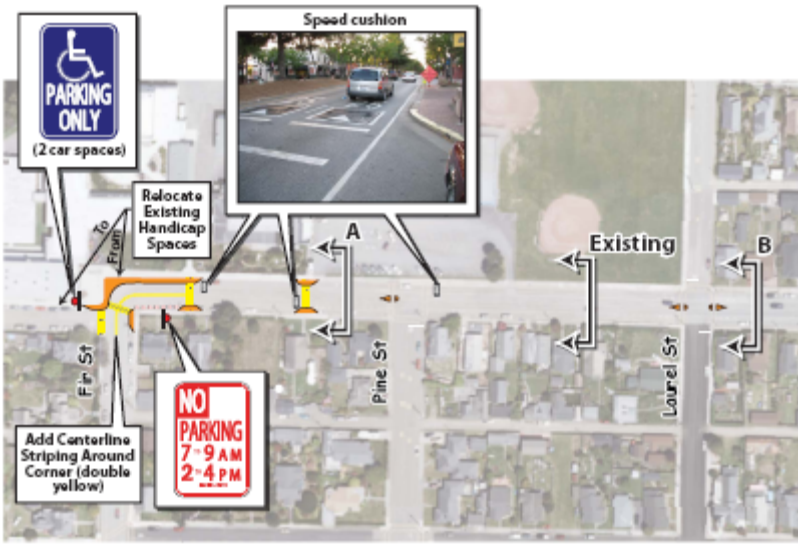

City of Fort Bragg

2011 RESIDENTIAL STREETS SAFETY PLAN

Prepared by:

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With funding from:

Mendocino Council of Governments

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2011 Residential Streets Safety Plan

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1 Executive Summary

The 2011 Residential Streets Safety Plan ("2011 RSSP") updates the 2005 Residential Streets Safety Plan and recommends infrastructure improvements that will enhance the safety of pedestrians, bicyclists and motorists in the residential neighborhoods of Fort Bragg. The 2011 RSSP responds to safety concerns identified through public input and City Council direction, and it incorporates the recommendations of transportation consultants, Fehr & Peers. The 2011 RSSP also helps to implement key policies of the Fort Bragg General Plan and the 2009 Bicycle Master Plan. The 2011 RSSP focuses on the following residential streets:

- Fir Street (from Franklin Street to Harold Street)
- Cedar Street (from Harold Street to City Limits)
- Chestnut Street (from Franklin Street to Dana Street)
- Harold Street (from Fir Street to Maple Street)

The 2011 RSSP preparation process included:

1) Public open house and stakeholder meetings to receive community input;
2) Data collection of traffic and speed counts for streets with safety issues, and project area audits;
3) Analysis of traffic and speed data, field observations and street audits, and community, stakeholder and staff input;
4) Preparation of traffic calming plans for four streets and conceptual citywide traffic calming recommendations;
5) Preparation of a "crosswalk policy" to help guide implementation of crosswalks under varying conditions;
6) Identification of carry-over projects from the 2005 RSSP for inclusion in the 2011 RSSP;
7) Distribution of a Citizen Survey along the subject roadways and within a 300-foot radius to understand public sentiment, meeting with Fort Bragg Unified School District leadership and transportation officials; and
8) Compilation of the 2011 RSSP for Council review and acceptance.

The 2011 RSSP recommends general citywide safety improvement actions and provides a menu of specific traffic calming and infrastructure improvements to improve safety on four residential streets. Most of the recommended traffic and infrastructure improvements for the four streets of concern also can be applied to other streets in Fort Bragg. In addition to the general recommendations and the street-specific plans, funding options are identified.

1.1 Summary of Recommended Traffic Calming Measures and Costs[1]

The following is a summary of traffic calming recommendations with planning level cost estimates for the subject streets, as prepared by Fehr & Peers Transportation Consultants. *Appendices 7.1, 7.2 and 7.3* present a graphic depiction of each street's conceptual plan, a summary of citizen input with City staff recommendations, and a tabulation of the survey data.

- **Fir Street**

Install two small traffic circles, one set of speed cushions, and two high-visibility crosswalks. Reconfigure roadway striping to narrow traffic lanes and improve delineation of bike lanes.

Approximate cost: $49,000 Traffic Calming Measures

- **Cedar Street**

Construct missing segments of sidewalk/curb/gutter. Create shared travel lane or choker with curb extensions at Nancy Way; alternate parking from side to side to create a chicane effect. Construct curb extension and new crosswalk at Morrow Street; paint new crosswalk west of Nancy Way. Install inbound gateway signage at City Limit.

Approximate cost:	$33,000 Traffic Calming Measures
	$51,000 Sidewalks/Curb and Gutter Infill
	$84,000 Total

- **Chestnut Street**

Prohibit on-street parking from Franklin Street to Lincoln Street and reconfigure striping to provide 10-foot travel lanes and six-foot bike lanes. Construct new six-foot sidewalks on both sides of Chestnut Street. Shift on-street parking from south side to north side between Lincoln Street and Dana Street. Construct in-fill sidewalks as needed; construct curb extension and high-visibility crosswalk at Lincoln Street; construct curb extensions and high-visibility crosswalks at Sanderson Way; paint high visibility crosswalks at Minnesota Street and Woodland Drive; and construct a curb extension and high-visibility crosswalk at Dana Street. Construct mini-roundabout at Chestnut Street/Franklin Street intersection. This traffic flow enhancement measure would likely require right of way acquisition and reconfiguration of adjacent sidewalks and driveways which would add significantly to the base cost. Signalization is a preferred alternative enhancement at this intersection which would improve traffic flow without the need to acquire right of way.

[1] These planning level construction cost estimates should be refined by an engineer at the time that specific measures are chosen for implementation.

Approximate Cost:	$201,000 Replacement & Infill 6-foot Sidewalk[2]
	$ 65,000 Traffic Calming Measures
	$266,000 Sub-Total
	$ 50,000 Mini-Roundabout (base cost)
	$316,000

- **Harold Street**

Construct curb extensions at Fir Street; delineate centerline with double yellow striping around corner; install strategically located speed cushions at crosswalks adjacent to Middle School. Paint all crosswalks as high-visibility crosswalks (if not at four-way stop); construct splitter islands with "yield to pedestrians" signage at all intersections; construct curb extensions at Oak Street, Madrone Street and Maple Street. Install solar-powered, flashing stop signs at Oak Street with advance "stop ahead" signage; install overhead flashing red light above Oak intersection. Paint stop bars in roadway at all stop signs along corridor.

Approximate Cost: $143,000 Traffic Calming Measures

- **General Citywide Recommendations[3]**
  - ~ Continue to improve pedestrian and bicycle infrastructure through capital improvement projects
  - ~ Use high-visibility crosswalks except at four-way stop or controlled intersections
  - ~ Standardize the use of stop bars at intersections
  - ~ Remove impediments (vegetation, vehicles, garbage receptacles, etc.) to sidewalk use and maintain visibility at driveways and intersections
  - ~ Provide resources to Police Department to allow for increased enforcement of traffic laws, especially speeding, in residential neighborhoods – consider funding a designated "traffic unit[4]"

[2] Calculation includes cost of new curb and gutter some of which may be reused as existing.
[3] See Section 4.1 for a detailed table of consultant recommendations and Appendices 7.2 and 7.3 for details of citizen input and staff recommendations.
[4] Estimated cost for dedicated traffic officer including special training and equipment: $116,500/year (2010 estimate).

2 Introduction and Background

The 2011 RSSP identifies priority projects to improve safety for people, bicycles and motor vehicles in locations of safety concern (selected based on field observation and public and stakeholder feedback).

The 2011 RSSP has four main objectives:

- Identify outstanding projects to address the Top Five areas of concern from the 2005 RSSP.
- Determine if the remaining ten locations of concern from the 2005 RSSP are still valid.
- Identify new locations of concern and rank them by priority.
- Develop conceptual plans for cost-effective safety measures to address new locations/issues of concern.

2.1 Review of 2005 RSSP Implementation and Outstanding Projects

The 2005 RSSP identified a "Top Five" list of geographic areas of safety concern which are all in the vicinity of Fort Bragg's seven public schools:

~ Fort Bragg High School and Dana Gray Elementary School
~ Fort Bragg Middle School
~ Intersection of Chestnut Street and Sanderson Way
~ Redwood Elementary School
~ Intersection of Oak Street and Dana Street

Over the past five years, several capital projects have been implemented in these locations to address safety concerns. Safety concerns were addressed through a menu of recommended mitigation actions, the majority of which have been implemented with design and construction funding from State and federal Safe Routes to School (SRTS) grants and American Reinvestment and Recovery Act (ARRA) grants. The improvements include:

a. Speed Table/Crosswalk combos
b. Radar Speed Indicators with High Visibility 15 MPH Speed Limit signs
c. Textured Paving
d. Enhanced Roadway Markings
e. New Sidewalks; Widened Sidewalks and Corner Ramps
f. Reconfigured Driveway Schemes
g. Bulb-Outs at Corners and Mid-Block Locations
h. Removal of Pedestrian Impediments
i. Increased Police Patrol and Enforcement
j. Public Outreach and Education

The work to date has been reviewed and a list of remaining recommended strategies from the 2005 RSSP has been compiled. The items have been

reprioritized and the remaining 15 prioritized locations (see Table 1) from the 2005 RSSP were analyzed. Members of the public and stakeholders were asked to provide feedback in open house forums and to help prioritize additional locations of concern. Table 1 from the 2005 RSSP shows the top 20 locations of safety concern. Table 2 gives the status of the recommended mitigation measures for the Top Five locations, most of which have been (or will be) addressed through State and federal Safe Routes to Schools projects, American Recovery and Reinvestment Act funded projects and with other transportation funds.

Table 1
Prioritized Locations of Safety Concern (2005 RSSP)

Rank	Location of Concern	Rank	Location of Concern
1	Fort Bragg High School / Dana Gray Elementary School	**11**	Chestnut Street / Wall Street
2	Fort Bragg Middle School	**12**	Lincoln Street / Willow Street
3	Chestnut Street / Sanderson Street	**13**	Oak Street / Harold Street
4	Redwood Elementary School	**14**	Pine Street / Corry Street
5	Oak Street / Dana Street	**15**	Cedar Street / Nurnberger Lane (not in City)[5]
6	Oak Street / Sanderson Way	**16**	Cedar Street / Nancy Way
7	Cedar Street / Sanderson Way	**17**	Oak Street / Harrison Street
8	Cedar Street at Otis Johnson Park	**18**	Chestnut Street between Lincoln Street and Minnesota Avenue
9	Chestnut Street / Grove Street	**19**	Maple Street / Harold Street
10	Noyo High School	**20**	Redwood Avenue / Whipple Street

Source: Wilbur Smith Associates, April 2005.

Projects from the 2005 RSSP that have not been implemented and were reevaluated in the 2011 RSSP are bolded in Table 2:

Table 2
Status of Recommended Mitigation Improvements (2005 RSSP)[6]

Priority Location & Safety Concern	Recommended Mitigation Improvement(s)	Status of Improvement(s)
1.0 Fort Bragg High School / Dana Gray Elementary School		
1.1 Parallel Driveways on north side of school.	1. Close southernmost parallel driveway; faculty lot will be accessed by central ingress/egress.	1. Completed

[5] During update process it was noted that the Cedar Street/Nurnberger Lane intersection is not in City jurisdiction.
[6] Source: Wilbur Smith Associates, May 2005 (with 3rd column status annotations by City).

Table 2
Status of Recommended Mitigation Improvements (2005 RSSP)[6]

Priority Location & Safety Concern	Recommended Mitigation Improvement(s)	Status of Improvement(s)
1.2 Students crossing outside of marked crosswalks.	1. Education / Outreach Program. 2. Enforcement. 3. Install barriers / fencing. 4. Striping improvements.	1. Ongoing 2. Ongoing 3. Pending SRTS 4. Completed
1.3 Speeding	1. Education / Outreach Program. 2. Enforcement. 3. Speed Trailers / Real-Time Speed Monitoring	1. Ongoing 2. Ongoing 3. Ongoing
1.4 Vehicles Loading/Unloading in bus area, red zones, and in crosswalks	1. Enforcement. 2. Education / Outreach Program. 3. Improved striping and signage. 4. Construction of new parking lots and/or loading/unloading areas.	1. Ongoing 2. Ongoing 3. Completed 4. Completed
1.5 Congestion entering / exiting driveways	1. Install channelizing devices (e.g. traffic cones or raised medians). 2. Remove parking to enhance vehicle flows through parking lot.	1. HS Pending 2. HS Pending
1.6 Pedestrian / vehicle / bicycle conflict locations in parking lot and on the street	1. Volunteer patrolling. 2. Education / Outreach Program. 3. Improved Striping.	1. Ongoing 2. Ongoing 3. Completed
1.7 Narrow roadway width on Chestnut Street	1. Roadway widening. 2. Improved signage. 3. Modify speed limit.	1. Not completed 2. Ongoing 3. Completed (15 MPH)
1.8 Inconsistent traffic control at intersection of Chestnut Street / Dana Street causes driver confusion	1. Improved striping. 2. Reconfiguration of driveways to separate access points from adjacent intersection. 3. Improved signage.	1. Completed 2. Completed 3. Completed
1.9 Vehicles utilize Dana Gray parking lot to bypass Chestnut Street / Dana Street intersection	1. Enforcement. 2. Install temporary physical barriers during non-peak hours. 3. Volunteer patrolling.	1. Ongoing 2. Ongoing 3. Ongoing
1.10 Congestion before school, during lunch and after school.	1. Improved signage. 2. Improved striping. 3. Prohibit students to leave school campus during lunch / break hours.	1. Completed 2. Completed 3. Not implemented

Table 2
Status of Recommended Mitigation Improvements (2005 RSSP)[6]

Priority Location & Safety Concern	Recommended Mitigation Improvement(s)	Status of Improvement(s)
2.0 Fort Bragg Middle School		
2.1 Vehicles loading / unloading in bus area, Senior Center parking lot, red zones, bike lanes and in crosswalks	1. Enforcement. 2. Education / Outreach Program. 3. Improved striping and signage. 4. Construction of new parking lots and/or loading/unloading areas.	1. Ongoing 2. Ongoing 3. Continuous 4. Under consideration
2.2 Students crossing outside of marked crosswalks	1. Education / Outreach Program 2. Strict enforcement around schools. 3. Install barriers / fencing. 4. Improve striping.	1. Ongoing 2. Ongoing 3. Pending (SRTS) 4. Completed
2.3 Reduced visibility at intersections and driveways	1. Reconfiguring and reconstruction of driveways. 2. Improved signage and striping.	1. Not implemented 2. Not implemented
2.4 Pedestrian / vehicle / bicycle conflict locations in parking lot and on the street	1. Volunteer patrolling. 2. Education / Outreach Program. 3. Improved striping.	1. Ongoing 2. Ongoing 3. Implemented and continuous improvement
3.0 Chestnut Street / Sanderson Street		
3.1 Reduced visibility at intersection	1. Remove obstructions caused by plants, shrubs trees, and structures. 2. Improved signage and striping.	1. Completed 2. Pending
3.2 Congestion and delays at intersection before and after school	**1. Improved signage.** **2. Improved striping.**	1. Addressed by update 2. Addressed by update
3.3 Narrow roadway width	**1. Roadway widening.** **2. Improved signage.** 3. Modify speed simit.	1. Addressed by update 2. Addressed by update 3. Completed (15 MPH)
3.4 High pedestrian volumes before and after school	1. Improved signage. 2. Implement a carpooling program.	1. Completed 2. Legal issues
3.5 Limited sidewalk width	**1. Widen sidewalks.** 2. Identify and designate Primary School Access Routes.	1. Addressed by update 2. Ongoing (FBUSD)
4.0 Redwood Elementary School		
4.1 Congestion entering / exiting driveways.	1. Install channelizing devices (e.g. traffic cones or raised medians). 2. Remove parking to enhance vehicle flows through parking lot.	1. Implemented 2. FBUSD to consider

Table 2
Status of Recommended Mitigation Improvements (2005 RSSP)[6]

Priority Location & Safety Concern	Recommended Mitigation Improvement(s)	Status of Improvement(s)
4.2 Congestion before school, during lunch and after school.	1. Improved signage. 2. Improved striping.	1. Pending SRTS 2. Pending SRTS
4.3 Discontinuous sidewalks.	1. Construct additional sidewalks. 2. Identify and designate Primary School Access Routes.	1. Pending SRTS 2. Ongoing (FBUSD)
4.4 Vehicles Loading/Unloading in bus area, red zones, and in crosswalks	1. Enforcement. 2. Education / Outreach Program. 3. Improved striping and signage. 4. Construction of new parking lots and/or loading/unloading areas.	1. Ongoing 2. Ongoing 3. Pending SRTS 4. Under consideration
4.5 Reduced visibility at intersections and driveways.	1. Remove obstructions caused by plants, shrubs trees, and structures. 2. Reconfiguring and reconstruction of driveways. 3. Improved signage and striping.	1. Visibility good 2. Under consideration 3. Pending SRTS
4.6 Pedestrian / vehicle / bicycle conflict locations in parking lot and on the street.	1. Volunteer patrolling. 2. Education / Outreach Program. 3. Improved striping.	1. Ongoing 2. Ongoing 3. Pending SRTS
5.0 Oak Street / Dana Street		
5.1 Discontinuous sidewalks.	1. Construct additional sidewalks. 2. Identify and designate Primary School Access Routes.	1. Completed (SR2S) & Ongoing 2. Ongoing (FBUSD)
5.2 Pedestrian / vehicle / bicycle conflict locations in parking lot and on the street.	1. Volunteer patrolling. 2. Education / Outreach Program. 3. Improved striping.	1. Not feasible this location 2. Ongoing 3. Under consideration
5.3 Congestion before school, during lunch and after school.	1. Improved signage. 2. Improved striping. 3. Prohibit students to leave school campus during lunch / break hours.	1. Completed (SR2S) 2. Under consideration 3. Not implemented
5.4 Reduced visibility at intersection	1. Remove obstructions caused by plants, shrubs trees, and structures. 2. Improved signage and striping.	1. Completed (SR2S) 2. Under consideration

2.2 2005 RSSP Safety Concerns

The safety concerns identified in the 2005 RSSP are general on-going concerns which remain valid:

- Speeding
- Visibility at driveways and intersections

- Sight distance limitations on changing grades, such as Maple Street;
- Pavement conditions
- Crosswalks and sidewalks (continuity and condition)
- Narrow streets with on-street parking
- Obstruction of traffic control devices by trees and buildings.
- *Walkability* and *bikeability*

Community participants in the 2011 RSSP planning process felt that, in general, pedestrian and bike facility improvements should be prioritized over vehicular operations in order to achieve public safety, promote public health and encourage transportation alternatives. However, motor vehicle needs should also be addressed where they do not create or increase jeopardy for pedestrians and bicycles. In addition, while commuting creates significant traffic, the schools (with twice-daily student pick-up and drop-off operations) continue to be the greatest generators of traffic and associated residential street safety issues, especially for pedestrians and bicyclists. This situation is addressed, in the 2011 RSSP, through the inclusion of Chestnut and Harold Streets as focal corridors.

2.3 Relationship to Other Plans

The 2011 RSSP augments and implements the goals, policies and programs of the Fort Bragg General Plan, Bike Master Plan and South Main Street Corridor Beautification and Access Plan. It is consistent with the General Plan, and compatible and complementary with the other plans as it focuses on residential streets.

Certain key policies of the General Plan are implemented through the 2011 RSSP, especially those relating to retaining neighborhood character by discouraging or even restricting through-traffic on local roads and continuing the City's efforts to enhance infrastructure, especially in the realm of roadway quality and new and improved facilities for pedestrians and bicyclists.

Notable policies and programs that emanate from the other plans are listed below. All of the 2011 RSSP recommendations are supported by these policies and programs.

Fort Bragg General Plan:

a. ***Policy C-2.4 Roadway Standards: Continue to provide consistent standards for the City's street system.***
    i. ***Program C-2.4.1:*** *Establish standards for public streets, which allow for the following:*
    a) traffic "calming" measures;
    b) sidewalks with curbs, gutters, and a planting strip between the sidewalk and the roadway;
    c) rounded street corners with "bulb-outs" at key intersections;
    d) continuation of the grid street system; and
    e) standards for radius returns for local, collector, and arterial streets.
b. ***Policy C-3.1 Reduce Through-Traffic on Local Streets:*** *Reduce through-traffic on local streets to preserve the peace and quiet of residential areas.*

i. ***Program C-3.1.1:*** *Develop measures to limit through-traffic on residential streets when traffic studies indicate that traffic volumes on such streets exceed the adopted Levels of Service and/or safety concerns warrant such measures.*

ii. ***Program C-3.1.2:*** *Consider the following measures, as appropriate, to reduce through traffic from using local streets in residential areas:*
a) narrow and landscape the street entrances to residential areas that experience heavy traffic;
b) restrict turning movements into residential areas; and
c) use traffic calming measures such as permitting wider sidewalks, additional on-street parking, and landscape strips between the sidewalk and the road.

c. ***Policy C-9.1:*** *Provide Continuous Sidewalks: Provide a continuous system of sidewalks throughout the City.*

d. ***Policy C-9.2:*** *Require Sidewalks. Require a sidewalk on both sides of all collector and arterial streets and on at least one side of local streets as a condition of approval for new development.*

e. ***Policy C-9.3:*** *Where feasible, incorporate pedestrian facilities into the design and construction of all road improvements.*

f. ***Policy C-9.4:*** *Sidewalk Maintenance: Ensure that property owners maintain sidewalks in a safe manner.*

g. ***Policy C-9.7:*** *Improve Pedestrian Safety.*
   i. ***Program C-9.7.1:*** *Continue to provide traffic controls and well-lit intersections in areas with a high volume of pedestrian movement.*
   ii. ***Program C-9.7.2:*** *Consider expanded use of illuminated crosswalks.*

h. ***Policy C-9.7:*** *Improve Pedestrian Safety.*
   i. ***Program C-9.7.1:*** *Continue to provide traffic controls and well-lit intersections in areas with a high volume of pedestrian movement.*
   ii. ***Program C-9.7.2:*** *Consider expanded use of illuminated crosswalks.*

i. ***Policy C-11.2:*** *Handicapped Access. In conformance with State and Federal regulations, continue to review all projects for handicapped access and require the installation of curb cuts, ramps, and other improvements facilitating handicapped access.*

2009 Bike Master Plan:

j. ***Policy 1.1*** *- Improve and expand bicycle facilities and infrastructure according to Regional Bike Plan, General Plan, and Residential Streets Safety Plan recommendations.*

k. ***Policy 1.2*** *- Integrate and coordinate bicycle facility development through interagency cooperation.*

l. ***Policy 1.3*** *- Detect and eliminate/mitigate infrastructural issues creating safety hazards for cyclists.*

m. ***Policy 1.4*** *- Increase signage alerting motorists to be aware of the need to coexist with cyclists.*

n. ***Policy 2.2*** *- Promote bicycle safety and education for riders and drivers.*

o. ***Policy 3.1*** *– Require new development, redevelopment and significant renovation projects to provide superior bicycle/bicyclist support infrastructure.*

3 2011 Residential Streets Safety Plan Approach

3.1 2011 RSSP Project Area

All residential neighborhoods in Fort Bragg were considered for inclusion in the 2011 RSSP, except for neighborhoods north of Pudding Creek and South of the Noyo River.[7] Based on citizen input at Public Safety Committee meetings, known areas of concern from traffic accident incidents, and other information, the 2011 RSSP focused on four key areas of concern: Fir, Cedar, Harold and Chestnut Streets.

Fir Street – study area consists of the section of Fir Street from Main Street to its eastern terminus at the intersection with Harold Street (adjacent to the Fort Bragg Middle School).

Harold Street – study area consists of the section of Harold Street from its intersection with Fir Street to Maple Street.

Cedar Street – study area consists of the section of Cedar Street from Harold Street, eastward to City Limits just beyond its intersection with Rasmussen Lane and the Dana Street bicycle and pedestrian path.

Chestnut Street – study area extends from Franklin Street to Dana Street.

[7] No traditional residential neighborhood exists in the city limits north of Pudding Creek - only three or four residences and a self-contained mobile home park. Similarly, south of the Noyo River, two isolated mobile home parks and two or three homes comprise that area's residential uses.

Map of focused study areas – Fir Street, Cedar Street, Chestnut Street and Harold Street.

3.2 Community Involvement Process

The community involvement process consisted of two open house workshops, stakeholder meetings, a stakeholder walking audit of the project areas, and a City Council workshop.

On April 29, 2010, the Community Development Department and the Police Department hosted afternoon and evening open houses at the C.V. Starr Community Center to solicit input regarding neighborhood street safety. Residents voiced consistent concerns about speeding and visibility issues. The attendees were receptive to presentation of traffic calming methods including, but not limited to, splitter islands, traffic circles and chicanes. The general consensus of the attendees was that traffic enforcement alone cannot effectively eliminate safety issues associated with speeding vehicles and therefore traffic calming devices are welcomed to enhance safety.

On June 7, 2010, stakeholders gathered for an all-day meeting consisting of fieldwork, discussion, and map exercises. A Mendocino Transit Authority bus picked the group up for a tour of the project areas that commenced with observing the morning school drop-off environments at Fort Bragg's four main public schools – all within the project areas and all significant generators of traffic and associated safety issues. Stakeholders included: Councilmembers, Fire Chief, Fort Bragg Unified School District (FBUSD) Superintendent, FBUSD Director of Transportation and Facilities, Public Works Director, Senior Planner, and Police Captain.

After preparation of the Draft Plan, the City Council reviewed and discussed the document on November 8, 2010. Based on input received from Council, in Spring 2011 a citizen survey was circulated to residents along the four streets and within a 300-foot radius. The results of the survey guided staff's recommendations to Council for implementation of traffic calming measures. The input is summarized in Appendix 7.2 along with staff recommendations based on that input. The raw results from the citizen survey can be found in Appendix 7.3.

Fort Bragg Unified School District leadership and transportation officials were consulted and indicated that they were amenable to traffic calming measures as long as care is taken not to exacerbate locations where school bus turning movements are already difficult or would become difficult. Software modeling and field simulation can be utilized in conjunction to ensure that maneuvering room is sufficient. The specific locations of concern are listed in Appendix 7.8.

3.3 Audit and Traffic Study Results

Traffic and vehicle speed data were collected on Tuesday, Wednesday and Thursday of the week of May 19, 2010 using tube-type counting mechanisms at two to three locations per street, to measure speed, vehicle type and frequency of vehicles. The weather was variable and included rain, which can skew speed data to be slower than what would be collected during dry weather. Key findings of the study include:

1. Volumes were highest on Chestnut Street and lowest on Cedar Street.

2. Peak hour directional flows were generally balanced (e.g., eastbound and westbound traffic was generally about the same).

3. 85th percentile speed on all of the segments was at or below 30 miles per hour, meaning that only about 15 percent of vehicles exceeded 30 miles per hour; speeds on residential streets are usually expected to be under 30 miles per hour.

4. Although the majority of speeds were below 30 miles per hour, which is typical of residential streets, the maximum observed speeds on the segments ranged between 30 miles per hour (on Harold Street) and 60 miles per hour (on Fir Street).

5. Speeds can vary depending on weather, traffic volume, and other factors, and speeds within five miles per hour of the posted speed limit would generally be considered reasonable for residential streets.

6. Most vehicles (over 75%) were two axle vehicles, such as cars and trucks, as expected on residential streets.

Table 3 (below) breaks out the data in typical traffic study format from the 10 count locations. The peak hour traffic volumes for Harold and Chestnut Streets, combined with their status as key routes to schools confirms the prioritization of these streets for safety enhancements. While the nature of the issues and conditions on Fir and Cedar Streets does not render them low-priority, they are less of a priority than Harold and Chestnut Streets.

Table 3
Summary of Traffic Data of Fir, Harold, Cedar and Chestnut Streets

Street Segment	Direction	Peak Hour Volume [AM(PM)]	Vehicle Speed (mph)[85th Speed(Max)]
1. Fir St. between Franklin St. and McPherson St.	Eastbound Westbound	81 (78) 75 (86)	28 (50) 27 (40)
2. Fir St. between Harrison St. and Whipple St.	Eastbound Westbound	90 (68) 85 (77)	29 (60) 29 (45)
3. Harold St. between Pine St. and Laurel St.	Northbound	176 (161)	29 (50)

Table 3 **Summary of Traffic Data of Fir, Harold, Cedar and Chestnut Streets**			
	Southbound	129 (142)	28 (45)
4. Harold St. between Redwood St. and Cedar St.	Northbound Southbound	192 (193) 192 (194)	29 (45) 28 (50)
5. Harold St. between Alder St. and Oak St.	Northbound Southbound	182 (201) 163 (181)	23 (30) 20 (35)
6. Cedar St. between Lincoln St. and Livingston St.	Eastbound Westbound	48 (51) 43 (45)	27 (45) 29 (40)
7. Cedar St., between Sanderson Way and Dana St.	Eastbound Westbound	28 (40) 45 (33)	30 (45) 29 (50)
8. Chestnut St. between Grove St. and Harold St.	Eastbound Westbound	284 (224) 317 (228)	28 (45) 28 (55)
9. Chestnut St. between Lincoln St. and Minnesota St.	Eastbound Westbound	190 (173) 318 (226)	24 (35) 23 (35)
10. Chestnut St. between Sanderson Way and Dana St.	Eastbound Westbound	238 (132) 275 (181)	23 (40) 22 (40)

Source: Fehr & Peers, 2010

4 Traffic Calming, Bicycle and Pedestrian Infrastructure Recommendations

The following section discusses the original traffic calming improvements and mitigation measures for the four streets that are the focus of this study as recommended by Fehr & Peers. In response to public input received during the Spring 2011 Citizen Survey process, these recommendations have been refined by staff and are shown in table format in **Appendix 7.2**. The proposed solutions can also be applied on other residential streets in Fort Bragg as additional safety concerns are identified and/or funding becomes available.

4.1 Citywide

Throughout the City numerous safety concerns were noted. Each is enumerated in the table below with potential solutions.

Safety Concern	Potential Solution
Inconsistent sidewalk widths	Continue practice of installing new and replacement sidewalks at a minimum of six feet in width whenever possible. Acquire additional right of way whenever possible to achieve this goal.
Inconsistent crosswalk treatments	Develop Crosswalk Policy[8] to make crosswalk installation/replacement consistent depending on location (uncontrolled, controlled and school crossings).
Generally stop bars are not painted at intersections with stop signs and crosswalks	Add stop bars at striped crosswalks at stop controlled and signalized intersections.
Not all pedestrian facilities meet ADA minimum requirements	Continue practice of analyzing infrastructure and upgrading facilities to meet or exceed minimum standards.
Signs, poles and other obstructing street elements narrow the effective width of sidewalks	Continue practice of relocating signs, poles and other obstructing street elements to be outside of pedestrian travel way.
Not all Class II Bicycle facilities are standard width and configuration	Review Class II facilities and where right of way permits, re-stripe at standard width/configuration or convert facility to Class III.
Poorly maintained vegetation obstructs the sidewalk in numerous locations	Continue to pursue code enforcement and require property owners to cut back overgrown vegetation.
Fence and vegetation at street, alley and driveway intersection safety-triangles exceeding 42-inch height limitation	Continue to pursue enforcement activities to require property owners to comply with safety-triangle requirements by altering fences as necessary and cutting back and maintaining vegetation.
Pedestrian infrastructure at risk due to cracking caused by unchecked weed growth	Continue to encourage private property owners to maintain frontages as required by law.

[8] See Appendix for Crosswalk Policy document

Safety Concern	Potential Solution
	Provide assistance through weed abatement.
Garbage cans obstruct sidewalks during trash collection cycles	Require compliance with FBMC 6.08.070 Precollection Practices – Points of Collection[9]
Oversized vehicles such as boats and RVs stored continuously on street interfering with visibility	Enforce 72-hour parking regulations to emsure such vehicles are stored in appropriate off-street locations such as boat and RV storage facilities.
Storm water drop-inlet grates pose a hazard to cyclists	Continue practice of ensuring that bicycle-safe drop-inlet grates are used and institute practice of marking locations of drop-inlets with painted indicator lines
Speeding and unsafe driving – general speeding and unsafe driving behavior by motor vehicles	Continue practice of enforcement by available patrol units, use of speed trailer/radar speed indicator signs, and seek funding for dedicated traffic safety officer.

4.2 Fir Street – from Franklin Street to Harold Street

Concerns:

1. Speeding – speeds as high as 60 MPH were registered on Fir Street during the traffic and speed counting period.
2. School Traffic – Fir Street is an important route to the Middle School and to the other Fort Bragg schools from points north of town. Fir is a logical route as one can drive from the intersection of Main and Manzanita Streets to Harold and Oak without encountering stop lights or signs.
3. Pedestrian and Cross-traffic Safety – because of relatively high traffic volumes and speeds it can be hazardous to cross Fir Street during peak periods.

From west to east, the following improvements are proposed for Fir Street (please refer to Appendix 7.1, Figure 1 for more detail and Appendix 7.2 for staff recommendations):

Location of Improvement	Recommended Traffic Calming Method	Basis for Recommendation
Cross Section (Franklin Street to Harold Street)	Narrow travel lanes from 10.5' to 10' and change shared bike/parking lanes to dedicated parking lane and Class II bike lanes.	Narrower traffic lanes reduce speeds. Dedicated parking lane and Class II bike lane increase safety for bicyclists.
Intersection with Harrison Street & Corry Street	Install 10-foot diameter traffic circle with mountable apron.	Traffic circle located every other intersection[10] necessitates slowing of traffic through physical act of

[9] FBMC 6.08.070 Pre-collection Practices – Points of Collection: Refuse containers shall be placed for collection at ground level on the property or immediately adjacent thereto and not within the traveled portion of a street or alley, and not obstructing a sidewalk. All refuse must be within twenty feet of the street right-of-way and easily accessible.

[10] Based on roadway characteristics and, typical traffic speed and volumes, Fehr & Peers determined that traffic circles are not warranted at every intersection.

Location of Improvement	Recommended Traffic Calming Method	Basis for Recommendation
		negotiating vehicle around traffic circle and through perception of road narrowing at intersection.
Intersection with Harold Street	Construct Bulb-out at southwest corner.	Reduces crossing distance for pedestrians.
Intersection of Fir Street with Harold Street	Install high visibility crosswalks across Fir Street and across Harold Street	Increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people crossing street.

4.3 Cedar Street – *from Harold Street to City Limits to the east*

Concerns:

1. High traffic volumes during peak periods – due to its location as a parallel route to Oak Street, Cedar Street is a popular shortcut for people driving to and from the two elementary schools and the high school to the south east.
2. Speeding – Cedar is a narrow street with few stop signs. Drivers often drive above the 25 MPH limit and the narrowness of the street exacerbates safety concerns.
3. Numerous driveways – there are no alleys on Cedar Street and the residential density is relatively high resulting in many driveways and a safety concern for back-out traffic.

From west to east, the following improvements are recommended for Cedar Street (please refer to Appendix 7.1, Figure 2 for more detail and Appendix 7.2 for staff recommendations):

Location of Improvement	Recommended Traffic Calming Method	Basis for Recommendation
Cross Section (Harold Street to Sanderson Way)	Alternate on-street parking from side to side to create a chicane effect.	Chicane effect of alternating-side parking slows traffic. Longer sections of existing narrow sidewalks will be retained in order to accommodate parked cars, which create a good buffer for pedestrians.
Intersection with Harold Street	Install splitter island with fluorescent pedestrian sign and high-visibility crosswalk at south side of intersection across Harold Street	Crosswalk facilitates safer crossing at observed pedestrian desire line at this location. Splitter island chokes down travel lane causing drivers to slow down. High visibility crosswalk increases visibility of crosswalks to

Location of Improvement	Recommended Traffic Calming Method	Basis for Recommendation
		drivers from greater distances thus providing earlier alert to potential presence of people crossing street. Location at south side of intersection moves pedestrians out of heavy left-hand turning movement path found at north side of intersection.
Intersection with Morrow Street	Bulb out on Morrow Street at southeast corner.	Aligns crosswalk with sidewalk and shortens crossing distance.
Intersection with Morrow Street	High-visibility crosswalk across eastern side of intersection.	Increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people crossing street.
Intersection with Lincoln Street	High visibility crosswalks across eastern side of intersection.	Fulfills desire line of people crossing Cedar Street to enter Otis Johnson Wilderness Park. Increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people crossing street.
West of Nancy Way	High visibility crosswalk.	Facilitates crossing from north side of street which has best sidewalk facilities up to this point to south side where installation of new sidewalk facilities of greater width is feasible.
East of Intersection with Nancy Way	Curb extension and shared travel lane.	3.5 - 7.5 foot curb extensions on either side of Cedar Street at south side of intersection creates one lane or two lane choke point requiring vehicles to either slow down or yield to oncoming traffic.
Cedar Street from Sanderson Way to Rasmussen Lane/Dana Street foot/bike path	New sidewalks, minimum six-foot width	Sidewalks provide safe area for pedestrians on section where highest speed on Cedar (50 MPH westbound) was recorded. Connects to Dana Street foot/bike path, a Safe Routes to School designated route. Emphasizes transition from rural area to denser urban neighborhood.
City Limit line	Install simple, rustic gateway signage and small island	Signage and island slows traffic and indicates to

Location of Improvement	Recommended Traffic Calming Method	Basis for Recommendation
		motorists transition from rural area to denser urban neighborhood and informs both through words and in practice of institution on traffic calming measures.
Entire length of roadway	Construct missing or repair damaged sidewalks	Completes safe pedestrian infrastructure.

4.4 Chestnut Street – from Franklin Street to Dana Street

Concerns:

1. Speeding – speeds as high as 55 MPH were registered during the traffic and speed measurement period.
2. School and General Traffic – Chestnut Street is the key east-west roadway in the southern sector of central of Fort Bragg. It provides direct access to the two elementary schools and the high school and carries high volumes of traffic.
3. Pedestrian and Cross-traffic safety – Chestnut Street presents challenges to pedestrians and cross traffic due to the relatively high speeds and volumes. The safety issues are compounded by the presence of narrow sidewalks – 3 feet wide in most locations. Additionally, there are numerous obstructions in the sidewalks (utility poles, fire hydrants, etc.).

From west to east, the following improvements are recommended for Chestnut Street (please refer to Appendix 7.1, Figure 3 for more detail and Appendix 7.2 for staff recommendations):

Location of Improvement	Recommended Traffic Calming Method	Basis for Recommendation
Intersection of Chestnut Street with Franklin Street	Mini-roundabout	Will help safely convey traffic through intersection. Alternative is a traffic signal.
Franklin to Lincoln Street	Prohibit on-street parking and modify cross-section per plan to include minimum 6-foot sidewalks, 10-foot travel lanes and a 6-foot painted buffer/bike lane.	Additional right-of-way, or reconfiguration of striping for travel lanes and parking is needed for improvement to bike and pedestrian facilities. Parking demand is relatively low in this section as most properties front on side streets.
Intersection with Corry and other identified locations	High-visibility crosswalks across Chestnut on both sides of intersection(s).	Increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people crossing street.
Northeastern corner of	Construct curb extension and	Shortens crossing distance,

Location of Improvement	Recommended Traffic Calming Method	Basis for Recommendation
intersection with Lincoln Street	install high-visibility cross walks	reduces vehicular speed and increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of pedestrians.
Entire length of roadway	Construct missing sidewalks or repair damaged sidewalks at minimum of six feet width where right of way permits.	Provides safe pedestrian infrastructure.
Lincoln Street to south driveway of Dana Gray Elementary School	Relocate on-street parking from south side to north side of street; widen northern sidewalk to minimum width of 6 feet	Creates better walking environment on pedestrian-favored side of street.
Intersection with Minnesota	Install high-visibility crosswalk at southern side of intersection.	Retrofits existing crosswalk at popular desire line and increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people.
Intersection with Sanderson Way	Construct curb extensions on northern corners of both sides of intersection.	Shortens crossing distance at busy intersection and acknowledges strong desire line on school side of roadway.
North driveway to Dana Gray Elementary School and intersection with Woodland Drive	Install high-visibility crosswalks in three locations per plan.	Replaces crosswalk that was inadvertently covered up during SR2S implementation, responds to desire lines and generally increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people.
Intersection with Dana Street	At northeastern corner construct curb extension and install high-visibility crosswalk at east side of intersection.	Shortens crossing distance at busy intersection, acknowledges strong desire line and increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people.

4.5 Harold Street – from Fir Street to Oak Street

Concerns:

1. Speeding – Speeds as high as 55 MPH were registered during the traffic and speed measurement period.

2. School and General Traffic – Harold Street is the key north-south roadway in the residential core of Fort Bragg. It connects all of the east-west streets to Franklin Street and Main Street and carries high traffic volumes.
3. Pedestrian and Cross-traffic Safety – Harold Street presents risks to pedestrians and cross traffic due to the relatively high speeds and volumes.

From north to south, the following improvements are recommended for Fir Street (please refer to Appendix 7.1, Figure 4 for more detail and Appendix 7.2 for staff recommendations):

Location of Improvement	**Recommended Traffic Calming or Other Mitigation Method**	**Basis for Recommendation**
Intersection with Fir	Install high visibility crosswalks across Fir Street on south side and across north side of Harold Street intersection with Fir Street.	Increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people crossing street.
Intersection with Fir	Construct bulb out on southwest corner.	Shortens long crossing distance at popular crossing location
Both existing high-visibility crosswalks at main entrance and Senior Center entrance, and south side of NB intersection with Pine	Install speed cushions.	Teaches and requires that vehicles must slow down in crossing zone in front of school.
Intersections of Pine, Laurel, Redwood, Cedar and Alder	Install splitter islands per plan with fluorescent pedestrian signs and high-visibility crosswalks.	Splitter island with signage chokes down travel lane causing drivers to slow down and draws attention to crosswalk. High visibility crosswalk increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people crossing street.
All east-west intersections with Harold	Paint stop bars on road surface at stop lines.	Draws further attention to stop requirement and indicates where drivers should stop so as not to intrude on cross walks.
Intersection with Cedar	Install splitter island and high-visibility crosswalk at south side of intersection across Harold Street.	Crosswalk facilitates safer crossing at observed pedestrian desire line. Splitter island chokes down travel lane causing drivers to slow down. High visibility crosswalk increases visibility of crosswalks to drivers from

Location of Improvement	Recommended Traffic Calming or Other Mitigation Method	Basis for Recommendation
		greater distances thus providing earlier alert to potential presence of people crossing street. Location at south side of intersection moves pedestrians out of heavy left-hand turning movement path found at north side of intersection.
Intersection with Oak	Construct 8-foot curb extensions all corners.	Shortens crossing distances for pedestrians at this very busy and high vehicular traffic pedestrian area.
North and south of intersection with Oak	Install “Stop Ahead” signs.	Notifies drivers of impending stop after lengthy uncontrolled sections of Harold Street
All corners of Harold – Oak Street intersection	Install solar-powered, flashing LED “STOP” signs and paint stop bars on road surface at stop lines.	High visibility signs alert motorists long before intersection and stop bars draw further attention to stop requirement and indicates where drivers should stop so as not to intrude on cross walks.
South of intersection with Madrone	Construct curb extensions (bulb outs) and paint high visibility crosswalk	This location is a desire line for pedestrians and a preferred pedestrian route for the SR2S program. Curb extensions shorten crossing distances for pedestrians and high visibility crosswalk increases visibility of crosswalks to drivers from greater distances thus providing earlier alert to potential presence of people crossing street.
Intersection with Maple Street	Construct curb extensions at two northwest and northeast corners	Decreases pedestrian crossing distance and sets “tone” for traffic calming features at southern gateway of long north-south corridor.

4.6 Traffic Calming Methods Kit

There are 10 basic traffic calming methods prescribed for the focal streets:

1. Neighborhood Scale Traffic Circles
2. Speed Humps Or Cushions
3. Splitter Islands
4. High Visibility Crosswalks

5. Curb Extensions
6. Cross-Sectional Modifications
7. Improved Signage
8. Shared Travel Lane
9. Gateway Treatment
10. Virtual Chicane (Alternating-Side Parking)

See Appendix 7.3 for a complete description of traffic calming methods.

4.7 Stop Signs

Stop signs are not successful in slowing traffic except near the stop sign. Drivers oftentimes try to make up for the delay by speeding up between stop-signed controlled intersections. This quick acceleration and deceleration increases noise and air pollution near the signs. Stop signs are only appropriate for establishing right-of-way. The City installs stop signs at an intersection only after a careful evaluation of the existing conditions demonstrates the installation is appropriate. Stop signs are *not* recommended for speed control by the 2010 California Manual of Uniform Traffic Control Devices (Part 2, Page 2B-3).

4.8 Crosswalk Policy

The transportation consultants, Fehr & Peers, recommend that the City establish a citywide Crosswalk Policy that provides guidance regarding which pedestrian crossing scenarios warrant particular treatments. By having a consistent and predictable crosswalk application methodology using the latest high-visibility crosswalks and crosswalk notification sign technology, a higher level of pedestrian safety can be achieved.

Fort Bragg Crosswalk Policy

This Crosswalk Policy includes a toolbox of elements that will improve crosswalk visibility and safety. The toolbox includes both standard treatments and very promising new devices, such as the HAWK Beacon and Rectangular Rapid Flashing Beacon (RRFB) (not yet included in the California Manual of Uniform Traffic Control Devices (CMUTCD) but approved for use at the national level).

The Crosswalk Policy provides guidance about the type of treatments that are appropriate on various streets and under various conditions. The toolbox uses simple inputs from a field survey, such as number of lanes, posted speed, and average daily traffic, to identify a candidate crosswalk treatment at mid-block and uncontrolled locations. The recommended treatments are not meant to replace engineering judgment.

The main function of a crosswalk is to channelize pedestrians. Well-marked pedestrian crosswalks accomplish dual goals. They prepare drivers for the likelihood of encountering a pedestrian, and they create an atmosphere of walkability and accessibility for pedestrians. Marked crossings reinforce the location and legitimacy of a crossing. It is important to note, however, the

California Vehicle Code requires vehicles to yield the right-of-way to pedestrians at any intersection where crossing is not prohibited (regardless of markings).[11] Crossing between adjacent, signalized intersections or anywhere crossing is prohibited, and is considered jaywalking and prohibited by law.

While pedestrians and drivers have a responsibility to abide by Vehicle Code regulations, planners and engineers also have a responsibility to provide for safe crossings. This Crosswalk Policy focuses on crosswalk treatments that will improve pedestrian safety and enhance pedestrian accessibility and mobility.

Determining Where and How to Mark Crosswalks

The first step in identifying candidate crosswalk locations is to identify the places people would like to walk (pedestrian desire lines), which are affected by local land uses (homes, schools, parks, commercial establishments, etc.) and the location of transit stops. This information forms a basis for identifying pedestrian crossing improvement areas and prioritizing such improvements, thereby creating a convenient, connected, and continuous walking environment.

The second step is identifying the locations safest for people to cross. Of all road users, pedestrians have the highest risk because they are the least protected. National statistics indicate that pedestrians represent 14 percent of all traffic incident fatalities while walking accounts for only three percent of total trips. Pedestrian collisions occur most often when a pedestrian is attempting to cross the street at an intersection or mid-block location.[12]

Several major studies of pedestrian collision rates at marked and unmarked crosswalks have been conducted. In 2002, the Federal Highway Administration (FHWA) published a comprehensive report on the relative safety of marked and unmarked crossings.[13] In 2006, another study was completed that further assists engineers and planners in selecting the right treatment for marked crosswalks based on studies of treatment effectiveness.[14] With these studies as a backdrop,

[11] More information on the California Vehicle Code sections related to pedestrian right-of-way is available at http://www.walksf.org/vehicleCodes.html

[12] *Pedestrian Crash Types, A 1990's Information Guide*, FHWA; This paper analyzed 5,076 pedestrian crashes that occurred during the early 1990's. Crashes were evenly selected from small, medium, and large communities within six states: California, Florida, Maryland, Minnesota, North Carolina, and Utah. http://drusilla.hsrc.unc.edu/cms/downloads/PedCrashTypes1997.pdf

[13] Zegeer, C.V., J.R. Stewart, H.H. Huang and RA. Lagerwey. "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines." Report No. FHWA-RD-01-075. Washington, DC, USA: Federal Highway Administration, March 2002. http://www.walkinginfo.org/pdf/r&d/crosswalk_021302.pdf.

[14] Fitzpatrick, Kay, *et al...* *Improving Pedestrian Safety at Uncontrolled Crossings.* TCRP Report 112/NCHRP Report 562. 2006. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_562.pdf.

this Crosswalk Policy presents a variety of treatment options to mitigate safety, visibility, or operational concerns at specific locations.

Treatments at Uncontrolled Locations

This section focuses on best practices for the installation of marked crosswalks at uncontrolled intersection and mid-block locations.

When to Install Marked Crosswalks

The following is the best practice for marked crosswalk treatments at uncontrolled intersections and mid-block locations.[15] Crossings should be marked where all of the following occur:

- Sufficient demand exists to justify the installation of a crosswalk (see "Demand Considerations" discussion below)
- The location has sufficient sight distance (as a rule of thumb, sight distance in feet should be greater than 10 times the speed limit) and/or sight distance will be improved to be sufficient prior to crosswalk marking
- Safety considerations do not preclude a crosswalk

Demand Considerations: Uncontrolled and mid-block crossings should be identified as a candidate for marking if there is a demonstrated need for a crosswalk. Need can be demonstrated by any of the following:

- Location near existing or proposed pedestrian generators (such as a school or park)
- Existing pedestrian volumes
- Pedestrian-vehicle collisions at this location (over several years)
- Location of nearest (adequately) marked or controlled crosswalk
- Citizen surveys, requests, walking audits, etc.

Charts 1 and 2 on the following pages provide specific demand inputs. For candidate crosswalk locations on either a multi-lane street (three or more lanes), or on two-lane streets with daily traffic volumes (ADT) greater than 12,000 or with posted speed limit exceeding 30 miles per hour, enhanced treatments beyond striping and signing may be needed.[16]

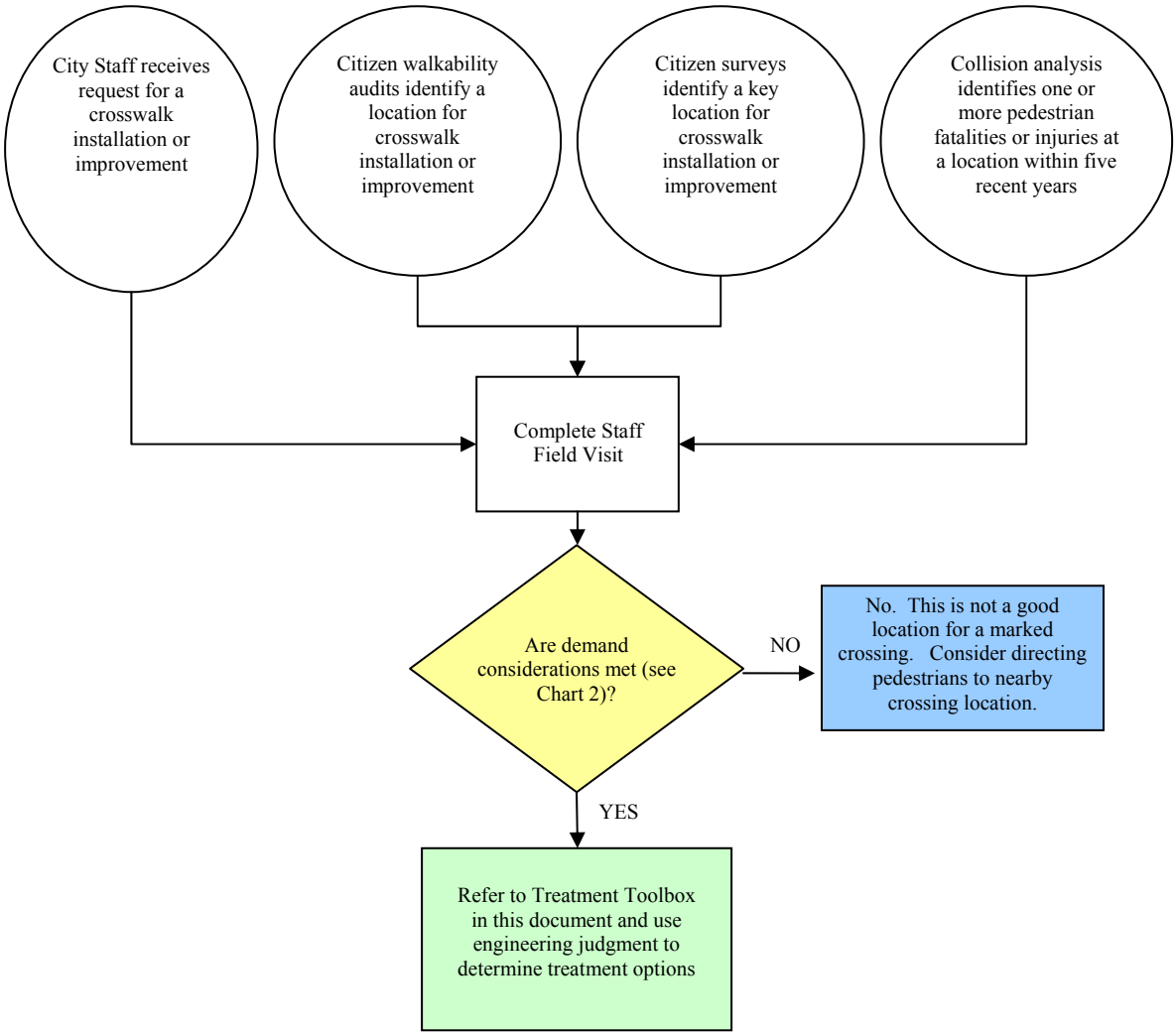
Crosswalk Location Feasibility Analysis

[15] The most common crosswalk of this type will be at intersections where a minor side street is stop controlled and a major street is uncontrolled.

[16] See Appendix A discussion

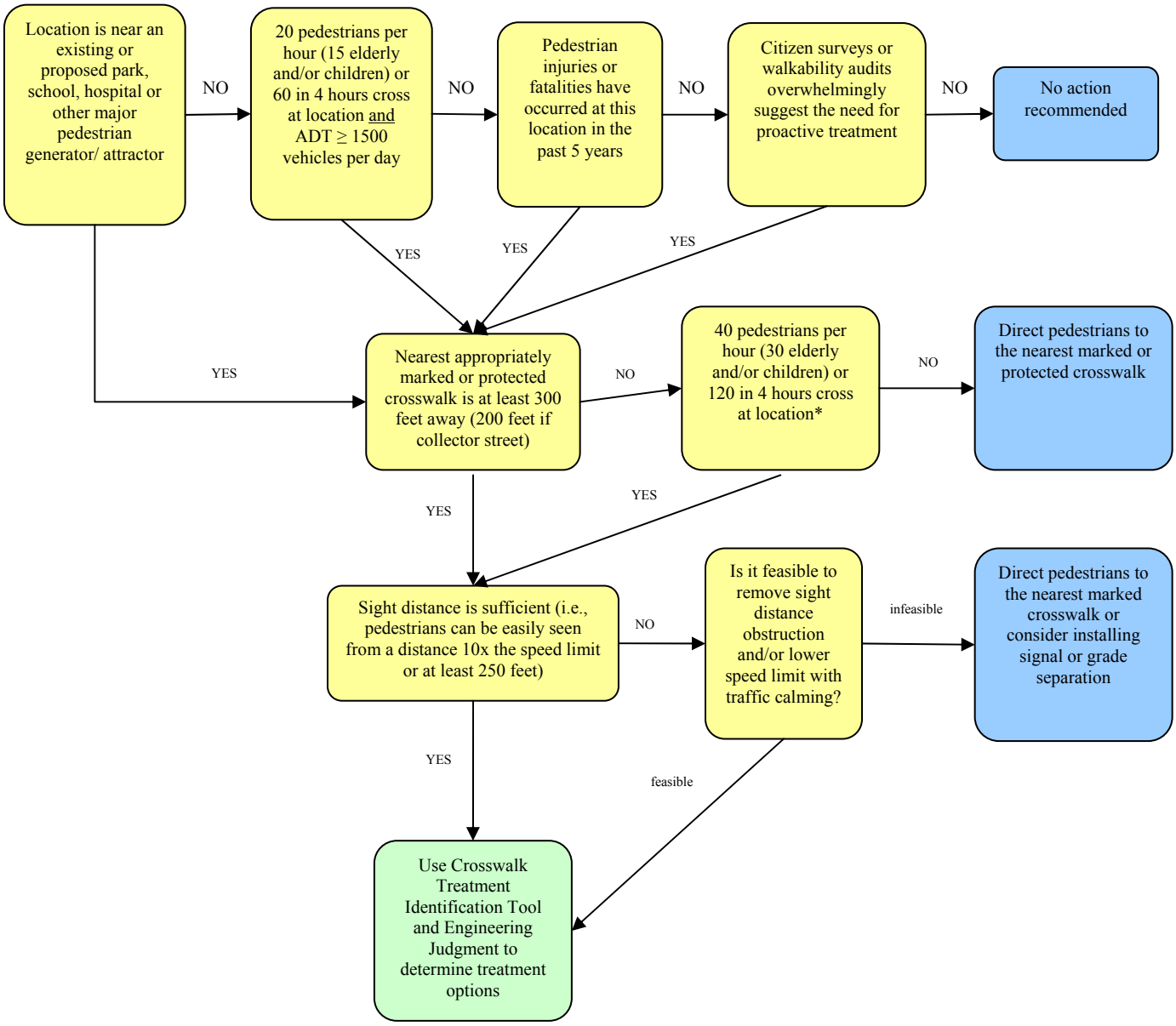
Charts 1 and 2 on the following pages describe the recommended overall procedures for consideration of a new marked crosswalk (or removal of an existing marked crosswalk) and for installation of the treatment. The first steps to determine the appropriate location and treatment for the crosswalk include a field visit (a field visit checklist is included in Appendix A).

Chart 1. Recommended Selection Process for Uncontrolled and Mid-Block Crosswalk Locations



* A field visit checklist is provided in Appendix A

Chart 2. Feasibility Analysis for Treatments at Uncontrolled Locations



* Consider lowering the volume requirements in rural locations or to meet local ranges for pedestrian volumes

Note: Where no engineering action is recommended in Chart 2, consider applicable education and enforcement efforts.

Treatment Toolbox

Based on the results of Charts 1 and 2, the procedure in Treatment Identification Matrix may be used to identify an appropriate crosswalk treatment. The Treatment Identification Matrix follows a two-step process to determine a "match" for the study location characteristics. The first step is to determine if the pedestrian and vehicle volumes meet the signal warrant requirements to install a pedestrian signal. If this warrant is met, then a signal is recommended. If the warrant is not met, one or more less "intense" treatments is recommended, as described below.

A calculation of Pedestrian Level of Service (PLOS) forms the basis for treatment identification.[17] PLOS is the average delay experienced by pedestrians as they are waiting to cross the street. The average crossing speed is based on curb-to-curb width and gaps in traffic.

Expected motorist compliance is another other key variable for treatment identification. Compliance is based on field observations and engineering judgment. It is meant to reflect typical motorist responses to pedestrians attempting to cross the street. If drivers are likely to stop for a pedestrian, the compliance is rated "high." If drivers rarely stop for pedestrians, compliance is "low." A default compliance rate of low is suggested for all locations where the speed limit is greater than 30 MPH.

A treatment matrix assigns treatment by level of enhancement needed (with the most significant enhancement required with the worst PLOS and compliance rates).

Level 1 Treatments:

- High Visibility Crosswalk Markings, Advance Yield Limit Lines, Advance Signage

Level 2 Treatments:

- Curb Extensions, Bus Bulbs, Reduced Curb Radii, Staggered Pedestrian Refuges

Level 3 Treatments:

- In-pavement Flashers, Overhead Flashing Beacons (two-lane roads)
- Rectangular Rapid Flashing Beacons (RRFB)* (multi-lane roads)

[17] Note: This calculation requires data inputs from the Field View Checklist (see Appendix A). The pedestrian level of service calculation is set forth in the Highway Capacity Manual (HCM), published by the Transportation Research Board.

* Not included in the current CMUTCD (however, the HAWK is included in the federal MUTCD and the RRFB has provisional approval at the federal level)

Level 4 Treatments:

- HAWK*, RRFB*, or Direct Pedestrians to Nearest Safe Crossing

Descriptions for each treatment are presented in the next section. For higher levels of treatments, combinations of treatments across levels (such as a HAWK signal with curb extensions) may be appropriate. These combinations should be determined based on site feasibility and engineering judgment.

Treatment Identification Matrix for Uncontrolled Locations

PEDESTRIAN LEVEL OF SERVICE[18]	**EXPECTED MOTORIST COMPLIANCE**		
	LOW (or Speed > 30 MPH)	**MODERATE**	**HIGH**
LOS A-D (average delay up to 30 seconds)	LEVEL 3 2 lane road: In-pavement flashers, overhead flashing beacons Multi-lane road: Stutter flash Plus LEVELS 1 AND 2	LEVEL 2 Curb Extensions, Bus Bulb, Reduced Curb Radii, Staggered Pedestrian Refuge Plus LEVEL 1	LEVEL 1 High Visibility Crosswalk Markings, Advance Yield Lines, Advance signage
LOS E-F (average delay greater than 30 seconds)	LEVEL 4 HAWK, Stutter Flash, or Direct Pedestrians to Nearest Safe Crossing PLUS LEVELS 1 AND 2	LEVEL 3 2 lane road: In-pavement flashers, overhead flashing beacons Multi-lane road: Stutter flash Plus LEVELS 1 AND 2	LEVEL 2 Curb Extensions, Reduced Curb Radii, Staggered Pedestrian Refuge Plus LEVEL 1

Notes:

- A Pedestrian Refuge Island is recommended for consideration in all scenarios where at least six feet of right-of-way is available.
- A Road Diet[19] is recommended for consideration in all scenarios with four or more lanes of traffic and a daily traffic volume of less than 15,000 vehicles (ADT).

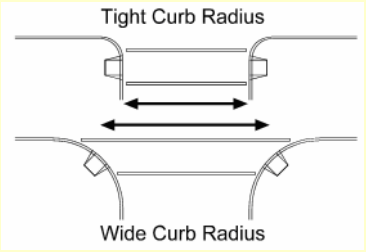
[18] Based on the pedestrian level of service criteria as defined in the 2000 Highway Capacity Manual, Table 18-13 (LOS Criteria for Pedestrians at Unsignalized Intersections) for average delay/pedestrian, where delay is calculated as a function of vehicle flow rates and critical gaps (which are a function of walking speed, crosswalk length, and startup and end clearance times). See the "documentation" tab in the Treatment Identification Tool for formulae and additional details.

[19] With a road diet, the number of lanes of travel is reduced by widening sidewalks, adding bicycle and parking lanes, and converting parallel parking to angled or perpendicular parking. An ADT of 15,000 or less is a general guideline for identifying eligible multi-lane roadways where lanes could be removed and vehicle level of service would remain the same or improve.

Candidate Treatment Descriptions

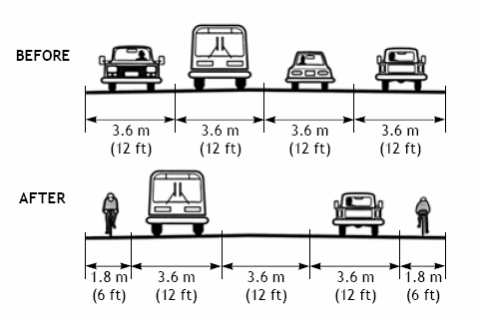
The following table provides a summary of the Treatments Toolbox. Additional fact sheets and case studies for many of these treatments are included in the NHCRP 562 Report at http://trb.org/publications/nchrp/nchrp _rpt_562.pdf or the Pedestrian Bicycle Information Center at http://www.walkinginfo.org/.

CROSSWALK TREATMENTS			
Measure	**Description**	**Benefits**	**Application**
Level 1			
Marked Crosswalk  *Image source: www.walkinginfo.org/pedsafe/*	Marked crosswalks should be installed to provide designated pedestrian crossings at major pedestrian generators, crossings with significant pedestrian volumes (at least 15 per hour), crossings with high vehicle-pedestrian collisions, and other areas based on engineering judgment	Marked crosswalks provide a designated crossing, which may improve walkability by signaling a clear "channel" for pedestrian pathways to both pedestrians and vehicles.	Marked crosswalks alone should not be installed on multi-lane roads with more than about 10,000 vehicles per day. Enhanced crosswalk treatments should supplement the marked crosswalk.
High-Visibility Signs and Markings  *Image source: exodusinnovations.com*	High-visibility markings include a family of crosswalk striping styles such as the "ladder" and the "continental." High-visibility fluorescent yellow green signs are made of the approved fluorescent yellow-green color and posted at crossings to increase the visibility of a pedestrian crossing.	FHWA recently ended its approval process for the experimental use of fluorescent yellow crosswalk markings and found that they had no discernable benefit over white markings.	Beneficial in areas with high pedestrian activity, as near schools, and in areas where travel speeds are high and/or motorist visibility is low.
Advanced Yield or Stop Lines  *Image source: www.saferoutesinfo.org*	Standard white stop or yield limit lines are placed in advance of marked, uncontrolled crosswalks. Stop or yield lines are determined based on state vehicle codes (requiring the driver to either stop or yield to the pedestrian).	This measure increases the pedestrian's visibility to motorists, reduces the number of vehicles encroaching on the crosswalk, and improves general pedestrian conditions on multi-lane roadways. It is also an affordable option.	Useful in areas where pedestrian visibility is low and in areas with aggressive drivers, as advance limit lines will help prevent drivers from encroaching on the crosswalk. Addresses the multiple-threat collision on multi-lane roads.

In-Street Pedestrian Crossing Signs  *Image source: www.seton.com*	This measure involves posting regulatory pedestrian signage on lane edge lines and road centerlines. The In-Street Pedestrian Crossing sign may be used to remind road users of laws regarding right of way at an unsignalized pedestrian crossing. The legend STATE LAW may be shown at the top of the sign if applicable. The legends STOP FOR or YIELD TO may be used in conjunction with the appropriate symbol.	This measure is highly visible to motorists and has a positive impact on pedestrian safety at crosswalks.	Mid-block crosswalks, unsignalized intersections, low-speed areas, and two-lane roadways are ideal for this pedestrian treatment. The STOP FOR legend shall only be used in states where the state law specifically requires that a driver must stop for a pedestrian in a crosswalk.
Level 2			
Curb Extension/ Bulb Outs  *Image source: Dan Burden*	Also known as a pedestrian bulb-out, this traffic-calming measure is meant to slow traffic and increase driver awareness. It consists of an extension of the curb into the street, making the pedestrian space (sidewalk) wider.	Curb extensions narrow the distance that a pedestrian has to cross and increases the sidewalk space on the corners. They also improve emergency vehicle access and make it difficult for drivers to turn illegally.	Due to the high cost of installation, this tool would only be suitable on streets with high pedestrian activity, on-street parking, and infrequent (or no) curb-edge transit service. It is often used in combination with crosswalks or other markings.
Reduced Curb Radii  *Image Source: www.ci.austin.tx.us*	The radius of a curb can be reduced to require motorists to make a tighter turn.	Shorter radii narrow the distance that pedestrians have to cross; they also reduce traffic speeds and increase driver awareness (like curb extensions), but are less difficult and expensive to implement.	This measure would be beneficial on streets with high pedestrian activity, on-street parking, and no curb-edge transit service. It is more suitable for wider roadways and roadways with low volumes of heavy truck traffic.
Staggered Median Pedestrian Island  *Image Source: www.tfhrc.gov/*	This measure is similar to traditional median refuge islands; the only difference is that the crosswalks in the roadway are staggered such that a pedestrian crosses half the street and then must walk towards traffic to reach the second half of the crosswalk. This measure must be designed for accessibility by including rails and truncated domes to direct sight-impaired pedestrians along the path of	Benefits of this tool include an increase in the concentration of pedestrians at a crossing and the provision of better traffic views for pedestrians. Additionally, motorists are better able to see pedestrians as they walk through the	Best used on multi-lane roads with obstructed pedestrian visibility or with off-set intersections

	travel.	staggered refuge.	
Level 3			
In-Roadway Warning Lights  *Image Source: www.tfhrc.gov/*	Both sides of a crosswalk are lined with pavement markers, often containing an amber LED strobe light. The lights may be push-button activated or activated with pedestrian detection.	This measure provides a dynamic visual cue, and is increasingly effective in bad weather	Best in locations with low bicycle ridership, as the raised markers present a hazard to bicyclists. May not be appropriate in areas with heavy winter weather due to high maintenance costs. May not be appropriate for locations with bright sunlight. The lights may cause confusion when pedestrians fail to activate them and/or when they falsely activate.
Overhead Flashing Beacons  *Image source: tti.tamu.edu*	Flashing amber lights are installed on overhead signs, in advance of the crosswalk or at the entrance to the crosswalk.	The blinking lights during pedestrian crossing times increase the number of drivers yielding for pedestrians and reduce pedestrian-vehicle conflicts. This measure can also improve conditions on multi-lane roadways.	Best used in places where motorists cannot see a traditional sign due to topography or other barriers.
Stutter Flash*  *Image source: mutcd.fhwa.dot.gov*	The Overhead Flashing Beacon is enhanced by replacing the traditional slow flashing incandescent lamps with rapid flashing LED lamps. The beacons may be push-button activated or activated with pedestrian detection.	Initial studies suggest the stutter flash is very effective as measured by increased driver yielding behavior. Solar panels reduce energy costs associated with the device.	Appropriate for multi-lane roadways.

Level 4			
Hawk Beacon Signal*  *Image Source: www.tfhrc.gov/*	HAWK (High Intensity Activated Crosswalks) are pedestrian-actuated signals that are a combination of a beacon flasher and a traffic control signal. When actuated, HAWK displays a yellow (warning) indication followed by a solid red light. During pedestrian clearance, the driver sees a flashing red "wig-wag" pattern until the clearance interval has ended and the signal goes dark.	Reduces pedestrian-vehicle conflicts and slows traffic speeds	Useful in areas where it is difficult for pedestrians to find gaps in automobile traffic to cross safely, but where normal signal warrants are not satisfied. Appropriate for multi-lane roadways.
Level 5			
Traffic Signal  *Image source: www.livablestreets.com*	Conventional traffic control devices with warrants for use based on the Manual on Uniform Control Devices (MUTCD)	Reduces pedestrian-vehicle conflicts and slows traffic speeds	Must meet warrants based on traffic and pedestrian volumes; however, exceptions are possible based on demonstrated pedestrian safety concerns (collision history)
Pedestrian Overpass/ Underpass  *Image source: omahamidcenturymodern.blogsome.com*	This measure consists of a pedestrian-only overpass or underpass over a roadway. It provides complete separation of pedestrians from motor vehicle traffic, normally where no other pedestrian facility is available, and connects off-road trails and paths across major barriers.	Pedestrian overpasses and underpasses allow for the uninterrupted flow of pedestrian movement separate from the vehicle traffic. However, for underpasses, security is known to be a major issue.	Grade separation via this measure is most feasible and appropriate in extreme cases where pedestrians must cross roadways such as freeways and high-speed, high-volume arterials. Use of either type of facility falls off rapidly when the additional time required for such use amounts to 20% or more of the time required to cross at grade. This measure should be considered only with further study.

Consider for All Multi-Lane Roads			
Road Diet (aka Lane Reduction)  *Image Source: www.tfhrc.gov/*	The number of lanes of travel is reduced by widening sidewalks, adding bicycle and parking lanes, and converting parallel parking to angled or perpendicular parking.	This is a good traffic calming and pedestrian safety tool, particularly in areas that would benefit from curb extensions but have infrastructure in the way. This measure also improves pedestrian conditions on multi-lane roadways.	Roadways with surplus roadway capacity (typically multi-lane roadways with less than 15,000 to 17,000 ADT) and high bicycle volumes, and roadways that would benefit from traffic calming measures.
Median Pedestrian Island  *Image source: http://thegoodcity.wordpress.com/category/transportation/*	Raised islands are placed in the center of a roadway, separating opposing lanes of traffic with cutouts for accessibility along the pedestrian path.	This measure allows pedestrians to focus on each direction of traffic separately, and the refuge provides pedestrians with a better view of oncoming traffic as well as allowing drivers to see pedestrians more easily. It can also split up a multi-lane road and act as a supplement to additional pedestrian tools.	Recommended for multi-lane roads wide enough to accommodate an ADA-accessible median
* Treatment not included in the current version of the CA MUTCD			

5 Funding Options

This section identifies potential funding sources that will help Fort Bragg meet its General Plan goals of improved traffic circulation and enhanced pedestrian and bicyclist safety in residential neighborhoods through implementation of the recommended improvements in the 2011 RSSP. Funding for transportation and transportation enhancement projects is available through local, regional, state and federal agencies and programs. More than one funding source may be appropriate for a project and it will be important to pick the funding that is most likely to be awarded to the project. The community outreach and ranking of safety issues completed as part of this 2011 RSSP will provide an excellent platform for crafting well reasoned and community-supported funding applications. Based on Fort Bragg's goals and the safety concerns identified by this plan, several sources stand out as likely funding opportunities in the near future, including the State Safe Routes to School (SR2S) program, the California Office of Traffic Safety grant program for safety education and enforcement, the Bicycle Transportation Account, and Transportation Development Act funds.

Summary

Potential funding sources are summarized below, with additional detail on each source following the table.

Funding Source	Range of Awards	What it Funds
State Safe Routes to School	Up to $450,000	Education, enforcement, and capital projects to improve safety for children traveling to school by foot or bicycle
Federal Safe Routes to School	Up to $1M (infrastructure) UP to $500K (non-infrastructure)	Infrastructure *or* Non-Infrastructure school-related safety projects
Transportation Enhancement Activities	Depends on the amount available[2]	Pedestrian & bicycle facilities Safety & educational activities for pedestrian & bicyclists
AB 2766 Funds (registered motor vehicle fees)	$30,000 to $40,000 a year	At the discretion of the AQMD
Settlement Funds	$10,000 to $100,000	To be determined by the effected jurisdiction and the AQMD

Funding Source	Range of Awards	What it Funds
Bicycle Transportation Account	Up to 25 percent of available funds Usual award is $200,000 to $300,000	New bikeways that remove barriers for bicyclists Installation of traffic control devices that improve safety Elimination of hazards on bikeways Planning, improvements, and maintenance of bikeways
Highway Safety Improvement Program (HSIP)	Maximum $900,000	21 categories of roadway or bike/pedestrian pathway safety corrections
City Sales Tax	Estimated to be $750,000	Street and road maintenance As local match for state or federal funds
California Office of Traffic Safety	No limit but usually up to $500,000	Safety activities, including education and enforcement
Community Development Block Grants	Depends upon funding: recently up to $800,000 (General Allocation) $35,000 (Planning)	General Allocation is available for transportation projects, but not competitive and therefore not recommended except 10% Set Aside activities or Planning Grants.
Transportation Development Act	Depends on the amount available	Bicycle and pedestrian projects

Source: Community Development Department.

The specific funding options are discussed in greater below.

Safe Routes to School

The California Department of Transportation (Caltrans) administers two separate Safe Routes to School Programs. The State-legislated program is referred to as *SR2S*, and the Federal Program is referred to as *SRTS*. Both programs are intended to achieve the same basic goal of increasing the number of children walking and bicycling to school by making it safe for them to do so. The goals of both Safe Routes programs closely match those of the Fort Bragg Residential Streets Safety Plan. The City has received funding from both programs in recent years, and many of the recommended improvements identified by the Plan may be eligible for future Safe Routes funding as well under one or both programs.

The following table from the Caltrans Safe Routes website describes key features of each program:
(http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm)

Program Features	State SR2S Program	Federal SRTS Program
Legislative Authority	Streets & Highways Code Section 2330-2334	Section 1404 in SAFETEA-LU
Expires	AB 57 extended program	Pending SAFETEA-LU reauthorization.

Program Features	State SR2S Program	Federal SRTS Program
	indefinitely	Extensions have been granted through Dec. 31, 2010
Eligible Applicants	Cities and counties	State, local, and regional agencies experienced in meeting federal transportation requirements. Non-profit organizations, school districts, public health departments, and Native American Tribes must partner with a city, county, MPO, or RTPA to serve as the responsible agency for their project.
Eligible Projects	Infrastructure projects	Stand-alone infrastructure or non-infrastructure projects
Local Match	10% minimum required	None
Project Completion Deadline	Within 4 ½ years after project funds are allocated to the agency	Within 4 ½ years after project is amended into FTIP
Restriction on Infrastructure Projects	Must be located in the vicinity of a school	Infrastructure projects must be within 2 miles of a grade school or middle school
Targeted beneficiaries	Children in grades K-12	Children in grades K-8
Cycles Completed	8 cycles	2 cycles
Current Status	Cycle 9 – call for project made April 15, 2010	Cycle 3 – Call for Projects expected in early 2011
Funding	$24.25M annual funding	$23M annual funding

Funding particulars for the two programs are as follows:

Program Features	State SR2S Program	Federal SRTS Program
Funding parameters	$450,000 maximum grant	Maximum $1M for infrastructure and $500K for non-infrastructure projects
Project Activities	Grant can fund up to 10% for "incidental" expenditures including education, encouragement and enforcement activities.	Applications are either for infrastructure or non-infrastructure; no combination applications are allowed.
Funding allocations	Based on school enrollments except small Caltrans districts are allocated a minimum of $500K	At least $1M is allocated to each Caltrans district in each funding cycle.

In June 2010, the City closed out a 2005 Cycle 6 State Safe Routes to School grant of $450,000 that funded improvements primarily in the vicinity of Fort Bragg High School and Dana Gray School (Dana and Chestnut streets). In 2008, Fort Bragg was notified of an award of $214,000 from the 2007 Cycle 2 Federal SRTS infrastructure grant. Improvements funded under the Federal grant will take place in the summer of 2011 in the vicinity of Fort Bragg Middle School (on Harold Street), Redwood Elementary School (on Lincoln and Chestnut Streets), and Dana Gray Elementary School (on Sanderson and Chestnut Streets). The City is unlikely to be funded again under the Federal program until the current grant is

closed out. However, the City could consider an application under the State program when the next funding cycle is announced.

For more information about both programs, see the Caltrans Division of Local Assistance web page:

http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm.

Transportation Enhancement Activities (TE or TEA)

Ten percent of Surface Transportation Program (STP) dollars are reserved for Transportation Enhancement (TE) activities. A local or State match is required for this capital-improvement program. In addition, to be eligible, a project must support activities over and above normal project work, including mitigation. For example, TE funds would not pay for construction of a sidewalk, if this was a mitigation required to build a roadway. However, if the project sponsor proposed decorative pavement treatment or landscaping to accommodate this sidewalk, TE funds would be available. In addition, TE funds are available for[20]:

- Facilities for pedestrian and bicycles,
- Safety and educational activities for pedestrian and bicyclists,
- Acquisition of scenic easements and scenic historic sites,
- Landscaping or other scenic beautification,
- Historic preservation and rehabilitation,
- Control and removal of outdoor advertising,
- Archaeological planning and research,
- Mitigation of water pollution due to roadway runoff, and
- Preservation of abandoned railways corridors, including those intended for pedestrian and bicyclist use.

In past funding cycles, most TE funded programs were required to show some commute value, for example, that a funded bicycle lane will draw more commuters out of their vehicles to bike to work. Generally, the funds are not used for residential streets, however funds could be used on streets that serve schools. For example, under the current funding cycle TE funds were granted in Lake County to provide sidewalks and bicycle lanes near the County Fairgrounds.

TE funds are programmed one of two ways: 1) Three-fourths of the projects are selected by Mendocino Council of Governments (MCOG), the Regional Transportation Planning Agency (RTPA), and 2) one-fourth of the projects are selected by Caltrans Districts. Projects selected by the RTPA are programmed into the RTIP and then become part of the STIP. Projects selected by Caltrans

[20] See Caltrans Local Assistance program Guidelines for details of TEA eligibility.

are programmed into the ITIP and become part of the STIP. The difference is that projects programmed into the ITIP must be of "statewide significance."

According to conversations with MCOG staff, the current TE funding cycle has recently ended (as of the date of this Plan). Funds will not be available again for approximately six years, providing that monies are set aside at the federal level for this program. The exact year of the next cycle is not known, as the current cycle was delayed. Note that when the program is reauthorized, funding and project requirements may change.

For more information, see the Caltrans Division of Local Assistance webpage: http://www.dot.ca.gov/hq/LocalPrograms or contact Mendocino Council of Governments.

Assembly Bill (AB) 2766 Funds

AB 2766 funds, also known as registered motor vehicle fees, are available for a variety of transportation projects at the discretion of the Mendocino County Air Quality Management District (AQMD). In Mendocino County, approximately $350,000 is raised by this program annually. These funds support AQMD planning activities, staff salary, air quality monitoring and in some fiscal years, grants. Monies for grants range from $30,000 to $40,000 a year. The AQMD notifies jurisdictions in April or May of each year if funds will be available and for what types of projects. In the past, these funds have been used to build bike lockers in Willits ($5,000), finish environmental work on a bike path in Point Arena ($10,000), and fund bicycle and pedestrian activities in Fort Bragg ($10,000 to $15,000).

For more information, contact the Mendocino County Air Quality Management District.

Settlement Funds

Settlement funds from air quality violations are disbursed by the Mendocino County AQMD. Penalties for violations range from $10,000 to $100,000. The AQMD works with local jurisdictions to distribute these funds. For example, in the past, penalty monies from the Georgia Pacific Lumber Mill were spent to purchase a propane school bus for use in the impacted area in Fort Bragg and recently air quality violation penalties imposed on a bridge constructor funded the purchase of an electric car for the City of Fort Bragg.

For more information, contact the Mendocino County Air Quality Management District.

Bicycle Transportation Account

The Bicycle Transportation Account (BTA) is a state program established to address the bicycle commuting needs of residents. This terminology is meant to include individuals traveling by bicycle to work, school, and businesses. In short,

the BTA is designed to fund projects that serve utilitarian bicycle trips, not recreational trips. BTA projects are intended to improve safety and convenience for bicycle commuters, and examples of types of projects that can be funded include the following:

- New bikeways that remove travel barriers for potential bicycle commuters
- Installation of traffic control devices that improve the safety and efficiency of bicycle travel
- Elimination of hazardous conditions on existing bikeways
- Planning
- Improvement and maintenance of bikeways

In fiscal year 2010/2011, Caltrans anticipates that $7.2 million will be available annually, and a call for applications is anticipated in late 2010. Applications are favored that serve bicycle commuters, attract new bicycle commuters, improve connectivity to activity centers such as schools, and represent the best alternative for the situation.

Jurisdictions need to contribute a 10 percent match to the BTA funds received. This amount can be in-kind services or in Right-of-Way costs. A match in funds can be made with local, state or federal funds.

Between fiscal years 2005/2006 and 2009/2010, two projects were approved in Mendocino County, including a 2009/2010 Fort Bragg project to stripe and sign bike routes along North Franklin Street and Oak Street, as well as to provide numerous multi-bicycle racks at locations throughout downtown and along the Pacific Coast Bike Route within City Limits.

BTA funds are also distributed to allow for geographic balance and urban/rural balance. Applications for BTA funds are generally due the first working day of December. The City expects to respond to the call for applications for the 2011/2012 cycle.

For more information, see the Caltrans Division of Local Assistance web: http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm.

Highway Safety Improvement Program (HSIP)

This program replaced the Hazard Elimination Safety (HES) Program after the 2005/2006 funding year. The HSIP program is administered by Caltrans and was funded by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy to Users (SAFETEA-LU) in 2005 as a Federal-aid program. The purpose of the program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through implementation of infrastructure-related highway safety improvements. Approximately $50 million was expected to be made available for this program for the 2010/2011 Federal Fiscal Year. HSIP funds may be used on a publicly-owned roadway or bicycle/pedestrian pathway

or trail that corrects or improves the safety for its users. HSIP funding is targeted to improve specific safety problems that can be corrected through use of the funding, and project qualification is based on a calculated Benefit/Cost Ratio (B/C). Projects are submitted either in Category 1, for which applications are ranked on a statewide basis using the B/C calculation; or in Category 2, for which a Work Type category is used to ensure a minimum level of funding throughout the state. Category 1 projects will receive sixty to seventy-five percent of the total funding allocation, and Category 2 projects will be allocated twenty-five to forty percent of funding. There are twenty-one eligible project categories, including items such as traffic calming and other pedestrian and bicycle safety measures recommended in the Residential Streets Safety Plan.

The maximum federal reimbursement ratio for all HSIP projects is ninety percent (90%), and the maximum federal reimbursement amount for any single HSIP project is $900,000.

The HSIP program has awarded funding in three cycles to date. No Mendocino County jurisdictions have received awards under this program per the Caltrans award listings. Caltrans District 1, of includes Del Norte, Humboldt, Mendocino, and Lake Counties, has received funding in each of the three cycles. Caltrans District 1 funding awarded in the past 2 cycles was as follows:

Cycle	Agency	Project Type	Project Description	Total Project Costs/ Federal Funds
2	Arcata	Safety Index	Signs, pavement markings; shoulder widening; asphalt berms	$110,000/$99,000
2	Eureka	Safety Index	Install guardrail	$88,000/$79,200
2	Eureka	Safety Index	Install left turn lanes; upgrade traffic signals	$154,000/138,600
2	Lake County	Safety Index	Install open-grade asphalt skid-resistant overlay	$782,600/$704,340
3	Del Norte County	Work Type	In-pavement lighted crosswalks; curb ramps	$171,300/$154,170
3	Eureka	Work Type	Emergency vehicle pre-emption devices	$584,100/$525,690
3	Eureka	Work Type	Protected left-term signals	$160,600/$144,540

For more information about this program, see the Caltrans website: http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm

City of Fort Bragg Special Sales Tax

The voters of the City of Fort Bragg passed a special sales tax measure in 2004. Over the past four years, annual revenues have ranged from a high of $820,000 in FY 2007/2008 to a total of $705,000 in FY 2009/2010. These funds are restricted for street maintenance and not available for pedestrian or bicycle enhancements or traffic calming. However, it is possible to use these local funds to leverage additional state and federal transportation dollars.

California Office of Traffic Safety

The California Office of Traffic Safety (OTS) provides a variety of grants to jurisdictions for safety activities, including bicycle and pedestrian safety. These funds can be used to fund education and enforcement activities. For example, education activities include student safety rodeos, school presentations, public service announcements and the distribution of pamphlets and posters to increase public awareness and education. Enforcement activities include programs to increase bicycle helmet use, speed enforcement activities and visible display radar trailer deployment near schools or areas of high pedestrian traffic.

Successful transportation project applications will help OTS meet its goals to reduce the incidence of traffic fatalities and injuries throughout the state. Funds are awarded based on OTS fatalities and injury rankings, which identify emerging traffic safety problem areas.

OTS rankings are based on victim and collision data from the latest published California Highway Patrol (CHP) Statewide Integrated Traffic Records System (SWITRS) report. Victim and collision rankings are based on rates of victims killed and injured or fatal and injury collisions per 1,000 Daily Vehicle Miles of Travel (DVMT) and per 1,000 average population figures. Pedestrian and bicyclist victim rankings do not take into account the size or demographics of a city or county's pedestrian or bicyclist population.

Applications are accepted from state agencies, state colleges and universities, and political subdivisions such as local government agencies, school districts, fire departments, public emergency service providers. Non-profit community-based organizations are eligible to receive funding only through a political subdivision. Grants generally cover a one or two year period and applications are due January 31st of each year.

For more information, contact the Office of Traffic Safety at http://www.ots.ca.gov/ . The OTS regional coordinator for Fort Bragg is Belinda Glenn (916) 509-3014 or bglenn@ots.ca.gov .

Transportation Development Act (TDA)

TDA/LTF (Local Transportation Fund) funds are ¼ cent of the sales tax generated in the County. In FY 2010/11, this ¼ cent is estimated to be $2,637,644. They are returned to the source county for local transportation projects; two percent of these funds are set-aside for bicycle and pedestrian projects. The bulk of the TDA funding is for transit purposes, per TDA law, not transportation projects. The 2% for bike & pedestrian projects is calculated after administration is subtracted, and it is an optional allocation of the agency. MCOG chose to not make this allocation in the FY 2010/11 budget, because TDA sales tax revenue is down which affects the regional transit entity, Mendocino Transit Authority.

These funds can be used for engineering, right-of-way acquisition, construction, retrofitting to comply with American Disabilities Act (ADA), route improvements, and purchase and installation of facilities such as parking, benches, rest rooms, changing areas, showers which are adjacent to bicycle trails, bicycle traffic generators and are accessible to the general public. Generally, the LTF 2% funding source has only been used for traditional bike & pedestrian projects. Each county decides its own formula for allocating the funds to the local jurisdictions within that county. These funds can be used directly for bicycle and pedestrian projects or as the local match for competitive State and Federal sources. Projects must be approved by MCOG upon recommendation by the MCOG Technical Advisory Committee (TAC). The projects do not necessarily need to be included in the bicycle plan, transportation element or other adopted plan – MCOG funds bike and pedestrian projects submitted by local agencies that are not always in Plans.

Mendocino Council of Governments (MCOG) is responsible for distributing these funds. Based on sales tax revenues, approximately $50,000 is available on an annual basis. The approximately $50k is a calculation of 2% of the TDA, after administration is subtracted. The LTF 2% Bike & Pedestrian call for projects is every two years or so, when the annual $50k accumulates. A summary of funded projects from the last cycle is provided on Table 7.

The TDA Guidelines are available from Caltrans at the following web page:
www.dot.ca.gov/hq/MassTrans/State-TDA.html

Summary of December 2004 TDA Funded Projects

Agency	Project Description	TDA Funds
Mendocino County and incorporated cities	Bicycle Racks	$33,800 ($8,164 to City of Fort Bragg)
Mendocino Transit Authority	Pedestrian approach to bus stop in Mendocino	$11,900
City of Fort Bragg	Pine Street Sidewalks Project	$57,789

Source: Mendocino Council of Governments.

Community Development Block Grants (CDBG)

Fort Bragg is eligible for Community Development Block Grant (CDBG) funds through the State Department of Housing and Community Development. Typically, CDBG provides funding on an annual basis for General Allocation grants and General Allocation Planning and Technical Assistance grants. The

City of Fort Bragg has an active CDBG program and has received grants in both of these categories.

City-wide CDBG projects in Fort Bragg that serve the entire community (as transportation projects are likely to) meet the CDBG national objective of principally benefiting the Targeted Income Group (TIG) whose household incomes are at or below 80 percent of area-wide median income.[21] Although CDBG funding is available for transportation improvements, CDBG funding for the Residential Streets Safety Program may not be an optimal funding source for the following reasons:

- Other funding sources dedicated specifically for transportation projects are available to the City of Fort Bragg;
- Funding sources with stated goals that closely match those of the Residential Streets Safety Program are available; and
- In comparison to available transportation funds, there is little money available to the City of Fort Bragg for general community development activities through programs like CDBG, such as those for which the City has already received grant funds.

Finally, the State Objectives for the CDBG program change from year to year and may not coincide with the goals of Fort Bragg's transportation projects. For example, the CDBG State Objectives for the 2010-2011 General Allocation include bonus points to applications that address Native American Partnership Proposals; Public Improvements; Farm Worker/Housing/Heath Services, and Capacity Building. Due to the highly competitive nature of CDBG grants, it is advantageous to meet at least one of the state objectives for the current funding cycle.

Although Fort Bragg street safety improvement projects are unlikely to be competitive enough to receive CDBG funding under the General Allocation, CDBG General Allocation grants generally allow application for "10% Set Aside" activities. These activities must meet other CDBG eligibility requirements but are not competitively ranked. That is, if the primary activities requested in the General Allocation application are funded, then eligible 10% Set Aside activities are also funded. If available, City CDBG Program Income may be "attached" to the 10% Set Aside activity to increase available funding. CDBG Program Income is comprised of funds received when CDBG grant-funded loans for Business Assistance or Housing Rehabilitation programs are repaid, plus interest earned on these funds.

[21] CDBG guidelines require that at least 51 percent of the project beneficiaries meet the Targeted Income Group. The August 2009 Fort Bragg Household Income Survey demonstrated that 58 percent of the City's households have incomes at or below 80 percent of the area-wide median income. Therefore, the City can spend CDBG funds on City-wide projects.

For more information about the Community Development Block Grant program, contact the State Department of Housing and Community Development at http://www.hcd.ca.gov/index.html.

Unavailable Sources of Funds

Although Transportation Enhancement Activity funds are excellent funding sources for the activities and improvements addressed in the RSSP, the next funding cycle is not for approximately six years, and the goals of the program may change in the meantime. Funds through the Mendocino County Air Quality Management District (AQMD) may be appropriate, but tend to be smaller and not necessarily available at regular intervals. Based on discussions with City of Fort Bragg staff, Hazard Elimination Safety Funds involve a great deal of administrative work on the part of the City and therefore are not the City's first choice for funding. Community Development Block Grants are not generally recommended for transportation funds, due to the program's focus on other goals (economic development, etc). The City Sales Tax could be an excellent source of funds for the City to use as a local match for other funding sources, if allowed by the legislation.

Additional unavailable sources of funding are identified below:

- CMAQ – The County is in compliance with state and federal air quality standards. Therefore, CMAQ funds are not available in Mendocino County.
- NHS – No National Highway System facilities are located in Fort Bragg.
- Pedestrian Safety Program – Discontinued by the State.
- Environmental Enhancements & Mitigations (EEM) Demonstration Program – EEM funds Highway Landscaping and Urban Forestry, acquisition, restoration or enhancement of resource lands, and roadside recreational opportunities including trails, trailheads, and parks.
- Scenic Byways – State Route 1 in Fort Bragg is eligible for the Scenic Byway designation; however, this route is not in the study area.

6 Conclusions and Next Steps

6.1 Conclusion

The completion of the 2011 RSSP offers a general tool kit for addressing safety concerns throughout the residential neighborhoods of the City and provides a set of conceptual plans with staff recommendations for implementation specific to four key neighborhood corridors. The 2011 RSSP will help the City of Fort Bragg apply a consistent and comprehensive approach to improving safety conditions for pedestrians, bicyclists and motorists throughout the City.

6.2 Next Steps

The immediate next steps should be to:

1. Seek funding for the engineering, design, construction and installation of the traffic calming measures recommended for the four study streets, with Chestnut and Harold Streets being the most crucial due to their higher traffic loads;

2. Prior to implementing any of the more complex Chestnut Street traffic calming measures (sidewalk widening and bike lane creation requiring the acquisition of right of way, elimination of, or switching sides of parking) complete the Chestnut Street Traffic Calming Feasibility Study funded in the FY 2011-2012 MCOG Overall Work Program.

3. Continue to implement Citywide procedures for fostering residential streets safety;

4. Identify strategies for implementing citywide procedures that are not currently being implemented due to staffing or budgetary constraints;

5. Implement a consistent crosswalk striping and signage plan using the latest available technologies.

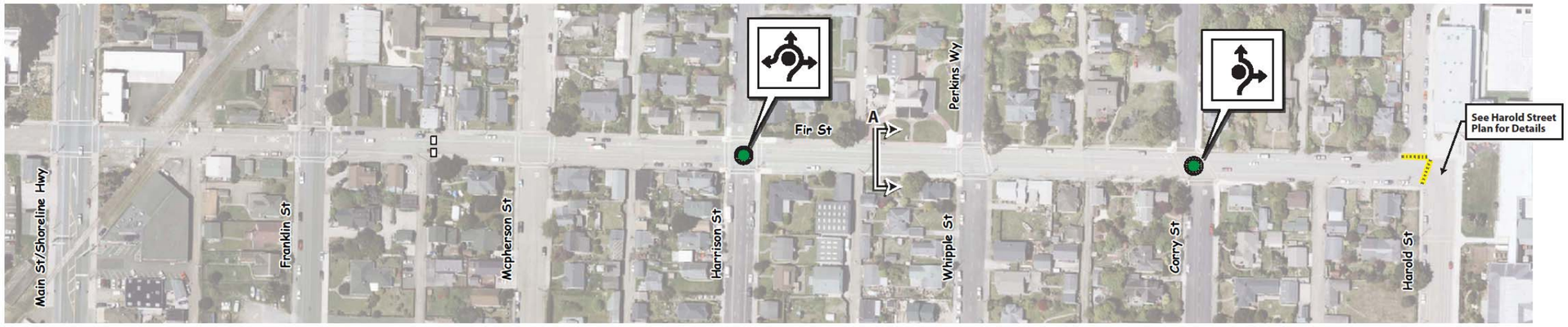
The City of Fort Bragg will repeat the update process and add to the RSSP every five years with more frequent updates occurring, as needed, concurrent to City updates of the Capital Improvement Program (CIP) and/or City budget.

It is recommended that future updates follow a similar methodology to that used in the 2011 RSSP and look at areas of community concern on a street sectional basis, perform traffic counts and speed study and apply the kit of traffic calming methods proposed in this plan as appropriate to mitigate the safety concerns.

The Appendix contains the technical memorandum produced as a part of the 2011 RSSP process and the conceptual plans for traffic calming on the four project area roadways.

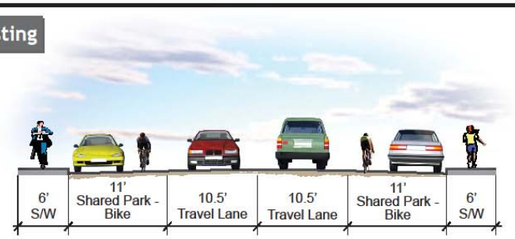
7 Appendices

7.1 Conceptual Plans

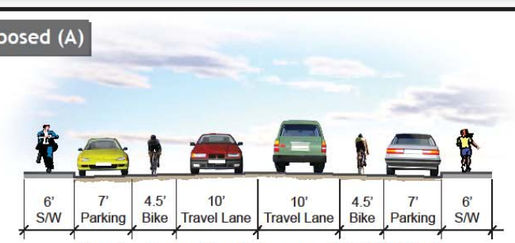


Cross Sections:

Existing

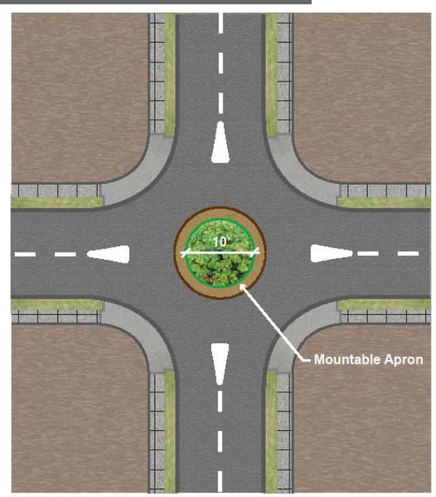


Proposed (A)



Alternative: Keep existing striping, remove "BIKE LANE" text.

Proposed Traffic Circle (Conceptual Plan)



N
Not to Scale

LEGEND:

= New High Visibility Crosswalk
= Speed Cushion
= Traffic Circle

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sept 2010
SF10-0487\graphics\report graphics\Fir St

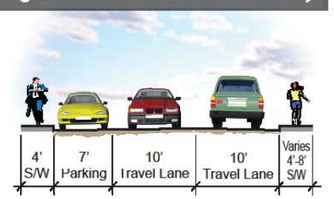
Fort Bragg Traffic Calming

PROPOSED TRAFFIC CALMING IMPROVEMENTS: FIR STREET

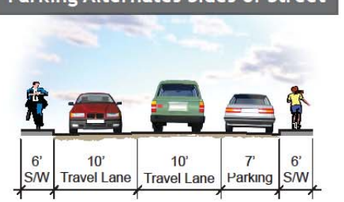
FIGURE 1

Cross Sections:

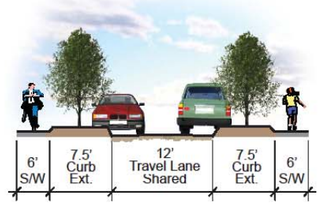
Existing - Parking Permitted on South Side Only



Proposed (A) - Parking Alternates Sides of Street



Proposed (B)



Note: New sidewalks shall be minimum 6' wide. City of Fort Bragg to negotiate available right-of-way where necessary.

N
Not to Scale

LEGEND:

- = Gateway Treatment
- = New Crosswalk
- = No Parking
- = Parking Permitted
- = New Sidewalk (minimum 6')
- = Bulbout

FEHR & PEERS
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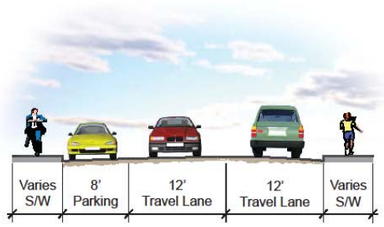
Fort Bragg Traffic Calming

PROPOSED TRAFFIC CALMING IMPROVEMENTS: CEDAR STREET

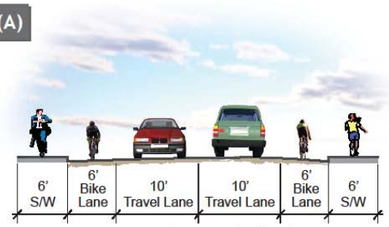
FIGURE 2

Cross Sections:

Existing

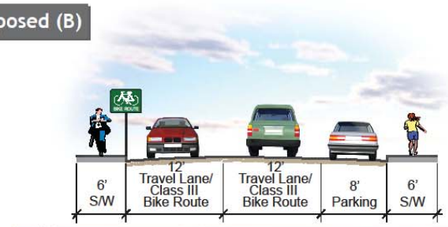


Proposed (A)



Note: Coordinate with Bike Plan.

Proposed (B)



Note: New sidewalks shall be minimum 6' wide. City of Fort Bragg to negotiate available right-of-way where necessary.

N
Not to Scale

LEGEND:

- = New High Visibility Crosswalk
- = New Crosswalk
- = No Parking
- = Parking Permitted
- = New Sidewalk (minimum 6')
- = Bulbout

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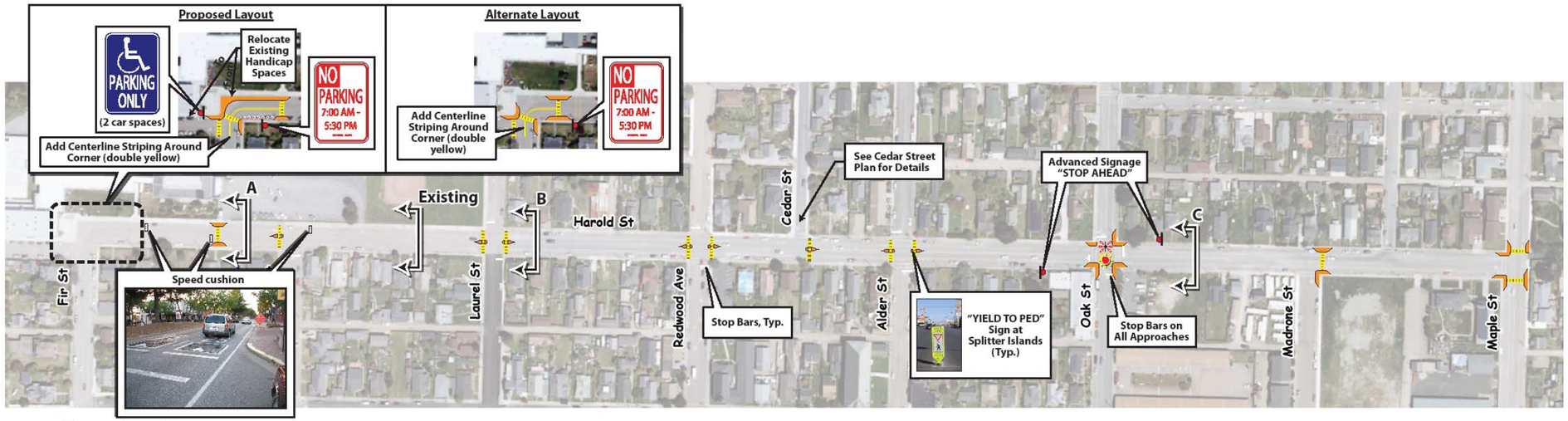
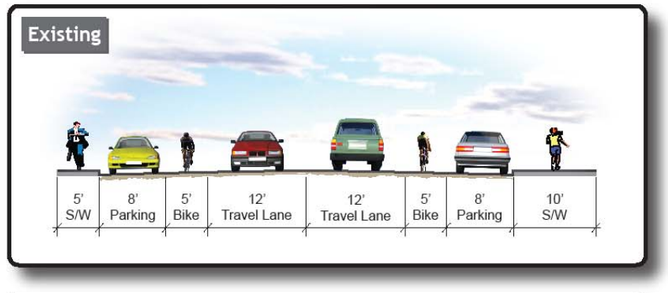
Fort Bragg Traffic Calming

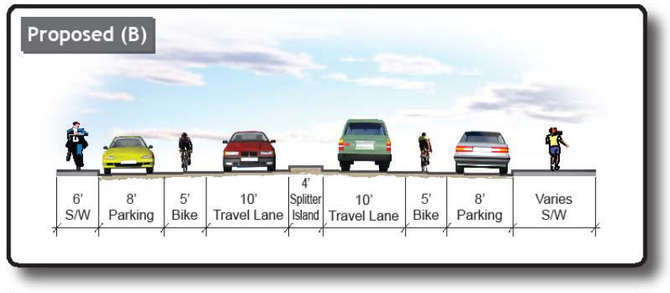
PROPOSED TRAFFIC CALMING IMPROVEMENTS: CHESTNUT STREET

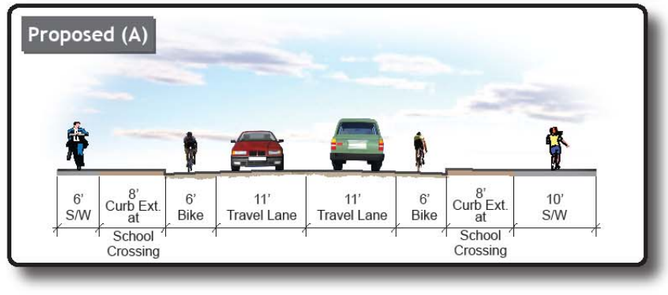
FIGURE 3

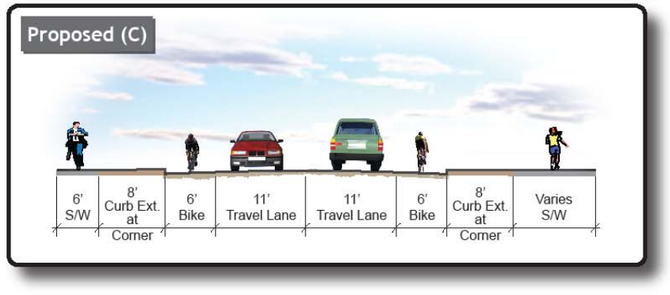


Cross Sections:









Note: New sidewalks shall be minimum 6' wide. City of Fort Bragg to negotiate available right-of-way where necessary.

CONCEPTUAL PLANS ONLY
NOT FOR CONSTRUCTION

N

Not to Scale

LEGEND:

- = New High Visibility Crosswalk
- = New Crosswalk
- = No Parking
- = Parking Permitted
- = New Sidewalk (minimum 6')
- = Splitter Island
- = Bulbout
- = Speed Hump
- = Flashing Red Light
- = Flashing Stop Sign

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sept 2010
SF10-0487\graphics\report graphics\Harold St

Fort Bragg Traffic Calming

PROPOSED TRAFFIC CALMING IMPROVEMENTS: HAROLD STREET

FIGURE 4

7.2 Matrices Comparing Fehr & Peers Recommendations with Citizen Input and Staff Recommendations

Staff recommendations are based on the tenet that some sorts of measures are needed for the purpose of reducing speeds and increasing safety on the subject roadways. Also in the basis is the assumption that increased enforcement can be provided subject to police staff availability, but that a passive method that is in place 24 hours a day, 7 days a week will provide excellent utility. All methods that require construction of appurtenances to curbs or in the roadway – curb extensions (bump-outs) and splitter islands should be tested both by computer model and field experimentation using cones or temporary pavement markings in order to ensure compatibility with large vehicle (schools bus, fire apparatus, etc.) turning movements.

Fir Street

<table>
<tr><th colspan="2">Traffic Calming Measure Recommended by Fehr & Peers</th><th colspan="5">Citizen Survey Response</th><th>Staff Recommendation</th></tr>
<tr><td rowspan="3">  </td><td rowspan="3">Neighborhood Scale Traffic Circle</td><td colspan="5">Oppose Neutral Support</td><td rowspan="3">Staff believes that while traffic circles were opposed in the majority, that they are an effective measure and were not overwhelmingly opposed, and therefore should be considered for implementation by Council.</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>15</td><td>1</td><td>3</td><td>1</td><td>12</td></tr>
<tr><td rowspan="3">  </td><td rowspan="3">Speed Cushion</td><td colspan="5">Oppose Neutral Support</td><td rowspan="3">One set of speed cushions is proposed in the eastbound 200 Block of E. Fir to initiate a lower rated of speed. Speed cushions received a balanced response in the Citizen Survey. Staff believes that if a measure was not overwhelmingly opposed, that it should be seriously considered by Council.</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>10</td><td>3</td><td>8</td><td>3</td><td>10</td></tr>
<tr><td rowspan="3">  </td><td rowspan="3">High-Visibility Crosswalk</td><td colspan="5">Oppose Neutral Support</td><td rowspan="3">High-visibility crosswalks with appropriate signage and pavement markings were solidly well received in all areas and are thus recommended by staff.</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>6</td><td>0</td><td>3</td><td>4</td><td>21</td></tr>
</table>

Harold Street

Traffic Calming Measure Recommended by Fehr & Peers		Citizen Survey Response					Staff Recommendation
	**Curb extensions with high visibility cross walks at the Fir Street intersection and mark the lanes around the curve**	Oppose		Neutral		Support	This measure was very well received and should be implemented, except that the curb extensions are problematic, both from the point of view of school bus operations and the recent sidewalk and curb ramp ADA upgrades that would have to be demolished. Therefore, staff recommends only implementing the high-visibility striping of the crosswalks and the marking of the centerline around the transition from one street to the other.
		1	2	3	4	5	
		3	**0**	**4**	**6**	**22**	
	**Speed cushions in front of the Middle School**	Oppose		Neutral		Support	This was a well received measure that staff recommends for implementation.
		1	2	3	4	5	
		6	**1**	**2**	**6**	**20**	
	**High-visibility cross-walks with splitter islands at all the inter-sections along the entire length of Harold St.**	Oppose		Neutral		Support	This was a well received measure that staff recommends for implementation. In some locations, splitter islands have the potential to cause operational difficulties for school buses and prior to developing construction plans modeling and field testing should be performed.
		1	2	3	4	5	
		6	**0**	**2**	**5**	**23**	

Continued next page

Harold Street, continued

	**Flashing STOP signs at Oak St. Intersection**	Oppose		Neutral		Support	The flashing stop sign was well received and is recommended by staff for implementation. This would be a solar powered LED-ringed sign.
		1	2	3	4	5	
		4	**4**	**6**	**4**	**19**	
	**Curb extensions with high-visibility crosswalks at Oak, Madrone and Maple Streets**	Oppose		Neutral		Support	This measure was strongly supported by the Citizen Survey. Staff recommends implementation, except for the curb extension component at Oak where ADA corner ramps have been recently constructed and where issues for bus turning movements would most likely occur.
		1	2	3	4	5	
		5	**2**	**4**	**6**	**19**	

Cedar Street

	**Provide on street parking on only one side of the street, and alternates the side of the street with parking by block**	Oppose		Neutral		Support	Responding citizens were strongly opposed to this measure and staff does not recommend implementing it.
		1	2	3	4	5	
		21	**2**	**8**	**8**	**7**	

Continued on next page

Cedar Street, continued

	**Create shared travel lane on Cedar at Nancy Way**	Oppose		Neutral		Support	Survey respondents were strongly opposed to this measure as well and staff does not recommend implementation.
		1	2	3	4	5	
		19	**3**	**13**	**5**	**6**	
	**Create a choker with curb extensions at Nancy Way**	Oppose		Neutral		Support	Survey responses indicated strong opposition to this measure and as such, staff does not recommend it.
		1	2	3	4	5	
		19	**4**	**12**	**6**	**5**	
	**High-visibility Crosswalk with curb extensions at Morrow Street**	Oppose		Neutral		Support	Overall this measure was well supported by the respondents and staff recommends implementing it with the addition of the crosswalk being a raised crosswalk. The engineer currently designing the sidewalk plan for Cedar Street recommends striping the vehicular travel lanes. Note that speed bumps were a popular request in the written responses section of the survey.
		1	2	3	4	5	
		11	**4**	**8**	**11**	**12**	
	**High visibility crosswalks at Lincoln Streets and west of Nancy Way**	Oppose		Neutral		Support	A combined high-visibility/raised crosswalk approx. 275 feet west of Nancy Way in the 1000 Block is recommended. The Lincoln Street crosswalk is not recommended.
		1	2	3	4	5	
		7	**4**	**8**	**11**	**15**	

Continued on next page

Cedar Street, continued

	**Gateway signs at City Limits near Rasmussen Lane**	Oppose		Neutral		Support	While strongly opposed by many, this measure was supported overall. Staff recommends implementation in conjunction with a sign advising of traffic calming measures being in effect.
		1	2	3	4	5	
		11	**2**	**13**	**11**	**9**	

Chestnut Street

	**Curb extensions and high-visibility crosswalks at Lincoln Sanderson and Dana Streets.**	Oppose		Neutral		Support	Measures strongly supported by Citizen Survey, but curb extensions encroach on travel lanes and are expected to be problematic for school bus turning movements at Sanderson and Dana. Staff recommends implementation of high-visibility crosswalks and only those curb extensions that can be verified to not restrict bus turning movements. Curb extensions at the Lincoln Street intersection (north side), on Lincoln itself is the most feasible and practical location, and thus recommended by staff.
		1	2	3	4	5	
		7	**0**	**8**	**4**	**22**	
	**Construct high-visibility cross-walk at Corry St., Woodland Dr. and Minnesota Ave.**	Oppose		Neutral		Support	Strongly supported, as above, but without any potential for large vehicle turning movement conflicts. Staff recommends implementation. Minnesota is planned for implementation in the current SR2S summer construction project. Note: some comments were received that Corry Street is not a high pedestrian volume intersection and that another intersection should be selected. Council may wish to direct that another or additional intersections receive this treatment along the Chestnut corridor.
		1	2	3	4	5	
		3	**1**	**3**	**6**	**28**	
No Image For This Item	**Provide right of way to the City.**	Oppose		Neutral		Support	Same recommendation as below, but with caution that right of way is very limited without significant private infrastructure consequence to many property owners.
		1	2	3	4	5	
		15	**1**	**4**	**1**	**18**	

Continued on next page

Chestnut Street, continued

<table>
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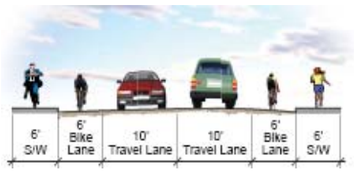
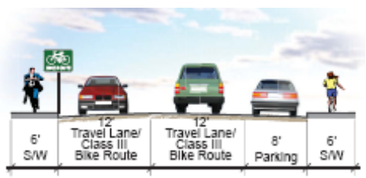
<td> 
</td>
<td>Remove on-street parking between Franklin and Lincoln Streets to make room for wider sidewalks and bike lanes.</td>
<td>
<table>
<tr><td colspan="2">Oppose</td><td>Neutral</td><td></td><td>Support</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>16</td><td>1</td><td>5</td><td>0</td><td>19</td></tr>
</table>
</td>
<td>This measure was very closely matched with a moderately higher level of support than opposition. The MCOG Overall Work Program work element for FY 2011-2012 will give an opportunity to measure the feasibility of implementing this part of the Chestnut Street conceptual plan. Staff recommends waiting for the results of the feasibility study prior to implementing or rejecting this concept.</td>
</tr>
<tr>
<td> 
</td>
<td>Shift on-street parking from south side to north side between Lincoln Street and Dana Street.</td>
<td>
<table>
<tr><td colspan="2">Oppose</td><td>Neutral</td><td></td><td>Support</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>15</td><td>0</td><td>6</td><td>1</td><td>19</td></tr>
</table>
</td>
<td>This measure was somewhat closely matched with a higher level of support than opposition. The MCOG Overall Work Program work element for FY 2011-2012 will give an opportunity to measure the feasibility of implementing this element of the Chestnut Street conceptual plan. Staff recommends waiting for the results of the feasibility study prior to implementing or rejecting this concept.</td>
</tr>
</table>

7.3 Survey Results – Quantitative and Written Comments

Fir Street Survey Results – Quantitative:

Fir					
Survey #	Neighborhood Scale Traffic Circle	Speed Cushion	High-Visibility Crosswalk		
1	1	1	5		
2			5		
3	5	3	5		
4	5	5	5		
5	1	3	5		
6	1	1	1		
7		4	4		
8	2	1			
9	1	2	5		
10	3	5	5		
11	5	5	3		
12	1	1	1		
13	3	2	4		
14	5	1	3		
15	5	5	5		
16	5	4	5	*survey 16 responded on	
*	5	3	5	behalf of two people	
17	1	1	1		
18	4	5	5		
19	1	3	5		
20	1	4	4		
21	1	1	1		
22	1	5	1		
23	1	1	1		
24	5	2	5		
25	1	3	5		
26	5	1	5		
27	3	3	3		
28	5	5	5		
29	1	5	5		
30	5	5	5		
31	1	3	5		
32	1	1	5		
33	5	5	5		
Average	2.8125	3	4	3.270833333	Average of the averages
Number of responses in each category					
Oppose	15	10	6		
	1	3	0		
Neutral	3	8	3		
	1	3	4		
Support	12	10	21		

Fir Street Survey Results – Written

Survey #	What pedestrian and bicycle safety issues exist on your street?	Do you have any suggestions on how to make the drop-off and pick-up activities at the Middle School work better and more safely?	Do you have any additional comments?
1	n/a		
2	n/a		
3	Street corners need ramps at Fir & N Whipple/Perkins	Install flashing light & high-visibility crosswalk at Harold & Fir.	
4	None.	Issue tickets to parents that stop in middle of street to drop off kids.	
5	None.	Student pick-up/drop-off should be in parking lot south of Senior Center.	Do not install traffic circles, too much parking must be removed to accommodate one.
6			Need 4-way stops signs on Whipple/Perkins & Fir; Harrison & Fir; Corry & Fir; and McPherson & Fir.
7	n/a		
8	n/a	Create one-way (north) from Pine to N Corry in the same "loop" as buses currently use. Move Senior Center entrance to south end of lot. This would allow buses to load/unload without concern of oncoming traffic or blind corners.	
9	None near N. Franklin		
10	Speeding cars. Cars not coming to complete stop.	Impossible problem to solve	Install one or two stop signs at side streets. Install speed limit signs.
11	Street is wide with no calming features.		Would support anything to slow down traffic.
12		Less speed on Fir, less talking on cellphones.	Why the big dip on S Harrison?
13	Speeding due to no stop signs or police presence.	Signs to slow traffic before reaching Middle School	Need better plan for stop signs & better traffic control at Middle School, Main, & Franklin Streets.
14	n/a		
15	a lot	implement your plans	
16	Support development of biking & walking access	Install stop sign or blinking light at the 90 degree corner. Move drop off/pick up to parking lot area (south side of parking lot).	
17	Auto is the safety issue.		Reinstate 4-way stop at Harrison & Fir.
18	Heavy vehicular & pedestrian traffic all day. Bike lanes not used a lot.	Use Senior Center for drop off/pick up	Replace 4-way stop at Harrison & Fir
19	n/a		
20	paths	Reinstate stop signs on Fir.	
21			Do not spend money foolishly as FB has done in the past.
22	speeding		Replace 4-way stop at Harrison & Fir
23	Never a problem except when there is an event at Cotton auditorium and after dark		
24	speeding	speed bumps, community education re basic pedestrian safety issues, traffic and crossing monitors, cop on the corner at pick-up & drop-off times	Disgusted with drivers and local law enforcement officers who do not enforce traffic safety laws.
25	Lots of children walking to/from school on Fir. Does Fir or Pine have a bike lane?		
26	n/a		
27	No problems on 600 block N McPherson		
28	Fir @ Franklin intersection needs addressing. Love the traffic circle idea		
29	n/a		
30	much speeding on Fir		
31	Bicyclists run stop signs	Get buses off the street for loading/unloading. People stopping in middle of street is police matter. Educate parents about this problem	
32	n/a		
33	speeding, school in middle of block with no impediments	create dedicated 2 lanes (eastbound, one-way) on school property	Install stop signs every other block with high visibility crosswalks and speed cushions. Add groupings of speed dots. Have temporary speed monitor. Police to give tickets.

Harold Street Survey Results – Quantitative

Harold							
Survey #	Curb Extensions Crosswalks at Fir	Speed Cushions at Middle School	Crosswalks and Splitter Islands	Flashing Stop Signs at Oak	Curb Extensions @ Oak, Madrone and Maple		
1	3	5	5	5	3		
2	1	5	5	5	1		
3						blank	
4	4	5	5	3	4		
5	4	4	4	3	3		
6	5	1	5	5	5		
7	5	5	5	5	5		
8	5	5	4	4	4		
9	4	4	4	3	4		
10	5	5	5	5	5		
11	5	3	5	5	5		
12	5	5	5	5	5		
13	5	5	5	5	5		
14	5	5	5	5	5		
15	5	5	5	5	5		
16	1	1	5	1	1		
17	5	5	5	5	5		
18	3	5	1	2	2		
19	5	5	5	5	5		
20	5	4	5	5	5		
21	5	5	5	5	5		
22	5	2	1	5	5		
23	4	4	4	4	4		
24	5	5	5	5	5		
25	5	5	5	3	5		
26	5	4	3	2	2		
27	4	1	1	1	1		
28	5	5	4	3	4		
29	5	3	5	2	5		
30	3	1	1	5	1		
31	4	4	3	2	3		
32	3	1	1	1	3		
33	5	5	5	3	4		
34	1	1	1	1	1		
35	5	5	5	5	5		
Average	4.235294118	3.91176471	4.029411765	3.76470588	3.823529412	3.95294	Average of the averages
Number of responses in each category							
Oppose	3	6	6	4	5		
	0	1	0	4	2		
Neutral	4	2	2	6	4		
	6	6	5	4	6		
Support	21	19	21	18	17		

Harold Street Survey Results – Written

Survey #	Do you have any suggestions on how to make the drop-off and pick-up activities at the Middle School work better and more safely?	What pedestrian and bicycle safety issues exist on your street?	Do you have any additional comments?
1	remove it from Harold, perhaps relocate to bus area in rear, Senior Center parking lot, or another street	no stop signs on Harold except at Oak. Too far apart.	consider releasing students in staggered intervals.
2	Have officer or two there to keep cars out of bus area	bike riders do not obey traffic rules	have dip like one on Harrison; curb extensions are difficult for larger vehicles.
3	n/a		
4			speed bumps only slow traffic on that one block; drivers would divert to Pine Street; make exit from Senior Center right-turn only
5			slow westbound traffic on Alder Street between Harold & Harrison
6	n/a		
7	Have a drop-off on Laurel	traffic too fast at all hours. Motorists don't watch for bicyclists	Would like to see all improvments undertaken.
8	Make them walk	PD needs to prohibit bike riders on sidewalks; need more school eductation that bicyclists must follow road rules	Islands would be a wast of money & time.
9	n/a		
10	Implement your plans	a lot	no
11	Drivers should be held accountable	speeding, need "slow" signs	Need more flashing lights, stoplight, safety crosswalk with button to push like downtown
12	n/a		
13	use big parking lot space in front of bus barn; use back fire lane road that starts by the bandroom, pathways across the field…	motorists ignore stop sign at Willow & Harold. Concerend about pedestrians & bicyclists	Keep bicycles off of sidewalks
14		speed bumps would help Maple between Harold & Lincoln	
15	n/a		
16			fine the way it is; spend money on something needed
17	n/a		
18	n/a		
19	n/a		
20		bicyclists on sidewalks	Motorists run stop sign at Willow & Harold; install dip across Willow at Cedar
21			Install 3-way stop at Pine & Harold and have a crosswalk from Pine to Harold at north side of intersection
22	Use the parking lot south of the Senior Center.		
23	n/a		
24			Install stop signs at Pine & Harold
25	n/a		
26	n/a		
27			No curb extensions. Add stop signs at Harold & Pine. Add "end of street" sign facing Pine @ Harold
28	n/a		
29			Tired of litter in yard and car getting scratched.
30	Ask Middle School parents where kids should go after school. Assign one bus an in-town route.Make area near school no-parking and designate an area for parents to pick up kids.	flashing stop sign may be more effective. Kids need to slow down when riding in town.	Walnut east of Franklin traffic unsafe for pedestrians. Do something to Chestnut to alleviate problem. Perhaps remove stop sign on Chestnut.
31		speeding cars	Relocate speed cushions in front of Middle School further south.
32	n/a		
33	Drop-off and pick-up should not double park. Designate a spot in the parking lot.	Mostly FAST traffic - please, please, please patrol and <u>give</u> tickets!	
34	Instead of curb extensions, install painted, high-visibility crosswalks at Fir/Harold		No speed cushion in front of Middle School, install instead on Fir between Corry & alley west of Harold, east of Lincoln across from park entrance, and west of Nancy Way. Install high-visibility crosswalks on Harold. Paint street instead of installing lighting devices. Need one-direction drop-off & pick-up at school. Install stop sign at Redwood/Morrow with painted crosswalk. Install stop sign on Cedar at Morrow.
35	n/a	speeding, congestion	Partner with law enforcement to provide education of parents & kids re bicycle traffic laws
36			There is entirely too much speed.
37	n/a		

Cedar Street Survey Results – Quantitative

Cedar								
Survey #	Alternating Parking	Shared travel lane at Nancy Way	Choker/curb extension	High vis crosswalks & curb-ext. Morrow	High vis crosswalks at Lincoln and Nancy	Gateway signage at City Limits		
1	5	5	5	5	5	5		
2	4	3	3	2	2	4		
3	1	1	1	4	2	3		
4	4	3	3	4	4	4		
5	5	5	5	5	5	5		
6	3	1	1	5	5	3		
7	1	4	2	4	4	4		
8	4	4	4	5	5	5		
9	1	3	3	4	3	4		
10	1	1	1	1	1	5		
11	1	1	1	1	1	1		
12	3	3	3	3	3	3		
13	3	3	3	3	3	3		
14	1	1	1	4	2	3		
15	5	4	2	4	4	2		
16	5	5	1	5	5	5		
17	5	3	4	5	5	3		
18	5	5	5	5	5	5		
19	3	4	4	3	3	4		
20	1	1	1	1	1	1		
21	1	1	1	1	5	1		
22	1	1	1	2	2	1		
23	1	1	1	2	1	1		
24	4	3	3	4		4		
25	4	3	3	4	4	4		
26	4	1	1	4	4	4		
27	3	2	1	1	5	3		
28	4	2	2	5	5	5		
29	1	3	4	3	3	3		
30	2	3	3	5	5	4		
31	1	1	1	1	1	1		
32	1	2	3	4	4	5		
33	1	1	1	1	4	3		
34	5	5	4	4	4	4		
35	1	3	3	5	5	5		
36	4	5	5	5	5	4		
37	3	1	1	1	4	1		
38	3	3	3	3	3	3		
39	1	1	1	3	3	**3**		
40	1	3	3	2	3	**1**		
41	1	1	1	1	1	1		
42	2	4	4	3	4	3		
43	1	1	1	3	4	3		
44	1	1	1	1	1	1		
45	1	1	2	1	5	1		
46	3	1	5	5	5	2		
Average	2.52173913	2.47826087	2.434782609	3.195652174	3.511111111	3.108695652	2.875040258	Average of the averages
Number of responses in each category								
Oppose	21	19	19	11	7	11		
	2	3	4	4	4	2		
Neutral	8	13	12	8	8	13		
	8	5	6	11	11	11		
Support	7	6	5	12	15	9		

Cedar Street Survey Results – Written

Survey #	What pedestrian and bicycle safety issues exist on your street?	Do have any additional comments?
1	n/a	
2		excessive noise/speed
3	none	keep one-sided parking
4	need wider sidewalks between Sanderson/Harold	restricted parking on east side of Harold/Cedar
5	n/a	
6	need stop sign/crosswalk at Morrow & Redwood	bike lanes would be great
7	sidewalks inconsistent	oppose alternate by block parking. Noise & speed a problem
8	Cedar Street is narrow	consider making first three blocks of Cedar one-way
9	bicycle riders dart on & off sidewalk	
10		more patrol needed at peak hours; one-way traffic eastbound from Harold to Sanderson
11	n/a	
12	n/a	
13	n/a	
14		speed bumps would solve a lot of the problems
15	speeding	need more patrols
16	n/a	
17	no bike lanes, speeding vehicles, no police presence	Install wide, tapered speed bumps. Consider option to dead-end Cedar at OJ Park
18	excessive speed while kids play near cars on street	speeds in excess of 50 mph, no officers in site
19	potholes	fix the potholes
20	n/a	
21	n/a	
22	no problems on Nancy Way	need speed bumps & crosswalks, fix potholes, no curb extensions
23		have City employees drive slower on Cedar
24	n/a	
25	excessive speed. No sidewalks in some areas. Potholes	install speed bump or two
26	n/a	
27		install wide speedbumps like the one in front of High School, also consider on 100 block of North Sanderson
28		one way traffic between beginnning of Cedar & Sanderson.
29	no room for school buses	install stop signs at intersections, consider Cedar becoming one-way eastbound. Alternate parking would be dangerous and would not affect speeding.
30	sporadic & uneven sidewalks	alternate block parking would be more confusing. Bikes would be more apt to dodge in & out.
31		consider punching Dick Williams Way/Dennison Lane through to Oak.
32	speeding	
33	lack of good sidewalks, consider bike lanes	repair/replace/install sidewalks & leave street as is. Paint curbs red where there are "no parking anytime" signs.
34	n/a	
35		add stop signs
36	n/a	
37		Problem invented that doesn't exist. Do not make changes.
38		make Cedar one way with parking on both sides
39	City employees drive too fast.	install infrequent speed bumps; do not alternate block parking; do not create shared travel lane with Nancy Way; high visibility crosswalk good idea, but not curb extensions; install "slow the heck down" sign instead of City gateway sign.
40		Make Cedar one way from Harold to Sanderson
41	no problems on Nancy Way	Install speed bumps on Cedar
42	speeding, lack of crosswalks, pedestrians walk in street	sdd speed table to high-vis crosswalk
43		Summary of points from meeting of Nancy Way property owners: Support sidewalks on Cedar, but maybe only on one side. Do not support alternate parking by block. Stongly oppose change to Nancy entrance. Crosswalks okay at Nancy & Lincoln. Make Morrow/Cedar more straight across. Lukewarm over gateway sign, would not impact traffic flow. Divert City trucks from Cedar.
44		Opposes all options provided with the following comments: 1) would create slalom; consider instead prohibiting parking on Cedar. 2) no need and would restrict residents leaving area in emergency. 3) Install stop sign at Nancy Way/Cedar. 4) Install 4-way stop at Cedar/Morrow. 5) Sidewalks too narrow. Need to improve sidewalks on north side as it is flatter. Need crosswalk at Cedar & Sanderson. 6) Only locals would ever see the sign. Money better spent resurfacing streets or alleys, repairing potholes Need to preclude parking on east side of Harold at Cedar. Divert money to PD to monitor speeders/people talking on cell phones or to purchase traffic cameras.
45	None on Nancy Wy. Leave Nancy Way alone. On Cedar speeding is an issue. 1. Have City workers obey the speed limit for starters. 2. 4 way stop at Morrow.	Need sidewalks complete on one side or the other. No alternate parking but keep same side parking as it is.
46	n/a	

Chestnut Street Survey Results – Quantitative

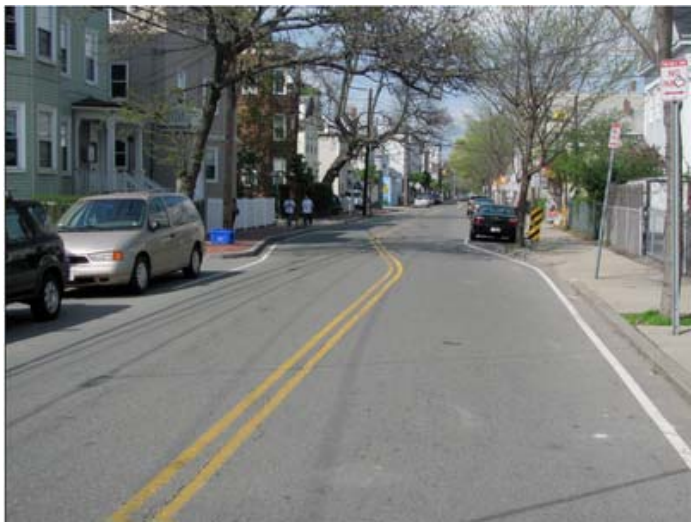
Chestnut							
Survey #	Curb ext. and high vis crosswalks at Lincoln, Sanderson and Dana	High vis crosswalks at Corry, Woodland and Minnesota	Remove on-street parking between Franklin and Lincoln	Provide ROW to City	Shift on-street parking from South to North side between Lincoln and Dana		
1	5	5	5	5	5		
2	5	5	5	5	5		
3	5	5	5	4	5		
4	5	5	5	5	5		
5	1	4	1	1	4		
6	5	5	5	5	1		
7	1	1	1	1	1		
8	1	1	1	1	1		
9	5	2	1	1	1		
10	4	5	5	5	5		
11	1	5	1	1	5		
12	5	3	5	5	5		
13	5	5	3		3		
14	5	5	5	5	5		
15	5	5	1	3	3		
16	5	4	3	3	3		
17	5	5	2	1	5		
18	4	4	1	1	1		
19	1	4	1	1	1		
20	5	5	5	5	5		
21	5	5	3		3		
22	1	1	1	1	1		
23	4	5	5	5	5		
24	5	5	1	1	3		
25	3	4	1	2	1		
26	3	5	5	5	5		
27	5	5	5	5	1		
28	4	5	5	5	5		
29	3	5	5	5	5		
30	3	4	3	1	1		
31	1	5	1	1	1		
32	3	3	3	3	1		
33						*written response	
34	5	5	1	5	5		
35	5	5	1	1	1		
36	5	5	1	1	1		
37	5	5	5	5	5		
38	5	5	5	5	5		
Average	3.864864865	4.324324324	3.027027027	3.11428571	3.189189189	**3.503938224**	Average of the averages
Number of responses in each category							
Oppose	7	3	15	14	14		
	0	1	1	1	0		
Neutral	5	2	5	3	5		
	4	6	0	1	1		
Support	21	25	16	16	17		

Chestnut Street Survey Results – Written

Survey #	What pedestrian and bicycle safety issues exist on your street?	Please tell about the effect on your household of the elimination of on-street parking or the shift of on-street parking from one side of the street to the other.	Do you have any additional comments?
1	Chestnut & Franklin intersection busy	no effect at our location	it will be interesting to watch your progress
2	n/a		
3			glad that Chestnut is going to be safer
4		we park off the street, others should do the same	
5		don't need it	
6	n/a		
7	Sidewalk caved in where City repaired water leak	no effect	cyclists ride on sidewalks. Last street project resulted in water puddling at intersections, what's with all the dips?
8	n/a		
9	none seen	none	
10	Educate bicyclists on rules at the schools; perhaps require a bike license?	little parking available, but walking is good for everybody	need wider, well-maintained & continuous sidewalks on Chestnut.
11		Elimination of street parking unfiar to existing homeowners, but additional buffer would be greatly appreciated for pedestrians.	Consider narrower lanes on Oak with bike lane to Dana Street. Could support elimination of parking on one side of the street if necessary. Bike connection between Middle & High Schools would be supported.
12	Need bike lane & wider sidewalks	n/a	thank you
13	Need better striping on crosswalks	Potential for remiaining parking to be used in a manner detrimental to business use on S Franklin & side streets.	Consider two-hour parking on 500 block of S Franklin.
14	Kids riding bikes on sidewalks	none.	go for it!
15	Where both proposed "high visibility" spots are where I do see need.	not an issue at this time, but will be for others. Street parking is needed.	do not take forever to do any improvements. Start it and get it completed.
16	n/a	n/a	
17	Spring Street: lack of sidewalks. Chestnut: no stroller or wheelchair friendly surface or corners on sidewalks.	Most have no option other than on-street parking. My guests park in street. Side streets are full every night. Sacrificing parking is not the best option, but a narrower sidewalk would be fine as long as easily navigable by a stroller (at this time it is NOT).	
18	There are no bicycle lanes and the sidewalks are narrow.	There would be no way to leave our driveway if parking was changed to the north side.	Maybe make Chestnut one-way?
19	Speed limit is 15 mph & 25 mph during busy times, there are no issues. Do not encourage bikes on Chestnut	Our business has four cars that park on-street daily. Elderly patients come for eye exams. State Agency nearby parks on street (employees & clients). Where will they park?	Wider sidewalks and moving parking to other side of road a waste of taxpayer money. Have not experienced any problems with dedestrian or bike issues on Chestnut. Don't fix what's not broken.
20	None.	not affected.	I am frequent walker with a stroller and find Chestnut the worst due to obstacles in sidewalk.
21	Pedestrian visibility crossing Franklin at Chestnut on south side	Concerned of effects on side streets if Chestnut parking is eliminated.	Create 2-hour parking zone on 500 block S Franklin.
22	None!	Inconvenience of the people of Fort Bragg	None!!
23	Relatively good sidewalks on 500 block S Harrison. Eliminating Chestnut parking will affect safety of bike lane on Harrison		Support high-visibility crosswalks in all suggested locations, but not curb extensions.
24	Traffic is moving too fast.	Removal of on-street parking would be a big loss for everyone. Bike lanes are a plus.	
25	Impossible to ride a bike due to heavy traffic & narrow lanes. Use less driven-on roads instead and walk.	This would immensely decrease visibility to pull out onto Chestnut. If you add parked cars and you are asking for more accidents and pedestrian injuries.	Instead, limit number of cars/house. Better to put bike lanes on both sides & have not parking at all on the street. DO NOT DO THIS AT ALL!!!
26	n/a		
27	Sidewalks too small & have street signs in the middle.	We would have to circle block to park.	Move street signs from middle of sidewalk.
28		No impact	These are thoughtful solutions ofr a hazardous street.
29	n/a		
30	Speeding vehicles!	People who park on north side would still take all the spaces. They have so many vehicles to park. Where would service vehicles park?	Opposed to 6' sidewalks as it would take 2' from my driveway. Shifting on-street parking would result in school buses and trucks being closer to my home (noise, traffic, & people).
31	Too much vehicle traffic on Chestnut. Drivers speed.	I'm disabled and depend on street parking in front of my house.	Excessive speed is the issue. Extending crosswalks would put pedestrians closer to speeding cars. Additional stop signs would be more effective on Chestnut. Divert traffic to Maple which is already wide enough to handle additional traffic. Do not eliminate the only street parking near my home on Chestnut. Make Chestnut one-way to encourage drivers to use Maple. Consider installing speed bumps.
32	Busy street with schools.	We have driveway, but it's not enough.	Wider sidewalks would help if City is willing to pay the price.

7.4 Pictorial Glossary of Traffic Calming Methods

Chicane (Alternating On-Street Parking)



Chicanes are curb extensions that alternate from one side of the street to the other, forming S-shaped curves. Chicanes can also be created by alternating on-street parking, either diagonal or parallel, between one side of the street and the other. Each parking bay can be created either by restriping the roadway or by installing raised, landscaping islands at the ends of each parking bay. Good for locations where speeds are a problem but noise associated with Speed Humps and related measures would be unacceptable. (Fehr & Peers/Calm Streets Boston)

Curb Extension (Bulbout)

Curb extensions at intersections reduce the roadway width from curb to curb. They "pedestrianize" intersections by shortening crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas. They also tighten the curb radii at the corners, reducing the speeds of turning vehicles. They are good for intersections with substantial pedestrian activity and areas where vertical traffic calming measures would be unacceptable because of noise considerations. (Fehr & Peers/City of Austin)

High Visibility (enhanced) Crosswalk

High visibility or enhanced crosswalks are crosswalks painted with broad stripes and borders that create a larger visual footprint when viewed obliquely as is typical when driving an automobile, truck or motorcycle. The larger visual footprint alerts the driver to the potential presence of pedestrians earlier than with typical crosswalks, thus increasing safety. (pedbikeimages.org)

Raised Crosswalk

Raised crosswalks are Speed Tables outfitted with crosswalk markings and signage to channelize pedestrian crossings, providing pedestrians with a level street crossing. Also, by raising the level of the crossing, pedestrians are more visible to approaching motorists. Raised crosswalks are good for locations where pedestrian crossings occur at haphazard locations and vehicle speeds are excessive. (Fehr & Peers/Dan Burden)

Shared Lane (Choker)

Chokers are curb extensions at midblock locations that narrow a street by widing the widewalk or planting strip. If marked as crosswalks, they are also known as safe crosses. Two-lane chokers leave the street cross section with two lanes that are narrower than the normal cross section. One-lane chokers narrow the width to allow travel in only one direction at a time, operating similarly to one-lane

bridges. They are good for areas with substantial speed problems and no on-street parking shortage. (Fehr & Peers/Calm Streets Boston)

Speed Cushion

Speed cushions are small speed humps installed in travel lanes with spaces between them. They consisting of either recycled rubber or asphalt, raised about 3 inches in height with a length of about 10 ft. Speed cushions force cars to slow down as they ride with one or both wheels on the humps. The wider stance (axle width) of fire apparatus generally allows such vehicles to pass without slowing, whereas passenger vehicles must slow to 15-25 MPH in order to pass comfortably. (City of Austin)

Splitter Island

A splitter island is a raised island located at an intersection along the centerline of a street that narrow the travel lanes at that location. Splitter islands are often landscaped to provide a visual amenity. Fitted with a gap to allow pedestrians to walk through at a crosswalk, they are often called "pedestrian refuges." Splitter islands are good for entrances to residential areas, and along wide streets where pedestrians need to cross. (Fehr & Peers/Gary Jazz)

Traffic Circle

Traffic circles are raised islands, placed in intersections, around which traffic circulates. They are good for calming intersections, especially within neighborhoods, where large vehicle traffic is not a major concern but speeds, volumes, and safety are problems. (Fehr&Peers /pedbikeimages.org/Heather Bowden)

7.5 Police Department Pedestrian Safety Press Release

FORT BRAGG POLICE DEPARTMENT

250 Cypress Street
Fort Bragg, CA 95437-5437

MARK PUTHUFF
Chief of Police

(707) 961-2800
Fax: (707) 961-2806

PRESS RELEASE

Pedestrian Crosswalks and Pedestrian Safety

Summer is upon us and nicer weather means more pedestrians. With the increase in the number of pedestrians, both pedestrians and motorists need to be vigilant to avoid becoming another statistic. The majority of traffic collisions involving pedestrians occur within crosswalks. Only half of traffic collisions involving pedestrians are caused by the pedestrians.

Every intersection has a marked or unmarked crosswalk. Simply put, a crosswalk goes from one corner to another corner, or a point directly opposite the corner on the other side of the road. For the most part, crosswalks cross at a 90-degree angle. The difference between a marked and unmarked crosswalk is the visibility of paint on the ground.

Pedestrians need to remember that they have the right of way at crosswalks ONLY when it is safe to cross. If a pedestrian enters a crosswalk into the path of a moving vehicle that is dangerously close, the pedestrian does not have the right of way. A pedestrian cannot unnecessarily slow or delay traffic while in a marked or unmarked crosswalk.[1] Pedestrians do not have the right of way when crossing the street outside of crosswalks.[2] Additionally if there is a stop light at each end of a block, pedestrians shall not cross the street unless using a crosswalk.[3] The Vehicle Code actually requires pedestrians to use a sidewalk if there is one. If a pedestrian cannot use a sidewalk, they should walk on the left hand side of the roadway, against traffic.[4] Pedestrians cannot use the bicycle lane to walk, if there is a sidewalk or shoulder to walk on.[5]

Here are a few guidelines to make sure you stay safe when crossing the road:

1. Never assume the driver of the car can see you.
2. Try to make eye contact with the driver and get some sort of acknowledgement before stepping into the roadway.
3. Always use a crosswalk on busy streets.

When driving, it is important to remember that cars are dangerous and can easily injure or kill a pedestrian. If a pedestrian steps into the roadway, whether in a crosswalk or not, a driver must exercise due care or caution for the safety of the pedestrian.

Generally speaking, this means the driver must stop. If one driver has stopped for a pedestrian, then all the drivers approaching that crosswalk must stop for that pedestrian.[6]

Here are a few guidelines to use when you are driving to help keep pedestrians safe:

1. Scan the roadway. Pedestrians come in all shapes, sizes and ages. The younger the pedestrian, the harder it is to see them.
2. Be especially vigilant in residential areas. Children love to play in the street and chase after balls that roll into the street.
3. The faster you go, the longer it takes to stop. At 25 MPH (the speed limit on residential streets in Fort Bragg) it takes 150 feet to recognize a hazard and come to a complete stop.

Remember the key to being safe on the streets is to Stay Alert and Stay Alive.

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[1] Section 21950 California Vehicle Code (Right of Way at Crosswalks)
[2] Section 21954 California Vehicle Code (Pedestrians Outside Crosswalks)
[3] Section 21955 California Vehicle Code (Crossing Between Controlled Intersections)
[4] Section 21956 California Vehicle Code (Pedestrians on Roadway)
[5] Section 21966 California Vehicle Code (Pedestrians In Bicycle Lane)
[6] Section 21951 California Vehicle Code (Vehicles Stopped for Pedestrians)

7.6 April 29, 2010 Traffic Safety Open House Newspaper Advertisement

Help Make Your Fort Bragg Neighborhood Safe

Traffic Safety – Personal Safety

Your Concerns are Important!

This Afternoon and Evening – Thurs. 4/29

Two open house meetings will be held at the C.V. Starr Community Center at 300 S. Lincoln St.

Drop in at your convenience during either time period:

1:00 PM to 3:00 PM or 5:00 PM to 7:00 PM

Meet with Fort Bragg Police Captain Brian Ballard and City Planner Chris Carterette to discuss how to:

- **Make City neighborhoods safer for people of all ages to walk, bike and drive**
- **Improve personal and property safety**

Snacks and refreshments will be provided. Need more information? Contact City of Fort Bragg Planner, Chris Carterette @ 707.961.2827 x107; e-mail: ccarterette@fortbragg.com

This project is funded by a grant from Mendocino Council of Governments

7.7 Public Workshop Participants

Elaine Ball
Tom Dolan
Roy Falk
Judith Filmer
Steve Funk
Barbara Gaskill
Dan Gjerde
Jean Grass
Mark Johnson
Bob Krebs
Jere Melo
Monique Myers
Laura Palacios
Rick Riley
Judy Williams

7.8 Locations of Concern to School Bus Operators and General Comments from School District

Harold Street

1. Curb extensions by Fir/Harold intersection and along Cotton Auditorium frontage will be problematic
2. Curb extensions and splitter islands along length of Harold should be analyzed for bus turning movement issues
3. During modeling, parked cars should be simulated in all possible legal locations
4. Maple/Harold and Madrone/Harold intersections are not expected to be problematic with curb extensions
5. Mountable curbs are suggested wherever possible
6. Narrowing of lanes is a matter of concern

Chestnut Street

1. Bulbout at Dana Street would be a serious problem as the intersection is already difficult
2. Sanderson bulbouts would be problematic as the intersection is already difficult to navigate
3. Lincoln bulbouts could work with careful design
4. Raised crosswalks and speed humps/tables are acceptable

Fir Street

1. Traffic circles are acceptable, but may require circuitous routing in order to avoid difficult left turning movements, especially at Corry
2. The above issues are situation specific in relation to door to door service provided to kindergartners and first-graders
3. The situations are resolvable (workable)

Cedar Street

1. Proposed splitter island at Cedar and Harold would be problematic for left turns off of Cedar onto Harold
2. Otherwise the Cedar Street plan is acceptable