



CONTRA COSTA

Countywide Bicycle and Pedestrian Plan

Appendix F

Pedestrian and Bicycle Forecasting and Funding Sources

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F. Pedestrian and Bicycle Demand Forecasting

CCTA has developed simple Excel-based tools to calculate future bicycling and walking demand based on updated research regarding facility investment and associated mode shifts. These tools are meant to provide a quick and consistent way for local agencies to forecast future use of new facilities. Using these tools, local agencies will be able to pursue grant opportunities without having to estimate ridership themselves, thus reducing barriers to obtaining grant funding.

These models are available by contacting Authority staff.

F.1 Walk Mode Share Model

The walk mode share model is a linear regression model developed by the Alameda County Transportation Commission as part of the Bicycle and Pedestrian Master Plan Demand Forecast Tool.⁹ In this case, walk mode share for each TAZ is predicted from its population density, retail and service employment density, the percentage of households owning zero vehicles, and whether the TAZ has transit service within ¼ mile. The model was developed from data from the 2012 California Household Travel Survey and EPA's Smart Location Database. Here it is applied to Traffic Analysis Zones from the Contra Costa (CCTA) travel demand model. The data dictionary provides a list of required variables from model inputs (land use variables) and intermediate outputs (auto ownership model).

The Zonal Mode Share Forecast tab contains the calculations required to produce estimated 2010 and 2040 walk mode shares for each zone. The Mode Share Summary tab aggregates the zonal estimates to a single estimate of walk mode share, and provides a simple tabular summary of population in zones with walk mode shares in certain ranges (e.g. under 8 percent walk mode share or over 20 percent walk mode share).

F.2 Bike Mode Share Model

The bike mode share model is based on the miles of bicycle facilities (bike paths or bike lanes) in the county as compared to the number of bicycle commuters in the county. It applies a simple elasticity — in this case, how much the number of bicycle commuters increases based on the change in miles of bicycle facilities — from the research literature ("Cycling to work in 90 large American cities: new evidence on the role of bike

⁹ A linear regression model is a linear equation of the form $y = a + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_nx_n$ which predicts the value of one variable y from the values of one or more other variables x_1, x_2, x_3 , etc. The coefficients b_1, b_2, b_3 , and the constant a are selected to minimize the aggregate prediction error, measured as the sum of squared differences between predicted and actual values.



paths and lanes” by Ralph Buelher and John Pucher, 2012). Although the paper of Buehler and Pucher separates bike paths and bike lanes into two classes of facilities with separate elasticities, they note that the difference between the calculated elasticities is not statistically significant. For this reason, and because the separate elasticities do not provide intuitively reasonable results, the two elasticities are used to provide a range of plausible bicycle mode share estimates.

F. Funding Sources

Federal, State, regional, county and local organizations provide funding for pedestrian and bicycle projects and programs. The most recent Federal surface transportation funding program, Fixing America's Surface Transportation Act (FAST), was signed into law in December 2015. This is the first long-term Federal transportation authorization enacted since 2012, and the first long-term funding since the signing of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005. The new authorization brings changes to typical funding sources and structures.

Since the Federal Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, the biggest sources of federal funding for bicycle and pedestrian projects have included the Transportation Enhancements (TE) program, Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ) program, Recreational Trails Program (RTP) and the Safe Routes to School (SRTS) program. In 2012, Moving Ahead for Progress in the 21st Century (MAP-21) combined the TE, SRTS and RTP programs into one Transportation Alternatives Program (TAP).

The FAST Act renames STP as the Surface Transportation Block Grant (STBG) program; TAP is now a set-aside program of the STBG. TAP funding was set at 2 percent of all the core highway programs, about \$835 million for FY 2017. Walking and bicycling projects remain an eligible project type for the larger STBG as well as CMAQ and the Highway Safety Improvement Program (HSIP). FAST funding is distributed to federal and State surface transportation programs. Most of these resources are available through the California Department of Transportation (Caltrans), and a limited number of programs through MCTC.

Federal, State, regional, county and local organizations provide funding for pedestrian and bicycle projects and programs. **Table 7-4** in the Implementation Chapter summarizes the applicability of these various funding sources to projects, planning efforts, and programs proposed. The most applicable funding sources for the improvements proposed are the Active Transportation Program and Highway Safety Improvement Program. The appendix includes details about current programs that are used to fund existing scheduled projects and an assessment of upcoming programs as of January 2018. These may change as State and local programs adapt to the new FAST funding.



Federal Funding Sources

Fixing America's Surface Transportation Act (FAST Act)

The FAST Act provides funding for roads, transit, safety, and environmental enhancements. Signed into law in December 2015, the FAST Act supplanted the Moving Ahead for Progress in the 21st Century Act (MAP-21). Compared to MAP-21, the FAST Act makes more federal-aid highway funding available to locally-owned transportation infrastructure and also increases overall spending for the Surface Transportation Block Grant (STBG) program. This legislation also preserved the Safe Routes to School program, with funding for projects that improve pedestrian and bicycle access and safety around primary and middle schools.

Cities, counties, and transit operators can apply for FAST Act funds, although a local match is required for these funds. Several bicycle-related programs are funded through the FAST Act. These include the following:

- *Surface Transportation Block Grant (STBG) Program* – The STBG, formerly known as the Surface Transportation Program, provides block grant funds that are used for roads, bridges, transit capital, and bicycle projects. Eligible bicycle projects include bicycle transportation facilities, bicycle parking, equipment for transporting bicycles on mass transit facilities, bicycle activated traffic control devices, preservation of abandoned railway corridors for bicycle trails, and improvements for highways and bridges. Cities, counties, metropolitan planning organizations (MPO), and transit operators can apply for STBG funds. An 11.5 percent local match is required for these funds when used for bicycle projects.
- *Transportation Alternatives Program (TAP)* – MAP-21 bundled three funding programs – Transportation Enhancements program, the Safe Routes to School program, and the Recreational Trails Program – into one Transportation Alternatives Program. The FAST Act preserved TAP, slightly increased its annual funding through 2019 (up to \$850 million/year) and made it a set-aside program within the STBG program. TAP is the most prominent funding source for bicycling and walking infrastructure projects. However, up to half of TAP grants can be diverted to other purposes by state and local governments. Within TAP, funding for the Recreational Trails Program is preserved at the 2009 level and is effectively a set-aside of the TAP.
- *Congestion Mitigation and Air Quality Improvement Program (CMAQ)* – CMAQ funds are available for projects that will help attain National Ambient Air Quality Standards (NAAQS) identified in the 1990 Federal Clean Air Act Amendments. Projects must be located within jurisdictions in non-attainment areas. Eligible projects include bicycle facilities intended for transportation purposes,



bicycle route maps, bicycle-activated traffic control devices, bicycle safety and education programs, and bicycle promotional programs. Cities, counties, MPO, state, and transit operators can apply for CMAQ funds. A 20 percent local or state match is required for these funds.

- *Highway Safety Improvement Program (HSIP)* – HSIP was created by MAP-21 and preserved in the FAST Act. While walking and cycling projects are eligible activities for HSIP funding, the FAST Act does prohibit using HSIP funding for non-construction activities, such as education and enforcement. The Caltrans Division of Local Assistance (DLA) manages California's local agency share of HSIP funds. Local HSIP projects must be identified on the basis of crash experience, crash potential, crash rate, or other data-supported means.
- *Section 405 National Priority Safety Programs* – The National Highway Traffic Safety Administration (NHTSA) administers a new non-motorized safety funding program. Of the \$280 million allocated to the program, approximately \$14 million will be awarded to States on an annual basis to decrease bicycle and pedestrian crashes with motor vehicles. Eligible states must have bicycle and pedestrian fatalities that constitute more than 15 percent of all fatal crashes, including California. Unlike HSIP, funding may be used for training law enforcement officials, organizing enforcement campaigns, or increasing awareness of bicycle and pedestrian laws.
- *National Highway Performance Program (NHPP)* – NHPP funding provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS. A 20 percent local or state match is required for these funds. States may transfer up to 50% of NHPP funding to the STBG program, TAP, CMAQ, or other programs each year.
- *Transportation Infrastructure Finance and Innovation Act (TIFIA)* – The TIFIA program allows Congress to provide credit assistance to large-scale surface transportation projects. Under MAP-21, most projects needed to meet a minimum cost of \$50 million to be eligible for credit assistance. Under the FAST Act, this threshold is reduced to \$10 million for projects involving local governments. This change may allow active transportation projects to more easily take advantage of these credit and innovative financing mechanisms.
- *Highway Research and Development (HRD) Program* – The HRD program funding, continued under the FAST Act, funds strategic investment in research activities that address current and emerging highway transportation needs. As such, HRD funding can be used to improve bicycle



safety through education, police enforcement, and traffic engineering. Cities, counties, and state agencies can apply for these funds. A 20 percent state or local match is required for these funds.

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund (LWCF) uses offshore drilling royalties paid by energy companies to provide matching grants for state and local parks and recreation projects, among other uses. The LWCF state assistance program provides matching grants to help states and local communities protect parks and recreation resources, including off-street bicycle paths.

- California Department of Parks and Recreation LWCF application webpage: http://www.parks.ca.gov/?page_id=21360

Statewide Funding Sources

Active Transportation Program (ATP), including Safe Routes to School

California's Active Transportation Program (ATP) was created in 2013 by Senate Bill 99 and Assembly Bill 101. Its purpose is to encourage increased use of active modes of transportation, including bicycling and walking. The ATP consolidated previously-existing funding programs, including the federal Transportation Alternatives Program (TAP), State Bicycle Transportation Account (BTA), and the federal and State Safe Routes to School programs. Program funding is divided into three components. Half of ATP funding is awarded through a statewide competitive program. Ten percent of funding is awarded through the small urban and rural area competitive program. Forty percent of funding is awarded to Metropolitan Planning Organizations, such as MTC, through the large urbanized area competitive program. The ATP Cycle 3 call-for-projects closed in June 2016.

- California ATP Webpage: <http://www.catc.ca.gov/programs/ATP.htm>

Transportation Development Act (TDA), Article 3

TDA Article 3 is perhaps the most readily available source of local funding for bicycle projects. TDA funds are derived from a statewide quarter-cent retail sales tax. This tax is returned to the county of origin and distributed to the cities and county on a population basis. Under TDA Article 3, two percent of each entity's TDA allocation is set aside for pedestrian and bicycle projects; this generates approximately \$3 million in the Bay Area annually. Eligible projects include the design and construction of walkways, bicycle paths and



bicycle lanes, and safety education programs. According to MTC Resolution 875, these projects must be included in an adopted general plan or bicycle plan and must have been reviewed by the relevant city or county bicycle advisory committee.

- MTC's Procedures for the TDA Article 3 program: <http://mtc.ca.gov/our-work/fund-invest/investment-strategies-commitments/transit-21st-century/funding-sales-tax-and-0>

Caltrans Sustainable Transportation Planning Grant Program

The Caltrans Division of Transportation Planning offers Sustainable Transportation Planning Grants to provide funding to support transportation planning (not construction or environmental review). The grants are intended to strengthen the economy, promote equity, and protect the environment. Eligible projects include safe routes to school plans, streetscape plans, complete street plans, and safety enhancement plans. The program requires a 20 percent local match. Grants are available in amounts from \$100,000 to \$500,000.

- Caltrans Sustainable Transportation Planning Grant Program: <http://www.dot.ca.gov/hq/tpp/grants.html>

California State Parks Recreational Trails Program (RTP)

The Recreational Trails Program (RTP) provides funds for recreational trails and trails-related projects, including Class I Bicycle Paths. The program is administered at the state level by the California Department of Parks and Recreation (DPR) and the Caltrans Active Transportation Program (ATP). While DPR does not anticipate conducting another cycle before 2018, the agency does intend to create a new application guide in 2017 to incorporate updated information based on the FAST Act. Applicant, including cities and towns, are responsible for obtaining a match amount that is at least 12% of the total project cost.

- PR RTP application site: http://www.parks.ca.gov/?page_id=24324

California Cap-and-Trade Funding

The Global Warming Solutions Act of 2006 (AB 32) directed the California Air Resources Board (ARB) to institute programs to reduce greenhouse gas (GHG) emissions. The Cap-and-Trade Program, a key element of the ARB's plan to reduce emissions, funds several programs that support the goals of AB 32. Several of these programs relate to transportation and mode shift. The Affordable Housing and Sustainable Communities Program (AHSC), for one, provides funding to support active transportation and complete



streets initiatives, among other project types. Applications for FY 2015-2016 AHSC funding were due in June 2016.

- Cap-and-trade auction proceed-funded programs, including AHSC:
<http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/ggrfprogrampage.htm#Transportation>

Highway Safety Improvement Program

The Caltrans Highway Safety Improvement Program (HSIP) funds countermeasures applied at locations with documented collisions and safety issues. HSIP uses a cost-benefit ratio as a primary factor in the awarding of applications. Because both of these programs focus on roadway safety, projects with documented collision history – through frequency of collision but particularly collision severity – are typically ranked higher. Roadways with documented bicycle and pedestrian collision history, as discussed in **Chapter 3** of this Plan, may be well-qualified for HSIP applications, particularly since many of the proposed projects would improve bicyclist and pedestrian safety at a lower cost than many of the highway projects also eligible for HSIP.

Successful projects have included:

- Separated bikeways
- Median refuges and curb extensions
- Curb, gutter, and sidewalk
- Paved shoulders
- Upgraded traffic signals with pedestrian countdown signals and pedestrian-scale lighting
- Bicycle lane striping
- Crosswalk striping
- In-pavement flashers and pedestrian activated warning device at crossings

More information is available online: <http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm>



Regional Funding Sources

Transportation for Livable Communities

MTC created the Transportation for Livable Communities (TLC) program in 1998. MTC uses this program to finance pedestrian, bicycle and streetscape improvements near public transit in cities around the Bay Area. The purpose of TLC is to support community-based transportation projects that bring new vibrancy to downtown areas, commercial cores, neighborhoods and transit corridors, making them places where people want to live, work and visit. Pedestrian- and transit-friendly developments are hallmarks of the program. MTC awarded the most recent round of TLC capital grants in July 2010. The TLC program has been incorporated into the One Bay Area Grant (OBAG) program (see below).

- MTC's TLC program: <http://mtc.ca.gov/whats-happening/news/mtc-awards-44-million-new-grants-promote-livable-communities>

Bay Trail Grants

The San Francisco Bay Trail Project—a non-profit organization administered by the Association of Bay Area Governments—provides grants to plan, design, and construct segments of the Bay Trail. The amount, and even availability, of Bay Trail grants vary from year to year, depending on whether the Bay Trail Project has identified a source of funds for the program. As of 2016, the Bay Trail Project is not currently offering grants, but may in the future.

One Bay Area Grants (OBAG)

Currently in its second funding round, OBAG uses federal STBG and CMAQ funds to maintain MTC's commitments to regional transportation priorities while also advancing the Bay Area's land-use and housing goals. Cities and counties can use these OBAG funds to invest in bicycle and pedestrian improvements, Safe Routes to School projects, TLC projects and planning for Priority Development Areas among other uses. MTC distributes OBAG funds to county Congestion Management Agencies in each Bay Area county. The CMAs are then responsible for selecting eligible projects within each county.

- MTC's OBAG program: <http://mtc.ca.gov/our-work/invest-protect/focused-growth/one-bay-area-grants>



Transportation Fund for Clean Air (TFCA)

TFCA is a grant program administered by the Bay Area Air Quality Management District (BAAQMD) and funded through a surcharge on motor vehicles registered in the Bay Area. The Air District offers funding to public agencies for trip reduction, bikeways and bicycle parking, and clean air vehicle projects. A sub-program of the TFCA is the Bikeways, Roads, Lanes and Paths program, which offers funding for bicycle parking and bikeway projects (Class I-IV). Funding will be offered on a first-come, first-served basis until the funds (total: \$3.84 million) are spent.

Bicycle projects may also be funded through the TFCA's County Program Manager Fund. Under this sub-program, 40 percent of TFCA revenues collected in each Bay Area county is returned to that county's congestion management agency (CMA) for allocation. Applications are made directly to the CMAs, but must also be approved by the BAAQMD.

- TFCA Bikeways, Roads, Lanes and Paths: <http://www.baaqmd.gov/grant-funding/public-agencies/bikeways-roads-lanes-paths>
- TFCA County Program Manager Fund: <http://www.baaqmd.gov/grant-funding/public-agencies/county-program-manager-fund>

Countywide Funding Sources

Measure J

In November 2004, Contra Costa voters approved Measure J, which extended Measure C (approved 1988), the county's half-percent sales tax for transportation, until 2034. The most explicit source of funding for pedestrian and bicycle projects is through Measure J's Pedestrian, Bicycle and Trail Facilities (PBTF) program, which funds projects identified in the CBPP. The Measure J Transportation for Livable Communities (TLC) program also supports mixed-use, walkable and transit-accessible development and projects that encourage walking and bicycling as its primary goals. The measure also encourages jurisdictions to fund bicycle and pedestrian facilities through other Measure J programs including their shares of the 18% return-to-source funds. Measure J also requires local jurisdictions comply with the county's Growth Management Program (GMP), which is described below, to be eligible for funding through two of the measure's programs.



Measure J Growth Management Program

Measure J requires that local jurisdictions comply with CCTA's Growth Management Program (GMP) to be eligible for funding through two of the Measure's programs. Among the requirements of the GMP is that each jurisdiction "incorporate policies and standards into its development approval process that support transit, bicycle and pedestrian access in new developments."

The Authority has been implementing the GMP since the adoption of Measure C in 1988. The GMP includes several components relevant to the CBPP. First, the GMP requires jurisdictions to work together to address regional and countywide transportation issues. Second, CCTA works with RTPCs to implement a Regional Transportation Mitigation Program, which is built from the fees and impact programs adopted by individual RTPCs. Finally, as noted above, CCTA requires jurisdictions to adopt standards for evaluating the impacts of new development on walking, bicycling and transit. In addition, CCTA also develops and maintains computer models and develops methodologies for analyzing the effects of land use changes and transportation improvements.