

appendix C

**TRANSPORTATION
ANALYSIS**

TECHNICAL APPENDICES

CHAPTER 6

A1 – ROADWAY SYSTEM

The roadway system as a whole exists to provide both mobility and access for each mode of travel. The varying scales of the transportation system needed for each mode of travel are accomplished by nesting a series of roadway classifications and facility types. Because the roadway system by definition is shared by multiple modes of travel the functions of each classification overlap, but at the same time each classification, and each individual street, has unique functions and characteristics. The classification system and the key streets included in each class are described below.

Originally established to accommodate the different travel needs of motorists, the functional classification system channels traffic from higher order facilities (used primarily for mobility) to lower order facilities (used primarily for land access). The functional classification system does not address other modes of transportation and generally does not reflect the multiple functions of the streets in Downtown Napa. These additional functions such as pedestrian and bicycle travel, on-street parking, public spaces, and aesthetics are addressed in the Specific Plan's transportation strategies and guidelines.

A. State Highways – State Highways, operated and maintained by the California Department of Transportation (Caltrans), serve intra- and inter-regional mobility and, in many cases, direct access to abutting property. State Highways include access-controlled freeways such as State Route 29 to the west of Downtown to urban arterials such as Soscol Avenue on the east side of Downtown. There are several State Highways in the vicinity of the Planning Area but two of these highways provide direct access to Downtown Napa:

1. SR-29

SR-29 is a north-south four-lane, divided State Highway connecting Napa to regional destinations such as Vallejo to the south and Calistoga and St. Helena to the north. SR-29 is located west of Downtown Napa and is accessed via an interchange at First Street.

2. Silverado Trail (SR-121)

SR-121 is a two- to four-lane state highway that runs primarily north-south, extending from Sonoma County in the southwest, north through the City of Napa, then northeast beyond the Napa city limits. SR 121 is located to the east of the Planning Area where the facility is also referred to as the Silverado Trail.

3. Napa-Vallejo Highway (SR-221)

SR-221 is a north-south state highway that becomes SR 121/Soscol Avenue at its intersection with Imola Avenue. There are two lanes in each direction divided by a raised median.

B. Arterials (Major/Minor) – Arterials collect and distribute traffic between the highest order freeways and the lower order collector and local streets. The City of Napa's standards define Major/Principal Arterials as four to six lanes with a raised median (divided) within an 84- to 128-foot right-of-way. Minor Arterials are comprised of two travel lanes. Because arterials are intended to carry longer distance travel at relatively high speeds, intersection spacing is usually long (up to ½-mile) and major intersections are

controlled with traffic signals. Examples of arterials in the Planning Area include First, Second, Third, and Main Streets. Arterial streets may be significant transit and truck routes and serve as primary emergency access routes such as Soscol Avenue and Jefferson Street. Arterial streets accommodate pedestrians but less frequently than lower order streets because people are less comfortable on streets with high traffic speeds, high truck traffic and long intersection crossings. Some arterials are part of the City’s bicycle system and can be equipped with bicycle lanes, including Soscol Avenue and Third Street. Without bicycle lanes, inexperienced bicyclists usually avoid arterials. These types of streets can carry traffic volumes of up to 40,000 vehicles per day.

C. Collectors – Collector streets connect local streets to arterial streets and usually provide direct access to abutting property. Collectors typically consist of two lanes of traffic, usually undivided (no raised median) on rights-of-way between 60 and 84 feet. Collectors are part of the pedestrian and bicycle circulation system and may include striped bike lanes on bicycle routes. Traffic speeds are slower than arterials and intersections are spaced closer than on arterials and can be both signalized or stop controlled. Collectors typically carry up to 12,000 vehicles per day. Examples of collector streets within the Planning Area include Pearl, Franklin and Coombs Streets.

D. Local Streets – Local streets primarily function to provide access to abutting property with little or no access restrictions. Local streets also serve as the City’s primary system for pedestrian and bicycle travel. They consist of two travel lanes within right-of-ways of up to 56 feet and may carry up to 5,000 vehicles per day. Local streets constitute the largest proportion of the City’s circulation system. Randolph Street and portions of Clay Street are examples of local commercial streets. Oak Street and the northern section of Calistoga Avenue are local residential streets.

Downtown Napa One-Way Couplet System

An important feature in the Downtown, and a focus for change, is the system of one-way streets highlighted by pairs creating one-way “couplets”. One pair of arterials, First and Second streets, connects Highway 29 and central Downtown. A shorter pair of arterials, Third and Fourth streets, forms the southern boundary of the Planning Area. **Table A-1** describes the Downtown’s one-way streets.

TABLE A-1: ONE-WAY COUPLETS IN DOWNTOWN NAPA

<p>First and Second Streets Couplet</p>	<p><u>First Street:</u> Classification: Two lane east-west arterial Alignment: Extends east-west across the Downtown and contains one of the two bridge crossings of the Napa River on the east side of Downtown. Between Main Street and California Boulevard, First Street is one-way westbound.</p> <p><u>Second Street:</u> Classification: Two lane east-west arterial Alignment: Extends from California Boulevard to Main Street. Second Street is one-way in the eastbound direction</p>
<p>Third and Fourth Streets Couplet</p>	<p><u>Third Street:</u> Classification: Two-lane east-west arterial Alignment: Extends from California Boulevard to Coombsville Road. Within the Planning Area, Third Street is one-way westbound between Coombs Street and Church Street,</p> <p><u>Fourth Street:</u> Classification: Two-lane west-east arterial</p>

	Alignment: Extends approximately four blocks from Coombs Street to Third Street and is one-way in the eastbound direction.
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Other Important Planning Area Streets

Table A-2 lists streets by classification that form the primary circulation system within, or accessing, the Planning Area. These streets comprise all three street classifications, each serving overlapping and unique functions. Numerous additional local streets complete the network of the Planning Area circulation system but are not described in this study.

TABLE A-2: OTHER PLANNING AREA STREETS

Classification	Street / Alignment	Number of Lanes / Notable Characteristics
State Highways	Silverado Trail (SR-121_ East of Planning Area	2 lanes State Highway
Arterial Streets	Soscol Avenue Trancas Street to Imola Avenue	4 lanes State Highway
	Jefferson Street North of Third Street	4 lanes
	First Street West of Silverado Trail	2 lanes Bridges the Napa River east of Main Street
	Second Street West of Main Street	2 lanes
	Third Street Jefferson Street to Terrace	2 lanes Bridges the Napa River East of Main Street
Collector Streets	Main Street North of Fifth Street	2 lanes
	Coombs Street Imola Avenue to First Street	2 lanes Closed between First Street and Pearl Street
	Seminary Street Laurel Street to Hayes Street	2 lanes
	Franklin Street Fourth Street to Pearl Street	2 lanes
	Yajome Street Pearl Street to Lincoln Avenue	2 lanes
	Fourth Street Church Street to Coombs Street	2 lanes
Local Streets	Coombs Street Pearl Street to Clinton Street	2 lanes
	Fifth Street Division Street to Coombs Street	2 lanes
	Seminary Street Pine Street to Laurel Street	2 lanes
	Caymus Brown Street to east of Yajome Street	2 lanes
	Polk Street Jefferson Street to Franklin Street	2 lanes

Crucial Corridors

The City of Napa General Plan (2007) refers to routes that serve a vital role in communitywide circulation and accessibility to key community facilities as Crucial Corridors. These streets serve as primary emergency access and evacuation routes, or serve areas with limited alternative routes. The General Plan's traffic management policies protect the existing traffic capacity on these major thoroughfares, requiring close examination of traffic impacts from new development and ensuring any roadway modification does not reduce capacity. The following roads are designated as Crucial Corridors:

- Soscol Avenue from Imola Avenue to Trancas Street
- Silverado Trail from Soscol Avenue to Trancas Street
- Jefferson Street from Imola Avenue to Trancas Street
- Imola Avenue from Jefferson Street to Soscol Avenue
- Lincoln Avenue from Jefferson Street to Silverado Trail
- Trancas Street from SR-29 to Soscol Avenue

Truck Routes and Accommodating Large Vehicles in the Planning Area

Designated truck routes are designed for the largest vehicle that will use the street. Urban streets under Caltrans jurisdiction, such as Soscol Avenue, are typically designed for tractor-trailers that are 40 to 50 feet long from kingpin to rear axle. Non-designated routes may be designed for smaller vehicles such as the single-unit delivery truck or bus.

In addition to trucks that carry freight, trucks also include fire-fighting apparatus, some of which can be quite large, such as ladder trucks. Fire vehicles need to access all parts of the Planning Area and the size of the vehicle will depend on the type of emergency to which it is responding. Emergency vehicles have the advantage of priority right-of-way in an emergency and use sirens to gain a clear way or encroach into opposing traffic lanes to negotiate traffic congestion or narrow streets.

6.4.1 GENERAL PLAN ROADWAY IMPROVEMENTS

The projects in the vicinity of the Planning Area are listed below (the numbers in parentheses represent the General Plan project).

- Extend Solano Avenue to the south and connect with First Street (7).
- Widen the First Street Bridge over SR-29 to four lanes (8).
- Implement minor widening of Soscol Avenue between Silverado Trail and Lincoln Avenue to provide four through lanes with a center median and landscaping (10).
- Widen the southbound approach of the intersection of Silverado Trail at Soscol Avenue to provide one through lane and two left turn lanes (11).
- Extend Saratoga Drive west to intersect with Silverado Trail (12).
- Complete the missing segment of Terrace Avenue over Cayetano Creek (13).
- Extend Gasser Drive to Soscol Avenue at a new intersection north of the intersection of Soscol Avenue/Silverado Trail (14).
- Widen Silverado Trail to provide left turn lane improvements between Soscol Avenue and Third Street (17).
- Improve the five-legged intersection of Third Street/East Avenue/Coombsville Road/Silverado Trail to improve safety and increase vehicular capacity (18).
- Implement Class II bike lanes on Silverado Trail and Soscol Avenue between Silverado Trail and Third Street.

- Install a traffic signal at the intersection of Silverado Trail and Trancas Street and Monticello Road.

6.4.3.2 Configuration of the Potential Coombs Street Conversion

This potential conversion of the existing Coombs Street Plaza to a one-way street for vehicular travel between First Street and Pearl Street is described in the Specific Plan. This section of the appendix describes the configuration of the potential re-establishment of Coombs Street.

Because of the position and orientation of the Napa Town Center’s buildings, Coombs Street between First and Pearl Street would only be wide enough for one vehicular travel lane. This lane is proposed to be one-way northbound, primarily to improve vehicular access to the Pearl Street garage. The configuration of the proposed Coombs Street extension varies due to the available width between existing building frontages. The southern segment of Coombs Street is 60 feet from building to building. This would allow a 20-foot travel lane (meeting the Fire Department’s preferred clearance for a fire lane) and wide pedestrian sidewalks (16 to 18 feet in width) to provide for pedestrian travel and access to storefronts. The northern segment of the proposed street is narrower because there is only 30 feet from building to building. This allows for a 16-foot travel lane and minimum 7-foot wide sidewalks on both sides. Figure 6.2 illustrates the proposed configuration of the Coombs Street Plaza conversion.

Additional proposed elements of Coombs Street include textured pavement to indicate to drivers that they are entering a pedestrian environment and high visibility mid-block crosswalks with stop control for vehicles, directing pedestrians to the safest crossing points. These elements slow vehicular traffic in this high pedestrian traffic area.

6.4.4.2 Guidelines for Accommodating Trucks by Route Type

Whether a street is designed for trucks or accommodates trucks, its design should consider the physical requirements of the largest vehicle that uses the street with considerable frequency. The Specific Plan proposes the following guidance for the provision of trucks in the Planning Area:

A. Designated Truck Routes on City Streets

Should be designed for trucks using Caltrans’ standards for lane width, clearances, curb return radii, etc. Measures to mitigate pedestrian and bicyclist impacts may be applied as necessary.

B. Caltrans Facilities

Caltrans typically ensures their facilities are designed for trucks but may apply different standards on a case-by-case basis in response to the context and constraints that exist.

C. Downtown

Downtown streets should “accommodate” freight trucks and emergency vehicles but designing for truck movements should not conflict with the needs of pedestrians, bicyclists, transit users and motorists in the Downtown.

D. City Streets Accessing Highways

Because trucks often access or depart Downtown via highways, streets accessing highway ramps experience more large trucks than other streets. These streets should be designed for trucks, particularly where they turn at intersections.

E. Bus Routes

From an operational perspective, transit circulation is similar to truck circulation. Like trucks, buses require wider lanes and more generous curb radii for right-turn movements. Bus routes should be designed for buses using the transit agency's standard vehicle type (usually a 40 foot coach or 60 foot articulated bus).

F. Residential Neighborhoods

Streets in residential neighborhoods are principally for automobile, pedestrian and bicycle movements, and low volumes of truck traffic. While occasional large delivery trucks and moving vans travel into neighborhoods, the more common truck is smaller-sized delivery trucks. Low traffic volumes and speeds allow trucks to encroach when negotiating turns. Residential streets should be designed for passenger cars as the design vehicle, but should avoid designs that significantly hinder emergency vehicles. Street patterns should provide multiple routes into neighborhoods.

Measures to mitigate pedestrian and bicyclist impacts on truck routes or streets "designed for" trucks include:

- Pedestrian median refuge islands on wide streets with crossings greater than 60 feet;
- Mountable curbs at corners to reduce crossing distance while allowing large and infrequent vehicles to mount the curb when turning;
- Corner island with a pedestrian refuge ("pork chop" islands) to break up long crossings at intersections with large curb return radii; and
- Intersection STOP bars set further back from the intersection to allow turning trucks to encroach into opposing lanes without encountering stopped vehicles.

6.4.5.2 Regionally Planned Transportation Improvements

The following transportation projects that potentially affect access to the Planning Area are planned or have been programmed by state or regional transportation authorities or the City of Napa.

- NCTPA and Caltrans have programmed the improvements to the SR 12/29/221 (Soscol Avenue) intersection. This project includes construction of a two-lane southbound flyover from southbound SR 221 (Soscol Avenue) to southbound SR 12/29. Although the existing intersection remains in place, the flyover will expedite the movement of traffic from southbound Soscol Avenue to southbound SR 29. This modification may result in an increase in the use of Soscol Avenue to access the Planning Area.
- The City of Napa's General Plan includes a project to extend Solano Avenue south from F Street to First Street, as a four-lane arterial. This extension will relieve traffic on California Boulevard and result in less congestion accessing the Planning Area from Highway 29.

A2 – TRANSPORTATION SYSTEMS MANAGEMENT (TSM)

6.5.3 SPECIFIC PLAN SUPPORT OF REGIONAL PLANS TO REDUCE AUTOMOBILE TRAVEL AND GREENHOUSE GAS EMISSIONS

The following actions by the Napa County Transportation Planning Agency (NCTPA) are supported by the Specific Plan's goals and policies, development program and transportation improvement recommendations.

According to the NCTPA's "Napa Countywide Community Climate Action Framework" (September 2010) there are three main ways to reduce Greenhouse Gas (GHG) emissions from the transportation sector, two of which are highly relevant to the Downtown Napa Specific Plan area: 1) implement policies that reduce dependence on personal motor vehicles and encourage alternative modes of transportation such as public transit, car and van pooling, cycling, and walking, and 2) encourage "smart growth" policies that promote efficient land use development that reduces the need to travel long distances and facilitates transit and other nonautomotive travel, among other benefits.

Actions identified by the NCTPA's plan include 1) a commitment to urban centered growth, adopting policies, zoning and design standards in each jurisdiction to encourage mixed-use, live/work, and "walkable" and "bikeable" neighborhoods, and 2) requiring development projects to assess and mitigate the impacts of vehicle miles traveled through transportation demand management programs including providing transit amenities.

A3 – PARKING

6.8.1 CURRENT FUNDING OF DOWNTOWN NAPA'S PUBLIC PARKING

The City of Napa pays for the construction, operation and maintenance of off-street public parking facilities with two funding mechanisms, 1) an assessment district on all properties within the Parking Exempt District, and 2) a parking impact fee for new development in the Parking Exempt District.

The assessment district matches the boundary of the Parking Exempt Overlay District and requires businesses to pay a 70% surcharge on their business license tax to fund acquisition, construction and maintenance of public parking facilities within the district. This mechanism generates a relatively small amount of revenue compared to the cost of constructing parking, but it is an ongoing source of funds.

The City also established a parking impact fee applied to new non-residential development within the Parking Exempt Overlay District to be used toward acquiring land and constructing public parking. Revenue generated by the fee may also be used to reimburse the City for public funds advanced to acquire land or construct public parking or to reimburse a developer who advances funds for, or constructs, public parking. New development in the district pays a per space fee equal to the number of spaces exempted from the development's on-site parking requirements. The parking impact fee ensures sufficient parking is provided either on-site or within public parking structures to support the demand generated by development.

6.8.2 COST OF NEW PARKING AND FUNDING OPTIONS

This section provides an estimate of the Specific Plan's primary recommendation to acquire land and construct a 300 to 400 space public parking structure within the Parking Exempt District and discusses funding options such as an assessment district and continuing the District's practice of requiring a parking impact fee.

6.8.2.1 Estimated Cost of Recommended Parking Structure

The cost to construct a new parking structure is based on an average cost per space of \$32,000¹. The estimated cost to construct the recommended structure with 375 spaces is \$12 million. Based on an estimated present value of \$56.00 per square foot for land in the Parking Exempt District, acquisition of the underlying land would add approximately \$2.3 million for a total cost of \$14.3 million.

6.8.2.2 Funding Options

There are two options that may be pursued to fund the recommended parking structure. These funding sources are also described in relation to implementation strategies in Chapter 7 of this Specific Plan:

1. Assess new/redeveloped non-residential properties within the Parking Exempt District to fund the exact cost of one 375-space garage serving the District. The assessment would be based on the anticipated square-footage of new/redevelopment (non-residential only) within the district. Based on the Specific Plan's development program of 735,235 square feet of non-residential

¹ The source of the parking structure cost per space is the recent construction of the County's 5th Street garage. The per space estimate includes construction and "soft" costs of planning and design, construction administration, and contingency, but does not include the cost of property acquisition.

development, the resulting assessment would be \$19,449 per 1,000 square feet of new commercial development.

2. Continue the current impact fee practice, but adjust the fee to match the actual cost of new parking. Impact fees could be justified as high as \$32,000 to \$38,000 per required space, depending on whether land is included as a factor. The impact fee funds the costs of future parking by charging net new, non-residential development within the Parking Exempt District based on the development's required amount of parking established in the zoning code or in this Specific Plan. The impact fee based on the existing parking ratios, excluding land costs, would be \$32,000 per new required parking space or the equivalent of \$76,800 per 1,000 square feet of new office and \$102,400 per 1,000 square feet of new retail development. The resulting impact fees based on the recommended Specific Plan parking ratios would be \$32,000 per new required parking space or the equivalent of \$70,400 per 1,000 square feet of new office and \$82,250 per 1,000 square feet of new retail development².

The revenue collected through the impact fee at the level presented in Option #2 would eventually exceed the cost of one garage based on the amount of development proposed in the Specific Plan. Impact fee revenue is deposited into an account to cover parking-related capital costs. The City currently charges a lower impact fee as a matter of policy as an incentive for development. This current practice results in a shortfall of funding for needed parking, requiring City funds or other sources of funding to make up the difference.

² The estimated impact fees assume that development within the Parking Exempt District will choose to provide 20% of the code-required parking on-site. The remaining 80% of required spaces would be provided in public parking funded with impact fees.