Developing Street Standards That Allow Flexibility

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ABSTRACT

The City of Sacramento, California, recently updated its street design standards. This update was in response to a consistent message from residents that the previous standards did not result in livable neighborhoods, to protests from the development community that the previous standards were too rigid, and to city staff’s desire to improve the clarity of the design standards to minimize their difficulties in administering the standards.

The city’s approach to the update process was unique in several aspects:

- It engaged a broad cross-section of stakeholders (residents, developers, emergency service providers, planners, etc.) to develop the concepts,
- It administered a survey of comparable jurisdictions to determine the range of standards, and
- It conducted field tests of emergency service responses on various street types.

This community-based approach resulted in new standards that blended the community’s desire for narrower residential streets with the needs/desires of the emergency response providers, the bicycling community, and urban planners. The city staff helped the participating stakeholders achieve this balanced outcome by: 1) educating the stakeholders on the relevant standards and practices (Uniform Fire Code, Americans with Disabilities Act (ADA) requirements, etc.), and 2) allowing the stakeholders to discuss/debate among themselves so they could better appreciate the difficulties in balancing conflicting interests.

The new standards have the following characteristics:

- More flexibility through choices
- Minimum street widths needed for function and safety
- Cost trade-offs (e.g., rolled curbs with planter strips)
- Greater definition of how the standards should be applied
- Parking and bike lanes on arterials only where needed

DESIRE FOR CHANGE

Many neighborhood groups in Sacramento, California, have complained that residential traffic volumes and speeds have contributed to a decline in quality of life. In response, the Public Works Department has initiated an aggressive program of traffic calming.
However, this program requires substantial resources and can only fine-tune the basic street system. City staff believes that the neighborhood traffic problems could be avoided by improving the design of the street at the outset.

Urban planners, residents, and business owners in many areas of the city believe that their community lacks a “sense of place” and that an unattractive and dysfunctional streetscape is a major contributor to this problem. Many of the “best” neighborhoods include elements (detached sidewalks, landscaped medians, modest setbacks, etc.) that were no longer allowed in the standards.

Public Works staff and developers have struggled with the “one size fits all” nature of the existing standards. For example, the existing standards require space for parking on all 4-lane roadways. However, many land uses do not necessitate on-street parking, and in many cases the developer would rather increase the landscape buffer.

**PROCESS TO DEVELOP NEW STANDARDS**

**The Stakeholders**

To best meet the needs of the roadway users, city staff developed an advisory team of stakeholders. This team consisted of a broad cross-section of people, including developers, residents, bicycle advocates, transportation and urban planners, the regional transit agency, landscape architects, policemen, and firemen. Since the team consisted of individuals with a varying range of knowledge about street design, city staff developed materials to educate the participants. The educational material was basic information about street sections and was used as a building block for the development of the street standards.

**Education**

The educational part of the workshops focused on four topics:

1. The city’s current street standards,
2. Constraints,
3. Practices in other regions, and
4. Unique examples in the Sacramento region.

Reviewing the city’s current street standards entailed defining arterial, collector and local streets, giving examples of types of land use served by each street, giving approximate volumes and speeds, and giving examples of each of those street types.

The constraints section dealt with the limitations that staff must deal with when developing new street sections. The constraints explained at the workshop were:

- A 40-foot right-of-way is required to qualify for federal funding of street maintenance through gas tax.
- Parking requires 7 to 8 feet of space.
- Sidewalks must meet ADA criteria.
- The city’s tree service’s policy requires 6-ft planter strip widths for any tree planted within the right-of-way.

City staff surveyed other jurisdictions and presented the comparisons to the stakeholders. Of the jurisdictions that were surveyed, staff found that for a local residential street, when parking was allowed on both sides, the city had one of the narrowest street widths of the jurisdictions surveyed, but when parking was prohibited on one or both sides of the street, the city had one of the widest street widths. This indicated that the City of Sacramento tended to have a one-size-fits-all for local residential streets (Figure 1). Additionally, the existing street standards were rigid and allowed little variation without approval. The survey also indicated that other jurisdictions allowed more flexibility in street standards.

Last, the stakeholders were presented with unique examples of streets in the Sacramento region. These examples were provided to help the stakeholders think outside the box (Figure 2a and 2b).

**Working Groups**

Once the educational element was complete, city staff divided the participants into working groups. The groups consisted of balanced representation of each of the special interest groups. For instance, the resident participants were distributed among the groups instead of lumping them together. Each working group was tasked with developing new street standards for local and collector streets. Each group was given cardboard cutouts of each component of the street section—travel lanes, parking lanes, bike lanes, sidewalks, landscaping strips, rolled curbs and vertical curbs. Next, staff briefly explained brainstorming rules and let each group design their own local and collector streets.

Each individual represented some special interest group that sought certain features that sometimes conflicted with the needs of other groups. For instance residents and developers wanted narrower streets while the fire department staff wanted wider ones. Residents wanted vertical curbs in neighborhood, while developers wanted rolled curbs. The landscape architect wanted more and wider planter strips, but developers did not want to increase the right-of-way. The bicycle advocate wanted more bike lanes.

Even though individuals had different agendas, some groups worked well together and were able to negotiate and compromise, while other groups raised their voices and dug in their heels and refused to negotiate over certain issues. So the groups discussed, negotiated and even fought about what they wanted their street standards to be. Staff was on hand to answer questions, but did not take sides in disagreements.

In the end each group came up with at least a partial design for local and collector streets. Each working group then presented its ideas and standards to the whole team. After each informal presentation, the team discussed the presented material. Staff took the common themes and developed draft local and collector street standards. Additionally, staff extended these themes to develop draft arterial street standards. These standards were presented back to the team for their comments, and then they were circulated to other city staff for comments. Even though everyone’s specific interests weren’t totally satisfied, the designs were something everyone who participated could live with. Any major changes were recirculated back to the advisory team for comments.
FIGURE 1  Frequency distribution of local (minor) curb-to-curb street width practices in other jurisdictions.
When city staff was facilitating the development of the new street standards, several individuals expressed concern about the width of local residential streets. These individuals thought that the current street standards allowed too wide a street in residential areas and thus encouraged speeding on local residential streets. The city’s minimum street width for local residential streets was 30 ft from curb-to-curb.

The Fire Department’s position was that per the Federal Uniform Fire Code the Fire Department needed 20 ft of clear travel way, meaning that, with parking on both sides of the street, the street width would need to be 35 ft from curb-to-curb. The Fire Department felt that the city’s current local residential street width of 30 ft curb-to-curb was not adequate for the Fire Department to safely get to an emergency situation.

In order to resolve this dilemma, the Public Works and Fire Department agreed to test emergency operations in the field to identify an acceptable width (which may differ from the Uniform Fire Code).

**FIGURE 2** Unique examples in the Sacramento region: (a) T Street between 42nd Street and 43rd Street. (continued on next page)
Three residential streets were tested in the field:

- 29 ft curb-to-curb with rolled curb
- 31 ft curb-to-curb with rolled curb
- 33 ft curb-to-curb with vertical curb

The test consisted of typical maneuvers and operations of a pump truck and ladder truck. The test was also videotaped for presentation to the City Council. The test revealed:

- **29 ft street with rolled curb**—The ladder truck could not fully deploy its stabilizers, and the two trucks could not pass each other if vehicles were parked on both sides of the street.
- **31 ft street with rolled curb**—The ladder truck could fully deploy its stabilizers, and the two trucks could pass each other if the vehicles were parked reasonably close to the curb. Most parked vehicles actually encroached on the curb because of the rolled curb.
- **33 ft street with vertical curb**—The ladder truck could fully deploy its stabilizers, and the two trucks could pass each other. The effective width of the street was comparable to the 31 ft street with rolled curbs because parked vehicles were typically 6–12 in. from the curb.

FIGURE 2  *(continued)* Unique examples in the Sacramento region:
*(b)* 21st Street between C Street and D Street.
ELEMENTS OF THE NEW STANDARDS

The new street standards (Figure 3) allow flexibility by providing options. For example, sidewalk and planter widths are designated as minimums and can be increased at the request of the applicant. Minor deviations can be approved by the Public Works Department without City Council review. Other street flexibilities are illustrated below:

- Applicants can choose between attached sidewalks (Section A in Figure 3) or detached sidewalks (Section B in Figure 3) when designing a local residential street if the

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1. ADA requires a passing space at an interval not to exceed 200ft. If this requirement is not met, a minimum sidewalk width of 5’ is required.
2. Vertical curbs may be constructed in accordance to the vertical curb section of the additional notes. If vertical curbs are chosen, the F/C to F/C dimension must be increased to 32'. The sidewalk width may be decreased to 4'-4" from the requirements in Section A with vertical curbs.

MINOR DEVIATIONS FROM THE STANDARDS REQUIRE THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS OR THE DESIGNEE.

ALTERNATIVES ALLOWED IN THE P.U.D.

FIGURE 3  Cross sections: local residential streets. (continued on next page)
projected average daily traffic (ADT) is 2,000 vehicles/day or less. If the projected ADT is more than 2,000 vehicles/day, the applicant is required to construct detached sidewalks.

- Local residential sections are shown with rolled curbs. Applicants can choose to construct vertical curbs instead of rolled curbs. If vertical curbs are chosen the curb-to-curb dimension must be increased to 32 ft. The introduction of vertical curbs permits the sidewalk width to be reduced from 5 ft to 4 ft 4 in.

- The local nonresidential street section also gives applicant the choice between attached and detached sidewalks based upon ADT (Section C and D in Figure 3). If this

FIGURE 3 (continued) Cross sections: local nonresidential streets.
section is used in industrial areas parking can be increased to 10 ft to allow for wider vehicle widths of trucks. Furthermore if the ADT is less than 7,000 vehicles/day and the applicant is installing detached sidewalks the applicant can chose to install rolled curbs instead of vertical curbs.

- For collector streets (Section E and F in Figure 3) the projected ADT determines whether a turn lane/median is included. Projected volumes of more than 7,000 ADT require a turn lane/median. Parking and bike lanes are not mandatory on all collectors. Parking will be included based upon the adjacent land use and requires an additional 7 ft per direction. Bike lanes will be included per the Bikeway Master Plan or at the discretion of the Director of Public Works and will require an additional 5 ft per direction.

FIGURE 3 (continued) Cross sections: collector street system.
Bike lanes are required on all 4-lane divided arterials (Section G in Figure 3). If parking is necessitated by adjacent properties, an additional 7 ft per direction will be added. Bike lanes will be included on 6-lane divided arterials only if specified in the Bikeway Master Plan. Parking is prohibited on all new 6-lane arterials.

All of the street sections either encourage or require the use of planter strips. Planter strips and sidewalks are designated as minimum widths and can be increased without the approval of City Council. A tree list, which specifies the types of trees that can be planted for a given planter size, is attached to the standards.

Traffic calming devices such as bulb-outs or traffic circles are encouraged to enhance the pedestrian environment and can be considered for each new development on a case-by-case basis with the approval of the city's traffic engineer.

FIGURE 3 (continued) Cross sections: arterial streets system.
WHAT WAS GAINED WITH THE NEW STANDARDS?

Increased Flexibility

The new standards allow residential streets to be designed with or without a planting strip. Vertical curbs are also allowed on local residential streets with a slightly wider street section (32 ft versus 30 ft). Collector and arterial streets can be designed with or without parking, depending upon the adjacent land use. Bike lanes are optional on some street sections, and the application of bike lanes is dictated by the Bikeway Master Plan.

Balance of Livability and Function

The residential street widths represent a compromise of resident desires for the narrowest section possible and the minimum width necessary for adequate emergency service access. The provision for rolled curbs minimizes pavement width by increasing the effective width of the street (parked cars use a portion of the curb). To compensate for parked cars possibly encroaching on the sidewalk, the sidewalk widths were increased by 6” from the previous standards.

Cost-Sensitive

The option of a detached sidewalk with a planting strip for residential streets requires added right-of-way. To compensate for this additional cost to developers, the street section provides for a rolled curb. Rolled curbs are less expensive to construct and do not require developers to determine driveway locations in advance.

Additionally the setback requirement was changed to include the planter strip width as part of the required setback for residential homes that were facing the street. For example, the city has a setback requirement of 25 ft from the edge of right-of-way for residential houses. If a 6-ft planter strip was built in front of that house, even though the planter strip is within the right-of-way the required setback would only be 19 ft from the edge of the right-of-way.

The basic street sections for collectors and arterials do not include parking and bike lanes. These elements are added only when needed, reducing unnecessary construction expense and right-of-way.

Better Definition of Application

The new street standards include guidelines for their application (Table 1). These guidelines specify the appropriate street section based upon projected daily traffic levels, and they identify access limitations associated with each type of street.

Community Support and Understanding

The process of engaging the stakeholders (residents, developers, engineers, planners, etc.) produced several tangible benefits. Each of the participants had a better understanding of the competing interests that must be balanced, and they also had more “buy-in” to the outcome.
### TABLE 1  Street Application Guidelines: City of Sacramento

<table>
<thead>
<tr>
<th>Drawing Letter</th>
<th>Description</th>
<th>Application (Daily Traffic Volumes)</th>
<th>Access Requirements/Restrictions¹</th>
<th>Design Features</th>
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<td></td>
<td></td>
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</table>

¹ In all cases, access may be restricted at the discretion of the Department of Public Works.

² On streets with more than 4,000 ADT, access to individual single family homes can be approved at the discretion of the Director of Public Works or the designee. Alternate access designs, including alleys, shared access driveways and frontage access roads should be considered. For non-residential driveways, see City Code.

³ Allowed with protected pocket or two-way turn lane.

⁴ Allowed at signalized intersections.

⁵ Driveway should be 150' from intersections for non residential and multi-family developments.

⁶ Located where allowed by City Code.

⁷ May be reduced at the discretion of the Director of Public Works or the designee.

⁸ Reviewed by Public Works Department on a case-by-case basis.

⁹ No superelevation is provided for curves.