



Office of the City Manager

ACTION CALENDAR

December 6, 2005

To: Honorable Mayor and
Members of the City Council

From: *PK* Phil Kamlarz, City Manager

Submitted by: Claudette Ford, Acting Director, Public Works

Subject: Transportation Services Fee (CF 69-01)

RECOMMENDATION

Discuss the proposal to establish a requirement that applicants for residential and commercial development projects located throughout the City mitigate a portion of the project's impacts on transportation facilities and services through payment of a Transportation Services Fee; and set a public hearing date for adoption of the Transportation Services Fee at the Council meeting on February 21, 2006.

FISCAL IMPACTS OF RECOMMENDATION

The Transportation Services Fee, as proposed, would assess development projects \$4,867 for each new PM peak hour motor vehicle trip generated. (PM peak hour motor vehicle trips is a generally accepted measure of traffic impacts used in transportation planning practice. The actual peak hour may vary by location and is determined through traffic engineering studies.) This amount represents 20% of the cost required to mitigate the impact of a PM peak hour motor vehicle trip generated by new development.

The amount of revenue generated by the fee will depend on the amount of new development within the City. Based on current growth projections, we estimate that the fee would generate approximately \$10.5 million over 20 years, or an average of approximately \$520,000 annually.

For mixed-use development projects combining housing and commercial uses, the increase in total development fee burden resulting from implementation of the TSF ranges from 19% to 51% for the example development projects shown in Figure 6 of the Nexus Study. It is expected that most new development in the City will be these types of mixed-use projects. The TSF will have a large financial impact on certain types of development projects that generate large numbers of PM peak hour trips, such as supermarkets. Because of their high trip generation rates, these projects also cause the greatest impacts on the City's transportation network and environment, and the total TSF that they are assessed is directly proportional to this impact.

CURRENT SITUATION AND ITS EFFECTS

Many California cities have enacted impact fees to mitigate the impacts of new development on city infrastructure and services. Staff is proposing a development impact fee, the Transportation

Services Fee, to specifically fund projects and programs that will mitigate new development's impact on the City's transportation facilities and services.

According to the Metropolitan Transportation Commission, between 2005 and 2025, new development in Berkeley is expected to generate 2,153 new PM peak hour motor vehicle trips per weekday within the City. This represents approximately a 6% increase in the current number of PM peak hour motor vehicle trips per weekday. This increase in motor vehicle trips will negatively impact the City's transportation system and environment.

Currently, the City assesses only two other impact fees – one to fund affordable housing and a second to fund affordable childcare. Both of these fees only apply to large commercial projects over 7,500 square feet of gross floor area. The City also charges a number of planning and permit fees for development projects, the level of which are generally based on staff time and materials costs or project valuation

BACKGROUND

Direction to develop a Transportation Services Fee comes from both the City's General Plan and the City Council. General Plan Policy T-6 Transportation Services Fee states, "Ensure that new development does not impact existing transportation services and facilities." Furthermore, the Final Environmental Impact Report (EIR) for the General Plan specifically mentions adoption of a Transportation Services Fee as a mitigation measure. Mitigation Measure TRN-2b states "The City will pursue adoption of a Transportation Impact Fee (Policy T-6) after Draft General Plan adoption." During the City Council's project priority setting initiative in the Spring of 2005, this project received a high priority rating with four votes from Council members.

Previously, the City collected a Transportation Services Fee (TSF) from approximately 1985 until 1997 under the City's Zoning Ordinance Section 23E.28.100.A. This fee was only imposed on commercial uses in certain zoning districts and only provided benefits to employees and clients in the City's commercial districts. The ordinance strictly limited those benefits to the purchase of transit or paratransit passes, coupons and tickets to be made available at a discount to employees and customers and to promote and support incentives for ridesharing. In 1997, the City Attorney concluded that the TSF could not be legally collected pending completion and adoption of a nexus study and the establishment of proper fiscal controls, pursuant to the California Mitigation Fee Act. Consequently, the TSF has not been assessed on any new development in Berkeley since 1997.

RATIONALE FOR RECOMMENDATION

In accordance with the City's General Plan, General Plan EIR, and California Government Code §66000, Transportation Division staff in conjunction with Nelson\Nygaard Consulting Associates has prepared a Transportation Services Fee Nexus Study that determines the impacts development will have on the City's transportation infrastructure over the next 20 years, the cost of mitigating those impacts through various transportation projects and programs, and the resulting fee that the City can legally assess new development projects.

The fee will fund programs and projects that will mitigate the impacts of new motor vehicle trips generated by future development in the City of Berkeley by enabling the City to invest in alternative transportation modes. Reducing automobile reliance and vehicle miles traveled are General Plan Transportation Element Objectives, as are maintaining and improving public transportation and creating a model bicycle- and pedestrian-friendly city.

Following is a brief summary of the rationale for the fee and a description of its structure. The Transportation Services Fee Final Draft Nexus Study (Attachment 2) provides further details.

Transportation Impacts – The increase in PM peak hour motor vehicle trips provides a measure of the transportation impacts of new development. Between 2005 and 2025, new development in Berkeley is expected to generate an average of 2,153 new PM peak hour motor vehicle trips per weekday within the City. This figure excludes motor vehicle trip ends on the UC Berkeley campus (which, as a State institution, is exempt from the fee), any “background” growth in motor vehicle trips, and any “pass through” motor vehicle trips of a regional nature. This increase in motor vehicle trips will negatively impact transit service, pedestrians and cyclists, will worsen traffic congestion, will increase parking demand, and will increase the costs of enforcing traffic safety laws. It will also negatively impact environmental conditions by contributing to air, water and noise pollution, visual degradation, and increased energy consumption.

Mitigation Measures – Traditionally, measures to mitigate the impacts of motor vehicle trips have focused on roadway widenings and intersection enhancements. The City of Berkeley, however, seeks to mitigate these impacts through an alternative strategy: reducing the number of motor vehicle trips through provision of effective alternatives. Consequently, the TSF will pay for projects and programs (as detailed in the nexus study expenditure plan) throughout the City of Berkeley that will facilitate and encourage the use of alternative transportation modes. These projects and programs will mitigate the overall increase in trips in two ways: (1) by reducing the number of new trips that would otherwise have resulted from new development; and (2) by “making room” for some of those new trips by reducing the number of existing trips.

The nexus study expenditure plan is designed to mitigate the growth in PM peak hour motor vehicle trips. It focuses on three main elements: 1) Citywide Transportation Demand Management (TDM) marketing and incentives programs that will encourage those who travel within, to, or from Berkeley to use alternative transportation modes. 2) Transit service and signage improvements, expansion of the EcoPass program, and improvements to the Downtown Berkeley Bike Station that will provide additional transit service and improved access to transit, making it a better alternative to the private automobile. And 3) pedestrian and bicycle facilities improvements that are designed to increase the number of people using these modes. If fully implemented, the projects and programs in the expenditure plan would be expected to eliminate 2,153 PM peak hour vehicle trips by facilitating and encouraging use of alternative transportation modes. The total cost of implementing the 20-year expenditure plan is estimated to be \$50,043,434.

Impacts not Mitigated – Localized transportation impacts generated by a development project, such as an increase in traffic at adjacent intersections and local streets, are in addition to the citywide transportation impacts mitigated by the Transportation Services Fee. Consequently, these localized impacts will continue to be mitigated through site-specific exactions tied to project-based traffic studies.

Proposed Fee Level – The following table outlines the method used to determine the maximum Transportation Services Fee (TSF). Staff recommends that the City assess new development only 20% of the maximum fee level. This reduced assessment will lessen the fee’s burden on new development yet still allow the City to collect enough revenue to implement a portion of the TSF expenditure plan. To fully implement the expenditure plan and eliminate 2,153 vehicle trips from City roadways over the next 20 years, the City would need to raise the remaining 80% of funds through grants or other sources. If the City cannot raise additional revenue, then staff will determine which projects and programs from the expenditure plan are the most reasonable and cost effective to implement given the limited funds. If only partially implemented, TSF projects and programs will only be able to mitigate a portion of the projected 2,153 new vehicle trips.

A	PM Peak hour trips generated by new development between 2005 and 2025	2,153
B	Total TSF Expenditure Plan Costs	\$50,043,434
C	20% of Total TSF Expenditure Plan Costs	\$10,008,687
D	Total Fee Administration Costs* (equivalent to 0.25 FTE annually over 20 years)	\$470,704
E	Recommended Transportation Services Fee per Average PM Peak Hour Trip [(C+D)/A]	\$4,867

Note that figures in the table have been rounded; the precise values have been used to calculate the fee amount.

** This line item refers to TSF assessment, collection and reporting costs. It is separate from the “soft costs” for implementation of specific projects in the expenditure plan.*

Basis of Fee Assessment – The City will assess the fee based on the number of PM peak hour trips generated by a new development project. Impact fees are typically quoted on a per unit of development basis such as per housing unit or per square foot. The actual transportation impacts of a development, however, tend to be proportional to the number of PM peak hour motor vehicle trips generated. This is related to, but not necessarily proportional to, the size of a development, particularly if only broad land use categories are used. Assessing the fee on a per trip basis also provides developers with a strong incentive to design their projects so as to reduce the number of PM peak hour trips generated.

Optional Fee Reduction – Council may want to consider reducing the fee to encourage the development of certain types of land uses that are deemed desirable by existing City policies. The Nexus Study provides further detail on potential reductions that could be granted.

Fee Structure – For those development projects which require preparation of a Traffic Impact Study (TIS), which is typically prepared by the project developer, PM peak hour trips will be determined by the TIS. For development projects that do not require preparation of a TIS, Traffic

Engineering staff will determine the number of PM peak hour trips generated using the same methodology as the full TIS.

The Transportation Services Fee will be levied on any new PM peak hour motor vehicle trips generated by a change in land use or an increase in square footage. The issuance of a permit for construction or reconstruction, or the approval of a zoning change or conditional use permit will trigger collection of the fee. A parcel will be considered vacant if there is no motor vehicle trip generation activity on the site when traffic counts are made. For new development on vacant parcels, the fee would be levied on all trips, rather than just the increment resulting from the change in use or amount of development.

ALTERNATIVE ACTIONS CONSIDERED

The City could choose to take no action and not collect a transportation impact fee, or the Council could adopt a different fee level from that recommended by staff.

CONTACT PERSON

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Attachments:

- 1: Transportation Services Fee Nexus Study, Final Draft
- 2: Supplementary Report to the Transportation Services Fee Nexus Study – Detailed Expenditure Plan

CITY OF BERKELEY

Transportation Services Fee

Final Draft Nexus Study

Nelson\Nygaard Consulting Associates
785 Market Street, Suite 1300
San Francisco, CA 94103

November 2005

No statement in this memorandum is meant to express a legal opinion of any kind. Any explicit or implicit interpretation of law or court precedence in this memorandum is based solely on our experience as non-legal professional practitioners using development impact fees in California. We advise consulting with an expert attorney in this field prior to making any final recommendations based on the content of this memorandum.

Introduction

The City of Berkeley’s General Plan Policy T-6 Transportation Services Fee states, “Ensure that new development does not impact existing transportation services and facilities.” In accordance with the City’s General Plan and California Government Code §66000, this study presents a recommended Citywide Transportation Services Fee (TSF) for Berkeley. The purpose of the fee is to fund programs and projects that will mitigate the impacts of new motor vehicle trips generated by future development in the City of Berkeley by enabling the City to invest in alternative transportation modes. Reducing automobile reliance and vehicle miles traveled are Transportation Element Objectives, as are maintaining and improving public transportation and creating a model bicycle- and pedestrian-friendly city.

This report recommends a fee level of \$4,867 per PM peak hour vehicle trip, which would raise approximately \$10.5 million for transportation over 20 years. This would cover 20% of the cost of the proposed expenditure plan, including bicycle and pedestrian facilities, transit operating and capital improvements, and Transportation Demand Management programs and incentives.

Transportation Impacts of New Development

Between 2005 and 2025, new development in Berkeley is expected to generate an average of 2,153 new PM peak hour motor vehicle trips per weekday within the City (see Figure 1).¹ This represents approximately a 6% increase in the current number of PM peak hour motor vehicle trips. This figure excludes:

- Motor vehicle trip ends on the UC Berkeley campus because, as a State institution, the University of California would be exempt from any transportation impact fee. According to the Draft Environmental Impact Report for the University’s Long Range Development Plan, as many as 930 new vehicle trips ends could be generated by new University-related development through 2020.² Any other government agency or institution, such as the Berkeley Unified Schools District, would also be exempt from any impact fees.
- Any “background” growth in motor vehicle trips, since the modeling methodology assumes fixed motor vehicle trip generation rates from a land use of a particular size.
- “Pass through” motor vehicle trips of a regional nature; the figure accounts only for motor vehicle trip ends within the City of Berkeley.

¹ PM peak hour vehicle trips is a generally accepted measure of traffic impacts used in transportation planning practice. PM peak hour vehicle trips are derived from average weekday trips calculated by the Metropolitan Transportation Commission (MTC). It is assumed that 9.5% of average weekday trips occur during the PM peak hour. The figures here refer to “trip ends”. In other words, a trip with an origin and destination within the City (e.g. Berkeley Bowl to City Hall) would be counted as two trip ends. A trip with either an origin *or* a destination within the City (e.g. Berkeley Bowl to an apartment in Oakland) would be counted as a single trip end. This is to ensure conformity with the Traffic Impact Reports which will be used to assess the TSF for a specific development, which consider trip ends.

² *University of California, Berkeley 2020 LRDP Draft EIR*, p.F.1-18.

Figure 1 Projected Increase in Vehicle Trips Within the City of Berkeley

	Number of PM Peak Hour Vehicle Trip Ends*
2005 Average Trip Ends per Weekday	35,106
2025 Average Trip Ends per Weekday	37,259
New Trip Ends Generated by Development Subject to TSF	2,153

*Excludes those trip ends on the UC Berkeley campus.

Source: Metropolitan Transportation Commission trip forecasts based on Association of Bay Area Governments Projections 2003 data.

Unless the City takes action to mitigate this increase in motor vehicle trips, they will impact the City’s transportation system as follows:

1. Impacts on Transit. Increased congestion from new motor vehicle trips will slow transit travel times. As a result, more resources will be required to provide the same capacity, since fewer seat miles will be available per revenue hour of service. Increased transit expenditure will therefore be needed simply to maintain existing frequencies and capacity. At the same time, the quality of service available to transit riders will be degraded by slower travel times. The scale of all these impacts is expected to be roughly proportional to the increase in vehicle trips.

2. Impacts on Pedestrians and Cyclists. New motor vehicle trips have a detrimental impact on conditions for pedestrians and cyclists. Research has found that motor vehicle volumes are one of the most important determinants of the level of service for bicyclists and pedestrians.³ Increases in motor vehicle volumes are inversely proportional to bicycle and pedestrian level of service. The degraded conditions for pedestrians and cyclists will diminish the attractiveness and use of these modes, in turn leading to further increases in motor vehicle trips and compounding their impacts.

3. Congestion Impacts. Traffic impact analyses tend to focus on congestion impacts, such as degraded Vehicle Level of Service, at intersections adjacent to the development. However, new vehicle trips generated by a development will also have citywide congestion impacts, leading to increases in vehicle travel time. Increases in motor vehicle volumes are inversely proportional to Vehicle Level of Service.

4. Other Impacts. Increases in motor vehicle traffic have a range of other negative impacts on the City of Berkeley’s environment and transportation system. These impacts are expected to be approximately proportional to the number of new motor vehicle trips. Some of those listed in the City’s General Plan include:

- Increased parking demand

³ The Bicycle Compatibility Index: A Level of Service Concept. Implementation Manual. FHWA-RD-98-095. Available at: www.hsrc.unc.edu/research/pedbike/98095/index.html. Landis, Bruce et. al. (2001), “Modeling the Roadside Walking Environment: Pedestrian Level of Service,” *Transportation Research Record No. 1773*.

- The costs of enforcing traffic safety laws
- Air pollution and greenhouse gas emissions
- Water pollution
- Noise
- Visual degradation
- Energy use

Mitigation of Identified Impacts

Traditionally, measures to mitigate the impacts of motor vehicle trips have focused on roadway widenings and intersection enhancements. The City of Berkeley, however, seeks to mitigate the impacts through an alternative strategy: reducing the number of motor vehicle trips through provision of effective alternatives. There are several reasons behind this policy decision:

- **Mitigating all impacts.** Most other potential mitigation measures address only specific, selected impacts caused by motor vehicle traffic increases. For example, a clean fuel vehicle program would mitigate air quality impacts, but not those on bicycle and pedestrian safety and comfort.
- **Mitigating impacts across the City.** Some mitigation measures may be able to address a specific impact at a particular location. For example, a transit priority signal may be able to reduce the impacts of new motor vehicle trips on transit travel time at a particular intersection. However, the impacts of motor vehicle trips tend to be extremely diffuse and felt across the entire city transportation network. This means that they are best mitigated by addressing the root cause – increased motor vehicle trips.
- **Achieving the Objectives of the City’s General Plan Transportation Element.** The City of Berkeley General Plan Transportation Element includes the following Objectives which support using alternative mode strategies to mitigate the impacts of motor vehicle trips caused by new development:
 - *Reduce automobile use and vehicle miles traveled in Berkeley, and the related impacts by providing and advocating for transportation alternatives and subsidies that facilitate voluntary decisions to drive less.*
 - *Create a model bicycle and pedestrian-friendly city where bicycling and walking are safe, attractive, easy and convenient forms of transportation and recreation for people of all ages and abilities.*
- **Acting as a model, innovative government.** A number of California cities have included significant funding for projects and programs aimed at trip reduction in their traffic impact fees. This innovative approach mitigates the full range of impacts of new vehicle trips, rather than just the impacts on the roadway system, and helps achieve other transportation policy objectives aimed at reducing motor vehicle use and encouraging walking, bicycling, and transit use. Recently, San Francisco and Palo Alto have dedicated 100% and 67% of fee revenue, respectively, toward alternative transportation modes and Transportation Demand Management strategies.

The TSF Nexus Study Report therefore identifies and costs the measures necessary to mitigate the impacts of motor vehicle trips generated by new development. New motor vehicle trips will be mitigated by investing in alternative transportation modes to encourage mode shift away from the private automobile. In other words, the City seeks to mitigate new motor vehicle trips generated by new development through reducing an equivalent number of motor vehicle trips elsewhere in the City.

Mitigation Measures

The projects and programs in the TSF expenditure plan are drawn from the City of Berkeley General Plan, the Bicycle Plan, the University Avenue Strategic Plan, and the San Pablo Public Improvement Plan. They include the following elements which have a demonstrated impact on reducing motor vehicle trips:

- **Citywide Transportation Demand Management (TDM) marketing and incentives programs** – TDM programs use marketing and incentives to encourage those who travel within, to, or from Berkeley to use alternative transportation modes. The costs for these programs include materials, program administration, and incentives.
- **Transit service and signage improvements, expansion of the EcoPass program, and improvements to the Downtown Berkeley Bike Station** – Providing additional transit service and improved access to transit services (in the form of passes, the Bike Station and better signage) help make transit a viable alternative to the private automobile and consequently replace new motor vehicle trips with transit trips. Projects include additional revenue hours of transit service, including shuttles; real-time transit information, wayfinding, and schedule signage; an expanded EcoPass program for all Berkeley employers; and expansion of the Downtown Berkeley Bike Station.
- **Pedestrian and bicycle facilities improvements** – The provision of adequate and safe facilities for bicyclists and pedestrians has had a demonstrated positive impact on the number of people who choose to use these modes.

The expenditure plan's mitigation program is designed to be geographically equitable. Transit, bicycle, and pedestrian projects are geographically balanced and spread throughout the city. Additionally, fee revenue is also devoted to citywide programs that benefit all parts of the city. Figure 2 summarizes the expenditure plan.

Figure 2 TSF Expenditure Plan Summary

Project Description	Supporting Policy	Total Cost Over 20 Years
Citywide TDM Marketing and Incentives Programs		
Car sharing marketing and outreach	General Plan Policy T-10	\$700,000
Car sharing membership incentives	General Plan Policy T-10	\$800,000
Car sharing parking location expenses (parking costs reimbursed to City)	General Plan Policy T-10	\$360,000
TDM marketing and outreach, including carpool/vanpool outreach and incentives	General Plan Policy T-11, T-13, T-14, T-2, T-45, EM-17	\$1,500,000
One-Less-Car Program (direct incentives and assistance to reduce vehicle use)	General Plan Policy T-10, T-12	\$2,400,000
Safe Routes to Schools Coordinator	General Plan Policy T-13	\$1,003,200
Total for Citywide TDM Programs		\$6,763,200
Transit Improvements		
Pole-mounted bus schedules and other wayfinding signage	General Plan Policy T-2.A.4; T-2.C	\$65,000
Real-time bus arrival signs at bus stops on trunk line corridors	General Plan Policy T-2.A.4; T-2.C	\$650,000
<i>Soft costs (30% of capital projects)*</i>		\$207,000
Shuttle services	General Plan Policy T-2.D; T-10.11	\$6,120,000
Citywide TransLink and EcoPass incentives for employers	General Plan Policy T-3; T-10.1	\$17,710,504
Downtown Berkeley BART Bike Station Expansion	General Plan Policy T-43.A	\$360,000
Downtown Berkeley BART Bike Station Operations	General Plan Policy T-43.A	\$800,000
Total for Transit Improvements		\$25,912,504
Pedestrian Facilities Improvements		
Pedestrian Plan Implementation - Specific projects and locations will be determined in the Council-approved Pedestrian Plan.	Pedestrian Plan (to be adopted); General Plan Policy T-48	\$6,299,992
Bulb-outs on University Ave	University Avenue Strategic Plan (November 1996), p. 60	\$499,800
Bulb-outs on San Pablo side streets	San Pablo Ave. Public Improvement Plan (October 2003), p. 3-19	\$1,560,000
<i>Soft costs (30% of capital projects)*</i>		\$2,507,938
Total for Pedestrian Facilities Improvements		\$10,867,730

Project Description	Supporting Policy	Total Cost Over 20 Years
Bicycle Facilities Improvements		
Bicycle Plan Implementation - implementation of projects adopted as part of the Bicycle Plan.	Bike Plan, General Plan Policy T-42	\$3,340,000
Bicycle signals at intersections	Bike Plan, General Plan Policy T-42	\$1,000,000
Bicycle-actuated signals at intersections (retrofit of existing signals)	Bike Plan, General Plan Policy T-42	\$300,000
Traffic circles on Bicycle Boulevards	Bike Plan, General Plan Policy T-42	\$360,000
Soft costs (30% of capital projects) *		\$1,500,000
Total for Bicycle Facilities Improvements		\$6,500,000
Total Cost		\$50,043,434

*Soft costs include feasibility, design and engineering; construction management; agency management/administration; legal and insurance costs, etc.

Trip Reduction Impacts of the TSF Expenditure Plan

All elements of the expenditure plan are explicitly intended to reduce motor vehicle trips by making alternative transportation modes more attractive and providing the information, education, and incentives necessary to encourage people to use them. As shown in Figure 3, these programs will reduce PM peak hour motor vehicle trips by 2,152 vehicles and will mitigate nearly 100% of the motor vehicle trips generated by new development subject to the TSF. For detailed calculations of the trip reduction impacts of the TSF expenditure plan, please see Appendix A.

Note that, as discussed above, the expenditure plan is not designed to reduce the specific motor vehicle trips generated by a new development. Instead, it aims to mitigate their impact by reducing an equivalent number of motor vehicle trips elsewhere in the City of Berkeley.

Figure 3 Expected Trip Reduction Impacts of the TSF Expenditure Plan

Expenditure Plan Item	Average Weekday PM Peak Hour Trips Reduced
Citywide Transportation Demand Management Marketing and Incentives Programs	19
Transit Operations	83
Transit Signage	37
Berkeley Bike Station Expansion	20
EcoPass for Berkeley Employers	575
Bicycle Improvements	871
Pedestrian Improvements	547
Total Trips Reduced by TSF Expenditure Plan	2,152
<i>Expected New Motor Vehicle Trips from Development Subject to the TSF</i>	2,153
% of New Trips Mitigated by TSF Expenditure Plan	100%

Impacts Not Mitigated

The proposed expenditure plan is designed to mitigate the citywide impacts of increased motor vehicle trips on the major traffic routes within the City of Berkeley. In addition to these citywide impacts, development projects often generate an increase in traffic at intersections immediately surrounding the projects and on the local streets feeding into the projects. These localized impacts are in addition to the impacts mitigated by the proposed expenditure plan, and will continue to be mitigated through site-specific exactions tied to project-based traffic studies.

It should be emphasized that the TSF and mitigations for localized roadway impacts address very different impacts. The TSF mitigates the diffuse, citywide impacts of motor vehicle travel, such as impacts on transit, pedestrians and cyclists, congestion, and air pollution. Even if these are fully mitigated, local impacts may remain due to the concentration of new motor vehicle trips at particular intersections, which will be mitigated based on the analysis in the Traffic Impact Report.

Recommended Fee Level

The basic impact fee formula is the cost of impact mitigation divided by the amount of impact, yielding a cost per unit of impact. The general impact fee formula is shown below:

$$Impact\ Fee\ Rate = \frac{Cost\ of\ Mitigations/Projects\ to\ Accommodate\ Development}{Aggregate\ Unit\ Impacts\ Generated\ by\ Development}$$

For the TSF, the unit of impact is average weekday PM peak hour motor vehicle trips.⁴ The cost of impact mitigation is the share of the total cost of the TSF expenditure plan.

⁴ Impact fees are typically quoted on a per unit of development basis such as per housing unit or per square foot. The actual transportation impacts of a development, however, tend to be proportional to the

As discussed previously, MTC projects that new development in Berkeley between 2005 and 2025 will generate 2,153 new average weekday PM peak hour motor vehicle trips. The total cost of mitigating these trips through projects and programs that facilitate and promote alternative mode use totals \$50,043,434 (including program administration and soft costs).

The cost of mitigating each new PM peak hour vehicle trip is \$23,244 (including program administration and soft costs). To ensure that the proposed fee does not place an excessive financial burden on new development, the City will assess new development only 20% of the total required to fully mitigate the impacts of motor vehicle trips generated by new development.⁵ This equates to a fee level of \$4,867 per PM peak hour motor vehicle trip. The fee calculation is shown in Figure 4.

Figure 4 Proposed Fee Level

A	PM Peak hour trips generated by new development between 2005 and 2025	2,153
B	Total TSF Expenditure Plan Costs	\$50,043,434
C	Percent of Expenditure Plan Funded through TSF	20%
D	Total Revenue Raised Through TSF (B*C)	\$10,008,687
E	Administration* (0.25 FTE annually)	\$470,704
F	Fee per Average Weekday PM Peak Hour Motor Vehicle Trip [(D+E)/A]	\$4,867

Note that figures in the table have been rounded; the precise values have been used to calculate the fee amount.

** This line item refers to TSF assessment, collection and reporting costs. It is separate from the “soft costs” for implementation of specific projects in the expenditure plan.*

Optional Fee Reductions for Preferred Land Uses

If assessing new development only 20% of the cost of the expenditure plan is too burdensome, then the fee may be reduced further to encourage the development of certain types of land uses that are deemed desirable by existing City policies. One option may be to assess such desirable land uses only 35% of the fee, which would effectively charge such types of development for only 7% of the expenditure plan. This would reduce the fee to \$1,704 per PM peak hour vehicle trip. It should be noted that further reducing the fee in this manner will significantly reduce the total amount of fee revenue collected and will enable the City to implement only a small portion of the TSF expenditure plan, thereby mitigating only a fraction of the projected new motor vehicle trips. Figure 5 shows the land use categories that may be assessed a reduced fee, the percent of the fee assessed, and the city policies which support a fee reduction.

number of PM peak hour motor vehicle trips generated. This is related to, but not necessarily proportional to, the size of a development, particularly if only broad land use categories are used.

⁵ Other sources of funding (e.g. external grants for which the TSF can serve as match funding) may allow the full expenditure plan to be implemented. Every five years, the City is required to report on expected sources of funding for incomplete improvements in the expenditure plan. However, there is no requirement in the Mitigation Fee Act for the City to refund fees should the full expenditure plan not be implemented, provided that fee revenue has been properly spent.

Figure 5 Optional Fee Reductions for Preferred Land Uses

Land Use	Percent of Fee Assessed	City Policies Supporting Fee Reductions
Mid- and High-Rise Apartments (reduction applies only to those projects that do not receive a density bonus)	35%	<p>Southside Plan Policy LU-A1: Provide incentives to encourage development of a variety of different housing types that are affordable to students, and to employees of Southside businesses and the University.</p> <p>Southside Plan Policy LU-F2: A variety of building types are recommended, including houses, condominiums, townhouses, apartment buildings, group living facilities and loft-style housing that would serve a variety of populations including students, families, UC staff and faculty, and others who desire to live in this vibrant, easily-accessible neighborhood.</p> <p>University Avenue Strategic Plan Policy 14: Encourage a diversity of new housing opportunities in the University Avenue Study Area, in terms of tenure, income, and unit type. Provide incentives for developers to build new urban housing along University Avenue.</p>
Affordable Housing*	35%	<p>General Plan Policy LU-18: Maximize the supply of affordable housing in the Downtown.</p> <p>General Plan Policy LU-25: Encourage development of affordable housing in the Downtown Plan area, the Southside Plan area and other transit-oriented locations.</p> <p>General Plan Policy H-1: Increase the number of housing units affordable to low and moderate income Berkeley residents.</p>
Second Housing Unit	35%	<p>General Plan Policy H-17: Encourage or facilitate addition of secondary or small “in-law” units on properties with single-family homes in conformance with existing zoning regulations, but not in areas that are particularly vulnerable to natural disaster.</p>
Childcare Facilities	35%	<p>General Plan Policy LU-13: Encourage a range of childcare facilities, including family childcare homes, public and private childcare centers, and recreation centers.</p>
Supermarkets	35%	<p>General Plan Policy LU-13: Ensure that neighborhoods are well served by commercial districts and community services and facilities, such as parks, schools and child care facilities and religious institutions.</p> <p>West Berkeley Plan, Economic Development IV. C. Strategies for Improving the Level of Neighborhood-Serving Retail: Identified a need for supermarkets in the West Berkeley area.</p>
Places of Worship	35%	<p>General Plan Policy LU-13: Ensure that neighborhoods are well served by commercial districts and community services and facilities, such as parks, schools and child care facilities and religious institutions.</p>
Group Housing for Students	35%	<p>General Plan Policy H-34: Support and encourage construction of group housing near the University for student housing.</p>

*Fee reduction would only apply to long-term, below-market rate housing for low-income households where at least 50% of the units are affordable to households earning 60% or less of the Area Median Income.

Fee Burden

To illustrate the total fee to which new development would be subject, Figure 6 provides specific examples from recent development projects in the City of Berkeley. The trip generation rates for these example projects incorporate reductions to the ITE trip generation rates based on the projects' proximity to major transit facilities. Developers could further reduce their fee by implementing Transportation Demand Management programs, for example, which would result in calculation of a lower motor vehicle trip generation rate.

Figure 6 also shows the estimated percent increase in total development fees resulting from the TSF. (It is important to note that the existing development fees listed in Figure 6 are a rough estimate.) For mixed-use development projects combining housing and commercial uses, the increase in total fee burden ranges from 28% to 74% for the example development projects shown in Figure 6. Land uses that generate a large number of PM peak hour vehicle trips, such as supermarkets, pay the highest total TSF amount and have the greatest percent increase in total development fees. For example, implementation of the TSF would increase development fees by two to five and a half times their current level for the supermarket project included in Figure 6 (depending on whether or not a reduction is applied for a preferred land use).

Figure 7 shows a comparison to transportation impact fees in other Bay Area jurisdictions. As can be seen, the comparison varies depending on the intensity of the land use in generating trips. Since most other jurisdictions levy impact fees per square foot, rather than per motor vehicle trip, Berkeley's proposed fee would be much higher for uses that generate many motor vehicle trips per square foot (e.g. supermarkets and restaurants).

From the view of development feasibility, however, the overall fee burden is more important than the level of any transportation fee. Many other Bay Area jurisdictions levy fees for community centers, parks, libraries, affordable housing and other purposes. In Berkeley, no impact fees are levied in most parts of the City. The exceptions are:

- **Affordable Housing.** Applicants have the option of creating additional residential units on-site or paying an in-lieu fee. The fee is \$4.00 per square foot of gross floor area devoted to office and/or retail use and \$2.00 for gross floor area devoted to industrial use. The fee only applies to projects over 7,500 square feet gross floor area.
- **Affordable Childcare.** \$1.00 per square foot of gross floor area devoted to office/retail and \$0.50 for gross floor area devoted to industrial. The fee only applies to projects over 7,500 square feet gross floor area.

These fees apply only to projects in non-residential and R-4 zones. Projects in the South Berkeley Title IX Target Area (roughly the area south and west of the Ashby BART station) are exempt. The total impact fee burdens in Berkeley and other jurisdictions are compared in Figure 8.

Figure 6 Transportation Services Fee: Example Development Projects

Project Name	Square Feet/ # of Units	PM Peak Hour Trips ¹	Transportation Services Fee (\$4,867/trip)	Optional Reduced TSF Fee ²	Estimate of Existing Development Fees ³	% Increase in Fees from TSF (\$4,867/trip)	% Increase in Fees from Reduced TSF
Mixed Use, Downtown Berkeley							
Apartments, Affordable	96 units	12	\$58,408	\$20,443			
General Office	34,400 sq. ft.	30	\$146,020				
Specialty Retail	8,700 sq. ft.	14	\$68,143				
High Turnover Restaurant	3,400 sq.ft.	12	\$58,408				
Project Total		68	\$330,979	\$293,014	\$909,499	36%	32%
Mixed Use, Downtown Berkeley							
Apartments	186 units	86	\$418,592	\$146,507			
Commercial	4,100 sq. ft.	9	\$43,806				
Project Total		95	\$462,398	\$190,313	\$901,229	51%	21%
Mixed Use, University Avenue							
Senior Adult Housing	79 units	9	\$43,806	\$15,332			
Single Tenant Office	6,200 sq. ft.	11	\$53,541				
Project Total		20	\$97,347	\$68,873	\$367,799	26%	19%
West Berkeley Supermarket Complex							
Supermarket	54,735 sq. ft.	366	\$1,781,448	\$623,507			
Supporting Office	4,120 sq. ft.	14	\$68,143				
Warehouse	28,805 sq. ft.	6	\$29,204				
Project Total		386	\$1,878,795	\$720,854	\$756,794	248%	95%

Note: Values in the table are based on the actual TSF amount of \$4,867.34 per trip.

¹Trip generation data is taken from traffic impact studies for recent development proposals in the City of Berkeley.

²Certain land uses are only assessed 35% of the proposed Transportation Services Fee (i.e., \$1,703.57 per trip). The total optional reduced TSF fee for an entire development project is the sum of the fee reductions for eligible land uses and the full fee for ineligible land uses included within the project.

³These fee amounts are a rough estimate. Actual project fees will not be known until projects are fully completed. Fees include planning and building fees for all projects, sewer connection (buy-in) fee, and affordable housing and affordable childcare impact fees for commercial uses over 7,500 sq. ft. gross floor area. Total planning fees are actual project planning fees paid as of October 2005. Planning fees are based primarily on staff time and materials costs. Building permit fees include the Permit Fee, Plan Check Fee, Filing Fee, Title 24 Energy Fee, Title 24 Disabled Access Fee, Life and Safety Fee, SMIP Fee, Technology Fee, and Sustained Development Fee. Building fees were estimated by first estimating project valuation and then using the City's online fee estimator (<http://www.ci.berkeley.ca.us/psc/Estimator.asp>)

Figure 7 Transportation Impact Fees – Comparison to Other Bay Area Jurisdictions

	Single Family Detached House	Multi-Family	General Office (per 1,000 s.f.)	Supermarket (per 1,000 s.f.)	Quality Restaurant (per 1,000 s.f.)
San Francisco	-	-	\$10,000	\$10,000	\$10,000
Oakland	-	-	-	-	-
Emeryville	\$819	\$503	\$1,968	\$3,523	\$5,224
San Leandro	\$939	\$939	\$5,438	\$7,665	N/A
Fremont	\$2,220	\$2,220	\$6,360	\$5,000	N/A
Morgan Hill	\$3,027	2119	N/A	N/A	N/A
Livermore	\$4,258	\$2,555	\$11,498	\$10,859	\$10,859
Walnut Creek	\$1,528	\$764	\$4,550	\$3,420	\$3,420
Vacaville	\$6,876	\$4,262	\$2,823	\$3,718	\$3,718
Vallejo	\$3,044	\$1,711	\$1,480	\$1,480	\$1,480
Danville	\$2,000	\$1,400	\$4,500	\$4,500	\$4,500
San Ramon	\$4,161	\$2,788	\$6,200	\$50,018	\$37,534
Dublin	\$7,352	N/A	\$1,791	\$14,448	\$10,842
San Mateo	\$2,890	\$2,189	\$3,750	\$4,250	N/A
Menlo Park	\$708	\$708	\$1,600	\$1,600	N/A
Redwood City	\$1,502	\$1,021	\$3,450	\$4,970	N/A
Palo Alto	-	-	-	-	-
Mountain View	-	-	-	-	-
Sunnyvale	\$1,805	1108	\$2,663	\$3,342	N/A
San Jose	-	-	-	-	-
Milpitas	\$600	\$500	N/A	N/A	N/A
Gilroy	\$9,108	\$7,383	N/A	N/A	N/A
Berkeley	\$4,965	\$1,947 (\$682*)	\$7,253	\$58,514 (\$20,480*)	\$43,910
Highest Fee	\$7,352	\$7,383	\$11,498	\$58,514	\$43,910
Median Fee	\$2,220	\$1,556	\$3,750	\$4,500	\$5,224
Lowest Fee	\$708	\$500	\$1,480	\$1,480	\$1,480

*Optional assessment of 35% of the fee for preferred land uses.

Figure 8 Total Impact Fee Burden Comparison

	Single-Family House	Multi-Family Unit	Office (per 1,000 s.f.)	Retail (per 1,000 s.f.)
San Francisco	-	\$11,000	\$20,727	\$18,138
Oakland	\$1,265	\$556	\$3,037	\$703
Emeryville	\$7,239	\$2,643	\$5,368	\$6,923
Fremont	\$23,613	\$19,012	\$7,335	\$6,372
San Leandro	\$12,144	\$7,964	\$5,806	\$8,218
Gilroy	\$28,750	\$24,022	-	-
Milpitas	\$29,625	\$19,184	-	-
Morgan Hill	\$11,211	\$8,419	\$5,748	\$5,748
Mountain View	\$16,200	\$13,800	-	-
San Jose	\$12,737	\$10,639	-	-
Sunnyvale	\$10,041	\$6,499	\$2,663	\$3,342
Redwood City	\$7,922	\$2,885	\$3,793	\$5,318
Daly City	\$15,420	\$4,472	\$2,840	\$2,840
Menlo Park	\$33,128	\$16,380	\$1,957	\$1,990
Palo Alto	\$6,720	\$9,128	\$15,634	\$15,664
San Mateo	\$10,365	\$4,425	\$5,090	\$5,590
Berkeley	\$4,965	\$1,947 (\$682*)	\$12,253	\$32,446
Highest Fee	\$33,128	\$24,022	\$20,727	\$18,138
Median Fee	\$12,144	\$8,773	\$5,229	\$5,669
Lowest Fee	\$1,265	\$556	\$1,957	\$703

Note: The fees listed above include other development impact fees for parks, libraries, housing, and transportation, but exclude all sewer/water capacity and hook-up fees and all other building permit and planning fees. Berkeley fees for office and retail projects include impact fees for affordable housing and childcare.

* Optional assessment of 35% of the fee for preferred land uses.

Sources: South Bay Area Cost of Development Survey 2004-2005 (Home Builders Association)
 Redwood City Development Fee Study January 2005
 Master Fee Schedules, Planning Fee Schedules and Building Fee Schedules obtained from City websites

Fee Structure

TSF fees will be levied on a per-trip basis based on average weekday PM peak hour motor vehicle trips, rather than a per unit or per square foot basis, for any development that has completed a Traffic Impact Study (TIS). For development projects that do not require preparation of a TIS, Traffic Engineering staff will determine the number of PM peak hour trips generated using the same methodology as the full TIS.

Future Fee Adjustments

The City will adjust fee levels annually in accordance with the Construction Cost Index. The Construction Cost Index, published by Engineering News Record, provides a better guide than the Consumer Price Index for increases in the cost of transportation projects. This automatic adjustment does not preclude the City Council from revisiting the fee level if the Construction Cost index does not accurately reflect future cost changes in projects in the TSF expenditure plan. This is particularly important since several projects are not construction projects.

Changes of Use and Vacant Parcels

The impact fee will be levied on any new PM peak hour motor vehicle trips generated by a change in land use or an increase in square footage. The issuance of a permit for construction or reconstruction, or the approval of a zoning change or conditional use permit will trigger collection of the fee.

A change of use that reduces motor vehicle trips will not entitle the developer or tenant to a partial refund. There is no legal requirement or precedence for California municipalities to return any fees properly collected. In addition, such refunds would assume that the transportation improvements implemented could be removed and the investment recouped, which would obviously be impracticable.

For the purposes of collecting the TSF, a parcel will be considered vacant if there is no motor vehicle trip generation activity on the site when traffic counts are made. This is consistent with the City's Draft Traffic Impact Report Guidelines which do not allow any trip generation credits (i.e., discounting the trips generated from the previous use) if there is no trip generation activity on site when traffic counts are made. The fee would then be levied on all trips, rather than just the increment resulting from the change in use or amount of development.⁶

⁶ Note that the TSF does not mitigate the impacts of a project indefinitely. It does not cover the replacement costs of capital projects, and it only funds operating costs for a 20-year period. It is therefore reasonable to charge vacant parcels the full fee amount, even if a previous use on the site has paid some form of transportation impact fee.

Appendix A Methodology for Calculating the Trip Reduction Impacts of the TSF Expenditure Plan

The primary purpose of these calculations is to ensure that the Transportation Services Fee does not require developers to “overmitigate” their impact, i.e., pay for measures to reduce more vehicle trips than are generated by new development. For this reason, the assumptions used are conservative ones that show a greater trip reduction impact than is likely to be the case. Overestimating likely trip reduction impacts in this manner ensures that developments are not “overmitigating” their impacts.

The following figure summarizes the trip reductions estimated per unit of expenditure. Capital and operating expenditures are treated separately at this point.

Row	Project	Source/Calculation	
1. Citywide Transportation Demand Management			
A	Cost Per Vehicle Trip Reduced	\$6.80	Cost per trip for the Way to Go Seattle One-Less-Car Program (Source: Way to Go, Seattle! One-Less-Car Demonstration Study Final Report, October 2003)
B	Cost per PM Peak Hour Vehicle Trip Reduced	\$71.58	= A / 9.5% ⁷
C	Total Annual Cost	\$338,160	TSF Expenditure Plan
D	Number of PM Peak Hour Trips Reduced	19	= C / B / 255 (assumes 255 non-holiday weekdays per year)
2. Transit Operations			
C	Daily Revenue Hours for West Berkeley Shuttle	5.5	2.75 hours in AM and 2.75 hours in PM (Source: West Berkeley Shuttle web site, www.westberkeleyshuttle.com/id7.html)
D	Average boardings per revenue hour	25	(Source: John Atkinson, West Berkeley TMA)
E	Vehicle trips reduced per revenue hour	25	= D Assumes 1:1 reduction. This is the likely maximum (conservative) assumption.
F	New revenue hours per weekday	10	TSF Expenditure Plan
G	Vehicle trips reduced per weekday	250	= F * E
H	Number of PM Peak Hour Trips Reduced	83	= G / 3 (A factor of 33% is used, rather than the diurnal factor of 9.5%, since the conversion is from commute trips into PM peak hour trips. This essentially assumes a 3-hour afternoon peak period. This also assumes that approximately one-third of new revenue service hours will be provided during the PM peak hour.)

⁷ According to MTC, on a regional basis, 9.5 percent of the region's weekday daily vehicle trips start during 5:00 PM to 6:00 PM (this is the diurnal factor). (Source: 2000 MTC Travel Survey)

Row	Project	Source/Calculation	
3. Bicycle Improvements			
M	Potential Future Bike Commute Mode Split	10.0%	(Source: 1999 Berkeley Bicycle Plan, p. 1-3)
N	Existing Bike Mode Split	4.9%	(Sources: 1999 Berkeley Bicycle Plan, p. 1-3 and 1990 U.S. Census)
O	Potential Increase in Bike Mode Split	5.1%	= N – M Assumed to be achievable with full implementation of Bicycle Transportation Plan.
P	Number of Daily Commute Trips (Roundtrip)	51,255	(Source: 1990 U.S. Census. 1990 data used for consistency with Bicycle Plan)
Q	Number of Daily New Bike Commute Trips	2,614	= O * P
R	Number of Vehicle Commute Trips Reduced	2,614	= Q Assumes 1:1 reduction. This is the likely maximum (conservative) assumption, given that many cyclists will be making new trips or shifting from walking or other modes.
S	Number of PM Peak Hour Trips Reduced with Full Bike Plan Implementation	871	= R / 3. (A factor of 33% is used, rather than the diurnal factor of 9.5%, since the conversion is from commute trips into PM peak hour trips. This essentially assumes a 3-hour afternoon peak period.)
3a. Bike Station			
T	Bike Station: Trips Reduced per Day	210	(Source: TFCA funding application spreadsheet)
U	PM Peak Hour Trips Reduced	20	= T * 9.95% (diurnal factor)
4. Pedestrian Improvements			
V	Existing Pedestrian Mode Split	14.9%	2000 U.S. Census Journey to Work
W	Potential Increase in Pedestrian Mode Split through Full Pedestrian Plan Implementation	3%	A 3% increase is a reasonable assumption. For example, the pedestrian mode split in Cambridge, MA is 24% (2000 U.S. Census).
X	Number of Daily Commute Trips (Roundtrip)	54,674	2000 U.S. Census
Y	Number of Daily New Pedestrian Commute Trips	1,640	= W * X
Z	Number of Vehicle Commute Trips Reduced	1,640	= Y Assumes 1:1 reduction. This is the likely maximum (conservative) assumption, given that many cyclists will be making new trips or shifting from walking or other modes.
AA	Number of PM Peak Hour Trips Reduced with Full Pedestrian Plan Implementation	547	= Z / 3. (A factor of 33% is used, rather than the diurnal factor of 9.5%, since the conversion is from commute trips into PM peak hour trips. This essentially assumes a 3-hour afternoon peak period.)

Row	Project	Source/Calculation	
4. EcoPass			
AB	Total Jobs in Berkeley (less UCB and City of Berkeley employment)	57,466	Source: ABAG Projections 2003
AC	Expected percentage point increase in transit use resulting from providing employees in the City of Berkeley (excluding UCB and City of Berkeley) with EcoPasses	3%	Based on experience with City of Berkeley EcoPass program (approximately 30% utilization rate and 9% mode shift from driving alone to bus transit use)
AD	Vehicle Commute Trips Reduced	1,724	= AB * AC
AE	Number of PM Peak Hour Trips Reduced	575	= AD / 3 (A factor of 33% is used, rather than the diurnal factor of 9.5%, since the conversion is from commute trips into PM peak hour trips. This essentially assumes a 3-hour afternoon peak period.)
5. Transit Signage			
AF	Weekday Boardings in Berkeley on Trunk Lines	7,817	AC Transit ridership data for 43 and 51. (Routes 40 and 40L are not considered because they have few stops within Berkeley.)
AG	Expected % increase in ridership resulting from real-time signage on the 43 and 51 bus routes	5%	Infopolis data from Europe ⁸
AH	Expected new riders	391	= AF * AG
AI	Vehicle trips reduced per weekday	391	= AH Assumes 1:1 reduction. This is the likely maximum (conservative) assumption.
AK	Vehicle trips reduced in PM peak hour	37	= AI * 9.5% (diurnal factor)

Summary Trip Reduction Table

Project/Program	PM Peak Hour Vehicle Trips Reduced
Citywide Transportation Demand Management	19
Transit Operations	83
Bicycle Improvements	891
Pedestrian Improvements	547
EcoPass for Berkeley Employers	575
Transit Signage	37
TOTAL	2,152

⁸ There is little information on the ridership impacts of real-time signage and other wayfinding and information investments in North America, usually because information improvements are usually implemented in concert with frequency and other enhancements. In Europe, however, real-time information has been shown to yield a 5% increase (Infopolis – see <http://www.ul.ie/~infopolis/existing/index.html>), and this figure was recently used to calculate the impact of real-time information on Muni ridership.

**Attachment 2:
Supplementary Report to the Transportation Services Fee Nexus Study
Detailed Expenditure Plan**

This is a detailed project list, supplementing the summary expenditure plan presented in the main body of the Nexus Study.

Citywide Transportation Demand Management (TDM) Marketing and Incentives Programs

Plan Reference: General Plan Policies T-2, T-10, T-11, T-12, T-13, T-14, and EM-17

Carsharing marketing and outreach – Research has shown that those who participate in carsharing programs reduce the number of motor vehicle trips they make. Carsharing enables households and individuals to reduce the number of motor vehicles they own and increases the likelihood that they will use alternative modes, such as walking, biking, or transit, for shorter-distance trips. Carsharing is able to achieve these results because participants pay for their car use on a per-trip basis, rather than with a large, up-front payment as is typically the case when someone purchases or leases a car. Consequently, it often is more cost-effective to use an alternative transportation mode for many trips.

This program would pay for local advertisements and other marketing materials designed to promote participation in carsharing organizations among both the residential and business community. It also includes associated administrative costs.

Annual program cost: \$35,000

Carsharing membership incentives – To further encourage business and resident participation in carsharing, the City will offer membership incentives in the form of fee waivers, discounts, and membership subsidies for low-income households.

Annual program cost: \$40,000

Carsharing parking location expenses – This will provide carsharing parking spaces in City facilities, or private lots or garages, as needed.

Annual program cost: \$18,000

Transportation Demand Management (TDM) marketing and outreach – Education, marketing, and incentives have proven effective in convincing people to change their behavior. The goal of TDM marketing and outreach is to educate people about the negative impacts of driving alone and the positive benefits of alternative transportation modes so that they use alternative modes (ridesharing, cycling, walking, and transit) for a greater number of their trips, particularly work commute trips. This program includes printed materials and staff attendance and organization of promotional events such as Try Transit Week, Bike to Work Day, Car-Free Day, Earth Day, the Solano Stroll, the Spice of Life Festival, the How Berkeley Can You Be Festival and other local events. Costs include 0.25 FTE Associate Planner and all materials costs.

Annual program cost: \$75,000

One-Less-Car Program – This program is based on the successful One-Less-Car demonstration study conducted by the City of Seattle between 2000 and 2002. The study offered households

information and financial incentives to reduce their car use and try other means of transportation for all trips. Participating households agreed to stop using one of their cars for six to nine weeks. In exchange, they received a weekly stipend to compensate them for participating in the study and to simulate the savings they would have received if they really did not own the car they stopped using during the study period. During the study, participants significantly reduced their single-occupant vehicle use and increased their use of alternative transportation modes. Program costs for the Berkeley One-Less-Car program include all materials and administrative costs and are based on the program costs for the City of Seattle program.

Annual program cost: \$120,000

Safe Routes to Schools Coordinator – Safe Routes to Schools is a popular program designed to decrease traffic and pollution and increase the health of children and the community. The program promotes walking and biking to school through education and incentives that show how much fun it can be. The program also addresses the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and exploring ways to create safer streets. Safe Routes to Schools programs in Marin County have demonstrated as much as a 15% reduction in school-related vehicle trips. Program costs include 0.5 FTE Associate Planner who will be responsible for implementing and coordinating Safe Routes programs at Berkeley schools.

Annual program cost: \$50,160

Transit Improvements

Plan Reference: General Plan Policies T-2, T-3, T-10, T-43

Pole-mounted, rotating bus schedules and other wayfinding signage – Studies have shown that improvements that make transit service easier to use, such as schedules and wayfinding signage, attract “choice” riders (those who have a choice between driving and riding transit) and consequently reduce vehicle trips. Such signage also provides additional benefits to regular transit users and makes transit service more accessible to riders with disabilities, since rotating signs include information in Braille. Costs are estimated to be \$400 per sign for 100 signs. Additional costs for signage design and installation management and administration total \$37,000.

Total project cost: \$77,000

Real-time bus arrival signs at bus stops on trunk line corridors – There are two time components to a transit trip – waiting for the bus or train to arrive and time spent traveling to the final destination. Studies have found that passengers are particularly sensitive to time spent waiting. While real-time signage does not improve the rate of on-time arrivals and departures, it does enable passengers to know exactly when their bus or train will arrive, allowing them to grab a cup of coffee or run other errands instead of just waiting at the bus stop. Real-time signage thus reduces the perception that time spent waiting for a bus is wasted and consequently makes transit a more attractive mode choice. Costs are estimated to be \$10,000 per sign for 65 signs and include electrification and hardware costs. Additional costs for installation management and administration total \$195,000.

Total project cost: \$845,000

Shuttle services – Improving the frequency of transit service in heavily traveled corridors has reduced the number of vehicle trips in such corridors. Studies of AC Transit’s San Pablo Rapid service found that 38% of new riders previously drove. Shuttle services would be provided during peak travel times to fill gaps in existing transit service or to improve frequencies in high-volume travel corridors. Services could be purchased from AC Transit or from another operator. Costs are assumed to be \$120 per revenue hour (AC Transit’s average annual cost per revenue hour in 2003) for ten revenue hours of service per weekday. Annual costs are based on 255 weekdays of service per year.

Total annual project cost - \$306,000

Citywide TransLink and EcoPass incentives for employers – EcoPass programs, which provide an unlimited use transit pass to a particular population, have had a demonstrated impact on reducing vehicle trips. The City of Berkeley’s employee EcoPass program has helped decrease employees’ drive-alone rate to 35% (from 47%) and increased the percentage of bus riders to 14% (from 6%). This program would either cover the full cost or supplement the cost of purchasing EcoPasses for employees working within the City. Once the TransLink universal fare card program is fully implemented, EcoPasses will be provided using this fare instrument. Cost estimates for the program are as follows:

A	Annual Cost per Pass	\$15	This amount would be provided by the City and would pay for a portion of the total EcoPass costs. Participating employers would need to pay any remaining costs. Future negotiations with AC transit would determine the total annual cost per EcoPass.
B	Number of Passes to be Purchased	57,466	The number of jobs in Berkeley in 2005, less UC Berkeley staff and faculty and City of Berkeley EcoPass-eligible staff. UC and City employment are subtracted out since both employers already provide EcoPasses to their employees. Source: ABAG Projections 2003, UC Berkeley, City of Berkeley
C	Total Annual Pass Costs	\$861,990	= A*B
D	Annual Administration Costs	\$23,535	Equivalent to 0.25 full-time-equivalent Associate Planner
E	Total Annual Program Costs	\$885,525	= C + D

Downtown Berkeley BART Bicycle Station expansion and operation – The Downtown Berkeley Bike Station provides free, attended bicycle parking for those traveling on BART or visiting Downtown Berkeley. By providing a safe, secure place to park one’s bicycle, the Bike Station facilitates bicycle use and reduces vehicle trips. TSF funds would pay for longer hours and an attendant at the station and would keep costs to cyclists free or as low as possible. Funds would also allow the station to expand from its current capacity of 77 bikes to 300 bikes and would pay for other station improvements.

Total project cost: \$360,000

Total annual operation cost: \$40,000

Pedestrian Facilities Improvements

Plan Reference: University Avenue Strategic Plan, San Pablo Avenue Public Improvement Plan, General Plan Policy T-48, Pedestrian Plan (to be adopted)

Pedestrian Plan implementation – Pedestrian facilities improvements, which include projects such as bulb-outs or curb extensions, signage, pavement markings, flashing beacons, in-pavement lights, overhead lighting, pedestrian countdown signals, and left turn signalization, facilitate and increase the attractiveness of walking as a mode of transportation for local trips. The City’s Pedestrian Plan is currently in development and will be approved by the City Council once completed. Project costs are based on the average costs of implementing the types of improvements listed above and may be adjusted once the Pedestrian Plan is adopted.

Total project cost: \$8,189,990 (including soft costs)

Bulb-outs on University Avenue – To facilitate pedestrians crossing University Avenue, the University Avenue Strategic Plan calls for bulb-outs at intersections and key mid-block crossings to narrow the crossing distance for pedestrians and thus facilitate pedestrian travel. Project costs assume construction of bulb-outs at 14 locations at an average cost of \$37,500 per location.

Total project cost: \$649,740 (including soft costs)

Bulb-outs on San Pablo side streets – According to the San Pablo Avenue Public Improvements Plan, curb bulb-outs on side streets (bulb-outs would extend into the roadway of the side street and not into San Pablo Ave.) would improve pedestrian access along San Pablo Ave. by reducing crossing lengths and slowing vehicles turning onto side streets from San Pablo Ave. as they enter local streets. Project costs assume construction of bulb-outs at 52 locations at an average cost of \$30,000 per location.

Total project cost: \$2,028,000 (including soft costs)

Bicycle Facilities Improvements

Plan Reference: Berkeley Bicycle Plan, General Plan Policy T-42

Bicycle Plan implementation – The goal of the projects included in the Berkeley Bicycle Plan is to make bicycling safer and more convenient for bicyclists of all ages and skill levels. Doing so will enable Berkeley residents, visitors, and workers to make more of their local trips via bicycle and will reduce the number of motor vehicle trips in the City. Annual implementation costs are assumed to be approximately \$168,000 (exclusive of soft costs).

Total project cost: \$4,342,000

Bicycle signals at intersections – Bicycle signals enable cyclists to cross busy streets safely and without extensive delays and provide continuity in the City’s bicycle network. Providing safe, direct, and continuous cycling routes throughout the City enables and facilitates bicycle use for local trips. Project costs assume construction at five intersections at an average cost of \$200,000 per intersection.

Total project cost: \$1,300,000 (including soft costs)

Bicycle-actuated signals at intersections (retrofit of existing signals) – This project includes installation of bicycle detector loops at up to 50 intersections which enable cyclists to safely and

easily cross busy intersections. Project costs assume an average cost of \$6,000 per detector loop (excluding soft costs).

Total project cost: \$390,000 (including soft costs)

Traffic circles on Bicycle Boulevards – A Bicycle Boulevard, sometimes called a bicycle priority street, is a street where all types of vehicles are allowed, but the roadway is modified as needed to enhance bicycle safety and convenience. Berkeley’s seven bicycle boulevards are the backbone of the City’s network of 50 bikeways. Traffic circles are one of the “traffic calming” tools that are employed on the City’s Bicycle Boulevard network. Traffic circles have a demonstrated ability to slow motor vehicle traffic and reduce collision rates. Project costs assume construction of 24 traffic circles at an average cost of \$15,000 (exclusive of soft costs).

Total project cost: \$468,000 (including soft costs)