term use of short term parking.

Currently, the City issues a \$15 fine for time zone violations. The City Police Department uses California Judicial Council guidelines as the basis for establishing this fine. The Police Department recently reviewed the possibility of updating the fine but concluded an increase was not necessary. On the basis of this review, it is not expected that fines would change in the near term, but would be explored in the future if significant evidence arose that a change was needed.

As the City fine structure is currently designed, it slightly punishes, but not banishes, parkers who do not follow time regulations, particularly in busy parts of the downtown. The \$15 fine is among lowest among Bay Area jurisdictions. By comparison, in the City of Palo Alto, fines for time limit violations are slightly more punitive, ranging from \$29 to \$39. Downtown Palo Alto operates similarly to Downtown Vacaville in that there are no parking meters. In the City of Oakland, time limit violation fines range between \$30 and \$35. It is recommended that the City consider revisiting its fine structure. This measure would promote more compliance with current time limits.

Parking Meters

It has been at least 30 years since parking meters were removed from the downtown. Parking meters are used primarily to promote turnover of parking spaces near retail businesses and discourage long term parking. Another purpose is to generate sufficient revenue that can be used towards an overall parking management plan that includes parking enforcement activity. In some instances, revenue may also be used to finance development of additional parking facilities.

Revenue from parking meters could facilitate parking enforcement and provide funding for retaining enforcement staff. However, installation of parking meters also needs to be considered in terms of the potential negative impact to merchants and customers. It appears that based on the existing observed utilization of parking in downtown Vacaville, parking meters may not have a significant effect on turning over short term parking spaces in the downtown. This is because in many cases, it has been found that upon implementation of parking meters, users of short term spaces that attempt to park long term (e.g. store employees parked in two-hour spaces) may actually feed coins into the meter of their original space, in place of their current practice of moving their cars from one unmetered space to another.

It should be noted that many downtowns in the Bay Area have implemented effective downtown parking programs without the use of meters. Such cities include Palo Alto and Healdsburg, where the community considered metered parking to be a discouragement to patronage of downtown businesses and instead have implemented successful combinations of adequate time limits and effective enforcement programs.

Parking Signage

Good signage promotes efficient use of available parking and ultimately reduces the amount of vehicle circulation on streets that is devoted to finding parking. Based on TJKM recommendations in 2001, the City installed several signs denoting the location of municipal lots throughout the downtown. Also in response to recommendations, City staff has recently installed directional signage that guides motorists to downtown public parking lots. These directional signs have been acquired and are now being installed in downtown.

Employee Permit Parking

Some members of the community expressed interest in introducing a monthly permit parking program for employees in downtown. The intent of this program would be to designate certain public parking areas as available for daily long term use by employees of various businesses and other institutions located downtown. Potential benefits of an employee permit parking program include guaranteed long term spaces for employees during the day, as well as a steady source of revenue for the City in the form of permit fees. Potential negative effects include the potential displacement of available short term spaces to accommodate a permit program, as well as the potential loss of flexibility for parking spaces in terms of user parking duration when they are converted to permit only use.

There are few examples of employee permit programs in the Bay Area. However, one example is located in the City of Los Gatos, where employee permit parking zones were designated for on street curb locations surrounding the Civic Center municipal offices. The Civic Center includes only a small on site lot that serves city offices, and thus it became necessary to utilize surrounding curb parking to provide supplemental parking supply for city employees. Also, the Civic Center is situated in an area that has few adjacent businesses that would compete for this curb parking. These appear to be successful elements for an employee permit program in a downtown location.

By comparison, the downtown Vacaville study area does not share similar characteristics that would facilitate implementation of an employee permit program. In downtown Vacaville, there are diverse users of public parking, including store owners, employees, and patrons; City library workers and patrons; senior center visitors and staff; and restaurant staff and patrons. All of these users have different demands on downtown parking in terms of duration. Because of these highly diverse parking users and based on this study's evaluation of existing parking utilization, it is preferable instead to examine current short term and long term parking utilization and make time limit adjustments accordingly, as has been recommended in this report section. This is the preferred approach, as it promotes a flexible means of addressing short term and long term parking demand.

Long Term Parking Strategies

Opportunity Hill

Zone C24

As mentioned earlier, the Opportunity Hill developments will generate the largest increment in parking demand in the downtown, specifically in Zones C23 and C24. In Zone C24, parking demand is expected to grow to 383 total vehicles under future buildout conditions, including 70 short term and 313 long term, based on both the Opportunity Hill developments and additional background growth in land use. In terms of the Opportunity Hill projects, Project F in is expected to generate a parking demand of 242 vehicles, driven primarily by the long term demand of the 200 multifamily residential units. Project B is expected to generate 25 vehicles, driven by the long term demand of employees of the proposed 24,000 sq. ft. office use. The remainder of buildout land use in Zone C24 is expected to generate 116 vehicles.

Based on recommendations of the Opportunity Hill Master Plan and Design Guidelines, the City requested an evaluation of a reduced off-street parking requirement for the Opportunity Hill developments that reflects their mixed-use character in the context of downtown. Based on existing field occupancy surveys, there is a current surplus of 178 public parking spaces located in Zone C24, including 13 short term spaces and 165 long term spaces. In terms of location, the surplus includes 93 on-street spaces and 84 located in City-operated off-street lots.

Based on the future parking surplus analysis, buildout of the Zone C24 developments would result in a future parking deficit of 70 spaces, including 45 short term and 25 long term. This assumes that the net development in this zone (future uses minus current uses) would utilize all existing effective parking supply. Clearly, off-street supply will need to be provided, particularly for Projects B and F of Opportunity Hill. These projects are located outside the downtown exception area, which allows for reduced off-street parking requirements. However, providing exclusive off-street supply fully to City code would likely result in an overabundance of such parking given that Project F in particular provides an opportunity for shared parking, as it is a mixed use development located within the downtown area.

Under current City code, Project F would require 484 off-street spaces when code parking requirements are considered separately for the retail, office, and residential uses. This assumes 400 spaces for the 200 multifamily residential units, based on the assumption of all two-bedroom units at two parking spaces per unit, and 84 spaces for the combined office and retail uses based on a City code requirement of 3.3 spaces per 1,000 sq. ft. However, the mixture of these three distinct land uses provides an opportunity for shared parking, since parking for each land use peaks at different times of day – residential during overnight, and office and retail during the day. Thus, if 484 spaces were provided, it would be reasonable to expect large numbers of spaces being underutilized virtually all day.

Therefore, it is recommended that off-street parking serving the entire Project F development be supplied at the rate of 1.7 spaces per residential unit, or 340 total off-street spaces. During the evening, when residential parking activity peaks and office/retail parking activity is low, this would provide at least one space per residential unit (200 overall), with 140 parking spaces available for any combination of additional resident vehicles, residential guests, and retail / office parking activity. During the daytime, the proposed supply of 340 spaces would accommodate the peak office and retail activity that requires 84 spaces to City code, leaving 256 available during the day for residential activity. In terms of residential parking, the Urban Land Institute estimates that

residential parking demand during a typical midday is 65 percent of the overnight peak, so the available 256-vehicle off-street surplus within the development would be more than sufficient for residents during the day.

Finally, the provision of 340 off-street spaces would more than offset the estimated future parking deficit found in Zone C24 of 70 spaces overall, including 45 short term and 25 long term spaces. This future deficit assumed future developments in Zone C24 would utilize existing effective public parking supply, so therefore the provision of 340 off-street spaces within Project F would more than offset this potential future deficit. It should be noted that the future surplus calculation includes the parking supply of City Lot 10, which consists of 127 spaces overall but only operates as a public lot after 5:00 p.m. during weekdays.

The parking ratio of 1.7 spaces per residential unit is therefore expected to provide adequate onsite parking supply that meets typical future Project F peak residential parking demand during evenings. Also, the combination of Project F onsite parking supply and nearby public on-street parking supply is expected to meet the estimated demand of residential guests and other users during the typical residential evening peak.

It should be noted that Table 14.09.128.01 of the Vacaville Municipal Code establishes required off-street parking for multifamily dwellings. Required parking rates range from 1.5 to 2 spaces per unit depending on the number of bedrooms, but the table also stipulates that no less than 1.75 spaces per unit can be provided for the overall development. Revisions to the off-street parking requirements in the Opportunity Hill area would be considered based on the above recommended off-street parking supply rate of 1.7 spaces per residential unit for the overall mixed use development. In order to accommodate shared parking concepts, no more than one stall should be exclusively designated for each residential unit.

The proposed Project B in Zone C24, consisting of 24,000 sq. ft. of office use, would require 80 off-street spaces by City code. Since this is a single land use, it is expected that this can be accommodated within the development.

Zone C23

In Zone C23, parking demand is expected to be 292 total vehicles under future buildout conditions, based on both Project G in Opportunity Hill and existing public parking demand. Project G is expected to generate a parking demand of 278 vehicles within this zone, in addition to the 14 vehicles of existing public parking demand. This project is displacing existing residential, retail, and commercial service land uses currently within this zone. Based on existing field occupancy surveys, there is a current parking surplus of 51 spaces in Zone C23. This surplus consists entirely of all long term on-street spaces, as there are no City-operated lots located within this zone.

Since Project G is also a mixed use development, consisting of 251 multifamily residential units and 8,000 sq. ft. of retail use, a reduced off-street parking requirement is recommended similar to Project F in Zone C24. If a 1.7 space per residential unit off-street parking rate is applied to the entire development (same as Project F), this would yield an off-street supply on the Project G site of 427 spaces. During the peak evening residential activity, at least 251 spaces could be made available to residents (one space per unit), with 176 spaces available for additional resident vehicles, residential guests, and retail / office parking activity. During daytime, retail activity peaks, and the City code would require the retail component to have 27 spaces at the rate 3.3 spaces per 1,000 sq. ft. With residential activity lower during the daytime, this leaves 400 spaces available to residents and potentially other users.

Given the anticipated future parking deficits of 74 short term and 167 long term spaces (241 total) during the peak Friday noon hour within Zone C23, which assuming future land-use generated parking demand would utilize existing available effective parking supply, provision of this off-street parking for Project G would more than offset these future deficits. This would yield a net surplus of 186 total spaces ($-241+427=186$).

Other Future Project Locations

In Zone C25, Project E would replace current Vacaville Unified School District office and school uses with a 180 multifamily residential unit development. Based on the future parking surplus analysis and the net change in existing to future land uses within this zone, a net deficit of 193 spaces (48 short term and 145 long term) is expected. Since this zone includes no current public on- or off-street parking supply, it is expected that this multifamily development will need to provide onsite parking. Based on current code requirements, 360 spaces would need to be provided on site to satisfy the two space per unit requirement, assuming all two-bedroom units. This requirement is subject to whatever the final composition of the multifamily units will be, as there are differing City code off-street parking requirements depending on the number of bedrooms in each unit. If Project E provides 360 spaces on site, this would eliminate the future parking deficit in Zone C25, yielding a surplus of 167 spaces ($-193+360=167$).

In Zone C56, Projects H and I are the primary generators of future parking demand. Project H, which includes 9,600 sq. ft. of office use on two stories, would require 32 off street spaces based on current City code requirements. Based on the current site location between two public lots, Lot 2 and Lot 3, it is not apparent whether the site would be able to meet this requirement. However, the proposed changes to parking time limits in Lot 4 under existing conditions, which is located across Dobbins Street from Project H, may be able to absorb this requirement.

The current TJKM recommendation for Lot 4 is to provide 59 2-hour (short term) and 88 10-hour (long term) spaces. The short term and long term spaces created by this proposed modification would offset the anticipated future deficits of 33 short term and 31 long term spaces within Zone C56. These net deficits already include the expected future parking demand generated by Project H. Therefore, if Project H is unable to provide off street parking to City code requirements, it is expected that the Lot 4 modification would be able to accommodate the future Project H parking demand.

Finally, Project I, a proposed 6,000-sq. ft. restaurant located at the southeast corner of Dobbins Street and Monte Vista Avenue and immediately north of the Senior Center, would require 30 off-street spaces based on the current City code parking rate of 5 spaces per 1,000 sq. ft. This site is located just outside the downtown parking exception zone, so under City code requirements the project would need to provide this amount of off-street parking on site. Based on the site characteristics, it is anticipated that the project would be able to satisfy the City code requirement.

6. Recommendations

Near Term Parking Strategies

Based on the results of both the existing parking demand surplus analysis and the parking duration surveys, TJKM recommends the following changes to time limits within public lots:

Lot 3: Consider a modification to the original 2001 TJKM recommendation of redesignating time limits within the lot. First, all three-hour spaces should be converted to four-hour time limits. This modification eliminates the only instance of three-hour time limits in downtown and thereby addresses a public comment that the City reduce the number of different time limits within downtown. Second, similar to the 2001 recommendation, 10 spaces should be converted from 10-hour to four-hour time limits at the southern end of the lot (2001 had recommended conversion to three-hour), and concurrently, convert 10 four-hour spaces to 10-hour time limits along the row closest to Dobbins Street. This modification is expected to eliminate the current parking deficit for short term spaces and maintain the current adherence to parking time limits within the lot. The intent is to satisfy the demand for shorter term parking in the southern portion of the lot that is closer to the nearby retail businesses along Kendal Street.

Lot 4: Based on the results of the duration and occupancy surveys which indicate demand for both short term and long term parking within this lot, it is recommended that the City consider converting the parking spaces that currently have no time limits (147 total) to 40 percent 2-hour (59 spaces) and 60 percent 10-hour (88 spaces). Based on current utilization patterns in the lot, the two-hour spaces would allow for the short-term parking needs of Town Square customers, library patrons, and other visitors. The short term space allocation would also alleviate current pressure on the nearby Main Street blocks in the vicinity of the lot, where on-street 2-hour parking spaces are currently operating at capacity (100 percent occupancy). It is recommended that following implementation of these new time limits, parking field surveys should be conducted to verify that observed parking demand reasonably matches the expected parking durations within this lot.

At the same time, the proposed allocation of 88 spaces in Lot 4 to 10-hour time limits would remove the current deficit of long term spaces within the lot and provide an adequate amount of parking for library staff, Vacaville Sanitary staff, and other employees in downtown. It would also discourage overnight parking.

Lot 6: Reallocate time limits for the 39 five-hour spaces to 15 two-hour spaces and 24 no limit spaces. This would result in 35 total two-hour spaces and 56 total no limit spaces. This change is expected to create a surplus of long term parking currently lacking within Zone C31, the zone in which Lot 6 is located. This was a concern raised by employees who use or wish to use this lot for long term parking. Also, the additional two-hour parking supply is expected to alleviate the high demand areas of two-hour curb parking surrounding Lot 6. This recommendation would also simplify the range of time limits within the lot, which was a concern of DVBD.

Lot 7: Reallocate 20 of the 2-hour spaces and 10 of the 4-hour spaces to 30 spaces with 10-hour time limits. This would change the 2-hour space total within the lot from 77 to 57 spaces and the 4-hour space total from 57 to 47 spaces. This modification would utilize most of the current available surplus of 2-hour parking within the lot (+21) to alleviate the current shortage of longer term parking, thereby providing additional parking for employee purposes, which was requested by area employees via written surveys and public meetings.

A concern was raised via written surveys and public meetings about the effect of any Lot 7 time limit changes on the adjacent private US Bank lot. Field occupancy surveys indicate that the US Bank lot was at 39 percent occupancy during the peak Friday noon hour (15 of 38 spaces occupied). Because of this low occupancy and because the proposed Lot 7 conversion uses an available short term parking surplus, there are no adverse spillover effects expected for the US Bank lot.

It should be noted that Lots 8, 11, and 12 each have minor shortages of three spaces (without time limits). However, no modifications are considered necessary, given that these lots are located in zones with overall surpluses of long term parking. In Zone C28, where Lots 8 and 11 are located, there is an overall surplus of 55 long term spaces. In Zone C56, where Lot 12 is located, there is only an overall surplus of 4 long term spaces. However, the proposed time limit conversions in Lot 4 (also within Zone C56) would provide an added surplus of long term parking to further offset the minor long term shortage in Lot 12.

Finally, although there are minor spot shortages along on-street locations within various sections of downtown, there are spot surpluses generally available within one to two blocks walking distance to alleviate these shortages. It is expected that the modifications to current time limits in the above public off street lots would be sufficient to satisfy existing parking needs without development of additional parking supply in the near term. This conclusion stems from the results of the existing parking demand surplus / deficit calculation, whose main assumption is that it is based on the worst-case peak Friday noon parking activity within downtown.

Figure 11 shows the above recommended time limit changes for the existing public parking supply in Lots 3, 4, 6, and 7.

Long Term Parking Strategies

Opportunity Hill

Zone C24

Under current City code, Project F in Zone C24 would require 484 off-street spaces when code parking requirements are considered separately for the proposed retail, office, and residential uses on the project site. However, the mixture of these three distinct land uses provides an opportunity for shared parking, since parking for each land use peaks at different times of day – residential during overnight, and office and retail during the day. Thus, if 484 spaces were provided, it would be reasonable to expect large numbers of parking spaces within the development being underutilized virtually all day.

Therefore, it is recommended that off-street parking serving the entire Project F development be supplied at the rate of 1.7 spaces per residential unit, or 340 total off-street spaces. During the evening, when residential parking activity peaks and office/retail parking activity is low, this would provide at least one space per residential unit (200 overall), with 140 parking spaces available for any combination of additional resident vehicles, residential guests, and retail / office parking activity. During the daytime, the proposed supply would accommodate the peak office and retail activity that requires 84 spaces to City code, leaving 256 available during the day for residential activity. In terms of residential parking, the Urban Land Institute estimates that residential parking demand during a typical midday is 65 percent of the overnight peak, so the available 256-vehicle off-street surplus within the development would be more than sufficient for residents during the day.

This proposed provision of 340 off-street spaces in Project F would more than offset the estimated future parking deficit found in Zone C24 of 70 spaces overall, including 45 short term and 25 long term spaces, which is based on the assumption of future developments in Zone C24 utilizing existing effective public parking supply. Therefore, the provision of 340 off-street spaces within Project F would more than offset this potential future deficit. It should be noted that the future surplus calculation includes the parking supply of City Lot 10, which consists of 127 spaces overall but only operates as a public lot after 5:00 p.m. during weekdays.

The proposed Project B in Zone C24, consisting of 24,000 sq. ft. of office use, would require 80 off-street spaces by City code. Since this is a single land use, it is expected that this can be accommodated within the development.

Zone C23

Project G within Zone C23 is another mixed use development proposed within the Opportunity Hill Master Plan area, consisting of 251 multifamily residential units and 8,000 sq. ft. of retail use. Since the mixed use characteristics are similar to Project F in Zone C24, a reduced off-street parking requirement is also recommended for Project G. If a 1.7 space per residential unit off-street parking rate is applied to the entire development (same as Project F), this would yield an off-street supply on the Project G site of 427 spaces. During the peak evening residential activity, at least 251 spaces could be made available to residents (one space per unit), with 176 spaces available for additional resident vehicles, residential guests, and retail / office parking activity. During daytime, retail activity peaks, and the City code would require the retail component to have 27 spaces at the rate 3.3 spaces per 1,000 sq. ft. With residential activity lower during the daytime, this leaves 400 spaces available to residents and potentially other users.

Given the anticipated future parking deficits of 74 short term and 167 long term spaces (241 total) during the peak Friday noon hour within Zone C23, which assuming that future land use-generated parking demand would utilize existing available effective parking supply, provision of this off-street parking for Project G would more than offset these future deficits. This would yield a net surplus of 186 total spaces $(-241+427=186)$.

Other Future Project Locations

In Zone C25, Project E would replace current Vacaville Unified School District office and school uses with a 180 multifamily residential unit development. Based on the future parking surplus analysis and the net change in existing to future land uses within this zone, a net deficit of 193 spaces (48 short term and 145 long term) is expected. Since this zone includes no current public on- or off-street parking supply, it is expected that this multifamily development will need to provide onsite parking. Based on current code requirements, 360 spaces would need to be provided on site to satisfy the two space per unit requirement, assuming all two-bedroom units. This requirement is subject to whatever the final composition of the multifamily units will be, as there are differing City code off-street parking requirements depending on the number of bedrooms in each unit. If Project E provides 360 spaces on site, this would eliminate the future parking deficit in Zone C25, yielding a surplus of 167 spaces $(-193+360=167)$.

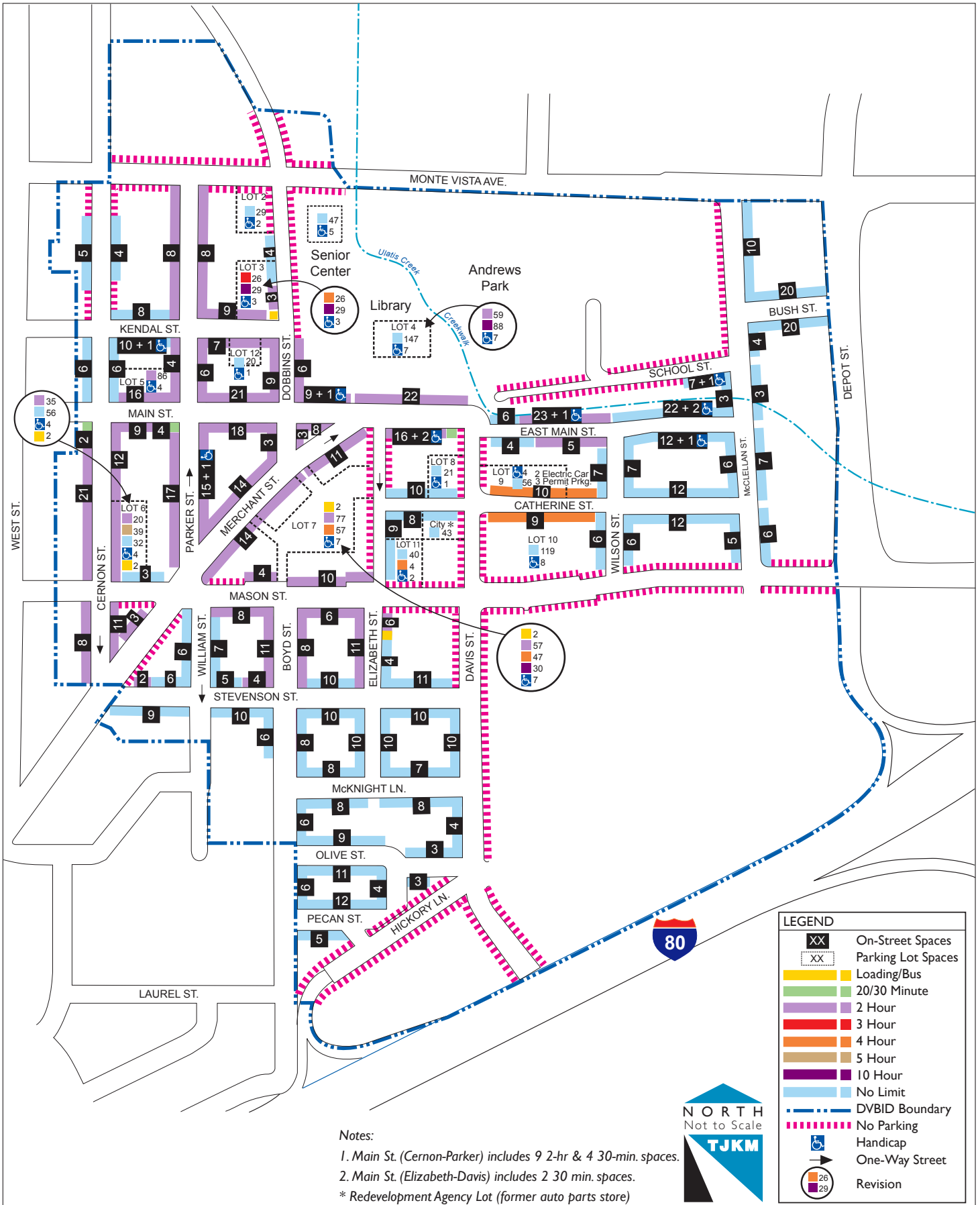
In Zone C56, Projects H and I are the primary generators of future parking demand. Project H, which includes 9,600 sq. ft. of office use on two stories, would require 32 off street spaces based on current City code requirements. However, based on the current site location between two public lots, Lot 2 and Lot 3, it is not apparent whether the site would be able to meet this requirement. However, the proposed changes to parking time limits in Lot 4 under existing conditions, which is located across Dobbins Street from Project H, may be able to absorb this requirement.

The current TJKM recommendation for Lot 4 is to provide 59 2-hour (short term) and 88 10-hour (long term) spaces. The short term and long term spaces created by this proposed modification would offset the anticipated future deficits of 33 short term and 31 long term spaces within Zone C56. These net deficits already include the expected future parking demand generated by Project H. Therefore, if Project H is unable to provide off street parking to City code requirements, it is expected that the Lot 4 modification would be able to accommodate the future Project H parking demand.

Finally, Project I, a proposed 6,000-sq. ft. restaurant located at the southeast corner of Dobbins Street and Monte Vista Avenue and immediately north of the Senior Center, would require 30 off-street spaces based on the current City code parking rate of 5 spaces per 1,000 sq. ft. This site is located just outside the downtown parking exception zone, so under City code requirements the project would need to provide this amount of off-street parking on site. Based on the site characteristics, it is anticipated that the project would be able to satisfy the City code requirement.

City of Vacaville - Downtown Parking Study Recommended Revisions to Existing Public Parking Supply

Figure
11



Study Participants

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Appendix A – Parking Inventory Data

Appendix B – Parking Occupancy Data

Appendix C – Parking Duration/Turnover Data

Appendix D – Parking Survey Responses: Downtown Business Owners

Appendix E – Parking Survey Responses: Downtown Customers

Appendix F – Occupancy Based Parking Demand Surplus (Deficit) by DVBID Zone

Appendix G – Land Use Based Parking Demand Estimates by DV BID Zone