

PARKING SERVICES



Bicycle & Pedestrian Planning
Intelligent Transportation Systems
Land Use & Transportation Planning
Parking
Smart Growth
Traffic Calming
Traffic Engineering Design
Traffic Operations & Simulation
Transit Planning & Simulation
Transportation Systems Planning
Travel Demand Forecasting

Fehr & Peers has prepared hundreds of parking studies for public, private, and institutional clients throughout the western United States. We frequently perform:

- Parking Supply/Inventory Evaluations
- Parking Demand Analysis
- Shared Parking and Parking Variance Evaluations
- Parking Garage Access and Circulation Analysis
- Parking Pricing Strategies
- On-Street Parking Design and Management Strategies
- Special Event Parking Plans

We provide innovative, yet practical solutions to complex parking situations, frequently drawing on our expertise in travel demand forecasting, traffic operations and simulation, traffic calming, and traffic engineering design in our studies. We focus on vehicular access as well as the safety and convenience of pedestrians and bicyclists.

UNIQUE STATE-OF-THE-ART TECHNOLOGIES

We are often called upon to use state-of-the-art technologies to evaluate unusual parking situations. Examples include:

- GIS to determine spatial parking demand based on various walk-time contours.
- Micro-simulation at parking garage accesses to model the interactions of automobiles, pedestrians, and bicyclists.

PARKING DEMAND/REVENUE MODELS

We have considerable experience in the development of models that predict parking demand based on a variety of independent variables (e.g., building square footage). These models are used to calculate the required parking supply. We develop parking revenue forecasting models. These models are used to forecast the likely effects of potential base parking rates and discount schemes, and to formulate optimum pricing strategies.



DOWNTOWN CIRCULATION AND PARKING STUDY – WALNUT CREEK, CA

Fehr & Peers participated on a multi-disciplinary team to prepare a comprehensive study of parking, transit, and pedestrian circulation in the City of Walnut Creek, California. The study evaluated parking utilization in the core downtown, transit route efficiency serving the downtown, and opportunities to improve and enhance an already thriving pedestrian environment. Parking space management techniques, including pricing structure changes, were recommended.

Fehr & Peers' role on the project was the collection and evaluation of parking occupancy, turnover, pricing and operations data for the downtown. We participated in the development of recommendations to improve parking utilization efficiency and wayfinding.

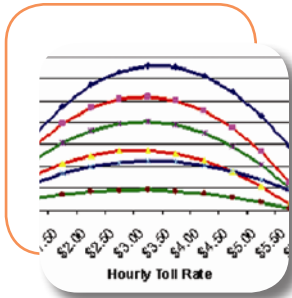
BART STRATEGIC STATIONS ASSESSMENT – SAN FRANCISCO BAY AREA, CA

As BART (Bay Area Rapid Transit) stations evolve from park-and-ride locations to opportunity sites for Transit-Oriented-Development (TOD), BART planners are exploring strategies to make station-area land available for TOD, while preserving reasonable access for patrons who depend on station parking. Fehr & Peers assisted BART in the development of a corridor-level strategy for managing station-area land and assets in a manner that will optimize ridership and achieve BART's targets for reduced auto share for the station's access mode.

The initial corridor assessment evaluated trade-offs between parking supply and TOD along BART's A-Line, which includes nine stations from Lake Merritt to Fremont. The station-area strategies emphasized varying levels of parking supply and bus service, and TOD housing and employment, including ABAG's 2030 Smart Growth land use and more intensified land use scenarios developed by the Center for Transit Oriented Development. To assess the effects of TOD on ridership and access mode share, Fehr & Peers developed and applied a series of direct ridership models that forecast the individual effects of TOD, parking supply and bus service on BART boardings, and modes of access. BART typically requires that 100% of the existing parking be replaced when TOD is developed at a station. The costs associated with replacing all parking spaces can be a deterrent to developing TODs. To evaluate the ridership effects of replacing parking spaces with TOD, a "balance point" evaluation was performed to determine the parking replacement rate required to maintain ridership when adding TOD at the station.

UC DAVIS WEST ENTRY PARKING STRUCTURE – DAVIS, CA

Fehr & Peers conducted a transportation study for the West Entry Parking Structure at the UC Davis campus. The structure provided an additional 1,200 parking spaces in the core campus area. Fehr & Peers analyzed access to/from the parking garage and identified needed improvements to the surrounding roadways to accommodate the additional traffic. A key component of the study was determining the number of entrance/exit points needed to serve vehicles accessing the garage during peak travel hours. Transportation improvements considered vehicular traffic as well as the high number of pedestrians and bicyclists traveling on campus.



PARKING STRUCTURE PRICING STUDY – SOUTH LAKE TAHOE, CA

The South Lake Tahoe Redevelopment Authority introduced paid parking into their downtown area in 2003 with the construction of a bond-financed parking garage. Over the next 18 months the garage consistently failed to reach its revenue targets even though four different fee schedules were tried. The Authority then called in Fehr & Peers to help devise a fee structure that would prevent default on their bond payments.

Fehr & Peers analyzed the situation by sub-dividing the market for potential parking patrons into six segments, each with different time-of-day, parking duration, and price sensitivity characteristics. We also divided the year into six types of day, and the revenue day into eighteen hours of operation. Fehr & Peers then developed a detailed revenue forecasting model, which was calibrated against the data from the first 18 months of operations. The model was used to forecast the likely effects of various base rates and discount schemes that were under consideration, and to formulate a recommended pricing schedule. This analysis helped the Authority to develop its bargaining position with the various stakeholders. Since the recommendations were implemented, monthly revenues have been increased 43%-55% year-on-year.



DEL PASO BOULEVARD ANGLED PARKING STUDY – SACRAMENTO, CA

Fehr & Peers completed a study of the proposed conversion of parallel parking to angled parking on Del Paso Boulevard between Arden Way and El Camino Avenue in the City of Sacramento. A literature review was conducted and several jurisdictions were interviewed to gather information and experience with angled parking on arterial streets in downtown areas. Using the VISSIM micro-simulation model, Fehr & Peers analyzed intersection and corridor operations under existing conditions (four lanes with parallel parking) and with the proposed project (two lanes with angled parking). Recommendations were also made for the transition between the four-lane and two-lane sections at the project end points.



JOHN MUIR MEDICAL CENTER – WALNUT CREEK, CA

Fehr & Peers provided engineering services for the proposed John Muir Medical Center (JMMC) Master Plan in Walnut Creek, California. Fehr & Peers evaluated the JMMC parking condition using available information such as existing building size and use, annual parking surveys, and traffic/parking data collected on-site. The traffic and parking data was used to develop parking accumulation curves and trend lines. These curves and trend lines were then adapted to assist in the design of the planned parking structure(s). Trip-making curves representing existing JMMC vehicle flow levels were developed to help in confirming the peak hour trip generation. These curves also identified peaking characteristics of the JMMC build-out for purposes of evaluating parking access operations and sizing internal circulation roads.

ENVISION OLATHE DOWNTOWN MASTER PLAN – OLATHE, KS

Fehr & Peers was part of a multi-disciplinary team that prepared a Downtown Master Plan and Downtown Design Guidelines for Olathe, Kansas. The Master Plan featured a multi-pronged, implementable strategy to insure the continued competitiveness of Olathe’s civic-oriented downtown. Fehr & Peers developed street typologies for key downtown streets, providing a multi-modal solution to accommodate vehicular traffic needs while also remaining friendly to pedestrians. The study included recommendations on how to best address existing and future parking needs, and strategies to mitigate impacts of a busy rail line that transects the downtown. The plan was unanimously approved, and is now in the implementation stage.

LOS ANGELES DODGER STADIUM PARKING AND TRAFFIC CIRCULATION PLAN – LOS ANGELES, CA

Fehr & Peers was contracted by the Los Angeles Dodgers to revise and upgrade the operations and management plan for the Dodger Stadium parking area. The stadium has a total of approximately 18,500 parking spaces with four gates that provide access to the regional roadway system. Fehr & Peers was asked to develop a comprehensive parking and traffic circulation strategy directed at the issues and complaints that the ball club had been receiving over the years. The parking and traffic circulation plan was directed at both internal as well as external issues relative to the stadium. Fehr & Peers developed a controlled zone parking strategy that resulted in all patrons being directed to a specific parking lot and a specific parking space depending upon the access gate from which they entered. This strategy enabled the parking lot operators of the Los Angeles Dodgers to efficiently “speed load” all patrons and direct pedestrians to newly created walkways with minimal vehicular conflict. A comprehensive traffic circulation plan was developed that included inbound/outbound route planning, internal and external roadway signage, placement of traffic control officers, recommendations for intersection and roadway operations, temporary traffic control devices and neighborhood protection.

SANTA MONICA GIS-BASED PARKING MODEL

Fehr & Peers developed a parking demand model for the City of Santa Monica. The model was created for selected parking districts in Santa Monica to compare parking demand to supply. The model was designed to run within the ArcGIS environment utilizing a script that calculates the parking demand based on land uses, by time of day, weekday vs. weekend, and time of year. A 9-step iteration was used to calculate the parking demand versus the existing parking supply. This study required existing parking occupancy and supply data from the City. The model was used to identify parcels for redevelopment and/or assign as vacant land when performing the parking demand.

WESTFIELD PROMENADE PAID PARKING STUDY

Fehr & Peers evaluated the installation of paid parking for visitors to Westfield Promenade shopping center in Canoga Park, California. Fehr & Peers prepared traffic projections for each of the shopping center driveways and estimated the number of parking spaces each major and minor entry/exit would serve. Fehr & Peers prepared conceptual drawings of the physical implications of the paid parking requirements in terms of number of inbound and outbound lanes. Fehr & Peers discussed the findings of the above study in work sessions aimed at finalizing a workable strategy to install paid parking at the shopping center and prepared a memorandum summarizing the likely installation costs of the equipment, potential physical changes to existing/proposed structures and the potential operating and maintenance costs of instituting paid parking. Fehr & Peers has conducted similar studies for several Westfield shopping centers.

DISNEY PUMBAA PARKING GARAGE CONCEPTUAL DESIGN

Fehr & Peers assisted the design team in the preparation of conceptual plans for the Pumbaa garage at the Disneyland Resort in Anaheim, California. The study identified improvements required to provide adequate access to and from the garage, including consideration of potential peak entry queuing requirements. Fehr & Peers provided input into and review of conceptual design plans prepared by the design team as related to garage ingress, egress and circulation and suggesting modifications as appropriate. A VISSIM micro-simulation model was developed to analyze vehicle operations to and from the garage and calculate vehicle storage requirements during peak usage. The simulation model was a valuable tool in providing design refinements to the ingress and egress driveway movements and ensuring that the garage would function smoothly when constructed.

DOWNTOWN PARKING MANAGEMENT PROGRAM – CITY OF SANTA MONICA, CA

Fehr & Peers developed a parking management program for downtown Santa Monica, California. The City of Santa Monica was interested in assessing the feasibility of implementing a downtown parking management program that would coordinate the use of both public and private parking facilities to improve parking availability in the downtown area, especially at night and on weekends. The study area included the highly successful Third Street Promenade entertainment and retail district as well as the Santa Monica Place shopping mall. Fehr & Peers conducted an extensive data collection program to quantify existing parking characteristics in the area, including inventory, utilization, duration, and user surveys. Future parking demands were projected for both weekdays and weekends, and alternative parking management strategies were developed and evaluated. The recommended program included immediate action items, short-term improvements, and mid-range improvements. It also included a combination of strategies regarding such items as pricing, office parking requirements, TDM, a parking advisory system (including real-time directional and availability signage), the use of private parking at night and on weekends, and a provision of additional parking supply in city structures.

DISNEY CONCERT HALL PARKING GARAGE – LOS ANGELES, CA

Fehr & Peers prepared parking demand and revenue projections for the Disney Concert Hall Parking Garage located on Parcel K Bunker Hill. The study developed revised parking demand forecasts for the facility based on current data in the downtown area. The Board of Supervisors requested the updated forecast because of the changes that occurred in the downtown area since the project was originally approved. Under future conditions, the opening of the Disney Concert Hall and the increased activity on Bunker Hill and in the civic center was expected to affect the parking demand in the garage. Also expected to affect the parking demand in the garage was the conversion of several parcels on Bunker Hill from surface parking to commercial development and the conversion of several county-owned parcels in the civic center from surface parking to other uses. The final product included 30-year forecasts of the projected usage of the garage and the revenue expected from this usage.