

**CITY OF FORT BRAGG
ALLEY MASTER PLAN**



June 2011

Prepared For:

**City of Fort Bragg
416 N. Franklin Street
Fort Bragg, CA 95437**

Prepared By:

**KASL Consulting Engineers
7777 Greenback Lane, Suite 104
Citrus Heights, CA 95610**



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TABLE OF CONTENTS

I	INTRODUCTION	
	Master Plan Goals and Objectives	I-1
	Background	I-2
	Inventory, Alley Identification System	I-2
	Condition Assessment	I-6
	Opportunities	I-7
	Prioritization	I-8
	Recommendations	I-8
	Implementation	I-8
II	EXECUTIVE SUMAMRY	
	Project Scope, Goals and Objectives	II-1
	Findings	II-1
	Recommendations	II-3
	Estimated Costs	II-5
	Funding	II-8
	Schedule	II-8
III	FINDINGS	
	Existing Conditions	III-1
	Existing Opportunities	III-16
	Prioritization	III-24
	Database	III-27
IV	RECOMMENDATIONS	
	Alley Improvement Plans	IV-1
	Typical Sections	IV-9
	Materials	IV-13
	Recommended Alley Design Guidelines	IV-18
	Estimated Alley Improvement Cost	IV-22
	Summary	IV-30
V	IMPLEMENTATION	
	Funding	V-1
	Schedule	V-3



**CITY OF FORT BRAGG
ALLEY MASTER PLAN**

LIST OF FIGURES

Figure		Page
I-1	Fort Bragg Study Area	I-3
I-2	Fort Bragg Land Uses	I-4
I-3	Alley Identifications	I-5
II-1	Alley Inventory and Evaluation Result	II-2
II-2	Recommended Prioritization of Alley Improvements	II-4
II-3	Typical Commercial Layout with Street and Alley Frontage	II-6
II-4	Typical Second Unit Improvements	II-7
II-5	Summary of Alley Recommendations	II-9
III-1	Sample Alley Assessment Form	III-2
III-2	Need for Surface Improvements	III-4
III-3	Need for Grading Improvements	III-6
III-4	Need for Drainage Improvements	III-8
III-5	Access Service Importance	III-10
III-6	Level of Traffic	III-12
III-7	Need for Safety Improvements	III-13
III-8	Alley Inventory and Evaluation Results	III-15
III-9	Redevelopment Plan Areas	III-17
III-10	Underground Utility District Locations	III-19
III-11	Alley N 400 D	III-20
III-12	Alley N 300 D	III-21
III-13	Drainage Master Plan & Slope Exhibit	III-22
III-14	Opportunity Matrix Result	III-25
III-15	Recommended Prioritization of Alley Improvements	III-26
IV-1	Typical Commercial Alley to Street Transition	IV-2
IV-2	Typical Residential Alley to Street Transition	IV-3
IV-3	Typical Commercial Alley Striping, Signing & Lighting	IV-4
IV-4	Typical Residential Alley Striping, Signing & Lighting	IV-5



LIST OF FIGURES (cont.)

Figure		Page
IV-5	Joint Trench Configurations & Occupancy Guide	IV-7
IV-6	Typical Primary & Secondary Pull Box Details	IV-8
IV-7	Commercial / Multi Family (MF) Residential-1 Alley Improvements	IV-10
IV-8	Commercial / Multi Family (MF) Residential-2 Alley Improvements	IV-11
IV-9	Commercial / Multi Family (MF) Residential-3 Alley Improvements	IV-12
IV-10	Residential-1 Alley Improvements	IV-14
IV-11	Residential-2 Alley Improvements	IV-15
IV-12	Residential-3 Alley Improvements	IV-16
IV-13	Typical Commercial Layout with Street and Alley Frontage	IV-20
IV-14	Typical Second Unit Improvements	IV-23
IV-15	Summary of Alley Recommendations	IV-32



CITY OF FORT BRAGG ALLEY MASTER PLAN

LIST OF TABLES

Table		Page
IV-1	ESTIMATED QUANTITIES AND COSTS FOR CITY OF FORT BRAGG COMMERCIAL / MF RESIDENTIAL-1 ALLEY IMPROVEMENTS	IV-24
IV-2	ESTIMATED QUANTITIES AND COSTS FOR CITY OF FORT BRAGG COMMERCIAL / MF RESIDENTIAL-2 ALLEY IMPROVEMENTS	IV-25
IV-3	ESTIMATED QUANTITIES AND COSTS FOR CITY OF FORT BRAGG COMMERCIAL / MF RESIDENTIAL-3 ALLEY IMPROVEMENTS	IV-26
IV-4	ESTIMATED QUANTITIES AND COSTS FOR CITY OF FORT BRAGG RESIDENTIAL-1 ALLEY IMPROVEMENTS	IV-27
IV-5	ESTIMATED QUANTITIES AND COSTS FOR CITY OF FORT BRAGG RESIDENTIAL-2 ALLEY IMPROVEMENTS	IV-28
IV-6	ESTIMATED QUANTITIES AND COSTS FOR CITY OF FORT BRAGG COMMERCIAL / MF RESIDENTIAL ALLEY IMPROVEMENTS	IV-29
IV-7	RECOMMENDED ALLEY IMPROVEMENTS	IV-31



CITY OF FORT BRAGG ALLEY MASTER PLAN

I. INTRODUCTION

MASTER PLAN GOALS AND OBJECTIVES

The City of Fort Bragg has obtained a Mendocino Council of Governments (MCOG) grant for the preparation of this City-wide Alley Master Plan. The purpose of this Master Plan is to inventory and evaluate the conditions of City alleys and then to prepare a prioritized list of recommended improvements. The City's alleys are evaluated in this Master Plan over a wide range of conditions and issues including surface improvements, grading, drainage, access, traffic and safety. The alleys are reviewed with respect to improvement opportunities, including funding, drainage and consistency with other City Master Plans. The nexus of conditions and opportunities is used to arrive at a prioritized list of alley improvements.

The City's alleys are used by vehicles, bicycles and pedestrians. They serve as the primary corridor for service providers (fire department, police department, solid waste collection, deliveries) and are the preferred alignment for utilities including underground water, sanitary sewer and storm drain pipelines and overhead and underground power, telephone and cable T.V. / internet services. It is the City's goal to improve the condition of the City's alleys to enhance the use of these corridors for access and service.

In conducting this Master Plan, the City's objectives include evaluation of alternative, environmental friendly, enhancements including pavement surfaces constructed with recycled materials, pervious pavements, innovative stormwater systems that promote best practices and energy efficient, dark sky compliant street lights. Alternative alley improvement plans which respond to this objective are described in Section IV of this Master Plan.

The City has been developing a database of their public works assets in GIS and AutoCad formats. To assist the City with their asset management program, the findings included in Section III of this Master Plan and the mapping of alley conditions, opportunities and priorities included herein will be added to the City's database. Conditions and future improvements specific to each of the City's alleys will be filed in the City's database using database identifiers or "addresses". It is intended that the alley database information included in this Master Plan will be regularly updated by City Staff assigned to the maintenance of the City's GIS files.

The estimated cost of alley improvements is developed in Section III, "Findings", and then "assigned" to City alleys in Section IV, "Recommendations". Estimated alley costs, potential sources of funds and alley improvement implementation schedules are presented in Section V of this Master Plan.



BACKGROUND

There are approximately 100 alleys or alley segments included within the City limits. Most of these are located within public rights-of-way, typically 20 feet in width. There are a few privately-owned alleys within the Master Plan area. As further described in Section III, the present condition of the City's alleys ranges from very poor to very good. The City's Pavement Condition Index (PCI) was used to evaluate current pavement conditions. A few of the City's alleys have recently been improved. Improved alleys are typically located in commercial land use zones within designated Redevelopment Plan Areas where redevelopment funds were used to construct streets and public facilities including alley improvements and the undergrounding of utilities. There are also isolated areas within the City where portions of alleys have been improved. These alley improvements may have been constructed as a condition of development.

In recent years, the City of Fort Bragg has completed drainage, roadway and utility improvements for a limited number of alleys on an "as needed basis". The City currently does not have alley improvement standards. Suggested alley improvement standard plans, guidelines and details are presented in Section IV of this Master Plan Report.

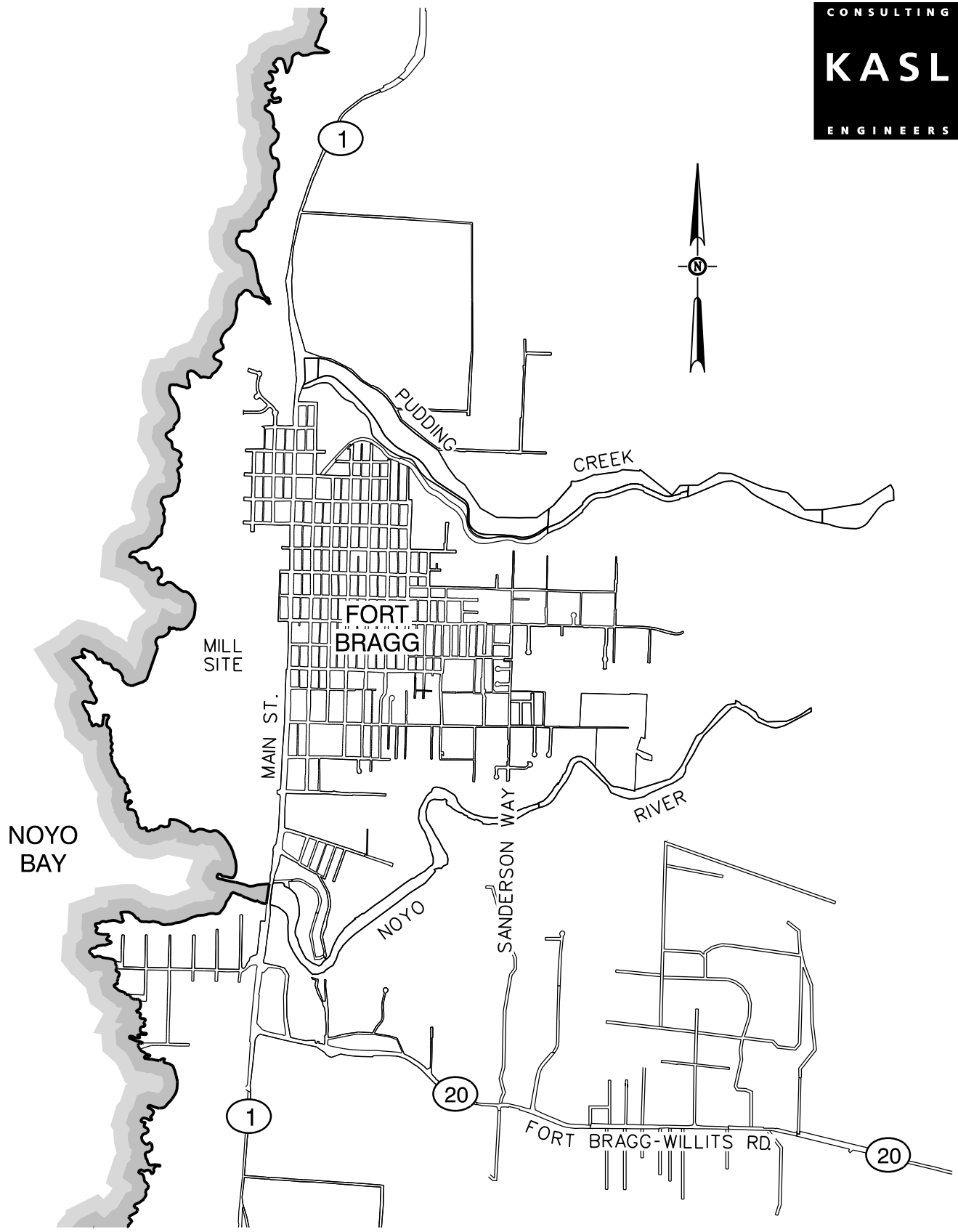
Master plans recently prepared or updated by the City include a Storm Drainage Master Plan and a Wastewater Collection Facilities Master Plan. These previously prepared master plans provide some information and a few recommendations regarding facilities located within the City's alleys. It is intended that the Fort Bragg Alley Master Plan incorporate recommendations included in these previously prepared master plans and provide the City with comprehensive guidelines to prioritize and guide the implementation of City alley improvements.

Fort Bragg alleys are located, in general, within the central portion of the City, south of Pudding Creek west of Sanderson Way, east of the Mill Site and north of Noyo Harbor. The Fort Bragg Alley Master Plan Study Area is presented in **Figure I-1**.

The City's alleys serve commercial properties, mixed commercial – residential land, residential land, industrial areas and public facilities. Existing City of Fort Bragg land use designations within the Alley Master Plan Study area are presented in **Figure I-2**.

INVENTORY, ALLEY IDENTIFICATION SYSTEM

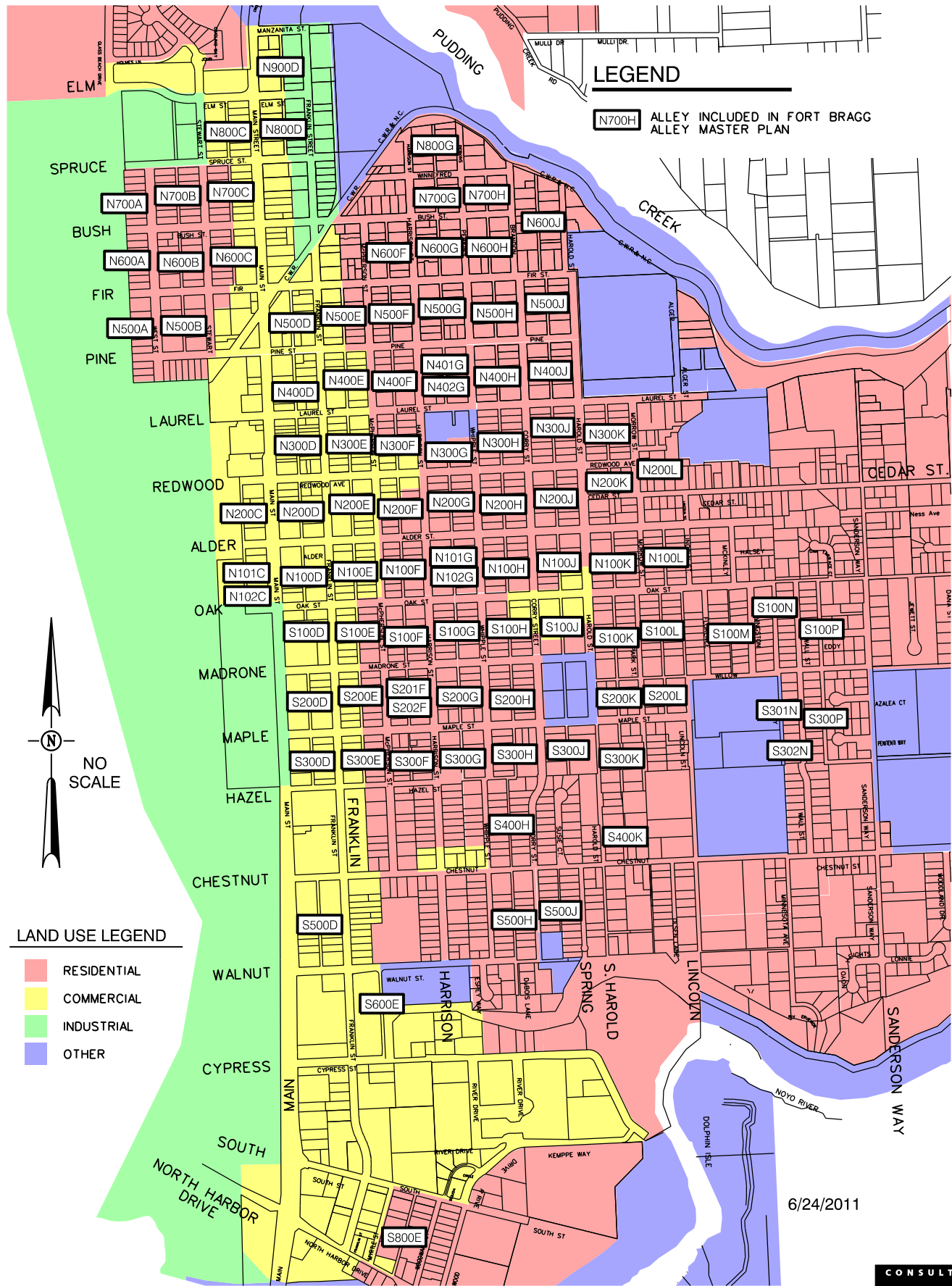
To coordinate findings and recommendations included in this Master Plan and to help designate alley identifiers or addresses to be used in the City's GIS database, an alley identification system was developed in cooperation with City Staff. The Fort Bragg Alley identification index used in this Master Plan is presented in **Figure I-3**. Alleys located north of Oak Street are northerly or "N" alleys. Alleys located south of Oak



STUDY AREA

FORT BRAGG ALLEY MASTER PLAN

NO SCALE

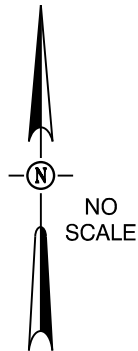


FORT BRAGG LAND USES

FORT BRAGG ALLEY MASTER PLAN



FIGURE I-2



LEGEND

N700H ALLEY INCLUDED IN FORT BRAGG ALLEY MASTER PLAN



6/24/2011

ALLEY IDENTIFICATIONS

FORT BRAGG ALLEY MASTER PLAN



FIGURE I-3



Street are southerly or “S” alleys. Consistent with the City’s address system, alleys located one block north of Oak Street are designated “N 100”, two blocks north are “N 200”, etc. Alleys located south of Oak Street are similarly labeled “S 100”, “S 200”, “S 300”, etc. With few exceptions the City’s alleys are aligned north-south. Beginning from the westerly limits at the Mill Site, alley “columns” are designated “A” through “P”. The most westerly alleys, located adjacent to the Mill Site, are designated with an “A” suffix. The most easterly alleys located between Wall Street and Sanderson Way are identified with a “P” suffix.

There are 58 alleys within the study area north of Oak Street (“N” alleys). There are 36 alleys located south of Oak Street (“S” alleys). With respect to land use zones:

- 20 alleys are within commercial zones
- 13 alleys are within mixed commercial- residential land use zones
- 59 alleys are within residential zones
- and 2 alleys are within residential-public use zones

CONDITION ASSESSMENT

Conditions existing in the City’s alleys are presented in Section III. Each of the City’s alleys were reviewed in the field. “Photo” documentation of current alley conditions is presented in the Alley Master Plan Photo Documentation File which supplements this Master Plan Report. All photos are indexed using the alley identification system described above and shown in Figure I-3. As further described in Section III, the existing condition of alleys was evaluated on the basis of:

Surface (Pavement) Conditions

Surface improvements are assessed in accordance with the City’s Pavement Condition Index using the “Very Good” to “Very Poor” descriptions included in the City of Fort Bragg Pavement Management Program Update (July 2010). Alleys with poor to very poor pavement surface conditions and alleys with a high percentage (typically 50% or above) of potholes and surface interruptions were determined to have the greatest need for surface improvements.

Grading Conditions

Field measures were used to determine the grade (slope) and pitch (cross slope) of existing alleys. Alleys with little or no slope, little or no pitch and a high percentage of potholes were determined to be in significant need of grading. Without proper grading and drainage, the construction of alley surface improvements would be ineffective.

Drainage Conditions

Field studies were used to locate existing drain inlets and drainage collection and conveyance facilities within or adjacent to alleys. The City’s Drainage Master Plan,



drainage system maps and alley grading conditions were used to evaluate alley drainage conditions. Drainage issues must be addressed and resolved as part of the Alley Master Plan improvements. Saturated subgrades will not support pavements subjected to heavy vehicle loads. The City's alleys must be designed to serve solid waste collection vehicles, fire trucks, delivery vehicles, and commercial trucks.

Access Service

Alley field studies included a count of driveways, vehicle gates and garages, access to parking and front doors served by each alley. The City permits "second units" with primary access (front doors) on alleys. Maintaining adequate alley access is important. Maintaining adequate access for fire and emergency services, especially to second units which front on alleys, is critical.

Level of Traffic

Traffic levels were estimated for each of the City's alleys based on land use zones, the number of driveways, residential and commercial uses, services, and "alley connectivity". An alley located within commercial or multi-family land use zones that provides through movements in both directions was assigned a high level of traffic. A dead-end alley which serves only a limited number of residents in a residential land use area was assigned a low level of traffic.

Safety

Alley safety conditions were reviewed with the City of Fort Bragg Police Department. Community service officers identified specific alleys where the need for alley safety (lighting, visibility, access) improvements is particularly high.

OPPORTUNITIES

Opportunity findings included in Section III of this Master Plan Study include evaluation of each alley with respect to ownership, funding possibilities, consistency with other City Master Plans and drainage connectivity. Almost all of the alleys included within the Fort Bragg Alley Master Plan are publicly owned. Privately owned alleys would have a very low opportunity for being improved with public funds.

Funding opportunities do exist for alleys located within Redevelopment Plan Areas, Underground Utility Districts and in close proximity to schools. These and other funding opportunities are presented in Section III and Section V of this Master Plan Study.

Opportunities for improving alleys already recommended for improvement in the City's Storm Drainage Master Plan are discussed in Section III of this Master Plan. The



City's recently completed Wastewater Collection System Master Plan was also reviewed for alley improvement recommendations which would also apply to the Alley Master Plan

PRIORITIZATION

The recommended prioritization of alley improvements is presented in Section III based on the assessment of alley conditions and opportunities. There are 25 alleys (approximately 25% of the total) identified in the Alley Master Plan with the highest priority for improvement.

RECOMMENDATIONS

In Section IV of this Master Plan is presented alternative and recommended plans and typical sections. These have been prepared for alleys in residential zones and for alleys in commercial zones. Recommended alley improvements seek to implement the Alley Master Plan goals and objectives. Design guidelines for development within alleys and estimated alley improvement costs are presented.

IMPLEMENTATION

An alley improvement schedule is presented in Section V together with alternative sources of funding.



II. EXECUTIVE SUMMARY

PROJECT SCOPE, GOALS AND OBJECTIVES

City of Fort Bragg alleys are an integral part of core area circulation, utility and service. The alley network contributes to the safety, function and aesthetics of the City's downtown and central residential neighborhoods. City alleys are, however, in need of repair, restoration and reconstruction. To that goal, the purpose of this Alley Master Plan is to assist the City of Fort Bragg with the implementation of needed alley improvements. To help achieve this goal the City obtained a Mendocino Council of Government grant which funded the preparation of this Master Plan.

There are nearly 100 alleys included in the scope of this Project. All are located in the central portion of Fort Bragg east of the Mill Site, south of Pudding Creek, north of Noyo Harbor and west of Sanderson Way. This Master Plan includes an inventory of the City's alley resources, an assessment of existing conditions, a prioritization of improvements and recommendations regarding planning, construction, estimated costs, funding and scheduling.

FINDINGS

Fort Bragg alleys were evaluated with respect to:

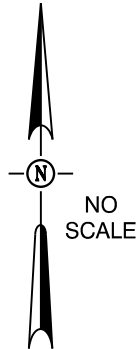
- Surface Conditions
- Grading
- Drainage
- Access / Service
- Traffic
- Safety

Using the City's Pavement Condition Index, more than half (55%) of the existing alleys were determined to have poor to very poor surface conditions. The surface conditions which exist in 12% of the City's alleys were rated as good to very good.

A Condition Assessment Matrix was prepared and all of the alleys included in the Master Plan Study were evaluated with respect to the above listed conditions. **In Figure II-1** is presented a summary assessment of existing alley conditions.

To help guide how alley improvements should be prioritized, Master Plan Alleys were also evaluated with respect to opportunities. The Alley Opportunity Matrix included:

- Ownership (public or private)
- (Location within) Redevelopment Area / Underground Utility District
- Proximity to Schools



LEGEND

- N600H ALLEY WITH SIGNIFICANT NEED OF IMPROVEMENT
- N700H ALLEY INCLUDED IN FORT BRAGG ALLEY MASTER PLAN INVENTORY



7/6/2011

ALLEY INVENTORY AND EVALUATION RESULT

FORT BRAGG ALLEY MASTER PLAN



FIGURE II-1



- Consistency with City Storm Drainage Master Plan or City Wastewater Collection System Master Plan
- Storm Drain Connectivity

The nexus of Conditions and Opportunities was then used to develop an Alley Prioritization Plan. In **Figure II-2** is presented a summary of the alley prioritization results. As shown in this figure, Fort Bragg alley improvements are identified as:

- Highest Priority
- Moderate Priority
- Average Priority
- Lowest Priority

There are approximately 25 alleys included in each of the above listed priority categories. Alley Master Plan findings are included in Section III of this study. Findings are also presented in the Technical Appendix and the City's alley database. It is intended that the database be updated by City Staff as alley improvements are funded, constructed and completed.

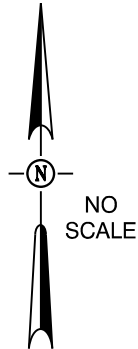
RECOMMENDATIONS

Typical alley plans and sections are included in Section IV of this Master Plan. Improvements recommended for alleys which primarily serve commercial and / or multi family land uses include:

- A 20 foot wide asphalt concrete paved surface
- Stamped and colored asphalt concrete surfaces at alley / street intersections
- ADA compliant ramps at intersections
- No parking
- High efficiency, dark sky compliant, street lights at alley mid-point and at each intersection
- Central, concrete V gutters
- Maximum utilization of existing drainage collection and conveyance facilities

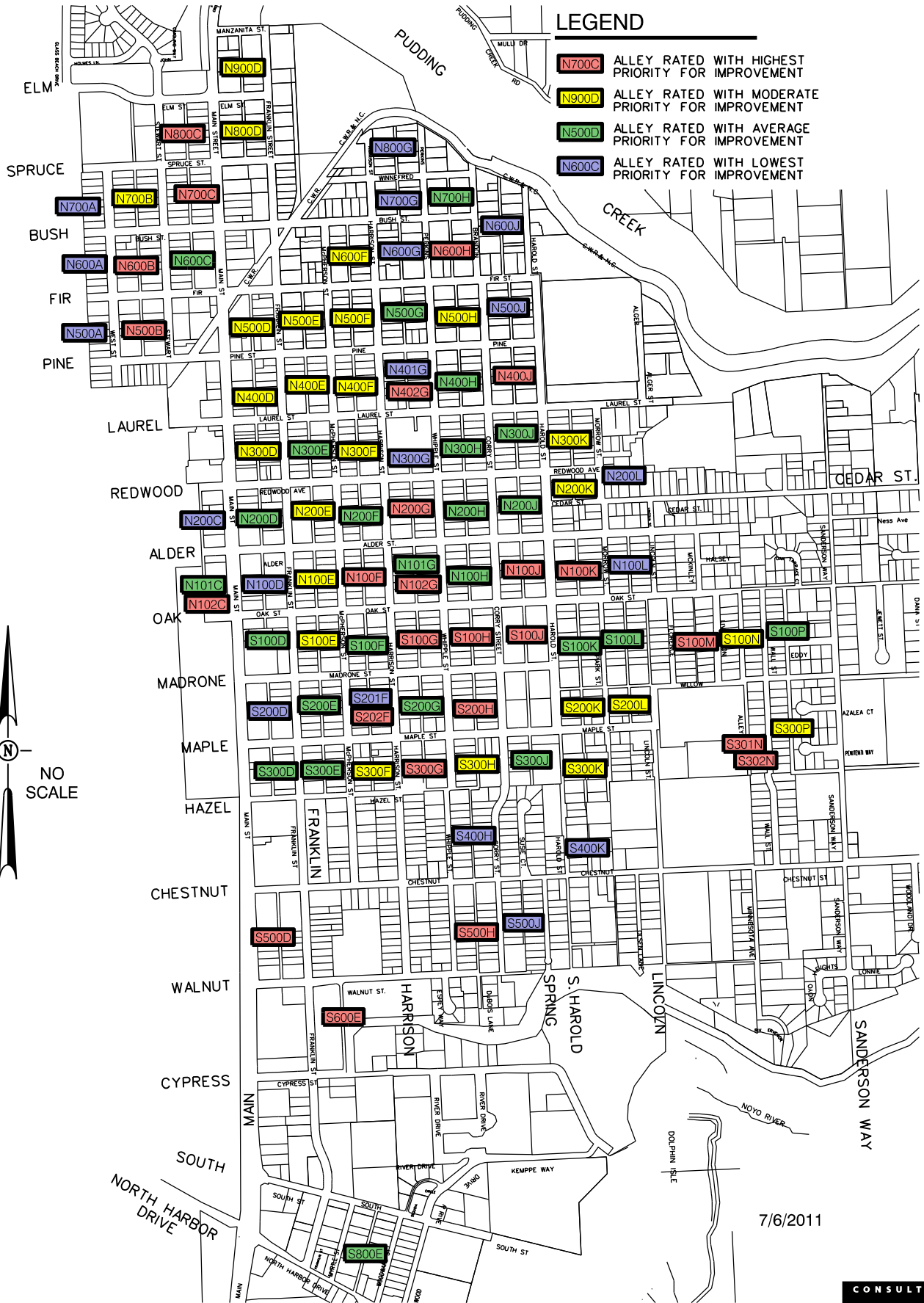
Where alleys primarily serve single family residential neighborhoods recommended improvements include:

- 16 foot wide asphalt paved surfaces with 2 foot wide graded aggregate, shoulder, each side
- ADA compliant ramps at alley / street intersections
- Parking permitted one side only
- Signed and striped no parking fire lanes
- High efficiency, dark sky compliant, street lights at mid-block and street intersection locations
- Central, concrete, V-gutters
- Maximum utilization of existing drainage collection and conveyance facilities



LEGEND

- N700C ALLEY RATED WITH HIGHEST PRIORITY FOR IMPROVEMENT
- N900D ALLEY RATED WITH MODERATE PRIORITY FOR IMPROVEMENT
- N500D ALLEY RATED WITH AVERAGE PRIORITY FOR IMPROVEMENT
- N600C ALLEY RATED WITH LOWEST PRIORITY FOR IMPROVEMENT



7/6/2011

**RECOMMENDED PRIORITIZATION OF ALLEY IMPROVEMENTS
 FORT BRAGG ALLEY MASTER PLAN**



FIGURE II-2



Typical alley plans and sections are presented in Figure IV-1 through IV-4 and in Figures IV-7 through IV-12 of this Master Plan. Recommended alley construction materials are presented in Section IV and in the Technical Appendix.

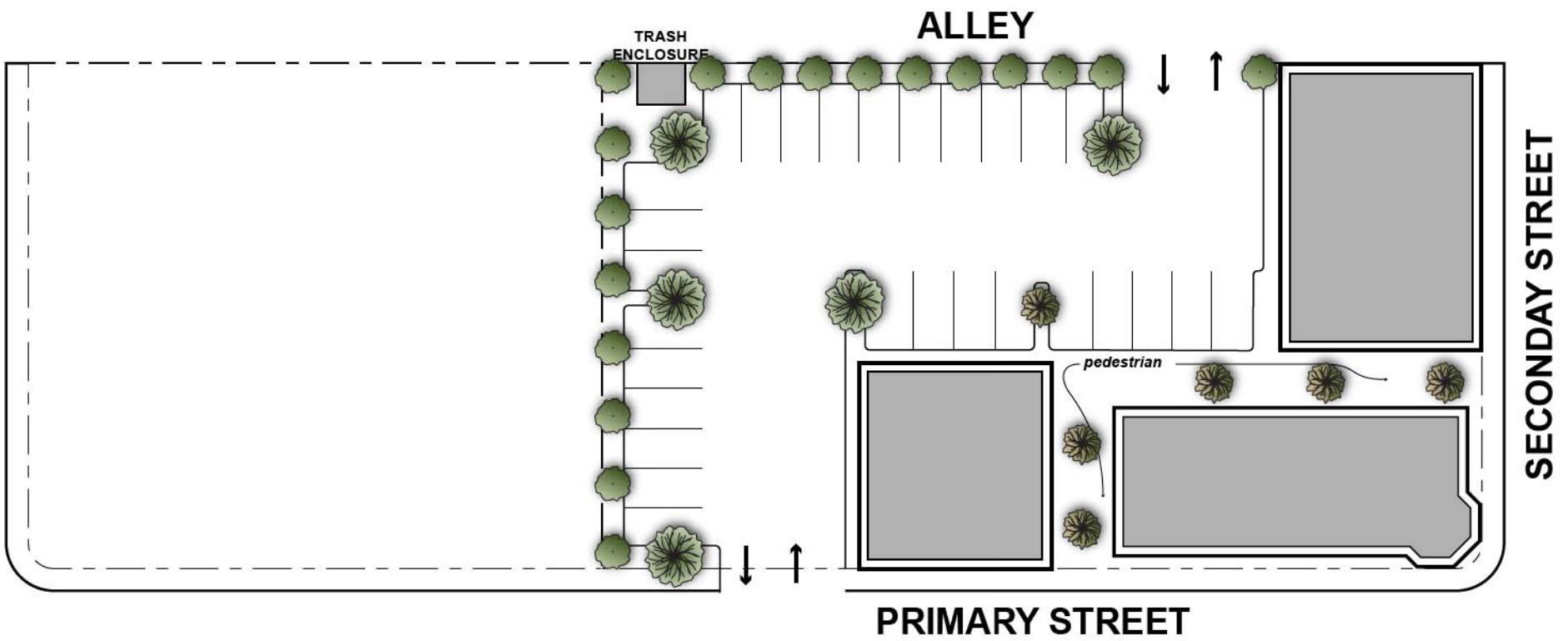
Undergrounding of existing overhead alley utilities was reviewed with PG&E. PG&E spokespersons believe that there are too many variables to effectively estimate or budget cost for utility undergrounding on a City-wide basis. Where both primary and secondary electric service is now obtained from alley overhead power lines, pad mounted or subsurface transformers would be required to implement utility undergrounding. This will be both costly and difficult with the space and clearances required.

Design guidelines for property developed with alley frontage are summarized in **Figure II-3** for commercial land uses and in **Figure II-4** for residential second units. Guidelines presented in Section IV are intended to supplement the City's existing Design Guidelines and assist with the review and approval of discretionary applications for parcels abutting public alleys.

ESTIMATED COSTS

A summary of estimated alley improvement costs based on current (June 2011) unit costs and construction cost indices is as follows:

Alley Improvement Type	Cost Estimates	Typical Section	Estimated Construction Cost w/o Undergrounding of Utilities	Estimated Cost w/ 15% Contingencies
Commercial / MF Residential-1	Table IV-1	Figure IV-7	\$138,125	\$158,850
Commercial / MF Residential-2	Table IV-2	Figure IV-8	\$125,625	\$144,475
Commercial / MF Residential-3	Table IV-3	Figure IV-9	\$186,975	\$215,025
Residential-1	Table IV-4	Figure IV-10	\$113,950	\$131,050
Residential-2	Table IV-5	Figure IV-11	\$100,950	\$166,100
Residential-3	Table IV-6	Figure IV-12	\$163,300	\$187,800



TYPICAL COMMERCIAL LAYOUT WITH STREET AND ALLEY FRONTAGE

FORT BRAGG ALLEY MASTER PLAN

FIGURE II-3

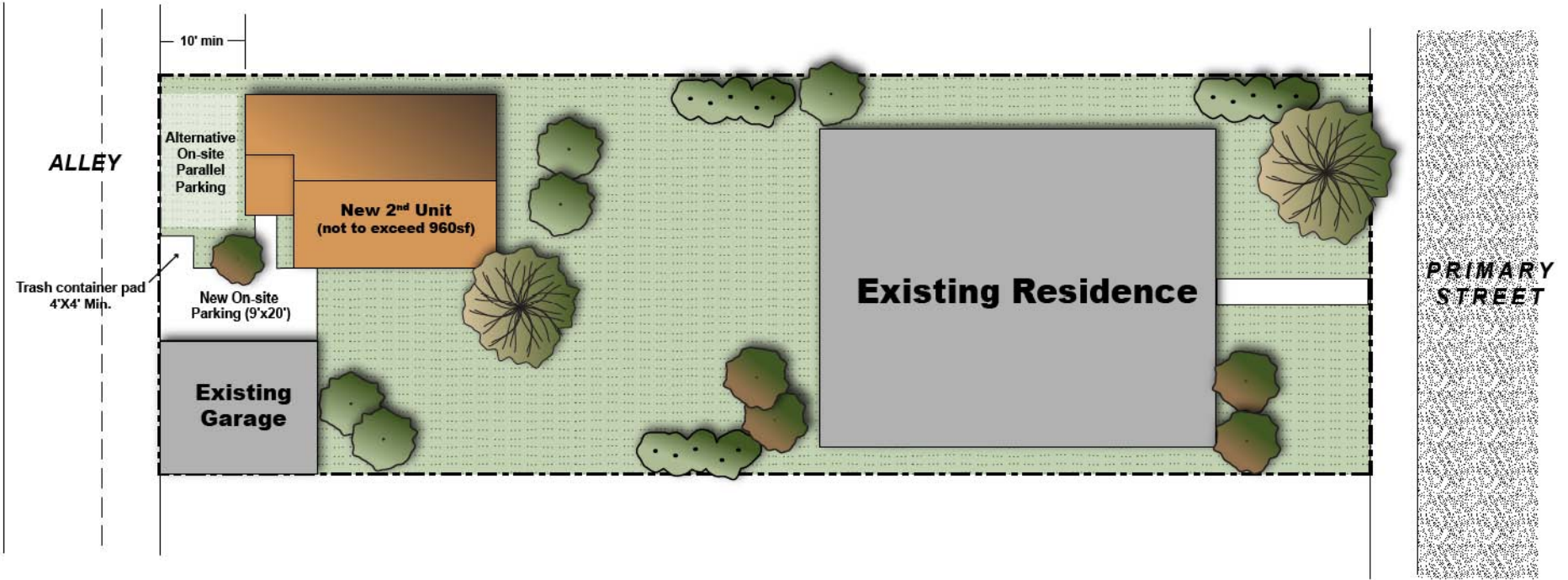


FIGURE II-4

TYPICAL SECOND UNIT IMPROVEMENTS
ILLUSTRATED: CITY STANDARD PLAN, "THE ALLEY HOUSE" (611SF)

FORT BRAGG ALLEY MASTER PLAN



Using a 15 year alley life cycle, 6 to 7 City of Fort Bragg alleys should be improved each year. The estimated annual costs, assuming a mix of alley improvement types, is \$850,000 to \$950,000. Consistent with the recommendations of the Mendocino Council of Government Pavement Management Program, City alleys, when improved, should be included in the City's pavement maintenance schedule. The useful life of the improved alleys will be extended if, periodically, crack sealing, chip seals, and cape seals are applied to keep moisture out of underlying sub grades.

Recommended alley improvements, by alley improvement type, are presented in **Figure II-5** for each of the Fort Bragg alleys.

FUNDING

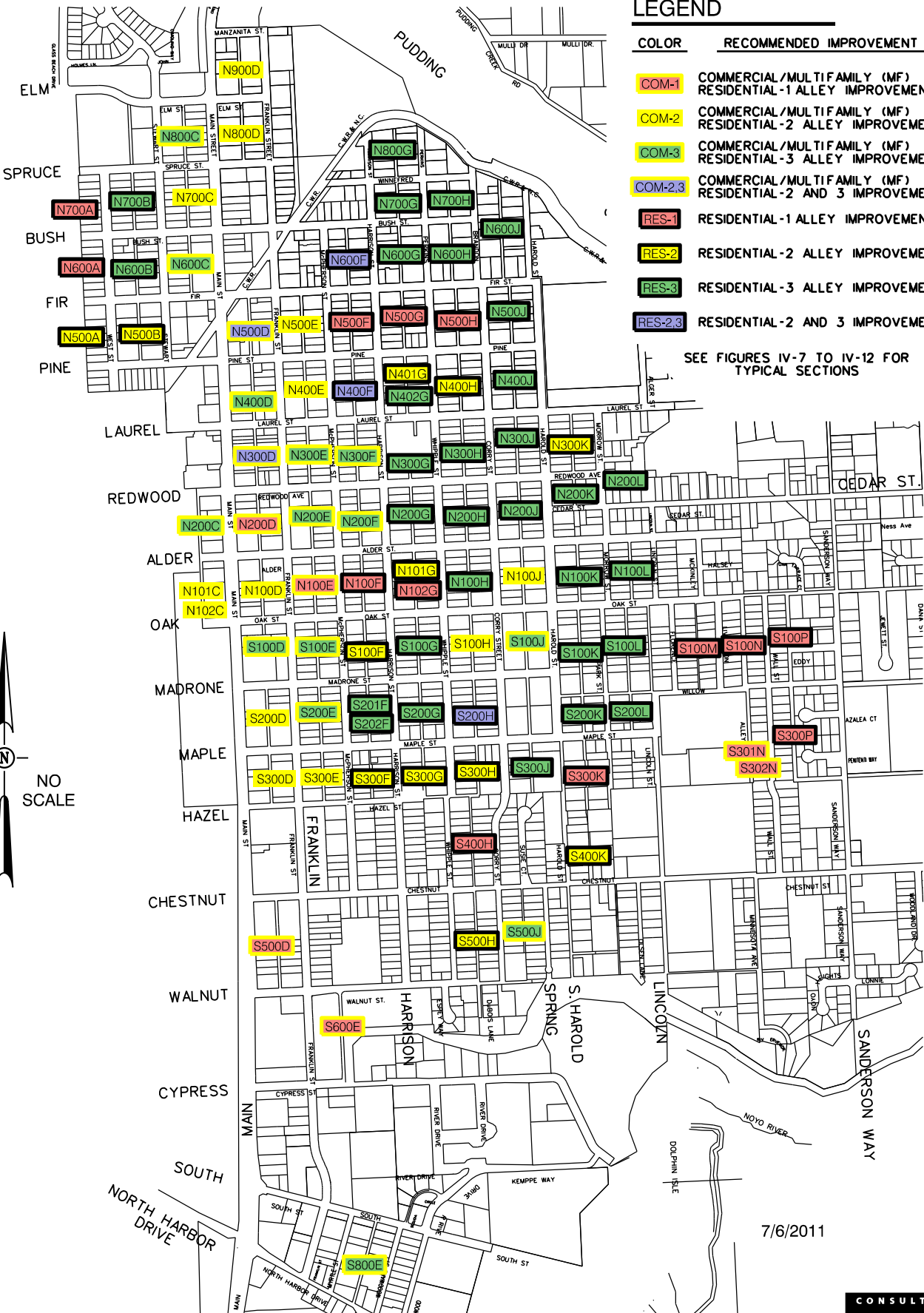
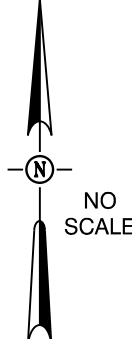
Funding opportunities and alternatives are presented in Section V of this Master Plan. Alleys located within the limits of existing Redevelopment Plan areas could be improved using tax increment financing. For most of the City's alleys, however, the best source of alley improvement funds is likely the extension of the City's current Sales Tax Initiative. The current Sales Tax Initiative expires in 2014. If the Fort Bragg voters approve an extension the City proposes to modify use of these funds to include the construction of alley improvements.

SCHEDULE

The implementation of Fort Bragg Alley improvements will depend on the availability of funds. It is recommended that each year City Staff identify the alleys proposed for improvement, review proposed alley improvements with the City Manager and City Council, estimate costs, and then apply for the grant funds loan assistance or tax revenues needed to fund, all or part of, the alley improvements identified for the next project year. The annual cycle of alley improvement scheduling, funding and construction will then typically include:

- Alleys identified for improvement
- Application for Alley Improvement Funds or identification of Tax Revenues
- Preparation of Alley Improvement Plans
- Advertisement for Alley Construction Bids and Bid Award
- Construction of Alley Improvements
- Prepare Updates to Alley Database

The above suggested "cycle" would be repeated each year over a 15 year period to include recommended improvements to all of the City's Master Plan alleys.



LEGEND

COLOR	RECOMMENDED IMPROVEMENT
COM-1	COMMERCIAL/MULTIFAMILY (MF) RESIDENTIAL-1 ALLEY IMPROVEMENTS
COM-2	COMMERCIAL/MULTIFAMILY (MF) RESIDENTIAL-2 ALLEY IMPROVEMENTS
COM-3	COMMERCIAL/MULTIFAMILY (MF) RESIDENTIAL-3 ALLEY IMPROVEMENTS
COM-2,3	COMMERCIAL/MULTIFAMILY (MF) RESIDENTIAL-2 AND 3 IMPROVEMENTS
RES-1	RESIDENTIAL-1 ALLEY IMPROVEMENTS
RES-2	RESIDENTIAL-2 ALLEY IMPROVEMENTS
RES-3	RESIDENTIAL-3 ALLEY IMPROVEMENTS
RES-2,3	RESIDENTIAL-2 AND 3 IMPROVEMENTS

SEE FIGURES IV-7 TO IV-12 FOR TYPICAL SECTIONS

7/6/2011

SUMMARY OF ALLEY RECOMMENDATIONS
FORT BRAGG ALLEY MASTER PLAN



FIGURE II-5



III. FINDINGS

EXISTING CONDITIONS

Over a two week period in April 2011 conditions which exist in each Fort Bragg alley were evaluated on foot and with vehicles. A sample alley evaluation form is presented in **Figure III-1**. Photos of alley conditions are presented in the Alley Photo Documentation File which has been prepared as a supporting document. A digital indexed file of all of the Fort Bragg Alley Photos will also be provided to the City. Typically, Fort Bragg alleys are asphalt paved. Conditions vary widely. A few alleys are gravel surfaced. A few are un-surfaced (dirt) and some are a mixture of gravel and asphalt pavement. Based on discussions with the City, implementation of the City's Alley Master Plan will result in asphalt paved alleyways throughout. A well graveled alley or an alley with mixed gravel / paved surfacing is not considered well paved.

Need for Surface Improvements

Existing surface conditions were evaluated using the City's Pavement Condition Index and the City of Fort Bragg Pavement Management Program Update (July 2010). Table 1 from the 2010 Update is presented in the following:

Pavement Rating	PCI Range	Description of Pavement Condition
Very Good	85-100	The pavement is new or almost new and will not require significant improvement for some time, but may require localized minor repairs. The pavement is structurally sound and has very little or no roughness.
Good	70-84	The pavement is in good shape but has some surface defects indicating the need for routine maintenance. The pavement is generally structurally sound and has only minor roughness.
Fair	50-69	The pavement has a fair number of defects such as cracking, material loss, depressions, etc. indicating the need for maintenance or repair. The pavement is beginning to become structurally deficient and may have noticeable roughness.
Poor	25-49	The pavement has significant defects such as major cracking, significant surface distortions and material loss indicating a need for rehabilitation (i.e. structural improvement). The pavement is structurally deficient and has noticeable roughness.
Very Poor	0-24	The pavement has major defects indicating the need for major rehabilitation or reconstruction. The pavement is structurally inadequate.

ALLEY FIELD ASSESSMENT FORM

FORT BRAGG ALLEY MASTER PLAN

ALLEY CODE: _____

4/14/2011

NOTES:

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1. <u>ALLEY SURFACE</u>	PAVE	GRAVEL	DIRT	_____
2. <u>PAVEMENT CONDITION</u>	VERY GD.	GOOD	FAIR	POOR VERY PR.
3. <u>ALLEY WIDTH</u>	_____	FT		_____
4. <u>STREET SLOPE</u>	_____	%		_____
5. <u>STREET PITCH</u>	_____	%		_____
6. <u>POTHOLE % OF TOTAL</u>	_____	%		_____
7. <u>LIGHTING</u>	GOOD	ADEQ.	POOR	_____ LIGHTS
8. <u>EXISTING UTILITIES</u>	UG	OH		_____
9. <u>ALLEY PIPING</u>	YES	NO		_____
10. <u>ALLEY INLETS</u>	YES	NO		_____
11. <u>ALLEY CONNECTIVITY</u>	YES	NO		_____
12. <u>PARKING</u>	NO PARK	BOTH	1 SIDE	_____
13. <u># OF DRIVEWAYS</u>	_____			_____
14. <u># OF SERVICE PROVIDERS</u>	_____			_____
15. <u>TRASH COLLECTION</u>	YES	NO		_____
16. <u>PARKING LOTS</u>	YES	NO		_____
17. <u>FRONT DOORS</u>	YES	NO		_____
18. <u>FIRE ACCESS</u>	YES	NO		_____
19. <u>OWNERSHIP</u>	PUBLIC	PRIVATE		_____
20. <u>COMPLAINTS ON FILE</u>	MANY	FEW	NONE	_____
21. <u>CRIME DATA</u>	HIGH	MED	LOW	_____
22. <u>CONSISTENT W/ MASTER PLAN</u>	YES	NO		_____

SAMPLE ALLEY ASSESSMENT FORM
FORT BRAGG ALLEY MASTER PLAN

FIGURE III-1



Alley pavements were rated as follows:

- Very Poor Condition = 10
- Poor to Very Poor = 9
- Poor = 8
- Fair to Poor = 7
- Fair = 5
- Good = 2
- Very Good = 0

Fort Bragg alleys with the most significant need for surface improvements are presented in **Figure III-2**.

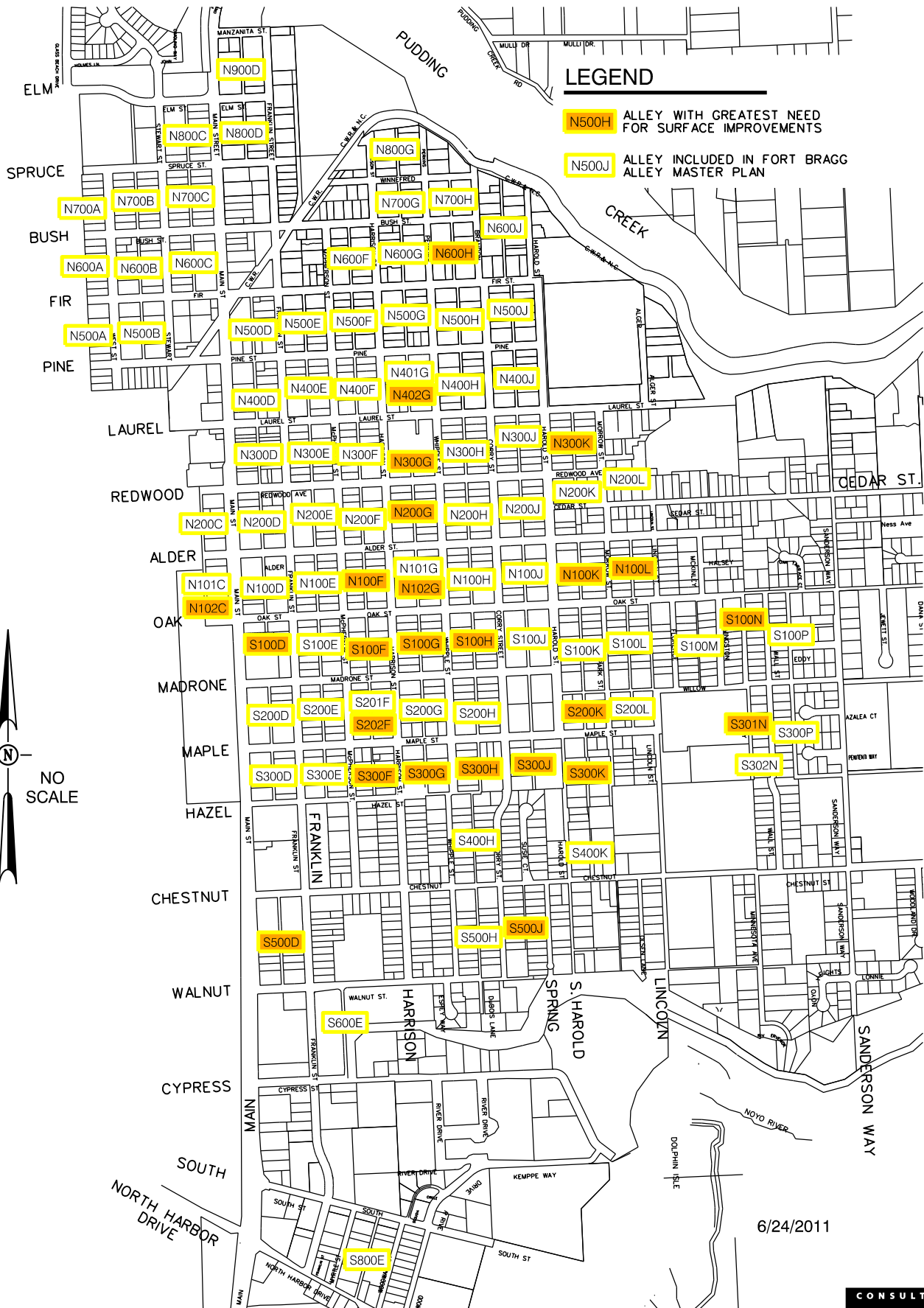
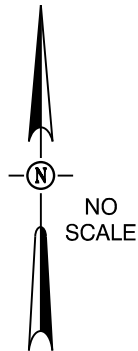
Alleys with poor to very poor surface conditions assessed consistent with the City’s Pavement Surface Condition Index and alleys with a high percentage (typically 50% or above) of potholes and surface interruptions were determined to have the greatest need for surface improvements. Fort Bragg alleys with a highly “ranked” need for surface improvements include:

N 102 C	S 300 G
S 100 D	N 600 H
S 500 D	S 100 H
N 100 F	S 300 G
S 100 F	S 300 J
S 202 F (the southerly portions of alley S 200 F)	N 300 K
S 300 F	N 100 K
N 402 G (the southerly portion of alley N 400 G)	S 200 K
N 300 G	S 300 K
N 200 G	N 100 L
N 102 G (the southerly portion of alley N 100 G)	S 100 N
S 100 G	S 301 N

As shown in Figure III-1, the greatest need for surface improvements include alleys north and south of Oak Street (the “N100” and “S100” alleys) and the alleys located within the corridor between Harrison Street and Whipple Street (the “G” alley corridor). The alleys listed above and shown in Figure III-1 were considered to be in very poor condition with respect to surfaces. Over half of the City’s alleys (± 55%) were rated poor or very poor.

Need for Grading Improvements

Alleys which need grading improvements are those with poor slope (typically less than 1%), poor pitch (typically less than 1%) and those alleys with a high percentage of potholes and surface interruptions. Field measurements were used to determine average, minimum and maximum grades and pitch.



NEED FOR SURFACE IMPROVEMENTS

FORT BRAGG ALLEY MASTER PLAN



FIGURE III-2



The Slope Ratings used are as follows:

- Less than 1% = 10
- Less than 2% = 5
- Greater than 2% = 0

Pitch Ratings used are as follows:

- Less than 1% = 10
- Less than 2% = 5
- Grater than 2% = 0

Potholes and surface interruptions were rated based on the average range of % potholes divided by 10. An alley with estimated 60% to 70% potholes would be rated 60% to 70%, ~ 65% / 10 = 6.5. An alley with 20% potholes ~ 20% / 10 = 2.

Alleys determined to have the greatest need for grading improvements include those with little or no slope, with little or no pitch and a high percentage of potholes and surface interruptions. Alleys with a “sag” profile and with no visible or limited drainage relief at the sag point were also determined to be in significant need of grading improvements.

Fort Bragg alleys with a highly “ranked” need for grading improvements include:

- | | |
|--|--|
| N 600 B | S 300 G |
| N 500 B | S 100 H |
| N 800 C | S 300 H |
| N 700 C | S 500 H |
| S 600 E | S 300 J |
| S 201 F | N 100 K |
| S 202 F | S 200 K |
| N 800 G | S 300 K |
| N 300 G | S 200 L |
| N 200 G | S 100 N |
| N 102 G (the southerly portion of alley N 100 G) | S 301 N (the northerly portion of alley S 300 N) |
| S 100 G | S 302 N |

As shown in Figure III-3, approximately half of the poorest graded alleys were found along the Oak Street corridor. There are also significant grading problems with the alleys located west of Wall Street including those alleys located between Wall Street and the Aquatic Center (S 301 N).



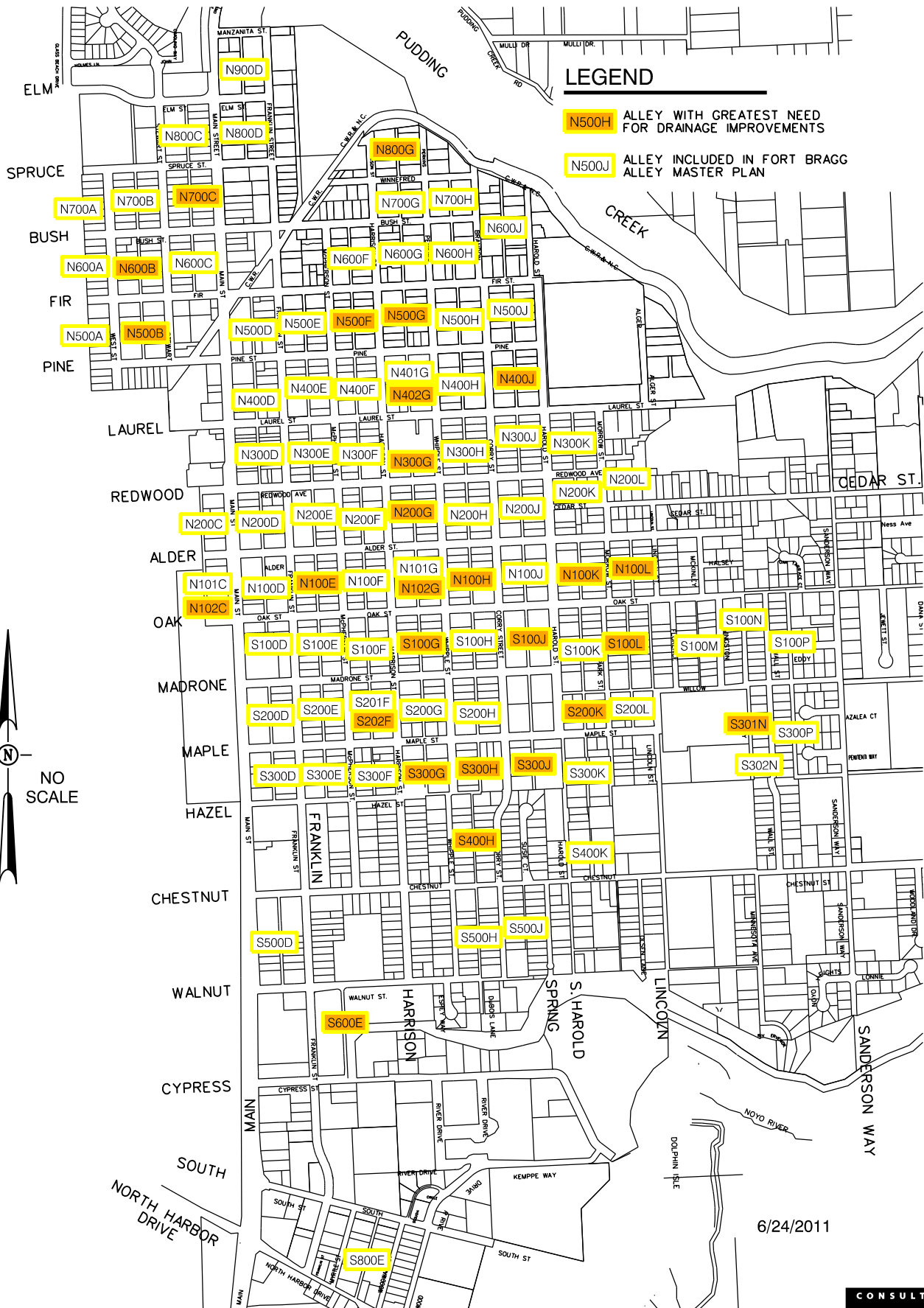
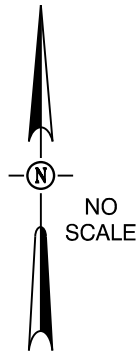
Need for Drainage Improvements

Field observations, grading and drainage exhibits prepared for this Master Plan and the City’s Storm Water Master Plan were used to complete the assessment of existing drainage conditions and the need for drainage improvements. Alleys with poor grading and drainage conditions must be corrected to implement a successful alley surfacing and alley improvement plan.

Alleys with no existing drainage inlets, alleys where there are no existing piped drainage improvements or no drainage improvements within the City street located at the “downslope” alley / street intersection were ranked highly in this category. Alleys with a “sag” profile and no drainage inlets or drainage piping at the sag are ranked highly in this category as well as in the previously presented grading assessment category. Fort Bragg alleys with the greatest need for drainage improvements are presented in **Figure III-4**. Alleys with high drainage needs are located along the Oak Street Corridor (The “N100” and “S100” alleys) and between Harrison Street and Whipple Street (the “G” alleys). There are few drainage improvements either existing or proposed in the City’s Alley Master Plan along Redwood Avenue or along Laurel Street north of Redwood or along Alder Street south of Redwood. Alleys with significant need of drainage improvements include:

N 600 B	S 100 G
N 500 B	S 300 G
N 700 C	N 100 H
N 102 C (southerly portion of N 100 C)	S 300 H
N 100 E	S 400 H
S 600 E	N 400 J
N 500 F	S 100 J
S 202 F (southerly portion of S 200 F)	S 300 J
N 800 G	N 100 K
N 500 G	S 200 K
N 402 G (southerly portion of N 400 G)	N 100 L
N 300 G	S 100 L
N 200 G	S 301 N (northerly portion of S 300 N)
N 102 G (southerly portion of N 100 G)	

In Section IV of this Alley Master Plan is presented recommended alley improvements. Existing or available drainage facilities are a significant factor in the selection of the alley improvement recommended as “best” for each alley.



NEED FOR DRAINAGE IMPROVEMENTS

FORT BRAGG ALLEY MASTER PLAN



FIGURE III-4



For those alleys currently not served by drainage improvements the feasibility of constructing alley improvements with infiltration trenches and sub surface disposal facilities will be evaluated based on available and favorable (permeable) soils data.

Need for Access / Service

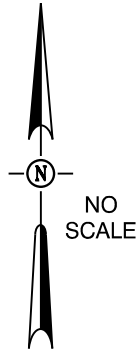
Alleys that provide access to many residences (residences with alley front doors or alley addresses) are highly rated for access / service conditions. Alleys that provide only limited access to driveways and do not provide access to front doors are not highly rated for access / service. Field counts of driveways and of front doors served by alleys were used to evaluate this condition.

Alleys without parking restrictions on either side of the alley, that provide a through travel way and serve as the primary access for many residences (“front doors” on alleys) are highly ranked for access / service. Access and service needs were discussed with both the City of Fort Bragg Fire Department and with Waste Management. Vehicles parked on both sides of narrow alleys present significant access problems for both solid waste collection and emergency responders. The City Fire Department is particularly concerned with providing emergency access to residences which “front” on an alley when fire equipment can not adequately clear parked cars. Since the City permits residences with alley frontage it would be difficult to restrict all alley parking. Recommendations regarding limiting alley parking are presented in Section IV of this Master Plan.

Fort Bragg alleys with critical access / service needs are:

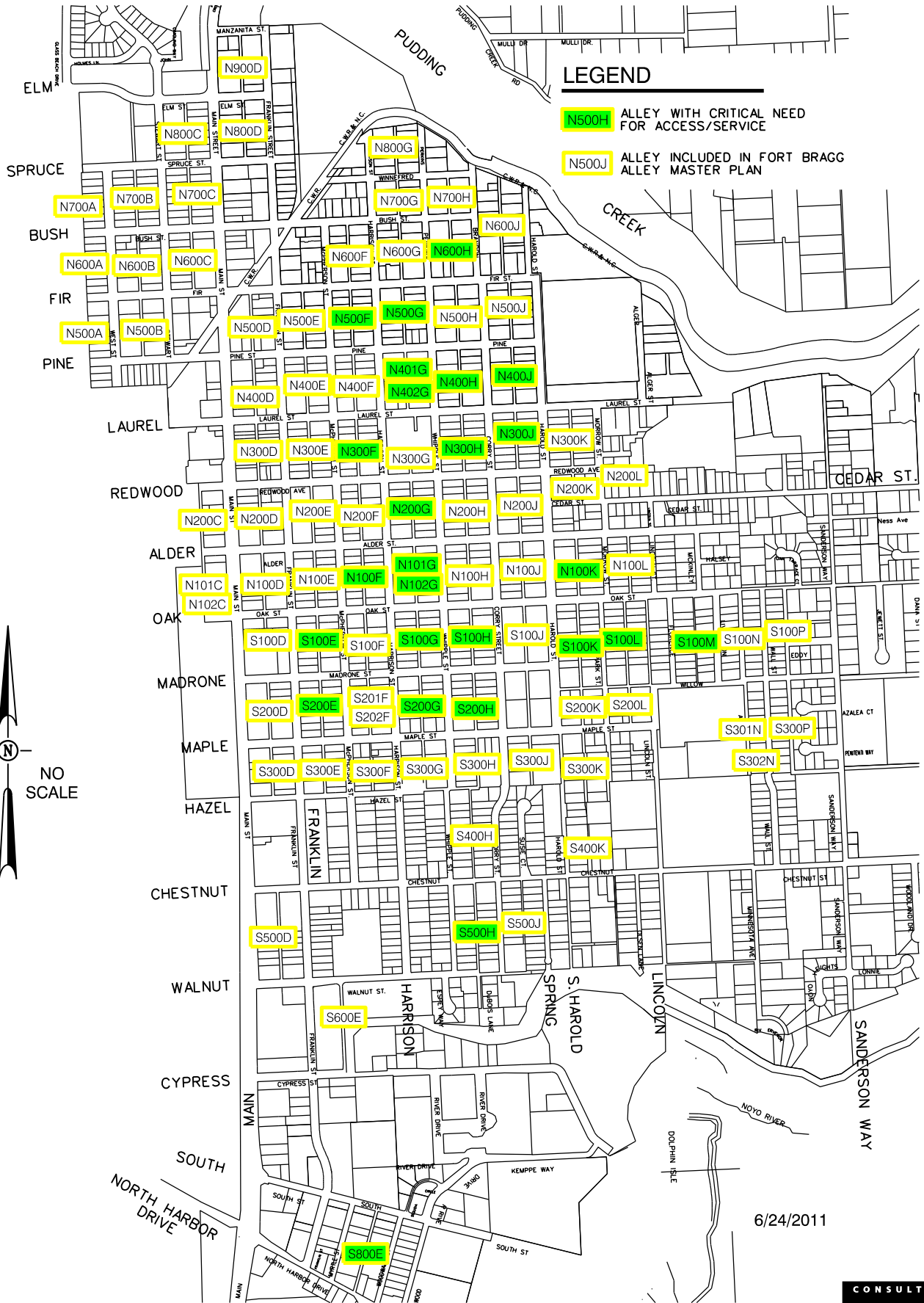
- | | |
|---------|---------|
| S 100 E | N 400 H |
| S 200 E | N 300 H |
| S 800 E | S 100 H |
| N 500 F | S 200 H |
| N 300 F | S 400 H |
| N 100 F | S 500 H |
| N 500 G | N 300 J |
| N 200 G | S 500 J |
| N 101 G | N 100 K |
| N 102 G | S 100 K |
| S 100 G | S 100 L |
| S 200 G | S 100 M |
| N 600 H | |

As shown in **Figure III-5**, a number of Fort Bragg alleys with critical access / service needs are located along the Oak Street corridor (“N 100” and “S 100” blocks). A high percentage are also located along the “G” (Harrison to Whipple) and “H” (Whipple to Grey) alley rows.



LEGEND

- N500H ALLEY WITH CRITICAL NEED FOR ACCESS/SERVICE
- N500J ALLEY INCLUDED IN FORT BRAGG ALLEY MASTER PLAN



ACCESS/SERVICE IMPORTANCE
FORT BRAGG ALLEY MASTER PLAN



FIGURE III-5



Traffic Levels

For this assessment alleys with a high volume of traffic (either vehicle or pedestrian) are highly rated. An alley with a low volume of traffic is not highly rated. The assessment of this condition was based, in part, on the number of driveways, residents and commercial uses served along the alley segment and the connectivity provided by the alleys. A two-way alley which provides through traffic in both directions is assigned a high traffic rating. A dead-end alley which provides only limited access to residences is assigned a low traffic rating.

Alleys with the highest rated traffic levels include those which provide access to commercial and multi-family uses and provide access to commercial and multi-family parking lots. As shown in **Figure III-6**, higher traffic level alleys are located along the Main Street and Franklin Street corridors (the “D” and “E” alleys) and include:

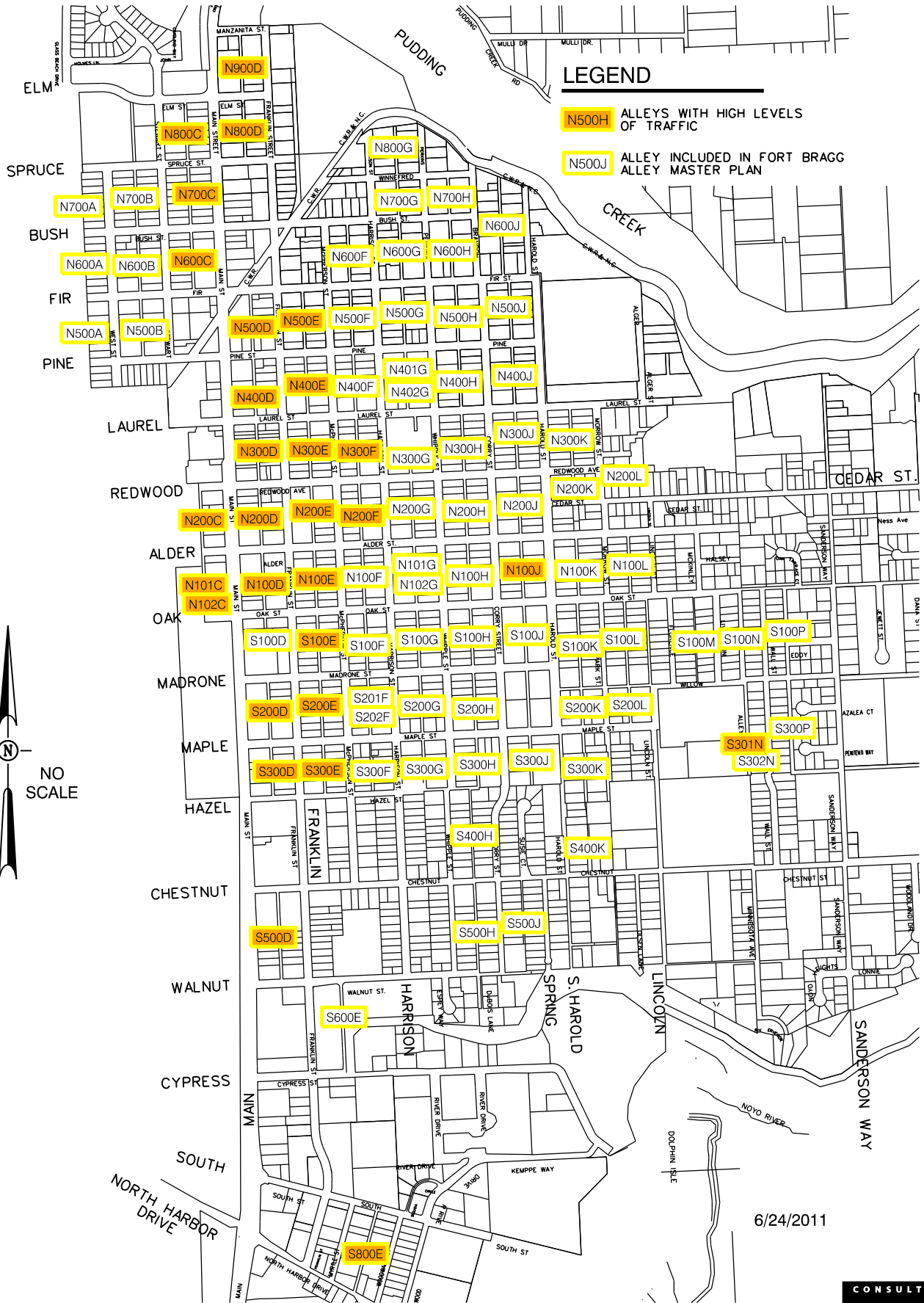
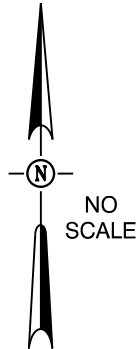
- | | |
|---------|---------|
| N 800 C | S 500 D |
| N 700 C | N 500 E |
| N 600 C | N 400 E |
| N 200 C | N 300 E |
| N 101 C | N 200 E |
| N 102 C | N 100 E |
| N 900 D | S 200 E |
| N 800 D | S 300 E |
| N 500 D | S 800 E |
| N 400 D | N 300 F |
| N 300 D | N 200 F |
| N 200 D | N 100 J |
| N 100 D | S 100 J |
| S 200 D | S 100 H |
| S 300 D | S 301 N |

Safety

The Fort Bragg Police Department was consulted to determine alleys with the greatest need for safety improvements. The City’s Community Services Officers identified

- | | |
|---------|---------|
| N 700 B | S 500 H |
| N 800 D | S 300 J |
| N 800 G | N 100 K |
| N 200 G | S 100 L |
| N 101 G | S 100 N |
| N 102 G | S 301 N |
| S 300 G | S 302 N |
| N 700 H | |

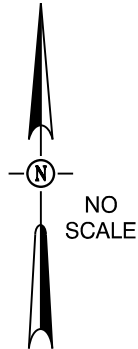
as alleys with particular safety needs. These alleys are included in **Figure III-7**.



LEVEL OF TRAFFIC
FORT BRAGG ALLEY MASTER PLAN



FIGURE III-6



NEED FOR SAFETY IMPROVEMENTS

FORT BRAGG ALLEY MASTER PLAN



FIGURE III-7



Summary Assessment of Existing Conditions

With numerical ratings (between 0 and 10) applied to each alley for each of the assessment categories described herein, existing conditions were then assigned a relative “weight” to assess significance. After reviewing the relative weights with City Public Works and Planning Department Staff the following relative weights were used in this Master Plan:

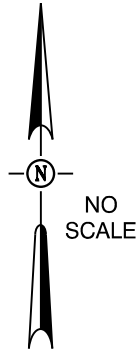
- Need for Surface Improvements = 8
- Need for Grading Improvements = 9
- Need for Drainage Improvements = 10
- Service / Access = 8
- Level of Traffic = 5
- Need for Safety Improvements = 3

Ratings for each alley in each assessment category were then multiplied by the weight assigned to each assessment and then the weight x rating were summed to arrive at a summary of alleys with the most significant need for improvement. These are shown in **Figure III-8**.

Alleys with the most significant existing conditions (alleys with the greatest need for improvement) were determined to be:

N 600B	N 600 H
N 500 B	S 100 H
N 102 C	S 300 H
N 500 D	S 500 H
S 600 E	N 400 J
S 202 F	S 100 J
S 300 F	S 300 J
N 402 G	N 100 K
N 200 G	S 200 K
N 102 G	S 100 N
S 100 G	S 301 N
S 300 G	S 302 N

In the Technical Appendix of this Master Plan is presented the Alley Condition Assessment Matrix, a description of the Condition Matrix and the Condition Matrix Look-up Tables.



LEGEND

- N600H** ALLEY WITH SIGNIFICANT NEED OF IMPROVEMENT
- N700H** ALLEY INCLUDED IN FORT BRAGG ALLEY MASTER PLAN INVENTORY



6/24/2011

ALLEY INVENTORY AND EVALUATION RESULT

FORT BRAGG ALLEY MASTER PLAN



FIGURE III-8



EXISTING OPPORTUNITIES

Alley opportunities were evaluated with respect to ownership (publicly or privately owner) funding possibilities, consistency with other City master plans and drainage connectivity. While alleys with significant improvement needs are considered to be high priority, it is important to evaluate opportunities to ensure that any available alley improvement dollar is well spent.

Ownership

In general, the alleys included within the scope of this master plan are publicly owned. Privately owned alleys which have been included in the Fort Bragg Alley Master Plan are:

- N 700 A (alley west of West Street)
- N 600 A (alley west of West Street)
- N 500 A (alley west of West Street)
- N 100 L (1 block north of Oak, between Morrow Street and Lincoln Street)
- S 100 N (1 block south of Oak, between Livingston Street and Wall Street)

In addition to the above listed alleys the existing alley south of S 300 N (alley east of Redwood School, west of Wall Street) was originally included in the Master Plan but was eliminated for consideration since, according to Public Works Staff, private property which fronts Wall Street now extends to the Redwood School fence line.

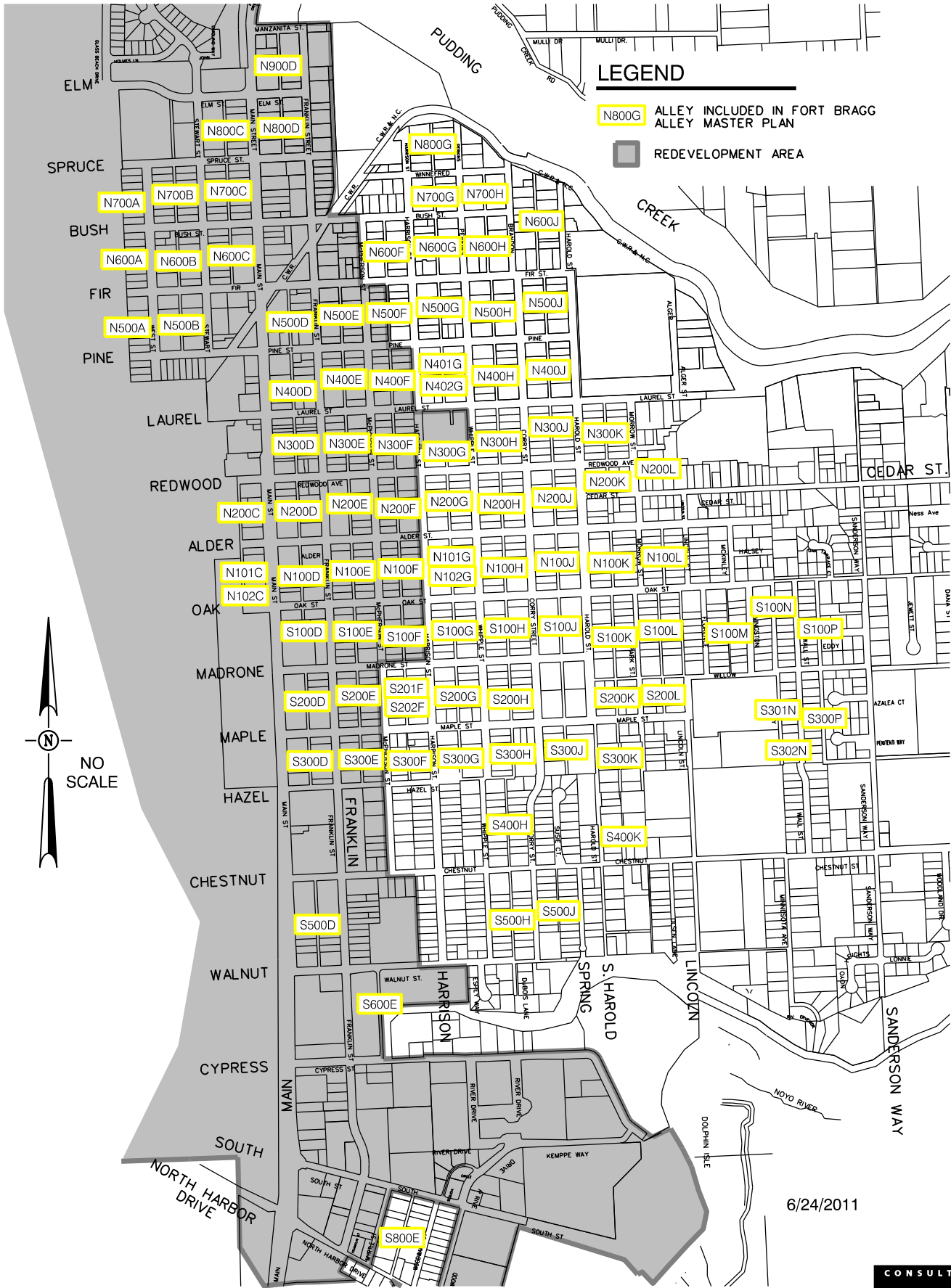
Since alley improvements would typically involve public funds, privately owned alleys will not be highly considered in this Master Plan.

Redevelopment Areas, Underground Utility Districts

Presented in **Figure III-9** are the limits of existing Redevelopment Plan Areas within the Fort Bragg Alley Master Plan Study Area.

As shown in this figure, the commercial areas of the City along the Main Street (Highway 1) corridor and the land encompassed by the Mill Site Specific Plan are among areas of the City now included within a designated Redevelopment Plan. While the future of redevelopment funds in California is uncertain, it is clear that alleys that are now within a designated Redevelopment Plan Area are more likely to obtain available redevelopment funds than alleys located outside of an existing Redevelopment Plan Area.

In the City's existing Redevelopment Areas, alleys may be improved using tax increment financing. Changes currently under consideration at the State level may limit the availability of Redevelopment Funds.



REDEVELOPMENT PLAN AREAS

FORT BRAGG ALLEY MASTER PLAN



FIGURE III-9



In **Figure III-10** is presented the existing Underground Utility Districts (UUD) located within the Alley Master Plan Study Area. Currently only alley N 400 D and alley N 300 D are within an UUD. Overhead power, telephone, cable T. V. and Internet utilities located within these alleys have already been placed underground. Photos of current conditions in these UUD alleys are presented in **Figure III-11** and **Figure III-12**.

While only a few of the City's alleys are now within an UUD the City encourages the undergrounding of utilities in all alleys. In Section IV of this Master Plan Study is presented recommended utility trench, conduit and pull box improvements which could be installed with alley surface grading and drainage improvements to facilitate undergrounding of utilities.

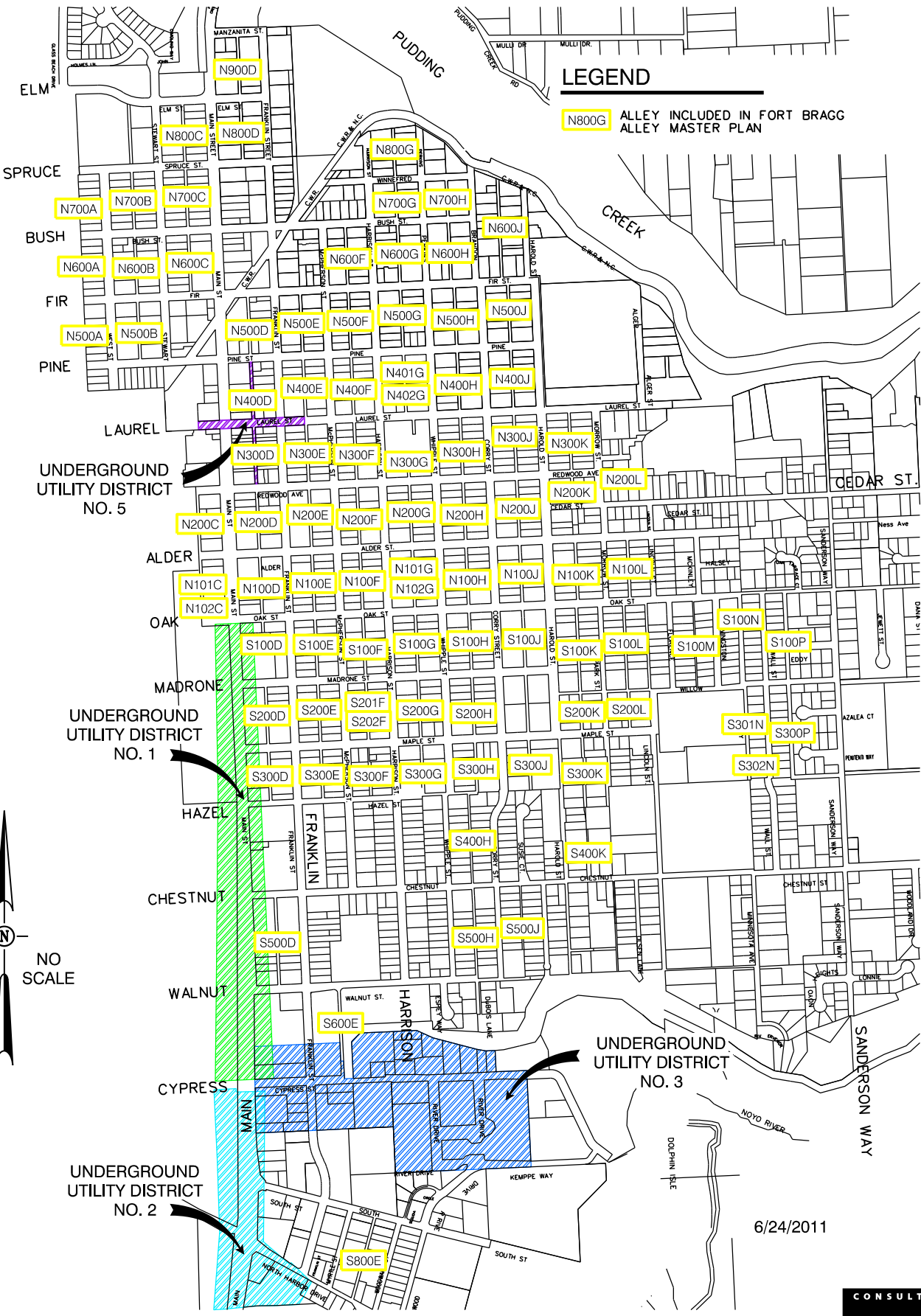
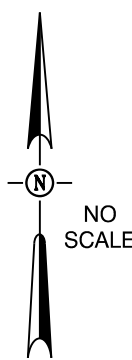
Proximity to Schools

The City of Fort Bragg successfully obtained Safe Routes to School (SRTS) Grants in 2008 and again in 2011. Safe Routes to School Grants fund pedestrian crossings and path of travel improvements in close proximity to schools. Since alleys are used for both pedestrian and vehicle access it is possible that future SRTS grants could include surface improvements for alleys which are in close proximity to a school. The opportunity for applying SRTS funds to alley improvements is therefore directly proportional to the alley's proximity to a Fort Bragg school. The Opportunities Matrix presented in the Technical Appendix includes the approximate proximity of each alley to a school and provides school proximity ratings based on this distance. Alleys in very close proximity to schools have a high SRTS funding opportunity rating. Alleys far from schools are assigned a low SRTS funding opportunity rating.

Storm Drainage Master Plan, Storm Drain Connectivity

In **Figure III-13** is presented City of Fort Bragg Drainage Master Plan improvements proposed within the limits of the Alley Master Plan. There are several alleys in which improvements completed to implement Alley Master Plan recommendations would also serve, directly or indirectly, to implement the goals and objectives of the City's Storm Drainage Master Plan. Alley drainage improvements consistent with the City's Storm Drain Master Plan include:

- | | |
|---------|----------|
| N 500 A | S 100 H |
| N 500 B | S 200 H |
| N 700 C | SS 300 H |
| N 800 D | S 500 H |
| S 300D | N 100 J |
| N 400 E | S 300 K |
| S 300 E | S 400 K |
| N 100 F | S 100 M |
| N 102 G | S 100 N |
| S 300 G | S 300 P |



UNDERGROUND UTILITY DISTRICT LOCATIONS
FORT BRAGG ALLEY MASTER PLAN

6/24/2011



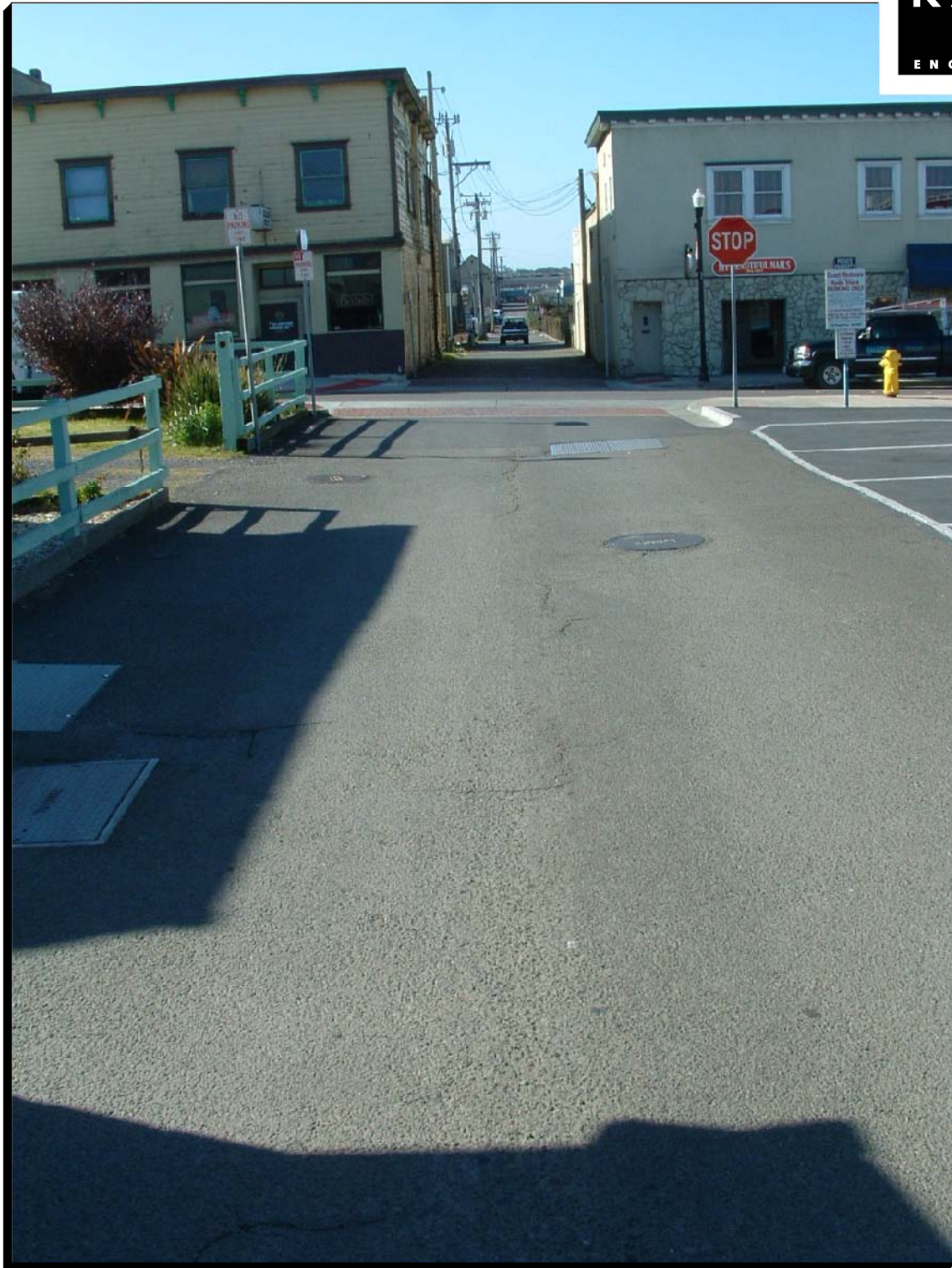
FIGURE III-10



ALLEY N400D

FORT BRAGG ALLEY MASTER PLAN

NO SCALE



ALLEY N300D

FORT BRAGG ALLEY MASTER PLAN
NO SCALE

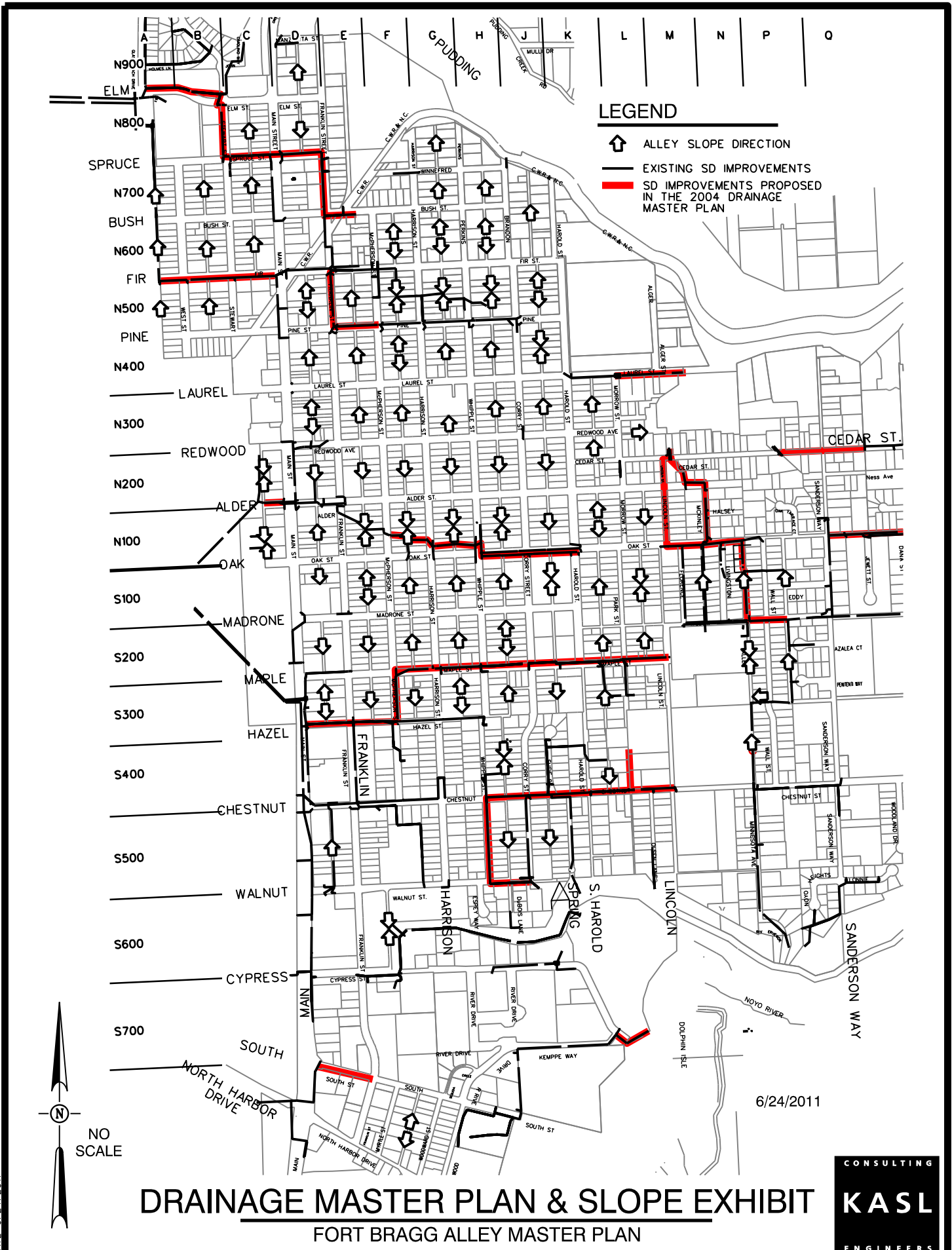


FIGURE III-13



The 18-inch storm drain located in the alley between Livingston Street and Wall street (alley S 100 N) has been determined in the Drainage Master Plan to be undersized for estimated 10 year and 100 year flows. Selection of this alley as a high priority improvement would also provide opportunities to improve the city's storm drainage conveyance capacity.

Alleys with existing City of Fort Bragg storm drain inlet or storm drain piping improvements have a high opportunity for drainage improvement at relatively low cost. Alleys which slope to an existing storm drain pipe located in the intersecting street would have a good opportunity for implementation of drainage improvements at moderate cost. The Opportunities Matrix included in the Technical Appendix includes drainage connectivity ratings as follows:

- Existing alley drainage inlet available = 10
- Existing storm drain pipe in alley = 10
- Drainage inlet available in connecting street at low end of alley = 10
- Storm Drain manhole available in connecting street at low end of alley = 10
- Storm drain pipe available in connecting street at low end of alley = 8
- Drainage inlet available in connecting street at high end of alley = 5
- Storm drain pipe available in connecting street at high end of alley = 0
- No storm drain improvements available = 0

Assignment of the drainage connectivity opportunity ratings presented above is intended to maximize available alley improvement funds. An alley that is already improved with a storm drain collection facility or that has direct connectivity to a storm drain pipe in the (down gradient) intersecting street can effectively be improved at a lower cost than an alley where extensive storm drain improvements are needed. An alley with a crest profile would typically not need extensive drainage improvements to drain to a connecting storm drain.

Summary Finding of Opportunities

Similar to the assessment of conditions, alley opportunities were assigned a relative weight of significance. The relative weights assigned to the alley opportunity categories are as follows:

- Ownership = 10
- Redevelopment Area, UUD, Proximity to School (Funding Opportunity) = 6
- Consistency with Drainage Master Plan = 6
- Drainage Connectivity = 3



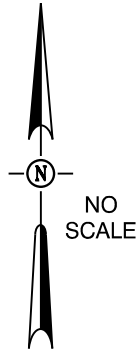
The ratings assigned to each alley in each of the opportunity categories were then multiplied by the relative weights presented above to arrive at a sum of opportunity ratings x weight. Presented in **Figure III-14** is a summary of the alleys with the best opportunity for improvement. These include:

- | | |
|---------|---------|
| N 500 B | N 100 F |
| N 700 C | N 102 G |
| N 800 D | S 300 G |
| N 500 D | S 100 H |
| N 400 D | S 200 H |
| N 300 D | S 300 H |
| S 300 D | S 500 H |
| N 500 E | N 100 J |
| N 400 E | S 300 K |
| S 300 E | S 400 K |
| S 300 E | S 100 M |
| N 500 F | S 300 P |
| N 400 F | |

PRIORITIZATION

The nexus of Existing Conditions and Existing Opportunities results in a prioritization or ranking of alley improvements. Alleys with the greatest need for improvements, as previously presented in Figure III-8 and determined from the assessment of existing conditions were given more “weight” or “priority” than alleys which present the greatest opportunity for improvements presented in Figure III-14. The recommended prioritization of alley improvements, as determined by the findings of the Alley Master Plan, are presented in **Figure III-15**. Alleys identified with highest priority for improvement are:

<u>Alley I.D. Codes</u>	<u>Land Use</u>
N 600 B	Residential
N 500 B	Residential
N 800 C	Commercial
N 700 C	Residential / Commercial
N 102 C	Commercial
S 500 D	Commercial
S 600 E	Commercial
N 100 F	Residential
S 202 F	Residential
N 402 G	Residential
N 200 G	Residential
N 102 G	Residential
S 100 G	Residential



LEGEND

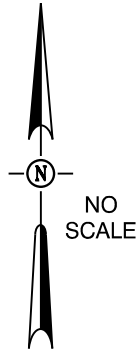
- N600H ALLEY WITH BEST OPPORTUNITY FOR IMPROVEMENT
- N700H ALLEY INCLUDED IN FORT BRAGG ALLEY MASTER PLAN



OPPORTUNITY MATRIX RESULT
FORT BRAGG ALLEY MASTER PLAN

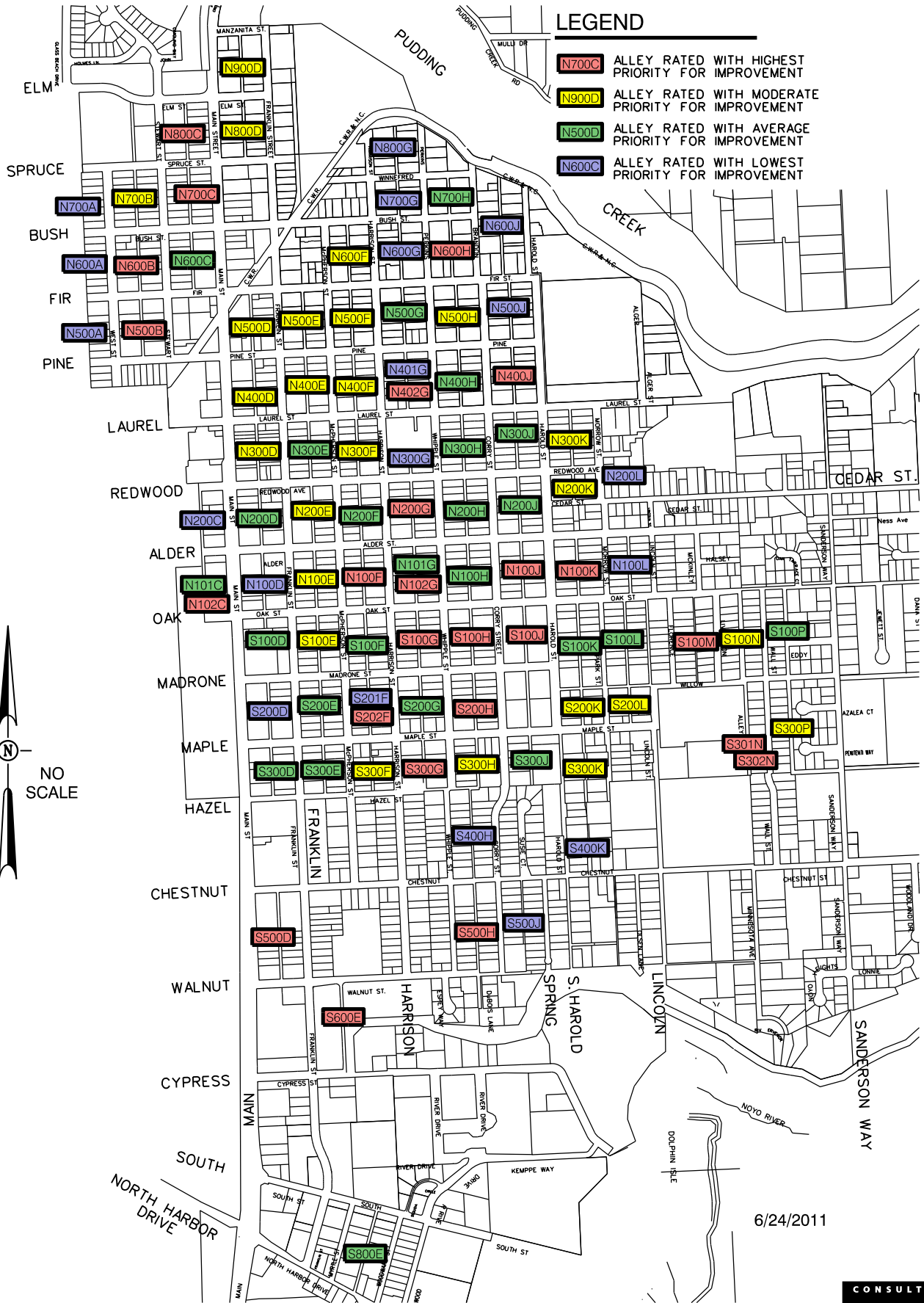


FIGURE III-14



LEGEND

- N700C ALLEY RATED WITH HIGHEST PRIORITY FOR IMPROVEMENT
- N900D ALLEY RATED WITH MODERATE PRIORITY FOR IMPROVEMENT
- N500D ALLEY RATED WITH AVERAGE PRIORITY FOR IMPROVEMENT
- N600C ALLEY RATED WITH LOWEST PRIORITY FOR IMPROVEMENT



6/24/2011

**RECOMMENDED PRIORITIZATION OF ALLEY IMPROVEMENTS
 FORT BRAGG ALLEY MASTER PLAN**



FIGURE III-15



Alley I.D. Codes

Land Use

S 300 G	Residential
N 600 H	Residential
S 100 H	Residential / Commercial
S 200 H	Residential
S 500 H	Residential
N 400 J	Residential
N 100 J	Residential / Commercial
S 100 J	Residential / Commercial
N 100 K	Residential
S 100 M	Residential
S 301 N	Residential / Public Use
S 302 N	Residential / Public use

In summary, the alleys rated with highest priority for improvements include:

- 15 alleys in Residential Land use Zones
- 4 alleys in Commercial Land Use Zones
- 4 alleys in Mixed Residential / Commercial Land use Zones
- 2 alleys in Mixed Residential / Public Land Use Zones

Thirteen of the above listed alleys are located north of Oak. Twelve are located south of Oak. No privately owned alleys are designated as highest priority. No dead-end alleys are designated as highest priority.

DATABASE

A database has been created for each of the alleys in the Fort Bragg Alley Master Plan. Each of the GIS shape files created for each alley is populated with the following data:

Alley Identification Code	Primary Residential Access
North Street Name	Commercial Access
South Street Name	Parking Lot Access
West Street Name	Fire Access
East Street Name	Access Service Rank
Alley Ownership	One or Two Way
Existing Utilities	Alley Zone
Pavement Surface Ave Width	Traffic Rank
Alley Surface	Traffic
Pavement Surface Condition Index	No of Street Lights
Potholes Percent Min	Police Priority
Potholes Percent Max	Fort Bragg Land Use Designation
Pavement Surface Rank	Safety Rank



Alley Slope Min	Consistent with Master Plan
Alley Slope Max	Redevelopment Area
Alley Slope Direction	Approximate Proximity to School
Alley Pitch Min	Underground Utility District
Alley Pitch Max	Overall Opportunity Rank
Grading Rank	Overall Condition Rank
Alley Piping	Priority Rank
No. of Field Located Alley Drainage Inlets	Date Funded *
Crest Sag NA	Date Designed *
Alley Connectivity	Date Improved *
Drainage Rank	Maintenance Drainage Date *
Parking Permitted	Maintenance Pavement Data *
Alley is a Through Travelway	Maintenance Striping Date *
No. of Driveways Gates Garages	Maintenance Sign Date *

Through the “Priority Rank” category listed above, data generated by this Master Plan Study has been entered into the City’s Alley Database. The last 7 categories (noted by an * above) have been provided to allow City Staff to enter the appropriate data when specific alleys are funded, designed, improved, maintained, etc. The database created will allow City Staff to access the data entered from the Master Plan and will allow the City to manage the alley assets by keeping track of construction and maintenance information. Additional data categories may be added.

The City of Fort Bragg Alley Database is a combination of two file types: Microsoft Excel and ESRI file geodatabase. All alley attributes are stored in the Excel file. The Excel file allows the user easy access to information used in calculating ratings/rankings in the Alley Master Plan including alley conditions and opportunities for alley improvements. Calculations, weightings, and look-up tables in the Excel file are used to create the alley improvement priority list.

The ESRI file geodatabase links (or joins, in ESRI terms) the physical location of the alleys to the attributes in the Excel file. The two files are joined by a column in both the geodatabase and the Excel file named “Sort Order”. Sort Order is the order which alleys have been named, and on a map the sort order starts at the North West alley (N700A) and increments North to South, then West to East.

Once the geodatabase is opened in ArcGIS, the information from the Excel file is available for read only access. Updates to alley attributes need to be done in Microsoft Excel, not ArcGIS. Queries can be performed in either Excel and ArcGIS; however, since Excel does not contain information that geographically locates the alleys, geographic oriented queries need to be performed in ArcGIS.

The geodatabase file is named “Alley Master Plan.gdb”. It contains a feature dataset named “Alleys” which contains a feature class named “Alley_Centerlines”.



The Excel file is named "Alley Ratings Matrix". It contains the following worksheets: "Condition Matrix", "Opportunity Matrix", "Recommended Improvements", "Lookup Tables, and "GIS". GIS is used in the join to the geodatabase.



IV. RECOMMENDATIONS

ALLEY IMPROVEMENT PLANS

Typical alley improvement plans are presented in **Figure IV-1** for alleys located in commercial land use zones and in **Figure IV-2** for alleys located in residential land use zones. Figure IV-1 includes a photo of the alley improvements which have been constructed at the intersection of alley N 200 D and Redwood Avenue. This existing alley improvement serves as a model for commercial alleys in Fort Bragg. Consistent with these existing improvements it is recommended that alleys within commercial land use zones be paved across their entire width and that they terminate at the street intersection with stamped and colored concrete, where appropriate, a concrete cross gutter and ADA compliant sidewalk ramps furnished with detectable warning surfaces. The commercial alley improvements should include a concrete "V" gutter and a City Standard storm drain inlet, where appropriate.

The street-alley improvements constructed at alley N 300 K and Laurel Street and shown in Figure IV-2, serve as the template for alley intersections constructed in residential zones. It is recommended that alleys in residential land use zones be constructed with an AC paved width of 16 feet. The paved alley should terminate at the street intersection with a concrete cross gutter and ADA compliant sidewalk ramps furnished with detectable warning surfaces. The residential alley improvements should include a concrete V gutter and a City Standard storm drain inlet, where appropriate.

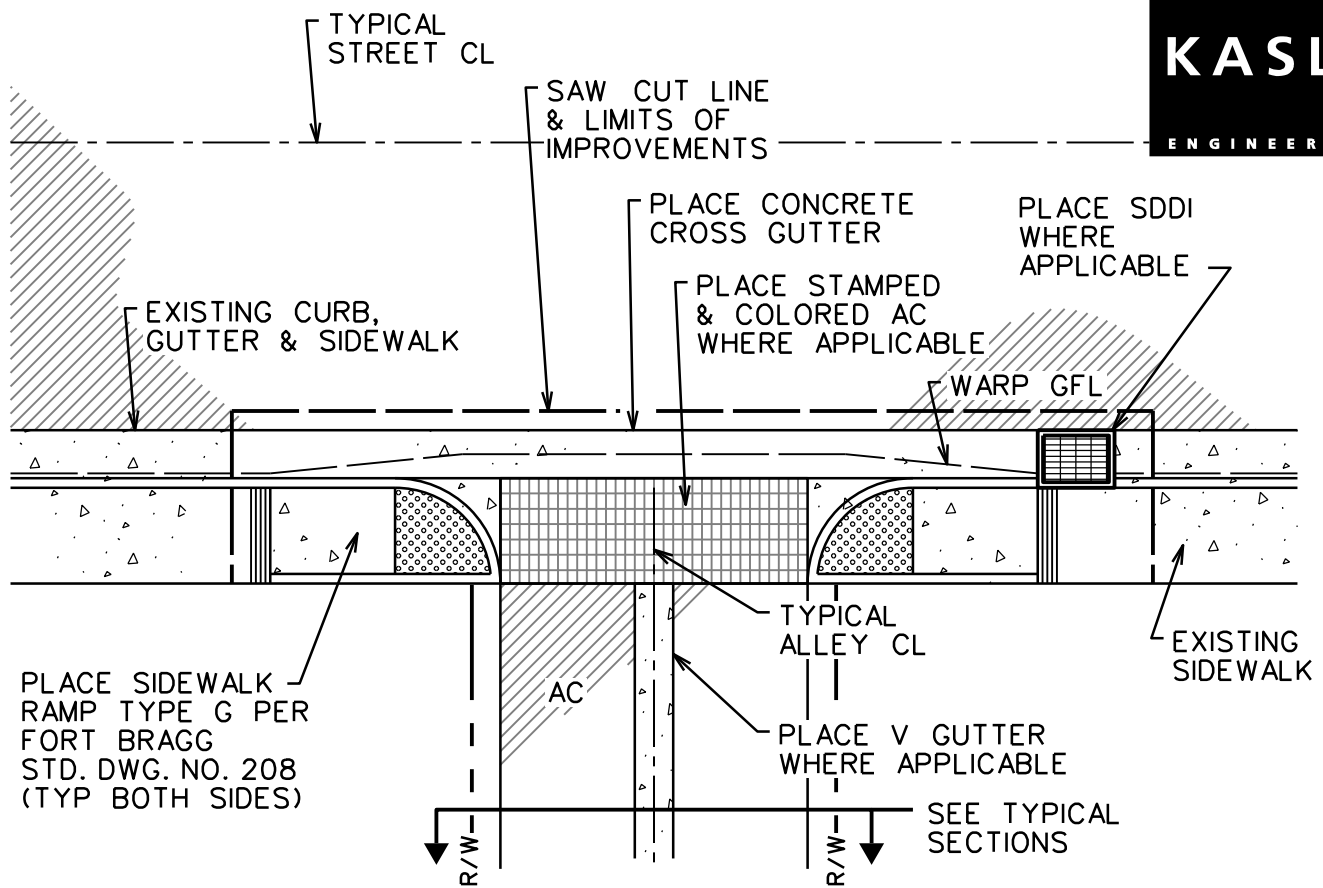
Striping, Signing and Lighting

A typical, recommended, commercial area striping, signing and lighting plan is presented in **Figure IV-3**. For access and service it is recommended that no parking be permitted within commercial alleys. In most of the Fort Bragg commercial zone alleys this is currently the case, however, there are a few alleys in the downtown commercial area where parking is now permitted on one side (N 200 C, N 101 C, N 102 C, N 500 D, S 100 D, S 100 E, for example).

In general, alleys are improved with a street light, mid-block. It is recommended that alley improvements include the placement of energy efficient, dark sky compliant streetlights. Brochures and specifications for high efficiency LED type streetlights are presented in the Technical Appendix.

In addition to the mid-block location it is recommended that a streetlight be placed at the alley / street intersection. Ideally, the location of the streetlights should "stagger" from the west side to the east side as shown in Figure IV-3.

Typical striping, signing and lighting plans for alleys within residential zones is presented in **Figure IV-4**. A pavement width of 16 feet is proposed. The residential area alley improvements should be completed with a 2 foot wide aggregate base shoulder on each side of the 16 foot wide paved alleyway.



TYPICAL ALLEY TRANSITION IMPROVEMENT
NO SCALE

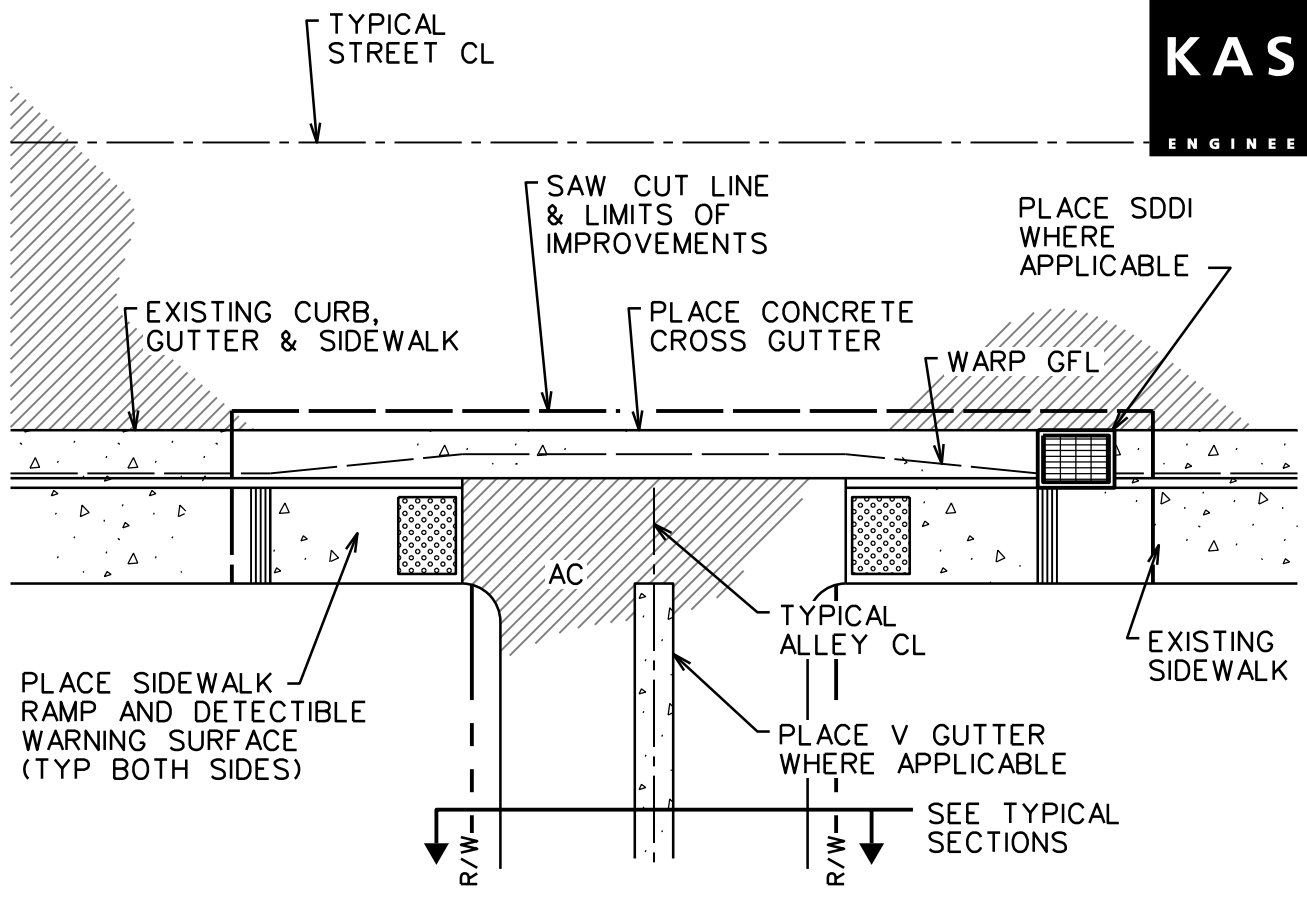


EXAMPLE IMPROVEMENT, N200D
NORTH INTERSECTION LOOKING SOUTH ACROSS
REDWOOD AVENUE, NEAR "MY BEAUTIFUL NAILS"

**TYPICAL COMMERCIAL ALLEY TO
STREET TRANSITION**

FORT BRAGG ALLEY MASTER PLAN

FILE: S:\2719-08 Alley Master Plan\Alley Master Plan Report\Report Figures\Fig IV-1 TYPICAL COMMERCIAL ALLEY TRANSITION.dgn
DATE: 6/24/2011



TYPICAL ALLEY TRANSITION IMPROVEMENT
NO SCALE

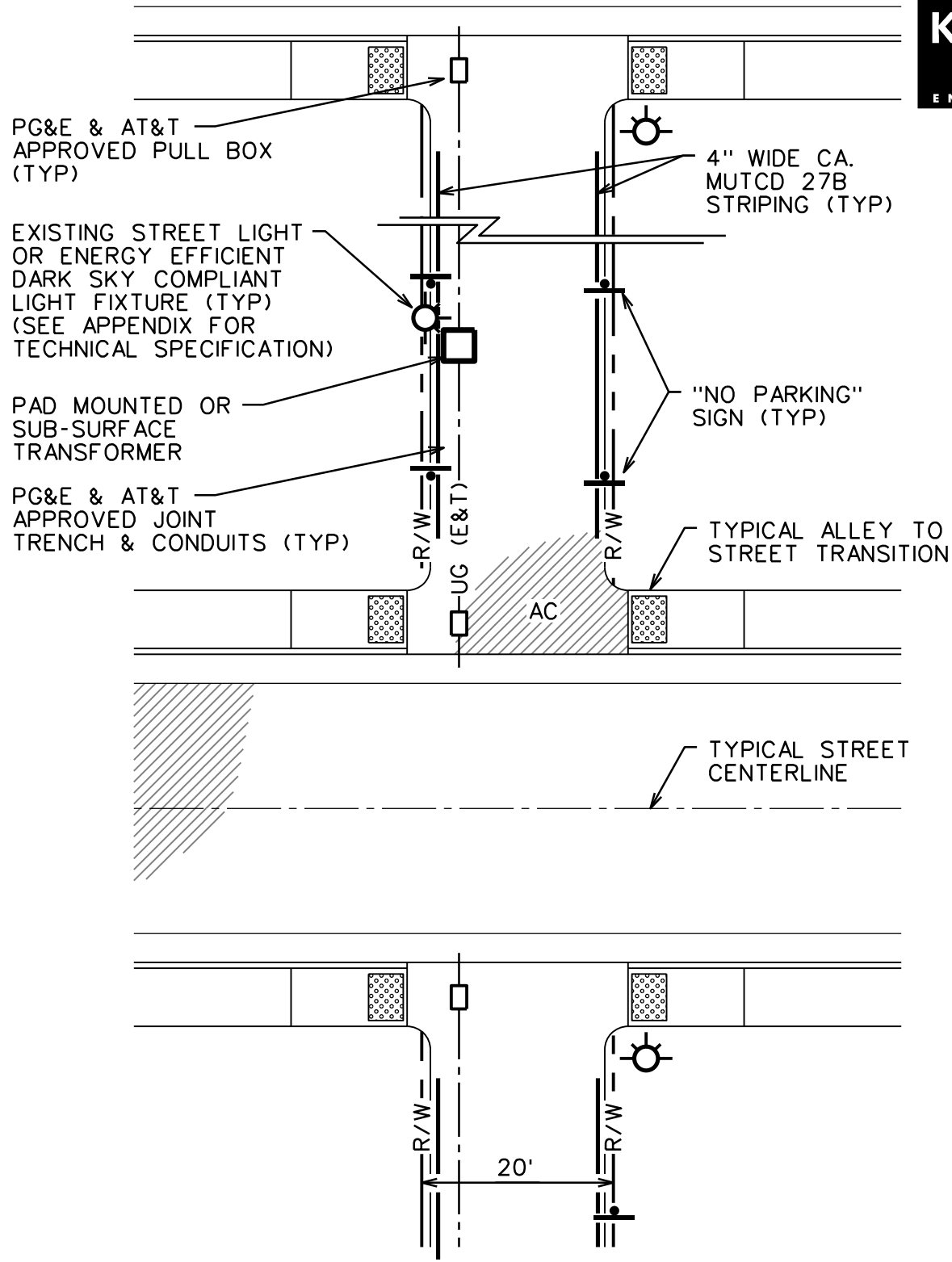


EXAMPLE IMPROVEMENT, N300K
NORTH INTERSECTION LOOKING TOWARD
LAUREL ST. & MIDDLE SCHOOL

**TYPICAL RESIDENTIAL ALLEY TO
STREET TRANSITION**

FORT BRAGG ALLEY MASTER PLAN

FILE: S:\2719-08 Alley Master Plan\Alley Master Plan Report\Report Figures\Fig IV-2 TYPICAL RESIDENTIAL ALLEY TRANSITION.dgn
DATE: 6/24/2011



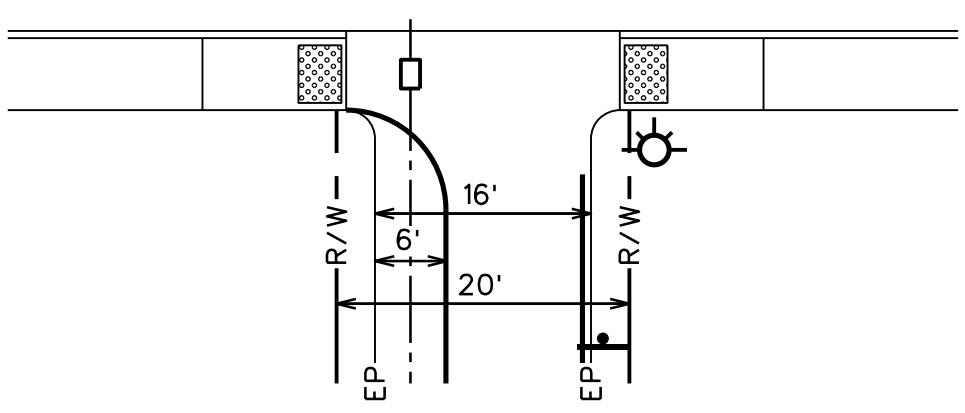
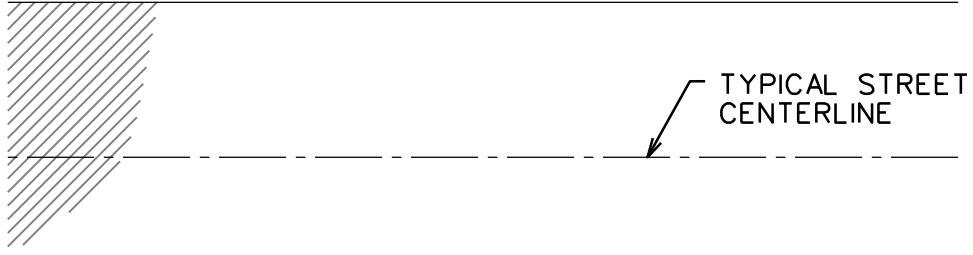
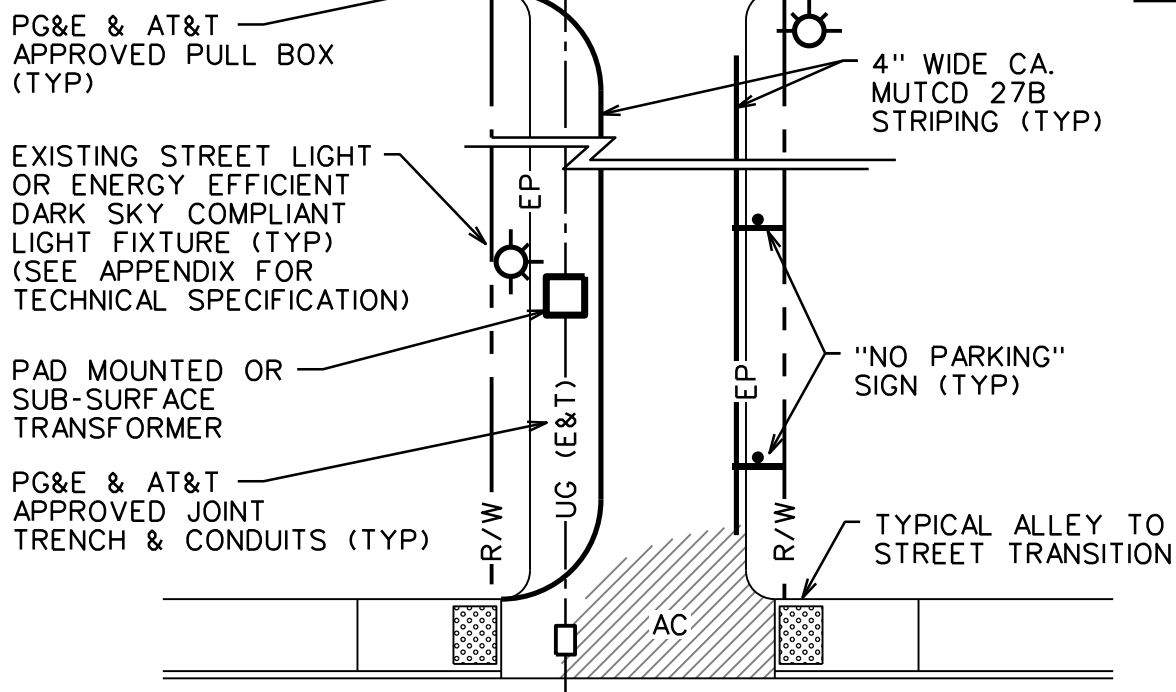
**TYPICAL COMMERCIAL ALLEY STRIPING,
 SIGNING & LIGHTING**

FORT BRAGG ALLEY MASTER PLAN

NO SCALE

FIGURE IV-3

FILE: S:\2719-08 Alley Master Plan\Alley Master Plan Report\Report Figures\Fig IV-3 STRIPING SIGNING LIGHTING - COM.dgn
 DATE: 6/24/2011



TYPICAL RESIDENTIAL ALLEY STRIPING, SIGNING & LIGHTING

FORT BRAGG ALLEY MASTER PLAN

NO SCALE

FIGURE IV-4

FILE: S:\2719-08 Alley Master Plan\Alley Master Plan Report\Report Figures\Fig IV-4 STRIPING SIGNING LIGHTING - RES.dgn
 DATE: 6/24/2011



To provide access to residential second units with front doors on public alleys it is recommended that alley parking be permitted on only one side. As shown on Figure IV-4 a 10 foot wide paved no parking lane (fire lane) is proposed for all residential alleys. Currently, parking restrictions in Fort Bragg residential alleys vary. There are a few alleys posted with no parking, both sides, and a few with no parking posted, one side. In general, however, residential alleys within the City have no posted parking restrictions. Allowing vehicles to park on both sides of a 20 foot wide alley makes it impossible for service and emergency providers to access residential alleys. The City of Fort Bragg Fire Department prefers that no parking be allowed in residential alleys. While this restriction would enhance emergency service access it may be impractical to implement, especially with the City's policy to allow residential second units on alleys.

Utility Improvements

Fort Bragg area utility agencies were contacted to determine their requirements for undergrounding of utilities. A typical joint trench detail is presented in **Figure IV-5**. Typical pull box and distribution box details are presented in **Figure IV-6**. While undergrounding of overhead power, telephone, cable TV and internet utilities is not the responsibility of the City of Fort Bragg, alley improvements could be constructed with joint trench, conduits, pull boxes and distribution boxes as required by the utility companies to facilitate the undergrounding of utilities in the future.

Discussions were held with local PG&E representatives regarding planning for the undergrounding of utilities in alleys. PG&E suggests that there are too many variables to effectively estimate or budget costs for undergrounding on a City-wide basis. Alleys where only secondary power service is provided could be undergrounded relatively easily. Alleys which include both primary and secondary service would require the placement of transformers. At a minimum, two transformers (preferably at the alley "third" points) would be required, each alley. To provide adequate clearance around pad mounted transformers may make impractical the placement of these within existing alley rights-of-way. Subsurface transformers could be placed with less clearance restrictions, however, PG&E is, in general, reluctant to place power equipment (transformers, switching gear) underground where groundwater conditions are not suitable. In the cost estimates presented later in this section of the Alley Master Plan, utility undergrounding budget numbers are presented. These undergrounding cost estimates should, however, be considered separate from other alley costs because of the wide range of power and service conditions.

TYPICAL DISTRIBUTION TRENCH

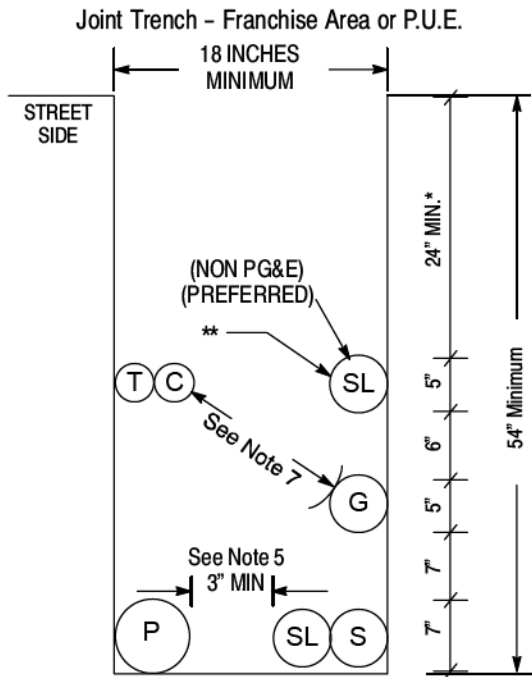


FIG. 1

Placement of the Distribution Trench within a P.U.E. is the preferred method. Trenching in the Franchise Area should only be used when a P.U.E. is unobtainable or otherwise infeasible.

* Increase cover to 30" in the street area (see Note 3).

** Separation must be 12" unless a reduction (6") is mutually agreed upon by affected utilities.

TYPICAL SERVICE TRENCH

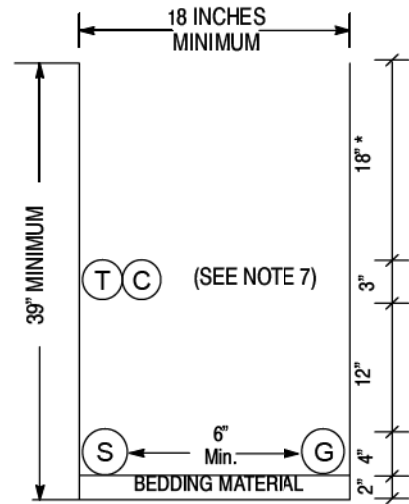


FIG. 2
(View facing Distribution Trench)

MINIMUM SEPARATION AND CLEARANCE REQUIREMENTS

		G	DUCT T	DB T	C	S	P
G	(GAS) SEE NOTES 4, 7 & 13	—	12"	12"	12"	6"	12"
T	(TELEPHONE) DUCT	12"	—	1"	1"	12"	12"
T	(TELEPHONE) DIRECT BURY	12"	1"	—	1"	12"	12"
C	(CATV)	12"	1"	1"	—	12"	12"
S	(ELECTRIC SECONDARY)	6"	12"	12"	12"	—	3"
P	(ELECTRIC PRIMARY)	12"	12"	12"	12"	3"	—
SL	(STREETLIGHT) SEE NOTE 5	6"	12"	12"	12"	1"	3"

SEPARATION AND CLEARANCE DEFINITIONS

Cover:

The term "cover" means the radial distance between the surface of an underground cable, conduit, pipe, or other substructure and the surface elevation (grade).

Backfill:

The term "backfill" refers to the materials used to refill a cut or other excavation, or the act of such refilling after any needed shading is performed.

Shading:

The term "shading" refers to the materials used to provide a measure of separation between facilities installed at different levels within an excavation or cut.

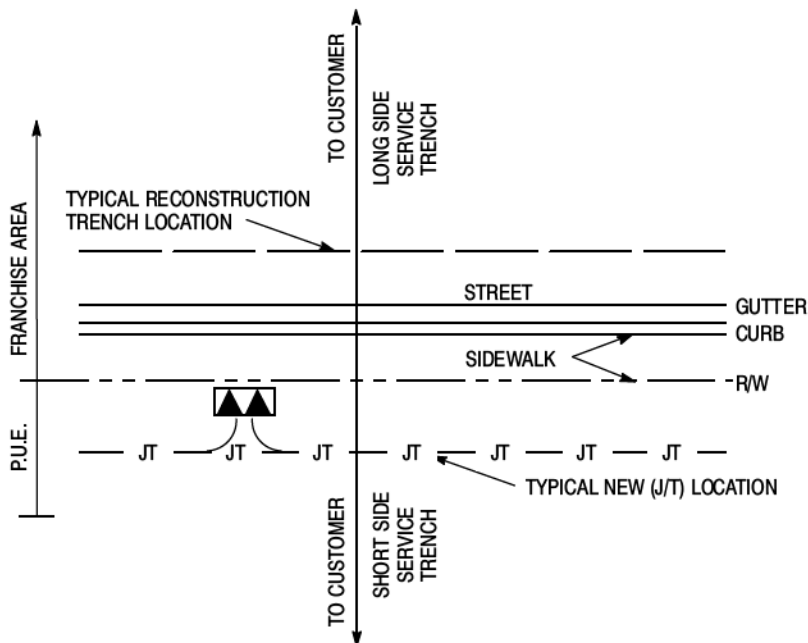
Lift:

The term "lift" is a layer of fill as spread or as compacted or a measurement of material depth that is the rated effective soil depth a compactor can achieve.

Bedding:

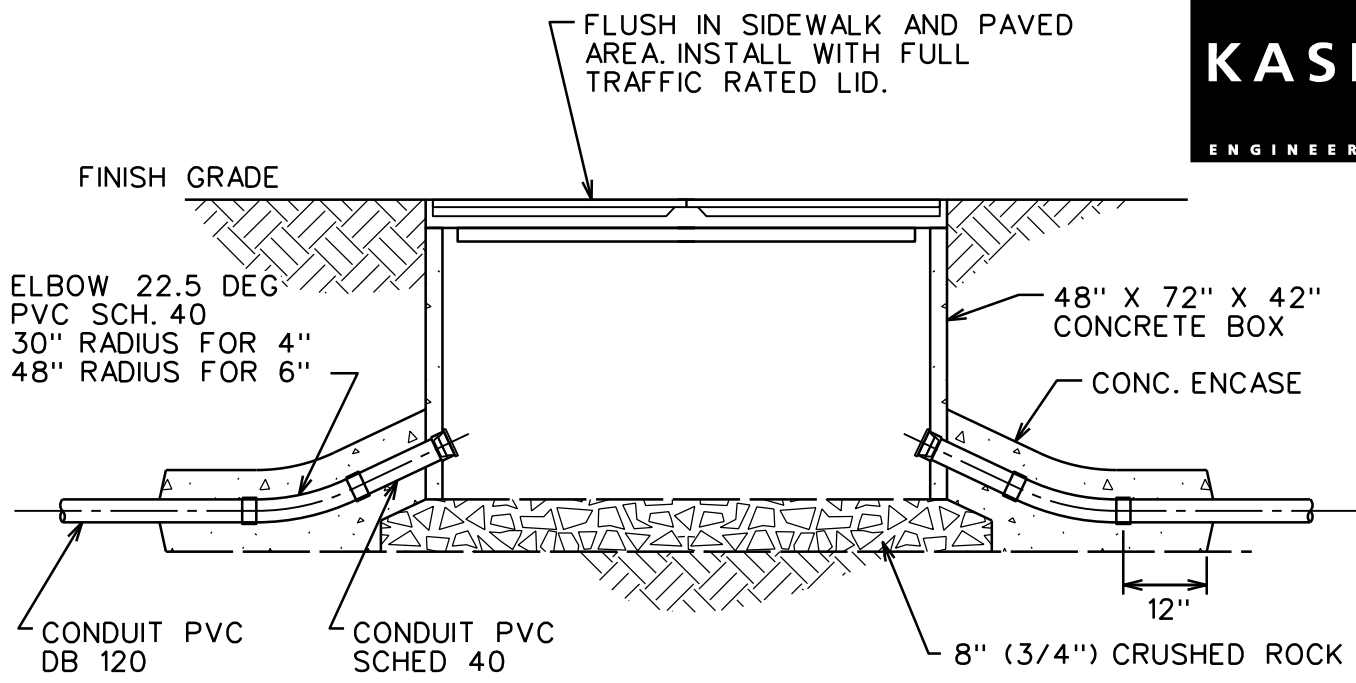
The term "bedding" refers to the materials installed beneath facilities at the bottom of a cut or other excavation and intended to provide support and/or protection for those facilities.

STANDARD TRENCH LOCATIONS



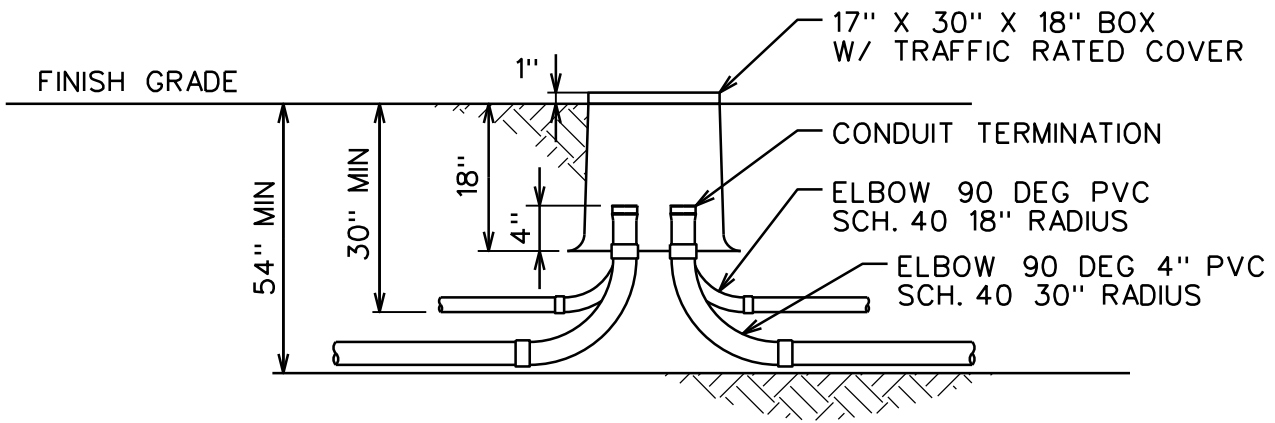
JOINT TRENCH CONFIGURATIONS & OCCUPANCY GUIDE

09-27-06



TYPICAL PRIMARY U.G. UTILITY PULL BOX SECTION

NO SCALE



TYPICAL SECONDARY U.G. SERVICE BOX SECTION

NO SCALE

TYPICAL PRIMARY & SECONDARY PULL BOX DETAILS

FORT BRAGG ALLEY MASTER PLAN

FILE: S:\2719-08 Alley Master Plan\Alley Master Plan Report\Report Figures\Fig IV-6 Pull Box.dgn
 DATE: 6/24/2011



TYPICAL SECTIONS

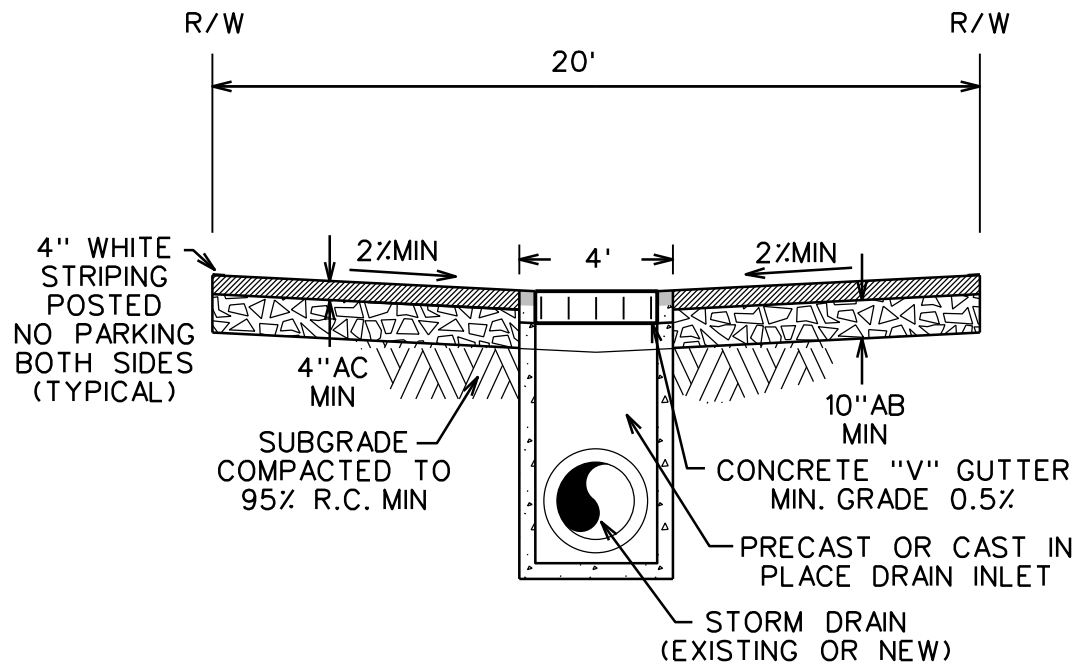
Alleys in Commercial / Multi-Family Zones

Three alternative commercial / multi-family zone alley sections are presented in **Figures IV-7, IV-8 and IV-9**. A 20-foot wide paved section is proposed in each. Structural sections are estimated and are presented for the purpose of developing typical costs. The alley structural section must be verified at the time of design with "R" value determinations of the subgrade soils. A Traffic Index (T.I.) of 5.5 is proposed for the commercial / multi-family zone alleys. This commercial alley T.I. is consistent with Fort Bragg Improvement Standards.

The typical section presented in Commercial / Multi-Family Residential-1 (Type N-7) would be selected for those commercial / multi-family zone alleys that are currently improved with storm drain piping. If new storm drain piping is placed, a minimum pipe diameter of 12 inches is recommended. Existing or new storm drain piping would connect to existing storm drain piping located in the intersecting streets. A minimum pipe slope of 0.5% is recommended. The Commercial / Multi-Family-1 alley section includes a 4-foot wide concrete V gutter to be placed approximately in the center of the paved alley. A minimum alley grade of 0.5% is recommended. A minimum pitch (cross slope) of 2% is recommended.

The typical section presented in Commercial – Multi-Family-2 (Figure IV-8) would be selected for those commercial / multi-family zone alleys that are not improved with storm drain piping but do slope to intersecting streets improved with piped storm drain improvements. Pavement section, structural section, concrete V gutter and T.I. Value are as suggested in the Commercial / Multi-Family-1 alternative. A storm drain inlet would be placed near the curb return on the intersecting street to collect the drainage discharged from the central V gutter.

The typical section presented in Commercial / Multi-Family-3 (Figure IV-9) would be selected where the alley has no connectivity to storm drain improvements and subsurface soil and groundwater conditions are appropriate. This alternative section should only be used when soil infiltration rates exceed 0.5 in. /hr and separation from maximum groundwater levels, measured from the bottom of the infiltration trench, is at least 4 feet. The infiltration trench should be constructed with highly permeable material such as 1.5" to 2.5" diameter clean gravel or stone. The trench should be wrapped with filter fabric. Typical specifications for the infiltration trench, fill material and filter fabric are presented in the Appendix. The central V gutter should be constructed with pervious concrete to allow rapid infiltration of water into the infiltration trench. Information and specifications for pervious concrete is also presented in the Appendix.



- APPLY WHERE COMMERCIAL/MULTIFAMILY ALLEYS ARE NOW IMPROVED WITH STORM DRAIN PIPING
- APPLY WHERE COMMERCIAL/MULTIFAMILY ALLEYS HAVE CONNECTION TO STORM DRAIN EXISTING IN INTERSECTING STREET
- 4" AC OVER 10" AB MIN PAVEMENT SECTION TO BE CONFIRMED WITH R VALUE DETERMINATION AND T.I = 5.5
- NEW STORM DRAIN PIPING MINIMUM 12" DIAMETER. SEE CITY STANDARDS FOR APPROVED PIPE MATERIAL.

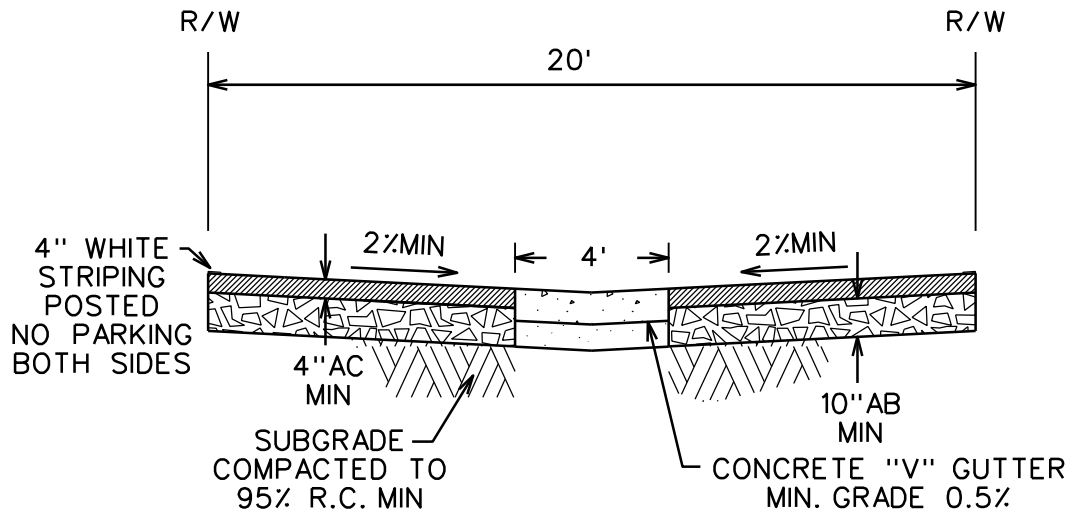
COMMERCIAL/MULTI FAMILY (MF) RESIDENTIAL -1 ALLEY IMPROVEMENTS

FORT BRAGG ALLEY MASTER PLAN

NO SCALE

FIGURE IV-7

FILE: S:\2719-08 Alley Master Plan\Alley Master Plan Report\Report Figures\Fig IV-7 TYPICAL SECTION.dgn
 DATE: 6/24/2011

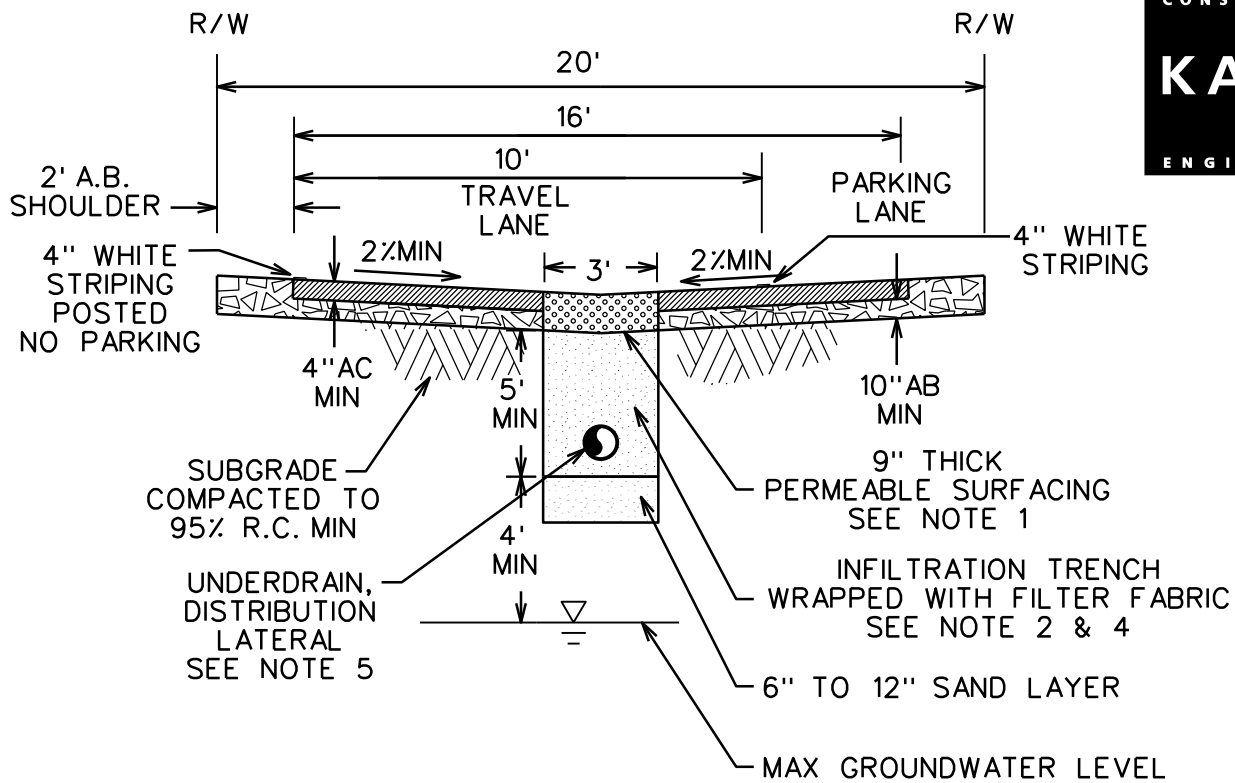


- APPLY WHERE COMMERCIAL/MULTIFAMILY ALLEYS ARE NOT IMPROVED WITH STORM DRAIN PIPING BUT DO SLOPE TO INTERSECTING STREET IMPROVED WITH STORM DRAIN IMPROVEMENTS
- 4" AC OVER 10" AB MIN PAVEMENT SECTION TO BE CONFIRMED WITH R VALUE DETERMINATION AND T.I= 5.5

COMMERCIAL/MULTI FAMILY (MF) RESIDENTIAL -2 ALLEY IMPROVEMENTS

FORT BRAGG ALLEY MASTER PLAN

NO SCALE



- APPLY WHERE RESIDENTIAL ALLEY HAS NO CONNECTIVITY TO STORM DRAIN IMPROVEMENTS AND SUBSURFACE SOIL IS SUITABLE FOR INFILTRATION (MIN. INFILTRATION RATE: 0.5 IN/HR)

NOTES:

1. PERMEABLE SURFACING MAY BE PERVIOUS CONCRETE OR PERMEABLE PAVERS. SEE APPENDIX FOR TECHNICAL SPECIFICATIONS
2. INFILTRATION TRENCH BACK FILLED WITH 1.5" TO 3.0" CLEAN GRAVEL, STONE OR SIMILAR HIGH PERMEABLE MATERIAL. SEE APPENDIX FOR TECHNICAL SPECIFICATIONS
3. 4" AC OVER 10" AB MIN PAVEMENT SECTION TO BE CONFIRMED WITH R VALUE DETERMINATION AND T.I = 5.5
4. ACCEPTABLE FILTER FABRICS:
 - MIRAFL180-N
 - AMOCO 4552
 - GEOCON N70

SEE APPENDIX FOR TECHNICAL SPECIFICATIONS
5. 6" DIAMETER PERFORATED PVC OR HDPE CONNECTED TO PERFORATED CATCH BASIN

COMMERCIAL/MULTI FAMILY (MF) RESIDENTIAL -3 ALLEY IMPROVEMENTS

FORT BRAGG ALLEY MASTER PLAN

NO SCALE



Alleys in Residential Zones

Three alternative residential zone alley sections are presented in **Figures IV-10, IV-11 and IV-12**. A 16-foot wide paved section is proposed in each with 2 foot aggregate base shoulders, each side. As before with alleys in commercial / multi-family zones, the structural section shown (3" A.C. over 6" A.B.) is estimated. The alley structural section must be verified at the time of design with "R" value determinations of subgrade soils. The Traffic Index of 4.5 is consistent with Fort Bragg Improvement Standards and is less than the T.I. suggested for alleys improved within commercial / multi-family zones.

The typical section presented in Residential-1 (Figure IV-10) would be selected for residential zone alleys that are currently improved with storm drain piping. Consistent with the commercial / multi-family zone alleys a 4-foot wide concrete V gutter is proposed. Minimum alley grades (0.5%), minimum pitch (2%), minimum pipe size (12") and minimum pipe slope (0.5%) are the same as proposed in the Commercial / Multi-Family typical sections.

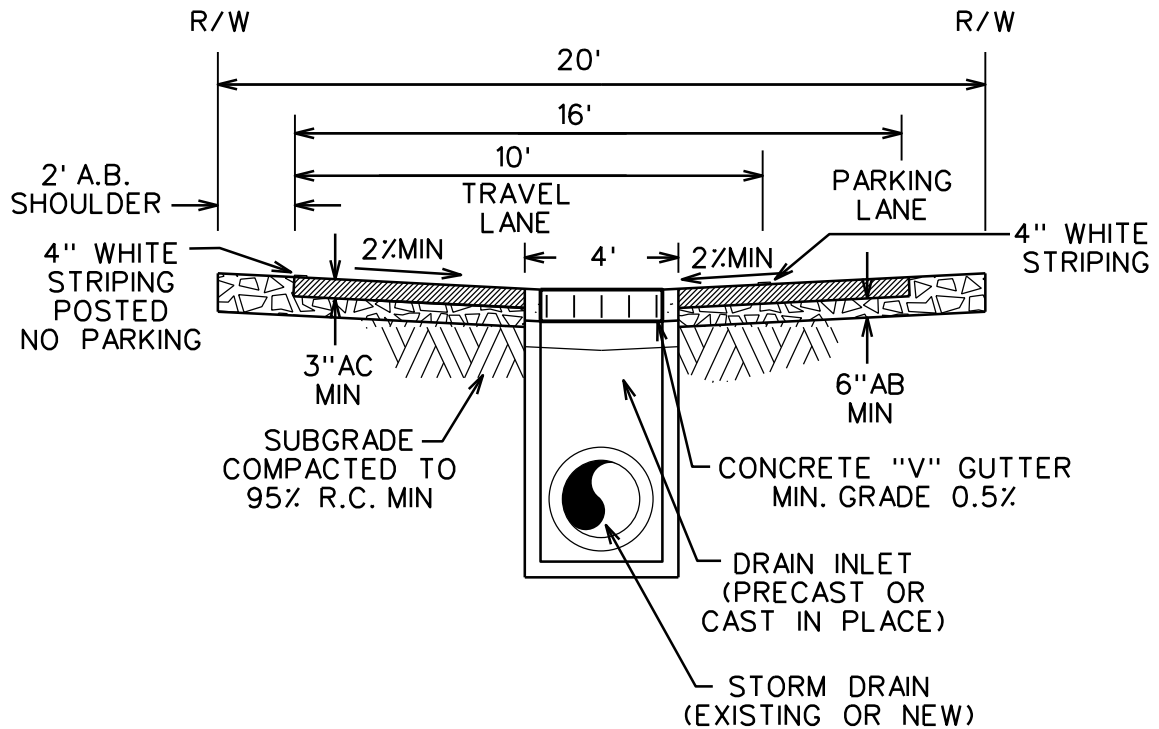
The typical section presented in Residential-2 (Figure IV-11) would be selected for those residential zone alleys that are not improved with storm drain piping but do slope to intersecting streets improved with piped storm drain improvements. Pavement section, structural section, concrete V gutter and T.I. values suggested for Residential-1 alleys would also apply to Residential-2 alleys.

Residential-3 alley improvements shown in Figure IV-12 would be selected for residential zone alleys with no storm drain connectivity but with suitable soil and ground water conditions. Subgrade soils must have infiltration rates at least 0.5 in./hr and not less than 4 feet should be available between the bottom of the trench and the maximum groundwater level. Infiltration trench backfill material, filter fabric and pervious concrete recommendations are as previously presented in the Commercial / Multi-Family-3 section.

MATERIALS

ARHM

Asphalt Rubberized Hot Mix (ARHM) pavement material is recommended for alley pavements. The ARHM specified can be either open graded or gap graded. Open graded mixes generally contain 9 to 10% asphalt rubber binder. Gap graded mixes generally contain 7.5 to 8.5% rubber binder. The source of the rubber for the rubber binder is finely ground recycled tire rubber. The rubber binder material provides a high film thickness for aggregate, improves surface durability and provides additional resistance to aging, rutting, raveling, thermal and reflective cracking. ARHM pavement

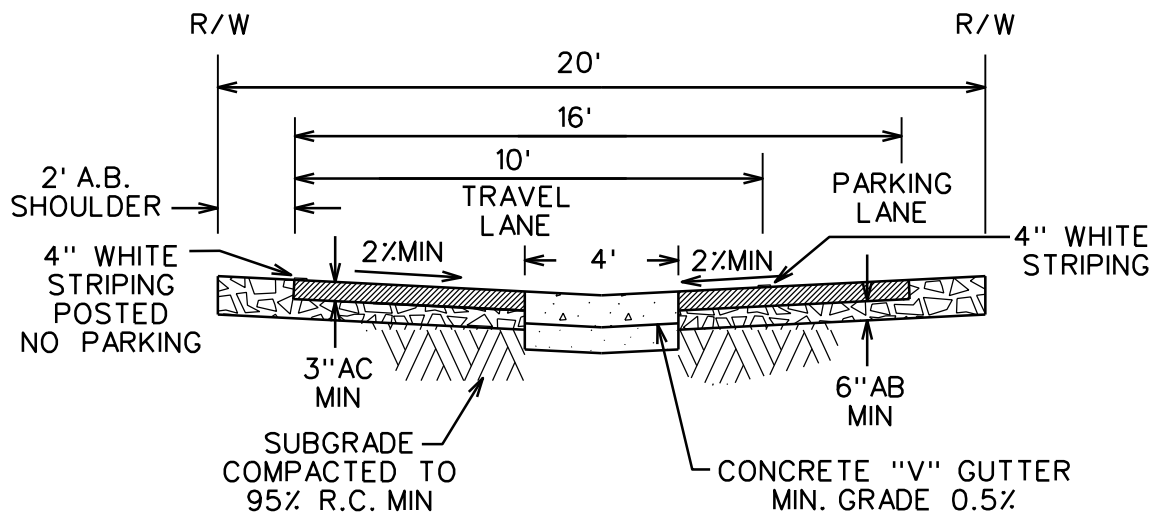


- APPLY WHERE RESIDENTIAL ALLEYS ARE NOW IMPROVED WITH STORM DRAIN PIPING
- APPLY WHERE RESIDENTIAL ALLEYS HAVE CONNECTIVITY TO STORM DRAIN EXISTING IN INTERSECTING STREET
- 3" AC OVER 6" AB MIN PAVEMENT SECTION TO BE CONFIRMED WITH R VALUE DETERMINATION AND T.I = 4.5
- NEW STORM DRAIN PIPING MINIMUM 12" DIAMETER SEE CITY STANDARDS FOR APPROVED PIPE MATERIAL

RESIDENTIAL -1 ALLEY IMPROVEMENTS
FORT BRAGG ALLEY MASTER PLAN
 NO SCALE

FIGURE IV-10

FILE: S:\2719-08 Alley Master Plan\Alley Master Plan Report\Report Figures\Fig IV-10 TYPICAL SECTION.dgn
 DATE: 6/24/2011

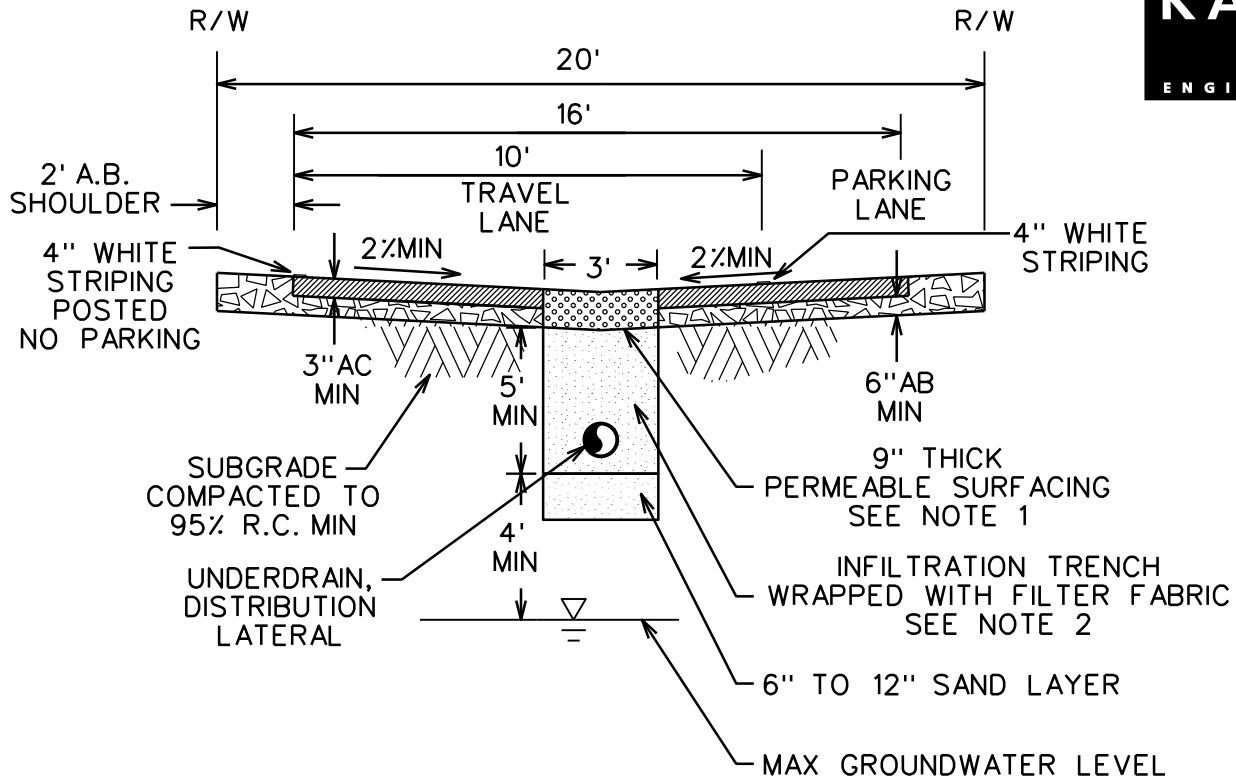


- APPLY WHERE RESIDENTIAL ALLEYS ARE NOT IMPROVED WITH STORM DRAIN PIPING BUT DO SLOPE TO INTERSECTING STREET IMPROVED WITH STORM DRAIN IMPROVEMENTS
- 3" AC OVER 6" AB MIN PAVEMENT SECTION TO BE CONFIRMED WITH R VALUE DETERMINATION AND T.I= 4.5

RESIDENTIAL -2 ALLEY IMPROVEMENTS
FORT BRAGG ALLEY MASTER PLAN
 NO SCALE

FILE: S:\2719-08 Alley Master Plan\Alley Master Plan Report\Report Figures\Fig IV-11 TYPICAL SECTION.dgn
 DATE: 6/24/2011

FIGURE IV-11



- APPLY WHERE RESIDENTIAL ALLEY HAS NO CONNECTIVITY TO STORM DRAIN IMPROVEMENTS AND SUBSURFACE SOIL IS SUITABLE FOR INFILTRATION (MIN. INFILTRATION RATE: 0.5 IN/HR)

NOTES:

1. PERMEABLE SURFACING MAY BE PERMEABLE CONCRETE OR PERMEABLE PAVERS. SEE APPENDIX FOR TECHNICAL SPECIFICATIONS
2. INFILTRATION TRENCH BACK FILLED WITH 1.5" TO 3.0" CLEAN GRAVEL, STONE OR SIMILAR HIGH PERMEABLE MATERIAL. SEE APPENDIX FOR TECHNICAL SPECIFICATIONS
3. 3" AC OVER 6" AB MIN PAVEMENT SECTION TO BE CONFIRMED WITH R VALUE DETERMINATION AND T.I = 4.5
4. ACCEPTABLE FILTER FABRICS:
 - MIRAFL 180-N
 - AMOCO 4552
 - GEOCON N70

SEE APPENDIX FOR TECHNICAL SPECIFICATIONS
5. 6" DIAMETER PERFORATED PVC OR HDPE CONNECTED TO PERFORATED CATCH BASIN

RESIDENTIAL -3 ALLEY IMPROVEMENTS

FORT BRAGG ALLEY MASTER PLAN

NO SCALE



surfaces provide improved visibility in wet weather, provide improved pavement structure and ride, reduce noise and provide a valuable use for scrap tires.

Recycled Concrete

Research is continuing in the use of recycled concrete for road base material. Typically the strength of cement mortar is less than aggregate therefore the strength of recycled aggregates may be lower than natural aggregates. Higher strength concretes result in better recycled aggregates than lower strength concrete material.

It is recommended that the City allow the use of recycled concrete as a substitute for standard aggregate base in the construction of alleys provided that the recycled material has strength, durability and resistivity to shrink / swell (R Value) comparable to Class 2 aggregate bases.

Recycled Pavements

Reconstruction of existing alleys will require the removal of existing alley pavements and surface material. It is recommended that the City allow the controlled use of ground recycled asphalts for road base material.

Pervious Concrete

Pervious concrete pavement is a unique and effective means to address important environmental issues and support sustainable growth. By capturing stormwater and allowing it to seep into the ground, pervious concrete can be instrumental in recharging groundwater, reducing stormwater runoff, and meeting U.S. Environmental Protection Agency (EPA) stormwater regulations. The use of pervious concrete is among the Best Management Practices (BMP's) recommended by the EPA for the management of stormwater runoff on both a regional and local basis.

In pervious concrete, carefully controlled amounts of water and cementitious materials are used to create a paste that forms a thick coating around aggregate particles. A pervious concrete mixture contains little or no sand, creating a substantial void content. Using sufficient paste to coat and bind the aggregate particles together creates a system of highly permeable, interconnected voids that drains quickly. Typically, between 15% and 25% voids are achieved in the hardened concrete, and flow rates for water through pervious concrete are typically around 480 in./hr (5 gal/ ft² / min). Both the low mortar content and high porosity reduce strength compared to conventional concrete mixtures, but sufficient strength for many applications is achieved by constructing thickened sections.

Infiltration Trench Backfill

An infiltration trench is an excavated trench filled with stone aggregate used to capture and allow infiltration of stormwater runoff into the surrounding soils from the



bottom and sides of the trench. BMP design guidelines suggest that infiltration trenches be applied where soil infiltration rates of 0.5 in/hr, or more, are available and there is at least 4 feet between the bottom of the infiltration trench and the elevation of the seasonably high groundwater table.

The stone aggregate used in the infiltration trench should be washed, bank-run gravel, 1.5 to 2.5 inches in diameter with a void space of about 40%. Aggregate contaminated with soil should not be used. A porosity value (void space / total volume) of 0.32 should be used in calculations, unless specific aggregate data exists.

A 6-inch (min.) layer of clean, washed sand should be placed on the bottom of the infiltration trench to encourage drainage and prevent compaction of the native soil while the stone aggregate is added.

The infiltration trench should be lined on the sides and top by geotextile filter fabric that prevents soil piping but has greater permeability than the parent soil. The top layer of filter fabric should be stone aggregate.

The top surface of the infiltration trench above the filter fabric is typically covered with pea gravel. The pea gravel layer improves sediment filtering and maximizes the pollutant removal in the top of the trench.

RECOMMENDED ALLEY DESIGN GUIDELINES

The City of Fort Bragg's alleys provide vehicular and service access to private properties and a corridor for public utilities. In providing these primary functions the City's alleys reduce conflicts with pedestrian walkways and enhance the visual quality of the City's streetscapes. While it is the primary goal of this Alley Master Plan to establish alley improvement and implementation standards, these guidelines for new development and for the rehabilitation of properties adjacent to alleys presented herein will help supplement the City's Design Guidelines and assist in the review and approval of discretionary entitlements such as Use Permits and Design Review Applications for parcels abutting public alleys.

Alley improvements within the public rights-of-way implemented by private development are considered on a case-by-case basis in the City's review of discretionary entitlements. Private development on adjacent parcels may be required to provide improvements within the alley frontage in accordance with this Alley Master Plan if the City finds that:

- Criteria for alley grade, design and drainage have been established.
- The scope of the proposed development requires that alley improvements be completed to maintain adequate service and access.



- The alley improvement is reasonably related to the magnitude of the development contemplated.
- Alley improvements beyond the alley centerline is required to provide for sufficient pavement width for emergency vehicles and to complete planned drainage and utility improvements.

General Design Principles

Private development adjacent to public alleys should, in general, observe the following objectives:

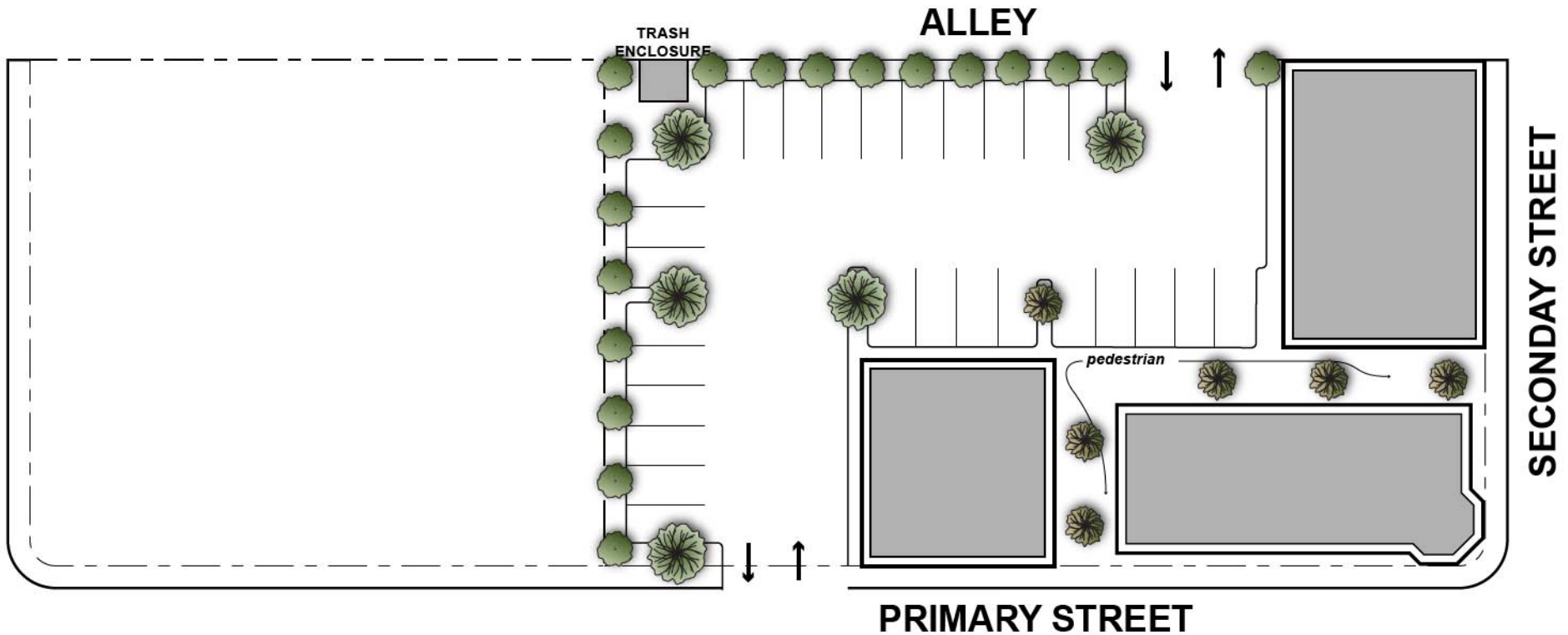
- Alleyways shall provide a continuous, unobstructed path for emergency service and refuse collection vehicles.
- Parking shall be allowed within alley rights of way only where designated and signed and shall not count toward required on-site parking.
- Underground utility service connections shall be provided where feasible.
- Refuse collection from the alley shall be preferred to other designs.
- Since alley spaces are primarily utilitarian in nature, alley entrances from primary or secondary roads shall provide enclosure and maintain minimal line of sight clearances.

Commercial Alleys

The Commercial Design Guidelines of the City encourage commercial designs that orient buildings toward the primary streets and limit vehicle access from primary commercial streets as provided in the following design standard:

Locate parking lots to the rear of buildings, along alleys, or on side streets to avoid conflicts on major streets. When this is not possible, design the primary entry to the lot with patterned concrete or pavers to differentiate it from the sidewalk.

In existing commercial blocks, particularly within the Central Business District where alleys are present, lot depths and widths provide a limitation to commercial site planning. However, in many cases, new development or rehabilitation can occur on adjacent lots where on-site parking can be provided at the rear and circulation integrated with alley access. In those cases, access should be provided at limited points and landscaping installed to soften interior pavement islands. An illustration of a commercial property developed with both public street and public alley frontage is presented in **Figure IV-13**.



TYPICAL COMMERCIAL LAYOUT WITH STREET AND ALLEY FRONTAGE

FORT BRAGG ALLEY MASTER PLAN



It is recommended that commercial development on public alleys be guided by the following special design criteria:

- Alley connectivity to on-site parking lots shall be provided.
- Circulation to the alley from primary streets shall be indirect.
- Trash enclosures shall be accessed from the alley.
- On corner lots, buildings and/or landscaping shall provide screening and enclosure of pavement islands.
- Pedestrian ways shall be separated from vehicular movements where feasible.
- On-site parking stalls backing onto the alleyway shall be discouraged.
- Overhead utilities shall be placed underground where feasible.

Residential Alleys

In many cases existing Fort Bragg residential alleys are in poor condition and it may not be practical to require a single second unit residential project to implement new alley improvements without City initiated Capital Improvement Funds. Where in-fill development is proposed, however, and in particular in those cases where adjacent parcels have been acquired for a single development, new alley improvements may be determined as appropriate on a case-by-case basis and required as a condition of approval for discretionary applications.

A special case exists for second units which are encouraged for development under existing City Housing Policy. On many developed lots, second units can only be built using alley access and are, therefore, exceptions to the general principle that alleys are primarily for service and vehicular access. In these cases it is recommended that the following design policies apply to new residential infill development and second units on developed residential properties:

- Residential units, except second floor units over garages, shall have a 10' setback from the alley right of way. Required on-site parking may be provided within the 10' setback. Parking designed to back onto the alley shall be permitted.
- New development shall provide a trash container pad for each lot of at least 4' by 4' adjacent to but outside of the alley right of way, unless a centralized collection point has been established as part of a larger development.



- Existing overhead utilities within alleys shall be underground where feasible.
- Drainage from adjacent lots onto alleys shall be designed to prevent erosion and the accumulation of debris.
- In general, street lighting in residential blocks shall be limited to the entrance of alleys and at mid-block location except where public safety concerns require additional lighting.

In **Figure IV-14** is presented a typical on-grade second residential unit served from a public alley.

ESTIMATED ALLEY IMPROVEMENT COST

Presented in **Tables IV-1 through IV-6** are estimated unit costs and estimated total costs for recommended alley improvements. The following cost estimates are presented for a typical \pm 400 foot long City of Fort Bragg alley. It is assumed that existing surfaces would be removed or recycled. Improvement costs include joint trenches and pull boxes for the future undergrounding of utilities. Replacement street lights are included in the estimated costs as well as ADA compliant pedestrian improvements at the street / alley intersection.

A summary of estimated costs based on current (June 2011 unit costs and cost indices) is as follows:

Alley Improvement Type	Cost Estimates	Typical Section	Estimated Construction Cost w/o Utilities	Estimated Cost w/ 15% Contingencies	Estimated Cost w/ Contingencies & Utilities
Commercial / MF Residential-1	Table IV-1	Figure IV-7	\$138,125	\$158,850	\$202,025
Commercial / MF Residential-2	Table IV-2	Figure IV-8	\$125,625	\$144,475	\$187,525
Commercial / MF Residential-3	Table IV-3	Figure IV-9	\$186,975	\$215,025	\$258,025
Residential-1	Table IV-4	Figure IV-10	\$113,950	\$131,050	\$174,050
Residential-2	Table IV-5	Figure IV-11	\$100,950	\$166,100	\$159,100
Residential-3	Table IV-6	Figure IV-12	\$163,300	\$187,800	\$230,800

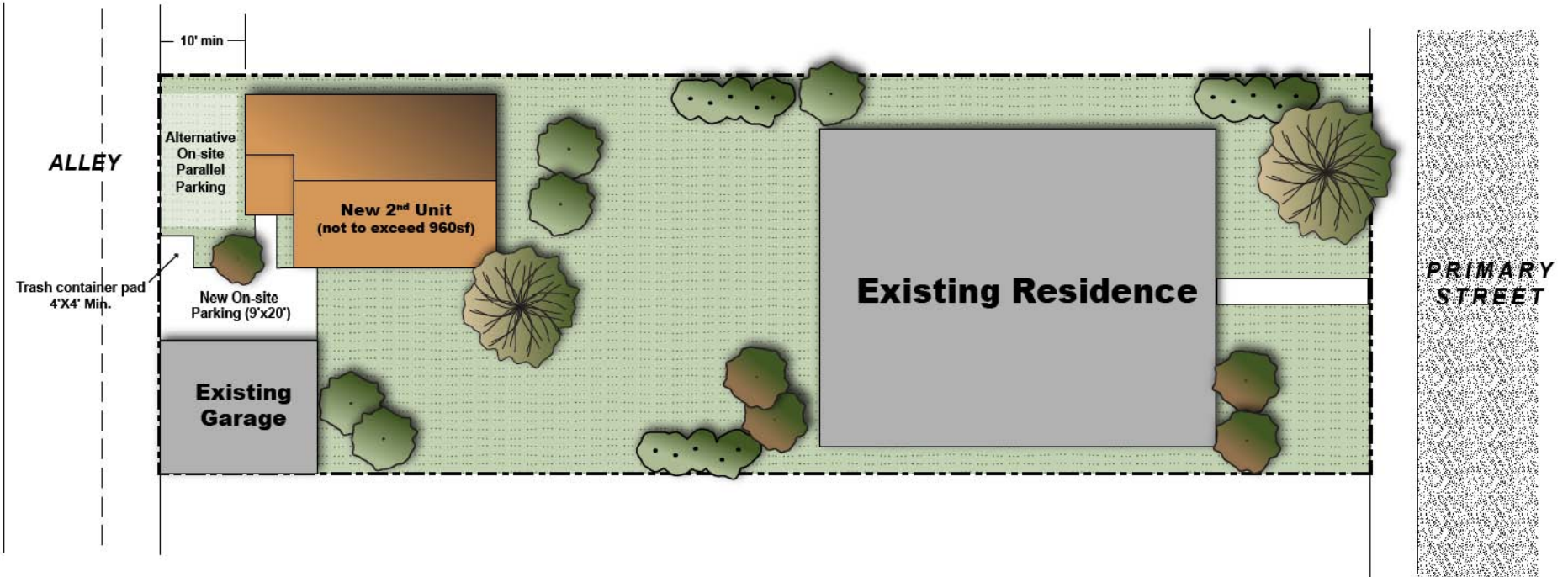


FIGURE IV-14

TYPICAL SECOND UNIT IMPROVEMENTS
ILLUSTRATED: CITY STANDARD PLAN, "THE ALLEY HOUSE" (611SF)
FORT BRAGG ALLEY MASTER PLAN



**TABLE IV-1
ESTIMATED QUANTITIES AND COSTS FOR
CITY OF FORT BRAGG COMMERCIAL / MF RESIDENTIAL-1
ALLEY IMPROVEMENTS ^(1,2, 4)**

	ITEM	EST. QUANTITY	UNIT	ESTIMATED UNIT COST	ESTIMATED TOTAL COST
1	CLEARING	1	LS	\$2,500.00	\$2,500
2	TRAFFIC CONTROL	1	LS	\$5,000.00	\$5,000
3	STORM WATER POLLUTION CONTROL	1	LS	\$5,000.00	\$5,000
4	REMOVE EX. PAVEMENT	300	CY	\$10.00	\$3,000
5	ROUGH GRADING	600	CY	\$10.00	\$6,000
6	FINISHED GRADING	8,000	SF	\$0.50	\$4,000
7	STORM DRAIN PIPING	100	LF	\$125.00	\$12,500
8	STORM DRAIN INLET	1	EA	\$2,500.00	\$2,500
9	CONCRETE "V" GUTTER	400	LF	\$40.00	\$16,000
10	CLASS 2 AGGREGATE BASE	350	TONS	\$65.00	\$22,750
11	ASPHALT RUBBERIZED HOT MIX PAVEMENT	175	TONS	\$125.00	\$21,875
12	JOINT UTILITY TRENCH	460	LF	\$35.00	\$16,100
13	UTILITY CONDUITS ⁽³⁾	1840	LF	\$7.50	⁽⁵⁾ \$13,800
14	UTILITY PULL BOX	3	EA	\$2,500.00	\$7,500
15	STREET LIGHTS	2	EA	\$5,000.00	\$10,000
16	PCC SIDEWALK RAMPS	600	SF	\$12.00	\$7,200
17	DETECTABLE WARNING SURFACE	4	EA	\$350.00	\$1,400
18	STAMPED AND COLORED PAVEMENT	240	SF	\$10.00	\$2,400
19	CONCRETE CROSS GUTTER	150	LF	\$30.00	\$4,500
20	SAWCUT EXISTING PAVEMENT	150	LF	\$2.00	\$300
21	STREET PAVEMENT RECONST.	6	CY	\$150.00	\$900
22	STRIPING	800	LF	\$1.00	\$800
23	SIGNS	4	EA	\$250.00	\$1,000
24	MOBILIZATION / DEMOBILIZATION	1	LS	\$8,500.00	\$8,500
ESTIMATED TOTAL W/O UTILITIES					\$138,125
CONTINGENCIES (15%)					\$20,725
ESTIMATED TOTAL W/CONTINGENCIES					\$158,850
ESTIMATED TOTAL W/ CONTINGENCIES & UTILITIES					\$202,025

(1) See Figure IV-1, IV-3 and IV-7

(2) Quantities based on typical alley width of 20 feet and length of ± 400 feet measured R/W to R/W of intersecting streets

(3) Assumes underground conduit is placed for Primary Electrical, Secondary Electrical, Telephone Cable T.V / internet

(4) Estimated costs for June 2011, ENRCC = 9105

(5) Pad-mounted or subsurface transformer costs not included



**TABLE IV-2
ESTIMATED QUANTITIES AND COSTS FOR
CITY OF FORT BRAGG COMMERCIAL / MF RESIDENTIAL-2
ALLEY IMPROVEMENTS ^(1,2,4)**

	ITEM	EST. QUANTITY	UNIT	ESTIMATED UNIT COST	ESTIMATED TOTAL COST
1	CLEARING	1	LS	\$2,500.00	\$2,500
2	TRAFFIC CONTROL	1	LS	\$5,000.00	\$5,000
3	STORM WATER POLLUTION CONTROL	1	LS	\$5,000.00	\$5,000
4	REMOVE EXISTING PAVEMENT	300	CY	\$10.00	\$3,000
5	ROUGH GRADING	600	CY	\$10.00	\$6,000
6	FINISHED GRADING	8,000	SF	\$0.50	\$4,000
7	STORM DRAIN INLET	1	EA	\$2,500.00	\$2,500
8	CONCRETE "V" GUTTER	400	LF	\$40.00	\$16,000
9	CLASS 2 AGGREGATE BASE	350	TONS	\$65.00	\$22,750
10	ASPHALT RUBBERIZED HOT MIX PAVEMENT	175	TONS	\$125.00	\$21,875
11	JOINT UTILITY TRENCH	460	LF	\$35.00	\$16,100
12	UTILITY CONDUITS ⁽³⁾	1840	LF	\$7.50	⁽⁵⁾ \$13,800
13	UTILITY PULL BOX	3	EA	\$2,500.00	\$7,500
14	STREET LIGHTS	2	EA	\$5,000.00	\$10,000
15	PCC SIDEWALK RAMPS	600	SF	\$12.00	\$7,200
16	DETECTABLE WARNING SURFACE	4	EA	\$350.00	\$1,400
17	STAMPED AND COLORED PAVEMENT	240	SF	\$10.00	\$2,400
18	CONCRETE CROSS GUTTER	150	LF	\$30.00	\$4,500
19	SAWCUT EXISTING PAVEMENT	150	LF	\$2.00	\$300
20	STREET PAVEMENT RECONST.	6	CY	\$150.00	\$900
21	STRIPING	800	LF	\$1.00	\$800
22	SIGNS	4	EA	\$250.00	\$1,000
23	MOBILIZATION / DEMOBILIZATION	1	LS	\$8,500.00	\$8,500
ESTIMATED TOTAL W/O UTILITIES					\$125,625
CONTINGENCIES (15%)					\$18,850
ESTIMATED TOTAL W/CONTINGENCIES					\$144,475
ESTIMATED TOTAL W/CONTINGENCIES & UTILITIES					\$187,525

(1) See Figure IV-1, IV-3 and IV-8

(2) Quantities based on typical alley width of 20 feet and length of ± 400 feet measured from R/W of intersecting streets

(3) Assumes underground conduit is placed for Primary Electrical, Secondary Electrical, Telephone Cable T.V / internet

(4) Estimated costs for June 2011, ENRCC = 9105

(5) Pad-mounted or subsurface transformer costs not included



**TABLE IV-3
ESTIMATED QUANTITIES AND COSTS FOR
CITY OF FORT BRAGG COMMERCIAL / MF RESIDENTIAL-3
ALLEY IMPROVEMENTS ^(1,2,4)**

	ITEM	EST. QUANTITY	UNIT	ESTIMATED UNIT COST	ESTIMATED TOTAL COST
1	CLEARING	1	LS	\$2,500.00	\$2,500
2	TRAFFIC CONTROL	1	LS	\$5,000.00	\$5,000
3	STORM WATER POLLUTION CONTROL	1	LS	\$5,000.00	\$5,000
4	REMOVE EXISTING PAVEMENT	300	CY	\$10.00	\$3,000
5	ROUGH GRADING	600	CY	\$10.00	\$6,000
6	FINISHED GRADING	8,000	SF	\$0.50	\$4,000
7	PERFORATED STORM DRAIN INLET	1	EA	\$3,500.00	\$3,500
8	EXCAVATE INFILTRATION TRENCH	380	LF	\$15.00	\$5,700
9	FILTER FABRIC	950	SY	\$2.00	\$1,900
10	SAND BOTTOM	85	TONS	\$85.00	\$7,225
11	INFILTRATION TRENCH BACKFILL	515	TONS	\$50.00	\$25,750
12	PEA GRAVEL TOP LAYER	45	TONS	\$75.00	\$3,375
13	6" UNDERDRAIN	380	LF	\$10.00	\$3,800
14	PERVIOUS CONCRETE	35	CY	\$800.00	\$28,000
15	CLASS 2 AGGREGATE BASE	350	TONS	\$65.00	\$22,750
16	ASPHALT RUBBERIZED HOT MIX PAVEMENT	175	TONS	\$125.00	\$21,875
17	JOINT UTILITY TRENCH	460	LF	\$35.00	\$16,100
18	UTILITY CONDUITS ⁽³⁾	1840	LF	\$7.50	⁽⁵⁾ \$13,800
19	UTILITY PULL BOX	3	EA	\$2,500.00	\$7,500
20	STREET LIGHTS	2	EA	\$5,000.00	\$10,000
21	PCC SIDEWALK RAMP	600	SF	\$12.00	\$7,200
22	DETECTABLE WARNING SURFACE	4	EA	\$350.00	\$1,400
23	STAMPED AND COLORED CONCRETE	240	SF	\$10.00	\$2,400
24	CONCRETE CROSS GUTTER	150	LF	\$30.00	\$4,500
25	SAWCUT EXISTING PAVEMENT	150	LF	\$2.00	\$300
26	STRIPING	800	LF	\$1.00	\$800
27	SIGNS	4	EA	\$250.00	\$1,000
28	MOBILIZATION / DEMOBILIZATION	1	LS	\$10,000.00	\$10,000

ESTIMATED TOTAL W/O UTILITIES \$186,975

CONTINGENCIES (15%) \$28,050

ESTIMATED TOTAL W/CONTINGENCIES \$215,025

ESTIMATED TOTAL W/ CONTINGENCIES & UTILITIES \$258,025

(1) See Figure IV-1, IV-3 and IV-9

(2) Quantities based on typical alley width of 20 feet and length of 400 feet measured from R/W of intersecting streets

(3) Assumes underground conduit is placed for Primary Electrical, Secondary Electrical, Telephone Cable T.V / internet

(4) Estimated costs for June 2011, ENRCC = 9105

(5) Pad-mounted or subsurface transformer costs not included



**TABLE IV-4
ESTIMATED QUANTITIES AND COSTS FOR
CITY OF FORT BRAGG RESIDENTIAL-1
ALLEY IMPROVEMENTS ^(1,2,4)**

	ITEM	EST. QUANTITY	UNIT	ESTIMATED UNIT COST	ESTIMATED TOTAL COST
1	CLEARING	1	LS	\$2,500.00	\$2,500
2	TRAFFIC CONTROL	1	LS	\$5,000.00	\$5,000
3	STORM WATER POLLUTION CONTROL	1	LS	\$5,000.00	\$5,000
4	REMOVE EX. PAVEMENT	250	CY	\$10.00	\$2,500
5	ROUGH GRADING	500	CY	\$10.00	\$5,000
6	FINISHED GRADING	6,400	SF	\$0.50	\$3,200
7	STORM DRAIN PIPING	100	LF	\$125.00	\$12,500
8	STORM DRAIN INLET	1	EA	\$2,500.00	\$2,500
9	CONCRETE "V" GUTTER	400	LF	\$40.00	\$16,000
10	CLASS 2 AGGREGATE BASE	210	TONS	\$65.00	\$13,650
11	ASPHALT RUBBERIZED HOT MIX PAVEMENT	100	TONS	\$125.00	\$12,500
12	JOINT UTILITY TRENCH	460	LF	\$35.00	\$16,100
13	UTILITY CONDUITS ⁽³⁾	1840	LF	\$7.50	⁽⁵⁾ \$13,800
14	UTILITY PULL BOX	3	EA	\$2,500.00	\$7,500
15	STREET LIGHTS	2	EA	\$5,000.00	\$10,000
16	PCC SIDEWALK RAMPS	600	SF	\$12.00	\$7,200
17	DETECTABLE WARNING SURFACE	4	EA	\$350.00	\$1,400
18	CONCRETE CROSS GUTTER	150	LF	\$30.00	\$4,500
19	SAWCUT EXISTING PAVEMENT	150	LF	\$2.00	\$300
20	STREET PAVEMENT RECONST.	6	CY	\$150.00	\$900
21	STRIPING	800	LF	\$1.00	\$800
22	SIGNS	2	EA	\$250.00	\$500
23	MOBILIZATION / DEMOBILIZATION	1	LS	\$8,000.00	\$8,000
ESTIMATED TOTAL W/O UTILITIES					\$113,950
CONTINGENCIES (15%)					\$17,100
ESTIMATED TOTAL W/CONTINGENCIES					\$131,050
ESTIMATED TOTAL W/ CONTINGENCIES & UTILITIES					\$174,050

(1) See Figure IV-2, IV-4 and IV-10

(2) Quantities based on typical alley width of 16 feet and length of ± 400 feet measured R/W to R/W of intersecting streets

(3) Assumes underground conduit is placed for Primary Electrical, Secondary Electrical, Telephone Cable T.V / internet

(4) Estimated costs for June 2011, ENRCC = 9105

(5) Pad-mounted or subsurface transformer costs not included



**TABLE IV-5
ESTIMATED QUANTITIES AND COSTS FOR
CITY OF FORT BRAGG RESIDENTIAL-2
ALLEY IMPROVEMENTS ^(1,2)**

	ITEM	EST. QUANTITY	UNIT	ESTIMATED UNIT COST	ESTIMATED TOTAL COST
1	CLEARING	1	LS	\$5,000.00	\$5,000
2	TRAFFIC CONTROL	1	LS	\$2,500.00	\$2,500
3	STORM WATER POLLUTION CONTROL	1	LS	\$5,000.00	\$5,000
4	REMOVE EXISTING PAVEMENT	250	CY	\$10.00	\$2,500
5	ROUGH GRADING	500	CY	\$10.00	\$5,000
6	FINISHED GRADING	6,400	SF	\$0.50	\$3,200
7	STORM DRAIN INLET	1	EA	\$2,500.00	\$2,500
8	CONCRETE "V" GUTTER	400	LF	\$40.00	\$16,000
9	CLASS 2 AGGREGATE BASE	210	TONS	\$65.00	\$13,650
10	ASPHALT RUBBERIZED HOT MIX PAVEMENT	100	TONS	\$125.00	\$12,500
11	JOINT UTILITY TRENCH	460	LF	\$35.00	\$16,100
12	UTILITY CONDUITS ⁽³⁾	1840	LF	\$7.50	⁽⁵⁾ \$13,800
13	UTILITY PULL BOX	3	EA	\$2,500.00	\$7,500
14	STREET LIGHTS	2	EA	\$5,000.00	\$10,000
15	PCC SIDEWALK RAMPS	600	SF	\$12.00	\$7,200
16	DETECTABLE WARNING SURFACE	4	EA	\$350.00	\$1,400
17	CONCRETE CROSS GUTTER	150	LF	\$30.00	\$4,500
18	SAWCUT EXISTING PAVEMENT	150	LF	\$2.00	\$300
19	STREET PAVEMENT RECONST.	6	CY	\$150.00	\$900
20	STRIPING	800	LF	\$1.00	\$800
21	SIGNS	2	EA	\$250.00	\$500
22	MOBILIZATION / DEMOBILIZATION	1	LS	\$7,500.00	\$7,500
ESTIMATED TOTAL W/O UTILITIES					\$100,950
CONTINGENCIES (15%)					\$15,150
ESTIMATED TOTAL W/CONTINGENCIES					\$116,100
ESTIMATED TOTAL W/ CONTINGENCIES & UTILITIES					\$159,100

(1) See Figure IV-2, IV-4 and IV-11

(2) Quantities based on typical improved alley width of 16 feet and length of 400 feet measured R/W to R/W of intersecting streets

(3) Assumes underground conduit is placed for Primary Electrical, Secondary Electrical, Telephone Cable T.V / internet

(4) Estimated costs for June 2011, ENRCC = 9105

(5) Pad-mounted or subsurface transformer costs not included



**TABLE IV-6
ESTIMATED QUANTITIES AND COSTS FOR
CITY OF FORT BRAGG COMMERCIAL / MF RESIDENTIAL
ALLEY IMPROVEMENTS ^(1,2)**

	ITEM	EST. QUANTITY	UNIT	ESTIMATED UNIT COST	ESTIMATED TOTAL COST
1	CLEARING	1	LS	\$5,000.00	\$5,000
2	TRAFFIC CONTROL	1	LS	\$2,500.00	\$2,500
3	STORM WATER POLLUTION CONTROL	1	LS	\$5,000.00	\$5,000
4	REMOVE EXISTING PAVEMENT	250	CY	\$10.00	\$2,500
5	ROUGH GRADING	500	CY	\$10.00	\$5,000
6	FINISHED GRADING	6,400	SF	\$0.50	\$3,200
7	PERFORATED STORM DRAIN INLET	1	EA	\$3,500.00	\$3,500
8	EXCAVATE INFILTRATION TRENCH	380	LF	\$15.00	\$5,700
9	FILTER FABRIC	950	SY	\$2.00	\$1,900
10	SAND BOTTOM	85	TONS	\$85.00	\$7,225
11	INFILTRATION TRENCH BACKFILL	515	TONS	\$50.00	\$25,750
12	PEA GRAVEL TOP LAYER	45	TONS	\$75.00	\$3,375
13	6" UNDERDRAIN	380	LF	\$10.00	\$3,800
14	PERVIOUS CONCRETE	35	CY	\$800.00	\$28,000
15	CLASS 2 AGGREGATE BASE	210	TONS	\$65.00	\$13,650
16	ASPHALT RUBBERIZED HOT MIX PAVEMENT	100	TONS	\$125.00	\$12,500
17	JOINT UTILITY TRENCH	460	LF	\$35.00	\$16,100
18	UTILITY CONDUITS ⁽³⁾	1840	LF	\$7.50	⁽⁵⁾ \$13,800
19	UTILITY PULL BOX	3	EA	\$2,500.00	\$7,500
20	STREET LIGHTS	2	EA	\$5,000.00	\$10,000
21	PCC SIDEWALK RAMP	600	SF	\$12.00	\$7,200
22	DETECTABLE WARNING SURFACE	4	EA	\$350.00	\$1,400
23	CONCRETE CROSS GUTTER	150	LF	\$30.00	\$4,500
24	SAWCUT EXISTING PAVEMENT	150	LF	\$2.00	\$300
25	STRIPING	800	LF	\$1.00	\$800
26	SIGNS	2	EA	\$250.00	\$500
27	MOBILIZATION / DEMOBILIZATION	1	LS	\$10,000.00	\$10,000

ESTIMATED TOTAL W/O UTILITIES \$163,300

CONTINGENCIES (15%) \$24,500

ESTIMATED TOTAL W/CONTINGENCIES \$187,800

ESTIMATED TOTAL W/ CONTINGENCIES & UTILITIES \$230,800

(1) See Figure IV-2, IV-4 and IV-12

(2) Quantities based on typical improved alley width of 16 feet and length of ± 400 feet measured R/W to R/W of intersecting street

(3) Assumes underground conduit is placed for Primary Electrical, Secondary Electrical, Telephone Cable T.V / internet

(4) Estimated costs for June 2011, ENRCC = 9105



SUMMARY

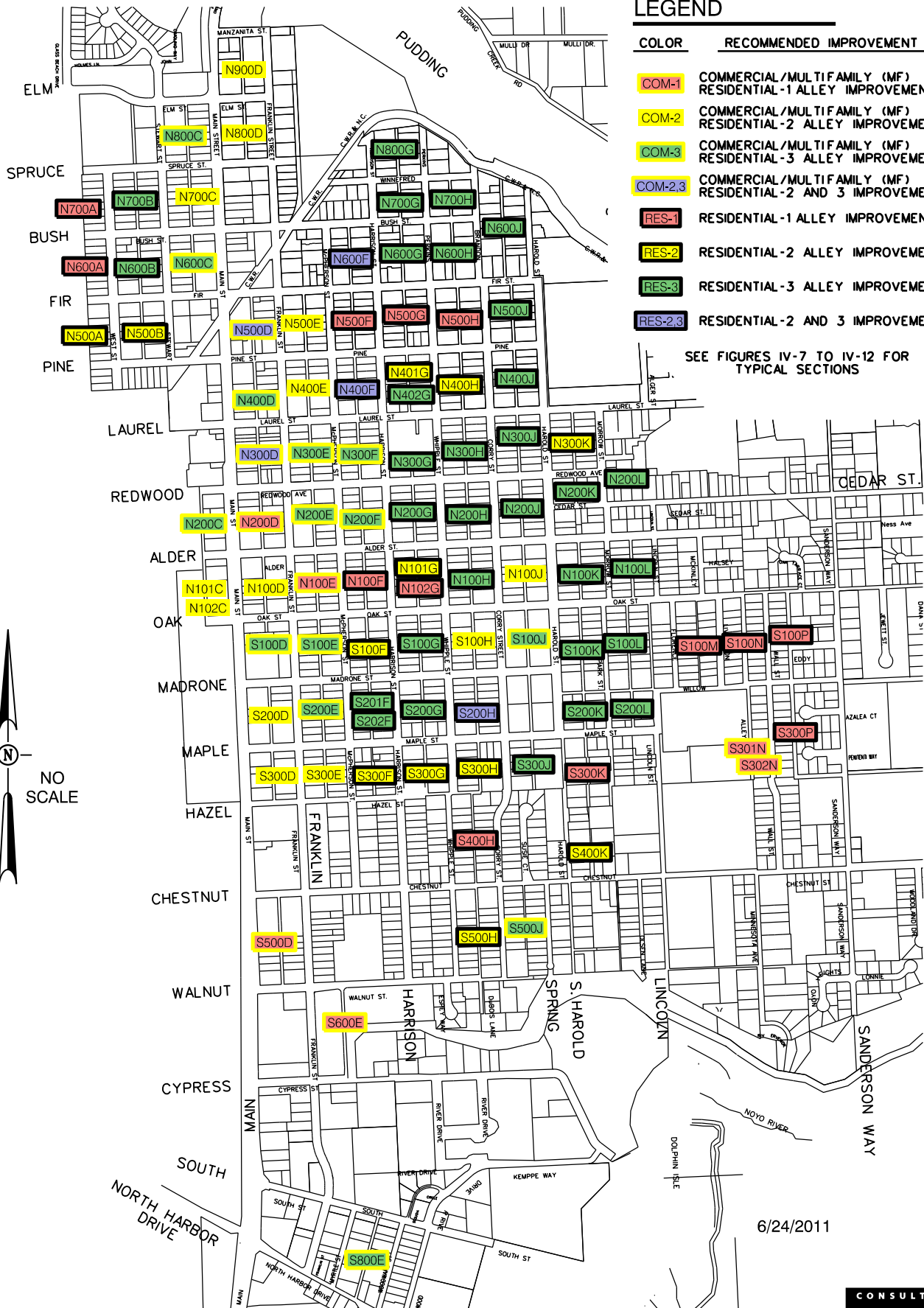
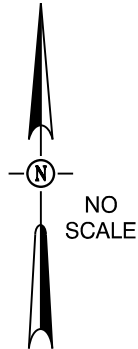
A summary of recommended alley improvements, by Alley Improvement Type, is presented in **Table IV-7** and shown in **Figure IV-15**.



**TABLE IV-7
RECOMMENDED ALLEY IMPROVEMENTS**

Alley Identification Code	Recommended Improvement Alley Type (1)	Alley Identification Code	Recommended Improvement Alley Type (1)	Alley Identification Code	Recommended Improvement Alley Type (1)
N700A	RES-1	N200F	COM-3	S100J	COM-3
N600A	RES-1	N100F	RES-1	S300J	RES-3
N500A	RES-2	S100F	RES-2	S500J	COM-3
N700B	RES-3	S201F	RES-3	N300K	RES-2
N600B	RES-3	S202F	RES-3	N200K	RES-3
N500B	RES-2	S300F	RES-2	N100K	RES-3
N800C	COM-3	N800G	RES-3	S100K	RES-3
N700C	COM-2	N700G	RES-3	S200K	RES-3
N600C	COM-3	N600G	RES-3	S300K	RES-1
N200C	COM-3	N500G	RES-1	S400K	RES-2
N101C	COM-2	N401G	RES-2	N200L	RES-3
N102C	COM-2	N402G	RES-3	N100L	RES-3
N900D	COM-2	N300G	RES-3	S100L	RES-3
N800D	COM-2	N200G	RES-3	S200L	RES-3
N500D	COM-2,3	N101G	RES-2	S100M	RES-1
N400D	COM-3	N102G	RES-1	S100N	RES-1
N300D	COM-2,3	S100G	RES-3	S301N	COM-1
N200D	COM-1	S200G	RES-3	S302N	COM-1
N100D	COM-2	S300G	RES-2	S100P	RES-1
S100D	COM-3	N700H	RES-3	S300P	RES-1
S200D	COM-2	N600H	RES-3		
S300D	COM-2	N500H	RES-1		
S500D	COM-1	N400H	RES-2		
N500E	COM-2	N300H	RES-3		
N400E	COM-2	N200H	RES-3		
N300E	COM-3	N100H	RES-3		
N200E	COM-3	S100H	COM-2		
N100E	COM-1	S200H	RES-2,3		
S100E	COM-3	S300H	RES-2		
S200E	COM-3	S400H	RES-1		
S300E	COM-2	S500H	RES-2		
S600E	COM-1	N600J	RES-3		
S800E	COM-3	N500J	RES-3		
N600F	RES-2,3	N400J	RES-3		
N500F	RES-1	N300J	RES-3		
N400F	RES-2,3	N200J	RES-3		
N300F	COM-3	N100J	COM-2		

(1) See Figures IV-7 Through IV-12



LEGEND

COLOR	RECOMMENDED IMPROVEMENT
COM-1	COMMERCIAL/MULTIFAMILY (MF) RESIDENTIAL-1 ALLEY IMPROVEMENTS
COM-2	COMMERCIAL/MULTIFAMILY (MF) RESIDENTIAL-2 ALLEY IMPROVEMENTS
COM-3	COMMERCIAL/MULTIFAMILY (MF) RESIDENTIAL-3 ALLEY IMPROVEMENTS
COM-2.3	COMMERCIAL/MULTIFAMILY (MF) RESIDENTIAL-2 AND 3 IMPROVEMENTS
RES-1	RESIDENTIAL-1 ALLEY IMPROVEMENTS
RES-2	RESIDENTIAL-2 ALLEY IMPROVEMENTS
RES-3	RESIDENTIAL-3 ALLEY IMPROVEMENTS
RES-2.3	RESIDENTIAL-2 AND 3 IMPROVEMENTS

SEE FIGURES IV-7 TO IV-12 FOR TYPICAL SECTIONS

SUMMARY OF ALLEY RECOMMENDATIONS
FORT BRAGG ALLEY MASTER PLAN



FIGURE IV-15



V. IMPLEMENTATION

FUNDING

Assessment Districts

Benefit Assessment Districts

Benefit Assessment Districts can fund the installation, improvement and maintenance of alleys as well as drainage, flood control, street lighting and street maintenance. A district formation process is required including assessment engineering, an Assessment Engineer's Report, a public hearing and a protest ballot process for affected landowners. A finding of benefit is required. (Underlying legislation: California Government Code, Section 54703 *et seq.*, entitled the Benefit Assessment Act).

1913 / 1915 Act Assessment Districts

Districts formed under these acts can provide for the construction, maintenance and repair of public works and infrastructure, real property acquisition and utility infrastructure. They may be appropriate for alleyways containing water and / or sewer lines or where utility undergrounding is planned. A district formation process is required requiring assessment engineering, an Assessment Engineer's Report, a public hearing and a protest ballot process for affected landowners. A finding of benefit is required. (Underlying legislation: California Streets & Highways Code, Section 10000 *et seq.*, entitled the Municipal Improvement Act of 1913 and Section 8500 *et seq.*, entitled the Improvement Bond Act of 1915 Act).

Community Facilities Districts

Community Facilities District, also known as "Mello-Roos Districts", can fund both capital costs for infrastructure and certain public services including police, fire, park maintenance or alleyway maintenance. A district formation process is required including financial analysis and planning. A special tax consultant will develop a Special Tax Formula and Report. Public hearings are required and either a mailed ballot process to property owners or a regular election if there are 12 or more voters in the district. (Underlying legislation: California Government Code Section 53311 *et seq.*, entitled the Mello-Roos Community Facilities Act of 1982).

Property & Business Improvement Districts

Property & Business Improvement Districts can fund facilities and services that benefit business and their real property including construction of alleys, parking, lighting, parks and their maintenance. A district formation process is required including planning and financial analysis, a Management Plan, a public hearing as well as a petition or a protest ballot process or both. A finding of benefit is required. (Underlying legislation:



California Streets & Highways Code, Section 36000 *et seq.*, entitled the Property Improvement District Law of 1994).

Loans & Grants

Community Development Block Grants

The State Department of Housing and Community Development provides grants that can be used for capital costs and services that principally benefit lower income households. Proposed maximum limit for infrastructure activities in 2012 is \$1.5 million. The most competitive activities address serious health and safety needs,

USDA Community Facility Loans / Grants

USDA Community Facility Loans and Grants can be used for the capital cost of alleyways. Maximum grant amount does not exceed 75% of total project cost (typically \$15 – 40,000). Loans are 40 year fixed, 4.5% - 5.5% and dependent upon jurisdiction and median household income. Loans typically range from \$100,000 to \$2 million. Loans must be secured by certificates of participations, bonds or other security.

USDA Water & Wastewater Loans / Grants

This program constructs and rehabilitates water, sewer, storm drain and solid waste systems and could be applicable to alleyways containing those utilities. Maximum grant amount does not exceed 75% of total project cost. Loans are 40 year fixed, 4.5% - 5.5% and are dependent upon jurisdiction and median household income. Loans typically range from \$100,000 to \$2 million. Loans must be secured by revenues, certificates of participations, bonds or other security.

State Water Resources Control Board State Revolving Fund Program

This Principal Forgiveness portion of the State Revolving Fund Program provides grants to communities with populations of less than 20,000, with incomes below 80% of Statewide median household income and high wastewater rates. Grants may not exceed \$6 million. Loans from the State Revolving Fund are 20 year fixed with interest rates $\frac{1}{2}$ the State General Obligation Bond rate (currently 2.6%) This program could apply for alleys containing sewer lines.

Other Sources of Funding

Redevelopment Funds

In the City's existing Redevelopment Area, alleyways could be improved using tax increment financing. Changes under consideration at the State level may limit the availability of these funds. The City of Fort Bragg is currently considering using available Redevelopment Funds to complete improvements to alleys N 100 F (1 block north of



Oak between McPherson and Harrison), S 500 D (the “Starbuck’s” alley) and N 200 E (the “Purity” Market alley). All of these alleys are located within an existing Redevelopment Plan area. Alleys N 100 F and S 500 D have been identified as “highest priority” for improvement in this Master Plan.

Sales Tax

The City may allocate a portion of sales tax revenue to alleyway upgrade or maintenance.

Gas Tax

For alleyways that are part of the City’s adopted street system, alleyways could be upgraded with gas tax.

SCHEDULE

It is intended that all of the City’s public alleys identified in this Master Plan be included in the schedule of improvements. Alleys identified in Figure III-15 with the highest priority (need x opportunity) for improvement should be scheduled first. Typically, roadway improvements are designed and constructed in anticipation of a 10 to 20 year life. Using 15 years as an average “life” or cycle between improvement and / or rehabilitation efforts, 6 to 7 of the City ± 100 alleys should be improved each year. In June 2011 dollars, the average annual cost of these improvements, based on the cost estimates presented in Tables IV-1 through IV-6 and assuming a mix of commercial and alley improvements, is estimated at \$850,000 to \$950,000 without undergrounding of utilities and \$1.2 to \$1.4 million dollars with undergrounding of utilities.

Both the Alley Master Plan draft and the final Alley Master Plan have been reviewed by the City of Fort Bragg Public Works Department and Community Development Department and then submitted to the City Council for review and approval.

Recommendations are included in Section IV of this Master Plan to help supplement the City’s Land Use and Development Code. Revisions to existing City Code sections requiring public hearings and formal adoptions are not proposed.

The implementation of Fort Bragg Alley improvements will depend on the availability of funds. It is recommended that each year City Staff identify the alleys proposed for improvement, review proposed alley improvements with the City Manager and City Council and then apply for the grant funds, loan assistance or tax initiative revenue needed to fund, all or part of, the alley improvements identified for the next project year. The annual cycle of alley improvement scheduling, funding and construction will then typically include:



- Alleys identified for improvement
- Application for Alley Improvement Funds or Identification of Tax Revenues
- Preparation of Alley Improvement Plans
- Advertisement for Alley Construction Bids and Bid Award
- Construction of Alley Improvements
- Prepare Updates to Alley Database

In summary the suggested Fort Bragg Alley Master Plan Implementation Schedule is:

1. Complete and Review Alley Master Plan Draft June 2011
2. Complete and Review Alley Master Plan Final July 2011
3. Identify Alleys Scheduled for Improvement; Estimate Costs August 2011
4. Apply for Alley Improvement Funds or Conduct Public Hearings Regarding Tax Initiative to Fund Alley Improvements August 2011 – April 2012
5. Prepare Alley Improvement Plans January – April 2012
6. Bid and Award Alley Construction Project April - June 2012
7. Construct Alley Improvements June – October 2012
8. Update Alley Database October 2012
9. Repeat Steps 3-8 Annually for 14 years, 2013 – 2026