

Memorandum

Date: October 8, 2019

To: Michael Wong, ARCO/Murray

Cc: Margo Conley, VP Development, Banner Storage Group

From: Charles Felder, Associate Transportation Planner
Andrew Kluter, PE, Senior Transportation Planner

Re: **2390 Mariner Square Drive Self Storage Project in City of Alameda**
Final Parking & Trip Generation Evaluation

The purpose of this memorandum is to assess the adequacy of the proposed project's parking supply based on an evaluation of expected peak parking demands, using industry experience and field observation. This study will also evaluate expected vehicular trip generation and whether further analysis of project traffic impacts is required.

Project Proposal

The project site is located at 2390 Mariner Square Drive in Alameda. The site is located on a triangular lot that is approximately 54,014 square feet. The project site fronts the east side of Mariner Square Drive and has approximately 443 feet of frontage on the west portion of Marina Village Parkway. The project site is zoned M-2 Mixed Use according to the City of Alameda Zoning Map.¹ The project site is currently occupied by a junk yard. There are currently two curb cuts located on Mariner Square Drive.

The proposed project would convert the existing junk yard currently located on the project site and construct a six-story, climate-controlled self-storage building with approximately 110,844 gross square feet. The proposed project would include 21 on-site parking spaces, consisting of five spaces for facility patrons and employees (including one ADA parking space) along with 16 long-term RV or boat parking spaces. The proposed project includes two interior loading docks. Gated access to the project site would be established at the existing curb cuts on Mariner Square Drive creating one entry and one exit point from the site. In addition, the developer proposes to restripe the existing on-street public parking area along the project frontage on Mariner Square Drive to accommodate 23 diagonal spaces, which would add an additional eight spaces to what is currently provided.

Summary Conclusions

1. City Code Section 30-7.6 (Manufacturing and Industrial Uses, Warehouse, Storage Uses, Schedule of Required Minimum and Maximum Off-Street Parking Space) requires 0.67 parking spaces per 1,000 square feet, which for the proposed project would require a total of 75 parking spaces. Based on the developer's experience with operating multiple self-storage sites, this requirement well exceeds the actual uses demand.
2. Typically, self-storage customers do not visit their rental units frequently enough to demand 75 parking spaces based on ITE trip generation data and the developer's existing facilities trip and parking data.

¹ City of Alameda Zoning Map: <http://maps.digitalmapcentral.com/production/VECommunityView/cities/alameda/index.aspx>

3. The proposed self-storage project would only be expected to generate 167 daily trips with 19 trips in the p.m. peak hour based on ITE trip generation data. Information provided by the Self Storage Association (SSA) and the developer's existing self storage facilities suggests that the actual traffic volume may be even less.
4. Available published self-storage industry guidelines indicate that the proposed project provides adequate parking for its low-traffic generating use.
5. The developer is proposing to restripe the existing 15 parking spaces along the Mariner Square Drive project frontage to provide an additional 8 spaces for a total of 23 spaces designated for public use. These public right of way spaces provide additional temporary use parking capacity for facility patrons, subject to availability.

Project Trip Generation

Expected vehicular trip generation for the proposed project was estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition). The ITE land use most closely matching the proposed project's land use is Code 151, Mini-Warehouse Self-Storage. **Table 1** presents the proposed project's estimated weekday vehicle trip generation for employees, visitors, and storage vehicles, broken down by daily, AM peak hour, and PM peak hour. AM and PM peak hours occur typically within the time periods of 7:00 to 9:00 AM and 4:00 to 6:00 PM, respectively. The proposed project is expected to generate approximately 167 daily trips, including 11 AM peak hour and 19 PM peak hour trips on a typical weekday.

Table 1: Daily, AM, and PM Weekday Vehicular Trip Generation – Proposed Project

| Land Use | ITE Land Use Code | Size | Daily Trips | AM Trips | | | PM Trips | | |
|-------------------------------|-------------------|------------|-------------|----------|-----|-------|----------|-----|-------|
| | | | | In | Out | Total | In | Out | Total |
| Mini-Warehouse (Self-Storage) | 151 | 110,298 sf | 167 | 7 | 4 | 11 | 9 | 10 | 19 |

Source: ITE Trip Generation Manual, 10th Edition, 2017; CHS Consulting Group, 2019.

Guidance from the Alameda County Transportation Commission's (Alameda CTC) *Congestion Management Program* states that a detailed traffic impact study would be required if a project added more than 100 vehicles to a local roadway network during the worst-case weekday PM peak hour.² Given that the proposed project would generate at most 19 PM peak hour trips as estimated in **Table 1**, the proposed project is not expected to create a significant impact with respect to local roadway traffic conditions. As such, a more extensive traffic impact analysis is not required by Alameda CTC guidelines, and therefore no impacts are anticipated due to the addition of proposed project-generated traffic.

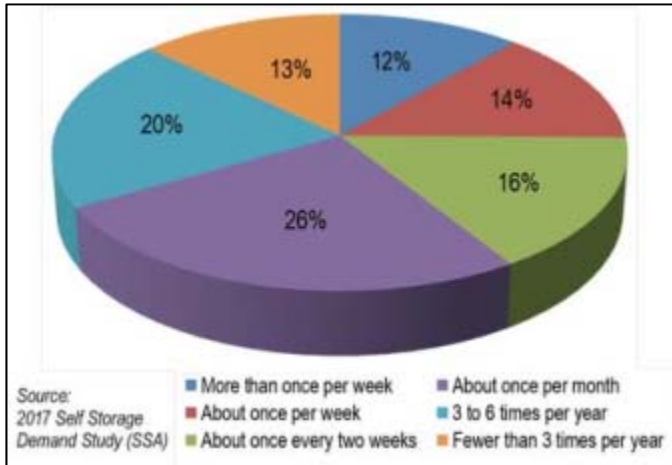
By contrast, industry information provided by the Self Storage Association (SSA) suggests that the actual traffic volume for self-storage facilities is typically less. Based on SSA research, the average storage renter does not visit his or her rental unit frequently. **Figure 1** from SSA's 2018 Self Storage almanac below shows that

² *Congestion Management Program*. Alameda County Transportation Commission, December 2017. The ACTC Congestion Management Program is available online at:

https://www.alamedactc.org/wp-content/uploads/2018/11/2017_Alameda_County_CMP.pdf

approximately 59% of renters visit their rental unit at most once per month, of which 13% visit fewer than three times per year.

Figure 1: Customer Visits to Unit



Source: 2018 Self Storage Almanac, Self Storage Association

In addition, **Appendix A** provides trip generation information from other facilities owned and operated by the proposed project developer in other states. Extra Space, storage operator for Banner, provided CHS with collected data on activity traffic generated by the respective facilities provided in **Appendix A**. Extra Space tracked when employees and customers entered and exited each facility. Banner further interpreted the data to estimate daily traffic visits on an hourly basis. **Appendix A** includes estimated hourly trip generation for the Banner Drive, 111th, and Windsor Place existing facilities that are substantially similar in operation to the proposed project. On average, the three facilities saw a peak demand of approximately 4.5 visits per hour. Assuming two vehicle trips per visit (one inbound and one outbound), this translates to 9 vehicle trips per hour, which is well below the worst-case 19 PM peak hour vehicle trips estimated by ITE.

Project Parking Demand and Supply Evaluation

In terms of onsite self-storage facility parking, the developer provided CHS with internal data on a few of Banner's existing self-storage facilities currently in operation. **Table 2** below provides a detailed breakdown of Banner's existing self-storage facilities that are substantially similar in operation to the proposed project in Alameda. Although Banner Drive, 111th, and Windsor Place are located in different metropolitan areas than Alameda, existing Banner facilities are similar in net square footage, parking supply, and number of loading docks. Extra Space Storage operates each of these existing facilities.

Table 2: Banner Self Storage – Existing Peer Facilities in Operation and Parking / Loading Docks Provided

| Facility | Address | City | Net Square Feet | Stories | On-Site Parking Spaces | Loading Docks |
|-----------------------------------|----------------------------------|--------------------|-----------------|----------|------------------------|---------------|
| Banner Drive | 7701 Banner Drive | Dallas, TX | 77,162 | 5 | 9 | 2 |
| 111th | 3914 W. 111th | Chicago | 48,336 | 2 | 0 | 1 |
| Windsor Place | 1900 Windsor Place | Fort Worth, TX | 77,727 | 3 | 7 | 2 |
| Average | | | 67,742 | 3 | 5 | 2 |
| Alameda (Proposed Project) | 2390 Mariner Square Drive | Alameda, CA | 83,300 | 6 | 5 | 2 |

Source: Banner (2019)

Additionally, the proposed project developer currently has a project under construction in Vancouver, WA and will soon construct another facility in Rocklin, CA. Both these facilities are similar in size and scope to the proposed project and each of these facilities has an average of four spaces.

Based on industry parking demand data collected by the Self Storage Association (SSA) and other resources attached (see **Appendix B**), peak parking demand generated at self-storage facilities substantially similar to the proposed project are typically much lower than those predicted by ITE.

CHS further conducted field evaluations of a substantially similar self-storage facility in the East Bay that also provides low amounts of onsite parking, similar to the proposed project. CHS observed the Extra Space Storage facility located at 3406 Hollis Street in Emeryville, as it is considered representative in terms of expected staff and visitor parking demand and also substantially similar in facility size and function as the proposed project. Similar to the proposed project, the Emeryville facility includes dedicated onsite parking, with the Emeryville lot consisting of 8 parking spaces (6 standard parking spaces, 1 loading space, and 1 ADA space).

In order to estimate peak parking demand for the proposed project, CHS conducted a field inventory and occupancy count of onsite parking supply at the Emeryville facility between 12:00 and 3:00 PM on Saturday, May 25, 2019. In the self storage industry, peak season often occurs during late spring into summer months. The day and time of observation represent what is considered the typical peak parking period specific to visitors and staff at a self-storage facility during a typical week of operation. **Table 2** presents the results of parking observation, showing that 1 of 8 spaces were occupied at the peak of Saturday afternoon operation.

Table 2: Parking Occupancy – Emeryville Extra Space Storage Site

| Parking Type | Supply | Demand | Occupancy (%) |
|-----------------|----------|----------|---------------|
| Standard Spaces | 6 | 0 | 0 |
| ADA Spaces | 1 | 1 | 100 |
| Loading Spaces | 1 | 0 | 0 |
| Total | 8 | 1 | 13 |

Source: CHS Consulting Group, 2019.

Based on the observations and experiences provided above, it is expected that the proposed project would generate a similar worst-case, weekend afternoon onsite parking demand of 1 to 3 vehicles based on the Emeryville facility and peer Banner-operated facilities. As such, the proposed project supply of 4 regular on-site parking spaces, 1 ADA parking space, and 2 loading docks are expected to meet the peak demand at all times during a typical week of operation.

It should also be noted that while the proposed project's onsite parking supply is expected to meet peak parking demand during a typical week, the proposed project would also restripe the curbside project frontage to accommodate 23 diagonal spaces. While the diagonal spaces are on public right-of-way and thus not for the exclusive use of the proposed project, they would provide additional short-term parking capacity to facility guests and employees, subject to availability.

Conclusion

Based on the preceding trip generation and parking analysis, CHS has reached the following conclusions:

- The proposed project is expected to generate a maximum of 19 weekday PM peak hour vehicle trips, which is less than the minimum threshold of 100 PM vehicle trips that would require a detailed traffic impact study based on Alameda CTC CMP guidelines. Per these guidelines, a more comprehensive traffic analysis is not required, and as such no impacts with respect to proposed project traffic are anticipated.
- The proposed project's parking supply of 5 parking spaces and 2 loading docks are expected to meet a peak parking demand of 1 to 3 vehicles, which based on field evaluation in the East Bay and Banner's industry experience would typically occur on weekend afternoons. Given that the weekend afternoon represents peak activity for a typical week, the onsite parking supply is therefore expected to satisfy parking demand at all times. A restriping of existing curbside spaces to create 23 diagonal spaces on the project frontage would provide additional parking capacity, but is subject to availability since on-street parking would be shared with other uses.
- As the proposed project does not meet the City of Alameda's parking ordinance (section 30-7.6) requirement of 75 spaces, the developer is requesting a parking variance. However, as demonstrated with the above field observations and industry data on onsite parking supply and loading docks, the combination of five designated parking spaces and two loading dock spaces are expected to satisfy project parking demand at all times of a typical week. The project's restriping for 23 public street spaces along Mariner Square Drive would provide additional short-term parking capacity to facility guests and employees, subject to availability.

Appendices

Appendix A - Existing Banner Self Storage Portfolio Traffic Visits

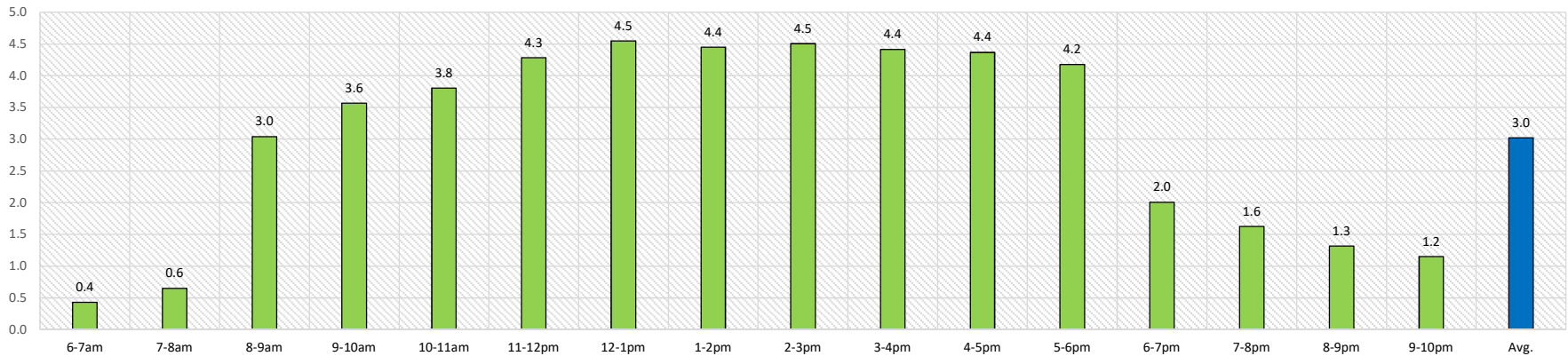
Appendix B – Self Storage Parking Supplementary Information

Appendix A – Existing Banner Self Storage Portfolio Traffic Visits

Banner Self Storage Portfolio - Daily Traffic Log

| <u>Banner Drive</u> | Month | 6-7am | 7-8am | 8-9am | 9-10am | 10-11am | 11-12pm | 12-1pm | 1-2pm | 2-3pm | 3-4pm | 4-5pm | 5-6pm | 6-7pm | 7-8pm | 8-9pm | 9-10pm | Avg. |
|---------------------|--------|-------|-------|-------|--------|---------|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|------|
| | Jan-19 | 0.5 | 0.5 | 3.3 | 3.3 | 3.6 | 4.2 | 5.6 | 4.9 | 4.8 | 4.7 | 5.0 | 4.3 | 2.4 | 2.2 | 1.6 | 1.8 | 3.3 |
| | Feb-19 | 0.5 | 0.7 | 2.5 | 3.1 | 3.2 | 3.9 | 5.0 | 4.7 | 5.1 | 4.8 | 4.1 | 4.4 | 2.0 | 1.5 | 1.8 | 1.6 | 3.1 |
| | Mar-19 | 0.8 | 0.7 | 2.8 | 3.1 | 4.5 | 5.4 | 5.1 | 5.3 | 4.7 | 5.1 | 5.0 | 4.5 | 2.3 | 2.0 | 1.8 | 2.2 | 3.4 |
| | Apr-19 | 0.4 | 0.6 | 3.2 | 5.1 | 4.4 | 5.4 | 5.0 | 5.1 | 5.8 | 5.1 | 5.7 | 5.8 | 3.7 | 2.1 | 2.4 | 2.4 | 3.9 |
| | | | | | | | | | | | | | | | | | | |
| <u>111th Street</u> | Month | 6-7am | 7-8am | 8-9am | 9-10am | 10-11am | 11-12pm | 12-1pm | 1-2pm | 2-3pm | 3-4pm | 4-5pm | 5-6pm | 6-7pm | 7-8pm | 8-9pm | 9-10pm | Avg. |
| | Jan-19 | 0.1 | 0.2 | 2.5 | 3.1 | 2.7 | 3.4 | 3.0 | 3.5 | 3.0 | 3.1 | 3.2 | 3.2 | 0.9 | 0.7 | 0.5 | 0.3 | 2.1 |
| | Feb-19 | 0.2 | 0.3 | 2.9 | 2.6 | 2.9 | 3.3 | 3.5 | 3.2 | 3.6 | 3.4 | 3.3 | 3.1 | 1.0 | 0.9 | 0.6 | 0.5 | 2.2 |
| | Mar-19 | 0.2 | 0.3 | 3.0 | 3.0 | 3.2 | 3.4 | 3.7 | 3.5 | 4.3 | 3.8 | 4.0 | 3.2 | 1.1 | 1.6 | 0.8 | 0.7 | 2.5 |
| | Apr-19 | 0.5 | 0.5 | 3.1 | 2.9 | 3.3 | 3.6 | 3.6 | 3.8 | 3.5 | 3.7 | 3.6 | 3.6 | 1.8 | 1.5 | 1.5 | 0.8 | 2.6 |
| | | | | | | | | | | | | | | | | | | |
| <u>Windsor</u> | Month | 6-7am | 7-8am | 8-9am | 9-10am | 10-11am | 11-12pm | 12-1pm | 1-2pm | 2-3pm | 3-4pm | 4-5pm | 5-6pm | 6-7pm | 7-8pm | 8-9pm | 9-10pm | Avg. |
| | Jan-19 | 0.5 | 0.7 | 3.5 | 3.9 | 3.6 | 4.8 | 5.2 | 5.5 | 5.1 | 4.9 | 4.7 | 4.5 | 2.0 | 1.8 | 1.0 | 0.6 | 3.3 |
| | Feb-19 | 0.4 | 1.2 | 2.9 | 4.1 | 5.1 | 5.1 | 5.3 | 4.7 | 5.2 | 5.0 | 4.7 | 4.5 | 2.3 | 1.4 | 1.0 | 1.0 | 3.4 |
| | Mar-19 | 0.5 | 0.8 | 3.2 | 3.7 | 3.5 | 3.6 | 4.2 | 3.8 | 3.5 | 4.0 | 4.1 | 4.3 | 2.6 | 1.7 | 1.0 | 0.8 | 2.8 |
| | Apr-19 | 0.5 | 1.3 | 3.7 | 4.8 | 5.6 | 5.4 | 5.5 | 5.6 | 5.2 | 5.4 | 4.9 | 4.7 | 2.1 | 2.1 | 1.8 | 1.0 | 3.7 |
| | | | | | | | | | | | | | | | | | | |
| | Month | 6-7am | 7-8am | 8-9am | 9-10am | 10-11am | 11-12pm | 12-1pm | 1-2pm | 2-3pm | 3-4pm | 4-5pm | 5-6pm | 6-7pm | 7-8pm | 8-9pm | 9-10pm | Avg. |
| | Jan-19 | 0.4 | 0.5 | 3.1 | 3.4 | 3.3 | 4.1 | 4.6 | 4.6 | 4.3 | 4.3 | 4.3 | 4.0 | 1.8 | 1.6 | 1.0 | 0.9 | 2.9 |
| | Feb-19 | 0.4 | 0.7 | 2.7 | 3.3 | 3.8 | 4.1 | 4.6 | 4.2 | 4.7 | 4.4 | 4.0 | 4.0 | 1.7 | 1.2 | 1.1 | 1.0 | 2.9 |
| | Mar-19 | 0.5 | 0.6 | 3.0 | 3.3 | 3.7 | 4.1 | 4.3 | 4.2 | 4.2 | 4.3 | 4.4 | 4.0 | 2.0 | 1.8 | 1.2 | 1.3 | 2.9 |
| | Apr-19 | 0.5 | 0.8 | 3.3 | 4.3 | 4.4 | 4.8 | 4.7 | 4.8 | 4.9 | 4.7 | 4.7 | 4.7 | 2.5 | 1.9 | 1.9 | 1.4 | 3.4 |
| | | | | | | | | | | | | | | | | | | |
| YTD | | 0.4 | 0.6 | 3.0 | 3.6 | 3.8 | 4.3 | 4.5 | 4.4 | 4.5 | 4.4 | 4.4 | 4.2 | 2.0 | 1.6 | 1.3 | 1.2 | 3.0 |

Banner Self-Storage Portfolio: Avg. Visits per Hour



Appendix B – Self Storage Parking Supplementary Information



PARKING



Mr. Store-It, Morrisville, NC

Provide ample parking near your office for customers to park while renting a space. Local planning departments will require a minimum number of parking spaces by the office. Typically, five to six spaces would be ideal. Some of the space should be designed to accommodate large vehicles. This parking should be outside the security perimeter. There will also be requirements for loading parking. Customer parking is a key part of the initial impression made by your property. This means convenience and ease of access are important. Plan for sufficient parking based on the size of your facility and the amount of traffic you expect in your office.

Surface parking within the compound for boats, RVs, etc. should be clearly marked. RV parking requires wider drives and longer spaces. RV parking spaces are generally ten-twelve feet wide and thirty-seventy feet long. Angling these spaces will make them easier to use.

PARKING FOR CUSTOMERS USING UNITS¹³

The most popular standard for parking requirements for customers using their storage units continues to be gross floor area (gfa). As shown in the following table, 41.2% of all respondents utilize this standard, versus 38.0% in 1989. What is very gratifying to see is that in our 2000 survey, 33.8% of respondent cities have no parking requirements contrasted with only 16.7% in 1989. We believe this reflects more and

more cities are coming to recognize self storage facility developers are not going to build facilities with inadequate unit access.

METHODS FOR DETERMINING PARKING REQUIREMENTS FOR CUSTOMERS USING UNITS

| | <i>Number</i> | <i>Percent</i> |
|-------------------------------|---------------|----------------|
| Gross Floor Area | 33 | 41.2 |
| Number of Storage Units | 16 | 20.0 |
| None Required | 27 | 33.8 |
| Minimum Aisle Width | 1 | 1.2 |
| Number of Warehouse Employees | 3 | 3.8 |

Customer parking requirements based on gfa of units ranges from one space per 250 square feet to one per 20,000 square feet. The range of requirements is shown in the following table. The central tendency was 1/1,000 gfa.

PARKING REQUIREMENTS BASED ON GROSS FLOOR AREA OF STORAGE UNITS

| | <i>Number</i> | <i>Percent</i> |
|--------------|---------------|----------------|
| 1/250 gfa | 1 | 3.0 |
| 1/500 gfa | 1 | 3.0 |
| 1/1,000 gfa | 8 | 24.2 |
| 1/2,000 gfa | 5 | 15.2 |
| 1/5,000 gfa | 5 | 15.2 |
| 1/10,000 gfa | 3 | 9.1 |
| 1/20,000 gfa | 1 | 3.0 |
| Variable gfa | 5 | 15.2 |
| Other gfa | 4 | 12.1 |

33 responding cities base their requirements on gross floor area

¹³ SSA, *Self Storage Standards and the Modern Community*, 2002.

SELF STORAGE DEMAND STUDY

2013 Edition

Customer Trip Data

A little background on where this data came from.

The Self Storage Association commissioned the consulting firm National Analysts Worldwide to conduct the first-ever demand study of the self storage market in 2004, which was published as the *Self Storage Demand Study – 2005 Edition*. The stated purpose of the study was to paint a portrait of who uses self storage, how and why and—most importantly—to project future demand. The study was repeated with only minor changes two years later with the results published in *Self Storage Demand Study – 2007 Edition*. No demand studies were conducted between 2008 and 2012. The study was conducted a third time — again, with only minor changes from the 2007 study — early in 2013. These results represent the results of the *Self Storage Demand Study – 2013 Edition*.

A key feature of the study was the identification of consumer and business renter segments. Using the information that was gathered in the 2005 survey, we defined these segments based on the rental behaviors and characteristics of different groups of self storage users. Four specific segments of consumers were identified: *temporary storage users*, *long-term renters*, *military* and *students*. Additionally, we identified two specific segments of business users: *general* and *premium business* renters. Because these segments have different usage characteristics and requirements, they play an important role in determining future demand for various types of storage.

All three demand studies used an online survey of consumers and businesses. The first step was to gauge the incidence self storage rentals in the general household and business population. For the 2013 study, more than 22,000 households and businesses were contacted and asked if they currently or recently rented a self storage unit, or planned to in the next year. Those answering yes were then administered an in-depth survey about their self storage rental needs, uses, and future plans. The in-depth survey was administered to 1,440 households and 459 businesses. That information was then analyzed and is presented in this report.

Here we look at the visits and/or trips self storage customers make to their rented units.

NOTE: The average (mean) size of a “primary” self storage facility in the U.S is approximately 46,500 square feet (“primary” means that self storage is the “primary” source of business revenue – U.S. Census Bureau).

Renters typically visit their units once per month (32%), followed by 3–6 times a year (24%). Smaller percentages of renters visit their units once every two weeks or more frequently (29% in 2013 vs. 40% in 2007). More renters are visiting their units less frequently than in 2007 (31% in 2007 vs. 39% in 2013 visit 3–6 times a year or less). The 2013 findings represent a slight shift to less frequent visitation.

Figure 3-12: Visits to Unit

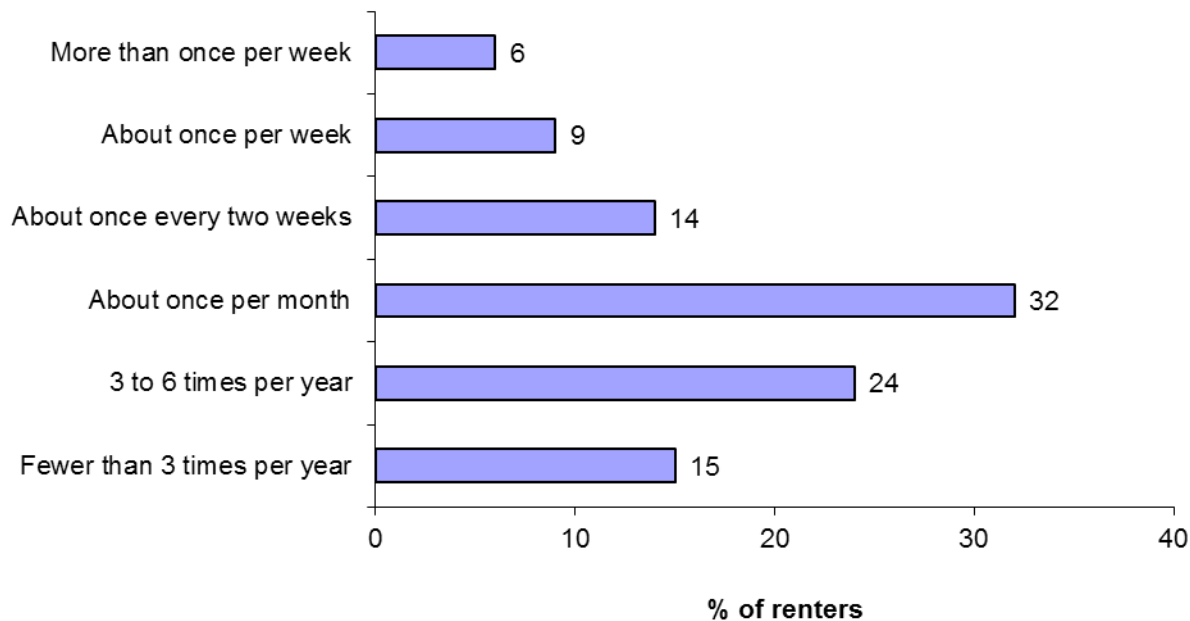


Figure 4-37 below shows the number of visits to the storage unit within the long-term renter segment. Many long-term renters still visit about once a month (31% both years), yet more long-term renters currently visit their unit less frequently than before (44% visit 6 times a year or less now compared to 37% in 2007).

Figure 4-37: Visits to Unit by Long-Term Renters

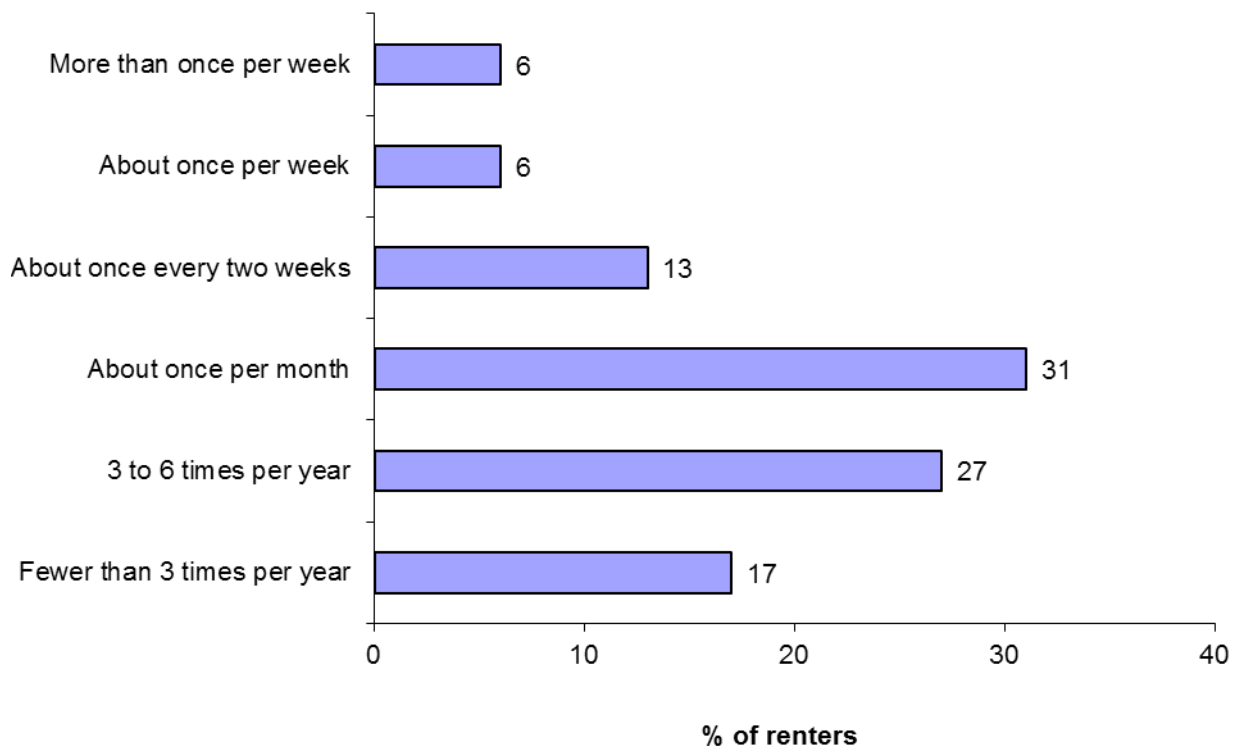


Figure 4-12 below shows the number of visits to the unit among the temporary renter segment. Temporary renters currently visit their unit once a month (32%), which is similar to 2007 (28%). Interestingly, more renters are visiting their unit less frequently than before, with 37% visiting 6 times a year or less compared to 2007, which was only 24% that frequented their units less often.

Figure 4-12: Visits to Unit by Temporary Renters

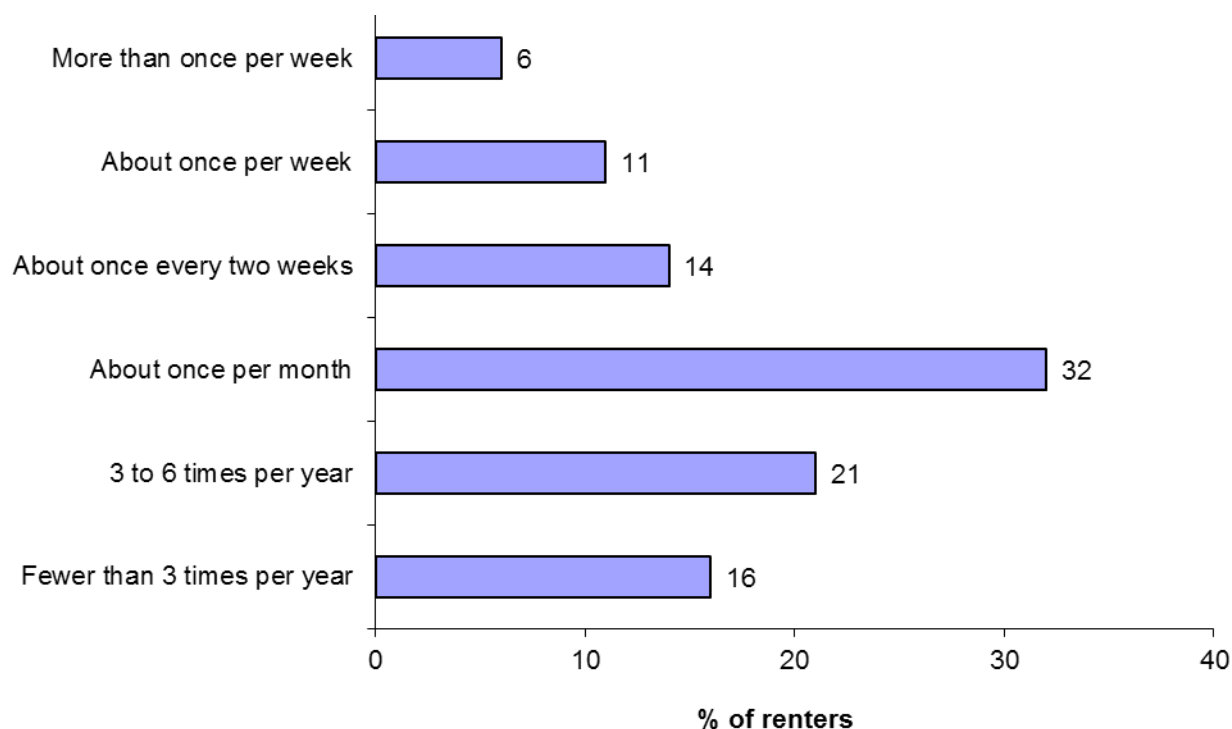


Figure 4-85 shows the number of visits made to the storage unit within the military renter segment. 33% visit once a month, exactly the same amount as in 2007. More military renters visit once a week than before (15% vs. 7% in 2007).

Figure 4-85: Visits to Unit by Military Renters

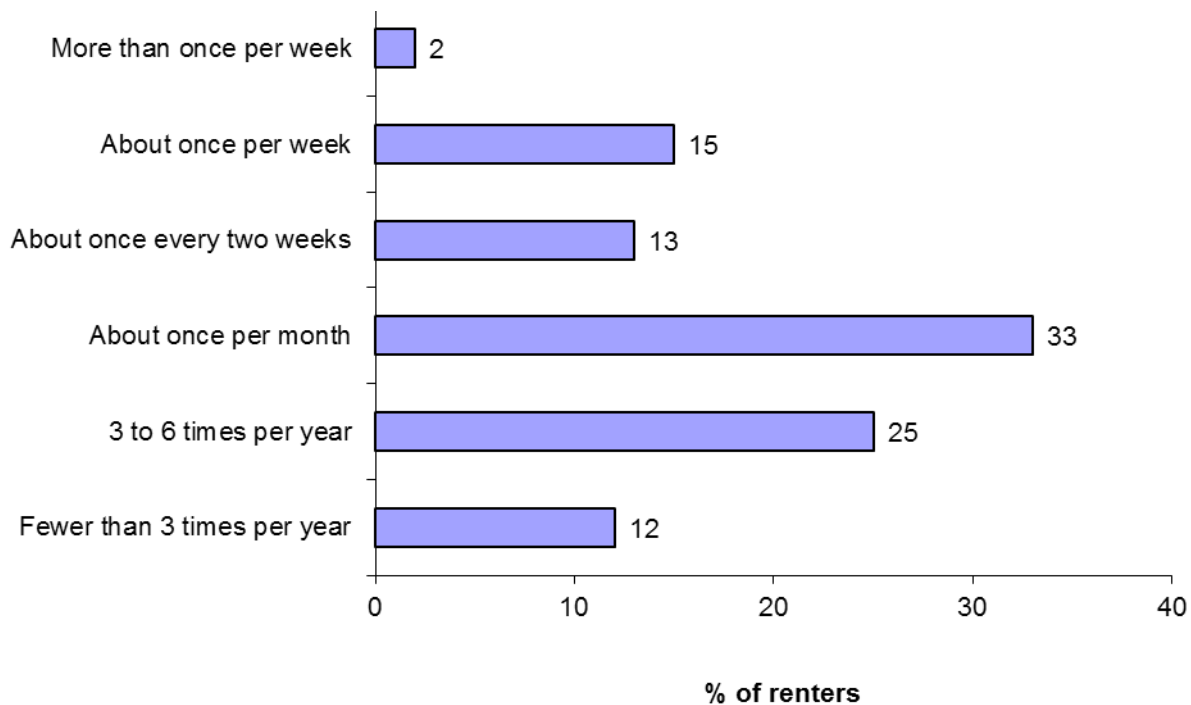
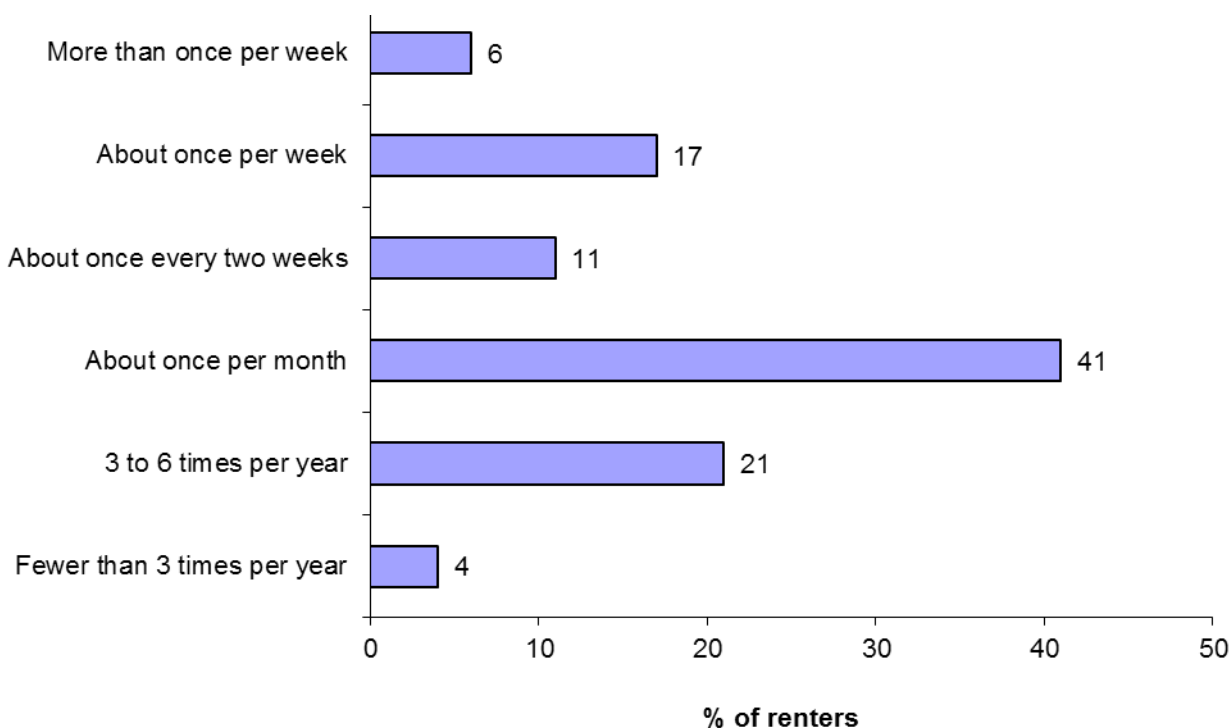


Figure 4-63 shows the number of visits to the storage unit among the student renter segment. 41% visit about once a month, up 10% from 2007. Fewer students visit their unit less often; only 25% visit the unit 6 times a year or less (34% in 2007).

Figure 4-63: Visits to Unit by Student Renters



Travel time to rental units is relatively brief for the majority of renters. Specifically, 45% of renters travel less than 10 minutes to their units and another 30% travel 10–19 minutes (Figure 3-13). This is a slight increase in the shortest trips compared to 2007, but combined trips under 20 minutes are the same as in 2007: 75%. The percentage of each length of the longer trips is also within 1% of 2007.

Figure 3-13: Travel Time to Unit

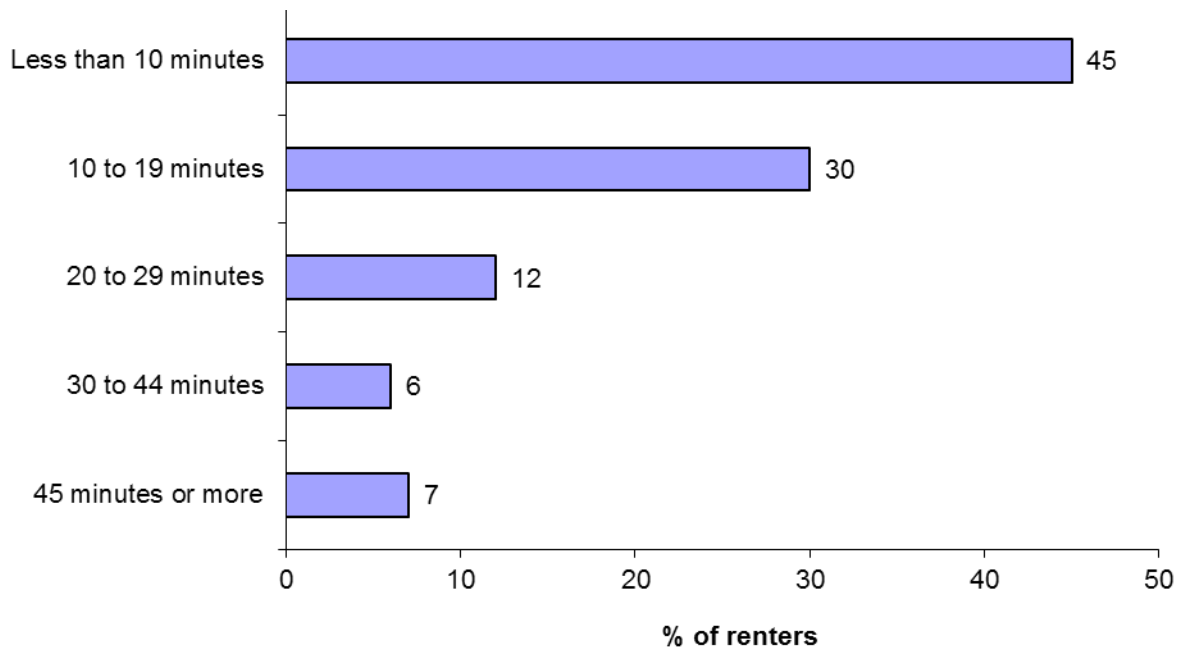
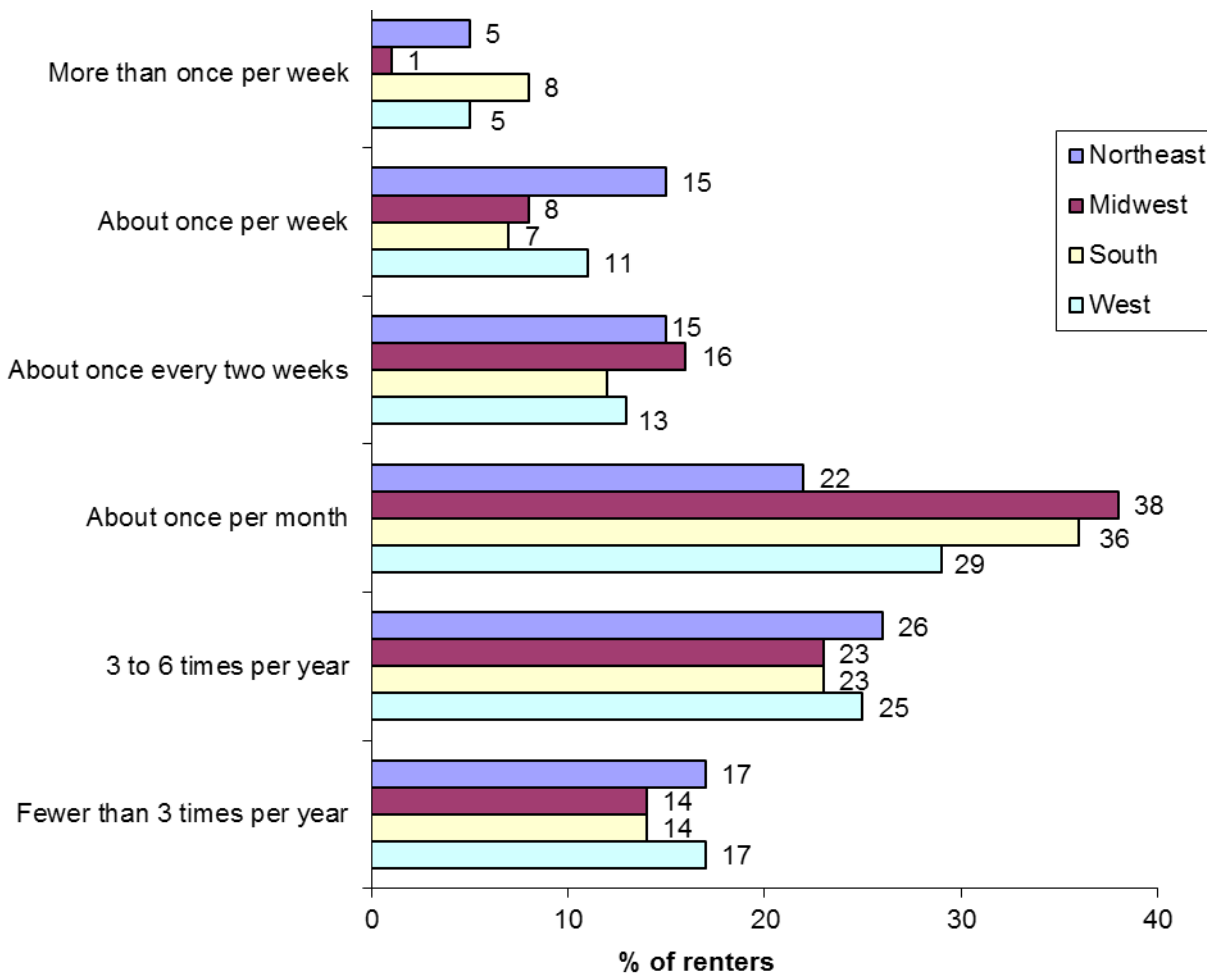


Figure 5-14 below shows visits to unit by region. With a few minor exceptions, frequency of visitation varies little from region to region. Between 22% and 38% of renters in each region visit their units about once per month, although those numbers are down by about six points since 2007. Northeast renters visit their units more frequently, which may be due to living in smaller homes than any other region and having smaller, interior-accessed units. There has been a shift since 2007 to visit units less frequently in general (6 times a year or less).

Figure 5-14: Visits to Unit by Region



Self Storage Typically Means Minimal Vehicle Traffic

Debunking the myth that self storage is a high trip generator

By Mark Wright

Self storage generates far fewer vehicle trips than many other land uses. Data published by the Institute of Transportation Engineers (ITE) in its three-volume informational report, *Trip Generation*, shows that the traffic impact of self storage facilities (termed “mini-warehouses” in ITE’s report) varies depending on the day and time period studied, but is consistently lighter than a number of other common development types.

“Lots of SSA members have voiced their concern over the years that local officials automatically assume a self storage facility in their community creates traffic problems,” says former SSA board chairman John Gilliland, president of York, Pennsylvania-based Investment Real Estate, LLC. “Owners and operators knew that just was not true, but they needed the Association to come up with the data that would help them explain this reality to local decision makers.”

ITE’s *Trip Generation* report is considered *the* source of credible traffic data in North America. While it does not purport to serve as a standard or as recommended prac-

tice, cautions Lisa Fontana Tierney, ITE’s senior director of traffic engineering, the *Trip Generation* report is “a compilation of data collected by volunteers in the U.S. and Canada.”

The report is “still ‘state of the practice,’ and for many serves as the primary authority for trip generation information,” observes Dan Hardy, transportation planning chief in the Montgomery County, Maryland Planning Department, and chair of ITE’s Transportation Planning Council. “In special uses, either the jurisdiction or the applicant might decide (a project) doesn’t fit in the ITE box and propose going to collect more data, but it still often gets compared against ITE as a benchmark.”

First, a Few Technical Details

As the report itself notes, “*Trip Generation* is an educational tool for planners, transportation professionals, zoning boards and others who are interested in estimating the number of vehicle trips generated by a proposed devel-

See Traffic, page 20

| TRIP GENERATION AVERAGE RATES | | | | |
|--|-----------------|------------------------------|-------------------------|----------|
| (Sorted by Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.) | | | | |
| Land Use | Measure GFA* | Average Trip Generation Rate | | |
| | | Weekday Pk Hr 7–9 AM | Weekday Pk Hr 4–6 PM | Saturday |
| Mini-Warehouse (Self Storage) | 1000 sq ft GFA | 0.15 | 0.26 | 2.33 |
| Furniture Store | 1000 sq ft GFA | 0.17 | 0.46 | 4.94 |
| Warehousing | 1000 sq ft GFA | 0.45 | 0.47 | 1.22 |
| Church | 1000 sq ft GFA | 0.72 | 0.66 | 10.37 |
| Industrial Park | 1000 sq ft GFA | 0.84 | 0.86 | 2.49 |
| Business Park | 1000 sq ft GFA | 1.43 | 1.29 | 2.56 |
| Hardware/Paint Store | 1000 sq ft GFA | 1.08 | 4.84 | 82.52 |
| Library | 1000 sq ft GFA | 1.06 | 7.09 | 46.55 |
| Quality Restaurant | 1000 sq ft GFA | 0.81 | 7.49 | 94.36 |
| Day Care Center | 1000 sq ft GFA | 12.79 | 13.18 | 6.21 |
| Fast-Food w/Drive-Thru | 1000 sq ft GFA | 53.11 | 34.64 | 722.03 |
| Drive-in Bank | 1000 sq ft GFA | 12.34 | 45.74 | 71.21 |

* Gross Floor Area

Source: Institute of Transportation Engineers, *Trip Generation* - 7th Edition

opment. This document is based on more than 4,250 trip generation studies submitted to ITE by public agencies, developers, consulting firms and associations.”

ITE typically publishes a new edition every five years or so, although not on a formal schedule. “As new data becomes available, ITE updates the report,” Fontana Tierney explains. Data for this article is from the 7th Edition.

A variety of measures and timeframes are used for each land use in the report. The primary comparative measure is “1,000 square feet gross floor area,” since it was applied in each of the land use examples selected for this article. “Net rentable area,” however, would be a fairer and more relevant measure for self storage—an important point for anyone citing ITE data for their own storage project. In addition, this article uses three specific timeframes from the report: weekday peak hour of adjacent street traffic, one hour between 7 and 9 A.M.; weekday peak hour of adjacent street traffic, one hour between 4 and 6 P.M.; and Saturday.

Data in the report were primarily collected at suburban locations—a minor detail, but worth mentioning. More importantly, trip data for some of the many land uses profiled in the report came from a small number of study sources. Storage professionals should consult with traffic engineers and related practitioners to better understand the variables and nuances involved in drawing specific conclusions from trip generation data.

Traffic Concerns Understandable

For local officials, not to mention neighborhood groups, that are unfamiliar with self storage and unacquainted with the ITE trip data for mini-warehouses, a negative initial reaction to a proposed project based on traffic worries should come as no surprise. Traffic is a major concern—sometimes *the* major concern—for proposed development of almost any type in most urban or suburban jurisdictions, because it affects quality of life, public infrastructure investment, economic development and environmental issues.

“Most jurisdictions look at the peak (traffic) period,” explains Hardy. The key question local officials have for any type of proposed development, he says: “What is the transportation system impact, and what mitigation is needed?”

Impact fees might also affect local officials’ perspective in some jurisdictions. “Many of my clients have to go out and get additional traffic studies, because the size of the project

and trips generated is what they charge fees on” to help pay for the impact on roads, says JoBeth White, president of San Clemente, California-based Development Services Inc.

More Education Needed

A community’s general plan defines levels of acceptable (or at least anticipated) traffic for specific areas and corridors. Depending on the site chosen for a proposed project, extra effort to educate stakeholders about the low trip generation rate of self storage might be required.

Uninformed attitudes about the traffic impact of self storage have presented challenges “for many years,” observes Stephen Bourne, principal of Site+Plan+Mix LLC in Seattle, Washington. “It’s taken a long time to re-educate people. Some people dig their heels in. I’ve seen local jurisdictions use (traffic) to oppose a self storage project by arbitrarily requiring extra parking” or other features.

Bourne, with co-author Roger S. Waldon, addressed the traffic issue in the 2007 SSA publication, *Zig Zagging Through Zoning*: “This is a myth that has been perpetrated about self storage for decades.

It probably comes from a false one-to-one association between the garage roll-up door and a car. However, a number of studies have shown that self storage as specific use generates less traffic than almost all other uses.”

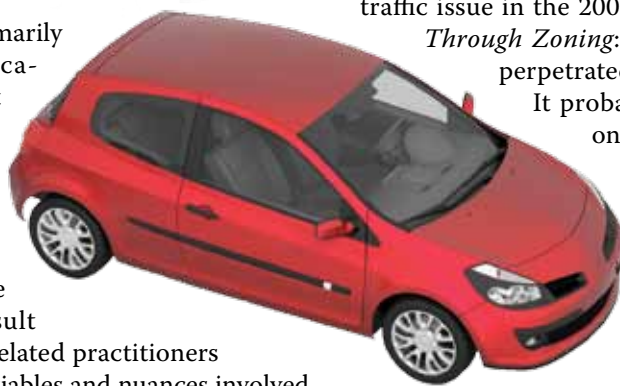
“According to several national surveys conducted in the last few years,” they wrote, “a self storage facility on average generates less than seven car trips per day per 100 units. Therefore, if your facility is going to have 450 units, it would generate approximately 30 car trips per day; broken down into trips per hour based on a 12-hour day, that same facility would generate less than three cars per hour—hardly a high-traffic generator.”

Traffic Not Always the Real Issue

The more common source of concern isn’t traffic volume, says John Schick, senior project engineer at Lancaster, Pennsylvania-based Retew Associates Inc., but rather operational issues. “Trip generation for self storage is much lower than other types of land uses that could occupy that land. (Objections) are not necessarily based on the volume of cars coming in and out. People will use traffic as one way to fight something.”

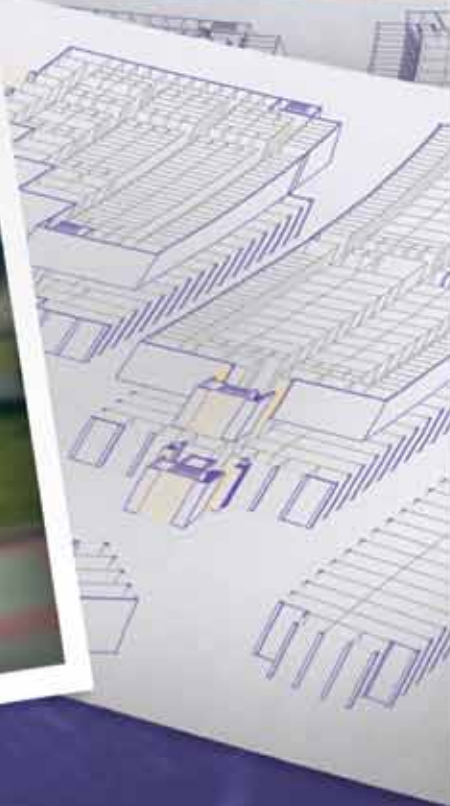
For example, if a facility’s gate sits too close to a road, causing vehicles to park out in the street and create congestion while others are trying to enter or exit, that’s a problem. “A lot has to do with site layout,” notes Schick.

See Traffic, page 22



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"If a moving truck has to wait in the street to get in, the driveway may be too narrow."

Similarly, if during the review process officials see other activities occurring on the property—people are working on cars, or stuff is illegally dumped—officials question those things, and might mistakenly generalize that a facility has "traffic" problems. Especially when a project is situated near a residentially-zoned neighborhood, versus an industrial area, communities want storage facilities to aesthetically blend in, says Schick. "It becomes a matter of trying to educate local officials and citizens."

A word of caution: Facilities offering a mix of services beyond simply storage might indeed generate more trips than a typical mini-warehouse. If, say, truck rental or mail boxes or shipping supplies constitute a big part of the business, thus drawing more customers to the site more frequently than the storage element would, then the traffic profile for the site will differ significantly from the stats in the ITE report.

Some Jurisdictions Do Understand

Fortunately, not all communities are burdened with incorrect or preconceived notions. "Self storage is such a low generator compared to other types of uses," Dave Smith, project engineer for the City of Olympia, Washington, readily acknowledges. Smith said his city typically uses the rates in ITE's report, focusing on the evening peak hour. "Self storage is usually more frequented on the weekends," he notes.

"Around our region, most of the agencies would pretty much default to the ITE (trip rate)," observes John Rowland, PE, a traffic engineer with Peters Engineering Group in Clovis, California. "It's uncommon to do a local study."

Rowland notes that when a local study is pursued, either at the behest of an agency or because a project developer believes the data is necessary, it's important to understand a traffic engineer's role—although he says he doesn't speak for all engineers on this point. "We stick to being an analysis team, not an advocacy outfit. We have to be an objective third party."

Bottom Line

With patience and a willingness to educate officials who might be unfamiliar with the "mini-warehouse" section of ITE's *Trip Generation* volumes, storage pros can chip away at the myth that their business generates a lot of traffic. At the same time, however, they should be sensitive to issues that perpetuate that myth, taking care to recognize that site design, operations and non-storage business activities at a facility legitimately affect community perceptions as well as the actual number of trips generated. ♦

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