APPENDIX C

CAPACITY METHODOLOGY

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METHODOLOGY USED TO DETERMINE NEIGHBORHOOD TYPOLOGY AND HOLDING CAPACITY

This section describes the process that guided the development of the neighborhood typology system used to estimate residential capacity within the Rural Urban Limit (RUL

Defining Neighborhood Character

Physical characteristics were identified as the primary determinants of neighborhood character and future development potential. Streetscape, lot to building relationships, subdivision design, location of public uses, and natural / built environment relationships were selected as the key indicators of neighborhood character. The staff developed a *Neighborhood Character Profile* form based on these factors.

Neighborhood Typologies

Neighborhood analysis using the *Neighborhood Character Profile* information led to development of a series of seven neighborhood typologies (identified as types A through G). The neighborhood typologies included both descriptive profiles and capacity assumptions for "existing pattern" and "infill pattern" development scenarios. This neighborhood sensitive classification scheme created a rational basis for the analysis and ensured that physically similar areas would be treated equally.

Using this system, the type of neighborhood determines what development potential exists, if any.

Capacity Scenarios

Two alternatives should be included in the analysis of neighborhood capacity. Both represented maintenance of neighborhood character, but to varying degrees. The two patterns are summarized below:

■ **Existing Pattern** - where existing neighborhood character remains intact and new development occurs in patterns nearly identical to surrounding lands.

■ **Infill Pattern** - where small scale infill could be allowed, along with vacant land development at the same or slightly higher densities than surrounding lands, as long as the degree of infill would *not* alter the typology of the area.

Infill is a term with many meanings in land development. In some instances it refers to micro scale, individual lot development, often on underused parcels within developed areas. In others, it describes development of vacant parcels that are big enough for a *project* (generally two to four acres in size) in a developed area. In still other cases, developments that are large enough to significantly add to or alter the neighborhood's character are considered infill. Different types of infill are appropriate in different areas. Throughout this methodology infill pattern development is assumed to be indexed to the typology of the area in which it occurs.

Development Likelihood Factors

During the residential capacity analysis every parcel in the city's RUL was reviewed for residential potential. The vast majority of the over 20,000 parcels scanned did not meet the minimum criteria for further analysis.

Initially, total capacity calculations assumed that every property with capacity might actually be developed at some point in the future. In practice, property (for a variety of reasons) often does not develop to its maximum capacity. Accordingly, development likelihood factors were used to calibrate the analysis (Table I). These factors reduce the theoretical holding capacity to varying degrees based on the character of the area (i.e. typology).

Table 1 — Residential Development Likelihood Factors

Pattern	A TRACT Exist.	Infill	B ESTATE Exist.	Infill	C PERIOD Exist.	Infill	D RANCHETTE Exist	Infill	E DEEP LOT Exist.	Infill	F TRADITN'L Exist.	Infill	G ATTACHED UNIT Exist.	Infill
Vacant	100	100	90%	60%	90%	70%	N/A	90%	90%	70%	85%	70%	90%	80%
Underused	35%	35%	30%	20%	40%	25%	N/A	90%	40%	20%	15%	10%	60%	50%

It is intuitively evident that different typologies will probably develop differently. Different classes of property may also vary. The different typologies were separated into vacant and underused categories in order to further refine the factors applied in the analysis. Overall, vacant land is much more likely to develop to its maximum capacity than partially developed land. The factors were tested against sample neighborhood data reflecting the area's development history over a six year period. Actual absorption in relation to the neighborhood type was assumed to be an indicator of the likelihood of development.

Capacity Assessment Criteria

Change scenarios result in an area transitioning to a different typology, and/or other modifications that create a substantially different experience of the area than what previously existed (e.g. teardowns, land assembly to achieve large parcels for development purposes in all but one typology).

Existing pattern scenarios maintain the dominant type pattern and density of the area, which remains identifiable as development continues.

Infill pattern scenarios do not significantly alter the overall typology of the area, although there may be substantial increases in the number of units developed in the area and intensification of the dominant type pattern (e.g. single lot micro infill, large lot cluster or tiered development). Because of existing higher land use intensities, attached unit areas may also assume teardowns and land assembly on parcels with less than five units as infill pattern scenarios.

Typical lot sizes are referenced throughout. This refers to the median lot size, based on a calculation of the area's platting pattern. In areas with many substandard lots, 5,000 square feet is the minimum lot size that can be considered typical, regardless of the calculated median.

Typology refers to the systematic classification of residential areas described in this report.

Vacant lots of record are defined as pieces of land that are or can be occupied by a permitted principal building(s) or structure(s), and that have access from either a dedicated public or private right of way. Such lots are presumed to have the capacity for at least one residential unit in all existing pattern and infill pattern scenarios - regardless of whether or not they meet the minimum size criteria for development prescribed by the typology.

Assumptions by Typology

Type A *(Post War Tract Subdivisions)*

Existing pattern = Development only occurs on vacant/underused lots that meet or exceed the typical lot size of the platted area at a rate of one dwelling unit per typical lot. Development of parcels exceeding the typical lot size criteria occurs in strict conformance with the surrounding net density and type pattern. Additional units on individual lots/parcels do not occur unless the parcel is twice or more the average lot size established by single family development within the type. Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.75 to account for streets, drainage, etc. Condominiums in the area are not included in the typical lot size calculation because of their unique platting and site design characteristics.

Type B *(Estate Residential)*

Existing pattern = Hillside and floodprone tracts are analyzed on a site specific basis (see description of empiric analysis below). *In all other cases,* development of estate parcels exceeding the typical (median) lot size established in the area occurs in conformance with the surrounding net density and type pattern (i.e. one unit for each full multiple of the typical lot size). Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.85 to account for streets, drainage, etc.

Infill pattern = Hillside and floodprone parcels are analyzed empirically (see below). *Infill pattern development of all other estate parcels* exceeding the typical lot size established by the type occurs in conformance with the smallest estate lot size occurring in the area (i.e. one unit for each full multiple of the smallest lot size), or 10,000 square feet, whichever is greater. Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.85 to account for streets, drainage, etc.

Type C *(Period Tract Subdivisions)*

Existing pattern = Development occurs only on lots that meet or exceed the typical single family lot size of the platted area. Development of parcels exceeding the typical lot size criteria occurs in conformance with the surrounding net density and type pattern (i.e. one unit per increment of typical lot size). Additional units on the same lot do not occur unless the parcel is twice or more the typical lot size established by the type. Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.75 to account for streets, drainage, etc.

Infill pattern = In predominately single family detached Type C areas, lots 1.5 times the typical lot size, or greater, are assumed to allow duplex or second unit development. Infill potential is a cumulative number that results from adding existing pattern to additional infill on lots greater than twice the typical lot size. A few Type C areas include concentrations of duplexes and triplexes. Infill capacity in these areas is estimated based on the average density of the area's lots having two or more units.

Type D *(Ranchettes)*

Existing pattern = Because of the irregularity of this type's pattern, a maximum of one dwelling unit per existing lot is assumed. As a result, only vacant parcels have limited residential potential.

Infill pattern = Adjacent typical lot size is used to identify the appropriate infill pattern. Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.85 to account for streets, drainage, etc.

Type E *(Deep Lot Subdivision)*

Existing pattern = Development only occurs on lots that meet or exceed the typical lot size and configuration of the platted area (i.e. lot size and street frontage remain constant). Development of parcels exceeding the typical lot size criteria occurs in conformance with the surrounding net density and type pattern. Additional units on the same lot do not occur unless the parcel is twice or more the typical lot size established by the type or the surrounding pattern includes a majority of multiple unit sites. Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.85 to account for streets, drainage, etc.

Infill pattern = Average homesite area or 5,000 square feet (whichever is greater) is substituted for typical lot size in calculating potential. In areas where lot sizes are relatively uniform, 50 percent of the typical lot size may be used to calculate homesite lot infill potential, or 5,000 square feet, whichever is greater. Individual lots are not assumed to be smaller than 5,000 square feet since that is the minimum single family lot size allowed by the city's zoning code. Additional units on the same lot or parcel splits can occur when standard street frontages can be maintained on the parent parcel and the parcel is twice or more the minimum homesite area size established by the type. Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.85 to account for streets, drainage, etc.

Type F *(Traditional Neighborhoods)*

Existing pattern =   Because of the variation in building types, potential capacity is based on existing typical net housing unit density, as determined by development in the area. All vacant and underused parcels are assumed to have capacity potential. Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.7 to account for streets, parking, etc.

Infill pattern = Potential infill capacity is based on typical attached unit housing densities in the area applied to all vacant and underused lands. Gross density on parcels over two acres in size is reduced to a net density by multiplying by a factor of 0.7 to account for streets, parking, etc.

Type G *(Attached Unit Residential)*

Existing pattern =   Potential capacity is based on average existing density as determined by attached unit projects in the area. All vacant and underused parcels are assumed to have capacity potential. Gross density on parcels over one acre in size is reduced to a net density by multiplying by a factor of 0.7 to account for streets, parking, etc.

Infill pattern = 18 units per gross acre is assumed on all vacant and underused land, unless existing pattern potential is calculated at 18 or more units per acre. When existing pattern potential is calculated at or greater than 18 units per acre, 25 units per acre is assumed for infill potential.   Land assembly and teardowns may be assumed on parcels with less than five units. In areas where this type of infill is assumed, units removed are subtracted from infill potential to derive a net infill amount. Gross density on parcels over one acre in size is reduced to a net density by multiplying by a factor of 0.7 to account for required parking, streets, open space, drainage, etc.

General Assumptions in All Typologies

- Existing multifamily parcels with three or more units are deleted from calculations of additional capacity, unless the site is critically underused.

Critically underused is defined as those multi family parcels where existing development to total potential exceeds a ratio of 1:3.

- Because of their unique self-contained development pattern, planned developments, condominiums, and mobile home parks are not described in this typology. These types of development exist in the city and are assumed to occur randomly, without reference to, or significant impact on, the development pattern described in each typology.

Capacity Assessments Based on Site Specific Analyses

Some areas of the city are affected by constraints that could not be analyzed using the neighborhood typology method alone. Generally these areas are those with environmental constraints such as hillside sites or parcels with frontage on the Napa River and its tributaries. Accordingly, these areas were identified and analyzed individually by the planning staff. Although a variety of factors affected the site specific analyses, the following general guidelines were applied in assessing existing pattern and infill pattern development potential:

Hillsides *(i.e. parcels with slopes in excess of 15%)*

Existing pattern = These sites occur most frequently in Estate Residential areas. Development occurs in accordance with the provisions of the city's hillside overlay district (Chapter 17.54, City Zoning Ordinance) on parcels exceeding 82,764 square feet. Vacant tracts under 82,764 square feet are assumed to develop at a rate of one dwelling unit per lot. Developed parcels under the minimum size are assumed to have no additional dwelling unit capacity. Parcel splits and subdivisions of acreage tracts are not assumed since a use permit (discretionary approval) is required.

Infill pattern = Hillside tracts are analyzed for additional unit potential on the basis of the degree of slope and slippage constraints, and are assumed to develop at or below surrounding densities. Depending on the size and variation of the site, different portions may be assessed as having no

through moderate infill potential. For parcels greater than 82,764 square feet, empirical measurements are made by transferring parcel information from assessment maps to aerial photos that included site contours. Following the guidance provided by the City Zoning Ordinance, portions of parcels with slopes of 0-15 percent are assessed using the standard infill pattern typology for the area or a minimum lot size of 43,560 square feet, whichever is less. Portions of parcels with slopes between 15 and 30 percent are assessed at an average yield of one unit per acre (with lot sizes compatible with surrounding developments). Portions of parcels with slopes in excess of 30 percent are assumed to have no development potential. An exception to the above slope indexed capacity assessment occurs on ridgeline properties. These sites are assumed to have a maximum potential of one dwelling unit per lot.

Floodprone Areas Along the Napa River

Existing pattern = Parcels affected by floodway and/or flood evacuation area (FEA) regulations are analyzed empirically. Floodplain parcels unaffected by the FEA are analyzed according to the existing pattern assumptions of the typology in which they occur. Parcels in the floodway are assumed to have no additional residential potential. Parcels in the FEA that are **not** also in the floodway are assumed to develop according to the existing pattern assumptions of the typology of their area up to a maximum of **four units per parcel**, whichever is less.

Infill pattern = Parcels affected by floodway and/or flood evacuation area (FEA) regulations are analyzed empirically. Floodplain parcels outside the floodway that are unaffected by the FEA are analyzed according to the infill pattern assumptions of the typology in which they occur. Developed parcels in the floodway are assessed for additional residential potential based on the infill pattern assumptions of the typology of the area. Any existing units are subtracted from the calculation of capacity (i.e. teardowns of existing structures are assumed). Because no structures displacing floodwaters exist on vacant lands, no potential is assumed. Parcels in the FEA that are **not** also in the floodway are assumed to develop according to the infill pattern assumptions of the typology of their area up to a maximum of **four units per parcel**, whichever is less.

Parcels Along Creeks

Existing pattern = Parcels that contain riparian areas are analyzed on a **net** parcel area basis according to the existing pattern assumptions of the typology in which they occur. Net area is determined by applying the standards for streamside buffers of Section 17.60.080 of the City Zoning Ordinance or Section 17.80.030 of the City Zoning Ordinance, whichever is applicable. In all cases, it is assumed that riparian areas will be retained (i.e. buffer areas identified through use of aerials may exceed the minimum streamside setbacks prescribed in the zoning code).

Infill pattern = Parcels that contain riparian areas are analyzed on a **net** parcel basis according to the infill pattern assumptions of the typology in which they occur. Net area is determined by applying the standards for streamside buffers of Section 17.60.080 of the City Zoning Ordinance or Section 17.80.030 of the City Zoning Ordinance, whichever is applicable. In all cases, it is assumed that riparian areas identified through use of aerials will be retained.

Capacity Assessment Based on City Council Action

Specific plans and zoning study areas approved by the City Council formed the basis for analysis of some portions of the city. It was assumed that special studies in these areas resulted in adoption of a refined zoning pattern sensitive to neighborhood character. Thus, the capacity assessment could use zoning as an indicator of acceptable future conditions.

With the exception of the Linda Vista specific plan area (where density ranges were adopted), a single capacity scenario was generated for each of the zoning study areas. When a larger study area included "map reference areas" (MRA), it was assumed the zoning pattern of the MRA determined its potential capacity. The remainder of the study area was analyzed using a standard Type A neighborhood methodology.

In the Linda Vista area the lowest permitted densities were assumed to reflect existing pattern conditions and the higher end of the density ranges were assumed to represent infill pattern conditions. Typical lot size was determined by dividing the high or low density range value into 1 acre, thus yielding average lots slightly larger than the minimum zoning lot. These assumptions resulted in only those lots over 17,500 square feet in RL 3/4.5 areas and those over 12,500 square feet in RL 4.5/6 areas being considered as available for infill development.

Assumptions in addition to prescribed minimum lot sizes were necessary in order to use zoning as a basis for analysis in the zoning study areas. The assumptions used in addition to zoning district standards included:

- Infill calculated for lots over 2.5 times the minimum zoning lot size (i.e. 2.5 times zoning lot area required for two or more units). Infill potential expressed in whole unit increments.

- Vacant lands assessed on the basis of potential if developed with minimum sized zoning lots. Usable area of vacant low density and medium density parcels over 2 acres in size determined by multiplying gross lot area by a factor of 0.85 and 0.75 respectively to account for platting, drainage, parking, etc. Usable area of vacant multiple unit (i.e. medium and high density) parcels over 1 acre in size determined by multiplying gross lot area by a factor of 0.7 to account for right of way platting, common areas, parking, etc.

- Undeveloped committed lands (i.e. those with subdivision and/or project approvals) assessed on the basis of the approved number of units, rather than the criteria of (2) above.

- Teardowns and land assembly to achieve full use of lots were assumed in high density areas. Net potential was derived by subtracting existing units (assumed as demolished) from the full potential calculation.

- Based on the county's policies restricting development within the RUL prior to annex-ation, potential of county parcels within the RUL (which are not zoned by the city) was calculated on the basis of the city's General Plan designation for the site. The midrange density of the plan designation was used to assess reserve development potential.

Areas That Create Their Own Identity

During the CAC subcommittee's deliberations it was observed that there may be areas of the city in which change is desirable. Because of the policy implications of intentional changes in land use, the subcommittee decided that developing such scenarios should be left to the entire CAC and later, the City Council. Accordingly, some areas that may have future residential potential were not included in the initial capacity analysis. The map at the end of appendix B shows the areas that were analyzed, as well as those that weren't. These, and other areas that could be considered for change, were discussed during development of the *Concept Report's* land use map. The following section describes characteristics of areas that were considered for change.

Vacant Lands Outside Compact Neighborhoods

These areas contain isolated, vacant tracts that are large enough (usually over two acres) to create residential neighborhood character when they are developed. Because of their size and relative isolation from definable neighborhoods, these areas may vary significantly in their development patterns. Environmental and public infrastructure site constraints will determine the area's development potential in most cases. When these areas can be divided to echo nearby patterns, the potential gross density is multiplied by 0.75 to factor out land required for street platting, etc.

Reuse Areas *(public or private redevelopment)*

These areas occur throughout the city where there are concentrations of poorly maintained and underused commercial, industrial, and residential structures. Change through development and renovation may be more desirable than maintenance.

Generally these areas are of significant size (e.g. equivalent to four or more city blocks), although selective redevelopment can occur in any of the typologies. Determining if redevelopment is appropriate for a specific area or site is dependent on a number of physical and social factors - including the relative age and maintenance level of buildings and infrastructure, housing program goals, and market conditions.

In some cases redevelopment will result in increases in overall density (and thus, capacity). In others the urban pattern may change as a result of the introduction of different residential types, but density will remain the same or decrease (i.e. changes in perceived not objective density). In still other areas, redevelopment may take the form of "gentrification", in which existing structures undergo complete structural renovation but there is no substantial change in housing capacity.

Nonresidential Areas With Potential Capacity *(Commercial and Industrial Lands)*

These areas occur throughout the city where there are concentrations of poorly maintained and underused commercial and industrial structures. Determining if redevelopment is appropriate for a specific area or site is dependent on a number of factors, including the relative age and maintenance level of buildings and infrastructure, housing program goals, and market conditions. Changes in city policy, market demand and over supply of commercial and industrial space may combine to make renovation or redevelopment of these areas for housing purposes attractive to private owners.

Parks, Schools, Churches, Public Utilities

Under used and/or surplus sites may be appropriate for renovation or redevelopment for housing purposes by either the public or private sectors. Generally such development will occur on scattered sites throughout existing residential areas. The residential potential of such sites is dependent on the type of neighborhood in which it occurs.