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City of Glendale

Citywide Pedestrian Plan

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ACTIVE TRANSPORTATION PROGRAM

CYCLE 1

APPLICATION
Part 1
(Includes Sections I, V, VI, VII, VIII & XI)

Please read the Application Instructions at
http://www.dot.ca.gov/hq/LocalPrograms/atp/index.html
prior to filling out this application

Project name:	Citywide Pedestrian Plan

For Caltrans use only: ____TAP _____STP_____RTP ____SRTS ____SRTS-NI ____SHA
____DAC ____Non-DAC ____Plan

I. GENERAL INFORMATION

Project name:	Citywide Pedestrian Plan

(fill out all of the fields below)

1. APPLICANT (Agency name, address and zip code) City of Glendale 633 East Broadway, Room 300 Glendale, CA 91206	2. PROJECT FUNDING ATP funds Requested $ 500,000.00 Matching Funds (If Applicable) $ 0.00 Other Project funds $ 0.00 TOTAL PROJECT COST $ 500,000.00
3. APPLICANT CONTACT (Name, title, e-mail, phone #) Michael Nilsson, Mobility Planner - mnilsson@glendaleca.gov, (818) 937-8164	
4. APPLICANT CONTACT (Address & zip code) 633 East Broadway, Room 300 Glendale, CA 91206	5. PROJECT COUNTY(IES): Los Angeles
6. CALTRANS DISTRICT #- Click Drop down menu below District 7	7. Application # 1 of 4 (in order of agency priority)

Area Description:

8. Large Metropolitan Planning Organization (MPO)- Select your" MPO" or "Other" from the drop down menu>	SCAG Southern California Association of Governr
9. If "Other" was selected for #8- select your MPO or RTPA from the drop down menu>	Not Applicable
10. Urbanized Area (UZA) population (pop.)- Select your UZA pop. from drop down menu>	Within a Large MPO (Pop > 200,000)

Master Agreements (MAs):

11. ☒ Yes, the applicant has a FEDERAL MA with Caltrans. #07-5144R
12. ☒ Yes, the applicant has a STATE MA with Caltrans. #003119S

13. If the applicant does not have an MA. Do you meet the Master Agreement requirements? Yes ☐ No ☐
The Applicant MUST be able to enter into MAs with Caltrans

Partner Information:

14. Partner Name*: N/A	15. Partner Type N/A
16. Contact Information (Name, phone # & e-mail) N/A	17. Contact Address & zip code N/A

☐ Click here if the project has more than one partner; attach the remaining partner information on a separate page

*If another entity agrees to assume responsibility for the ongoing operations and maintenance of the facility, documentation of the agreement must be submitted with the application, and a copy of the Memorandum of Understanding or Interagency Agreement between the parties must be submitted with the request for allocation.

Project Type: (Select only one)

18. Infrastructure (IF) ☐ 19. Non-Infrastructure (NI) ☒ 20. Combined (IF & NI) ☐

Project name:	Citywide Pedestrian Plan

I. GENERAL INFORMATION-continued

Sub-Project Type (Select all that apply)

21. ☒ Develop a Plan in a Disadvantaged Community (select the type(s) of plan(s) to be developed)
    ☐ Bicycle Plan ☐ Safe Routes to School Plan ☒ Pedestrian Plan
    ☐ Active Transportation Plan

    (If applying for an Active Transportation Plan- check any of the following plans that your agency already has):
    ☒ Bike plan ☐ Pedestrian plan ☐ Safe Routes to School plan ☐ ATP plan

22. ☐ Bicycle and/or Pedestrian infrastructure
    Bicycle only: ☐ Class I ☐ Class II ☐ Class III
    Ped/Other: ☐ Sidewalk ☐ Crossing Improvement ☐ Multi-use facility

    Other:

23. ☐ Non-Infrastructure (Non SRTS)

24. ☐ Recreational Trails*- ☐ Trail ☐ Acquisition

    ***Please see additional Recreational Trails instructions before proceeding**

25. ☐ Safe routes to school- ☐ Infrastructure ☐ Non-Infrastructure

If SRTS is selected, provide the following information

26. SCHOOL NAME & ADDRESS:
N/A
27. SCHOOL DISTRICT NAME & ADDRESS:
N/A

28. County-District-School Code (CDS)	29. Total Student Enrollment	30. Percentage of students eligible for free or reduced meal programs **
N/A		
31. Percentage of students that currently walk or bike to school	32. Approximate # of students living along school route proposed for improvement	33. Project distance from primary or middle school
N/A		N/A

**Refer to the California Department of Education website: http://www.cde.ca.gov/ds/sh/cw/filesafdc.asp

☐ Click here if the project involves more than one school; attach the remaining school information including school official signature and person to contact, if different, on a separate page

II. PROJECT INFORMATION

1. Project Location

The project is a citywide effort of the City of Glendale. Glendale is located at the eastern end of the San Fernando Valley in Los Angeles County, at the southern base of the Verdugo Mountains. It is bordered to the northwest by the Tujunga neighborhood of Los Angeles, to the northeast by La Canada Flintridge and the unincorporated area of La Crescenta, to the west by Burbank, to the east by Pasadena, and to the south and southeast by the City of Los Angeles. City boundaries are roughly delineated by the 210, 2, 134, and 5 freeways.

2. Project Coordinates

Lat: 34.142508; Long: -118.255075 (Geographic Center of City of Glendale)

3. Project Description

Summary of Citywide Pedestrian Plan

The Citywide Pedestrian Plan will establish improving pedestrian safety as the City of Glendale's highest priority, through a multifaceted approach in policy development, dedication of staff resources, proactive community outreach, and creating an implementation manual outlining design improvements to be made on streets with high pedestrian and bicycle accident rates, **ultimately increasing walking and the use of other active transportation modes while reducing accident rates in the community**.

Components of Plan and Outreach Initiative

This Plan and corresponding outreach will include the following components:

- **Hiring a consultant to create a Citywide Pedestrian Plan**, a document that will consolidate existing and previous pedestrian policy initiatives into one user-friendly format. In addition to organizing existing City policies into one cohesive document, the consultant hired through this effort will also assess the following:

- **Identifying viable bicycle and pedestrian corridors**, linking to the City's existing mobility policy and plan structure, including the Safe & Healthy Streets Plan and Bicycle Transportation Plan.
- **Assessing intersections with high pedestrian/bicycle accident rates**, as well as identifying intersections with high pedestrian and bicycle volumes.
- **Targeting improvements at specific intersections**, as the document will include an implementation manual with best practice recommendations for pedestrian infrastructure, with potential funding sources identified.

- **Additional Staff Resources will be specifically dedicated to lead project outreach and manage the development of the Citywide Pedestrian Plan and any associated outreach efforts.**
- **Creating a coordinated and targeted community outreach strategy throughout Plan development**, including coordination with any ongoing City education and safety programs, so that each effort informs one another.
- **Incorporating policy and infrastructure recommendations based on field work assessments, best practices in active transportation and feedback received from the community.**

Evaluation of Effort

The Citywide Pedestrian Plan will be grounded with data, with **bicycle and pedestrian counts conducted** prior to the effort, when policies and programs are in progress, as well as after the Plan and programs are implemented. The Evaluation effort will also be coordinated with any existing City education and safety programs, taking these programs into account when **analyzing counts, accident rates, and infrastructure improvements. A report summarizing these assessments** will be incorporated as part of the Pedestrian Plan, so that data analysis informs bicycle and pedestrian improvements taking place across the City.

Document Support

A City Staff team will include representatives from Community Development, Public Works, Police, and Community Services & Parks. This project will enable dedicated staff resources to specifically manage the consultant contract and lead outreach initiatives in the City. For any technical field work associated with the Plan, including document formatting and drafting of text, a consultant will be hired with NACTO/best practice experience in pedestrian and bicycle policy and infrastructure. This consultant will be hired through the City's standard RFP process.

4. <u>Project Status</u>

The City's existing pedestrian policy structure is currently made up of a number of existing plans, studies, and efforts that have yet to be consolidated and implemented as a cohesive strategy for improving pedestrian access and mobility in Glendale. As such, while pedestrian policies currently exist amongst several documents, implementation is inconsistently applied and on a project-by-project basis. Development of the Plan will require hiring a consultant to analyze existing conditions and draft the Plan, while dedicating funding for additional City staff resources to specifically manage the development of the Plan and oversee implementation of the Plan's community outreach efforts and future pedestrian infrastructure projects.

<u>III. SCREENING CRITERIA</u>

1. <u>Demonstrated Needs of the Applicant</u>
Describe the need for the project and/or funding

Glendale is notorious for being a dangerous place for pedestrians and bicyclists. Based on the 2009 California Office of Traffic Safety (OTS) safety rankings of California cities, **Glendale ranked 3rd out of 56 California cities for the number of pedestrian collisions by average population in the "number of collisions involving pedestrians" category**, with 1st being the worst. (Appendix, Page 64) From 2007 to 2010, 12 pedestrian fatalities occurred within Glendale. The situation does not fare much better for

bicyclists. Bicycling increased in the City of Glendale by 36 percent from 2007 to 2011, but bicycle collisions increased at an even faster rate of 65.9 percent.

In addition to the City of Glendale having high accident rates, **accidents in Glendale disproportionately affect the City's disadvantaged residents**. Most pedestrian and bicycle accidents in Glendale occur in high density areas of the City, which correspond to Census tracts with lower household income. Disadvantaged neighborhoods in Glendale contain 45 percent of the City's population but account for 63 percent of the City's pedestrian and bicycle accidents. Furthermore, while the senior citizen population (65+ years of age) accounts for approximately 15.6 percent of the City's population (2010 Census) they represented over 27.6 percent of the City's Pedestrian collisions from 2007-2011. This is consistent with the 2003-2011 California Statewide Integrated Traffic Records System (SWITRS) data indicated in "Disadvantaged Communities and Bike & Pedestrian Accidents" (Appendix, Page 68), and presented as tabular data in Appendix E of the 2013 City of Glendale Bicycle and Pedestrian Report (Appendix, Page 41).

While Glendale has been working to improve mobility for all modes of active transportation, **the creation of policies and infrastructure to improve pedestrian safety has not been part of a coordinated, centralized effort**. Past and existing efforts to improve pedestrian infrastructure have been based upon individual projects tied to one-time funding sources, directly managed by City departments that have secured those sources. Recent planning efforts such as the Safe & Healthy Streets Plan have **identified the need to establish a comprehensive approach to improving pedestrian infrastructure**, one that addresses components of a complete system including infrastructure, community outreach and evaluation of policy and infrastructure improvements.

The *Citywide Pedestrian Plan* will establish a comprehensive, centralized, and coordinated approach to improving pedestrian infrastructure, safety, and use within Glendale, and **will establish improving pedestrian safety as the City of Glendale's highest priority** through widespread community

outreach throughout the development of the Plan, and outlining implementation of existing policy efforts into one easy-to-read document. A significant component of the Plan will include an implementation manual outlining design improvements to be made on streets with high pedestrian and bicycle accident rates.

To further support the need in Glendale for these improvements, there are adopted policy documents that call for improving pedestrian infrastructure. These include the *Circulation Element* of the *General Plan, Downtown Specific Plan, Downtown Mobility Study, Safe & Healthy Streets Plan, and the Greener Glendale Plan.* The importance of having high-quality, safe pedestrian infrastructure in Glendale has been reinforced throughout these documents. These five supporting policy documents can be found in the Appendix, Page 40.

The drafting of these progressive active transportation policy documents by the City of Glendale has nonetheless left **a missing link in the city's policy structure**, namely a plan focused on outlining and implementing pedestrian improvements. All of them discuss the importance of pedestrian safety and multi-modal mobility; however, the Bicycle Transportation Plan focuses on establishing bicycle infrastructure; the Downtown Specific Plan and Mobility Study focuses primarily on parking management and local sources of funding multi-modal transportation; the Safe & Healthy Streets Plan focuses on the fundamentals of active transportation policy at a broad level. None, however, provide specific policy direction on Pedestrian Infrastructure nor do any existing City documents recommend specific road segments or intersections for improvements. The Citywide Pedestrian Plan will **bridge the gap** between the city's existing policy structure and the specific needs of the diverse and growing pedestrian community in Glendale.

2. **Consistency with Regional Transportation Plan (100 words or less)**
   Explain how this project is consistent with your Regional Transportation Plan (if applicable). Include adoption date of the plan.

The Citywide Pedestrian Plan is **consistent with the Southern California Association of Government's (SCAG's) Regional Transportation Plan**/Sustainable Communities Strategy (RTP/SCS) (adopted 4/4/12). The RTP/SCS is based upon SCAG's Compass Blueprint Program. Two of Glendale's policy documents upon which the Initiative is based, the *Downtown Specific Plan* and *Safe & Healthy Streets Plan*, each won SCAG's Compass Blueprint President's Award for Excellence in 2007 and 2012, respectively. In addition, the *Greener Glendale Plan,* Glendale's local policy document to implement SCAG's RTP/SCS, specifically calls for improving access to alternative forms of transportation (e.g. walking and bicycling) within Glendale.

IV. NARRATIVE QUESTIONS: Q1 – Q8

1. **POTENTIAL FOR INCREASED WALKING AND BICYCLING, ESPECIALLY AMONG STUDENTS, INCLUDING THE IDENTIFICATION OF WALKING AND BICYCLING ROUTES TO AND FROM SCHOOLS, TRANSIT FACILITIES, COMMUNITY CENTERS, EMPLOYMENT CENTERS, AND OTHER DESTINATIONS; AND INCLUDING INCREASING AND IMPROVING CONNECTIVITY AND MOBILITY OF NON-MOTORIZED USERS.** *(0-30 POINTS)*

1A. Describe how your project encourages increased walking and bicycling, especially among students.

The Citywide Pedestrian Plan will **encourage increased walking and bicycling, particularly among students** by outlining specific pedestrian improvements and projects after systematically prioritizing known origins and destinations among students and others, including school sites, parks, civic institutions, transit links, and residential and commercial areas with high pedestrian use/need, or areas with high accident rates.

Current maps indicate these areas are largely in South Glendale, located south of the 134 Freeway, which is a disadvantaged community, or in high-density corridors that have the highest concentration of destinations for students and residents of all ages. Of the city's 49 schools, **18 schools (37 percent) are**

located in the South Glendale project focus area; of the city's 88 points of interest,[1] **45 destinations (51 percent) are in the South Glendale area**. The South Glendale project focus area also includes a major concentration of employment centers, including downtown Glendale and the San Fernando Road industrial corridor. The distribution of schools, destinations, and employment centers, is shown on the "Project Area Activity Centers and Existing/Near-Term Bike-Ped Infrastructure" graphic (Appendix, Page 81).

Focusing on these areas of concentrated activity ensures that **increased pedestrian activity will be maximized**. Increasing pedestrian safety in turn increases safety for all mobility users, as pedestrian safety is a base for safe transportation for all modes.

In 2012, Glendale completed its *Bicycle Transportation Plan (BTP)*. Bicycle counts before and after the BTP was adopted show **bicycle use in Glendale has increased by 36 percent**. The BTP outlined specific bicycle infrastructure improvements which were used by Public Works as a schedule for capital improvement projects. Bicycle **infrastructure projects are now systematically and consistently implemented**. The Citywide Pedestrian Plan will be a similar document in that it will outline specific pedestrian improvement projects and programs. Therefore, it is reasonable to **anticipate similar successes in pedestrian infrastructure improvements and similar increases in pedestrian activity.**

1B. Describe the number and type of possible users and their destinations, and the anticipated percentage increase in users upon completion of your project. Data collection methods should be described.

To ensure this effort will correctly target areas of highest pedestrian use and improvement needs, the Citywide Pedestrian Plan will be grounded with data. The City's most recent data collection effort for non-motorized users, summarized in the 2013 Bicycle and Pedestrian Report, counted 2,528 bicyclists, of whom 263 were female and 69 were children; of the 25,542 pedestrians counted, 497 were

[1] Civic facilities, commercial/retail centers, community college campuses, media/entertainment centers, hospitals, post offices, schools, libraries, and the Riverdale-Maple Greenway.

using a wheelchair or other mobility aid, 317 pedestrians were on a skateboard, scooter, or skates, and 3,349 were children. While children represented about 14 percent of all pedestrians, they only represented about 3 percent of bicyclists. At school locations, children represented more than three-quarters of all pedestrians; in Glendale overall, approximately 14.3 percent of the population is 14 years of age or younger. Using the increases observed among bicyclists since the adoption of the 2012 Bicycle Transportation Plan, one can assume an increase among pedestrians following the funding, development, adoption, and implementation of a Citywide Pedestrian Plan. Data collection methods from the 2013 Bicycle and Pedestrian Count are detailed within the *2013 City of Glendale Bicycle and Pedestrian Report* (Appendix, Page 40).

Importantly, the Pedestrian Plan will focus its efforts on improvements within Glendale's disadvantaged census tracts, which are served by 30 of the city's 49 schools (61 percent), important destinations which require safe multi-modal access. Other destinations, including employment centers and public facilities, are illustrated in "Project Area Activity Centers and Existing/Near-Term Bike-Ped Infrastructure" (Appendix, Page 81). Glendale has a nascent culture around active transportation: notably, Glendale's 3.8 percent walking mode share was third highest among selected peers in 2012, including Los Angeles County, the State of California, and peer cities, as shown in Figure 6-2 of the 2013 Bicycle and Pedestrian Report (Appendix, Page 69). As such, the Pedestrian Plan will build on these promising trends through a thoughtful, cohesive, and data-driven education and encouragement program, thereby increasing walking and bicycling.

1C. Describe how this project improves walking and bicycling routes to and from, connects to, or is part of a school or school facility, transit facility, community center, employment center, state or national trail system, points of interest, and/or park.

The primary intent of the Citywide Pedestrian Plan is to **improve walking and bicycling routes to and from schools, transit facilities, community centers, employment centers, points of interest, and parks** by consolidating and updating existing plans and studies relative to walking and bicycling across

Glendale, including existing Safe Routes to Schools efforts, and by implementing the Safe & Healthy Streets Plan, Bicycle Transportation Plan, and the Downtown Mobility Study and establishing new comprehensive citywide goals for pedestrian safety and access. It will focus specifically on places with high volumes of non-motorized users, as well as areas identified as being areas of high risk or concern for collisions, particularly around school sites.

1D. Describe how this project increases and/or improves connectivity, removes a barrier to mobility and/or closes a gap in a non-motorized facility.

This project will assess the City's active transportation network, including existing and future links as well as barriers to mobility for non-motorized users. The Plan will then utilize this data to identify and implement projects where necessary, including those already identified in prior plans and efforts that this plan will consolidate and update, to achieve increases and improvements in connectivity and mobility for all users.

2. POTENTIAL FOR REDUCING THE NUMBER AND/OR RATE OF PEDESTRIAN AND BICYCLIST FATALITIES AND INJURIES, INCLUDING THE IDENTIFICATION OF SAFETY HAZARDS FOR PEDESTRIANS AND BICYCLISTS. *(0-25 POINTS)*

2A. Describe the potential of the project to reduce pedestrian and/or bicycle injuries or fatalities.

The **Citywide Pedestrian Plan** has significant potential to reduce the number and rate of pedestrian and bicyclist fatalities and injuries through the consolidation and coordinated implementation of existing plans, reports, and studies of bicycle and pedestrian conditions, as well through the use of data regarding collisions and non-motorized traffic volumes, all of which serve **to identify and directly address existing safety hazards** for pedestrians and bicyclists in critical intersections and corridors.

Importantly, the Citywide Pedestrian Plan will not be limited to challenges in infrastructure and **engineering**, but will also encompass solutions and specific steps to implementation relating to **education** and **encouragement** programs, **enforcement** strategies, and importantly, before-and-after

evaluation through data-driven planning and an assessment of bicycle and pedestrian safety programs and infrastructure.

2B. Describe if/how your project will achieve any or all of the following:

- ***Reduces speed or volume of motor vehicles***
- ***Improves sight distance and visibility***
- ***Improves compliance with local traffic laws***
- ***Eliminates behaviors that lead to collisions***
- ***Addresses inadequate traffic control devices***
- ***Addresses inadequate bicycle facilities, crosswalks or sidewalks***

The Pedestrian Plan will **reduce speed and volume of motor vehicles**, **improve sight distance and visibility**, **address inadequate traffic control devices**, and **address inadequate crosswalks and sidewalks** through hiring a consultant to create a Citywide Pedestrian Plan, which will identify viable bicycle and pedestrian corridors, assess intersections with high pedestrian/bicycle accident rates and volumes, and identify targeted improvements at specific intersections. Further, the Plan will **improve compliance with local traffic laws** and **eliminate behaviors that lead to collisions** by dedicating additional City staff resources to lead project outreach. This will include a targeted outreach strategy throughout the development of the Plan, as well as coordination with ongoing education and safety education programs in Glendale. The resulting Citywide Pedestrian Plan will include an "implementation manual" of pedestrian infrastructure and program improvements to ensure success in achieving the goals of the Active Transportation Program.

2C. Describe the location's history of events and the source(s) of data used (e.g. collision reports, community observation, surveys, audits) if data is not available include a description of safety hazard(s) and photos.

Despite its considerable and growing share of bicycling and walking, in addition to ongoing efforts to improve cyclist and pedestrian safety, Glendale has a reputation as a dangerous city for pedestrians and bicyclists. In 2007, Glendale was known for having some of the highest rates of pedestrian collisions in the nation. Further, the 2009, 2010, and 2013 bicycle and pedestrian counts undertaken by the City, as well as data from SWITRS provide us with a clear picture of bicycle/pedestrian

volume and safety in Glendale. Figures 5-4 and 5-5 in the 2013 City of Glendale Bicycle and Pedestrian Report (Appendix, Page 70) illustrate the latest SWITRS collision data.

3. PUBLIC PARTICIPATION and PLANNING *(0-15 POINTS)*

3A. Describe the community based public participation process that culminated in the project proposal or plan, such as noticed meetings/public hearings, consultation with stakeholders, etc.

This project is borne of **numerous public meetings and participatory planning efforts**, and of strong partnerships between the City and community residents and other stakeholders that have developed around issues facing bicyclists and pedestrians, beginning with the *Glendale Downtown Mobility Study*.

In 2006, the Glendale Downtown Specific Plan included a call for a **comprehensive Mobility Program to create a vibrant pedestrian-friendly environment**. The project team made 14 presentations to solicit feedback from Glendale's City Council, downtown stakeholders, merchants, community leaders, residents and the general public. As the resulting Mobility Study stated (Appendix, Page 40), "pedestrian planning is almost always part of another planning effort, so it is easily de-prioritized," and **called for the development of a Pedestrian Plan** to bring about the desired changes expressed in the public process (Section 8.3, Page 8-11, *Downtown Mobility Study*).

In 2008, an interdisciplinary team was involved in developing the city's *Safe & Healthy Streets Plan* (Appendix, Page 40) and conducted **extensive public outreach and participatory planning**, which included themed bicycle rides, community walks, and educational courses on bicycle and pedestrian safety, resulting in calls for **establishing regular updates to City policies and documents related to bicyclists and pedestrians** (Policy 6.1, Page 68, *Safe & Healthy Streets Plan*) and for **allocating City Staff to coordinate and implement pedestrian and bicyclist policies, programs, and facilities** (Policy 7.1, Pages 80-82, *Safe & Healthy Streets Plan*).

The 2011 *Greener Glendale Plan* is the City's Sustainability Plan (Appendix, Page 40), the development of which included **numerous workshops, surveys, and outreach events**. The resulting plan features a number

of active transportation-oriented objectives and actions, including Objective T1, "Facilitate the provision of alternative transportation infrastructure", (Page 68, *Greener Glendale Plan for Community Activities*) and Objective T2, "Promote and encourage the use of alternative forms of transportation." (Pages 69-70, *Greener Glendale Plan for Community Activities*) Task T1-A specifically calls for incentivizing "community provision and funding of public transit and bicycle, pedestrian, and multi-modal infrastructure, such as in renovations and new development projects," (Page 68, *Greener Glendale Plan for Community Activities*) a policy that the Citywide Pedestrian Plan will directly address.

This effort was followed by the 2012 *Bicycle Transportation Plan*, for which City staff conducted a **comprehensive outreach campaign**. The City hosted many events, workshops, and presentations to garner feedback about the Plan and active transportation in Glendale. **The City circulated a pedestrian and bicyclist survey to ascertain attitudes and barriers toward bicycling and walking**; its findings were incorporated within the Bicycle Transportation Plan, portions of which this project is intended to coordinate and implement.

The **Citywide Pedestrian Plan** and its components will serve to directly implement the policies and projects of the City's adopted *Safe & Healthy Streets Plan*, *Bicycle Transportation Plan*, *Greener Glendale Plan*, and *Downtown Mobility Study*. The consolidation, coordination, and updating of the city's pedestrian policies and infrastructure improvements, as well as outlining City outreach and education efforts into one easy-to-read document, **will serve to achieve the goals of these community-developed plans and studies and of the Active Transportation Program.**

3B. Describe the local participation process that resulted in the identification and prioritization of the project:

The public was intimately involved in identifying and prioritizing the Citywide Pedestrian Plan. Beginning in January 2009, the City of Glendale took part in a Safe Streets Initiative Program, with the ultimate goal of the program to initiate an Action Plan to increase safety for non-motorized modes in Glendale. This effort included a Community Pedestrian Safety Training, at which constituents learned about the active transportation safety needs of Glendale, as well as potential interventions. Following this training, **members**

of the public declared a series of pedestrian safety priorities. These priorities resulted in the creation of an Action Plan to improve pedestrian and bicyclist safety, as well as to update City policies and to create a consolidated outreach program.

In April, 2014, **the public again came together to reaffirm its desire for a comprehensive approach to active transportation, traffic safety, and education** through a follow-up to the 2009 community training, this time led by the U.C. Berkeley Safe Transportation Research & Education Center. The draft recommendations include a **call for a Citywide Pedestrian Plan**. The Community Development and Public Works Departments, understanding the urgency of the matter, are moving forward with a Citywide Pedestrian Plan, as well as a Citywide Safety Education Initiative, to **directly address the findings and concerns** voiced in 2009 and reaffirmed in 2014 through these important **local participatory planning** processes.

3C. Is the project cost over $1 Million? NO.

4. COST EFFECTIVENESS *(0-10 POINTS)*

4A. Describe the alternatives that were considered. Discuss the relative costs and benefits of all the alternatives and explain why the nominated one was chosen.

The most likely alternative is **not having a Citywide Pedestrian Plan**. The costs of not having one include potentially increasing accident rates or keeping accident rates at an existing level, which will likely slowly decrease the proportion of residents walking. This would maintain trends observed between 2010 and 2013, during which time the number of pedestrians in Glendale decreased by nearly 4 percent, as shown in the 2013 Bicycle and Pedestrian Report. (Appendix, Page 40) Further, the alternative of not having a Citywide Pedestrian Plan would likely serve to maintain the city's notably high accident rates, as well as maintaining some of the highest auto insurance rates in the country. (Appendix, Page 71) The components and funding of the plan will enable a reduction in bicycle and pedestrian accidents, and improve pedestrian safety through citywide assessments of pedestrian safety, increased education and awareness, and targeted infrastructure improvements.

Additionally, exposure to liability is a very real concern, for both the City of Glendale and for residents alike. The Plan, through reductions in accidents citywide, would serve to address this issue, while not having a plan would reinforce the status quo. Finally, choosing to not have a Citywide Pedestrian Plan likely portends increased automobile usage, increasing congestion and pollution as a result. Conversely, both the Plan's infrastructure improvements, and the education and encouragement components critical to successful implementation of the plan, would serve to address this issue; not having a plan would unfortunately maintain the City's high accident and insurance rates.

While the costs of forgoing a Citywide Pedestrian Plan are clear, the benefits of not having a comprehensive pedestrian planning effort are less convincing, save for resources not expended on improving active transportation in Glendale. Dedication of staff resources as part of the project will ensure that the project will be effectively managed and implemented, and will include among its deliverables a manual that city engineers and officials can refer to for guidance on policy and infrastructure decisions. Therefore, **the City of Glendale has determined that the cost/benefit ratio of having a Citywide Pedestrian Plan is higher than the next most likely alternative**, not having a Citywide Pedestrian Plan.

A. Calculate the ratio of the benefits of the project relative to both the total project cost and funds requested (i.e., $\frac{Benefits}{Total\ Project\ Cost}$ and $\frac{Benefits}{Program\ Funds\ Requested}$).
****Benefits must directly relate to the goals of the Active Transportation Program.***

Our approach to quantify the benefits of the proposed project is based on the NCHRP Report 552 (Appendix, Pages 50-63). In this report the benefits are classified as Mobility Benefits, Health Benefits, Recreation Benefits, and Decreased Auto User Benefits. We have chosen to assess the project and its alternatives on the basis of their Mobility and Health Benefits.

Mobility Benefits

This model calculates what feature people desire by quantifying how many additional minutes of travel they would be willing to expend if these features were to be available. This added travel time is the price that individuals are willing to pay for the perceived safety and comfort the attributes provide.

Based on Appendix D of NCHRP Report 552:

- Commuters are willing to spend $18.02 to use a new bicycle facility (M)
- Hourly Value of time (V) is equal to $12
- Daily Existing Bicycle Trips are 4,435 (per Glendale Transportation Model)
- To and from trip is: 4435 * 2

Therefore, for annual benefit, 47 weeks/year and 5 days/week we have:

- Annual mobility benefit=M*V/60*(existing commuter trips)*47*5*2
- Annual mobility benefit= 18.02*12/60*4435*5=$79,918.70

Total project cost is: $500,000; therefore:

- Benefit/Total Project Cost = ($79,919/$500,000)= .16

Assuming the life of the project is 10 Years:

- Benefit /Total Project Cost = ($79,919*10/$500,000)= 1.6

Health Benefits

This model attaches monetary amounts to levels of physical activity based on findings in the literature.

According to Appendix E of the NCHRP Report 552, the annual cost savings from physical activity is $128.

Therefore the annual health benefit is:

- Annual Health Benefit = total estimated users*128
- Annual Health Benefit = 4,435 (per Glendale Transportation Model) *128=$567,680

Assuming 10 years life time of the project, then:

- Health Benefits of the Project = $567,680*10=$5,676,800
- B/C= $5,676,800/$500,000=$11.35

The result indicates that for each $1.00 we spend for the proposed project we will get $11.35 in Health Benefits.

5. IMPROVED PUBLIC HEALTH *(0-10 points)*

5A. Describe how the project will improve public health, i.e. through the targeting of populations who have a high risk factor for obesity, physical inactivity, asthma, or other health issues.

According to a 2011 report by the Los Angeles County Department of Public Health, 17 percent of adults and 18 percent of children in Glendale are chronically obese according to the report *Obesity and Related Mortality in Los Angeles County*, available online at

http://publichealth.lacounty.gov/ha/reports/habriefs/2007/Obese_Cities/Obesity_2011Fs.pdf. The Glendale Memorial Hospital and Health Center 2013 Community Health Needs Assessment (Appendix, Page 40), reports that the primary cause of death in Glendale is heart disease, which at nearly 30 percent is higher than the Los Angeles County average.

Further, the California Health Interview Survey finds that over 7 percent of Glendale respondents said they were not physically active for even one hour per week. (Appendix, Page 85) Aging is associated with increased risk factors for a number of health issues; the median age in Glendale is 41 years old, which is considerably higher than the median age for both Los Angeles County (34.8) and for the State of California (35.2). Other important statistics, compiled by the Los Angeles County Bicycle Coalition, are as follows: Each year over 100 pedestrians and 50 bicyclists are injured or killed on Glendale streets (38 percent of fatalities and 16 percent of injuries); Glendale continues to rank 1st statewide for pedestrian collisions involving a senior citizen (over 65).

The Citywide Pedestrian Plan will address these and other health issues in the following ways:

Decreased obesity and associated health issues - By providing a plan for pedestrian infrastructure improvements throughout the City of Glendale, non-motorized access in the city will be improved and people will be more inclined to walk or bicycle in their neighborhoods versus driving, which will contribute to a reduction in weight and decrease obesity, diabetes and heart disease for the local and visiting population to the area, as well as to a reduction on Vehicle Miles Traveled and associated health impacts, including fewer injuries and deaths caused by collisions.

Improved mental health - This project improves mental health by proposing a Citywide network of pedestrian improvements aimed at increasing non-motorized access to the abundant civic, cultural, recreational, and economic resources available in downtown Glendale and allowing for safer and greater enjoyment of the amenities available in the neighborhood. An emphasis on improved safety of existing infrastructure will not only encourage new users, but will positively affect existing walkers and reinforce and encourage their existing habits. Improvements identified in the plan may provide amenities such as street trees which will add to the aesthetic value of Glendale and will act as traffic-calming devices, thereby likely reducing accidents and environmental stress.

Increased access to locally grown/sustainable food sources - Glendale's downtown area contains two farmers markets that showcase local grocers and farmers offering healthy, sustainable food. The *Citywide Pedestrian Plan* will propose infrastructure that will improve access to both of these events, directly benefiting local residents, many of whom rely on walking as their primary mode of transportation.

Increased access to parks and open space - Pedestrian improvements in the downtown will improve access to Central Park and the 3.4 mile Riverdale Maple Greenway, which has access to Pacific Park, Maple Park and Carr Park. The *Plan* will provide safer crossings and improved pedestrian infrastructure to promote multi-modal access to these critical amenities, which benefit users through physical activity and overall improved quality of life outcomes.

Reduced risk of skin cancers – Given their important role as both aesthetic and traffic calming features, street trees will likely planted in pedestrian infrastructure projects identified as part of the Citywide Pedestrian Plan and will provide shade, thereby reducing the exposure to sunlight and subsequently reducing the incidence of skin cancer.

6. BENEFIT TO DISADVANTAGED COMMUNITIES *(0-10 points*)

6A. I. Is the project located in a disadvantaged community? YES

II. Does the project significantly benefit a disadvantaged community? YES

IIa. Which criteria does the project meet? (Answer all that apply)

- ***Median household income for the community benefited by the project:***

The focus of the Citywide Pedestrian Plan is on areas of greatest bicycle/pedestrian volume and share of accidents, identified in prior plans and studies as South Glendale (areas generally south of the 134 Freeway), the average **median household income for the Plan's target area is $39,692, 65 percent of the statewide** median household income. The median household income for the entire city of Glendale is $54,369, which is 88 percent of the statewide median of $61,400 based on the most current census tract level data from the American Community Survey (2012 5-Year Estimates).

- ***California Communities Environmental Health Screen Tool (CalEnviroScreen) score for the community benefited by the project:***

Given that the focus of the Citywide Pedestrian Plan is on areas of greatest bicycle/pedestrian volume and share of accidents, identified in prior plans and studies as South Glendale, there are **five zip codes that are among the most disadvantaged 10 percent in the state** in the Plan's target area according to CalEnviroScreen 1.1. Therefore, **nearly 95,000 Glendale residents (49 percent) live in five of the most disadvantaged zip codes in California**.

- ***For projects that benefit public school students, percentage of students eligible for the Free or Reduced Price Meals Programs:***

Given that the focus of the Citywide Pedestrian Plan is on areas of greatest bicycle/pedestrian volume and share of accidents, identified in prior plans and studies as South Glendale, **64 percent of students in the Plan's target area are eligible for the Free or Reduced Price Meals Programs** at 10 schools. The average for all schools in the Glendale Unified School District is 38 percent, **with a high of nearly 84 percent at one school site**; citywide, two schools are considered "disadvantaged" per Caltrans guidelines.

IIb. Should the community benefitting from the project be considered disadvantaged based on criteria not specified in the program guidelines? If so, provide data for all criteria above and a quantitative assessment of why the community should be considered disadvantaged.

Not applicable; Caltrans standards provided are sufficient for clearly determining project need for the City of Glendale Citywide Pedestrian Plan.

6B. Describe how the project demonstrates a clear benefit to a disadvantaged community and what percentage of the project funding will benefit that community, for projects using the school based criteria describe specifically the school students and community will benefit.

A disproportionate number of bicycle and pedestrian accidents are in the city's most disadvantaged neighborhoods. The Citywide Pedestrian Plan, in concert with the Citywide Safety Education Initiative, will identify the highest priority areas in the City for pedestrian and bicycle safety improvements and community outreach, namely, areas with high pedestrian and bicycle use or areas with high accident rates. Current accident maps indicate these areas are in the downtown or in high-density corridors, which primarily correspond to Glendale's disadvantaged communities indicated in the exhibit "Disadvantaged Communities and Bike & Pedestrian Accidents" (Appendix, Page 68). Sixty-three percent (63 percent) of all bicycle and pedestrian accidents are located within disadvantaged Census tracts, whereas only forty-five percent (45 percent) of the population resides in these tracts. While the Pedestrian Plan is a citywide effort, it will focus policies and infrastructure improvements on areas identified as having high proportions of traffic, bicycle and pedestrian accidents, or both. Therefore, the project will have a larger benefit to the city's disadvantaged neighborhoods relative to its more affluent and notably safer neighborhoods.

7. USE OF CALIFORNIA CONSERVATION CORPS (CCC) OR A CERTIFIED COMMUNITY CONSERVATION CORPS *(0 to -5 points)*

7A. The applicant has coordinated with the CCC to identify how a state conservation corps can be a partner of the project YES.

Name, e-mail, and phone # of the person contacted and the date the information was submitted to them-

Virginia Clark, Virginia.clark@ccc.ca.gov, (916) 341-3147, information submitted on Wednesday, May 7, 2014.

7B. The applicant has coordinated with a representative from the California Association of Local Conservation Corps (CALCC) to identify how a certified community conservation corps can be a partner of the project YES.

Name, e-mail, and phone # of the person contacted and the date the information was submitted to them

Cynthia Vitale, calocalcorps@gmail.com, (916) 558-1516, information submitted on Wednesday, May 7, 2014.

7C. The applicant intends to utilize the CCC or a certified community conservation corps on all items where participation is indicated YES.

The City of Glendale intends to partner with a conservation corps to the maximum extent possible. **However, the CCC and CALCC have both indicated that they will not participate with us on this project.**

> *I have coordinated with a representative of the CCC; and the following are project items that they are qualified to partner on:*

Not applicable; the CCC has indicated that they will not partner with us on any aspect of this project.

> *I have coordinated with a representative of the CALCC; and the following are project items that they are qualified to partner on:*

Not applicable; the CALCC has indicated that they will not partner with us on any aspect of this project.

8. APPLICANT'S PERFORMANCE ON PAST GRANTS *(0 to -10 points)*

8A. Describe any of your agency's ATP type grant failures during the past 5 years, and what changes your agency will take in order to deliver this project.

The City of Glendale has **not** had any grant failures during the past 5 years. **To the contrary**, Glendale has a very successful history of obtaining, allocating, and completing grant projects in a timely manner. We have received and managed nearly $19 million in CMAQ, 5310, STPL, SAFETEA-LU Cong, Demo, ARRA funds and $3.5 million in SR2S/SRTS funds.

STATE OF CALIFORNIA ● DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised July 2013)

General Instructions

☑ New Project					Date:	5/16/14
District	**EA**	**Project ID**	**PPNO**	**MPO ID**	**TCRP No.**	
07						

County	Route/Corridor	PM Bk	PM Ahd	Project Sponsor/Lead Agency	
LA				City of Glendale	
				MPO	**Element**
				SCAG	Local Assistance

Project Manager/Contact	Phone	E-mail Address
Michael Nilsson	(818) 937-8164	mnilsson@glendaleca.gov

Project Title

City of Glendale Citywide Pedestrian Plan

Location, Project Limits, Description, Scope of Work ☐ See page 2

The project is a Citywide effort of the City of Glendale. The Citywide Pedestrian Plan will identify viable bicycle and pedestrian corridors, assess intersections with high pedestrian/bicycle accident rates, and target infrastructure improvements for those intersections/segments. The document will coordinate all existing City pedestrian policies and recommended infrastructure for implementation in a user-friendly manual.

☐ Includes ADA Improvements ☐ Includes Bike/Ped Improvements

Component	Implementing Agency
PA&ED	N/A - Non-Infrastructure Project
PS&E	N/A - Non-Infrastructure Project
Right of Way	N/A - Non-Infrastructure Project
Construction	Non-Infrastructure Project = City of Glendale

Purpose and Need ☐ See page 2

The Citywide Pedestrian Plan will establish improving pedestrian safety as the City of Glendale's highest priority, through a multifaceted approach in policy development, dedication of staff resources, proactive community outreach and creating an implementation manual outlining design improvements to be made on streets with high pedestrian and bicycle accident rates, ultimately increasing walking as a mode of transportation in Glendale while reducing accident rates in the City. Funding for a Pedestrian Plan is crucial for Glendale, as the City is ranked 3rd out of 56 similar-sized California cities for the number of pedestrian collisions, and disadvantaged communities are disproportionally represented in these collisions.

Project Benefits ☑ See page 2

Benefits to the project include a potential reduction of pedestrian accidents due to improved pedestrian infrastructure as a result of plan implementation, an increase of constituents in Glendale walking to destinations versus driving, a reduced number of accidents involving motor vehicles, corresponding to a reduction in auto insurance premiums. There will also be health benefits including a reduction in obesity.

☑ Supports Sustainable Communities Strategy (SCS) Goals ☐ Reduces Greenhouse Gas Emissions

Project Milestone			Proposed
Project Study Report Approved			
Begin Environmental (PA&ED) Phase			
Circulate Draft Environmental Document	**Document Type**	N/A	
Draft Project Report			
End Environmental Phase (PA&ED Milestone)			
Begin Design (PS&E) Phase			
End Design Phase (Ready to List for Advertisement Milestone)			
Begin Right of Way Phase			
End Right of Way Phase (Right of Way Certification Milestone)			
Begin Construction Phase (Contract Award Milestone)			08/01/14
End Construction Phase (Construction Contract Acceptance Milestone)			02/28/17
Begin Closeout Phase			03/01/17
End Closeout Phase (Closeout Report)			06/30/17

ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

STATE OF CALIFORNIA ● DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised May 2013)

General Instructions

☑ New Project					Date:	5/16/14
District	**EA**	**Project ID**	**PPNO**	**MPO ID**	**TCRP No.**	
07						

Project Title

City of Glendale Citywide Pedestrian Plan

Additional Information

The Citywide Pedestrian Plan supports the goal of the Southern California Association of Government's Sustainable Communities Strategy (SCS) which is to reduce greenhouse gas emissions (GHGs) (pg 112 of the SCS). It does this by increasing the use of pedestrian and bicycle modes of transportation which leads to reduced reliance on and use of automobiles, a primary culprit of GHGs. By increasing the use of pedestrian and bicycle modes of transportation, the Pedestrian Plan will create the following benefits in support of the SCS Goal:

Better Placemaking by supporting the use of existing dense and multi-use development, enriching it by by encouraging walkability and use of streets by people, and therefore preserving natural open space in remote areas by not diverting resources and infrastructure there;

Lower Cost to Taxpayers and Families by reducing reliance on the automobile which is costly, by encouraging citizens through a sytem of non-motorized modes of transportation to reside in communities where destinations are within close distance thereby reducing the cost of time spent traveling, reducing use and costs of automobile operation and maintenance including road infrastructure, and reducing medical costs due to spending unhealthy amounts of time driving;

Benefits to Public Health and the Environment by supporting and promoting development in denser parts of the city and promoting multi-modal mobility instead of the destruction of open space that can be used for recreation, farming, and natural preservation. Preserving those open spaces increases environmental health and creates more opportunity to the communtity for recreation and exercise;

Greater Responsiveness to Demographics and the Changing Housing Market by enriching non-suburban lifestyle options for those seeking smaller housing and walkable environments through mobility programs;

Improved Access and Mobility through enriching and expanding the city's overall transportation options and availability.

ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

STATE OF CALIFORNIA ● DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised July 2013)

Date: 5/16/14

District	County	Route	EA	Project ID	PPNO	TCRP No.
07	LA					
Project Title:	City of Glendale Citywide Pedestrian Plan					

Proposed Total Project Cost ($1,000s)									Notes
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Non-Infrastructure
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		158	243	99				500	
TOTAL		158	243	99				500	

Fund No. 1:	ATP								Program Code
Proposed Funding ($1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									Caltrans - ATP Grant
PS&E									Non-Infrastructure
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		158	243	99				500	
TOTAL		158	243	99				500	

Fund No. 2:									Program Code
Proposed Funding ($1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									

Project name:	Citywide Pedestrian Plan

VI. ADDITIONAL INFORMATION

Only fill in those fields that are applicable to your project

FUNDING SUMMARY

ATP Funds being requested by Phase (to the nearest $1000)	**Amount**
PE Phase (includes PA&ED and PS&E)	$ 0
Right-of-Way Phase	$ 0
Construction Phase-Infrastructure	$ 0
Construction Phase-Non-infrastructure	$ 500,000
Total for ALL Phases	**$** 500,000

All Non-ATP fund types on this project* (to the nearest $1000)	**Amount**
	$
	$
	$
	$
	$
	$

*Must indicate which funds are matching

Total Project Cost	$ 500,000
Project is Fully Funded	Yes

ATP Work Specific Funding Breakdown (to the nearest $1000)	**Amount**
Request for funding a Plan	$ 500,000
Request for Safe Routes to Schools Infrastructure work	$ 0
Request for Safe Routes to Schools Non-Infrastructure work	$ 0
Request for other Non-Infrastructure work (non-SRTS)	$ 0
Request for Recreational Trails work	$ 0

ALLOCATION/AUTHORIZATION REQUESTS SCHEDULE

	Proposed Allocation Date	**Proposed Authorization (E-76) Date**
PA&ED or E&P		
PS&E		
Right-of-Way		
Construction		

All project costs MUST be accounted for on this form, including elements of the overall project that will be, or have been funded by other sources.

Project name:	Citywide Pedestrian Plan

VII. NON-INFRASTRUCTURE SCHEDULE INFORMATION

Start Date	End Date	Task/Deliverables
08/01/2014	09/01/2014	Approval of Grant and Project Scope from City and Caltrans
09/01/2014	10/01/2014	Prepare Request for Proposals for Consultant to Prepare Pedestrian Plan
10/01/2014	12/01/2014	City Staff to Review RFP, interview and select Consultant for Pedestrian Plan
01/01/2014	02/01/2015	Consultant Contract approved by City Council
03/01/2015	03/01/2015	Project Kickoff with City Staff and Consultant Team
03/01/2015	07/01/2015	Conduct Field Survey to Assess Existing Pedestrian Infrastructure
03/01/2015	07/01/2015	Conduct Research of Pedestrian Infrastructure Best Practices
03/01/2015	07/01/2015	Evaluate Existing City Policies on Pedestrian Infrastructure
07/01/2015	08/01/2015	Memorandum Summarizing Best Practices, Field Survey, and City Policies
09/01/2015	10/01/2015	Community Outreach - Present Existing Conditions, Discuss Plan Concept
10/01/2015	02/01/2016	Identify Viable Pedestrian/Multi-Modal Corridors
10/01/2015	02/01/2016	Identify Potential Pedestrian Infrastructure Improvements
10/01/2015	02/01/2016	Identify Citywide Pedestrian Policies, consolidate existing City policies
02/01/2016	03/01/2016	Community Outreach - Present Corridors, Proposed Improvements, Policies
03/01/2016	05/01/2016	Prepare Policy, Program and Infrastructure Recommendations
05/01/2016	07/01/2016	Prepare Draft Pedestrian Plan
07/01/2016	08/01/2016	Present Draft Pedestrian Plan to Community Stakeholders/Commissions
08/01/2016	10/01/2016	Prepare Final Pedestrian Plan
10/01/2016	11/01/2016	Present Final Pedestrian Plan to Commissions
11/01/2016	12/31/2016	Present Final Pedestrian Plan to City Council/Adoption of Plan

Project name: Citywide Pedestrian Plan

VIII. APPLICATION SIGNATURES

Applicant: The undersigned affirms that the statements contained in the application package are true and complete to the best of their knowledge.

Signature: _____ Date: 5-16-2014
Name: Michael Nilsson Phone: (818) 937-8164
Title: Mobility Planner e-mail: mnilsson@glendaleca.gov

Local Agency Official (City Engineer or Public Works Director): The undersigned affirms that the statements contained in the application package are true and complete to the best of their knowledge.

Signature: _____ Date: 5-16-2014
Name: Roubik Golanian Phone: (818) 548-3945
Title: City Engineer e-mail: rgolanian@glendaleca.gov

School Official: The undersigned affirms that the school(s) benefited by this application is not on a school closure list.

Signature: _____ Date: N/A
Name: N/A Phone: N/A
Title: N/A e-mail: N/A

Person to contact for questions:

Name: Michael Nilsson Phone: (818) 937-8164
Title: Mobility Planner e-mail: mnilsson@glendaleca.gov

Caltrans District Traffic Operations Office Approval*
If the application's project proposes improvements on a freeway or state highway that affects the safety or operations of the facility, it is required that the proposed improvements be reviewed by the district traffic operations office and either a letter of support or acknowledgement from the traffic operations office be attached (_) or the signature of the traffic personnel be secured below.

Signature: _____ Date: N/A
Name: N/A Phone: N/A
Title: N/A e-mail: N/A

*Contact the District Local Assistance Engineer (DLAE) for the project to get Caltrans Traffic Ops contact information. DLAE contact information can be found at http://www.dot.ca.gov/hq/LocalPrograms/dlae.htm

Project name:
Citywide Pedestrian Plan

VIII. ADDITIONAL APPLICATION ATTACHMENTS

Check all attachments included with this application.

- ☒ Vicinity/Location Map- **REQUIRED for all IF Projects**
  - ☒ North Arrow
  - ☒ Label street names and highway route numbers
  - ☒ Scale
- ☐ Photos and/or Video of Existing Location- **REQUIRED for all IF Projects**
  - ☐ Minimum of one labeled color photo of the existing project location
  - ☐ Minimum photo size 3 x 5 inches
  - ☐ Optional video and/or time-lapse
- ☐ Preliminary Plans- **REQUIRED for Construction phase only**
  - ☐ Must include a north arrow
  - ☐ Label the scale of the drawing
  - ☐ Typical Cross sections where applicable with property or right-of-way lines
  - ☐ Label street names, highway route numbers and easements
- ☐ Detailed Engineer's Estimate- **REQUIRED for Construction phase only**
  - ☐ Estimate must be true and accurate. Applicant is responsible for verifying costs prior to submittal
  - ☐ Must show a breakdown of all bid items by unit and cost. Lump Sum may only be used per industry standards
  - ☐ Must identify all items that ATP will be funding
  - ☐ Contingency is limited to 10% of funds being requested
  - ☐ Evaluation required under the ATP guidelines is not a reimbursable item
- ☐ Documentation of the partnering maintenance agreement- Required with the application if an entity, other than the applicant, is going to assume responsibility for the operation and maintenance of the facility
- ☐ Documentation of the partnering implementation agreement-Required with the application if an entity, other than the applicant, is going to implement the project.
- ☐ Letters of Support from Caltrans (Required for projects on the State Highway System(SHS))
- ☒ Digital copy of or an online link to an approved plan (bicycle, pedestrian, safe routes to school, active transportation, general, recreation, trails, city/county or regional master plan(s), technical studies, and/or environmental studies (with environmental commitment record or list of mitigation measures), if applicable. Include/highlight portions that are applicable to the proposed project.
- ☒ Documentation of the public participation process (required)
- ☐ Letter of Support from impacted school- when the school isn't the applicant or partner on the application (required)
- ☒ Additional documentation, letters of support, etc (optional)

IX. Additional Application Attachments APPENDIX

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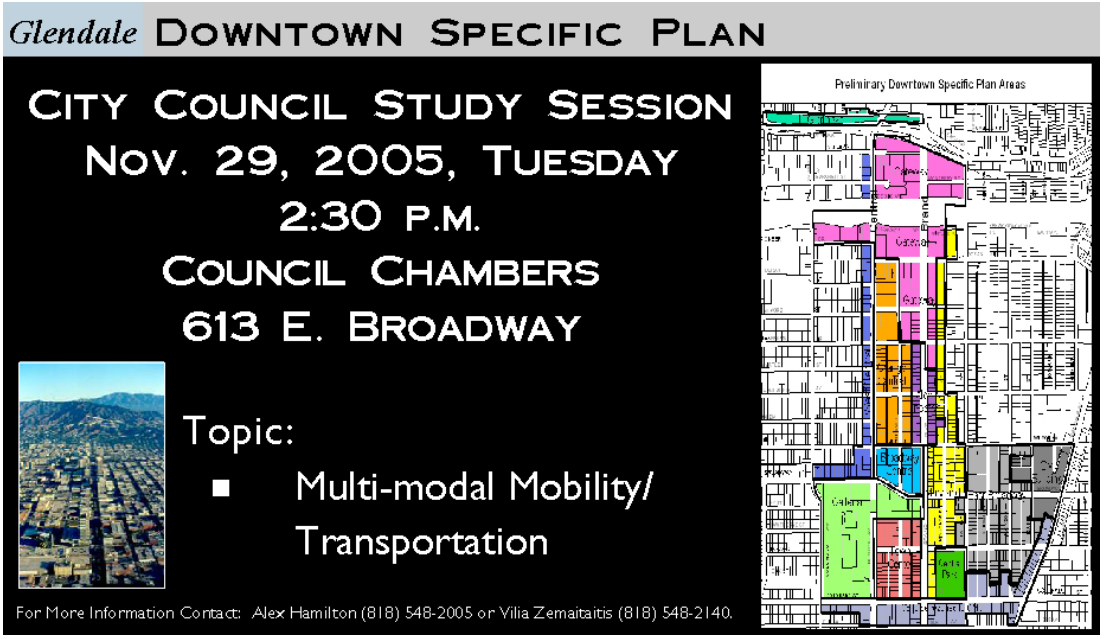
CITY OF GLENDALE BICYCLE AND PEDESTRIAN COLLISIONS……88

Documentation of the Public Participation Process

Glendale Downtown Mobility Study



Safe & Healthy Streets Plan

Greener Glendale Plan

Bicycle Transportation Plan

2009 Community Pedestrian Safety Training

2014 Pedestrian Safety Action Plan Workshop & Walk Audit

1915 to 1918. traditional Armenian GENOCIDE A2 | community groups host the by Columbian Park Quan

Workshop addresses pedestrian-safety issue

UC Berkeley group leads discussion of reducing hazards, improving message.

BY VERONICA ROCHA

Glendale's ongoing issues with pedestrian safety have claimed the lives of two 86-year-old men just within the past four months.

The figure is specifically distressing to Daniel Mehrabian because his grandfather was one of those men killed.

"I wasn't ready to lose him," he said.

Determined to find answers as to why pedestrians, particularly seniors, are being killed by vehicles in Glendale, Mehrabian sat down with community stakeholders Thursday night at the highly-anticipated UC Berkeley pedestrian workshop to discuss the city's enduring traffic safety problem.

The workshop was revived through a move by Transportation and Parking Commissioner Maro Yacoubian, who asked UC Berkeley's Safe Transportation Research and Education Center last year to return to Glendale for a second time to help address its pedestrian-safety problem.

A similar workshop was held in 2009 after Glendale was selected because of its high number of pedestrian-involved collisions and fatalities.

Last year, five people were killed in pedestrian-involved traffic collisions. Police have logged 14 pedestrian deaths — most of which have been seniors — between 2008 and 2013.

Roughly 52% of collisions between 2007 and 2011 were caused because the driver violated the pedestrian's right-of-way, according to California Walks, a pedestrian safety advocacy group.

But in fatal collisions, both driver and pedestrian behavior played a role.

"The only way you can have true impacts and reductions in fatalities, inju-

PEDESTRIAN A4

Community members gather to discuss ideas at a workshop surrounding pedestrian safety at the Glendale Central Library on Thursday.

TIM BERGER
Staff Photographer

PEDESTRIAN

From A1

ries and traffic collisions is through modification of the behaviors of our residents and our visitors," Glendale Police Chief Robert Castro told the group.

Pedestrians should follow the rules of the road, and drivers should slow down and pay attention to their surroundings, he said.

"Working together is the way we are going to do this," Castro said. "Many crime problems that we face, we can solve quickly. One thing I know for sure, traffic safety is a never-ending event."

Just this week, police cited 22 drivers for allegedly failing to yield for a pedestrian during an undercover enforcement operation at Victory Boulevard and Irving Avenue.

Three other drivers were given warnings and an informational pamphlet. Three drivers were also cited for various violations, including speeding, driving without a license and possessing marijuana.

Another approach to addressing pedestrian safety issues is the idea of creating a continuous and focused message.

The group worked together on pedestrian safety concepts including school-based education, wearing reflective clothing, using flags to cross the street, asking volunteers to help seniors safely cross intersections and memorializing victims by using some form of symbolism at the crash sites.

"The names of the victims should never be forgotten," Yacoubian said, adding that the death of Mehrabian's grandfather must not be in vain.

Mehrabian suggested airing public service announcements on Armenian TV networks, which he said many seniors watch and get a majority of their news.

He was certain his grandfather, Abram Mehrabian, would have heeded traffic safety warnings if similar announcements had been aired before his death.

"Awareness could only help," he said.

The group's suggestions will be included in a larger community pedestrian safety action plan, which will be presented on May 22 to Transportation and Parking Commission. Low-cost, high-impact actions will likely rank high on the list, said Roubik Golanian, deputy director of Glendale Public Works.

"This is going to be a living document," he said.

Meanwhile, city staff plans to apply for a transportation grant to help fund any pedestrian-safety efforts.

A final report will likely be presented to the City Council in July.

veronica.rocha@latimes.com

Selected Plans and Studies Cited in ATP Grant Applications

All materials available at the City's FTP site: http://goo.gl/aBpt2o

Circulation Element of the City of Glendale General Plan (1998)
The Circulation Element is a required element of the City's General Plan. It identifies goals and objectives to implement its stated vision: a circulation system which preserves and enhances the quality of life in the city by allowing for commerce to thrive, protecting the character of residential neighborhoods, and minimizing adverse environmental impacts.

Downtown Specific Plan (2006)
The Downtown Specific Plan is an urban design oriented plan, which sets the physical standards and guidelines as well as land use regulations for activities within the Downtown. It seeks to preserve and enhance the aspects which provide each Downtown district its unique character, while improving the attractiveness and liability of the Downtown area.

Downtown Mobility Study (2007)
The Downtown Mobility Study fulfills the requirement of the Downtown Specific Plan for a comprehensive Mobility Program. The recommendations made are designed to manage traffic congestion, to encourage the use of alternative modes, and to support the Downtown Specific Plan (DSP) goal to create a multi-modal and pedestrian-oriented district.

Safe and Healthy Streets Plan (2011)
Through its recommended policies, programs, and resources, the Safe and Healthy Streets Plan seeks a new vision of Glendale where residents live safer, healthier lives by walking and riding a bicycle for both transportation and recreation. This vision promotes the goal of creating a transportation network that meets the needs of all road users, including pedestrians, bicyclists, transit passengers, and people of all ages and abilities, as well as motor vehicles.

Greener Glendale Plan (2011)
The Greener Glendale Plan is the City's plan for helping the community and City of Glendale achieve better sustainability. The Plan assesses what actions the City and community have already taken to be more sustainable, and recommends how to build on these efforts.

Bicycle Transportation Plan (2012)
The Glendale Bicycle Transportation Plan serves as an important step toward integrating bicycles into the City's transportation system. Enhanced bicycle infrastructure coupled with supportive policies can create a significant cultural change and make cycling a way of life. This Plan aims to increase the safety and attractiveness of bicycling in Glendale, and increase the number of trips made by bicycle.

2013 City of Glendale Bicycle and Pedestrian Report (2014)
The purpose of this report is to identify key trends in bicycling and walking activity in Glendale.
Using data from the California Statewide Integrated Traffic Records System (SWITRS), the report also provides a basic assessment of Glendale's bicycling and walking safety statistics.

Glendale Pedestrian Safety Assessment (2011)
The City of Glendale Department of Public Works, Traffic and Transportation Division, requested that the Technology Transfer Program of the Institute of Transportation Studies at University of California, Berkeley conduct a Pedestrian Safety Assessment (PSA) study. Recommendations are provided.

Glendale Memorial Hospital and Health Center 2013 Community Health Needs Assessment (2013)
The Patient Protection and Affordable Care Act (ACA), enacted on March 23, 2010, added new requirements that nonprofit hospital organizations must satisfy to maintain tax-exempt status under section 501(c)(3) of the Internal Revenue Code. One such requirement added by ACA, to Section 501(r) of the Code, requires nonprofit hospitals to conduct a community health needs assessment (CHNA) at least once every three years. Includes executive summary.

Appendix E

Bicycle Injury Collisions by Year and Severity of Injury, 2007-2011

Severity	2007	2008	2009	2010	2011
Fatal	0	0	0	0	0
Injury	37	45	41	60	68
Total	**37**	**45**	**41**	**60**	**68**
Average	**50.2**	**50.2**	**50.2**	**50.2**	**50.2**

Pedestrian Injury Collisions by Year and Severity of Injury, 2007-2011

Severity	2007	2008	2009	2010	2011
Fatal	4	2	0	3	1
Injury	122	88	113	91	91
Total	**126**	**90**	**113**	**94**	**92**
Average	**104.5**	**104.5**	**104.5**	**104.5**	**104.5**

Pedestrian and Bicycle Injury Collisions by Month, 2007-2011

Type	Pedestrian	Bicyclist
January	57	14
February	44	13
March	41	16
April	43	23
May	42	22
June	37	27
July	36	31
August	33	32
September	34	29
October	52	29
November	52	24
December	56	16

Pedestrian and Bicycle Injury Collisions by Time of Day, 2007-2011

Time	Pedestrian	Bicyclist
12-12:59 a.m.	1	0
1-1:59 a.m.	0	1
2-2:59 a.m.	2	0
3-3:59 a.m.	0	0
4-4:59 a.m.	0	1
5-5:59 a.m.	2	1
6-6:59 a.m.	6	4
7-7:59 a.m.	14	10
8-8:59 a.m.	33	12
9-9:59 a.m.	22	17
10-10:59 a.m.	30	13
11-11:59 a.m.	16	19
12-12:59 p.m.	32	23
1-1:59 p.m.	44	19
2-2:59 p.m.	41	13
3-3:59 p.m.	43	36
4-4:59 p.m.	40	27
5-5:59 p.m.	54	22
6-6:59 p.m.	57	22
7-7:59 p.m.	22	18
8-8:59 p.m.	28	5
9-9:59 p.m.	22	7
10-10:59 p.m.	12	3
11-11:59 p.m.	6	3

Pedestrian and Bicycle Injury Collisions by Day of Week, 2007-2011

Day of Week	Pedestrian	Bicyclist
Sunday	31	26
Monday	84	37
Tuesday	94	47
Wednesday	77	38
Thursday	78	52
Friday	98	40
Saturday	65	36

Pedestrian and Bicycle Injury Collisions by Age, 2007-2011

Age of Injured Party	Pedestrian	Bicyclist
0-4 years	7	0
5-9 years	15	7
10-14 years	34	37
15-19 years	64	43
20-24 years	27	32
25-29 years	36	31
30-34 years	20	16
35-44 years	50	25
45-54 years	77	40
55-64 years	60	9
65+ years	149	8
Unknown	1	-

Pedestrian and Bicycle Injury Collisions by Gender, 2007-2011

Gender	Pedestrian	Bicyclist
Male	261	191
Female	248	39
Unknown	31	18

Research

Impact of Physical Activity on Obesity and Health

The Relationship between Physical Activity, Weight, and Academic Achievement

The Influence of the Built Environment on Travel Behaviors

Addressing Pedestrian and Bicyclist Safety

Traffic Congestion and Transportation Trends

Travel Impacts on Air Quality and Greenhouse Gases

Practitioner Information

Publications and Reports

Key Research Topics

Library of Resources

Webinars

Upcoming Webinars

Archived Webinars

Quick Facts

Our Publications

Safe Routes to School E-News Archives

Books and Music for Kids

Voices for Healthy Kids: Active Places

Addressing Pedestrian and Bicyclist Safety

Overview:

Research reports safety as a commonly identified barrier to walking or bicycling to school. The literature on bicycle and pedestrian safety suggests that as safety increases, so does participation in active travel.

The research in this section identifies patterns of active transportation, injury, environmental attributes associated with pedestrian safety, as well as successful strategies to increase safety implemented by Safe Routes to School projects. Implications of this research suggest infrastructure improvements, traffic education for students, and driver enforcement can provide positive impacts on overall pedestrian and bicyclist safety.

Research Highlights:

- *For students living within 1 mile of school, implementation of effective pedestrian interventions can reduce the traffic dangers that prevent children from walking to school (Beck, et al., 2008).*
- *Pedestrian injuries represented 8% of the unintentional injury deaths among children 0 to 19 years of age.(Borse, 2008).*
- *A motorist is less likely to collide with a person walking and bicycling if more people walk or bicycle. For example, an individual's risk while walking in a community with twice as much walking will reduce to 66% (Jacobsen, 2003).*

See 2011 and Earlier Archived Articles

Academic Research Articles and Findings:

"Effects of a cycle training course on children's cycling skills and levels of cycling to school" (2014)

- The primary aim of the present study was to evaluate the short- and longer-term effects of a cycle training on children's cycling skills. A second aim of the study was to examine the effects of a cycle training, with and without parental involvement, on levels of cycling to school and on parental attitudes towards cycling
- Three participating schools were randomly assigned to the "intervention" (25 children), the "intervention plus parent" (34 children) or "control" condition (35 children). A cycle training (4 sessions of 45 min.) took place only in the intervention schools. Parents in the "intervention plus parent" condition were asked to assist their child in completing weekly homework tasks. Children's cycling skills were assessed, using a practical cycling test. All participating children also received a short parental questionnaire on cycling behavior and parental attitudes towards cycling. Assessments took place at baseline, within one week after the last session and at 5-months follow-up. Repeated Measure analyses were conducted to evaluate the effects of the cycle training
- Children's total cycling skill score increased significantly more from pre to post and from pre to 5-months follow-up in the intervention group than in the control group. On walking with the bicycle (F = 1.6), cycling in a straight line (F = 2.6), cycling a slalom (F = 1.9), cycling over obstacles (F = 2.1), cycling on a sloping surface (F = 1.7) and dismounting the bicycle (F = 2.0), the cycle training had no effect. For all other cycling skills, significant improvements were observed on short- and longer-term. No significant intervention effects were found on children's cycling to school levels (F = 1.9) and parental attitudes towards cycling.
- The cycle training course was effective in improving children's cycling skills and the improvements were maintained five months later. However, the cycle training course was not effective in increasing children's cycling to school levels.

Fabian Ducheyne, Ilse De Bourdeaudhuij, Matthieu Lenoir, Greet Cardon,. (2014). Effects of a cycle training course on children's cycling skills and levels of cycling to school. *Accident Analysis & Prevention, 4 Feb 2014*(4 Feb 2014 (online)).

"Active Transportation: Do Current Traffic Safety Policies Protect Non-Motorists?" (2014)

- This study investigated the impact that state traffic safety regulations have on non-motorist fatality rates.
- Data obtained from the National Highway Traffic Safety Administration (NHTSA), the Federal Highway Administration (FHWA), and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) were analyzed through a pooled time series cross-sectional model using fixed effects regression for all 50 states from 1999 to 2009.
- Two dependent variables were used in separate models measuring annual state non-motorist fatalities per million population, and the natural log of state non-motorist fatalities. Independent variables measuring traffic policies included state expenditures for highway law enforcement and safety per capita; driver cell phone use regulations; graduated driver license regulations; driver blood alcohol concentration regulations; bike helmet regulations; and seat belt regulations. Other control variables included percent of all vehicle miles driven that are urban and mean per capita alcohol consumption per year
- Non-motorist traffic safety was positively impacted by state highway law enforcement and safety expenditures per capita, with a decrease in non-motorist fatalities occurring with increased spending. Per capita consumption of alcohol also influenced non-motorist fatalities, with higher non-motorist fatalities occurring with higher per capita consumption of alcohol. Other traffic safety covariates did not appear to have a significant impact on non-motorist fatality rates in the models
- The research suggests that increased expenditures on state highway and traffic safety and the initiation/expansion of programs targeted at curbing both driver and non-motorist intoxication are a starting point for the implementation of traffic safety policies that reduce risks for non-motorists.

Emily M. Madera, Cathleen D. Zickb. (2014). Active Transportation: Do Current Traffic Safety Policies Protect Non-Motorists? *Accident Analysis & Prevention, 4 Feb 2014*. doi: http://dx.doi.org/10.1016/j.aap.2014.01.022

Walking and child pedestrian injury: a systematic review of built environment correlates of safe walking

- BACKGROUND: The child active transportation literature has focused on walking, with little attention to risk associated with increased traffic exposure. This paper reviews the literature related to built environment correlates of walking and pedestrian injury in children together, to broaden the current conceptualization of walkability to include injury prevention.
- METHODS:
  - Two independent searches were conducted focused on walking in children and child pedestrian injury within nine electronic databases until March, 2012. Studies were included which: 1) were quantitative 2) set in motorized countries 3) were either urban or suburban 4) investigated specific built environment risk factors 5) had outcomes of either walking in children and/or child pedestrian roadway collisions (ages 0-12).
  - Built environment features were categorized according to those related to density, land use diversity or roadway design. Results were cross-tabulated to identify how built environment features associate with walking and injury.
- RESULTS of 85 Studies: Fifty walking and 35 child pedestrian injury studies were identified.
  - Only traffic calming and presence of playgrounds/recreation areas were consistently associated with more walking and less pedestrian injury.
  - Several built environment features were associated with more walking, but with increased injury.
  - Many features had inconsistent results or had not been investigated for either outcome.
- *CONCLUSIONS: The findings emphasize the importance of incorporating safety into the conversation about creating more walkable cities.*

Rothman, L., Buliung, R., Macarthur, C., To, T., & Howard, A. (2013). Walking and child pedestrian injury: a systematic review of built environment correlates of safe walking. Inj Prev. doi: 10.1136/injuryprev-2012-040701

How to Increase Bicycling for Daily Travel (2013)

- Bicycling is healthy: it increases physical activity, improves cardiovascular health, and reduces obesity and disease. Bicycling also can be an excellent mode of transportation for people of all ages. In fact, bicycling to school has been shown to improve cardiovascular fitness and overall health among children and adolescents.
- As with virtually any kind of sport or physical activity, bicycling poses some risk of injury, but recent studies show that the health benefits of bicycling far exceed the health risks. Moreover, as bicycling levels increase, injury rates fall, making bicycling safer and providing even larger net health benefits.
- Only 1 percent of all daily trips in the United States are made by bicycle, including fewer than 1 percent of trips to school by children younger than age 16. Many more trips could be made by bicycle, as 40 percent of trips made in the United States are shorter than two miles, which is a reasonable bicycling distance for most people.
- Recognizing this potential, many government agencies and public health organizations have advocated for increasing bicycling as a way to improve people's health and reduce air pollution, carbon emissions, congestion, noise, traffic dangers, and other harmful effects of car use.
- But what are the most effective strategies cities can use to increase bicycling? A growing number of studies have assessed the effectiveness of many strategies for increasing levels of bicycling, including

on-street bike lanes, off-street bike paths, and other bicycling infrastructure; promotional and educational programs, such as bike-to-work days and bicycle training classes; and policies, including parking restrictions and traffic-calmed neighborhoods.
- This brief summarizes the available evidence about strategies for increasing bicycling levels and encouraging bicycling as a mode of transportation. It also presents related policy implications.

Dill, J. Handy, S. Pucher, J. (2013). How to Increase Bicycling for Daily Travel. In D. R. Bassett, D. (Ed.), (pp. 9). San Diego, California: Active Living Research, University of California, San Diego.

Fears of Violence During Morning Travel to School

- Children's safety as they travel to school is a concern nationwide. The authors investigated how safe children felt from the risk of being assaulted during morning travel to school.
- Children between 10 and 18 years old were recruited in Philadelphia and were interviewed with the aid of geographic information system (GIS) mapping software about a recent trip to school, situational characteristics, and how safe they felt as they travelled based on a 10-point item (1 = very unsafe, 10 = very safe). Ordinal regression was used to estimate the probability of perceiving different levels of safety based on transportation mode, companion type, and neighborhood characteristics.
- Among 65 randomly selected subjects, routes to school ranged from 7 to 177 minutes (median = 36) and .1-15.1 street miles (median = 1.9), and included between 1-5 transportation modes (median = 2). Among students interviewed, 58.5% felt less than very safe (i.e., <10) at some point while traveling to school and one-third (32.5%) of the total person time was spent feeling less than very safe. Nearly a quarter of students felt a reduction in safety immediately upon exiting their home. The probability of reporting a safety of >8, for example, was .99 while in a car and .94 while on foot but was .86 and .87 when on a public bus or trolley. Probability was .98 while with an adult but was .72 while with another child and .71 when alone. Perceived safety was lower in areas of high crime and high density of off-premise alcohol outlets.
- Efforts that target situational risk factors are warranted to help children feel safe over their entire travel routes to school.

Douglas J. Wiebe, PhD, Wensheng Guo, PhD, Paul D. Allison, PhD, Elijah Anderson, PhD, Therese S. Richmond, PhD, Charles C. Branas, PhD. (2013). Fears of violence during morning travel to school. *Journal of Adolescent Health,* April 15, 2013. doi: 10.1016/j.jadohealth.2013.01.023.

"Effectiveness of a Safe Routes to School Program in Preventing School-Aged Pedestrian Injury" (2013)

- In 2005, the US Congress allocated $612 million for a national Safe Routes to School (SRTS) program to encourage walking and bicycling to schools. The authors analyzed motor vehicle crash data to assess the effectiveness of SRTS interventions in reducing school-aged pedestrian injury in New York City.
- Using geocoded motor vehicle crash data for 168,806 pedestrian injuries in New York City between 2001 and 2010, annual pedestrian injury rates per 10,000 population were calculated for different age groups and for census tracts with and without SRTS interventions during school-travel hours (defined as 7 AM to 9 AM and 2 PM to 4 PM, Monday through Friday during September through June).
- During the study period, the annual rate of pedestrian injury decreased 33% (95% confidence interval [CI]: 30 to 36) among school-aged children (5- to 19-year-olds) and 14% (95% CI: 12 to 16) in other age groups. The annual rate of school-aged pedestrian injury during school-travel hours decreased 44% (95% CI: 17 to 65) from 8.0 injuries per 10 000 population in the pre-intervention period (2001–2008) to 4.4 injuries per 10 000 population in the post-intervention period (2009–2010) in census tracts with SRTS interventions. The rate remained virtually unchanged in census tracts without SRTS interventions (0% [95% CI: –8 to 8])
- Implementation of the SRTS program in New York City has contributed to a marked reduction in pedestrian injury in school-aged children.

Charles DiMaggio, PhD, MPH and Guohua Li, MD, DrPH. (2013). Effectiveness of a Safe Routes to School Program in Preventing School-Aged Pedestrian Injury. *Pediatrics, 131*(2), 290-296.

"Route Infrastructure and the Risk of Injuries to Bicyclists: A Case-Crossover Study" (2012)

- The authors compared cycling injury risks of 14 route types and other route infrastructure features. They recruited 690 city residents injured while cycling in Toronto or Vancouver, Canada. A case-crossover design compared route infrastructure at each injury site to that of a randomly selected control site from the same trip.
- Of the fourteen route types, cycle tracks had the lowest risk, about one ninth the risk of the reference: major streets with parked cars and no bike infrastructure. Risks on major streets were lower without parked cars and with bike lanes. Local streets also had lower risks. Other infrastructure characteristics were associated with increased risks: streetcar or train tracks, downhill grades, and construction.
- Of the 690 injured cyclists in the study, 59% were male. The injury trips were mainly on weekdays (77%), less than 5 km long (68%), and for utilitarian purposes (74%). Of the injury events, 72% were

collisions (with motor vehicles, route features, people, or animals) and 28% were falls.

- The authors found that route infrastructure does affect the risk of cycling injuries. The most commonly observed route type was major streets with parked cars and no bike infrastructure. It had the highest risk. In comparison, the following route types had lower risks (starting with the safest route type): cycle tracks (also known as "separated" or "protected" bike lanes) alongside major streets (about 1/10 the risk) residential street bike routes (about 1/2 the risk) major streets with bike lanes and no parked cars (about 1/2 the risk) off-street bike paths (about 6/10 the risk) The following infrastructure features had increased risk: streetcar or train tracks (about 3 times higher than no tracks) downhill grades (about 2 times higher than flat routes) construction (about 2 times higher than no construction).
- The lower risks on quiet streets and with bike-specific infrastructure along busy streets support the route-design approach used in many northern European countries. Transportation infrastructure with lower bicycling injury risks merits public health support to reduce injuries and promote cycling.

Teschke, K., M. A. Harris, et al. (2012). Route Infrastructure and the Risk of Injuries to Bicyclists: A Case-Crossover Study. American Journal of Public Health 102(12): 2336-2343.

"Where Do Cyclists Ride? A Route Choice Model Developed with Revealed Preference GPS Data" (2012)

- To better understand bicyclists' preferences for facility types, GPS units were used to observe the behavior of 164 cyclists in Portland, Oregon, USA for several days each. Trip purpose and several other trip-level variables recorded by the cyclists, and the resulting trips were coded to a highly detailed bicycle network.
- The authors used the 1449 non-exercise, utilitarian trips to estimate a bicycle route choice model. The model used a choice set generation algorithm based on multiple permutations of path attributes and was formulated to account for overlapping route alternatives.
- The findings suggest that cyclists are sensitive to the effects of distance, turn frequency, slope, intersection control (e.g. presence or absence of traffic signals), and traffic volumes. In addition, cyclists appear to place relatively high value on off-street bike paths, enhanced neighborhood bikeways with traffic calming features (aka "bicycle boulevards"), and bridge facilities.
- Bike lanes more or less exactly offset the negative effects of adjacent traffic, but were no more or less attractive than a basic low traffic volume street. Finally, route preferences differ between commute and other utilitarian trips; cyclists were more sensitive to distance and less sensitive to other infrastructure characteristics for commute trips.

Broach, J., J. Dill, et al. (2012). Where Do Cyclists Ride? A Route Choice Model Developed with Revealed Preference GPS Data. Transportation Research Part A: Policy and Practice 46(10):1730-1740.

"The Roles of Gender, Age and Cognitive Development in Children's Pedestrian Route Selection" (2012)

- Thousands of American children under the age of 10 years are injured annually as pedestrians. Despite the scope of this public health problem, knowledge about behavioral control and developmental factors involved in the etiology of child pedestrian safety is limited. The present study examined the roles of gender, age and two aspects of cognitive development (visual search and efficiency of processing) in children's safe pedestrian route selection.
- Measures of cognitive functioning (visual search and efficiency) and selections of risky pedestrian routes were collected from 65 children aged 5–9 years.
- Boys, younger children and those with less developed cognitive functioning selected riskier pedestrian routes. Cognitive functioning also subsumed age as a predictor of risky route selections.
- The findings suggest developmental differences, specifically less developed cognitive functioning, play important roles in children's pedestrian decision making.

Barton, BK, Ulrich, T, Lyday, B. (2012). "The roles of gender, age and cognitive development in children's pedestrian route selection." Child: Care, Health and Development 38(2): 280–286.

"Neighborhood Social Inequalities in Road Traffic Injuries: The Influence of Traffic Volume and Road Design" (2012)

- Researchers examined the extent to which differential traffic volume and road geometry can explain social inequalities in pedestrian, cyclist, and motor vehicle occupant injuries across wealthy and poor urban areas.
- They performed a multilevel observational study of all road users injured over 5 years (n = 19 568) at intersections (n = 17 498) in a large urban area (Island of Montreal, Canada). They considered intersection-level (traffic estimates, major roads, number of legs) and area-level (population density, commuting travel modes, household income) characteristics in multilevel Poisson regressions that nested intersections in 506 census tracts.
- There were significantly more injured pedestrians, cyclists, and motor vehicle occupants at intersections in the poorest than in the richest areas. Controlling for traffic volume, intersection geometry, and pedestrian and cyclist volumes greatly attenuated the event rate ratios between intersections in the

poorest and richest areas for injured pedestrians (−70%), cyclists (−44%), and motor vehicle occupants (−44%).
- Roadway environment can explain a substantial portion of the excess rate of road traffic injuries in the poorest urban areas.

Morency, P., L. Gauvin, et al. (2012). "Neighborhood Social Inequalities in Road Traffic Injuries: The Influence of Traffic Volume and Road Design." American Journal of Public Health 102(6): 1112-1119.

"Impact of a Pilot Walking School Bus Intervention on Children's Pedestrian Safety Behaviors: A Pilot Study" (2012)

- Walking school buses (WSB) increase children's physical activity, but their impact on pedestrian safety behaviors (PSB) is unknown.
- To fill this knowledge gap, the authors tested the feasibility of a protocol evaluating changes to PSB during a WSB program.
- Outcomes were school-level street crossing PSB prior to (Time 1) and during weeks 4–5 (Time 2) of the WSB. The protocol collected 1252 observations at Time 1 and 2548 at Time 2.
- This pilot study demonstrated the feasibility of collecting school-level pedestrian safety behavior outcomes and changes to those outcomes during a WSB program study. Mixed model analyses indicated that intervention schoolchildren had 5-fold higher odds of crossing at the corner/crosswalk but 5-fold lower odds of stopping at the curb.
- The WSB was associated with more children crossing at an intersection, but fewer children fully stopping at the curb. These mixed results suggest modification to the WSB program may be necessary in order to improve children's pedestrian safety behaviors on the walk to and from school.
- Further WSB studies, preferably fully powered experimental trials that longitudinally follow participants' pedestrian safety behaviors in the long term, should be conducted in a variety of settings among diverse populations to formally evaluate pedestrian safety and physical activity outcomes. Moreover, studies that examine the influence of the built environment, use objective measures of neighborhood safety, and consider vehicular traffic are also necessary to evaluate their influences on the WSB and children's pedestrian safety.
- The protocol appears feasible for documenting changes to school-level PSB.

Mendoza, J. A., K. Watson, et al. (2012). "Impact of a pilot walking school bus intervention on children's pedestrian safety behaviors: A pilot study." Health & Place 18(1): 24-30.

"Parental Attitudes towards Children Walking and Bicycling to School: A Multivariate Ordered Response Analysis" (2012)

- Recent research suggests that, besides traditional socio-demographic and built environment attributes, the attitudes and perceptions of parents towards walking and bicycling play a crucial role in deciding their children's mode choice to school. However, very little is known about the factors that shape these parental attitudes towards their children actively commuting to school.
- This study investigated this unexplored avenue of research and identified the influences on parental attitudes towards their children walking and bicycling to school, as part of a larger nationwide effort to make children more physically active and combat rising trends of childhood obesity in the US.
- Through the use of a multivariate ordered response model (a model structure that allows different attitudes to be correlated), the study analyses five different parental attitudes towards their children walking and bicycling to school, based on data drawn from the California add-on sample of the 2009 National Household Travel Survey. In particular, the subsample from the Los Angeles – Riverside – Orange County area is used in this study to take advantage of a rich set of micro-accessibility measures that are available for this region.
- The study found that school accessibility, work patterns, current mode use in the household, and socio-demographic characteristics shape parental attitudes towards children walking and bicycling to school. The study findings provide insights on policies, strategies, and campaigns that may help shift parental attitudes to be more favorable towards their children walking and bicycling to school.

Seraj, S., R. Sidharthan, et al. (2012). Parental Attitudes Towards Children Walking and Bicycling to School: A Multivariate Ordered Response Analysis. *Paper for the 91st Annual Meeting of the TRB, Washington, DC*, January 2012.

See 2011 and Earlier Archived Articles

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APPENDIX D

USER MOBILITY BENEFITS

Trails, Lanes, or Traffic: Valuing Bicycle Facilities with an Adaptive Stated Preference Survey

INTRODUCTION

If bicycling is to be a viable mode of transportation, it must have appropriate facilities. Evaluating what is appropriate requires an understanding of preferences for different types of cycling facilities. In this study we explore and provide a quantitative evaluation of individual preferences for different cycling facility attributes. This understanding can be incorporated into an evaluation of what facilities are warranted for given conditions.

The facilities considered here are A) Off-road facilities, B) In-traffic facilities with bike lane and no on-street parking, C) In-traffic facilities with a bike lane and on-street parking, D) In-traffic facilities with no bike lane and no on-street parking, and E) In-traffic facilities with no bike lane but with on-street parking. The aim is to understand what feature people desire by quantifying how many additional minutes of travel they would be willing to expend if these features were to be available. This added travel time is the price that individuals are willing to pay for the perceived safety and comfort the attributes provide.

A computer based adaptive stated preference survey was developed and administered to collect data for this study. To understand if the value that people attach to attributes of facilities is systematically related to different individual and social characteristics, the study has also collected demographic, socioeconomic, household, and current travel mode information from each participant. This information is then used to build an empirical model to evaluate relationships between these independent variables and the additional travel time that people are willing to expend for different attributes of cycling facilities. In addition to giving a measure of the appeal of the attributes under discussion, the model also highlights the social and individual factors that are important to consider in evaluating what facilities to provide.

Interest in studying bicyclists and cycling environments is growing. Recent papers by a number of authors have investigated preferences of cyclists and the bicycling environment as well as the relationship between the supply and use of facilities. Availability of cycling facilities and the type and quality of a cycling facility are important determinants of how well they are used. Studies by Dill et al. (*55*) and Nelson et al. (*174*) have shown that there is a positive correlation between the number of facilities that are provided and the percentage of people that use bicycling for commuting purposes. While both studies state that causality cannot be proved from the data, Nelson and Allen (*174*) state that in addition to having bicycle facilities, facilities must connect appropriate origins and destinations to encourage cycling as an alternative commuting mode.

Bovy and Bradley (*194*) used stated preference (SP) to analyze bicycle route choice in the city of Delft. Their work looked at facility type, surface quality, traffic levels and travel time in route choice. They found that travel time was the most important factor in route choice followed by surface type. Another study by Hopkinson and Wardman (*195*) investigated the demand for cycling facilities using stated preference in a route choice context. They found that individuals were willing to pay a premium to use facilities that are deemed safer. The authors argue that increasing safety is likely more important than reducing travel time to encourage bicycling.

Abraham et al. (*196*) also investigated cyclist preferences for different attributes using a SP survey again in the context of route choice. Respondents were given three alternate routes and their attributes and were then asked to rank the alternatives. The responses were analyzed using a logit choice model. Among other variables that were of interest to their study, the authors found that cyclists prefer off-street cycling facilities and low-traffic residential streets. But the authors also claim that this may be due to an incorrect perception of safety on the part of the respondents, and education about the safety of off-road facilities may change the stated choice.

Shafizadeh and Niemeier (*197*) investigate the role that proximity to an off-road bicycle trail plays in route choice decisions. Using intercept surveys along the Burke-Gilman trail in Seattle, they find that among people who reported origins near the off-road facility, travel time gradually increases as they are further from trail to a point and then decreases, leading them to speculate that there may be a 0.5 to 0.75 mile "bike shed" around an off-road bike path, within which individuals will be willing to increase their travel time to access that facility and outside of which a more direct route seems to be preferred.

Aultmann-Hall, Hall, and Beatz (*198*) use GIS to investigate bicycle commuter routes in Guelph, Canada. While comparing the shortest path to the path actually taken, they found that people diverted very little from the shortest path and that most bicycle commuters use major road routes. They found little use of off-road trails. While this may be due to the location of the trails and the O-D pair they connect, even in five corridors where comparably parallel off-road facilities do exist to in-traffic alternatives, they found that commuters used the in-traffic facilities much more often. Only the direct highest quality off-road facility (one that is "wide with a good quality surface and extends long distance with easy access points") seemed to be used relatively more.

Stinson and Bhat (*199*) using data from a web based stated preference survey estimate a logit model to understand important attributes for commuter cyclist route choice. They find that respondents preferred bicycling on residential streets to non residential streets, likely because of the low traffic volumes on residential streets. While their model showed that the most important variable in route preference was travel time, the facility was also significant. It was shown that cyclists preferred in-traffic bike lanes more than off-road facilities. Both facility types had a positive effect on utility but the former added more to utility than the latter. In addition they find that cyclists try to avoid links with on-street parking. Another study by Taylor and Mahmassani (*200*), also using a SP survey to investigate bike and ride options, finds that bike lanes provide greater incentives to inexperienced cyclists (defined as those with a "stated low

to moderate comfort levels riding in light traffic") as compared with more experienced cyclists, with the latter group not showing a significant preference to bike lanes over wide curb lanes.

The results from these papers seem somewhat mixed. Though some of the research has shown a stated preference and revealed preference with some constraints for off-road facilities, others have shown that cyclists generally prefer in-traffic cycling facilities with bike lanes. Especially in revealed preference cases, the apparent preference for in-traffic routes may be due to their ability to connect to many destinations in a more direct fashion and therefore leading to a lower travel time. In addition, route choice may be restricted by facility availability, geographic features or missing information. It may also be that for people who regularly bicycle, who are most likely the subjects of the revealed preference studies, travel time and not perceived safety are likely of utmost importance, as these individuals are more likely to be conditioned to the cycling environment. The actual preference therefore may not be for the in-traffic facility; however, it may be the best alternative available to the cyclists.

Commuter choices are clearly limited by facilities that are available to them. Understanding preferences and behavior is crucial to providing choices that people desire. This can be best accomplished when the value of any given improvement in facility attribute is known. Valuation of facility attributes can be done by considering what people are willing to pay for using these facilities. In this study we try to uncover this value by measuring how much additional time individuals would be willing to spend bicycling between a given origin and destination if alternate facilities with certain attributes were available to them.

In the next section we present the methodology in detail. This is followed by a description of the survey instrument and design. The analysis methodology is presented, and then the results.

METHODOLOGY

The methodology we follow to extract this valuation of attributes uses an Adaptive Stated Preference (ASP) survey. While both revealed and stated preference data can be used to analyze preferences, there are certain advantages to using the latter method in this case. In using consumer revealed preference, often a limitation arises because only the final consumer choice is observed. This makes it difficult to ascertain how consumers came to their final decision. This complication arises because the number of choices that are available to each consumer may be very large, and information on those alternatives that went into an individual's decision may not be fully known. Even in cases where all possible alternatives are known, it is difficult to assess whether the decisionmakers considered all available alternatives. In addition, the exact tradeoff of interest may not be readily available. Even in cases where the tradeoffs seem to be available, one cannot be certain that the consumer is acting out his preference for the attributes we are observing. The lack of appropriate data can pose a major challenge in this respect.

Stated preference surveys overcome these complications because the experimenter controls the choices. In SP settings, the experimenter determines the choices and the respondent considers. While this may not reflect the actual market choice that individual would make because of the constraints the survey places on the choice set, it allows us to measure attribute differences between the presented alternatives. Further, by using specialized forms of SP such as ASP, one can measure the exact value individuals attach to attributes of interest. In this type of survey each option is presented based on choices the respondent has already made. This allows for the presentation of choices that the individual can actually consider while removing alternatives that the respondent will surely not consider. This methodology has been adopted in a number of contexts, including value of time for commercial vehicle operators (*201*), in mode choice experiments (*202*), and in evaluating transit improvements (*203*).

SURVEY INSTRUMENT, DESIGN, AND ADMINISTRATION

All respondents of the ASP survey were given nine presentations that compared two facilities at a time. Each presentation asks the respondent to choose between two bicycle facilities. The respondent is told that the trip is a work commute and the respective travel time they would experience for each facility is given. Each facility is presented using a 10-second video clip taken from the bicyclists' perspective. The clips loop three times and respondents are able to replay the clip if they wish.

Each facility is compared with all other facilities that are theoretically of lesser quality. For example, an off-road facility (A) is compared with a bike lane no on-street parking facility (B), a bike lane with parking facility (C), a no bike lane and no parking facility (D), and a no bike lane with parking facility (E). Similarly, the four other facilities (B, C, D and E) are each compared with those facilities that are theoretically deemed of a lesser quality. The less attractive of the two facilities is assigned a lower travel time and the alternate (higher quality) path is assigned a higher travel time. The respondent goes through four iterations per presentation with travel time for the more attractive facility being changed according to the previous choice. The first choice set within each presentation assigns the lesser quality facility a 20-minute travel time and the alternate (higher quality) path a 40-minute travel time. Travel time for the higher quality facility increases if the respondent chose that facility, and it decreases if the less attractive facility was selected. A bisection algorithm works between 20 and 60 minutes either raising or lowering the travel time for the alternate path so that it becomes less attractive if it is chosen or more attractive if the shortest path is chosen. By the fourth iteration, the algorithm converges on the maximum time difference where the respondent will choose the better facility. This way the respondent's time value for a particular bicycling environment can be estimated by identifying the maximum time difference between the two route choices that he/she will still choose the more attractive facility. Pictures of these facilities are shown on Figure 13. Figure 14 maps the locations of the facilities where the videos were taken in St. Paul, Minnesota.

The procedure used to converge on the time trade-off for the particular facility is illustrated as follows. If the subject first chose the longer option, then the next choice set assigns a higher travel time for the higher quality path (raised from 40 minutes to 50 minutes). If the respondent still chooses the longer option, the travel time for that choice increases to 55 minutes and the choice is posed again. If on the other hand, the 50-minute option is rejected and the respondent chose the 20-minute route, the bisection algorithm will calculate a travel time that is between the now rejected option and the previously accepted option, in this case 45 minutes. By the time the respondent makes a fourth choice, the survey will have either narrowed down the respondent's preference to within 2 minutes or the respondent will

(A) Off-road bicycle facility

(B) Bike lane, no parking

(C) Bike lane, on-street parking

(D) Bike lane, no parking

(E) No bike lane, on-street parking

Figure 13. Cycling facilities used in the study.

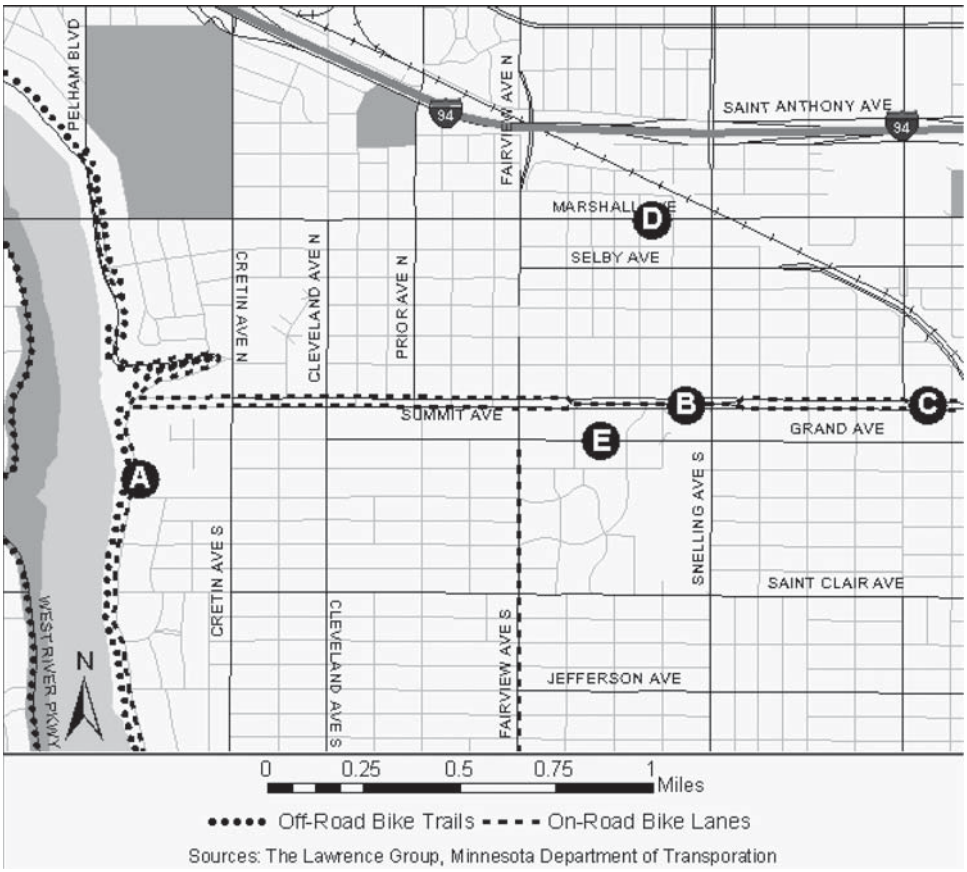

Figure 14. Location of facilities used in the Adaptive Stated Preference survey. (Note: (A) off-road facility; (B) bicycle lane, no parking facility; (C) bicycle lane, on-street parking facility; (D) no bicycle lane, no parking facility; (E) no bicycle lane, on-street parking facility.)

TABLE 16 Facility pairs compared in the ASP survey

		Base Route			
		B Bike lane, no parking	C Bike lane with on-street parking	D No bike lane, no parking	E No bike lane with on-street parking
Alternate routes	A off-road	$\mathbf{T}_1$	$\mathbf{T}_2$	$\mathbf{T}_3$	$\mathbf{T}_4$
	B Bike lane, no parking	N/A	$\mathbf{T}_5$	$\mathbf{T}_6$	$\mathbf{T}_7$
	C Bike lane with on-street parking	N/A	N/A	N/A	$\mathbf{T}_8$
	D No bike lane, no parking	N/A	N/A	N/A	$\mathbf{T}_9$

T_i represents the average additional travel time users are willing to travel.

have hit the maximum travel time that can be assigned to the longer trip, which is 58.5 minutes. Table 16 shows the pairs of comparisons that were conducted and used in the analysis. Table 17 shows a sample series of travel time presentations and Figure 15 shows sample screenshots of the survey instrument.

The survey was administered in two waves, once during winter and once during summer. The winter and summer respondents were shown video clips that reflected the season at the time of the survey taken at approximately the same location. Our sample for both waves comprised employees from the University of Minnesota, excluding students and faculty. Invitations were sent out to 2,500 employees, randomly selected from an employee database, indicating that we would like them to participate in a computer based survey about their commute to work and offering $15 for participation. Participants were asked to come to a central testing station, where the survey was being administered. A total of 90 people participated in the winter survey and another 91 people participated in the summer survey, making a total of 181 people. Among these, 13 people had to be removed due to incomplete information, leaving 168 people. Of these 168, 68 people indicated that they have bicycled to work at least once in the past year. Thirty-eight of these 68 identified themselves as regular bicycle commuters at least during the summer. Also, 127 of the 168 people said they have bicycled to somewhere, including work, in the past year. Further demographic information on the respondents is given in Table 18.

TABLE 17 Choice order for a sample presentation

Presentation	Facility Travel Time		Choice
	Route 1	Route 2	
choice set **1**	40 min	20 min	Route 2
choice set **2**	30 min	20 min	Route 1
choice set **3**	35 min	20 min	Route 1
choice set **4**	37 min	20 min	Route 2
$\mathbf{T}_i$	36 min		

MODEL SPECIFICATION AND RESULTS

Switching Point Analysis

The adaptive nature of the survey allows us to extract the actual additional minutes each individual is willing to travel on an alternate facility. In the context of the survey, this is the maximum travel time beyond which the respondent would switch to use the base facility. For each pair of facilities that are compared during the summer and the winter, the averages of this switching point are computed and plotted in Figure 16. On average, individuals are willing to travel more on an alternate facility when the base facility is E (undesignated with on-street parking), followed by D (no bike lane without parking) and C (bike lane with parking). For example, individuals are willing to travel further on facility B when the base facility is E, as opposed to D or C.

Figure 16 shows the hierarchy between facilities clearly—each of the lines plotted connects the average additional travel time that individuals are willing to bicycle over the 20 minutes that they would have bicycled if they had chosen the base facility. For example, looking at the winter data, the top solid line connects the average additional time individuals say they would travel on an alternate facility when the base facility is E (in-traffic with parking at 20 minutes). The alternate facilities are as shown on the horizontal axis. For example, on average respondents are willing to travel about 22 additional

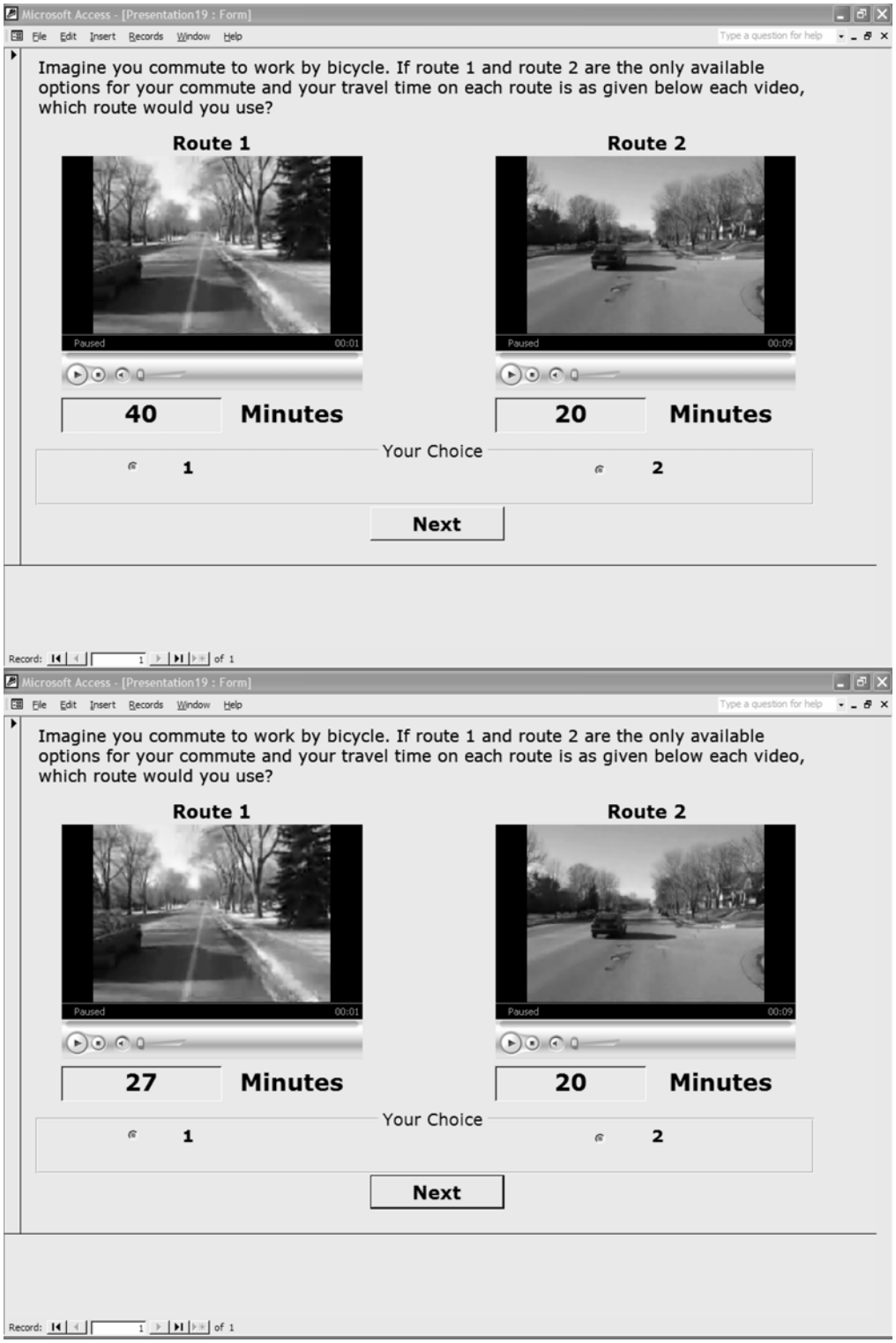

Figure 15. Top: comparing designated bicycle lanes with no parking with in-traffic bicycling with no parking. Bottom: same presentation three iterations later.

TABLE 18 Demographic distribution of respondents

Number of subjects		168
Sex		
	% Male	34.5%
	% Female	65.5%
Age	Mean (Std. deviation)	44.19 (10.99)
Usual mode (Year round)		
	%Car	69.7%
	%Bus	18.5%
	%Bike	9.2%
	%Walk	2.6%
Bike commuter		
	All season	9.2%
	Summer	22.6%
HH income		
	< $30,000	8.3%
	$30,000 - $45,000	14.3%
	$45,000 - $60,000	19.6%
	$60,000 - $75,000	15.5%
	$75,000 - $100,000	20.2%
	$100,000 - $150,000	17.9%
	> $150,000	4.2%
HH Size		
	1	25.0%
	2	32.7%
	3	16.7%
	4	20.8%
	> 4	4.8%

minutes if an off-road bike path is available if the alternative is to bike in traffic. We can further describe the data by employing techniques such as the non-parametric bootstrap. The bootstrap approximates the sampling distribution of the mean by repeatedly sampling with replacement from the original data. We employ the nonparametric bootstrap where no prior assumptions are made on the distribution of the statistic. The bootstrap approach was first developed by Efron in 1979 (*204*).

Consider the histogram shown in Figure 17, it reflects the additional travel times individuals in the sample said they would travel between facilities A (off-road) and C (in traffic with parking). It is difficult to make any distributional assumptions based on the observed sample. Employing the nonparametric bootstrap on this data with 5,000 resamples (Figure 18), we can see that the bootstrap distribution of the mean is very close to normal, and hence a normal interval can be built around it. The bootstrap distributions of all nine pairs of comparisons lead to very symmetric distributions that show no evidence of non-normality. The percentile confidence interval based on the actual 2.5% and 97.5% values of the bootstrapped mean are also computed. The bootstrap also allows us to estimate the bias of the sample mean. The sample mean, the estimate of the bias and the confidence interval (CI) using the normal distribution and the percentile of the bootstrap are reported in Table 19 for each pair of comparisons both for the combined and season specific data.

Model

We start with the economic paradigm of a utility maximizing individual, where given a bundle of goods the individual chooses that bundle which results in the highest possible utility from the choice set. In the current context then, given two alternatives, the chosen alternative is the one that the respondent derives a higher utility from. We can then break down each bundled alternative to its components to understand what amount each contributes to utility. This will enable us to extract the contribution of each feature of the facility in the choice consideration of the individual. Mathematically, we would state this as alternative A is selected if U_A is greater than U_B, where A and B are the alternatives and U is the utility function.

We hypothesize that the utility a user derives from using a bicycle facility depends on the features of the facility and the expected travel time on the facility. Choices are also affected by individual characteristics that we may not directly observe but can try to estimate using individual specific variables such as income, sex, age etc. As discussed earlier, each individual records a response over various alternatives, and therefore the data reflects the repeated choices over the same respondent. This implies that the errors are no longer independently distributed. To overcome this problem one can use a generalized linear mixed model which would estimate a random effect for the between-subject effect, thus separating the within-subject and between-subject errors. Both subject random effects are assumed to have a normal distribution with zero mean and separate variances. The error term of the utility's linear component is assumed to have a Gumbel distribution. The model's linear utility component is specified as follows:

U = f (Facility, Travel Time, Season, Individual Variables)

The utility of a particular alternative can be written as follows:

$$U_{iA} = V_{iA} + \epsilon_{iA}$$

$$V_{iA} = \beta_0 + \beta_1 W_{iA} + \beta_2 O_{iA} + \beta_3 B_{iA} + \beta_4 P_{iA} + \beta_5 T_{iA} + \beta_6 S_{iA} + \beta_7 A_{iA} + \beta_8 I_{iA} + \beta_9 H_{iA} + \beta_{10} C_{iA}$$

Where:

W = Weather (winter = 1, summer = 0)
O = dummy indicating whether the facility is off-road (1 = Yes, 0 = No)
B = dummy indicating whether the facility has a bike lane (1 = Yes, 0 = No)
P = dummy indicating whether on-street parking is absent or present (1 = absent, 0 = present)
T = Expected travel time on the facility being considered
S = Sex (Male = 1, Female = 0)
A = Age
I = Household Income (Inc/1000)
H = Household Size (>2 = 1, Otherwise = 0)
C = Cyclist at least during summer (Yes = 1, No = 0)
β = estimable coefficient
$\epsilon \sim$ Gumbel (0, λ)

To interpret the model appropriately it is important to note how the dummy variables are coded (Table 20). Variable B represents whether a facility has a designated bike lane, O represents whether

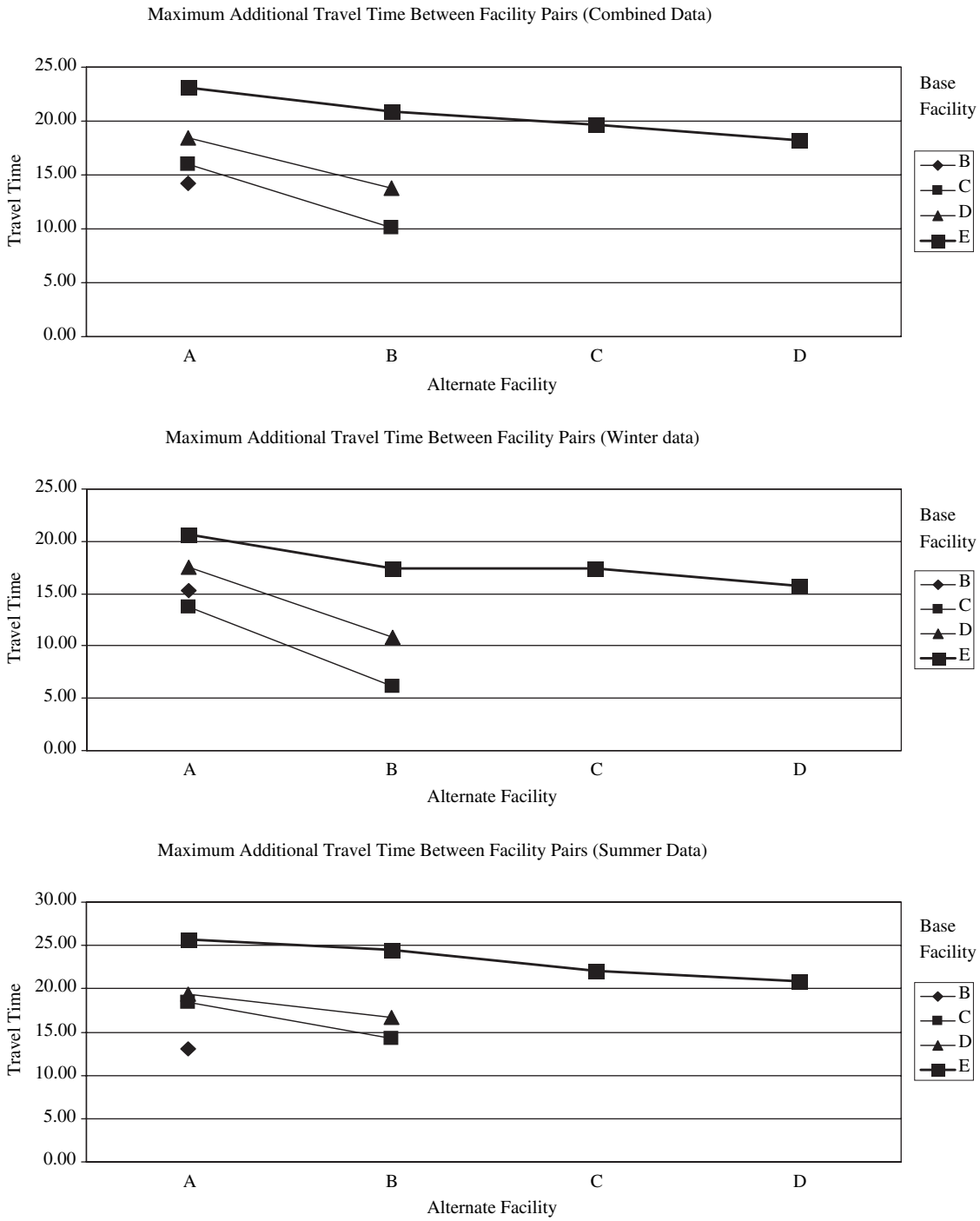

Figure 16. Hierarchy of facilities. (Note: (A) off-road facility; (B) a bike lane, no parking facility; (C) a bike lane, on-street parking facility; (D) a no bike lane, no parking facility; (E) a no bike lane, on-street parking facility.)

the facility is off-road, and P represents whether a facility has no parking adjacent to it. This would allow separately valuating bike lanes as well as being off-road. It should be observed that 'O' is not equivalent to an off-road trail. 'B' and 'O' together constitute an off-road trail.

The parameter estimates of binomial logit model are given in Table 21. The model is estimated such that the results indicate the odds of choosing the theoretically better facility. Choices depend on the attributes of the facilities, the travel time the user experiences on the facilities, and individual characteristics. The signs of the estimated parameters are as expected. The travel time is negative showing an aversion to longer trips. The improvements (off-road, bike lane and no parking) all have a positive and significant influence on choice of different magnitudes. Of these three, a bike lane improvement

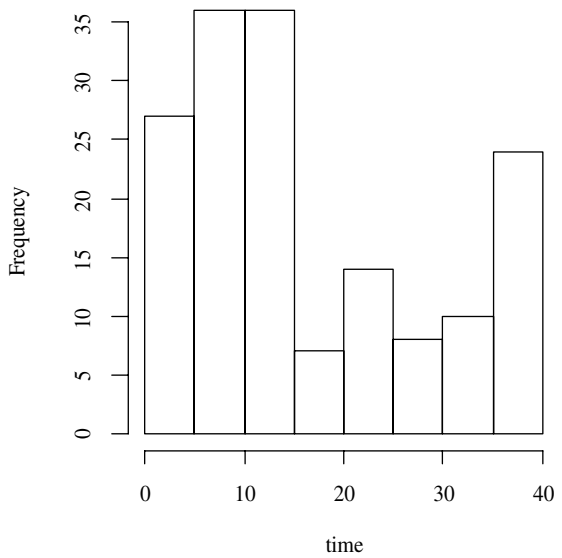

Figure 17. Distribution of additional travel time for facility C over facility A.

increases the odds much more than a parking elimination or that of an off-road improvement alone.

The season variable is negative and significant, indicating that people have lower odds of choosing the higher travel time facility during winter than during summer. Looking at the individual covariates that are used, income and sex are not significant at the 0.10 level; however the signs seem to indicate that women have a higher tendency to choose the facilities that are perceived safer (better quality) than men (p-value = 0.11); and higher incomes seem to be associated with a tendency to choose the better quality facility (p-value = 0.11). The cyclist variable, which indicates if the respondents use bicycling as their main mode at least during summer, is highly insignificant;

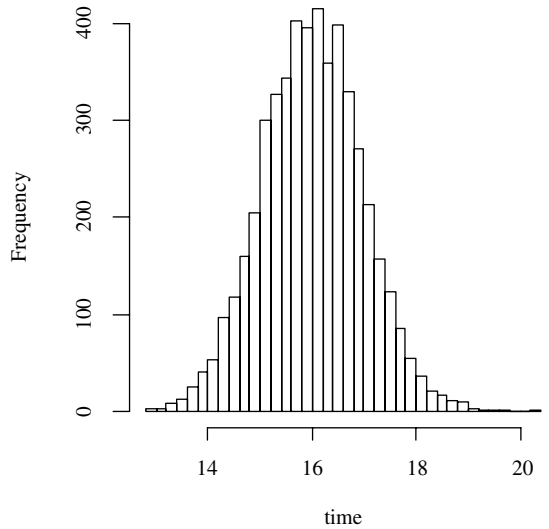

Figure 18. The bootstrapped mean for the additional travel time between facilities A and C (based on 5,000 resamples).

indicating that preferences are not dictated by experience at least in this SP context. The model also tells us that older individuals have higher odds of choosing the better quality facility. Also, individuals whose household size is greater than two have lower odds of choosing the better quality, longer travel time facility. This may be because these individuals have higher constraints on their time than individuals who live in single or two person households.

The estimates of a linear utility model can be used to determine the value of an off-road facility, a bike lane facility and a facility with no parking in terms of the time cost of travel. These are derived using the marginal rate of substitution between each of the facility features and travel time (Table 22). These values are derived based on SP questions that have a 20-minute base travel time, and should be interpreted as such. Accordingly, a bike lane improvement is valued at 16.3 minutes, a no parking improvement is valued at 8.9 minutes and an off-road improvement is valued at 5.2 minutes. This is to say, keeping utility at the same level, one can exchange the off-road improvement for 5.2 minutes of travel time, a bike lane for 16.3 minutes of travel time and a no parking improvement for 8.9 minutes of travel time. This says that the most value is attached to having a designated bike lane. While having an off-road facility would certainly increase the utility of the individual, most of the gains of an off-road facility seem to be derived from the fact that such facilities provide a designated bike lane. The absence of parking is also valued more than taking the facility off-road.

An alternate specification of the model looks at time as a dependent variable and features of the facility as independent variables along with demographic covariates. This specification also employs a mixed models approach to account for the repeated measurements taken over the same subject. The dependent variable is the switching point travel time minus the base facility travel time. This approach yields similar patterns in the order of valuation of the different attributes of the facilities and the expected directions of the parameter estimates. A side by side comparison of the two model coefficients is not possible; however, we can compare the values derived for different facility pairs based on our logit model and the linear model (Table 23). This is given in Table 24 and Figure 19. As can be seen, most comparisons are very close to one another in magnitude. As Figure 19 shows, the results derived from the logit model more closely replicate what is observed in the raw data, even though that is not always the case across the nine comparisons.

The overall assessment of the models suggests that designated bike lanes seem to be what are desired the most. It is also important to consider that both the linear and logit models found no evidence against the possibility that preferences between cyclists and non-cyclists are the same. This is encouraging in many respects, because it avoids the dilemma of which interest to serve. The policy implication is that by addressing this common preference, we can ensure cyclists receive the facilities they prefer and non-cyclists get the facilities that they could at least consider as a viable alternative.

CONCLUSION

This appendix analyzes preferences for different cycling facilities using a computer-based adaptive stated preference survey with first person videos. Using the survey on 168 randomly recruited individuals, we derive the values that users attach to different cycling facility features and expose which are most important. The choice data were collected based on individual preferences between different

TABLE 19 Mean additional travel time between facility pairs and confidence interval of the bootstrapped distribution of the mean

Fac1	Fac2	Original Mean	Bias	Standard Error	Normal 95% CI	Percentile 95% CI
Combined Data						
A	B	14.21	0.0223	0.962	(12.30, 16.08)	(12.41, 16.17)
A	C	16.00	0.0136	0.964	(14.10, 17.88)	(14.16, 17.92)
A	D	18.46	-0.0160	0.984	(16.55, 20.41)	(16.58, 20.40)
A	E	23.14	-0.0051	0.939	(21.30, 24.98)	(21.26, 24.94)
B	C	10.13	0.0092	0.973	(8.21, 12.03)	(8.25, 12.06)
B	D	13.73	-0.0008	0.957	(11.85, 15.61)	(11.90, 15.62)
B	E	20.87	0.0245	0.956	(18.97, 22.72)	(19.09, 22.84)
C	E	19.65	-0.0033	0.950	(17.79, 21.51)	(17.79, 21.49)
D	E	18.25	0.0211	1.002	(16.27, 20.20)	(16.35, 20.22)
Winter Data						
Fac1	Fac2	Original Mean	Bias	Standard Error	Normal 95% CI	Percentile 95% CI
A	B	15.33	0.0208	1.335	(12.69, 17.92)	(12.78, 18.00)
A	C	13.69	0.0339	1.327	(11.06, 16.26)	(11.21, 16.40)
A	D	17.57	-0.0252	1.344	(14.96, 20.23)	(14.99, 20.19)
A	E	20.66	-0.0025	1.319	(18.08, 23.25)	(18.16, 23.28)
B	C	6.17	-0.0064	1.197	(3.83, 8.52)	(3.97, 8.57)
B	D	10.86	-0.0244	1.180	(8.57, 13.19)	(8.58, 13.25)
B	E	17.45	-0.0101	1.248	(15.02, 19.91)	(15.02, 19.91)
C	E	17.39	-0.0097	1.264	(14.92, 19.87)	(14.98, 19.92)
D	E	15.72	0.0074	1.270	(13.22, 18.20)	(13.22, 18.22)
Summer Data						
Fac1	Fac2	Original Mean	Bias	Standard Error	Normal 95% CI	Percentile 95% CI
A	B	13.04	-0.0051	1.338	(10.43, 15.67)	(10.49, 15.74)
A	C	18.43	0.0146	1.353	(15.76, 21.07)	(15.84, 21.16)
A	D	19.40	0.0079	1.434	(16.58, 22.20)	(16.58, 22.25)
A	E	25.73	-0.0071	1.292	(23.21, 28.27)	(23.18, 28.27)
B	C	14.28	0.0154	1.397	(11.53, 17.01)	(11.63, 17.10)
B	D	16.75	-0.0128	1.481	(13.86, 19.66)	(13.89, 19.68)
B	E	24.46	-0.0072	1.332	(21.85, 27.07)	(21.78, 27.06)
C	E	22.03	0.0013	1.403	(19.27, 24.77)	(19.30, 24.82)
D	E	20.92	-0.0055	1.485	(18.01, 23.83)	(17.96, 23.82)

TABLE 20 Coding for facility features

Facility	O	B	P
A (Off-road)	1	1	1
B (Bike lane, No parking)	0	1	1
C (Bike lane, on-street parking)	0	1	0
D (In traffic, No parking)	0	0	1
E (In traffic, on-street parking)	0	0	0

TABLE 21 Logit model

Random effects:

Group	Variance	Std.Dev.
subject	1.550	1.245

Fixed effects:

Variable	Description	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)		–0.620	0.472	–1.315	0.1885	
W	Season (1 = winter, 0 = summer)	–0.627	0.207	–3.028	0.0025	* *
T	Travel time	–0.051	0.004	–12.685	0.0000	* * *
O	Offroad Improvement?	0.264	0.060	4.386	0.0000	* * *
P	Parking Improvement?	0.456	0.065	7.067	0.0000	* * *
B	Bikelane Improvement?	0.831	0.067	12.475	0.0000	* * *
A	Age	0.021	0.010	2.126	0.0335	*
S	Sex (1 = M, 0 = F)	–0.350	0.223	–1.567	0.1171	
I	Income	0.005	0.003	1.584	0.1132	
H	HHsize (if>2, 0 otherwise)	–0.594	0.229	–2.589		* *
C	Cyclist (1 = atleast summer, 0 = No)	–0.133	0.253	–0.524	0.6003	

TABLE 22 Time values of facility attributes

Attribute	Marginal Rate of Substitution (minutes)
O – Off street improvement	5.20
P – Parking improvement	8.98
B – Bike lane improvement	16.36

TABLE 23 Linear model

Random Effects

	(Intercept)	Residual
StdDev:	8.98	8.01

Fixed effects:

	Description		Value	Std. Error	t-stat	p-value	
(Intercept)			7.24	3.377	2.143	0.032	
W	Season Winter?	Yes=1 No=0	–4.13	1.485	–2.782	0.006	* * *
O	Offroad Improvement?	Yes=1 No=0	2.38	0.429	5.540	0.000	* * *
P	Parking Improvement?	Yes=1 No=0	3.50	0.456	7.673	0.000	* * *
B	Bikelane Improvement?	Yes=1 No=0	5.98	0.456	13.127	0.000	* *
A	Age	Yes=1 No=0	0.15	0.071	2.092	0.038	*
S	Sex	Male=1 Female=0	–3.36	1.604	2.093	0.038	*
I	Inc/1000		0.03	0.021	1.475	0.142	
H	Household Size	>2=1 ≤2=0	–3.75	1.645	–2.278	0.024	*
C	Summer cyclist?	Yes=1 No=0	–2.22	1.818	–1.221	0.224	

Significance ***0.001 **0.01 *0.05 +0.1

TABLE 24 Comparison of travel time values between facilities using the linear model and the logit model

Comparison	Facility 1	Facility 2	Logit	Linear	Mean (raw data)
1	A	B	5.2	9.6	13.0
2	A	C	14.2	13.1	18.4
3	A	D	21.6	15.6	19.4
4	A	E	30.5	19.1	25.7
5	B	C	9.0	10.7	14.3
6	B	D	16.4	13.2	16.7
7	B	E	25.3	16.7	24.5
8	C	E	16.4	13.2	22.0
9	D	E	9.0	13.2	20.9

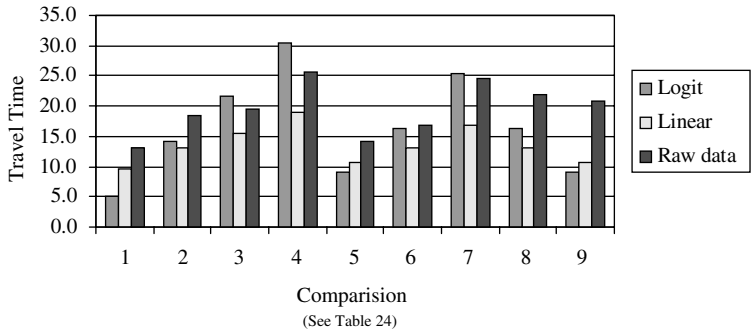

Figure 19. Comparison of the estimates of the additional time willing to travel between facility pairs based on logit model, linear model, and the raw data.

facilities having different travel times, but the same origin and destination. From the raw data we have demonstrated that a hierarchy exists between the facilities considered, and we have extracted a measure of how many additional minutes an individual is willing to expend on an alternate facility if it were available and provided certain features that were not available on the base facility. The data were then used to fit a random parameter logit model using a utility maximizing framework. A linear model was also estimated and compared with the results from the mixed logit model. The results show that users are willing to pay the highest price for designated bike lanes, followed by the absence of parking on the street and by taking a bike lane facility off-road. In addition, we are able to extract certain individual characteristics that are indicative of preferences such as age and household structure and make loose connections with sex and household income. Such an understanding can be incorporated into the planning process to help planners make appropriate recommendations and investment decisions in developing bicycle facilities that are more appealing to the public.

APPENDIX E

USER HEALTH BENEFITS

The benefits of physical activity in enhancing overall health are well established. Physical activity reduces the risk of chronic diseases including coronary heart disease (*170, 205–209*), hypertension (*210*), Type II (non-insulin dependent) diabetes mellitus (*211, 212*), osteoporosis (*213, 214*), cancer (*215–217*) and mental illness (*95, 218–220*). Inversely, reduced levels of physical activity are also associated with mortality rates in general (*221–223*).

The task of attaching monetary amounts to levels of physical activity is a more challenging endeavor. One attempt to this general inquiry has been completed by Wang et al. (*93*) who derived cost-effectiveness measures of bicycle/pedestrian trails by dividing the costs of trail development and maintenance by selected physical activity-related outcomes of the trails (e.g., number of trail users). The average annual cost for persons becoming more physically active was found to be $98; the cost was $142 for persons who are active for general health, and $884 for persons who are active for weight loss.

Estimating the effect of physical activity on direct medical costs is a strategy more often employed, though considerably less straightforward. Part of the reason for ambiguity in this line of research is that an unsettled question looms as to how much physical activity is required to realize certain health benefits (i.e., what is the elasticity?) (*88, 94, 95*). In the field of public health, this matter is often approached from the perspective of dose-response relationships. The aim is to learn what change in amount, intensity, or duration of exposure (in this case, cycling) is associated with a change in risk of a specified outcome (in this case, cost of health care).

Existing literature examining relationships between levels of physical activity and health costs varies considerably in methodology and scope. The majority of existing studies pursue a dichotomized approach, separating respondents into two classes: those that satisfy the accepted "dose" of 30 minutes per day for five days and those who do not. In this first group of studies, there are at least five statewide reports whose methodology and assumptions are relatively general in nature. In most cases, estimates are derived from an aggregation of medical expenditures that can in some form be traced back to physical inactivity. For example, a study commissioned by the Michigan Fitness Foundation (*96*) concentrated on the economic costs to the residents of Michigan. The authors used estimates (acknowledged to be conservative) to derive direct costs (e.g., medical care, workers' compensation, lost productivity) and indirect costs (e.g., inefficiencies associated with replacement workers). The final amount totaled $8.9 billion in 2003 ($1,175 per resident). A 2002 report from the Minnesota Department of Health (*97*) estimates that in 2000, $495 million was spent treating diseases and conditions that would be avoided if all Minnesotans were physically active. This amount converts to over $100 per resident. Additional reports claim that too little physical activity was responsible for an estimated $84.5 million ($19 per capita) in hospital charges in Washington State (*98*), $104 million ($78 per capita) in South Carolina (*99*), and $477 million in hospital charges in Georgia ($79 per capita) (*100*).

These reports from various state agencies are complemented with more academically oriented research. For example, Colditz (*101*) reviewed past literature on the economic costs of inactivity and concluded that the direct costs for those individuals reporting lack of physical activity was estimated to average approximately $128 per person. A separate analysis by Pratt et al. (*102*) analyzed a stratified sample of 35,000 Americans from the 1987 national Medical Expenditures Survey. Examining the direct medical costs of men and women who reported physical activity versus those who did not reveals that the mean net annual benefit of physical activity was $330 per person in 1987 dollars. An alternative method used a cost-of-illness approach to attribute a proportion of medical and pharmacy costs for specific diseases to physical inactivity in 2001 (*97*). The authors first identified medical conditions associated with physical inactivity and then collected claims data related to those conditions from approximately 1.6 million patients 16 and older from a large, Midwest health plan. While the resulting conditions from lack of physical inactivity include depression, colon cancer, heart disease, osteoporosis, and stroke, the results from this study conclude that claims costs at the health plan attributable to physical inactivity translates to $57 per member. One challenge of these analyses is the decision regarding whether or not to include diseases causally related to obesity or not. The Garrett paper did not, which may account for the lower estimates of cost of inactivity per person.

A different approach than the dichotomized strategy estimates the impact of different modifiable health risk behaviors and measures their impact on health care expenditures. After gathering information from more than 61,500 employees of six employers gathered over a five-year study period, Goetzel et al. (*87*) focused on a cohort of just over 46,000 employees, one-third of whom were considered to be sedentary (or inactive). The analysis found that a "risk-free" individual incurred approximately $1,166 in average annual medical expenditures while those with poor health habits had average annual medical expenditures of more than $3,800. Thus, they estimated the per-capita annual impact of poor exercise habits to be approximately $172. Pronk et al. (*89*) also identify the relationship between modifiable health risks and short-term health care charges. This research surveyed a random sample of 5,689 adults aged 40 years or older enrolled in a Minnesota health plan. Multivariate analysis on the modifiable health risks (diabetes, heart disease, body mass index, physical activity and smoking status) concluded that an additional day of physical activity (above zero) would yield a 4.7 percent reduction in charges (or a $27.99 reduction). The overarching result of the study is that obesity costs approximately $135 per member per year, and those with low fitness (inactivity) cost approximately $176 per member per year.

From this discussion, a couple of matters stand out with respect to understanding such relationships and ultimately informing applicable methods. First, annual per capita cost savings vary between $19 and $1,175 with a median value of $128 (see Table 25). Second,

TABLE 25 Estimated annual per capita cost savings (direct and/or indirect) of physical activity (*103*)

Study/Agency	Per Capita Cost Savings ($)
Washington State Department of Health	19
Garrett et al.	57
South Carolina Department of Health	78
Georgia Department of Human Resources	79
Colditz (1999)	92
Minnesota Department of Health	>100
Goetz et al.	172
Pronk et al.	176
Pratt	330
Michigan Fitness Foundation	1,175

some studies are disaggregate in nature and estimate costs by inpatient, outpatient, and pharmacy claims; others compare average healthcare expenditures of physically active versus inactive individuals. Third, some use a dichotomized approach to operationalize physically active individuals while others employ a modifiable health risks approach and do so in a relatively continuous scale. The studies are difficult to compare because some include different conditions, outpatient and pharmacy costs, and actual paid amounts rather than charges. Nonetheless, existing literature provides adequate, though developing, methodologies for estimating the public health impact of bicycle facilities in terms of economic impacts.

CALIFORNIA OFFICE OF TRAFFIC SAFETY

Home » Media and Research » Rankings » **2009 Rankings**

2009 OTS RANKINGS

Rankings By Year: 2011 2010 **2009** 2008 2007

Select a City or County from one of the dropdown lists and click on the Show City or Show County button.

City: -- SELECT ONE --

SHOW CITY

County: -- SELECT ONE --

SHOW COUNTY

Agency	Year	County	Group	Population (Avg)	DVMT
Glendale	2009	LOS ANGELES COUNTY	B	207,221	1,798,436

TYPE OF COLLISION	VICTIMS KILLED & INJURED	RANKING BY DAILY VEHICLE MILES TRAVELED	RANKING BY AVERAGE POPULATION
Total Fatal and Injury	823	19/56	30/56
Alcohol Involved	65	36/56	42/56
HBD Driver < 21	8	26/56	32/56
HBD Driver 21 - 34	14	46/56	49/56
Motorcycles	33	7/56	15/56
Pedestrians	119	3/56	3/56
Pedestrians < 15	9	32/56	38/56
Pedestrians 65+	36	2/56	1/56
Bicyclists	39	36/56	38/56
Bicyclists < 15	8	30/56	35/56
Composite		31/56	39/56

TYPE OF COLLISION	FATAL & INJURY COLLISIONS	RANKING BY DAILY VEHICLE MILES TRAVELED	RANKING BY AVERAGE POPULATION
Speed Related	127	27/56	37/56

Nighttime (9:00pm - 2:59am)	62	23/56	33/56
Hit and Run	52	21/56	30/56
DUI ARRESTS	410 0.33		14/56

READING AND UNDERSTANDING THE OTS RANKINGS

- What are the OTS Rankings?
- How are the OTS Rankings determined?
- How to Read and Understand the OTS Rankings
  - Top Horizontal Bar
  - Center Table
  - Bottom Table

What are the OTS Rankings?

The OTS Rankings were developed so that individual cities could compare their city's traffic safety statistics to those of other cities with similar-sized populations. Cities could use these comparisons to see what areas they may have problems in and which they were doing well in. The results helped both cities and OTS identify emerging or on-going traffic safety problem areas in order to help plan how to combat the problems and help with the possibility of facilitating grants. In recent years, media, researchers and the public have taken an interest in the OTS Rankings. It should be noted that OTS rankings are only indicators of potential problems; there are many factors that may either understate or overstate a city/county ranking that must be evaluated based on local circumstances.

NOTE: City rankings are for incorporated cities only. County Rankings include all roads – state, county and local – and all jurisdictions – CHP, Sheriff, Police and special.

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How are the OTS Rankings determined?

- Victim and collision data for the rankings is taken from the latest available California Highway Patrol (CHP) Statewide Integrated Traffic Records System (SWITRS) data.
- Victim and collision rankings are based on rates of victims killed and injured or fatal and injury collisions per "1,000 daily-vehicle-miles-of-travel" (Caltrans data) and per "1,000 average population" (Department of Finance data) figures. This more accurately ensures proper weighting and comparisons when populations and daily vehicle miles traveled vary.
- DUI arrest totals and rankings are calculated for cities only and are based on rates of non-CHP DUI arrests (Department of Justice data). This is so that local jurisdictions can see how their own efforts are working.
- Counties are assigned statewide rankings, while cities are assigned population group rankings.

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How to Read and Understand the OTS Rankings

Top Horizontal Bar:

- Agency – local jurisdiction that the data applies to.
- Year – the year the data represents. The rankings are updated once per year when all component statistics and data

have been reported.

- County – county in which the city is located.
- Group – Cities are grouped by 2009 population:
  - Group A – 13 cities, populations over 250,000
  - Group B – 56 cities, population 100,001-250,000
  - Group C – 104 cities, population 50,001-100,000
  - Group D – 98 cities, population 25,001-50,000
  - Rankings for smaller cities are not included on-line, but are available through the OTS Public Affairs Office.
- Population – estimates matched to "Year"
- DVMT – Daily Vehicle Miles Traveled. Caltrans estimate of the total number of miles all vehicles traveled on that city's streets on an average day during that year.
- The number of cities in each group varies by year.

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Center Table:

IMPORTANT NOTE #1: The figures in the two ranking columns show as two numbers divided by a slash. The first number is that city's ranking in that category. The second number is the total number of cities/counties within that "Group". For instance, if you see "22/56", that means that city ranks 22nd out of 56 cities of similar size.

IMPORTANT NOTE #2: OTS Rankings are calculated so that the higher the number of victims or collisions per 1000 residents in a population group, the higher the ranking. Number 1 in the rankings is the highest, or "worst." So, for Group B, a ranking of 1/56 is the highest or worst, 27/56 is average, and 56/56 is the lowest or best.

- Type of Collision – This column delineates the different types of collisions OTS has chosen to show in the rankings. These represent the types with larger percentages of total killed and injured and areas of focus for the OTS grant program. Motorcycles were added in 2008.
- Victims Killed and Injured – This column shows the number of fatalities and injuries aggregated. Damage-only or fender-bender collisions are not included.
- Ranking by daily vehicle miles traveled – This column weighs this city against all others in the Group when looking at DVMT. Cities of like size may have widely varying rates of traffic, a factor which can be meaningful on a local basis. Significant differences between this and the population column must be evaluated based on local circumstances.
- Ranking by population – This column weighs this city against all others in the Group based on population. Population can be a meaningful basis for comparison. Significant differences between this and the Daily Vehicle Miles Traveled column must be evaluated based on local circumstances.
- Total Fatal and Injury – The total number of victims involved in all collisions where there were fatalities and/or injuries in that city/county.
- Alcohol Involved – Collisions in which there were victims killed or injured where a party (driver, pedestrian, bicyclist) was classified as "Had Been Drinking."
- HBD Driver <21 – Collisions in which there were victims killed or injured where a driver who was under the age of 21 had been drinking.
- HBD Driver 21-34 – Collisions in which there were victims killed or injured where a driver who was between the ages of 21 and 34 had been drinking.
- Motorcycles - Collisions in which there were victims killed or injured and a motorcycle was involved.
- Pedestrians - Collisions in which there were victims killed or injured and a pedestrian was involved.
- Pedestrians <15 - Collisions in which there were victims killed or injured and a pedestrian under the age of 15 was involved.
- Pedestrians 65+ - Collisions in which there were victims killed or injured and a pedestrian age 65 and older was involved.

- Bicycles - Collisions in which there were victims killed or injured and a bicyclist was involved.
- Bicycles <15 - Collisions in which there were victims killed or injured and a bicyclist under age 15 was involved.
- Composite – Figures which show rankings only, an aggregate of several of the other rankings (HBD 21-34, HBD Under21, Alcohol Involved victims plus Hit & Run, Nighttime and Speed collisions). These figures are a means to give an indication of over-all traffic safety.

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Bottom Table:

- Speed Related – Collisions in which there were victims killed or injured where speed was the primary factor.
- Nighttime (9:00pm - 2:59am) – Collisions in which there were victims killed or injured that occurred between those hours, which are prime hours for DUI, speeding and drowsy driving crashes.
- Hit and Run – Collisions in which there were victims killed or injured and a driver left the scene.
- DUI Arrests – DUI arrest figures are shown for cities only, not counties.

  The first figure gives the total number of DUI arrests for the year on city streets. The second number shows the percentage of the city's estimated licensed drivers that was arrested for DUI during that year. The current statewide average is .90%. Local percentages shown give an indication of how cities compare against the average. Lower than .90% means lower than the state average and higher than .90% means higher that the state average. However, differences can be from many factors and must be evaluated based on local circumstances.

  Cities often use this measure to determine how to adjust their DUI enforcement activity. When increased DUI enforcement is combined with education and public information campaigns, it can lead to a reduction of the incidence of DUI.

"0" Note: Cities reporting 0 victims and/or collisions for a category or 0 DUI arrests are ranked using the variable upon which the ranking is based. For example, if 10 of 98 cities in population group D reported 0 hit-and-run fatal and injury collisions when ranking by per "1,000 average population," the city with the highest population of these 10 cities would be ranked 98/98, and the city with the lowest population of these 10 cities would be ranked 89/98. The same methodology has been applied when ranking per "1,000 daily-vehicle-miles-of-travel" and per "estimated average number of licensed drivers."

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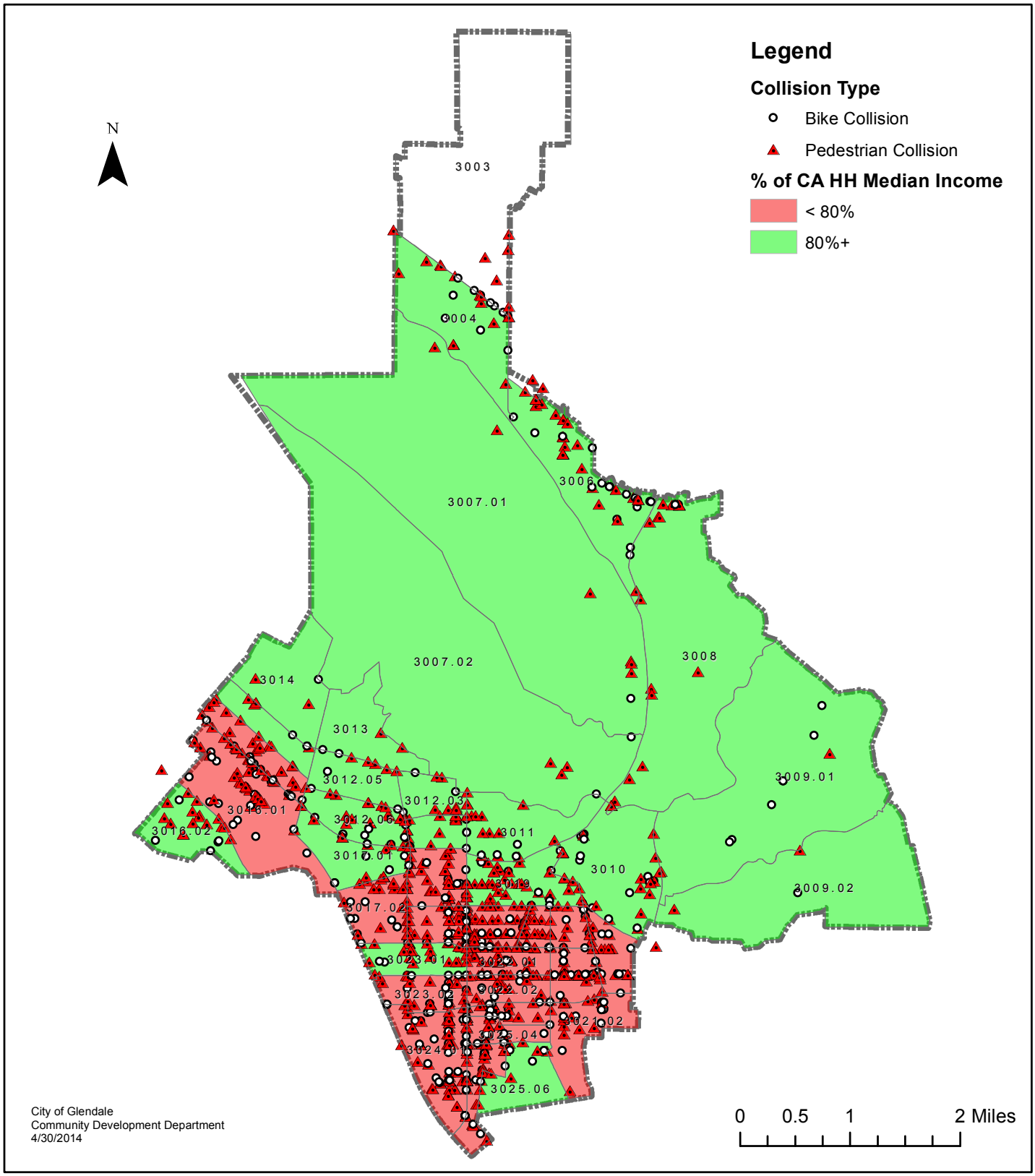
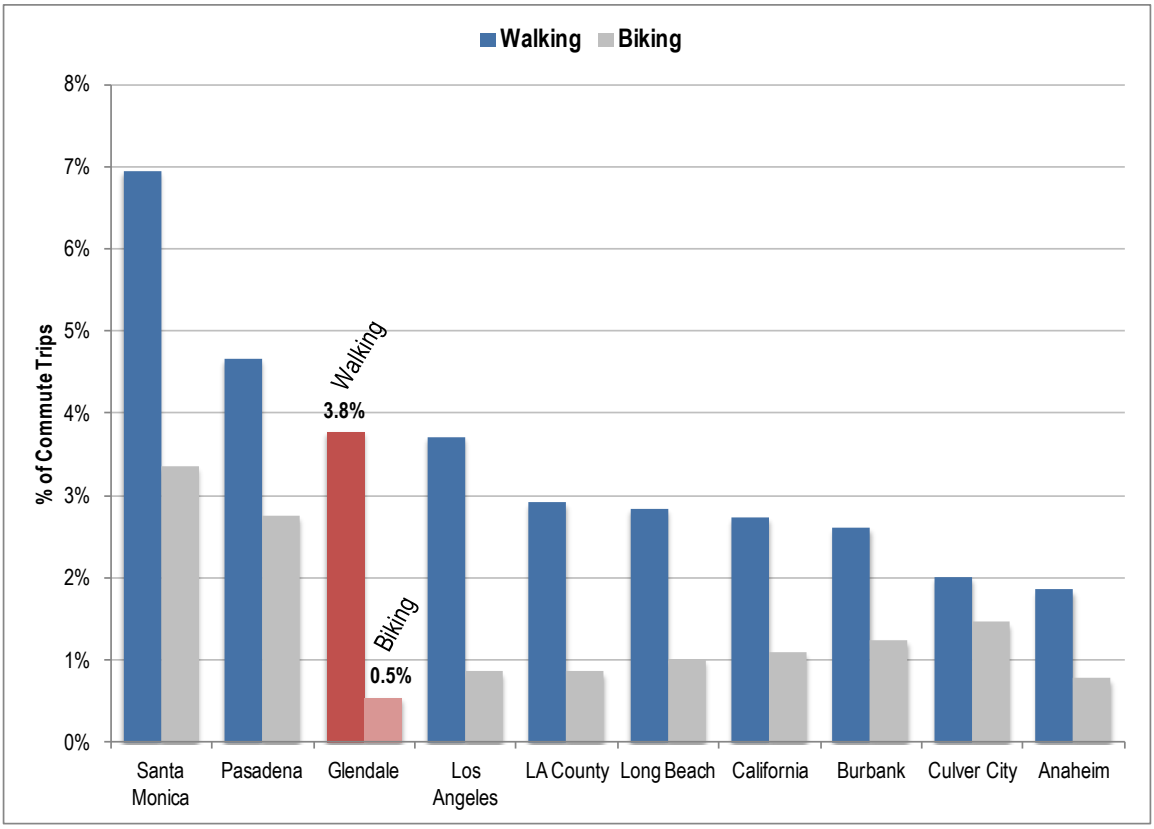
Disadvantaged Communities and Bike & Pedestrian Accidents



Source: ACS 2008-2012 5-Year Estimates, SWITRS 2003-2011

Figure 6-2 Bicycling and Walking Commute Mode Share for Selected Peers, 2012



Source: ACS, 5-year estimates, 2008-12

COLLISIONS PER CAPITA AND TRIPS TO WORK

One of the primary challenges when analyzing collision data is developing an accurate and definitive *collision rate*, as a total number of collisions can be misleading. For example, while injury collisions may have increased in a city, there could also have been a significant increase in the number of people walking over that same time period. What might appear as a dramatic increase in pedestrian collisions, therefore, might not be an actual increase in the overall *rate* of pedestrian collisions.

Two limited ways of trying to establish a "collision rate" for bicycles and pedestrians are based on the size of the population, as well as the number of people bicycling or walking to work. This simplified measurement omits the vast numbers and varieties of non-commuting bicyclists or pedestrians, as well as the important differences between street geometries and travel characteristics at specific intersections and road segments. Nevertheless, the number of injury collisions per resident and work trip can serve as an approximate measurement.

Data from 2011 was utilized for comparison purposes between cities. At the time of this report's writing, 2011 was the latest year for which collision data was available for all of the peer cities.

Figure 5-4 Locations with the Highest Number of Pedestrian Injury Collisions, 2007-2011

Location	Pedestrian Collisions
Segment: Glendale Ave north of Cypress St*	6
At intersection: Chevy Chase Dr at San Fernando Rd*	6
Segment: Glenoaks Blvd east of Western Ave*	5
Segment: Glendale Ave north of Broadway	5
Segment: Glenoaks Blvd west of Pacific Ave	4
At intersection: Broadway at Brand Blvd	4
Segment: Wilson Ave east of Isabel St	3
Segment: Colorado St east of Lincoln Ave*	3
At intersection: Glendale Ave at Palmer Ave	3
At intersection: Glenoaks Blvd at Sonora Ave	3
*Also a high-collision location during the 2004-2009 period	

Figure 5-5 Locations with the Highest Number of Bicyclist Injury Collisions, 2007-2011

Location	Bicycle Collisions
Segment: Brand Blvd south of California Ave	3
Segment: Central Ave north of Los Feliz Blvd	3
At intersection: Colorado St at Everett St	3
At intersection: Brand Blvd at San Fernando Dr	3
At intersection: Windsor Ave at Brand Blvd	2
At intersection: Colorado St at Brand Blvd	2
At intersection: Chevy Chase Dr at Brand Blvd	2
Segment: Brand Blvd south of E Chevy Chase Dr	2
At intersection: Chevy Chase Dr at Golf Club Dr	2
Segment: Brand Blvd south of Laurel St*	2
Segment: Windsor Rd east of Brand Blvd	2
*Also a high-collision location during the 2004-2009 period	

glendalenewspress.com/news/tn-gnp-glendale-burbank-insurance-rates-among-the-states-highest-20140318,0,224690.story

Glendale News Press

Glendale, Burbank insurance rates among the state's highest

Types and value of cars, incidents of crashes factor into premium averages.

By Arin Mikailian, *arin.mikailian@latimes.com*

6:12 PM PDT, March 18, 2014

A new report finds that Glendale drivers pay the most for auto insurance in California, topping a statewide list of more than 200 cities that ranks Burbank as sixth highest.

Single people in Glendale pay an average of $1,823 a year for coverage, while married couples shell out $1,740, a report published last week by ValuePenguin, a consumer finance website, stated.

In Burbank, single drivers pay $1,481 a year for insurance and married couples are charged $1,406, the report read.

On the other end of the scale, residents in Calexico in Imperial County pay the lowest rates, where a year's worth of insurance on average only costs $866 for single motorists and just $15 more for couples.

ValuePenguin's co-founder Ting Pen, a financial analyst, wrote the report. She said the data came from the California Department of Insurance, spanning 275 ZIP codes and 52 insurance companies.

About 30 driver profiles were used, ranging from new drivers operating a 2012 Toyota Camry LE to married mature couples behind the wheel of a 2012 Mercedes-Benz C300.

Glendale, Pen said, has high numbers of car crashes with bodily injuries and collisions involving uninsured or underinsured people behind the wheel, driving up rates.

That kind of math adds up, said Gino Mattunts, a manager at Safecal Insurance in Glendale.

"Considering all the losses insurance carriers take on, they have ways to manipulate the system where more premiums are gathered from L.A. or Glendale," he said.

Pen also noted that insurance rates for 19-year-old males in Glendale and Burbank were among the highest rates, topping $3,084 and $2,500 a year, respectively.

When comparing towns, however, it makes sense that cities like Glendale pay more for insurance because of how many cars residents own, Mattunts said.

“If you compared Glendale to Eagle Rock, where the cars are valued probably in the $20,000 (per family) and the regular household in Glendale drives $120,000 worth of cars, so that premium is based on the cars as well,” Mattunts said.

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Follow Arin Mikailian on Twitter: @ArinMikailian.

ALSO:

Earthquake: 4.4 quake strikes Los Angeles; no damage, injuries reported

Wind advisory issued for Los Angeles County mountains

Couple uses mattress to catch toddler as he falls from window

Benefit / Cost Calculation Result

1. Project Information

Application ID	SRTS	Version	1

2. Countermeasures and Crash Data

Crash Data Time Period	01/01/2003	to	12/31/2011	Years	9

- Install pedestrian crossing (with enhanced safety features / curb-extensions)

CM Number	Project Type	Crash Type	CRF	Life
NS18	Ped and Bike	Ped & Bike	35	20

Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
Ped & Bike	3	20	143	110	0	276

Annual Benefit	$ 1,267,105	Cost	$ 820,786
Life Benefit	$ 25,342,100	B/C Ratio	**30.88**

- Install bike lanes

CM Number	Project Type	Crash Type	CRF	Life
R36	Ped and Bike	Ped & Bike	35	20

Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
Ped & Bike	3	20	143	110	0	276

Annual Benefit	$ 1,267,105	Cost	$ 820,786
Life Benefit	$ 25,342,100	B/C Ratio	**30.88**

3. Benefit Cost Result

Total Benefit	$ 50,684,200
Total Cost	$ 1,641,571
B/C Ratio	**30.88**

Safety Practitioner / Engineer: Justin Robertson

Signature:

By signing this B/C Calculation Result, you are attesting to your authority / responsibility at your local agency for this work and you are attesting to the accuracy of the values on this page and that they have been entered into the HSIP Application Form correctly, DO NOT SIGN if any of this is not the case.

California Walks
Stepping Up for Health, Equity, & Sustainability

May 5, 2014

Teresa McWilliam
Program Manager—Active Transportation Program
Caltrans, Division of Local Assistance
1120 N Street
Sacramento, CA 95814

Re: Letter of Support for the City of Glendale's Citywide Pedestrian Plan, Educational Program and Sidewalk Project Applications

Dear Ms. McWilliam:

California Walks is pleased to offer its support for three ATP grant applications by the City of Glendale – Citywide Pedestrian Plan, Citywide Education Initiative and Citywide Sidewalk Project:

Citywide Pedestrian Plan, through community outreach, Glendale proposes to identify and prioritize infrastructure improvement, administrative policies and procedures, datasets, safety education, encouragement and enforcement program priorities, in one easy-to-read adopted plan which when implemented will dramatically improve pedestrian safety. The Citywide Pedestrian Plan, through a multifaceted approach, would prioritize improving pedestrian safety in Glendale.

Citywide Safety Education Initiative will consolidate and expand existing City and community safety efforts into a comprehensive program emphasizing the five E's = Encouragement, Engineering, Enforcement and Evaluation, incorporating all sectors, including Seniors, who are most disproportionally impacted in Glendale pedestrian crashes. A comprehensive safety education program will build on SRTS past success. The Initiative would directly coordinate education programming with policy initiatives, proposed infrastructure improvements, targeted law enforcement and evaluation chronicling progress, providing constant feedback and identification of needed ongoing improvements.

Citywide Sidewalk Improvements project would improve Glendale's pedestrian and bicycle school and transit network. These network connections will improve accessibility and ADA compliance, enhanced crosswalk, sidewalk, bicycle lanes and sharrows for students and families who walk or bicycle to and from school and for transit riders connecting to or from the train station and transit available along Glendale's main boulevard.

Cal Walks fully supports the City of Glendale in its effort to secure funding through an integrated program to improve active transportation with a pedestrian plan, a comprehensive pedestrian safety education program

California Walks | 1904 Franklin Street, Suite 709 | Oakland, CA 94612 |
Tel. (510) 292-4435 | Fax (510) 292-4436 | www.californiawalks.org | info@californiawalks.org

and pedestrian/bicyclist infrastructure improvements.

Cal Walks, at the invitation of the City of Glendale, facilitated two community workshops on April 17, 2014 providing community residents, City's Pedestrian Safety Task Force (advisory to its Transportation Commission and Council), elected leaders, City staff and other agency and NGO professionals. In these workshops, participants overviewed pedestrian safety best practices, conducted a walkability assessment of typical issues near the downtown core, engaged in small groups to develop specific recommendations to improve the safety and walkability and by consensus, prioritize recommendations.

Cal Walks strongly supports the community's priorities: a pedestrian plan, a comprehensive education program which includes senior pedestrian safety action planning, and pedestrian infrastructure improvements to complete school and transit pedestrian connections to safely walk and bike to and from school and transit in Glendale. These community priorities, incorporated in California Walks' Report recommendations, are reflected in the City's 3 ATP planning, non-infrastructure/education and pedestrian infrastructure applications, which together create an integrated, comprehensive approach to improving pedestrian safety in Glendale. California Walks has been working with and supporting Glendale's ongoing commitment to effectively improve pedestrian safety for more than 5 years. We support these applications and look forward to the results.

Sincerely,

Wendy Alfsen
Executive Director

California Walks | 1904 Franklin Street, Suite 709 | Oakland, CA 94612 |
Tel. (510) 292-4435 | Fax (510) 292-4436 | www.californiawalks.org | info@californiawalks.org

May 15, 2014

Caltrans
Division of Local Assistance, MS-1
Attention: Chief, Office of Active Transportation and Special Programs
PO Box 942874
Sacramento, CA 95814

Dear ATP Project Evaluation Committee,

The Glendale Transportation Management Association (TMA) enthusiastically supports the City of Glendale's proposals for the Active Transportation Program (ATP), including the Citywide Pedestrian Plan, Citywide Bike Share and Station Network, Citywide Safety Educational Initiative and Glendale Safe Routes to School Improvements.

We are a nonprofit organization made up of some of Glendale's largest employers and multi-tenant office buildings, with a mission to improve air quality and reduce congestion by promoting non drive-alone travel modes. The projects proposed by the City align well with our goals and will make Glendale a safer and more accessible place to ride and walk. As the Director of the Glendale TMA, I sit on the City's Pedestrian Safety Subcommittee and have witnessed the City's commitment to improving conditions for pedestrians and cyclists firsthand.

On behalf of the Glendale TMA Board of Directors, please note our support of these projects.

Sincerely,

Erika Kampe
Director, Glendale TMA

GLENDALE
TRANSPORTATION
MANAGEMENT
ASSOCIATES, INC.

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Glendale, CA 91203-2311
www.glendaletma.net
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818 543-7641

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McCarthy Cook & Co.

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

Arthur T. Leahy
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Metro

May 12, 2014

Malcolm Dougherty
Director
California Department of Transportation
P.O. Box 942873
Sacramento, CA 94273-0001

RE: Letter of Support for Citywide Pedestrian Plan Active Transportation Program (ATP) Application

Dear Director Dougherty:

The Los Angeles County Metropolitan Transportation Authority (Metro) is pleased to support the Active Transportation Program (ATP) funding request for the Citywide Pedestrian Plan in the City of Glendale. Metro is committed to promoting sustainability through direct actions to implement policies, programs and projects as well as through collaboration with local jurisdictions and agencies to meet the mandate to reduce greenhouse gas emissions as well as to increase mobility, safety and the social and economic vitality of our communities.

Active transportation is a key planning priority within Metro and aligns with regional mobility strategies and plans. The 2012-2035 Regional Transportation Plan/Sustainable Communities Strategies(RTP/SCS) adopted by the Southern California Association of Governments(SCAG) identifies active transportation as a key component. In furthering regional goals, Metro has developed multiple initiatives and programs to systematically address the challenges associated with bicyling and walking trips, including the Countywide Sustainability Planning Policy, the First/Last Mile Strategic Plan, the Safe Routes to School Pilot program and through financial commitments as Part of the Long Range Transportation Plan (LRTP) and the bi-annual Call for Projects process which funds local bicycle and pedestrian projects that are consistent with both local and regional plans.

We find this project to be consistent with the SCAG RTP/SCS and the LRTP and endorse the City of Glendale's efforts and contribution towards a sustainable transportation future. We respectfully request a favorable consideration of the Citywide Pedestrian Plan for the ATP grant.

Sincerely,

Arthur T. Leahy
Chief Executive Officer

May 14, 2014

Teresa McWilliam, Program Manager
Caltrans
1120 N Street
Sacramento, CA 95814

RE: Citywide Pedestrian Plan

Dear Ms. McWilliam:

The City of Glendale is submitting an application for a Citywide Pedestrian Plan to be considered for funding through the Caltrans Active Transportation Grant Program. Walk Bike Glendale wholeheartedly supports this proposed project, as it will directly contribute to our organization's commitment to making Glendale a City where everyone feels safe to walk and bike.

Walk Bike Glendale, a local chapter of the Los Angeles County Bicycle Coalition, was formed shortly after adoption of the Safe and Healthy Streets Plan in 2011, the City's first policy document focused on bicycling and walking. We advocate for vibrant and safer places to walk and bike, promote walking and bicycling as fun and sustainable alternatives to driving, educate to increase safety on our streets, and inspire the community to get involved and make a difference. Here are a few of the reasons we advocate for safer streets in Glendale:

- 17 percent of adults and 18 percent of children in Glendale are chronically obese.
- There are approximately 395 deaths each year in Glendale due to diabetes, stroke, and coronary heart disease.
- 29 percent of households in Glendale have 1 or fewer vehicles available.
- Each year over 100 pedestrians and 50 bicyclists are injured or killed on Glendale streets (38 percent of fatalities and 16 percent of injuries).
- Glendale continues to rank 1st in CA for pedestrian collisions involving a senior citizen (over 65).
- 19 percent of all trips in Los Angeles County are accomplished by walking and bicycling.
- 36 percent of school children walk or bicycle to school in Los Angeles County.
- Less than 1 percent of transportation dollars in Los Angeles County are spent on bicycle and pedestrian infrastructure projects.

The City of Glendale Citywide Pedestrian Plan will be both a policy document and outreach effort. It will focus on dramatically improving pedestrian safety in Glendale through outlining a series of infrastructure improvements, constructing demonstration

WALK BIKE GLENDALE

projects, conducting outreach to engage the community in new infrastructure improvements, and implementing existing policy efforts into one easy-to-read document.

The Citywide Pedestrian Plan will establish improving pedestrian safety as the City of Glendale's highest priority, through a multifaceted approach in policy development, dedication of staff resources, strong community outreach, and creating an implementation manual outlining design improvements to be made on streets with high pedestrian and bicycle accident rates.

The City of Glendale is making a commitment to actively improve the City's infrastructure to be more walkable, bikeable, and safer for all modes of transportation. The Walk Bike Glendale strongly supports the City of Glendale Citywide Pedestrian Plan for consideration of funding through the Caltrans Active Transportation Grant Program. Do not hesitate to contact me or any representative from Walk Bike Glendale if you have any questions or require additional information.

Sincerely,

Rye Baerg
Policy Director
Walk Bike Glendale
walkbikeglendale@gmail.com
www.walkbikeglendale.org

shared roadway markings in the past three years. These efforts are ongoing.

The City adopted the Safe & Healthy Streets Plan to promote walking and bicycling in Glendale, and is currently updating the Bicycle Transportation Plan.

The City is systematically replacing all of its local diesel buses with Compressed Natural Gas (CNG) vehicles. CNG is still a fossil fuel, but it emits less of certain air pollutants than diesel and the fuel source is usually from within the United States. The City of Glendale and Clean Energy Fuels Corporation operate a public CNG fueling station at the Glendale Transportation Center.

This chapter recommends a variety of measures that may help the community rely less on fossil-fuel based transportation, and thereby reduce its transportation related GHGs.

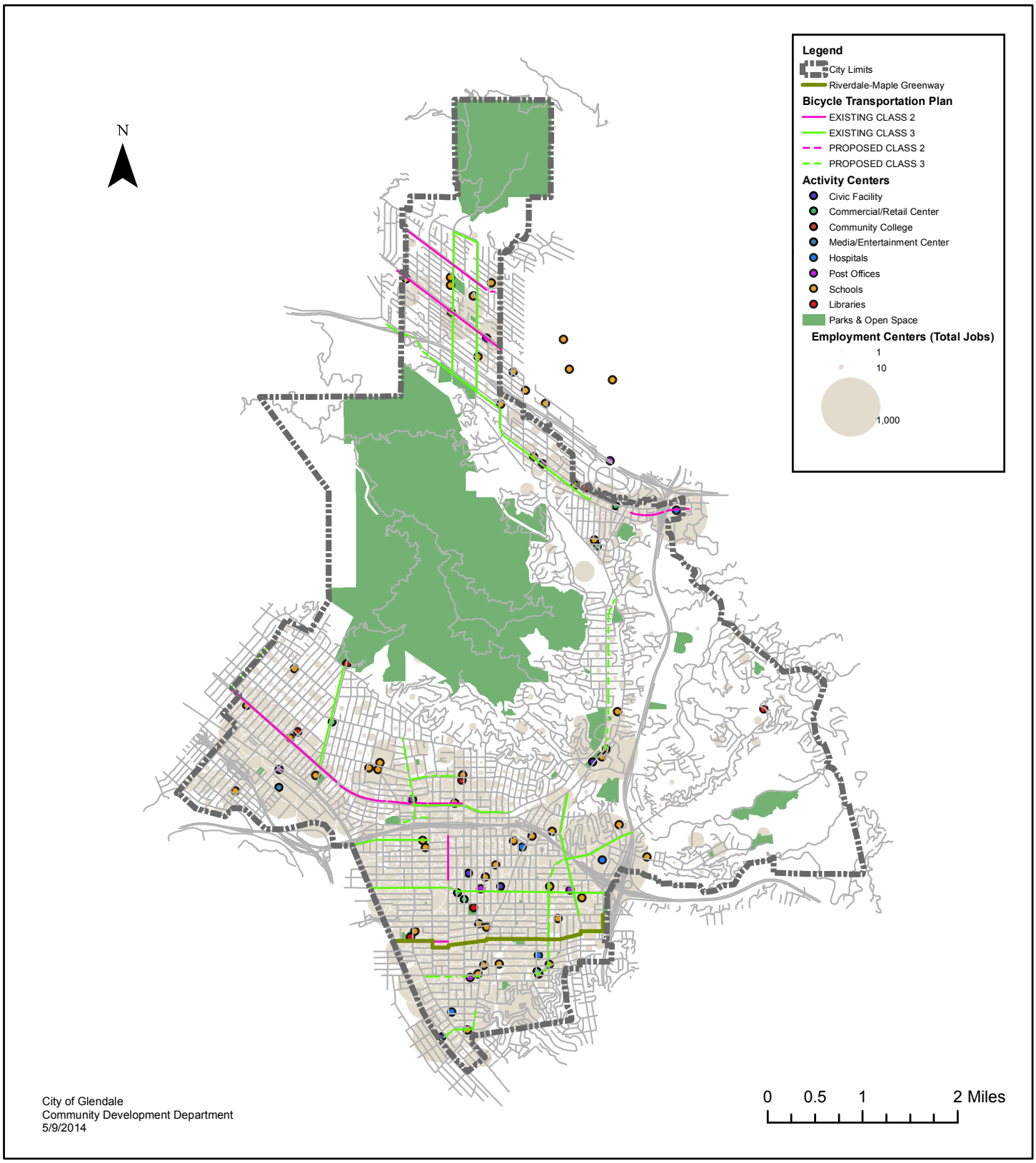
Objective	Supports Climate Change Adaptation
T1 – Facilitate the provision of alternative transportation infrastructure	Y
T2 – Promote and encourage the use of alternative forms of transportation	Y
T3 – Facilitate the provision of alternative fuel transportation infrastructure	Y
T4 – Promote and encourage the use of alternative fuel transportation options	Y

T1 – Facilitate the provision of alternative transportation infrastructure

T1-A	**Incentivize community provision and funding of public transit and bicycle, pedestrian, and multi-modal infrastructure, such as in renovations and new development projects.**
Status: New	**Implementation Actions Needed:** Obtain funding for this effort, assign staff, coordinate with the Traffic & Transportation and Planning Divisions to determine potential incentives.

T1-B	**Adopt a comprehensive parking policy to encourage the use of carpooling and alternative modes of transportation** – In March 2011, the City adopted parking standards in the Downtown Specific Plan area to implement this idea. Implementation efforts should be monitored for success and expanded as appropriate.
Status: Ongoing	**Implementation Actions Needed:** Obtain funding for this effort or assign staff, coordinate with the Planning Division and Public Works Department regarding implementation success of the existing program and feasibility of its expansion.

Project Area Activity Centers and Existing/Near-Term Bike-Ped Infrastructure



Sources: City of Glendale, LEHD

Project Information

Application ID:
SRTS

Crash Data:
9 years

From 01/01/2003
To 12/31/2011

Countermeasure 1 Information

CM Number: S4

Mod: Signal Mod.

Name: Provide advanced dilemma zone detection for high speed approaches

Crash Type: **All**

CRF: 40

Life: 10

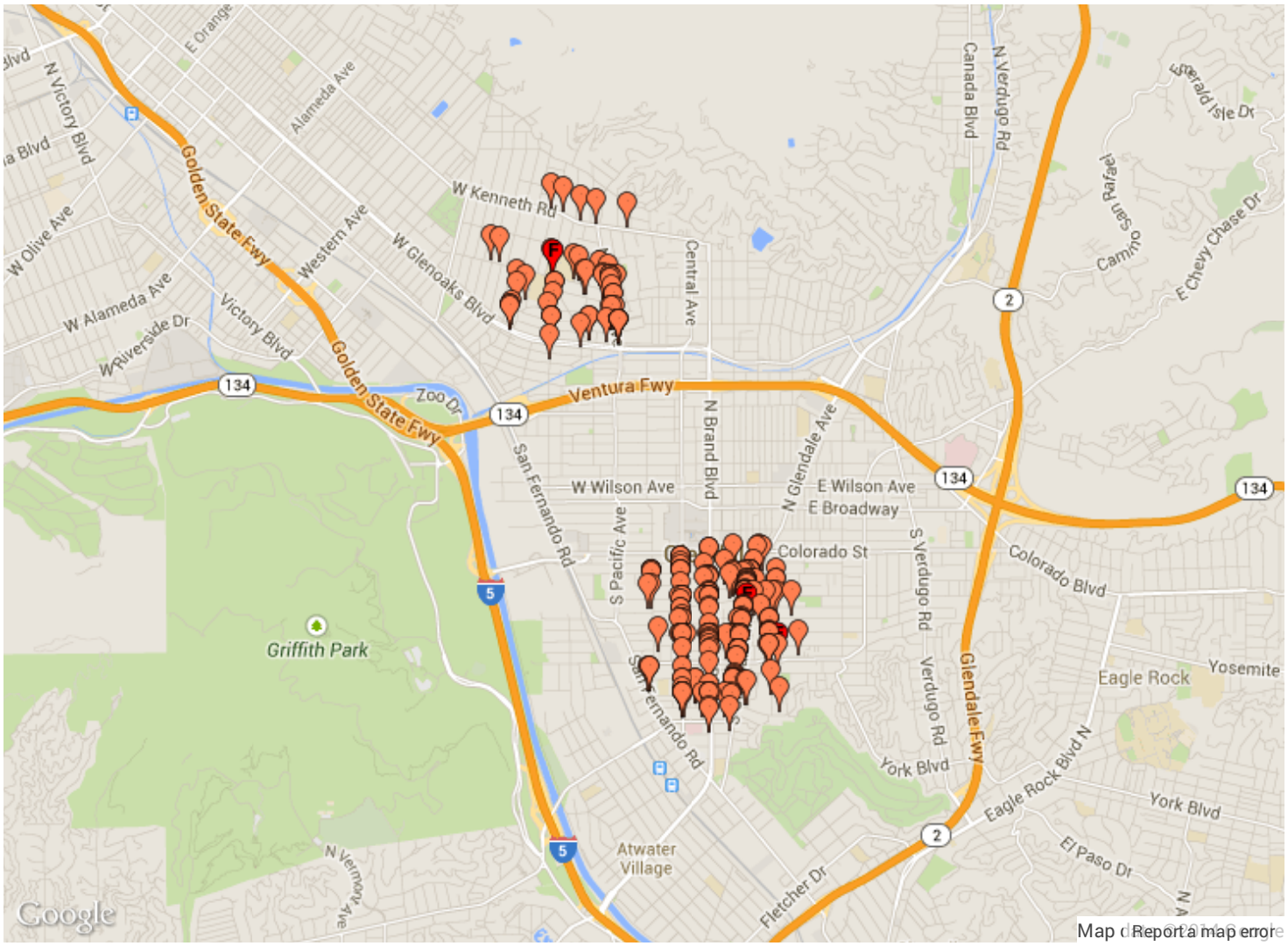
Legend

Fatality - from File

Other - from File

Fatality - User Input

Other - User Input



Crash Summary in the map

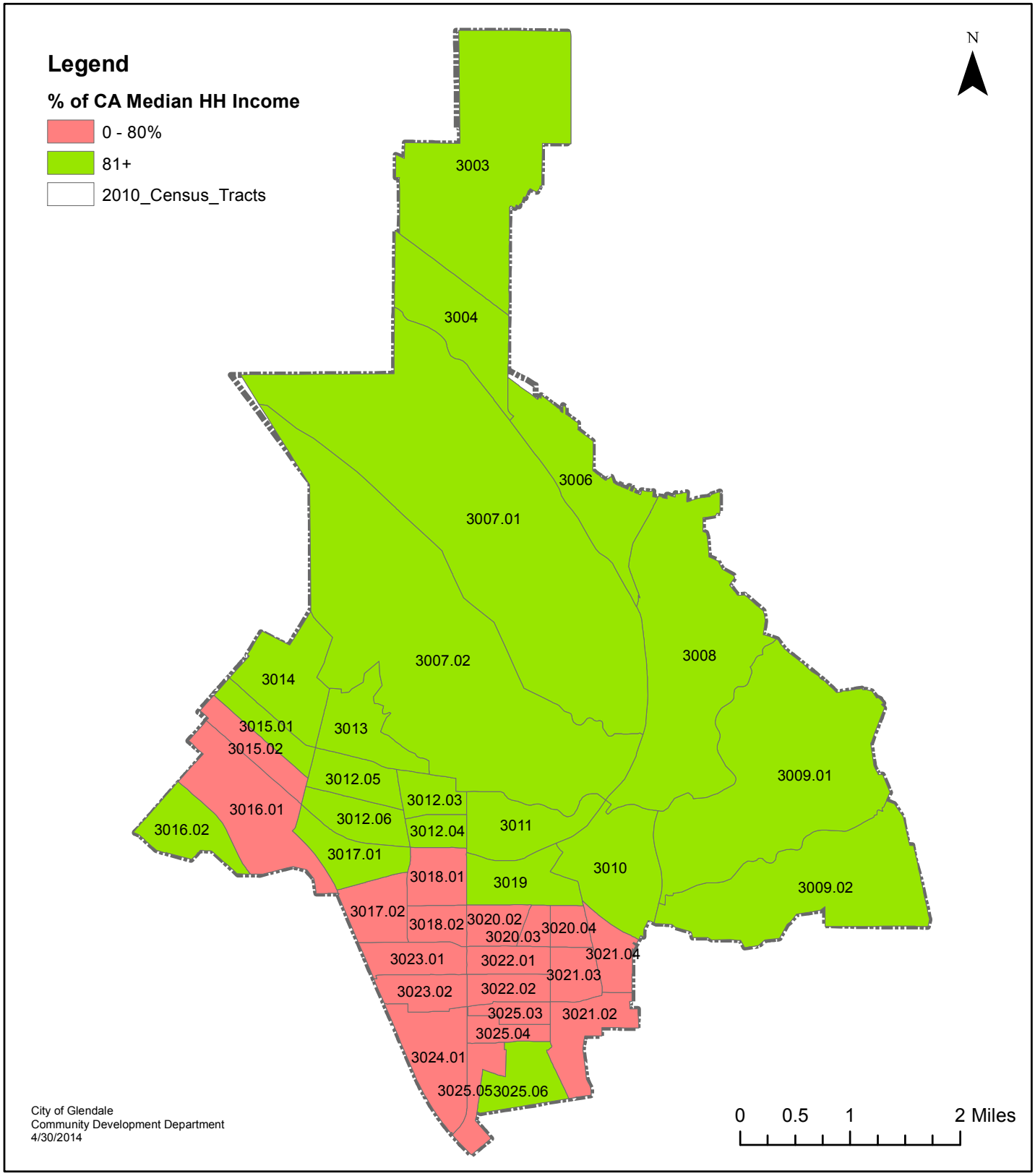
Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
All	3	20	143	110	0	276

Safety Practitioner / Engineer: Justin Robertson

Signature:

By signing this B/C Calculator Map Result, you are attesting to your authority / responsibility at your local agency for this work and you are attesting to the accuracy of the values on this page and that they have been entered into the HSIP Application Form correctly, DO NOT SIGN if any of this is not the case.

Percentage of CA HH Median Income by Census Tract (2010)



School	Enrollment 2013-2014	Percent Eligible FRPM	% of Students who walk/bike to school
Theodore Roosevelt Middle	832	87.7%	60%
John Muir Elementary	837	79.5%	25%
Herbert Hoover High	1756	69.5%	n/a
Eleanor J. Toll Middle	1140	65.9%	25%
Mark Keppel Elementary	1002	43.3%	20%

Search Query Summary:

GEOGRAPHIC AREA:
San Fernando

MAIN TOPIC:
Number of days physically active at least one hour (past week)

COMPARE BY:
None selected

POPULATION:
None selected

Source: 2011 - 2012 California Health Interview Survey
95% confidence intervals are displayed in table
* Red asterisk means statistically unstable

Number of days physically active at least one hour (past week)	
0 day	7.1%* (2.0 - 12.2) 13,000
1 day	4.6%* (0.0 - 9.2) 8,000
2 days	9.4%* (3.0 - 15.9) 17,000
3 days	17.4% (9.3 - 25.5) 31,000
4 days	6.5%* (1.6 - 11.5) 12,000
5 days	18.8% (9.5 - 28.2) 33,000
6 days	2.7%* (0.0 - 5.5) 5,000
7 days	33.4% (19.9 - 47.0) 59,000
Total	100.0% 176,000

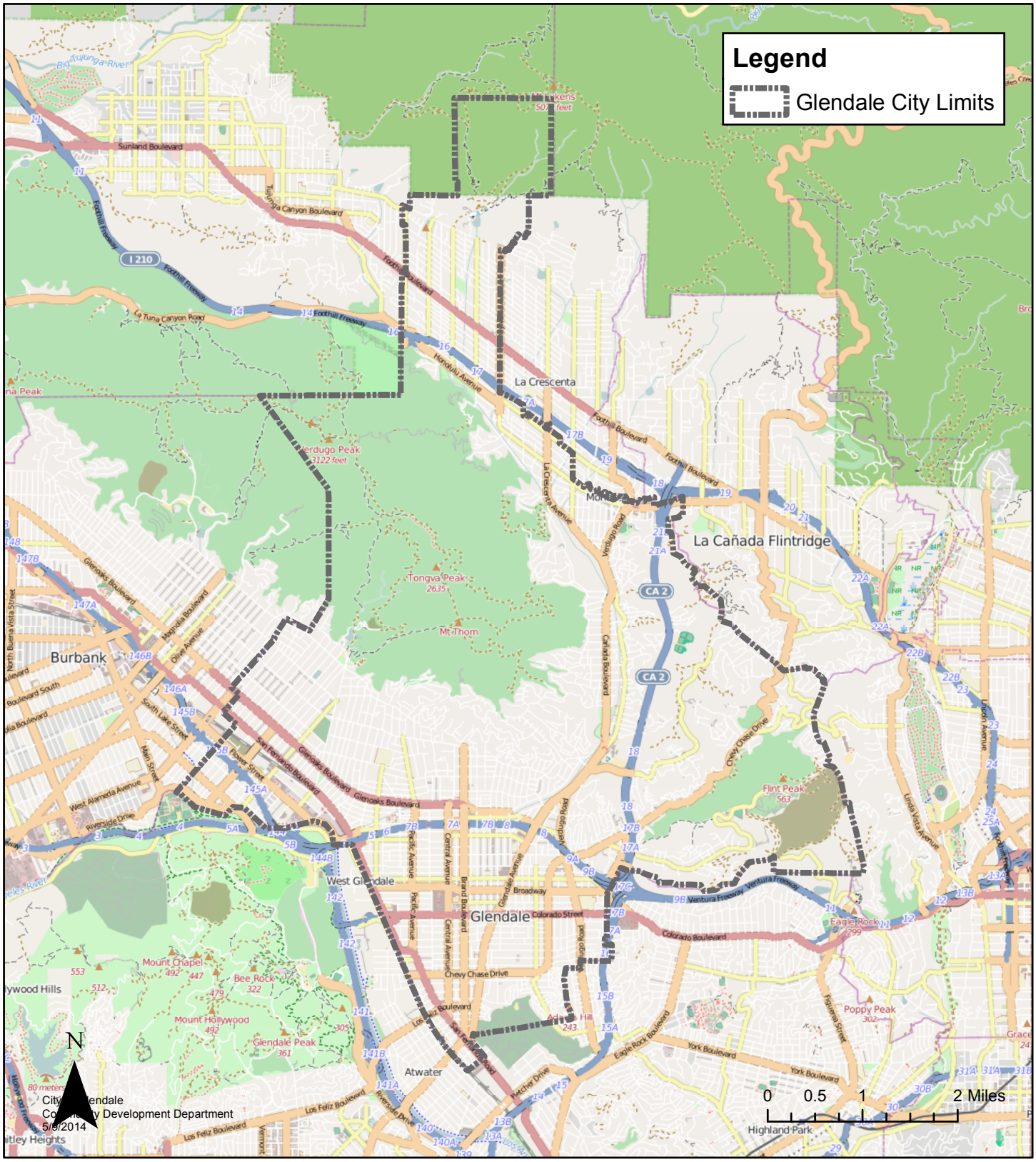
View additional resources related to Physical Activity/Exercise

If your table includes 2001 data, it may exclude survey responses for which answers are unknown. For all other years, unknown answers are imputed.

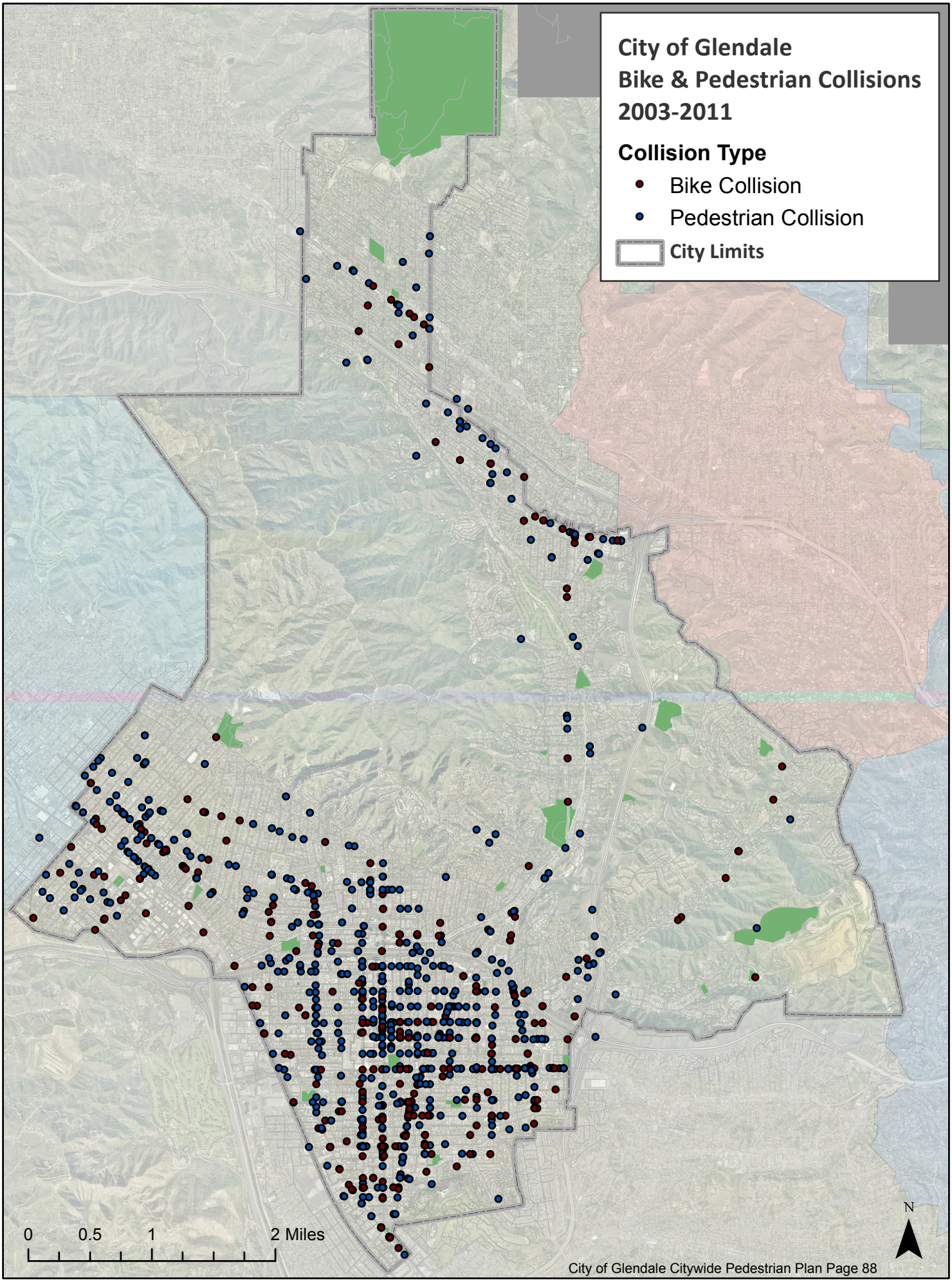
PROJECT SCHEDULE AND COST ESTIMATE - Citywide Pedestrian Plan

PROJECT EXPENSES *	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	TOTAL
CAPITAL EXPENSES						
1 Assess Existing Conditions and City Policies	$50,000	$0	$0	$0	$0	$50,000
2 Research Best Practices in Pedestrian Infrastructure	$25,000	$0	$0	$0	$0	$25,000
3 Analyze City Accident Data/Conduct Fieldwork Citywide	$40,000	$30,000	$0	$0	$0	$70,000
4 Conduct Public Workshops/Outreach with Constituents	$0	$35,000	$15,000	$0	$0	$50,000
5 Prepare Policy, Program, and Infrastructure Recommendations	$20,000	$60,000	$0	$0	$0	$80,000
6 Prepare an Official Draft and Final Pedestrian Plan	$0	$50,000	$50,000	$0	$0	$100,000
OPERATING EXPENSES						
7 Administration/Management/Project Coordination	$20,000	$60,000	$30,000	$0	$0	$110,000
8 Operating Costs	$1,000	$3,000	$1,000	$0	$0	$5,000
9 Marketing	$2,000	$5,000	$3,000	$0	$0	$10,000
OTHER (specify)						
10	$0	$0	$0	$0	$0	$0
11	$0	$0	$0	$0	$0	$0
12	$0	$0	$0	$0	$0	$0
13	$0	$0	$0	$0	$0	$0
14	$0	$0	$0	$0	$0	$0
15	$0	$0	$0	$0	$0	$0
16 **TOTAL PROJECT EXPENSES**	**$158,000**	**$243,000**	**$99,000**			**$500,000**

Vicinity Map



Sources: OpenStreetMap, City of Glendale


City of Glendale
Bike & Pedestrian Collisions
2003-2011
Collision Type
Bike Collision
Pedestrian Collision
City Limits
0
0.5
1
2 Miles
N