EL DORADO COUNTY TRANSPORTATION COMMISSION

Active Transportation Connections Study

AUGUST 2017

PREPARED FOR

el dorado county edctc TRANSPORTATION COMMISSION

PREPARED BY

alta PLANNING + DESIGN

Purpose

Active transportation projects, such as new walkways and bikeways, are often funded by grants. The scoring rubric for these grants tend to emphasize - directly or indirectly - projects located near large population centers with dramatic safety issues and equity concerns, making it **difficult for rural areas with dispersed populations, such as the western slope of El Dorado County, to be competitive**.

El Dorado County residents identified a desire to improve conditions for walking and bicycling as one of the County's overarching transportation goals,[1] but c**ompleting grant applications can be time and data intensive**. Selecting projects that have the greatest probability of receiving funding helps maximize limited County resources.

El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study outlines a **process for identifying which adopted active transportation projects may be the most competitive under various grant application criteria** and provides a preliminary prioritization of already adopted active transportation projects.

The Active Transportation Connections Study was funded by a State Highway Account - Sustainable Communities Transportation Planning Grant awarded by the California Department of Transportation.

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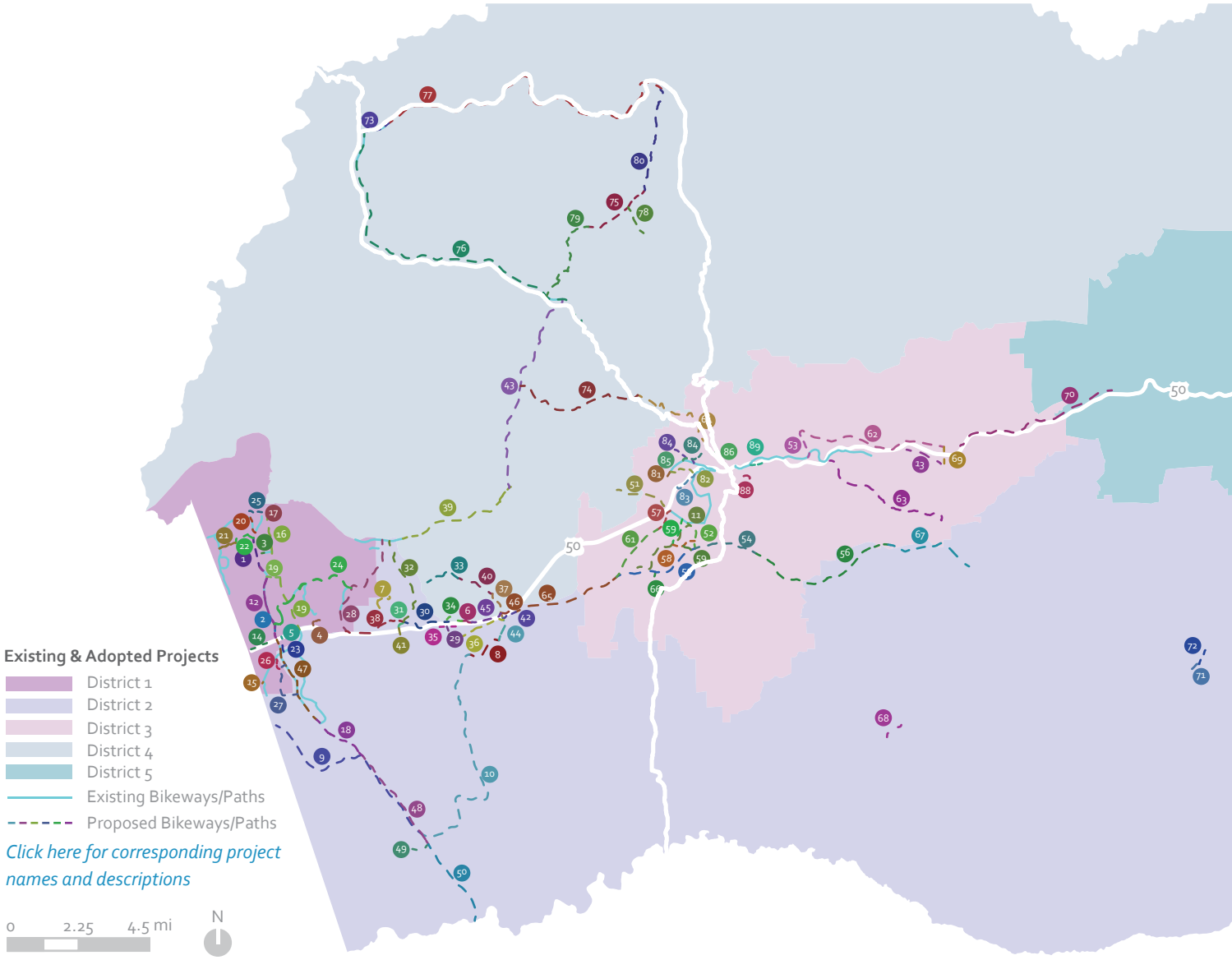
Process

To identify which proposed projects in El Dorado County's western slope would be the most competitive under various regional, state, and federal grant application criteria, **EDCTC reviewed the scoring rubrics of the following transportation grants**:

CMAQ

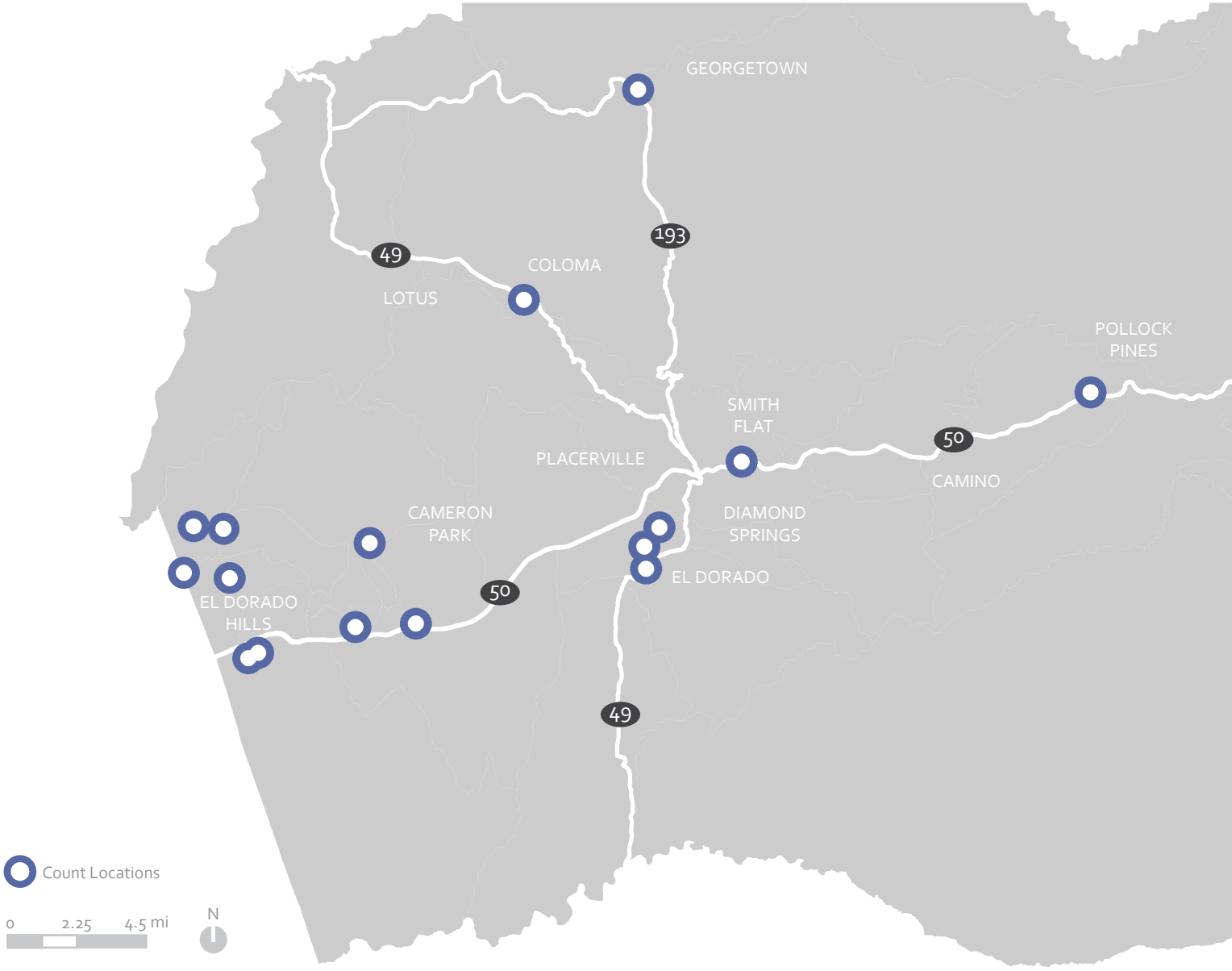
While the scoring varied among Caltrans' Active Transportation Program (ATP), Caltrans' Highway Safety Improvement Program (HSIP), and the federal Congestion Mitigation and Air Quality Improvement Program (CMAQ), each shared common evaluation areas: **health, environment, demand, connectivity, safety, equity, and costs**.

These seven common evaluation areas form the foundation for this study. **EDCTC worked with its advisory committee to select one preferred evaluation criteria that represented each evaluation area**. In the event that no locations in the county would perform well under a common grant criteria, EDCTC identified an evaluation criteria that provided insight into a project's ability to address local concerns. For example, proposed projects in El Dorado County typically perform poorly in grant applications that define equity by identifying locations with low-income households or schools with a large percentage of students that are eligible for free and reduced lunches. In lieu of including an equity evaluation criterion that would align well with grant applications but show few eligible projects in El Dorado County, EDCTC and its advisory committee elected to select an equity evaluation criterion that would help with internal prioritization: the number of youths and seniors living near a proposed project. This approach allows EDCTC to identify projects that would have strong equity implications within the county even though they may not perform well under some grant application criteria.



PROJECTS

The active transportation projects evaluated in this initial study were pulled from plans adopted by El Dorado County or other jurisdictions within the western slope of El Dorado County. These plans include the *El Dorado County Bicycle Transportation Plan* (2010) and the *City of Placerville Non-Motorized Transportation Plan* (2010). Because these plans focused on bicycle infrastructure, the projects evaluated were limited to on-street bikeways and multi-use paths, as shown in the map above. However, the **selected evaluation criteria allow for additional active transportation projects, including pedestrian-focused projects, to be added to the study once they are officially adopted** by the County or local jurisdiction. Any future update to this study should include a review of recently adopted or updated plans and their lists of proposed projects. *Click here for the full list of projects evaluated in this initial study.*



COUNTS

To understand existing demand for active transportation facilities and to help forecast demand at proposed locations, pedestrian and bicycle counts were collected at 16 locations. The count locations were selected based on five criteria: (1) mix of existing and proposed facilities, (2) mix of facility types, (3) coverage of all 5 districts, (4) range of expected volumes, and (5) mix of trip purposes, such as commuting, school, and recreation trips. In addition, the Friends of El Dorado Trail provided count data for three more locations. These counts inform the environmental analysis on page 7 and the demand analysis on page 8. As more count data becomes available over time, these analyses can be refined and the margin of error reduced. *Click here for more information on the count locations and extrapolated methods.*

Criteria

For five of the seven evaluation areas, **EDCTC and its advisory committee considered multiple potential evaluation criteria based on variations in common grant application requirements and local needs**. The lone exceptions, demand and cost-effectiveness, were consistent across all common grant application requirements, so there was no need to consider alternatives. A discussion on the trade-offs among the potential criteria for each evaluation area and methodology are documented in separate memorandums linked below. The following section summarizes each evaluation area and the preferred evaluation criteria.

HEALTH

ENVIRONMENT

DEMAND

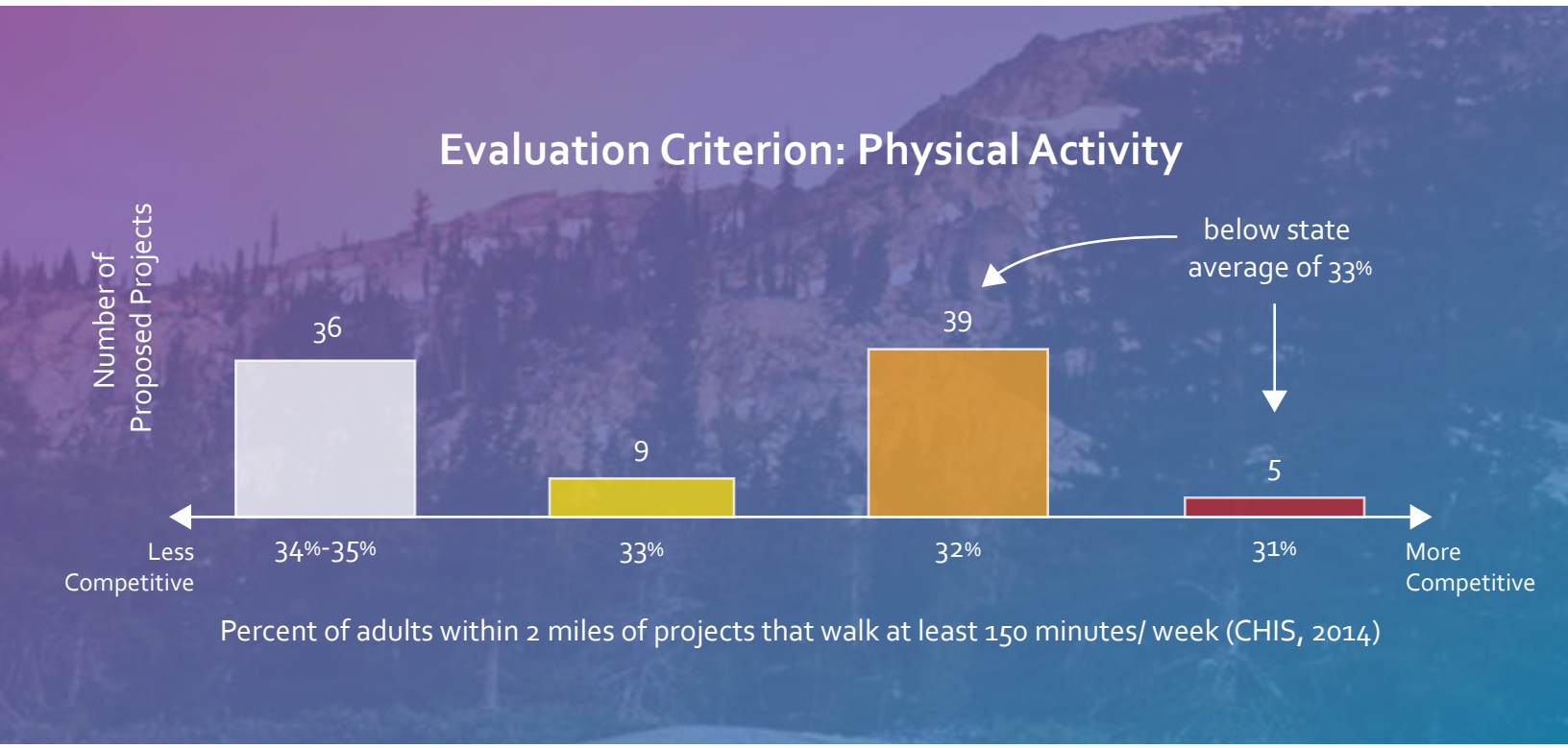
CONNECTIVITY

SAFETY

EQUITY

COSTS

HEALTH



Why Health?

Understanding the importance of transportation investments on health outcomes is a featured component in El Dorado County's *Regional Transportation Plan*. It notes that if the design of new and/or rehabilitated facilities considers the needs of pedestrians and bicyclists, the transportation network can contribute to improved public health. Specifically, Guiding Principle B states, "EDCTC plans and programs will enhance the quality of life in the region by supporting transportation improvements that increase opportunities for a strong jobs-housing balance, environment, economy, education, **healthful communities**, recreation, and civic involvement."[2]

Projects that address public health are also more competitive in grant applications. The most recent cycle of Caltrans' Active Transportation Program (ATP) focused on projects that address the health vulnerabilities of a proposed project's targeted users and the potential of a proposed project to promote healthy communities.[3]

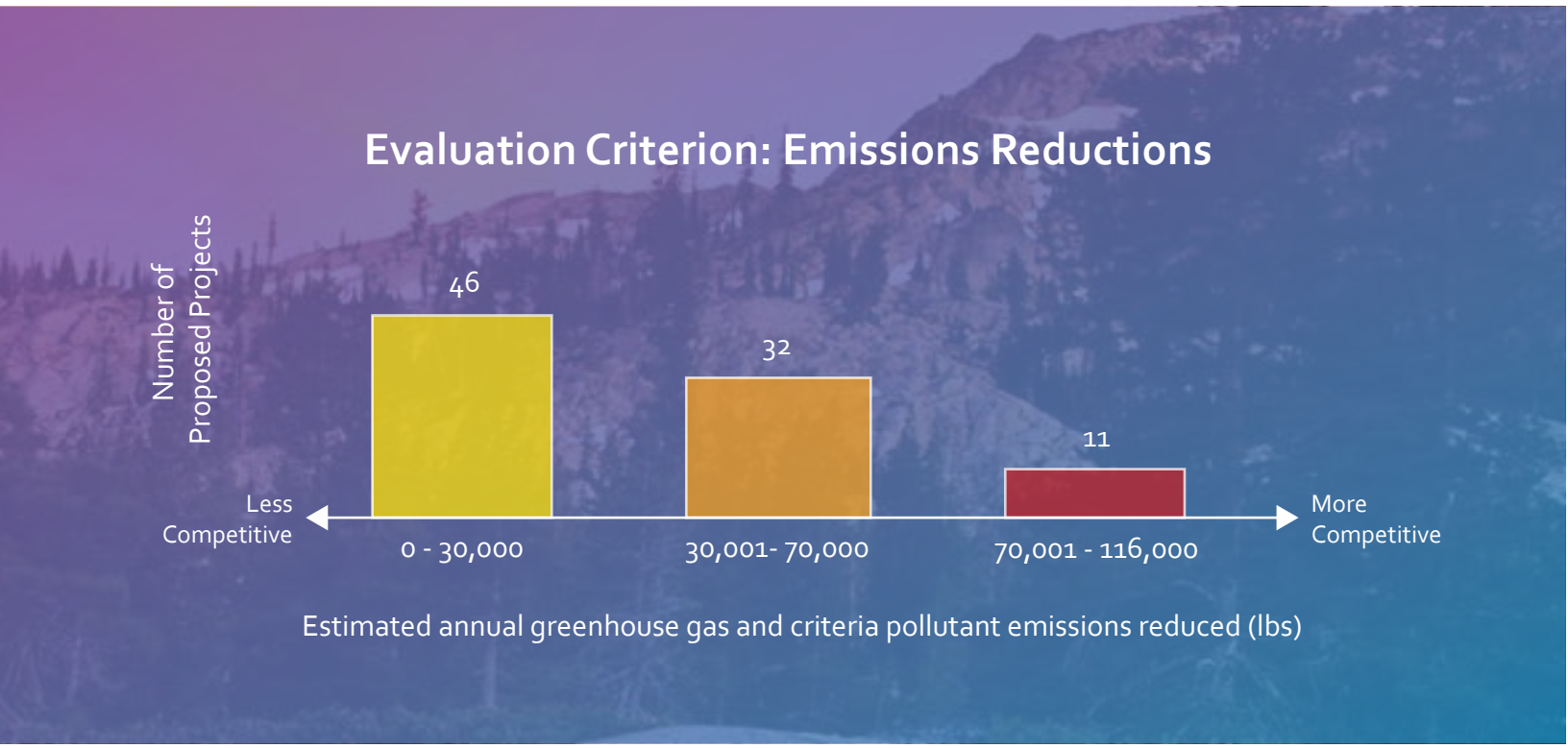
Preferred Criterion

The preferred health evaluation criterion is the percent of adults within 2 miles of a proposed project that walked at least 150 minutes for transportation or leisure in the past week - the minimum level of physical activity recommended by the Centers for Disease Control and Prevention. Physical activity serves as a proxy for a variety of health concerns such as obesity, diabetes, heart disease, mental health, and other chronic diseases. When applied to the list of adopted projects, the average physical activity level of residents near 44 of the 89 proposed projects fell below the state average of 33%, while the remaining 45 proposed projects outperformed the state average. *Click here to see the other health criteria considered.*

Data Source

The California Health Interview Survey (CHIS) is a statewide survey covering a variety of health behaviors and outcomes. Data is collected through a random-dial telephone survey and is conducted on a continuous basis, providing one-year estimates at the state, county, and zip code levels.[4]

ENVIRONMENT



Why Environment?

Transportation systems that support walking and bicycling reduce reliance on motor vehicles, especially for short trips, resulting in reduced emissions of greenhouse gases and other criteria pollutants. This not only improves air quality, but also reduces the potential for pollutants in stormwater runoff to reach groundwater sources and local waterways. Replacing driving trips with active transportation trips supports Guiding Principle B of El Dorado County's *Regional Transportation Plan* and the State of California's climate action goals.[5,6]

Projects that encourage sustainable transportation are also more competitive in grant applications such as the US DOT Transportation Investment Generating Economic Recovery (TIGER) discretionary grant,[7] California's Urban Greening Grant program,[8] and Caltrans' Sustainable Transportation Planning Grant program.[9] These grant programs include application elements focused on estimated reduction in greenhouse gases or environmental sustainability.

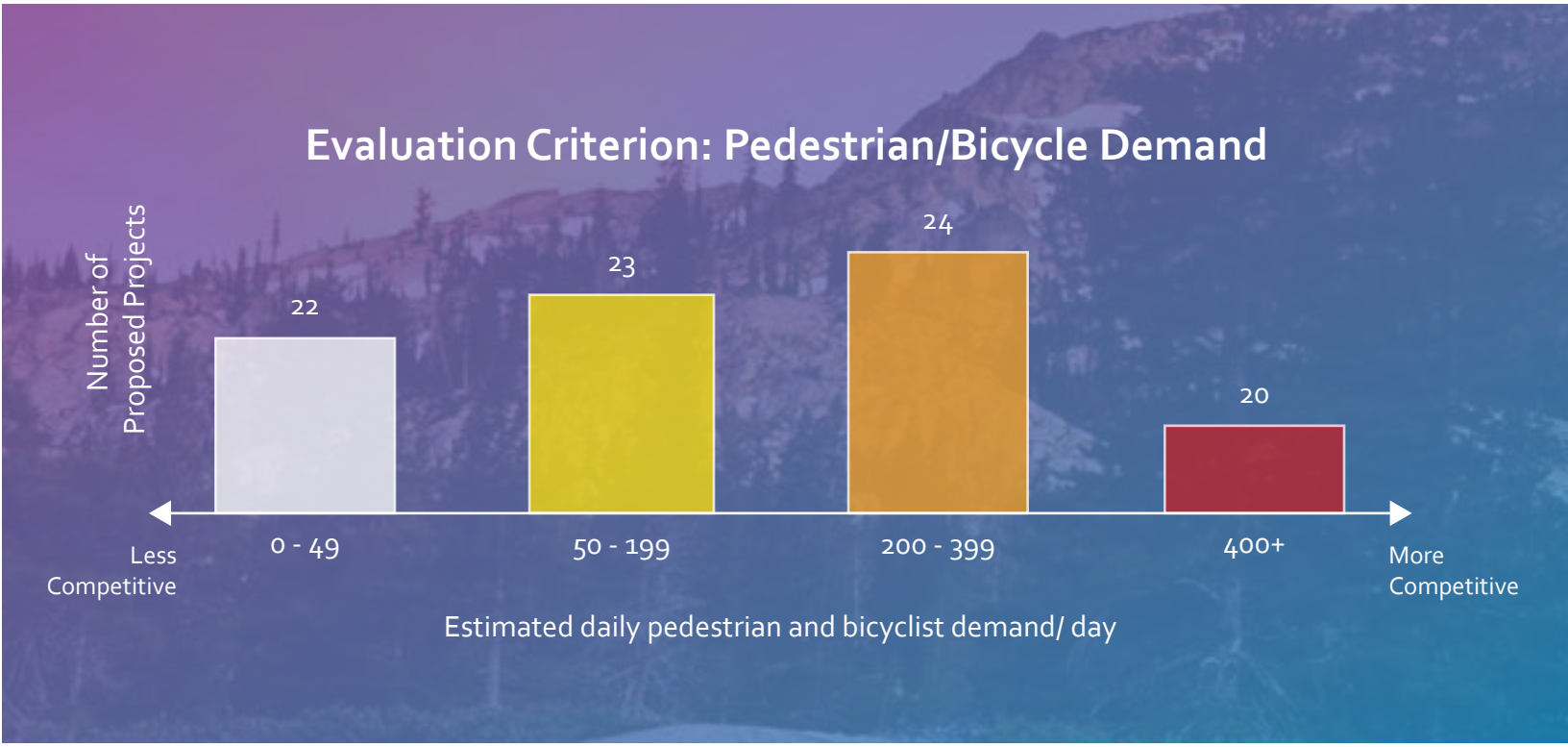
Preferred Criterion

The preferred environmental evaluation criterion is the estimated pounds of greenhouse gases and other criteria pollutants that would be removed from the atmosphere each year if the proposed projects were built. This criterion matches common grant application requirements, and, when applied to the adopted project list, it provides a clear distinction between projects. Among the 89 proposed projects, 11 would reduce greenhouse gas and criteria pollutant emissions over 70,000 pounds per year - that's the equivalent savings of at least 3,500 gallons of gasoline consumed.[10] *Click here to see the other environmental criteria considered.*

Data Source

Estimated reductions in greenhouse gas and criteria pollutant emissions are a derived from vehicle-miles traveled reduction estimates. The method relies on demand analysis, national trip replacement, and national trip distance factors to understand how many new active transportation trips might replace motor vehicle trips and the average emissions produced by those vehicles.[11]

DEMAND



Why Demand?

Forecasting demand helps identify projects that are more likely to be well used by local residents and visitors to El Dorado County. Projects that can demonstrate high future demand from pedestrians and/or bicyclists tend to be more competitive in grant applications, including the Caltrans' Active Transportation Program (ATP), Caltrans' Highway Safety Improvement Program (HSIP), and US DOT's TIGER grants. The most recent ATP application requirements assigned up to 35 out of 100 total points to projects that clearly and convincingly demonstrated a meaningful increase in the number of people walking and bicycling in the project area as a result of implementation.[12]

Funding and building projects with high anticipated user demand is also consistent with the goals of EDCTC's *Regional Transportation Plan*, which calls for the development of an integrated multi-modal transportation system that supports the needs of its users and enhances the overall quality of life for the region. Specifically, Objective C under Highways, Streets, and Regional/ Inter-Regional Roadways emphasizes cost effectiveness, demand, and prioritization for all travel modes and users.[13]

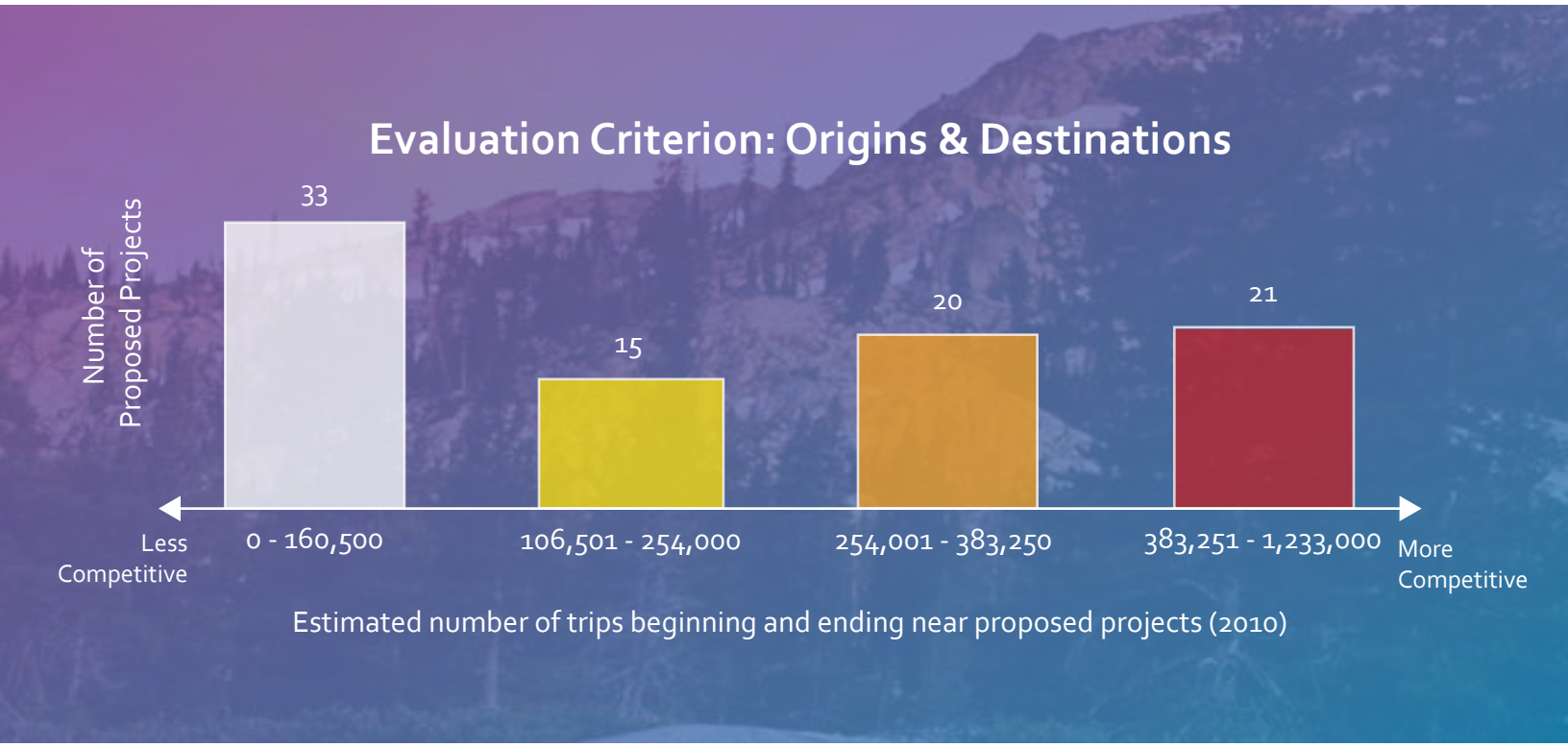
Data Source

Forecasted demand estimates were based on counts of people walking or bicycling on paths or other travelways similar to the proposed project and on demographic and socioeconomic data about the people and surrounding environment where the facility is located. EDCTC collected pedestrian and bicycle count data at 19 locations and performed a regression analysis to forecast demand near the proposed project locations.

Demand Models

The pedestrian demand model for El Dorado County showed moderate to strong relationships between the number of people walking and 11 factors, including street density, lack of access to a motor vehicle, proximity to schools, and population 18-34 years old living near the proposed projects. The bicycle demand model showed moderate to strong relationships with 8 factors, including the number of activity centers, travel time to work, and mode share near the proposed projects. *Click here to see how the models were developed and other factors considered.*

CONNECTIVITY



Why Connectivity?

Connectivity is a commonly featured criterion in active transportation grant requirements, as it identifies projects that will have the greatest impact on increasing residents' ability to walk and bicycle to destinations like work, grocery stores, community centers, schools, and shops. Pedestrians and bicyclists are more sensitive to disconnected travelways and long trip distances than motorists, making connectivity an important factor in the decision to walk or bicycle for a given trip.

Although connectivity is not often a quantitative component of common grant applications, some grants do look for qualitative descriptions about improved accessibility and the elimination of gaps in the pedestrian and bicycle network. For example, the last cycle of Caltrans' Active Transportation Program (ATP) required a description of how a project improves connectivity for non-motorized transportation users.[14]

In addition, improving connectivity is also a major theme in EDCTC's *Regional Transportation Plan*, which seeks to "promote a safe, convenient, and efficient non-motorized transportation system which is part of a balanced overall transportation system for all users."[15]

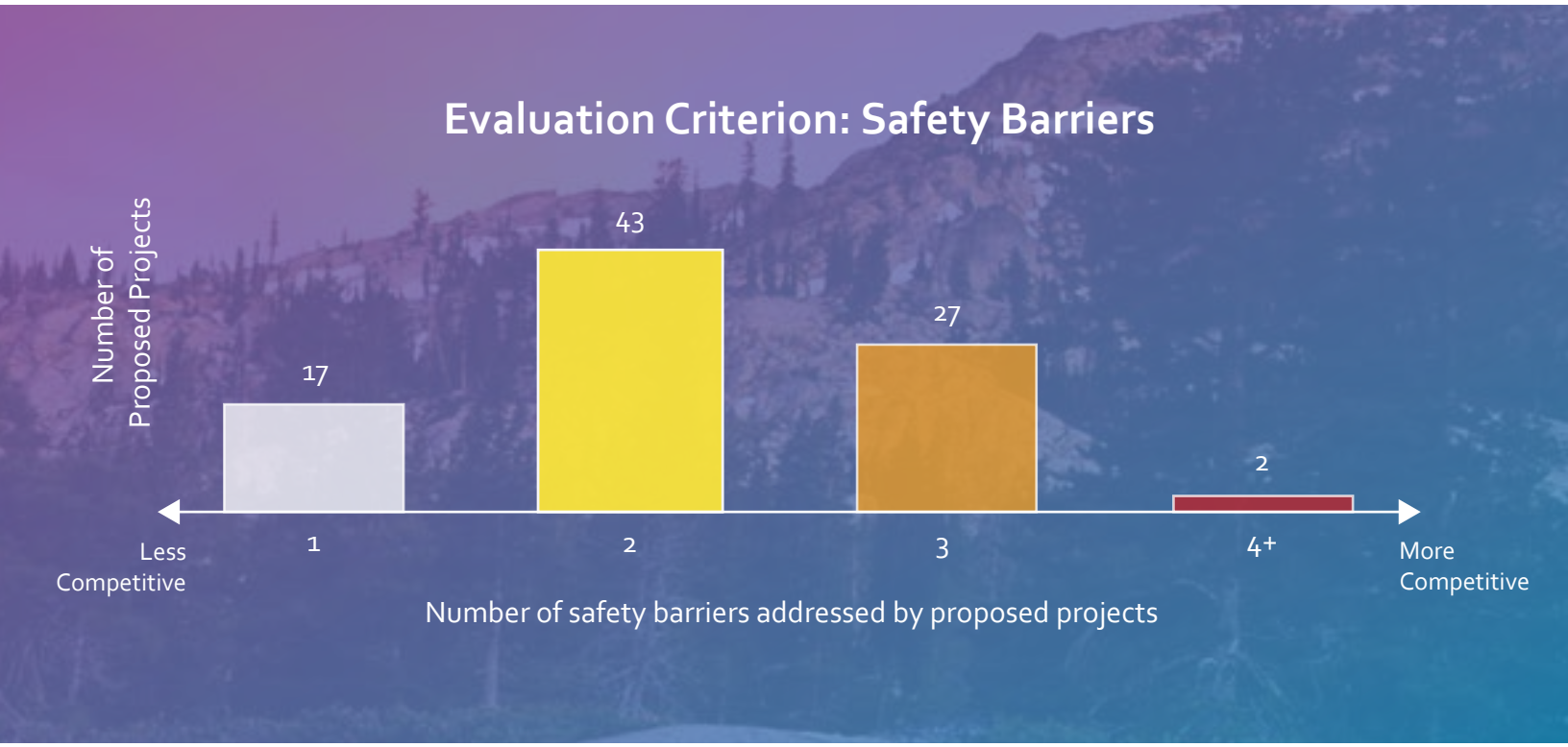
Preferred Criterion

The preferred connectivity evaluation criterion is the annual existing number of trips that begin or end near the proposed project. This criterion serves as a proxy for how many people are likely to visit a project area by any mode of travel. When applied to the adopted list of projects, the estimated number of trips ranged between 0 and 1.233 million total trips per year by all modes. *Click here to see the other connectivity criteria considered.*

Data Source

Estimates of the number of trips that begin or end near a given project were provided by El Dorado County's travel demand model.[16] The model divides the county into non-overlapping zones called Transportation Analysis Zones (TAZs). Using survey, land use, and demographic data, the model estimates the total number of trips that begin or end within each TAZ. For this evaluation criterion, proposed projects were assigned all of the estimated trips of the TAZs in which their alignment intersected.

SAFETY



Why Safety?

Safety and perceptions of safety have a significant influence on transportation choices, comfort level, and travel behavior. Pedestrians and bicyclists face unique safety concerns resulting from roadway designs that often favor motor vehicle travel, and are relatively more vulnerable compared to people traveling inside a motor vehicle. This is especially true for those with physical disabilities. Improving safety conditions can make the transportation network more accessible and attractive to people of all ages and abilities, enabling more people to walk or bicycle.

Safety criteria are commonly featured in grant applications, and are often heavily weighted compared to other scoring categories. Applications for Caltrans' Active Transportation Program (ATP) and its Highway Safety Improvement Program (HSIP) required projects to demonstrate how they will improve safety and reduce crashes and injuries.[17,18] Additionally, safety is emphasized in El Dorado County's *Regional Transportation Plan* under Guiding Principle F which states, "EDCTC will plan for transportation investments which improve and/or maintain the safety and security of the transportation system and its users."[19]

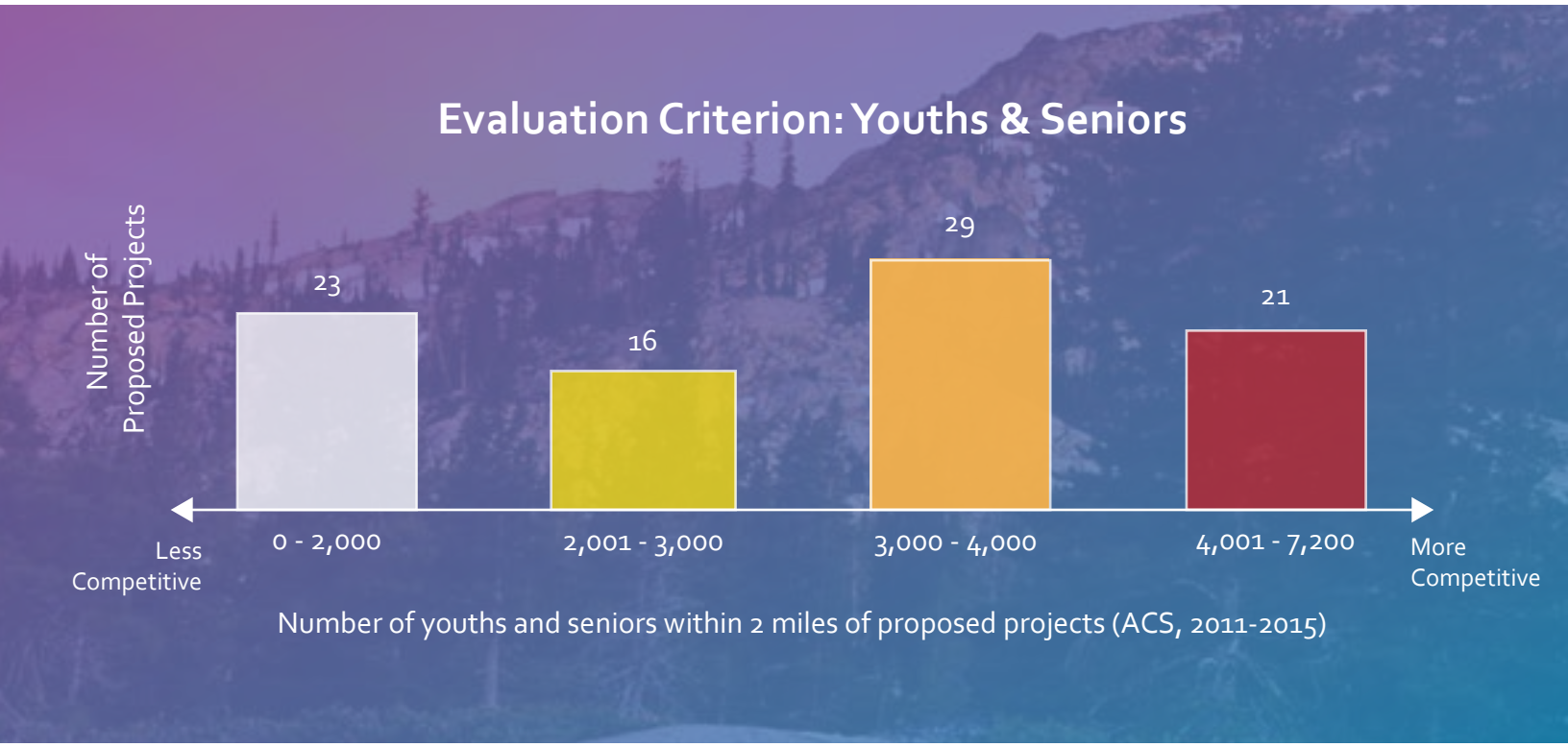
Preferred Criterion

The preferred safety evaluation criterion is the number of safety barriers that would be removed if a project was implemented. Unlike an evaluation criterion based solely on crash data at a location, this measure accounts for locations where barriers to safety may exist but no walking or bicycling activity is present. It is particularly suited to analyzing safety barriers in rural areas and helps offset the need to wait for a collision to happen to take action. *Click here to see the other safety criteria considered.*

Data Source

This performance measure relies on expert analysis to identify challenges presented by the existing design of a travelway and potential opportunities presented by the proposed project. It allows for a more nuanced view of safety in a rural area like El Dorado County, where low recorded numbers of walking or bicycling related collisions may not accurately represent challenges or capture how these challenges limit walking and bicycling.

EQUITY



Why Equity?

Without access to multiple transportation options, some people may have difficulty getting to work, accessing healthy food, going to school, or engaging in social activities. Ensuring equitable access to walking and bicycling facilities for transportation is particularly important for communities that have historically been disadvantaged, do not have access to a motor vehicle, rely heavily on walking and bicycling for their daily transportation needs, or are otherwise disconnected from active transportation opportunities.

Caltrans' Active Transportation Program (ATP) awarded points for projects that close a gap, provide a new connection, or otherwise address a deficiency in the active transportation network within a disadvantaged area.[20] El Dorado County's *Regional Transportation Plan* also promotes equity in Guiding Principle E: Diversity, which states, "EDCTC plans and programs will recognize the multitude of needs and the variety of perspectives and backgrounds of the people that live, work, and visit the region by promoting a range of equitable transportation choices that are designed with sensitivity to the desired context while preserving the unique character of each community or sub region."[21]

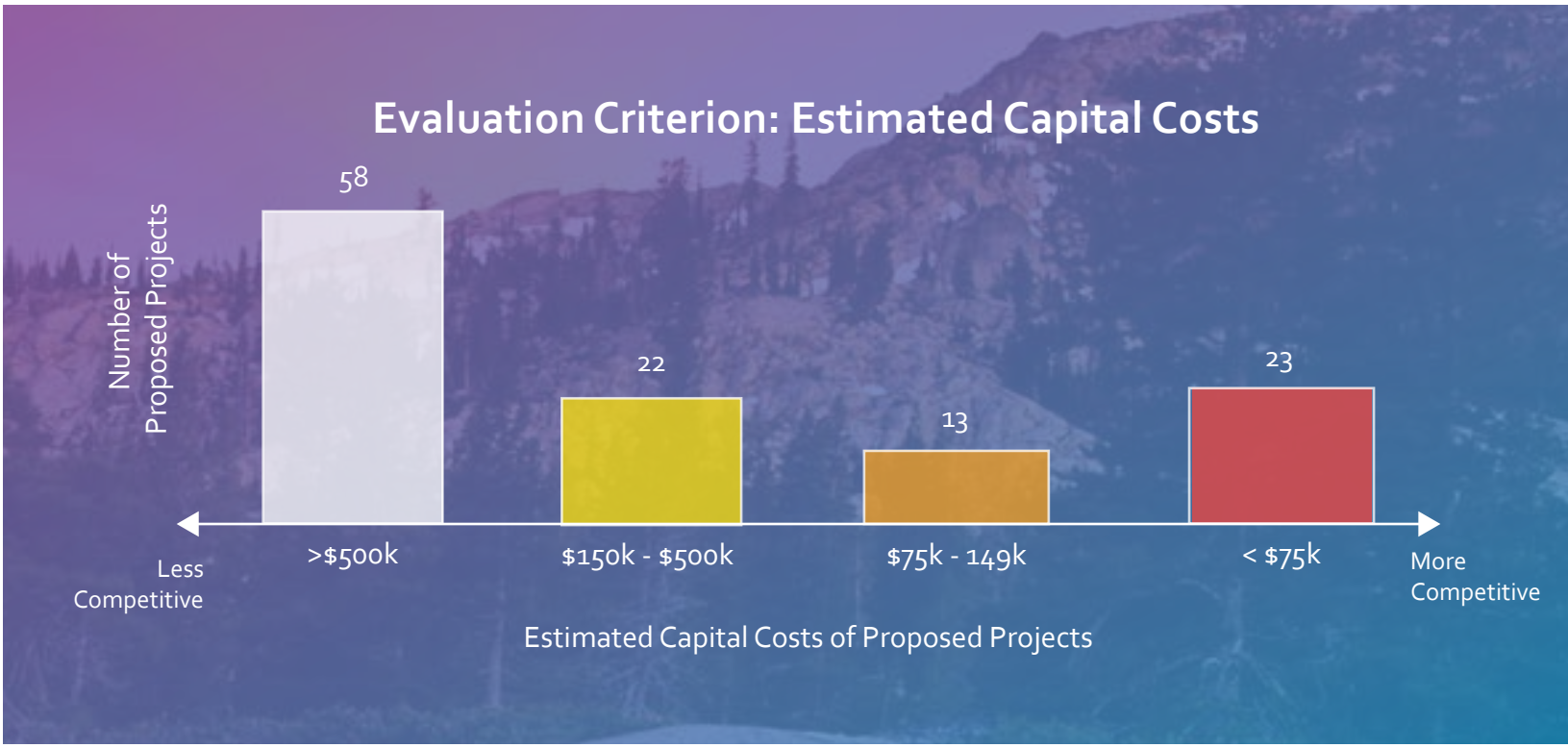
Preferred Criterion

The preferred equity evaluation criterion is the number of youths (18 years and under) and seniors (64 years and over) within 2 miles of a proposed project. Providing transportation options for these two demographic groups is a growing concern for the County as the overall population has seen a spike in the number of youths and seniors over the past 10 years.[22] In addition to youths and seniors, providing transportation options for people with disabilities is a growing concern for the County. Because it is not a common grant criteria, it was not selected as the preferred equity evaluation criterion, but it must be considered in the design of funded facilities. *Click here to see the other equity criteria considered.*

Data Source

The US Census Bureau provides demographic data, including age, for a wide variety of geographies from statewide down to individual Census block groups. This data is easily accessible, collected consistently across multiple years, and available at a scale that allows comparison of specific project locations.[23]

COST-EFFECTIVENESS



Why Costs?

Health, environment, demand, connectivity, safety, and equity benefits come at a price. Being able to weigh the benefits of a proposed project against its costs helps place projects on an even playing field for evaluation. While a large project may show considerable benefits, its costs may be prohibitive to pursuing outside funding. Likewise, a small project may not show as many benefits as other projects, but its relatively low cost may make it a more cost-effective choice for implementation. Further, a combination of low-cost projects may have as large an impact as one project with a hefty price tag.

El Dorado County's *Regional Transportation Plan* promotes the concept of Complete Streets because integrating sidewalks, bike lanes, and other multi-modal infrastructure is more cost-effective to design into a project from the start than to add after construction. Objective C of the plan calls for a focus on cost-effectiveness when maintaining the County's transportation system. Similarly, a common grant application requirement is to show a measure of cost-effectiveness, ranging from a quantitative cost-benefit ratio for HSIP grants to a more qualitative description in ATP grants.

Preferred Criterion

The preferred cost-effectiveness evaluation criterion is estimated capital costs of the proposed projects. This measure helps balance the benefits captured by the other evaluation criteria with the amount of funding needed to construct a given project. The estimated capital costs of the proposed project list ranged roughly $10,000 to $1.9 million. *Click here to see the other cost-effectiveness criteria considered.*

Data Source

For this analysis, the capital cost of Class I multi-use paths was assumed to be $480,000 per mile, and the capital cost of Class II on-street bicycle lanes was assumed to be $133,000 based on an *analysis of pedestrian and bicycle costs* conducted by the Pedestrian and Bicycle Information Center, Robert Wood Johnson Foundation, and Federal Highway Administration. These general estimates should be replaced with specific project estimates as they become available.

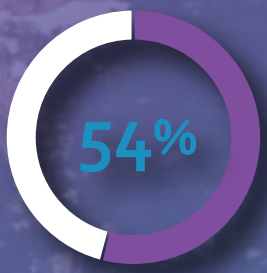
Feedback

El Dorado County residents guided this study through three different means:

- Online Survey
- Advisory Committee
- Public Workshop

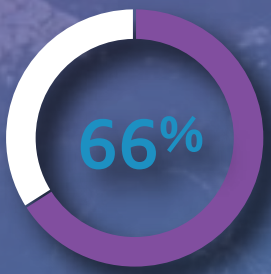
The **online survey** received 365 responses between August 2, 2016 and November 29, 2016 and was advertised through a project-specific webpage, the County's website, and email blasts to groups or stakeholder connected with the diverse members of the advisory committee. The purpose of the survey was to capture background information on existing walking and bicycling behavior and preferences to inform the selection of evaluation criteria or to support future active transportation grant applications. The findings showed that the majority of respondents' walking and bicycling trips were for recreation or exercise, emphasizing respondents' **focus on health**. The findings also showed that the majority of respondents were not willing to walk more than a mile to their destination, emphasizing the **need to measure the connectivity** between active transportation infrastructure and major activity centers. Respondents also expressed a large range of safety concerns from the speed and volume of nearby traffic to street crossing conditions and the presence of bicycle-specific facilities. This range of safety concerns and the relative lack of existing non-recreational walking and bicycling trips suggested that **residents perceived a greater safety threat than was captured in the number of reported collisions**. However, the majority of respondents expressed a desire to walk or bicycle more for daily trips such as going to the grocery store, work, school, or to connect to transit. Taken together, this suggests that El Dorado County residents may make more walking and bicycling trips if infrastructure is built that provides the amenities of a recreational route, connections to multiple destinations, and decreases safety concerns. *Click here to read more about the survey results.*

An **advisory committee** comprised of residents and staff from various public agencies in El Dorado County provided input in the development of the online survey, the data collection effort, and the selection of evaluation criteria. The committee met in person or by conference call six times to ensure each component of the study reflected resident concerns, included the most up-to-date and relevant data, and isolated the criteria most imitative of grant application requirements for which the County might be eligible. *Click here to read the advisory committee meeting notes.*



Trip Purpose

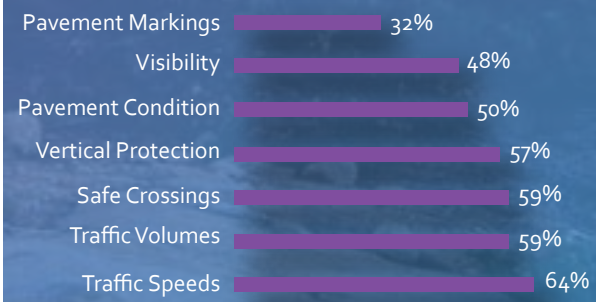
The majority of respondents who walk multiple days per week, walk for recreation or exercise

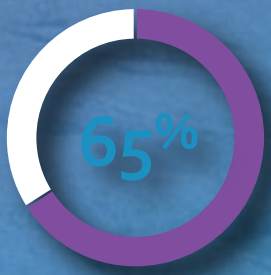


Trip Distance

The majority of respondents who walk, travel less than one mile to their destination for non-recreational trips

"Very Important" Bike Safety Factors





Demand

The majority of respondents strongly agreed or somewhat agreed that they would like to walk or bike more for daily trips

PUBLIC WORKSHOP

To collect feedback on the preferred evaluation criteria and their relative importance to El Dorado County residents, EDCTC hosted a **public workshop** at the Placerville Earth Day Festival on April 22, 2017. Attendees were asked to complete a prioritization exercise in which they **indicated their preference for each of the evaluation criteria through head-to-head match-ups**. For example, in a head-to-head match-up between health and demand, attendees indicated on a sliding scale that health was 'much more important', 'slightly more important', 'slightly less important', or 'much less important' than demand as a measure for deciding which active transportation projects should be prioritized for funding. This process, known as pairwise comparisons, allowed EDCTC to understand the weight that residents place on various components of pedestrian and bicycle projects and to contrast those weights with common grant application weighting schemes. *Click here to read more about the public engagement process for this study.*

Priorities

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- Public Workshop

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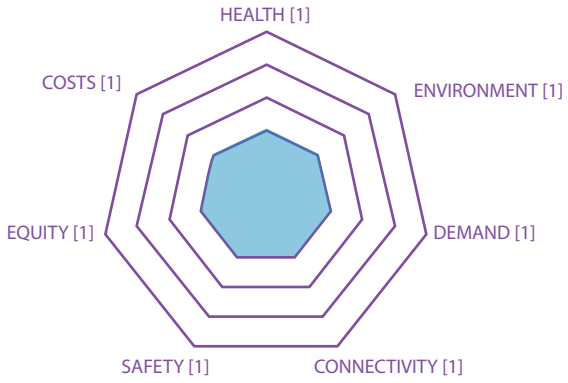
OVERALL

Assumed Equal Weighting



OVERALL	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
4	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
5	Serrano Pkwy	El Dorado Hills Blvd	Bass Lake Rd	24	II

DISTRICT 1	PROJECT	BEGIN	END	ID	CLASS
1	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
2	Serrano Pkwy	El Dorado Hills Blvd	Bass Lake Rd	24	II
3	Country Club Dr (Phase 2)	Bass Lake Rd	Cambridge Rd	38	II
4	El Dorado Hills Blvd	Saratoga Way	Governor Dr/ St Andrews Dr	13	II
5	El Dorado Hills Blvd (Phase 2)	Governor Dr/ St Andrews Dr	Green Valley Rd	17	II

DISTRICT 2	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
4	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
5	Country Club Dr (Phase 2)	Bass Lake Rd	Cambridge Rd	38	II

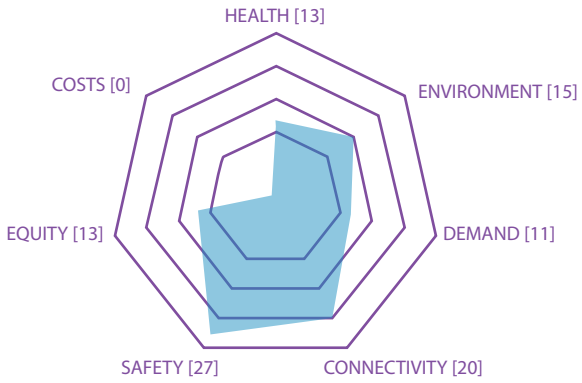
DISTRICT 3	PROJECT	BEGIN	END	ID	CLASS
1	Placerville Dr	Green Valley Rd/ Ray Lawyer Dr	State Route 50	82	II
2	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II
3	Forni Rd	Ray Lawyer Dr	State Route 50/ Placerville Dr	83	II
4	Cold Springs Rd	Placerville City Limit (Near Caswell Rd)	Placerville Dr	84	II
5	Pierroz Rd	Placerville Dr	Cold Springs Rd	85	II

DISTRICT 4	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
3	Cameron Park Dr	Durock Rd	State Route 50	29	II
4	Meder Rd (Phase 1)	Cameron Park Dr	Paloran Ct	33	II
5	Green Valley Rd	Cameron Park Dr	Lotus Rd	39	II

DISTRICT 5	PROJECT	BEGIN	END	ID	CLASS
1	Pony Express Trail	Carson Rd	Sly Park Rd	70	II

PUBLIC WORKSHOP

Focused on Safety & Connectivity



OVERALL	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
3	Green Valley Rd	Cameron Park Dr	Lotus Rd	39	II
4	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
5	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II

DISTRICT 1	PROJECT	BEGIN	END	ID	CLASS
1	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	State Route 50 Crossing	El Dorado Hills Village Shopping Center	El Dorado Hills Town Center	5	I
4	Serrano Pkwy	El Dorado Hills Blvd	Bass Lake Rd	24	II
5	El Dorado Hills Blvd (Phase 2)	Governor Dr/ St Andrews Dr	Green Valley Rd	17	II

DISTRICT 2	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
3	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
4	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
5	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II

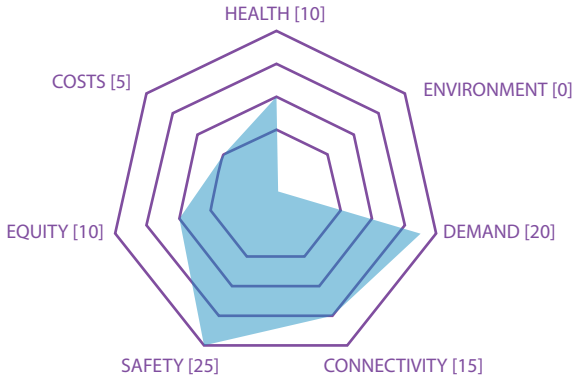
DISTRICT 3	PROJECT	BEGIN	END	ID	CLASS
1	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II
2	Mother Lode Dr (Phase 2)	Pleasant Valley Rd	Lindberg Ave	61	II
3	Placerville Dr	Green Valley Rd/ Ray Lawyer Dr	State Route 50	82	II
4	SPTC - El Dorado Trail (Phase 1)	El Dorado Rd	Missouri Flat Rd	11	I
5	Missouri Flat Rd (Phase 2)	Golden Center Dr	Pleasant Valley Rd/ State Route 49	52	II

DISTRICT 4	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Green Valley Rd	Cameron Park Dr	Lotus Rd	39	II
3	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
4	Lotus Rd	Green Valley Rd	State Route 49	43	II
5	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II

DISTRICT 5	PROJECT	BEGIN	END	ID	CLASS
1	Pony Express Trail	Carson Rd	Sly Park Rd	70	II

ATP

Focused on Demand & Safety



OVERALL	PROJECT	BEGIN	END	ID	CLASS
1	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
2	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
3	Green Valley Rd	Cameron Park Dr	Lotus Rd	39	II
4	El Dorado Hills Blvd (Phase 2)	Governor Dr/ St Andrews Dr	Green Valley Rd	17	II
5	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II

DISTRICT 1	PROJECT	BEGIN	END	ID	CLASS
1	El Dorado Hills Blvd (Phase 2)	Governor Dr/ St Andrews Dr	Green Valley Rd	17	II
2	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
3	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
4	Golden Foothill Pkwy	Latrobe Rd (North)	Latrobe Rd (South)	27	II
5	Serrano Pkwy	El Dorado Hills Blvd	Bass Lake Rd	24	II

DISTRICT 2	PROJECT	BEGIN	END	ID	CLASS
1	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
2	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
3	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II
4	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
5	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II

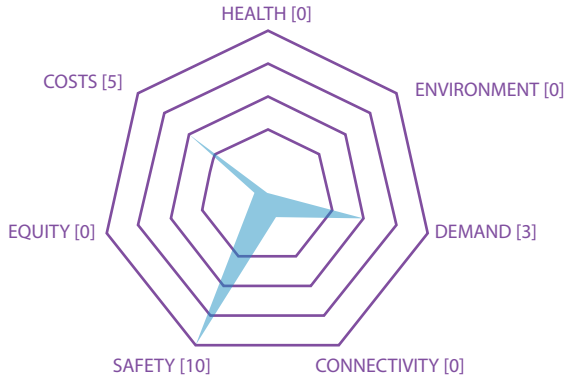
DISTRICT 3	PROJECT	BEGIN	END	ID	CLASS
1	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II
2	Mother Lode Dr (Phase 2)	Pleasant Valley Rd	Lindberg Ave	61	II
3	Placerville Dr	Green Valley Rd/ Ray Lawyer Dr	State Route 50	82	II
4	SPTC - El Dorado Trail (Phase 1)	El Dorado Rd	Missouri Flat Rd	11	I
5	Cold Springs Rd	Placerville City Limit (Near Caswell Rd)	Placerville Dr	84	II

DISTRICT 4	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Green Valley Rd	Cameron Park Dr	Lotus Rd	39	II
3	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II
4	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
5	Meder Rd (Phase 1)	Cameron Park Dr	Paloran Ct	33	II

DISTRICT 5	PROJECT	BEGIN	END	ID	CLASS
1	Pony Express Trail	Carson Rd	Sly Park Rd	70	II

HSIP

Focused on Safety & Costs



OVERALL	PROJECT	BEGIN	END	ID	CLASS
1	Placerville Dr	Green Valley Rd/ Ray Lawyer Dr	State Route 50	82	II
2	White Rock Rd	County Boundary (West)	Carson Crossing Rd	15	II
3	Mother Lode Dr	South Shingle Rd	French Creek Rd	42	II
4	North Shingle Rd	Ponderosa Rd	Sports Club Dr	46	II
5	Cold Springs Rd	Placerville City Limit (Near Caswell Rd)	Placerville Dr	84	II

DISTRICT 1	PROJECT	BEGIN	END	ID	CLASS
1	White Rock Rd	County Boundary (West)	Carson Crossing Rd	15	II
2	El Dorado Hills Blvd (Phase 2)	Governor Dr/ St Andrews Dr	Green Valley Rd	17	II
3	Old Bass Lake Rd (Phase 1)	El Dorado Hills	Bass Lake Connection	4	I
4	Golden Foothill Pkwy	Latrobe Rd (North)	Latrobe Rd (South)	27	II
5	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II

DISTRICT 2	PROJECT	BEGIN	END	ID	CLASS
1	Mother Lode Dr	South Shingle Rd	French Creek Rd	42	II
2	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
3	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
4	Golden Foothill Pkwy	Latrobe Rd (North)	Latrobe Rd (South)	27	II
5	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II

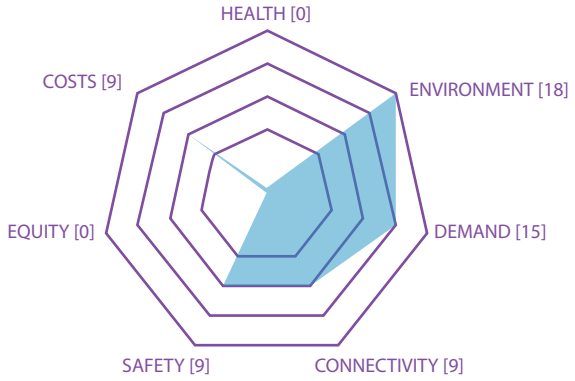
DISTRICT 3	PROJECT	BEGIN	END	ID	CLASS
1	Placerville Dr	Green Valley Rd/ Ray Lawyer Dr	State Route 50	82	II
2	Cold Springs Rd	Placerville City Limit (Near Caswell Rd)	Placerville Dr	84	II
3	State Route 49	Placerville City Limit (Near Coloma Ct)	Green St	86	II
4	Mother Lode Dr (Phase 1)	Lindberg Ave	Missouri Flat Rd	57	II
5	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II

DISTRICT 4	PROJECT	BEGIN	END	ID	CLASS
1	Mother Lode Dr	South Shingle Rd	French Creek Rd	42	II
2	North Shingle Rd	Ponderosa Rd	Sports Club Dr	46	II
3	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
4	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
5	Cameron Park Dr	Durock Rd	State Route 50	29	II

DISTRICT 5	PROJECT	BEGIN	END	ID	CLASS
1	Pony Express Trail	Carson Rd	Sly Park Rd	70	II

CMAQ

Focused on Environment & Demand



OVERALL	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
4	Cameron Park Dr	Durock Rd	State Route 50	29	II
5	Serrano Pkwy	El Dorado Hills Blvd	Bass Lake Rd	24	II

DISTRICT 1	PROJECT	BEGIN	END	ID	CLASS
1	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
2	Serrano Pkwy	El Dorado Hills Blvd	Bass Lake Rd	24	II
3	Country Club Dr (Phase 2)	Bass Lake Rd	Cambridge Rd	38	II
4	El Dorado Hills Blvd	Saratoga Way	Governor Dr/ St Andrews Dr	13	II
5	State Route 50 Crossing	El Dorado Hills Village Shopping Center	El Dorado Hills Town Center	5	I

DISTRICT 2	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
4	Country Club Dr (Phase 2)	Bass Lake Rd	Cambridge Rd	38	II
5	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II

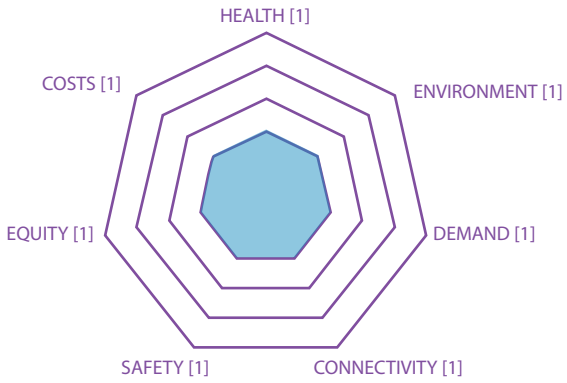
DISTRICT 3	PROJECT	BEGIN	END	ID	CLASS
1	Placerville Dr	Green Valley Rd/ Ray Lawyer Dr	State Route 50	82	II
2	Cold Springs Rd	Placerville City Limit (Near Caswell Rd)	Placerville Dr	84	II
3	State Route 49	Placerville City Limit (Near Coloma Ct)	Green St	86	II
4	Forni Rd	Ray Lawyer Dr	State Route 50/ Placerville Dr	83	II
5	Pierroz Rd	Placerville Dr	Cold Springs Rd	85	II

DISTRICT 4	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
3	Cameron Park Dr	Durock Rd	State Route 50	29	II
4	Meder Rd (Phase 1)	Cameron Park Dr	Paloran Ct	33	II
5	Green Valley Rd	Cameron Park Dr	Lotus Rd	39	II

DISTRICT 5	PROJECT	BEGIN	END	ID	CLASS
1	Pony Express Trail	Carson Rd	Sly Park Rd	70	II

NEAR SCHOOLS

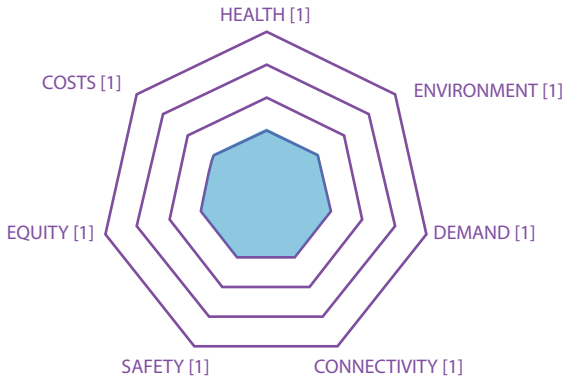
Assumed Equal Weighting



OVERALL	PROJECT	BEGIN	END	ID	CLASS
1	Serrano Pkwy	El Dorado Hills Blvd	Bass Lake Rd	24	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
4	El Dorado Hills Blvd	Saratoga Way	Governor Dr/ St Andrews Dr	13	II
5	Country Club Dr (Phase 2)	Bass Lake Rd	Cambridge Rd	38	II
DISTRICT 1	**PROJECT**	**BEGIN**	**END**	**ID**	**CLASS**
1	Serrano Pkwy	El Dorado Hills Blvd	Bass Lake Rd	24	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
4	El Dorado Hills Blvd	Saratoga Way	Governor Dr/ St Andrews Dr	13	II
5	Country Club Dr (Phase 2)	Bass Lake Rd	Cambridge Rd	38	II
DISTRICT 2	**PROJECT**	**BEGIN**	**END**	**ID**	**CLASS**
1	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
2	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
3	Country Club Dr (Phase 2)	Bass Lake Rd	Cambridge Rd	38	II
4	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II
5	Golden Foothill Pkwy	Latrobe Rd (North)	Latrobe Rd (South)	27	II
DISTRICT 3	**PROJECT**	**BEGIN**	**END**	**ID**	**CLASS**
1	Mother Lode Dr (Phase 2)	Pleasant Valley Rd	Lindberg Ave	61	II
2	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II
3	State Route 49	Placerville City Limit (Near Coloma Ct)	Green St	86	II
4	SPTC - El Dorado Trail (Phase 1)	El Dorado Rd	Missouri Flat Rd	11	I
5	SPTC - El Dorado Trail (Phase 5)	Halcon Rd	Snows Rd	12	I
DISTRICT 4	**PROJECT**	**BEGIN**	**END**	**ID**	**CLASS**
1	Green Valley Rd	Cameron Park Dr	Lotus Rd	39	II
2	Lotus Rd	Green Valley Rd	State Route 49	43	II
3	Meder Rd (Phase 2)	Paloran Ct	Ponderosa Rd	40	II
4	Mother Lode Dr (Phase 3)	French Creek Rd	Pleasant Valley Rd	65	II
5	Ponderosa Rd	State Route 50	Meder Rd	37	II

NEAR TRANSIT

Assumed Equal Weighting



OVERALL	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
4	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
5	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II

DISTRICT 1	PROJECT	BEGIN	END	ID	CLASS
1	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
2	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II
3	Country Club Dr (Phase 2)	Bass Lake Rd	Cambridge Rd	38	II
4	State Route 50 Crossing	El Dorado Hills Village Shopping Center	El Dorado Hills Town Center	5	I
5	Bass Lake Bike Path Connection	Covello Circle (East)	Summer Dr	7	I

DISTRICT 2	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Bass Lake Rd	Country Club Dr	Green Valley Rd	28	II
3	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
4	Durock Rd	Cameron Park Dr	South Shingle Rd	36	II
5	Latrobe Rd	Investment Blvd	SPTC - El Dorado Trail	47	II

DISTRICT 3	PROJECT	BEGIN	END	ID	CLASS
1	Mother Lode Dr (Phase 2)	Pleasant Valley Rd	Lindberg Ave	61	II
2	Placerville Dr	Green Valley Rd/ Ray Lawyer Dr	State Route 50	82	II
3	Cold Springs Rd	Placerville City Limit (Near Caswell Rd)	Placerville Dr	84	II
4	Pierroz Rd	Placerville Dr	Cold Springs Rd	85	II
5	State Route 49	Placerville City Limit (Near Coloma Ct)	Green St	86	II

DISTRICT 4	PROJECT	BEGIN	END	ID	CLASS
1	Cambridge Rd	Country Club Dr	Green Valley Rd	32	II
2	Country Club Drive (Phase 1)	Cambridge Rd	Cameron Park Dr	30	II
3	Green Valley Rd	Cameron Park Dr	Lotus Rd	39	II
4	Cameron Park Dr	Durock Rd	State Route 50	29	II
5	Meder Rd (Phase 1)	Cameron Park Dr	Paloran Ct	33	II

DISTRICT 5	PROJECT	BEGIN	END	ID	CLASS
1	Pony Express Trail	Carson Rd	Sly Park Rd	70	II

NOTES

1 - "Promote a safe, convenient, and efficient non-motorized transportation system which part of a balanced overall transportation system for all users." Final El Dorado County Regional Transportation Plan: 2015-2035. EDCTC. p. 41. <http://www.edctc.org/L/RTP%20FINAL-2015-2035.pdf>
2 - Final El Dorado County Regional Transportation Plan: 2015-2035. EDCTC. p. 39. <http://www.edctc.org/L/RTP%20FINAL-2015-2035.pdf>
3 - 2017 Active Transportation Program: Scoring Rubric. Caltrans. p. 21. <http://www.catc.ca.gov/programs/ATP/2017/2017_ATP_Scoring_Rubrics_for_Q1_Q7.pdf>
4 - California Health Interview Survey. <http://healthpolicy.ucla.edu/chis/data/Pages/overview.aspx>
5 - Final El Dorado County Regional Transportation Plan: 2015-2035. EDCTC. p. 39. <http://www.edctc.org/L/RTP%20FINAL-2015-2035.pdf>
6 - AB 32: California Global Warming Solutions Act of 2006. California Environmental Protection Agency. <https://www.arb.ca.gov/cc/ab32/ab32.htm>
7 - Tiger Grant Application Resources. US Department of Transportation. <https://www.transportation.gov/tiger/application-resources>
8 - Urban Greening Grant Program. California Natural Resources Agency. <http://resources.ca.gov/grants/urban-greening/>
9 - Sustainable Transportation Planning Grant Program. Caltrans. <http://www.dot.ca.gov/hq/tpp/grants.html>
10 - Greenhouse Gas Equivalencies Calculator. Environmental Protection Agency. <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
11 - National Household Travel Survey. FHWA (2009). <http://nhts.ornl.gov/>
12 - 2017 Active Transportation Program: Scoring Rubric. Caltrans. p. 7. <http://www.catc.ca.gov/programs/ATP/2017/2017_ATP_Scoring_Rubrics_for_Q1_Q7.pdf>
13 - Final El Dorado County Regional Transportation Plan: 2015-2035. EDCTC. p. 41. <http://www.edctc.org/L/RTP%20FINAL-2015-2035.pdf>
14 - 2017 Active Transportation Program: Scoring Rubric. Caltrans. p. 3. <http://www.catc.ca.gov/programs/ATP/2017/2017_ATP_Scoring_Rubrics_for_Q1_Q7.pdf>
15 - Final El Dorado County Regional Transportation Plan: 2015-2035. EDCTC. p. 40. <http://www.edctc.org/L/RTP%20FINAL-2015-2035.pdf>
16 - Travel Demand Model. County of El Dorado. <https://www.edcgov.us/Government/Planning/Travel_Demand_Model.aspx>
17 - 2017 Active Transportation Program: Scoring Rubric. Caltrans. p. 11. <http://www.catc.ca.gov/programs/ATP/2017/2017_ATP_Scoring_Rubrics_for_Q1_Q7.pdf>
18 - Chapter 9 Highway Safety Improvement Program (HSIP) Guidelines. Caltrans. <http://www.dot.ca.gov/hq/LocalPrograms/HSIP/2016/HSIP-Guidelines.pdf>
19 - Final El Dorado County Regional Transportation Plan: 2015-2035. EDCTC. p. 40. <http://www.edctc.org/L/RTP%20FINAL-2015-2035.pdf>
20 - 2017 Active Transportation Program: Scoring Rubric. Caltrans. p. 3. <http://www.catc.ca.gov/programs/ATP/2017/2017_ATP_Scoring_Rubrics_for_Q1_Q7.pdf>
21 - Final El Dorado County Regional Transportation Plan: 2015-2035. EDCTC. p. 40. <http://www.edctc.org/L/RTP%20FINAL-2015-2035.pdf>
22 - The percent of the total El Dorado County population that was under 19 years old or over 64 years old incrased from 37 percent in 2005 to 42 percent in 2015, according to one-year estimates from the American Community Survey.
23 - American FactFinder. US Census Bureau. <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

Last Updated: August 11, 2017

Appendices

- A: Survey Results
- B: Count Results
- C: Health Analysis
- D: Environmental Analysis
- E: Demand Analysis
- F: Connectivity Analysis
- G: Safety Analysis
- H: Equity Analysis
- I: Cost-Effectiveness Analysis
- J: Proposed Projects
- K: Public Engagement
- L: Meeting Notes & Presentations
- M: Study Comment Log
- N: Staff Report

APPENDIX A: SURVEY RESULTS

MEMORANDUM

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Oakland, CA 94607
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www.altaplanning.com

To: Jerry Barton (EDCTC)

From: Hugh Louch, Kyle James, and Jessica Nguyen (Alta Planning + Design) Date:

July 17, 2017

Re: EDCTC Active Transportation Connections Study – Survey Results

Introduction

Using Survey Monkey, Alta administered an online survey targeted at El Dorado County residents to better understand existing walking and bicycling travel behavior and preferences. Alta received 365 responses between August 2, 2016 and November 29, 2016. The responses will inform the El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study which is designed to help prioritize planned pedestrian and bicycle infrastructure projects in the County's western slope and enhance competitiveness in grant funding applications. The survey was organized into the following seven sections:

1. **Introduction** – Provided respondents with an overview of the project, expected survey duration, and project website information.
2. **Frequency/Duration** – Asked respondents about how frequently they walk or bicycle to common destinations and the average trip distances to those destinations.
3. **Travel Behavior** – Asked respondents how their travel behavior changes based on seasonal variations, mode choice, experience bicycling, desire to walk or bicycle more, and safety concerns.
4. **Route Preference** – Asked respondents how frequently they walk or bicycle along the 20 most common routes in El Dorado County's western slope.
5. **Route Quality** – Asked respondents to rate the quality of the 20 most common routes in El Dorado County's western slope.
6. **Bicyclist Level of Comfort** – Provided respondents with a series of photographs of bicycle facility types and asked about their level of comfort riding a bicycle on those facilities.
7. **Demographics/Socioeconomics** – Asked respondents to indicate their age, gender, annual household income, access to a bicycle, home and work zip codes, and exercise patterns.

See **Appendix A** for a full list of questions included in the survey.

Respondent Demographics

Compared to population data from the American Community Survey (ACS) 2011-2015 five-year Estimates, survey responses overrepresented older adults (55 years and older) and underrepresented youth (under 18) and young adults (18-35 years). **Table 1** compares the age distribution of survey respondents to El Dorado County, using the closest corresponding age groups.

Table 1: Age Distribution

Age Group	Survey Responses	El Dorado County (ACS)
Under 18	0.0%	21.3%
18-35 years (survey); 20-34 years (ACS)	9.1%	15.2%
36-54 years (survey); 35-54 years (ACS)	40.4%	27.4%
55 and over	50.6%	33.7%

The survey had a higher response from females (60%) than males (40%); however, El Dorado County has an even gender distribution. Additionally, the survey under-represents households earning less than $50,000 and over-represents households earning between $75,000 and $200,000. **Table 2** compares the income distribution of survey respondents to El Dorado County.

Table 2: Income Distribution

Annual Household Income	Survey Responses	El Dorado County (ACS)
Less than $10,000	0.4%	4.4%
$10,000 to $24,999	2.6%	12.5%
$25,000 to $49,999	8.7%	19.6%
$50,000 to $74,999	16.0%	16.6%
$75,000 to $99,999	16.9%	12.4%
$100,000 to $149,999	34.2%	16.8%
$150,000 to $199,999	12.6%	8.2%
$200,000 or more	8.7%	9.2%

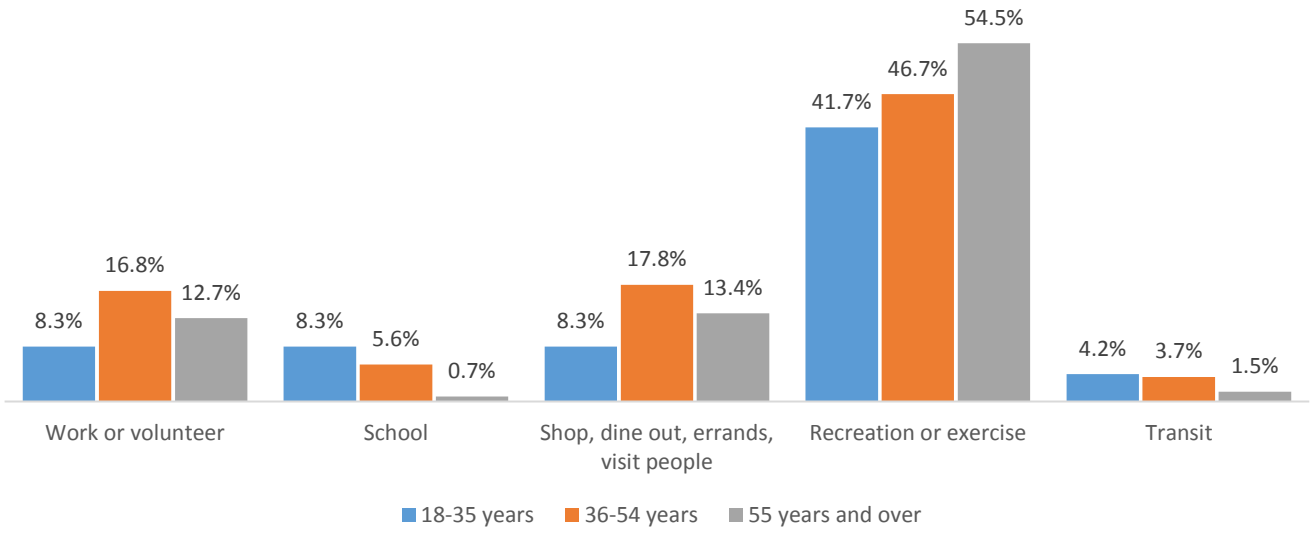
This variation between the survey respondents and the population of El Dorado County should be considered when reviewing the survey results.

High-Level Findings

Walking

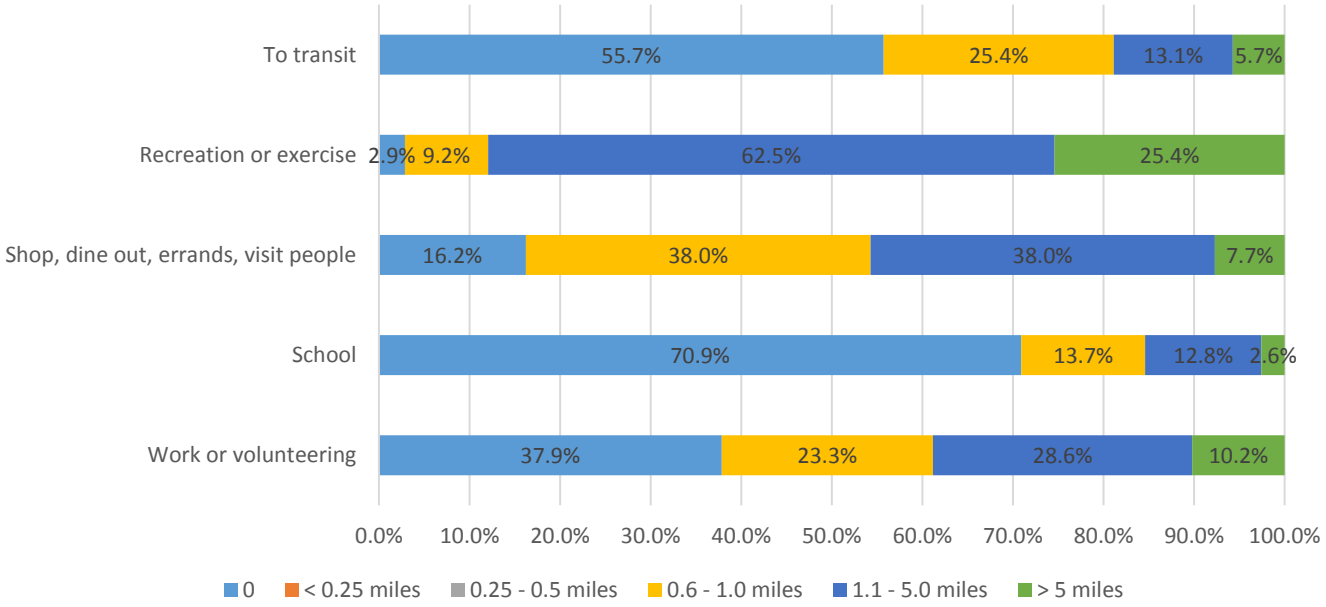
Overall, the majority of respondents do not walk to work, volunteering, school, shopping and other leisure activities, or to access transit on a regular basis. However, about half of the respondents reported that they walk for recreation or exercise on multiple days per week and for greater than five miles at a time. Broken down by individual age groups, adults 55 years and over are more likely than other age groups to walk for recreation or exercise on a regular basis (multiple days per week), adults age 36 to 54 years old are more likely than other age groups to walk for work, volunteering, or shopping and other leisure activities, and adults 18 to 35 years old are more likely than other age groups to walk to school or to transit. **Figure 1** shows the percentage of respondents in each age group who walk multiple days per week for each trip purpose.

Figure 1: Trip Purpose for Walking Multiple Days per Week



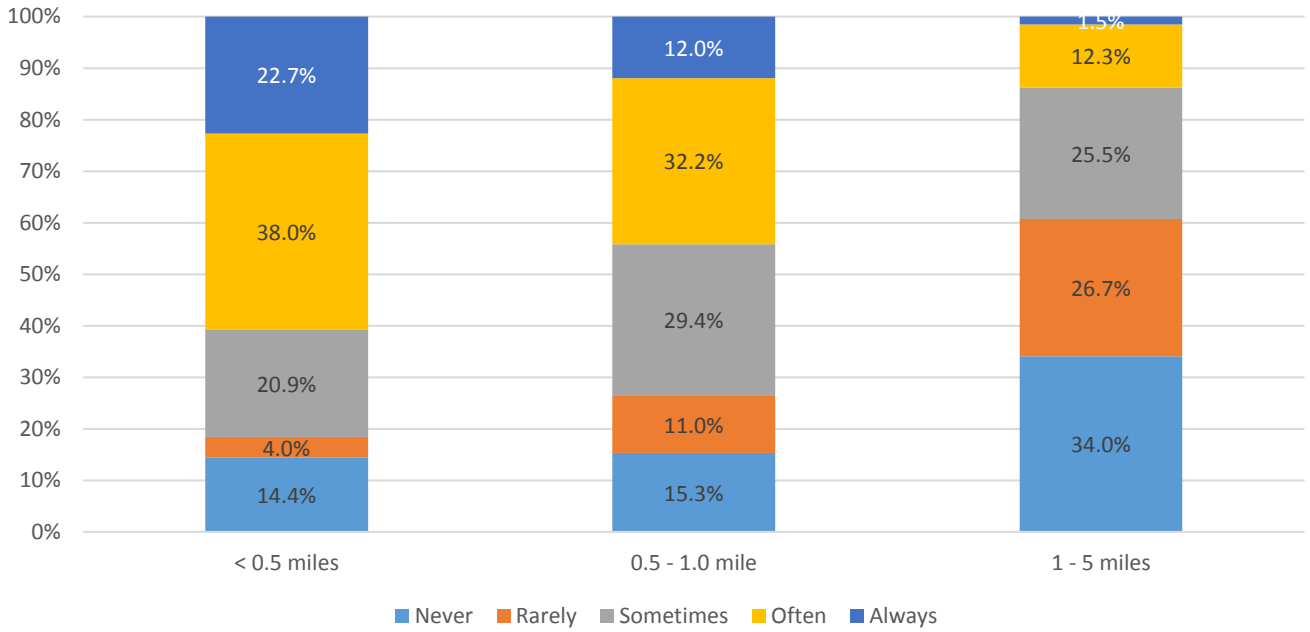
The distance that respondents typically traveled when walking also varied by trip purpose. **Figure 2** shows that more than half of respondents (62.5 percent) walked between 1.1 and 5.0 miles and one-quarter (25.4 percent) walked over five miles for recreation/exercise trips (n = 315). However, far fewer walked more than 1.0 mile for any other trip purpose outside of shopping, dining out, running errands, and/or visiting friends (45.7 percent, n = 234). Only 18.8 percent of respondents walked over a mile to transit (n = 122), 15.4 percent of respondents walked over a mile to school (n = 117), and 38.8 percent walked over a mile to work/volunteering (n = 206).

Figure 2: Average Walk Trip Distance by Trip Purpose



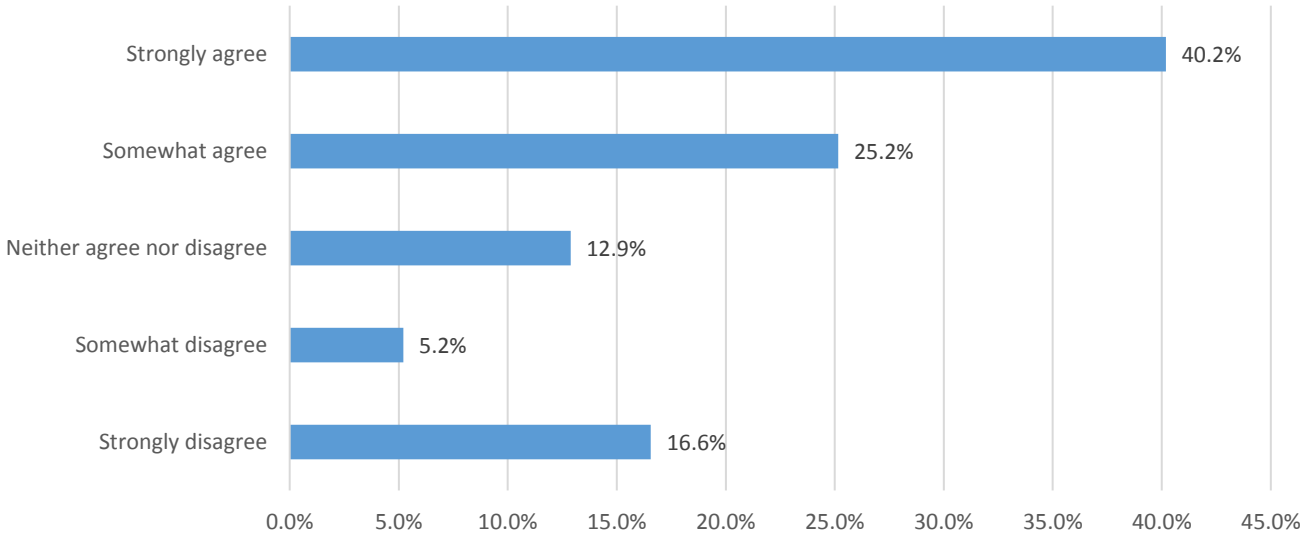
Respondents did indicate that they would be willing to walk for trips less than one mile. **Figure 3** shows that 73.6 percent of respondents would be willing to walk for trips between 0.5 and 1.0 mile sometimes, often, or always and 81.6 percent would be willing to walk for trips less than 0.5 miles sometimes, often or always.

Figure 3: Willingness to Walk by Distance of Trip



Overall, respondents showed a desire to walk and bicycle more than they currently do. **Figure 4** shows that 65.4 percent of respondents strongly agree or somewhat agree that they would like to travel by bicycle or foot for their daily commute, errands, and other activities more than they do now.

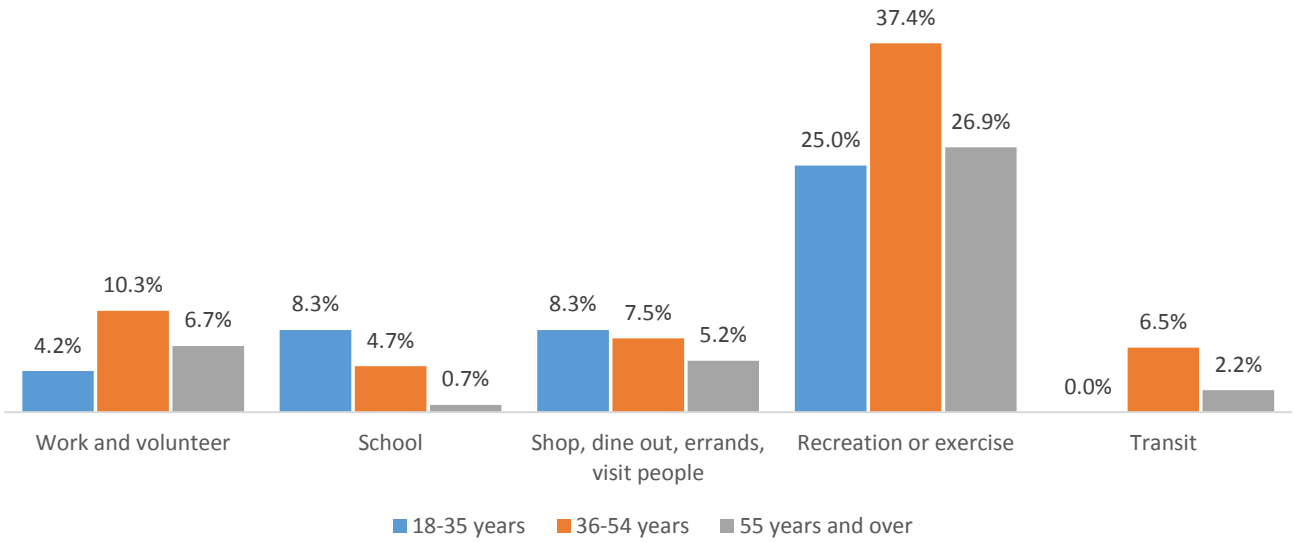
Figure 4: Desire to Walk/Bike More for Daily Trips



Bicycling

Overall, the majority of respondents do not bicycle to work, volunteering, school, shopping and other leisure activities, or to access transit on a regular basis. About 10 percent of respondents do not own a bicycle. Similar to walking, respondents are more likely to bicycle for recreation or exercise than for other purposes. Broken down by individual age groups, adults age 36 to 54 years old are more likely than other age groups to bike on a regular basis for work, recreation and exercise, and to transit, while adults 18 to 35 years old are more likely to bike to school, shopping, and other leisure activities. **Figure 5** shows the percentage of respondents in each age group who bicycle multiple days per week for each trip purpose.

Figure 5: Trip Purpose for Bicycling Multiple Days Per Week



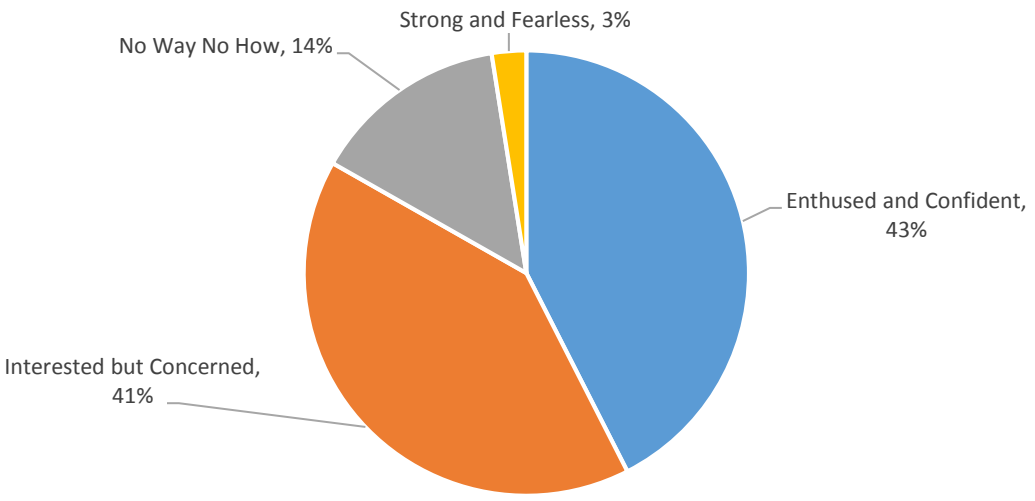
Types of Bicyclists

In order to understand the potential demand for bicycling, respondents were asked about their comfort level with bicycling on streets with varying levels of vehicle traffic, surrounding land uses, and supportive bicycle facilities. Based on their answers, they were sorted into the four distinct groups described below to describe their bicycling behavior.

- **Strong and Fearless**: Very comfortable riding on commercial streets alongside vehicles without a bicycle lane.
- **Enthused and Confident**: Very comfortable riding on commercial streets alongside vehicles with a bicycle lane.
- **Interested but Concerned**: Not comfortable riding alongside vehicles, even with a bicycle lane or on a paved path separate from the street, but indicate that they would like to travel by bicycle more than they currently do.
- **No Way No How**: Generally, very uncomfortable with bicycling, even on a paved path separate from the street, and are not interested in changing their bicycling habits.

As shown in **Figure 6**, most respondents fall under the “Interested but Concerned” or “Enthused and Confident” categories.

Figure 6: Type of Bicyclist



Addressing the needs and concerns of those in the "Interested but Concerned" group can result in the greatest mode shift. As shown in **Figure 7** , residents aged 55 years and over and between 18 to 35 years old were more likely to indicate they were "Interested but Concerned", while residents 36 to 54 years old were more likely to be "Enthused and Confident" bicyclists. Residents over 55 years old were also more likely to indicate that they are not interested in bicycling altogether.

Figure 7: Type of Bicyclist by Age

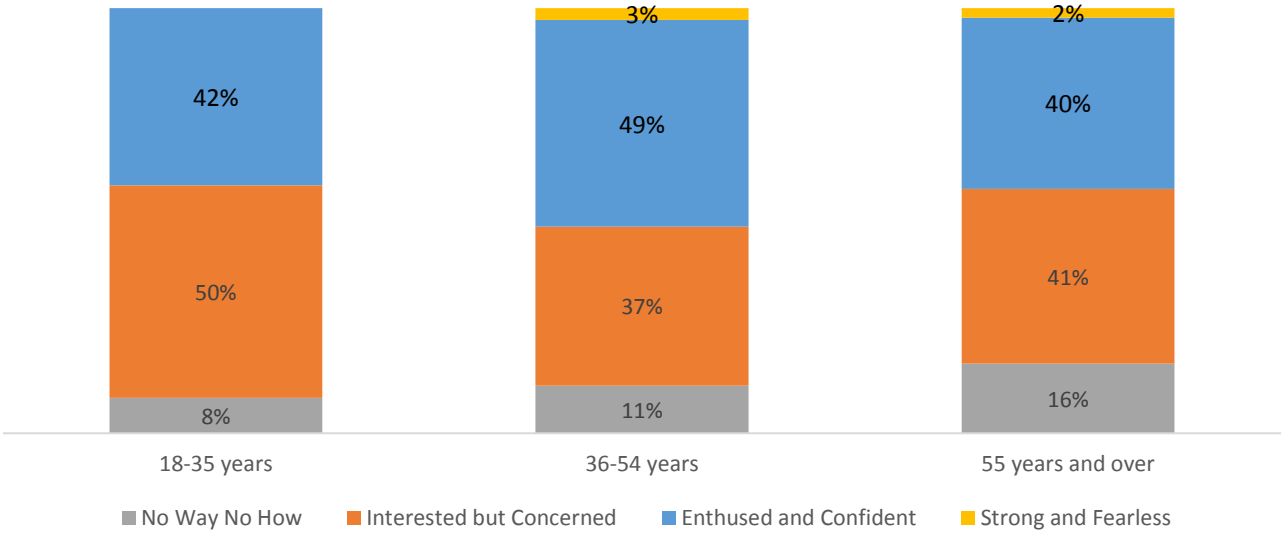
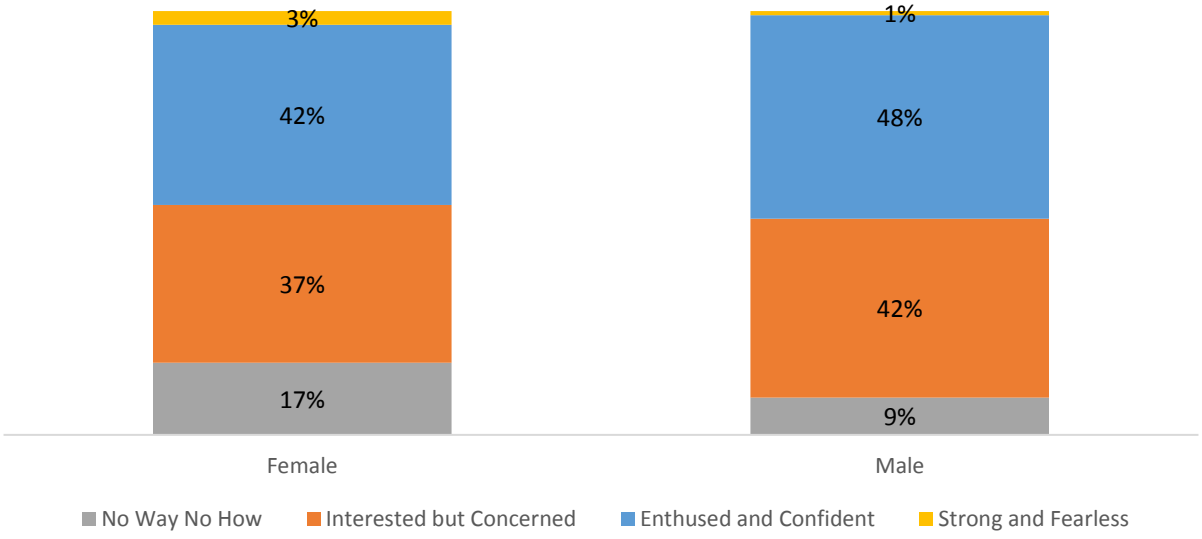


Figure 8 shows the differences in distribution by gender. Interestingly, more men responding to the survey indicated preferences consistent with “Interested but Concerned”, but more women indicated they were not at all interested in bicycling. Though these findings are different than is typical for this type of survey, and it may be that they reflect some selection bias in survey design.

Figure 8: Type of Bicyclist by Gender



As shown in **Figure 9**, when choosing a bicycle route, safety factors that respondents in the “Interested but Concerned” group noted most frequently as being very important were the speed of nearby vehicles, traffic volume, and crossing and turning conditions. Understanding these barriers and concerns can help inform where improvements are needed in order to increase bicycling levels and anticipate the types of roads that are likely or unlikely to attract bicyclists.

Figure 9: Safety Factors When Choosing Bicycle Route

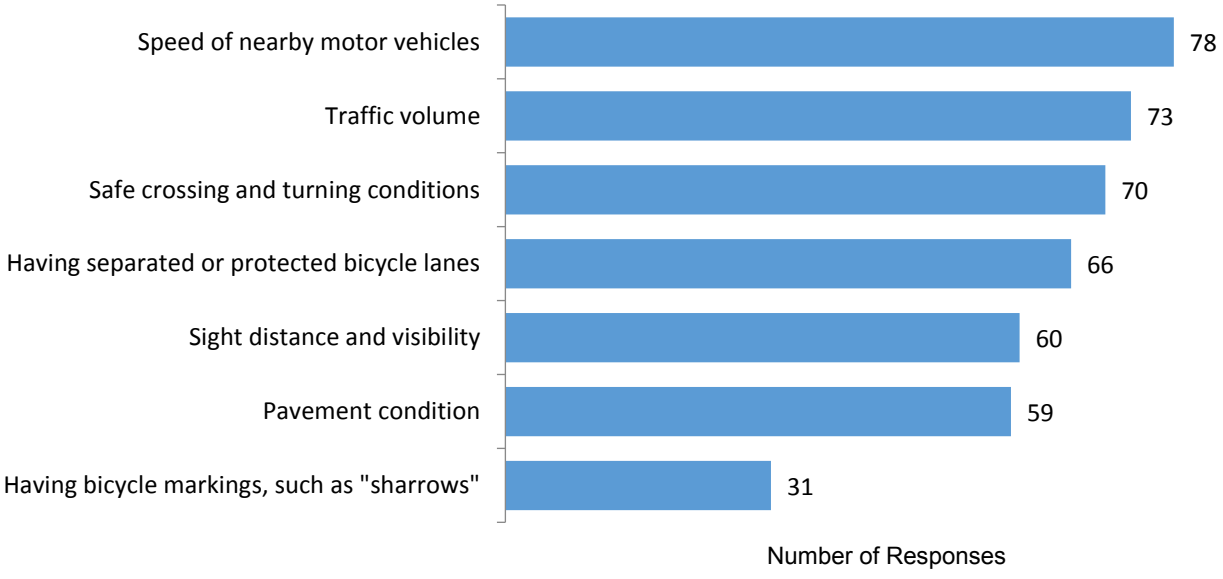
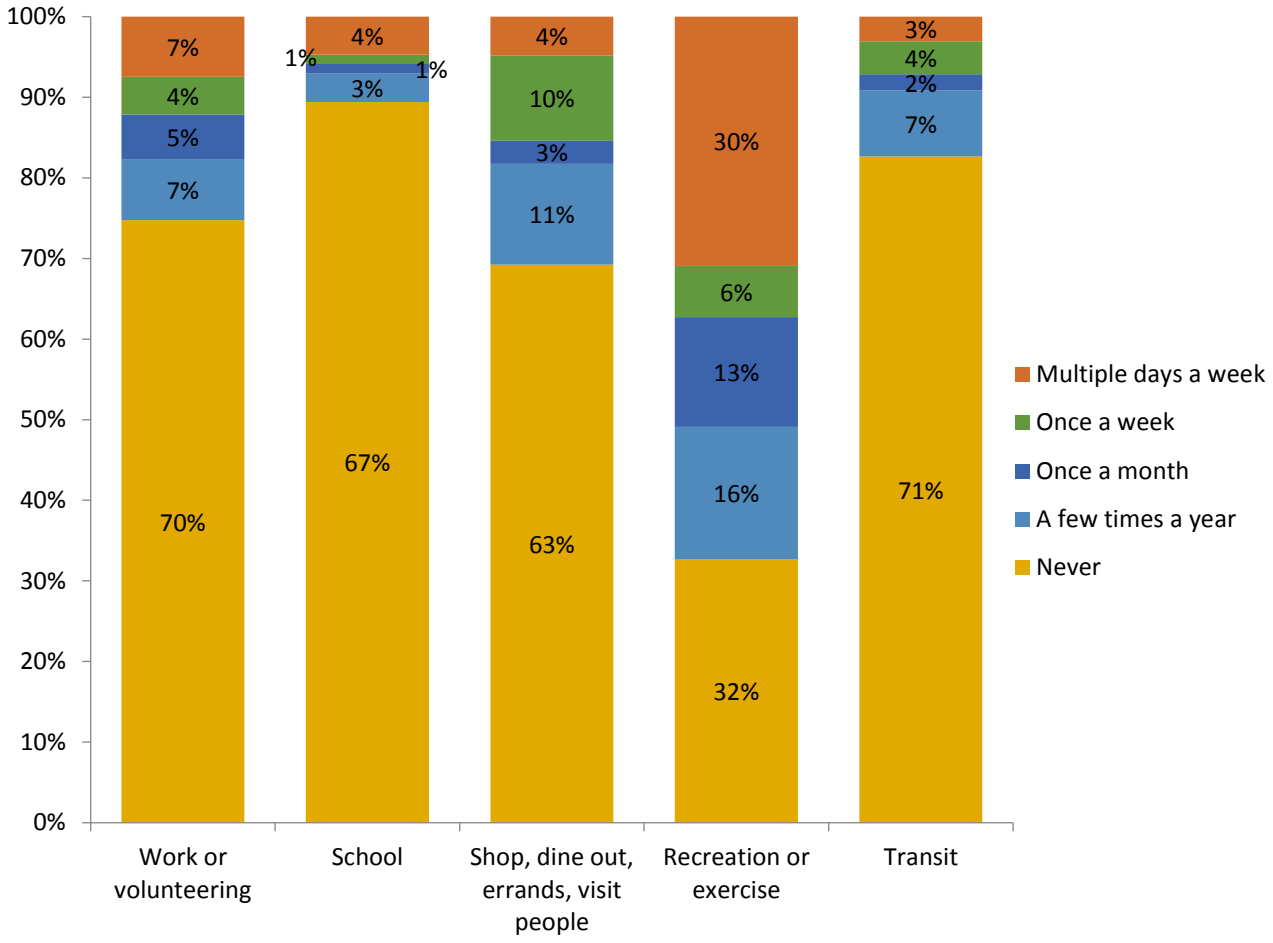


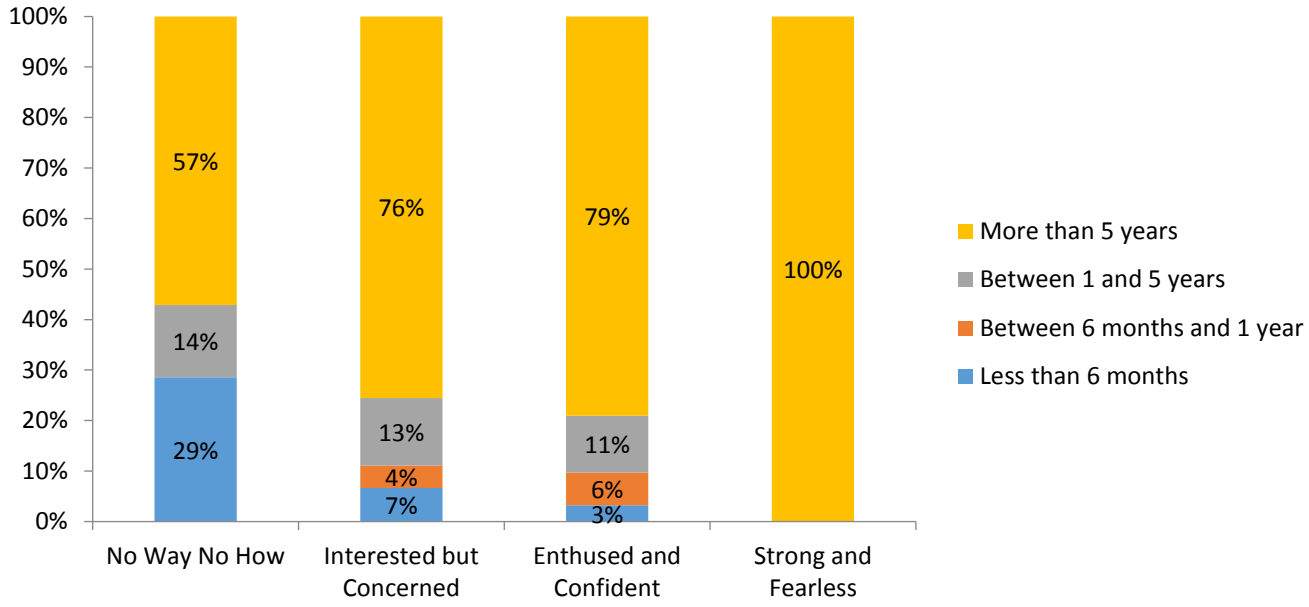
Figure 10 shows that respondents in the "Interested but Concerned" group most commonly bicycle for recreation or exercise, with 30 percent doing so on multiple days per week. The majority of respondents in this group never bicycle for utilitarian purposes (work or volunteering, school, transit), which represents an opportunity for mode shift.

Figure 10 Trip Purpose for "Interested but Concerned" Bicyclists



As shown in **Figure 11**, respondents who have been bicycling for a longer period of time tend to be more confident bicyclists and respondents who are newer to bicycling tend to be less comfortable and interested in bicycling. As bicyclists gain more experience, they may feel more comfortable riding in less supportive bicycling environments. However, having more streets that accommodate the needs of newer bicyclists will help them sustain bicycling habits and potentially support long term mode shift.

Figure 11: Type of Bicyclist by Time Bicycling



Appendix A: Detailed Findings

Question 1

How often do you walk or use a mobility assist device (e.g., wheelchair) to:

	Work or volunteering		School		Shop, dine out, errands, visit people		Recreation or exercise		Transit	
Never	212	66.5%	206	87.3%	154	46.7%	83	24.5%	229	78.7%
A few times a year	30	9.4%	13	5.5%	38	11.5%	17	5.0%	32	11.0%
Once a month	13	4.1%	5	2.1%	44	13.3%	24	7.1%	16	5.5%
Once a week	14	4.4%	2	0.8%	39	11.8%	33	9.7%	2	0.7%
Multiple days per week	50	15.7%	10	4.2%	55	16.7%	182	53.7%	12	4.1%
N/A	46	-	129	-	35	-	26	-	74	-
Blank	0	-	0	-	0	-	0	-	0	-
Total without "N/A" or "Blank"	319	100.0%	236	100.0%	330	100.0%	339	100.0%	291	100.0%

The majority of respondents never walk to work/volunteering (67 percent), school (87 percent), transit (78 percent) but are a slight majority walk for recreation/exercise multiple times per day (54 percent).

Question 2

When you walk, how many miles do you travel to typical destinations (leave blank if not applicable or enter decimal number in text box if less than 1 mile, i.e., .25, .5 or .75)?

	Work or volunteering		School		Shop, dine out, errands, visit people		Recreation or exercise		To transit	
0	78	37.9%	83	70.9%	38	16.2%	9	2.9%	68	55.7%
< 0.25 miles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
0.25 - 0.5 miles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
0.6 - 1.0 miles	48	23.3%	16	13.7%	89	38.0%	29	9.2%	31	25.4%
1.1 - 5.0 miles	59	28.6%	15	12.8%	89	38.0%	197	62.5%	16	13.1%
> 5 miles	21	10.2%	3	2.6%	18	7.7%	80	25.4%	7	5.7%
Blank	159	-	248	-	131	-	50	-	243	-
Total without "Blank"	206	100.0%	117	100.0%	234	100.0%	315	100.0%	122	100.0%

If respondents are to walk, their trips are more than half a mile long, most commonly between 0.6 to five miles. Recreation or exercise is the most common trip type in which respondents typically walk for more than five miles.

Question 3

How often do you ride a bicycle to:

	Work and volunteering		School		Shop, dine out, errands, visit people		Recreation or exercise		Transit	
Never	245	75.9%	239	91.2%	221	67.8%	117	34.1%	249	82.7%
A few times a year	28	8.7%	6	2.3%	39	12.0%	59	17.2%	24	8.0%
Once a month	9	2.8%	5	1.9%	19	5.8%	36	10.5%	7	2.3%
Once a week	13	4.0%	1	0.4%	24	7.4%	32	9.3%	8	2.7%
Multiple days a week	28	8.7%	11	4.2%	23	7.1%	99	28.9%	13	4.3%
N/A	42	-	103	-	39	-	22	-	64	-
Blank	0	-	0	-	0	-	0	-	0	-
Total without "N/A" or "Blank"	323	100.0%	262	100.0%	326	100.0%	343	100.0%	301	100.0%

The majority of respondents never bicycle for work/volunteering (76 percent), but that do try it a few times per year (9 percent) or ride multiple times per week (9 percent). The majority of respondents never bicycle to school (68 percent) or transit (83 percent), but approximately 49 percent of respondents bicycle to recreation/exercise at least once per month.

Question 4

When you bicycle, how many miles do you travel to typical destinations? (leave blank if not applicable or enter decimal number in text box if less than 1 mile, i.e., .25, .5 or .75)

	Work or volunteering		School		Shop, dine out, errands, visit people		Recreation or exercise		To transit	
0	64	47.4%	69	75.8%	47	32.2%	22	9.4%	59	61.5%
< 0.25 miles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
0.25 - 0.5 miles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
0.6 - 1.0 miles	5	3.7%	3	3.3%	6	4.1%	2	0.9%	2	2.1%
1.1 - 5.0 miles	26	19.3%	17	18.7%	58	39.7%	39	16.7%	19	19.8%
> 5 miles	40	29.6%	2	2.2%	35	24.0%	171	73.1%	16	16.7%
Blank	230	-	274	-	219	-	131	-	269	-
Total without "Blank"	135	100.0%	91	100.0%	146	100.0%	234	100.0%	96	100.0%

If respondents are to bicycle, their trips are more than half a mile long, most commonly between one to five miles. Recreation/exercise is the most common trip type in which respondents typically bicycle for more than five miles (73 percent).

Question 5

During warm weather (May to October), how many days do you ride a bicycle for commuting or other transportation (to visit friends, run errands, dine out, etc.)?

	Response	
I don't ride a bicycle for commuting or other transportation in warm weather	179	61.3%
Once a month	31	10.6%
A few times a month	18	6.2%
Once a week	12	4.1%
Multiple days per week	52	17.8%
N/A	34	-
Blank	39	-
Total without "Blank"	326	100.0%

The majority of respondents do not travel by bicycle during warm weather months, but 16% of respondents bicycle consistently (multiple days per week).

Question 6

During cold weather (November to April), how many days do you ride a bicycle for commuting or other transportation (to visit friends, run errands, dine out, etc.)?

	Response	
I don't ride a bicycle for commuting or other transportation in cold weather	203	70.0%
Once a month	24	8.3%
A few times a month	20	6.9%
Once a week	15	5.2%
Multiple days per week	28	9.7%
N/A	36	-
Blank	39	-
Total without "Blank"	326	100.0%

Among respondents, bicycling multiple days per week is less common during cold weather months (10 percent) than during warm weather months (18 percent), and a higher percent of respondents indicated that they don't ride a bicycle in cold weather months (70 percent) compared to the warm weather months (61 percent).

Question 7

When you make trips between a half mile and one mile, how do you typically travel?

	Walk		Bicycle		Transit		Drive Alone		Carpool	
Never	50	15.3%	179	54.9%	278	85.3%	23	7.1%	147	45.1%
Rarely	36	11.0%	41	12.6%	27	8.3%	27	8.3%	55	16.9%
Sometimes	96	29.4%	56	17.2%	14	4.3%	83	25.5%	76	23.3%
Often	105	32.2%	45	13.8%	6	1.8%	145	44.5%	46	14.1%
Always	39	12.0%	5	1.5%	1	0.3%	48	14.7%	2	0.6%
Blank	39	-	39	-	39	-	39	-	39	-
Total without "Blank"	326	100.0%	326	100.0%	326	100.0%	326	100.0%	326	100.0%

Over half of the respondents (59 percent) often or always drive alone for trips between a half mile and one mile. Respondents were more likely to indicate that they sometimes, often, or always walk (74 percent) than bicycle (33 percent) for trips between a half mile and one mile.

Question 8

When you make trips less than a half mile, how do you typically travel?

	Walk		Bicycle		Transit		Drive Alone		Carpool	
Never	47	14.4%	187	57.4%	294	90.2%	68	20.9%	177	54.3%
Rarely	13	4.0%	39	12.0%	23	7.1%	43	13.2%	50	15.3%
Sometimes	68	20.9%	47	14.4%	4	1.2%	79	24.2%	67	20.6%
Often	124	38.0%	43	13.2%	3	0.9%	95	29.1%	31	9.5%
Always	74	22.7%	10	3.1%	2	0.6%	41	12.6%	1	0.3%
Blank	39	-	39	-	39	-	39	-	39	-
Total without "Blank"	326	100.0%	326	100.0%	326	100.0%	326	100.0%	326	100.0%

For shorter distance trips of less than a half mile, about 60 percent of respondents often or always walk, while only 16 percent of respondents often or always bicycle. Respondents are more likely to walk than use any other mode for trips less than a half mile.

Question 9

When you make trips between one and five miles, how do you typically travel?

	Walk		Bicycle		Transit		Drive Alone		Carpool	
Never	111	34.0%	182	55.8%	269	82.5%	10	3.1%	119	36.5%
Rarely	87	26.7%	41	12.6%	35	10.7%	5	1.5%	37	11.3%
Sometimes	83	25.5%	58	17.8%	14	4.3%	67	20.6%	97	29.8%
Often	40	12.3%	39	12.0%	6	1.8%	183	56.1%	67	20.6%
Always	5	1.5%	6	1.8%	2	0.6%	61	18.7%	6	1.8%
Blank	39	-	39	-	39	-	39	-	39	-
Total without "Blank"	326	100.0%	326	100.0%	326	100.0%	326	100.0%	326	100.0%

The majority of respondents often or always drive alone for trips between one and five miles (75 percent). Carpooling is the next most common mode of transportation for trips of this length. Comparing the results of Question 9 to Question 8 show that respondents' frequency of bicycling is almost equal for trips between one and five miles and trips less than a half mile.

Question 10

About how long have you been bicycling for commuting or other transportation?

	Response	
Less than 6 months	7	5.5%
Between 6 months and 1 year	7	5.5%
Between 1 and 5 years	17	13.4%
More than 5 years	96	75.6%
N/A	199	-
Blank	39	-
Total without "Blank" or "N/A"	127	100.0%

Over 75 percent of respondents have been bicycling for more than five years. People who are new to bicycling may be less familiar with bicycling rules of the road and less comfortable or competent in maneuvering a bicycle.

Question 11

Do you strongly disagree, somewhat disagree, somewhat agree, or strongly agree with the following statement: "I would like to travel by bicycle or foot for my daily commute, errands, and other activities more than I do now."

	Response	
Strongly disagree	54	16.6%
Somewhat disagree	17	5.2%
Neither agree nor disagree	42	12.9%
Somewhat agree	82	25.2%
Strongly agree	131	40.2%
Blank	39	-
Total without "Blank"	326	100.0%

The majority of respondents (65 percent) reported that they would like to bicycle more than they currently do, indicating that there may be a potential for an increase in the number of pedestrian or bicycle trips if barriers to walking and bicycling were removed.

Question 12

Which safety factors are important to you when choosing a bicycle route?

	Speed of nearby motor vehicles		Traffic volume		Sight distance and visibility		Pavement condition		Safe crossing and turning conditions		Having bicycle markings, such as "sharrows"		Having separated or protected bicycle lanes	
Very important	210	64.4%	192	58.9%	157	48.2%	163	50.0%	192	58.9%	103	31.6%	186	57.1%
Somewhat important	44	13.5%	55	16.9%	86	26.4%	82	25.2%	64	19.6%	99	30.4%	52	16.0%
Not important	6	1.8%	13	4.0%	17	5.2%	13	4.0%	4	1.2%	48	14.7%	22	6.7%
N/A	66	20.2%	66	20.2%	66	20.2%	68	20.9%	66	20.2%	76	23.3%	66	20.2%
Blank	39	-	39	-	39	-	39	-	39	-	39	-	39	-
Total without "Blank"	326	100.0%	326	100.0%	326	100.0%	326	100.0%	326	100.0%	326	100.0%	326	100.0%

The speed of nearby vehicles is the most important safety factor for respondents when choosing a bicycle route, with almost 65 percent of respondents indicating that this factor is “very important”. Respondents perceived bicycle markings such as “sharrows” to be less important (23 percent indicated that pavement markings were “not important”); however, still 30 percent of respondents think that pavement markings are “very important”.

Question 13

Which category best describes your use of the following routes for bicycling and walking? (Respond to all that apply to your personal use and feel free to skip routes with which you are unfamiliar)

	Daily		Weekly		Monthly		A few times a year		Rarely or never		N/A		Blank		Total without "N/A" or "Blank"	
Sophia Parkway Bicycle Lanes	2	1.3%	9	5.9%	11	7.2%	23	15.1%	107	70.4%	95	-	118	-	152	100.0%
Green Valley Road Bicycle Lanes (El Dorado Hills area)	3	1.8%	12	7.2%	13	7.8%	22	13.3%	116	69.9%	88	-	111	-	166	100.0%
Green Valley Road (Cameron Park area)/ Cameron Park Drive Bicycle Lanes	4	2.5%	11	6.9%	12	7.5%	16	10.1%	116	73.0%	94	-	112	-	159	100.0%
Cameron Park local roadways	9	5.7%	6	3.8%	12	7.6%	22	13.9%	109	69.0%	94	-	113	-	158	100.0%
Shingle Springs Roadways (north or south of US 50)	4	2.5%	8	5.0%	11	6.8%	23	14.3%	115	71.4%	91	-	113	-	161	100.0%
El Dorado Hills Boulevard Multi-use Path	6	3.6%	8	4.8%	19	11.5%	27	16.4%	105	63.6%	89	-	111	-	165	100.0%
Bass Lake Road Multi-use Path	0	0.0%	4	2.6%	12	7.7%	18	11.5%	122	78.2%	93	-	116	-	156	100.0%
Serrano Trails (paved segments)	1	0.6%	6	3.8%	7	4.5%	25	16.0%	117	75.0%	93	-	116	-	156	100.0%
White Rock Road Bicycle Lanes	3	1.9%	5	3.2%	8	5.2%	16	10.4%	122	79.2%	96	-	115	-	154	100.0%
Latrobe Road Bicycle Lanes	3	2.0%	5	3.3%	7	4.6%	13	8.6%	123	81.5%	98	-	116	-	151	100.0%
Blackstone Parkway/Royal Oaks Drive Bicycle Lanes	2	1.4%	3	2.1%	5	3.5%	8	5.6%	125	87.4%	100	-	122	-	143	100.0%
Missouri Flat Road Bicycle Lanes	7	3.9%	15	8.3%	14	7.8%	28	15.6%	116	64.4%	75	-	110	-	180	100.0%
El Dorado Trail (paved segments)	23	10.2%	56	24.8%	40	17.7%	49	21.7%	58	25.7%	43	-	96	-	226	100.0%
Placerville Drive Bike Lanes/Main Street Sharrows	13	7.0%	28	15.1%	18	9.7%	35	18.8%	92	49.5%	74	-	105	-	186	100.0%
Ray Lawyer Drive Bicycle Lanes	8	4.6%	21	12.1%	13	7.5%	33	19.0%	99	56.9%	81	-	110	-	174	100.0%
Carson Road/Apple Hill Roadways	5	3.0%	15	8.9%	19	11.2%	29	17.2%	101	59.8%	83	-	113	-	169	100.0%

	Daily		Weekly		Monthly		A few times a year		Rarely or never		N/A		Blank		Total without "N/A" or "Blank"	
Pony Express Trail/Pollock Pines Roadways	5	3.1%	11	6.8%	19	11.8 %	21	13.0 %	105	65.2 %	89	-	115	-	161	100.0 %
Northside School Bike Trail	3	2.0%	2	1.4%	6	4.1%	13	8.8%	123	83.7 %	10 0	-	118	-	147	100.0 %
Coloma/Cool/Georgetown local roadways	10	6.1%	9	5.5%	13	8.0%	24	14.7 %	107	65.6 %	89	-	113	-	163	100.0 %
South El Dorado County local roadways	3	1.9%	6	3.9%	9	5.8%	15	9.7%	121	78.6 %	98	-	113	-	154	100.0 %

El Dorado Trail is the most popular route for respondents to use on a daily, weekly, or monthly basis. Respondents are also more likely to use Placerville Drive and Ray Lawyer Drive on a weekly basis, compared to other bicycling/walking routes.

Question 16

Which category best describes your opinion of the quality of the following routes for bicycling or walking? (Respond to all that apply to your personal use and feel free to skip routes with which you are unfamiliar)

	Very Good		Good		Fair		Poor		No Opinion		N/A		Blank		Total without "No Opinion", "N/A", or "Blank"	
Sophia Parkway Bicycle Lanes	21	32.8%	28	43.8%	9	14.1%	6	9.4%	63	-	79	-	159	-	64	100.0%
Green Valley Road Bicycle Lanes (El Dorado Hills area)	5	6.7%	22	29.3%	25	33.3%	23	30.7%	58	-	76	-	156	-	75	100.0%
Green Valley Road (Cameron Park area)/ Cameron Park Drive Bicycle Lanes	2	3.1%	17	26.6%	21	32.8%	24	37.5%	63	-	79	-	159	-	64	100.0%
Cameron Park local roadways	1	1.5%	11	16.2%	23	33.8%	33	48.5%	61	-	82	-	154	-	68	100.0%
Shingle Springs Roadways (north or south of US 50)	0	0.0%	7	10.3%	17	25.0%	44	64.7%	60	-	83	-	154	-	68	100.0%
El Dorado Hills Boulevard Multi-use Path	15	18.3%	39	47.6%	15	18.3%	13	15.9%	51	-	78	-	154	-	82	100.0%
Bass Lake Road Multi-use Path	5	9.3%	24	44.4%	12	22.2%	13	24.1%	66	-	83	-	162	-	54	100.0%
Serrano Trails (paved segments)	15	25.9%	28	48.3%	11	19.0%	4	6.9%	63	-	79	-	165	-	58	100.0%
White Rock Road Bicycle Lanes	5	7.2%	15	21.7%	17	24.6%	32	46.4%	60	-	77	-	159	-	69	100.0%
Latrobe Road Bicycle Lanes	4	6.0%	16	23.9%	17	25.4%	30	44.8%	65	-	77	-	156	-	67	100.0%
Blackstone Parkway/Royal Oaks Drive Bicycle Lanes	8	22.9%	10	28.6%	12	34.3%	5	14.3%	79	-	88	-	163	-	35	100.0%
Missouri Flat Road Bicycle Lanes	5	5.2%	34	35.4%	36	37.5%	21	21.9%	59	-	64	-	146	-	96	100.0%
El Dorado Trail (paved segments)	83	50.9%	62	38.0%	15	9.2%	3	1.8%	31	-	46	-	125	-	163	100.0%
Placerville Drive Bike Lanes/Main Street Sharrows	8	6.7%	31	26.1%	51	42.9%	29	24.4%	45	-	57	-	144	-	119	100.0%
Ray Lawyer Drive Bicycle Lanes	6	6.7%	31	34.8%	43	48.3%	9	10.1%	58	-	69	-	149	-	89	100.0%
Carson Road/Apple Hill Roadways	0	0.0%	10	11.5%	25	28.7%	52	59.8%	57	-	73	-	148	-	87	100.0%

	Very Good		Good		Fair		Poor		No Opinion		N/A		Blank		Total without "No Opinion", "N/A", or "Blank"	
Pony Express Trail/Pollock Pines Roadways	0	0.0%	2	2.7%	24	32.0 %	49	65.3 %	58	-	81	-	151	-	75	100.0%
Northside School Bike Trail	20	47.6 %	9	21.4 %	5	11.9 %	8	19.0 %	73	-	95	-	155	-	42	100.0%
Coloma/Cool/Georgetown local roadways	0	0.0%	6	8.5%	21	29.6 %	44	62.0 %	61	-	81	-	152	-	71	100.0%
South El Dorado County local roadways	1	1.6%	2	3.2%	18	29.0 %	41	66.1 %	63	-	86	-	154	-	62	100.0%

Half of respondents consider the quality of El Dorado Trail to be very good and over 40 percent consider the quality of Placerville Drive and Ray Lawyer Drive to be fair. Although 40 to 50 percent of respondents feel that El Dorado Hills Boulevard, Bass Lake Road, and Serrano Trails are high quality, the majority of respondents rarely or never use these routes.

Question 17

Please rate how comfortable you would feel bicycling in the following series of situations described below.

Images (See Appendix B for list of photos included in the online survey)	Very Comfortable		Comfortable		Somewhat Comfortable		Un-comfortable		Very Uncomfortable		Blank		Total without "Blank"	
1. A paved path separate from the street, such as the El Dorado Trail?	203	72.5 %	45	16.1%	19	6.8%	6	2.1%	7	2.5%	85	-	280	100.0 %
2. A quiet, residential street with light traffic and slow-moving cars?	114	40.7 %	97	34.6%	49	17.5%	16	5.7%	4	1.4%	85	-	280	100.0 %
3. What if that street also had Bicycle Boulevard markings, speed humps, and other things that slow down car traffic?	65	23.2 %	88	31.4%	71	25.4%	45	16.1 %	11	3.9%	85	-	280	100.0 %
4. A two-lane neighborhood commercial shopping street with faster, busier traffic, and no bicycle lane?	6	2.1 %	13	4.6%	61	21.8%	118	42.1 %	82	29.3%	85	-	280	100.0 %
5. What if bicycle markings ("sharrows") were added?	13	4.6 %	31	11.1%	97	34.6%	103	36.8 %	36	12.9%	85	-	280	100.0 %
6. What if a bicycle lane was added?	41	14.6 %	90	32.1%	96	34.3%	41	14.6 %	12	4.3%	85	-	280	100.0 %
7. What if a buffered bicycle lane was added?	91	32.5 %	92	32.9%	65	23.2%	19	6.8%	13	4.6%	85	-	280	100.0 %
8.A major street with four lanes, faster, heavier traffic including buses and trucks, and no bicycle lane?	7	2.5 %	5	1.8%	25	8.9%	80	28.6 %	163	58.2%	85	-	280	100.0 %
9. What if a bicycle lane was added?	21	7.5 %	55	19.6%	115	41.1%	67	23.9 %	22	7.9%	85	-	280	100.0 %
10. A major street with two lanes in each direction, a center divider, on-street parking, faster, heavier traffic including buses and trucks, and no bicycle lane?	8	2.9 %	10	3.6%	38	13.6%	91	32.5 %	133	47.5%	85	-	280	100.0 %
11. What if parking was removed and a striped bicycle lane was added?	43	15.4 %	84	30.0%	100	35.7%	38	13.6 %	15	5.4%	85	-	280	100.0 %
12. What if a buffered bicycle lane was added?	60	21.4 %	91	32.5%	83	29.6%	28	10.0 %	18	6.4%	85	-	280	100.0 %
13. What if a two-way shared use bikeway was added and it was separated from travel lanes by the roadway shoulder, a vertical barrier such as bollards, and/or a curb?	173	61.8 %	63	22.5%	25	8.9%	8	2.9%	11	3.9%	85	-	280	100.0 %

Respondents are most likely to feel “very comfortable” on a paved or shared-use path separate from the street (Class I or Class IV), or a residential street with light traffic and slow-moving cars. They are most likely to feel “very uncomfortable” on a major street with four lanes, faster, heavier traffic, and no bicycle lane. Almost 60 percent of respondents feel “very uncomfortable” bicycling in this type of environment, but if a bicycle lane was to be added, only 8 percent would still feel “very uncomfortable” and 40 percent would feel “somewhat comfortable”. Similarly, about 48 percent of respondents felt “very uncomfortable” on a major street with two lanes in each direction, a center divider, on-street parking, faster, heavier traffic including buses and trucks, and no bicycle lane, but if a striped bicycle lane were to be added, only 5 percent would still feel “very uncomfortable” and 36 percent would feel “somewhat comfortable”.

Question 18

Please select the category that includes your age.

	Response	
Under 18	0	0.0%
18-35 years	24	9.1%
36-54 years	107	40.4%
55 years and over	134	50.6%
Decline to state	4	-
Blank	96	-
Total without "Decline to State" or "Blank"	265	100.0%

The survey had a greater response from adults and older adults, with about half of the respondents being 55 years or older. Compared to population data from the American Community Survey (ACS) 2011-2015 5-year Estimates, survey responses over-represented older adults (55 years and older) and underrepresented youth (under 18) and young adults (18-35 years).

Question 19

Do you own a bicycle or have access to a bicycle, including recumbent trikes or handbikes?

	Response	
Yes, I own a bicycle	207	77.0%
Yes, I own a bicycle but it needs repair	22	8.2%
I can borrow a bicycle from a family member or friend	15	5.6%
I do not own a bicycle and do not have access to borrow one	25	9.3%
Blank	96	-
Total without "Blank"	269	100.0%

The majority of respondents own or have access to a bicycle in good condition; however, bicycling is a barrier for the 8 percent of respondents who own a bicycle that needs repair and the 9 percent of respondents who do not own nor have access to a bicycle.

Question 20

What is your annual household income?

	Response	
Less than $10,000	1	0.4%
$10,000 to $24,999	6	2.6%
$25,000 to $49,999	20	8.7%
$50,000 to $74,999	37	16.0%
$75,000 to $99,999	39	16.9%
$100,000 to $124,999	45	19.5%
$125,000 to $149,999	34	14.7%
$150,000 to $199,999	29	12.6%
$200,000 or more	20	8.7%
Decline to state	38	-
Blank	96	-
Total without "Decline to state" or "Blank"	231	100.0%

At least 72 percent of respondents earn more than El Dorado County's annual household median income of $69,584 (ACS, 2011-2015 5-year Estimates).

Question 21

What gender do you identify as?

	Response	
Female	153	59.5%
Male	102	39.7%
Transgender	0	0.0%
I do not identify as female, male, or transgender	2	0.8%
Decline to state	12	-
Blank	96	-
Total without "Decline to state" or "Blank"	257	100.0%

The survey had a higher response from females (60 percent) than males (40 percent); however, El Dorado County has an even gender distribution, according to data from the American Community Survey (ACS) 2015 5-year Estimates.

Question 22

How do you receive news? (select all that apply)

	Response	Blank	Total	%
Newspaper or other print sources	137	228	365	37.5%
Internet - on a computer	216	149	365	59.2%
Internet - on a smartphone, tablet, or other mobile device	173	192	365	47.4%
Word of mouth	131	234	365	35.9%
N/A	6	359	365	1.6%

Respondents most commonly receive news from the internet, and more likely on a computer than on a mobile device. The next most common method of receiving news is by newspaper or other print sources, followed by word of mouth. This information helps to guide community engagement and outreach strategies, as well as methods for communicating project updates and other relevant information.

Question 23

In what zip code do you live?

Zip Code	Response	
89509	1	0.4%
94526	1	0.4%
95582	1	0.4%
95603	2	0.8%
95608	2	0.8%
95613	6	2.3%
95614	6	2.3%
95619	11	4.2%
95623	7	2.7%
95630	5	1.9%
95633	4	1.5%
95634	1	0.4%
95635	1	0.4%
95651	3	1.1%
95656	1	0.4%
95664	2	0.8%
95667	83	31.6%
95672	4	1.5%
95682	26	9.9%
95683	1	0.4%
95684	11	4.2%
95709	17	6.5%
95722	1	0.4%
95726	16	6.1%
95762	43	16.3%
95816	1	0.4%
95817	1	0.4%
95819	1	0.4%
95826	1	0.4%
96142	1	0.4%
96150	2	0.8%
Blank	102	-
Total without "Blank"	263	100.0%

The most common zip code of residence is 95667, which is centrally located in El Dorado County. The biggest city in this zip code is Placerville. The next most common zip code is 95762. El Dorado Hills is the most populated community in this zip code.

Question 24

In what zip do you work?

Zip Code	Response	
89449	1	0.4%
89511	1	0.4%
89523	1	0.4%
94128	1	0.4%
94526	1	0.4%
94726	1	0.4%
95223	1	0.4%
95603	3	1.3%
95613	4	1.8%
95614	4	1.8%
95619	4	1.8%
95623	1	0.4%
95630	5	2.2%
95633	3	1.3%
95634	2	0.9%
95651	4	1.8%
95655	2	0.9%
95656	1	0.4%
95661	1	0.4%
95666	1	0.4%
95667	102	44.7%
95668	1	0.4%
95670	3	1.3%
95672	1	0.4%
95677	2	0.9%
95682	16	7.0%

Zip Code	Response	
95684	1	0.4%
95687	1	0.4%
95691	1	0.4%
95709	2	0.9%
95726	3	1.3%
95742	1	0.4%
95747	1	0.4%
95758	1	0.4%
95762	23	10.1%
95811	2	0.9%
95812	1	0.4%
95814	7	3.1%
95815	2	0.9%
95816	1	0.4%
95817	2	0.9%
95823	1	0.4%
95825	1	0.4%
95826	2	0.9%
95827	3	1.3%
95831	1	0.4%
95838	1	0.4%
96142	1	0.4%
96150	1	0.4%
96762	1	0.4%
Blank	137	-
Total without "Blank"	228	100.0%

Similar to zip code of residence, 95667 and 95672 are the most common zip codes where respondents work.

Question 25

How much do you exercise during a typical week? (includes aerobic activity, muscle strengthening, and walking, jogging, and bicycling outside)

	Response	
Less than 150 minutes (2.5 hours) a week	47	17.7%
150-300 minutes (2.5-5 hours) a week	94	35.3%
300-420 minutes (5-7 hours) a week	70	26.3%
More than 420 minutes (7 hours) a week	55	20.7%
N/A	3	-
Blank	96	-
Total without "N/A" or "Blank"	266	100.0%

About 82 percent of respondents exercise for 150 minutes per week or more, meeting the Centers for Disease Control and Prevention's (CDC) recommended amount of weekly exercise for adults. Increasing bicycling or walking can help the 18 percent of respondents who exercise for less than 150 minutes per week meet the recommended level. The analysis of Question 1 and Question 3 revealed that the majority of respondents never walk or bicycle for utilitarian purposes, but this could be a simple way to incorporate more exercise into daily and weekly routines.

Question 26

What percent of your exercise comes from walking or bicycling outside?

	Response	
Less than 25%	42	15.8%
25% - 50%	52	19.6%
50% - 75%	66	24.9%
75% - 100%	105	39.6%
N/A	4	-
Blank	96	-
Total without "N/A" or "Blank"	265	100.0%

Walking or bicycling is the main source of exercise for about 40 percent of respondents. This finding supports the Question 1 and Question 3 findings that about 50 percent of respondents walk and about 30 percent bicycle for recreation or exercise multiple days per week.

Appendix B: Visual Preference Survey Photos for Question #17

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APPENDIX B: COUNT RESULTS

MEMORANDUM

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To: Jerry Barton (EDCTC)

From: Hugh Louch, Kyle James, and Lola Torney (Alta Planning + Design)

Date: July 17, 2017

Re: EDCTC Active Transportation Connections Study – Bicycle and Pedestrian Count Data

Introduction

Through National Data and Surveying Services (NDS), Alta collected pedestrian and bicycle counts at 16 locations in El Dorado County's western slope between November 1, 2016 and November 12, 2016. The pedestrian and bicycle counts will inform an analysis of forecasted demand for pedestrian and bicycle trips, which will help prioritize planned pedestrian and bicycle infrastructure projects in the County's western slope and enhance competitiveness in grant funding applications. In addition, the Friends of El Dorado Trail provided pedestrian and bicycle count data at four locations along the trail for four days in May 2012 and two days in September 2012.

Count Locations

The 2016 count locations were selected based on the five criteria listed below:

1. **Existing and Proposed Facilities** – The count locations should include a mix of existing and proposed facilities, including locations where an existing facility is proposed to be upgraded (e.g., striping an on-street bicycle lane where bicycle routes in the shoulders of travelways are currently located).
2. **Facility Type** – The counts should focus on Class I multiuse paths and Class II on-street facilities, though some counts on Class III bicycle routes or travelways with no existing pedestrian or bicycle facilities that are proposed to be upgraded will help establish a baseline for the demand analysis. Class I facilities are preferred because they provide access to both pedestrians and bicycles, and Class II on-street facilities are preferred because they provide a level of physical separation between bicyclists and motorists that typically improves the perception of safety for all road users.
3. **Coverage of all Five County Board of Supervisor Districts** – At least one count location should be captured in each of the five supervisorial districts, with more counts in districts with greater numbers of existing or proposed facilities.
4. **Expected Volumes** – Counts should be located where pedestrians and bicyclists volumes might be greatest, such as near schools, employment areas, or popular recreational areas. As described above, a small number of count locations with expected low volumes will also be retained to provide variety and to establish baseline count data for locations with no facilities or low-quality existing facilities.
5. **Mix of Trip Types** – Counts should reflect a mix of typical commuting, school, and recreational routes. To better capture this mix of trip types, weekend weekday counts.

With these five criteria under consideration, the project team collected counts at locations described in **Table 1** (See **Appendix B** for the exact location of each count).

Table 1: Selected Count Locations

No.	Location			District	Bicycle Facility		Near School	Sidewalk/ Path Width
	Route	Begin/At	End		Existing	Proposed		
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	1	Class I	N/A	Yes	10 ft.*
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	1	Class I	Class II	Yes	8 ft.
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	1	Class II	N/A	No	5 ft.*
4	Sophia Pkwy	Green Valley Rd	Natoma St	1	Class II	N/A	No	8 ft.
5	Country Club Dr	El Norte Rd	Cambridge Rd	2	N/A	Class II	Yes	6 ft.*
6	Valley View Pkwy	White Rock	-	2	Class II	N/A	Yes	8 ft.*
7	Post St	White Rock	-	2	Class II	N/A	No	6 ft.*
8	Plaza Goldorado Cir	Palmer Dr	-	2	N/A	Class II	No	5 ft.*
9	Cameron Park Dr	Green Valley Rd	-	2	Class II	N/A	No	5 ft.*
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	3	N/A	Class II	Yes	8 ft.*
11	Schnell School Rd	El Dorado Trail	-	3	Class I	N/A	Yes	6 ft.
12	Forni Rd	El Dorado Trail	-	3	Class I	N/A	Yes	9 ft.
13	Golden Center Dr	Missouri Flat Rd	-	3	Class II	N/A	Yes	8 ft.
14	SR 193/ Georgetown	South St	Prospect Hill Dr	4	N/A	Class II	Yes	-
15	SR 49/ Coloma Rd	Marshall Rd	Lotus Rd	4	Class II	N/A	No	5 ft.*
16	Pony Express Trail	Sly Park Rd	-	5	N/A	Class II	No	-

* Gaps in sidewalk or path (does not have a sidewalk or path on at least one side of roadway for entire length of study area)

El Dorado County adopted their *Bicycle Transportation Plan* in 2010, but does not currently have an adopted pedestrian plan. While the initial focus of the project prioritization will be on proposed bicycle or multiuse facilities included in the bicycle plan, pedestrian counts were also collected so that proposed pedestrian projects can also be incorporated once a pedestrian plan is adopted.

Methods

Video cameras (MioVision) were the primary means of collecting pedestrian and bicycle count data, with cameras attached to nearby light poles or traffic mast arms and directed towards intersections or across a trail or street. NDS processed the video data using proprietary automated software and verified the accuracy of automation process through spot, manual counts.

Pedestrian and bicycle counts were collected at various time periods for three weekdays and one weekend. The time periods were structured to capture the assumed peak periods, and with a few exceptions, all count locations followed the schedule below:

- Tuesday, November 1, 2016
    - Morning (7:00 AM – 9:00 AM)
    - Midday (12:00 PM – 2:00 PM)
    - Afternoon (4:00 – 6:00 PM)
- Wednesday, November 2, 2016
    - Morning (7:00 AM – 9:00 AM)
    - Midday (12:00 PM – 2:00 PM)
    - Afternoon (4:00 – 6:00 PM)
- Thursday, November 3, 2016
    - Morning (7:00 AM – 9:00 AM)
    - Midday (12:00 PM – 2:00 PM)
    - Afternoon (4:00 – 6:00 PM)
- Saturday, November 5, 2016
    - Midday (10:00 AM – 2:00 PM)

Among the 16 count locations, three locations experienced either equipment malfunctions or vandalism. **Location 5** at Country Club Drive between El Norte Road and Cambridge Road experienced equipment malfunction on Wednesday, November 2, 2016. The count data for this location was re-collected the following Wednesday, November 9, 2016. Data collected for Location 5 on Saturday, November 5, 2016 was only collected from 12:00 PM to 2:00 PM, instead of the full four collected on Saturday for the other 15 locations.

Location 11 along El Dorado Trail near Schnell School Road was vandalized on Wednesday, November 2, 2016. The subsequent counts for this location were collected manually, including re-collecting count data on Wednesday, November 9, 2016.

Location 15 at SR 49/ Coloma Road between Marshall Road and Lotus Road experienced equipment malfunction on Wednesday, November 2, 2016. The count data for this location was re-collected the following Wednesday, November 9, 2016.

The count data for these five count periods, as well as the follow-up data collection for the three locations with equipment malfunctions or vandalism, was averaged and adjusted using a series of adjustment factors.

Adjustment Factors

Table 2 shows the multi-day average for the 6-hour weekday and 4-hour weekend average counts for each location. For the raw count data, see **Appendix A** for the non-averaged locational totals by count period and **Appendix C** for the raw turning movement counts for each of the 16 selected locations.

Table 2: Pedestrian and Bicycle Counts (Averaged)

	LOCATION				WEEKDAY (6-HOUR)*		WEEKEND (4-HOUR)**	
No.	**Route**	**Begin/At**	**End**	**Type**	**Bike**	**Ped**	**Bike**	**Ped**
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	Path	15	28	14	21
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	Path	10	9	16	10
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	Street	25	3	58	7
4	Sophia Pkwy	Green Valley Rd	Natoma St	Street	17	14	33	21
5	Country Club Dr	El Norte Rd	Cambridge Rd	Street	10	150	2	67
6	Valley View Pkwy	White Rock	-	Street	18	37	30	52
7	Post St	White Rock	-	Street	11	41	12	32
8	Plaza Goldorado Cir	Palmer Dr	-	Street	0	3	0	7
9	Cameron Park Dr	Green Valley Rd	-	Street	10	30	20	31
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	Street	3	13	4	7
11	Schnell School Rd	El Dorado Trail	-	Path	21	105	35	102
12	Forni Rd	El Dorado Trail	-	Path	32	42	26	49
13	Golden Center Dr	Missouri Flat Rd	-	Street	17	48	26	24
14	SR 193/ Georgetown	South St	Prospect Hill Dr	Street	2	8	2	2
15	SR 49/ Coloma Rd	Marshall Rd	Lotus Rd	Street	1	9	7	2
16	Pony Express Trail	Sly Park Rd	-	Path	5	24	0	12

*Average of three, 6-hour weekday counts. Rounded to nearest ones place.

**Rounded to nearest ones place.

The average weekday and weekend counts in **Table 2** were first adjusted using the hourly adjustment factors from the National Bicycle and Pedestrian Documentation project (NBPD)[1] shown in **Table 3**. The NBPD adjustment factors suggest that multi-use paths experience small fluctuations in bicycle and pedestrian volumes on weekdays and greater midday traffic on weekends between the months of October and March. They also suggest that on-street facilities, such as striped bicycle lanes or sidewalks, experience a sharper midday peak and a gradual decline in volumes into the evening for both weekdays and weekends.

[1] NBPD is an ongoing research project sponsored by Alta, the Institute of Transportation Engineers, and Portland State University used to develop a national database of bicycle and pedestrian counts. NBPD provides weekly, monthly, and seasonal adjustment factors based on this dataset.

Table 3: Hourly Adjustment Factors (NBPD)

HOUR	PATH		STREET/SIDEWALK	
	WEEKDAY	WEEKEND	WEEKDAY	WEEKEND
6:00	2%	0%	1%	0%
7:00	4%	2%	2%	1%
8:00	6%	6%	3%	2%
9:00	7%	10%	5%	4%
10:00	9%	10%	6%	5%
11:00	9%	11%	8%	8%
12:00	9%	11%	9%	10%
13:00	9%	10%	10%	13%
14:00	9%	10%	9%	11%
15:00	8%	10%	8%	8%
16:00	8%	8%	7%	7%
17:00	7%	5%	6%	6%
18:00	6%	3%	7%	6%
19:00	4%	2%	7%	6%
20:00	2%	1%	6%	6%
21:00	2%	1%	5%	5%

After adjusting the 6-hour weekday and 4-hour weekend averages in **Table 2** to show estimated daily volumes, these daily volumes were then extrapolated to show estimated weekly volumes using day of the week adjustment factors from NBPD (See **Table 4**). These day of the week adjustment factors suggest heavier weekend volumes compared to weekday volumes, which is consistent with the count data collected at the 16 locations within El Dorado County.

Table 4: Day of Week Adjustment Factors (NBPD)

DAY	*PERCENT OF WEEKLY TRAFFIC*
SUNDAY	18%
MONDAY	14%
TUESDAY	13%
WEDNESDAY	12%
THURSDAY	12%
FRIDAY	14%
SATURDAY	18%

After adjusting for estimated weekly volumes, the count data was extrapolated to represent estimated average annual volumes using adjustment factors from NBPD shown in **Table 5**. The NBPD adjustment factors suggest a large summer peak and a decline in pedestrian and bicycle volumes in late fall and winter.

Table 5: Montly Adjustment Factors (NBPD)

MONTH	*PERCENT OF ANNUAL TRAFFIC*
JANUARY	7%
FEBRUARY	7%
MARCH	8%
APRIL	8%
MAY	8%
JUNE	8%
JULY	12%
AUGUST	16%
SEPTEMBER	8%
OCTOBER	6%
NOVEMBER	6%
DECEMBER	6%

To better understand seasonal differences, the Friends of El Dorado Trail provided manual pedestrian and bicycle count data for May (**Table 6**) and September (**Table 7**) of 2012 for four locations along the El Dorado Trail.

Table 6: El Dorado Trail Counts, May 2012 (Friends of El Dorado Trail)

		Thursday (5/17/2012)		**Monday (5/21/2012)**		**Tuesday (5/22/2012)**		**Saturday (9/22/2012)**	
No.	**Location**	Bike	Ped	Bike	Ped	Bike	Ped	Bike	Ped
1	Missouri Flat Rd	14	82	15	199	11	72	28	123
2	Forni Rd	17	48	15	99	16	50	36	72
3	Mosquito Rd	11	49	10	117	21	71	42	67
4	Jacquier Rd	21	29	14	47	17	15	19	41

Table 7: El Dorado Trail Counts, September 2012 (Friends of El Dorado Trail)

		Tuesday (9/25/2012)		**Saturday (9/22/12)**	
No.	**LOCATION**	Bike	Ped	Bike	Ped
1	Missouri Flat Rd	28	138	28	123
2	Forni Rd	22	70	36	72
3	Mosquito Rd	30	108	42	67
4	Jacquier Rd	21	57	19	41

Table 8 compares an average of the three weekday count periods in May to the one count period in September.

Table 8: El Dorado Trail Counts

		May Weekday (Average)*		September Weekday		Percent Difference*	
No.	**Location**	Bikes	Peds	Bikes	Peds	Bikes	Peds
1	Missouri Flat Rd	13	118	28	138	110%	17%
2	Forni Rd	16	66	22	70	38%	7%
3	Mosquito Rd	14	79	30	108	114%	37%
4	Jacquier Rd	17	30	21	57	21%	88%
TOTAL		60	293	101	373	68%	27%

* Rounded to the nearest ones place.

For the four locations, bicycle volumes increased 68 percent between May and September, and pedestrian volumes increased 27 percent. While the NBPD monthly adjustment factors suggest that May and September typically experience similar pedestrian and bicycle volumes, the count data from Friends of El Dorado Trail suggests that El Dorado County may experience a variance between seasons. The small sample size makes it challenging to adjust the NBPD seasonal factors, but collecting additional multi-season count data for varies types of facilities over time would improve the accuracy of the seasonal adjustment. **Table 9** presents the estimated average annual daily traffic for the 16 count locations based on the NBPD seasonal adjustments.

Table 9: Estimated Average Annual Daily Traffic (AADT)

	LOCATION				WEEKDAY*		WEEKEND*	
No.	**Route**	**Begin/At**	**End**	**Type**	Bike	Ped	Bike	Ped
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	Path	45	84	43	64
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	Path	29	27	49	31
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	Street	79	9	181	22
4	Sophia Pkwy	Green Valley Rd	Natoma St	Street	54	44	103	66
5	Country Club Dr	El Norte Rd	Cambridge Rd	Street	33	475	6	209
6	Valley View Pkwy	White Rock	-	Street	56	116	94	162
7	Post St	White Rock	-	Street	36	129	37	100
8	Plaza Goldorado Cir	Palmer Dr	-	Street	1	8	0	22
9	Cameron Park Dr	Green Valley Rd	-	Street	31	96	62	97
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	Street	8	42	12	22
11	Schnell School Rd	El Dorado Trail	-	Path	64	321	107	313
12	Forni Rd	El Dorado Trail	-	Path	97	129	80	150
13	Golden Center Dr	Missouri Flat Rd	-	Street	55	152	81	75
14	SR 193/ Georgetown	South St	Prospect Hill Dr	Street	5	24	6	6
15	SR 49/ Coloma Rd	Marshall Rd	Lotus Rd	Street	4	28	22	6
16	Pony Express Trail	Sly Park Rd	-	Path	16	73	0	37

*Estimated Average Annual Daily Traffic. Rounded to nearest ones place.

On **weekdays**, locations with Class I facilities experienced 31 percent higher bicycle volumes compared to Class II on-street facilities and 362 percent higher bicycle volumes compared to locations with no existing facilities. On **weekends**, Class II facilities experienced 19 percent higher bicycle volumes compared to Class I facilities and 1,561 percent higher bicycle volumes compared to locations with no existing facilities.

On **weekdays**, locations with Class I facilities experienced 71 percent higher pedestrian volumes compared to Class II on-street facilities and 13 percent compared to locations with no existing facilities. On **weekends**, Class II facilities experienced 85 percent higher pedestrian volumes compared to Class II facilities and 136 percent higher pedestrian volumes compared to locations with existing facilities.

On **weekdays**, locations with no gaps in the sidewalk/path network (n=5) experienced 23 percent higher pedestrian volumes compared to locations with partial sidewalks/paths (n=9) and 178 percent higher pedestrian volumes compared to locations with no sidewalks/paths (n=2). On **weekends**, locations with no gaps in the sidewalk/path network (n=5) experienced 23 percent higher pedestrian volumes compared to locations with partial sidewalks/paths (n=9) and 491 percent higher pedestrian volumes compared to locations with no sidewalks/paths (n=2).

Appendix A: Summarized Counts

Table 10: Pedestrian and Bicycle Counts (Tuesday, 11/1/2016)

	LOCATION				7:00 AM – 9:00 AM*		12:00 PM – 2:00 PM*		4:00 PM – 6:00 PM*	
No.	**Route**	**Begin/At**	**End**	**Type**	Bike	Ped	Bike	Ped	Bike	Ped
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	Path	4	8	3	2	4	8
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	Path	2	2	0	1	1	4
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	Street	0	0	5	1	14	0
4	Sophia Pkwy	Green Valley Rd	Natoma St	Street	0	0	3	7	16	7
5	Country Club Dr	El Norte Rd	Cambridge Rd	Street	0	82	0	4	2	27
6	Valley View Pkwy	White Rock	-	Street	1	9	3	5	6	23
7	Post St	White Rock	-	Street	3	15	1	11	6	9
8	Plaza Goldorado Cir	Palmer Dr	-	Street	0	1	1	0	0	0
9	Cameron Park Dr	Green Valley Rd	-	Street	0	1	1	8	5	3
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	Street	0	1	1	1	0	20
11	Schnell School Rd	El Dorado Trail	-	Path	0	23	5	36	2	40
12	Forni Rd	El Dorado Trail	-	Path	1	11	15	22	11	17
13	Golden Center Dr	Missouri Flat Rd	-	Street	1	4	10	40	10	11
14	SR 193/ Georgetown	South St	Prospect Hill Dr	Street	0	2	2	1	0	3
15	SR 49/ Coloma Rd	Marshall Rd	Lotus Rd	Street	0	1	0	3	0	1
16	Pony Express Trail	Sly Park Rd	-	Path	2	5	0	4	2	4

*Rounded to nearest ones place.

Table 11: Pedestrian and Bicycle Counts (Wednesday, 11/2/2016)

	LOCATION				7:00 AM – 9:00 AM		12:00 PM – 2:00 PM		4:00 PM – 6:00 PM	
No.	**Route**	**Begin/At**	**End**	**Type**	Bike*	Ped*	Bike*	Ped*	Bike*	Ped*
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	Path	2	10	10	7	4	26
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	Path	1	1	4	2	9	6
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	Street	3	2	25	2	6	2
4	Sophia Pkwy	Green Valley Rd	Natoma St	Street	2	3	13	2	6	11
5	Country Club Dr	El Norte Rd	Cambridge Rd	Street	6**	109**	7**	85**	2**	22**
6	Valley View Pkwy	White Rock	-	Street	1	5	4	14	13	21
7	Post St	White Rock	-	Street	2	11	5	21	3	18
8	Plaza Goldorado Cir	Palmer Dr	-	Street	0	0	0	0	0	1
9	Cameron Park Dr	Green Valley Rd	-	Street	0	6	4	5	4	16
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	Street	0	5	1	2	0	8
11	Schnell School Rd	El Dorado Trail	-	Path	4***	57***	13***	35***	10***	34***
12	Forni Rd	El Dorado Trail	-	Path	2	6	15	11	15	25
13	Golden Center Dr	Missouri Flat Rd	-	Street	2	8	9	28	7	18
14	SR 193/ Georgetown	South St	Prospect Hill Dr	Street	0	5	0	0	1	6
15	SR 49/ Coloma Rd***	Marshall Rd	Lotus Rd	Street	0**	0**	0**	5**	3**	2**
16	Pony Express Trail	Sly Park Rd	-	Path	2	11	6	3	1	7

*Rounded to nearest ones place.

**Re-collected on Wednesday, November 9, 2016 due to an equipment malfunction.

***Re-collected manually on Wednesday, November 9, 216 due to vandalism.

Table 12: Pedestrian and Bicycle Counts (Thursday, 11/3/2016)

	LOCATION				7:00 AM – 9:00 AM		12:00 PM – 2:00 PM		4:00 PM – 6:00 PM	
No.	**Route**	**Begin/At**	**End**	**Type**	Bike*	Ped*	Bike*	Ped*	Bike*	Ped*
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	Path	4	11	6	2	7	9
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	Path	0	2	6	2	6	7
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	Street	0	1	14	0	8	1
4	Sophia Pkwy	Green Valley Rd	Natoma St	Street	1	1	4	5	6	6
5	Country Club Dr	El Norte Rd	Cambridge Rd	Street	9	91	2	3	3	28
6	Valley View Pkwy	White Rock	-	Street	3	12	8	9	14	12
7	Post St	White Rock	-	Street	3	7	8	9	3	21
8	Plaza Goldorado Cir	Palmer Dr	-	Street	0	0	0	3	0	3
9	Cameron Park Dr	Green Valley Rd	-	Street	0	5	8	12	7	35
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	Street	1	3	1	0	4	0
11	Schnell School Rd	El Dorado Trail	-	Path	4**	21**	8**	34**	17**	36**
12	Forni Rd	El Dorado Trail	-	Path	4	6	13	16	20	13
13	Golden Center Dr	Missouri Flat Rd	-	Street/ Sidewalk	1	7	8	19	4	9
14	SR 193/ Georgetown	South St	Prospect Hill Dr	Street	0	2	0	2	2	2
15	SR 49/ Coloma Rd	Marshall Rd	Lotus Rd	Street	0	1	1	2	0	12
16	Pony Express Trail	Sly Park Rd	-	Path	0	10	3	6	0	22

*Rounded to nearest ones place.

**Manual counts

Table 13: Pedestrian and Bicycle Counts (Saturday, 11/5/2016)

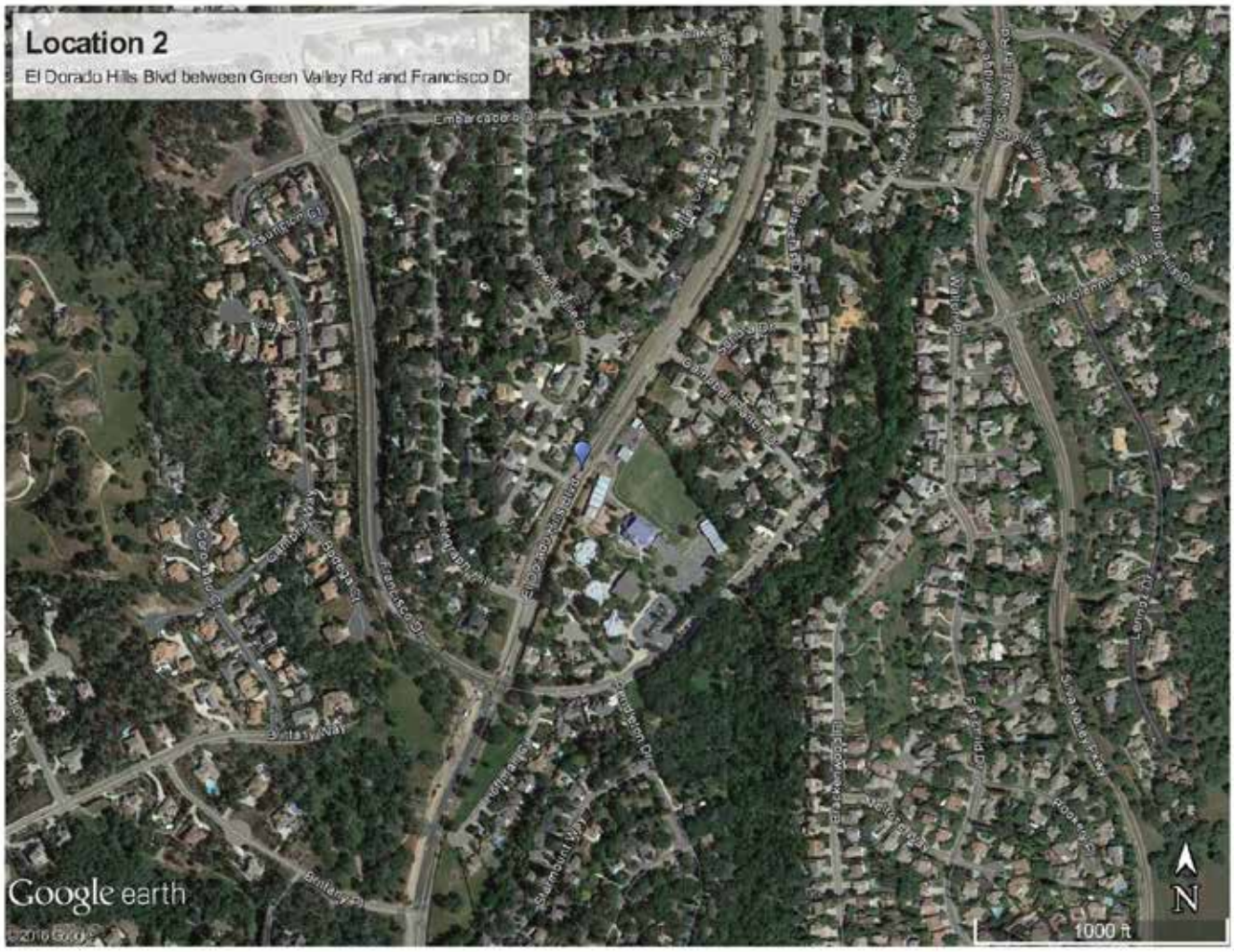
	LOCATION				10:00 AM – 2:00 PM	
No.	**Route**	**Begin/At**	**End**	**Type**	Bike*	Ped*
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	Path	14	21
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	Path	16	10
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	Street	58	7
4	Sophia Pkwy	Green Valley Rd	Natoma St	Street	33	21
5	Country Club Dr	El Norte Rd	Cambridge Rd	Street	2**	67**
6	Valley View Pkwy	White Rock	-	Street	30	52
7	Post St	White Rock	-	Street	12	32
8	Plaza Goldorado Cir	Palmer Dr	-	Street	0	7
9	Cameron Park Dr	Green Valley Rd	-	Street	20	31
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	Street	4	7
11	Schnell School Rd	El Dorado Trail	-	Path	35	102
12	Forni Rd	El Dorado Trail	-	Path	26	49
13	Golden Center Dr	Missouri Flat Rd	-	Street	26	24
14	SR 193/ Georgetown	South St	Prospect Hill Dr	Street	2	2
15	SR 49/ Coloma Rd	Marshall Rd	Lotus Rd	Street	7	2
16	Pony Express Trail	Sly Park Rd	-	Path	0	12

*Rounded to nearest ones place.

**Data collected from 12:00 PM to 2:00 PM, instead of full four-hour count.

Appendix B: Count Locations

The following images provide more detail about each count location.


Location 2
El Dorado Hills Blvd between Green Valley Rd and Francisco Dr
Google earth
1000 ft
N

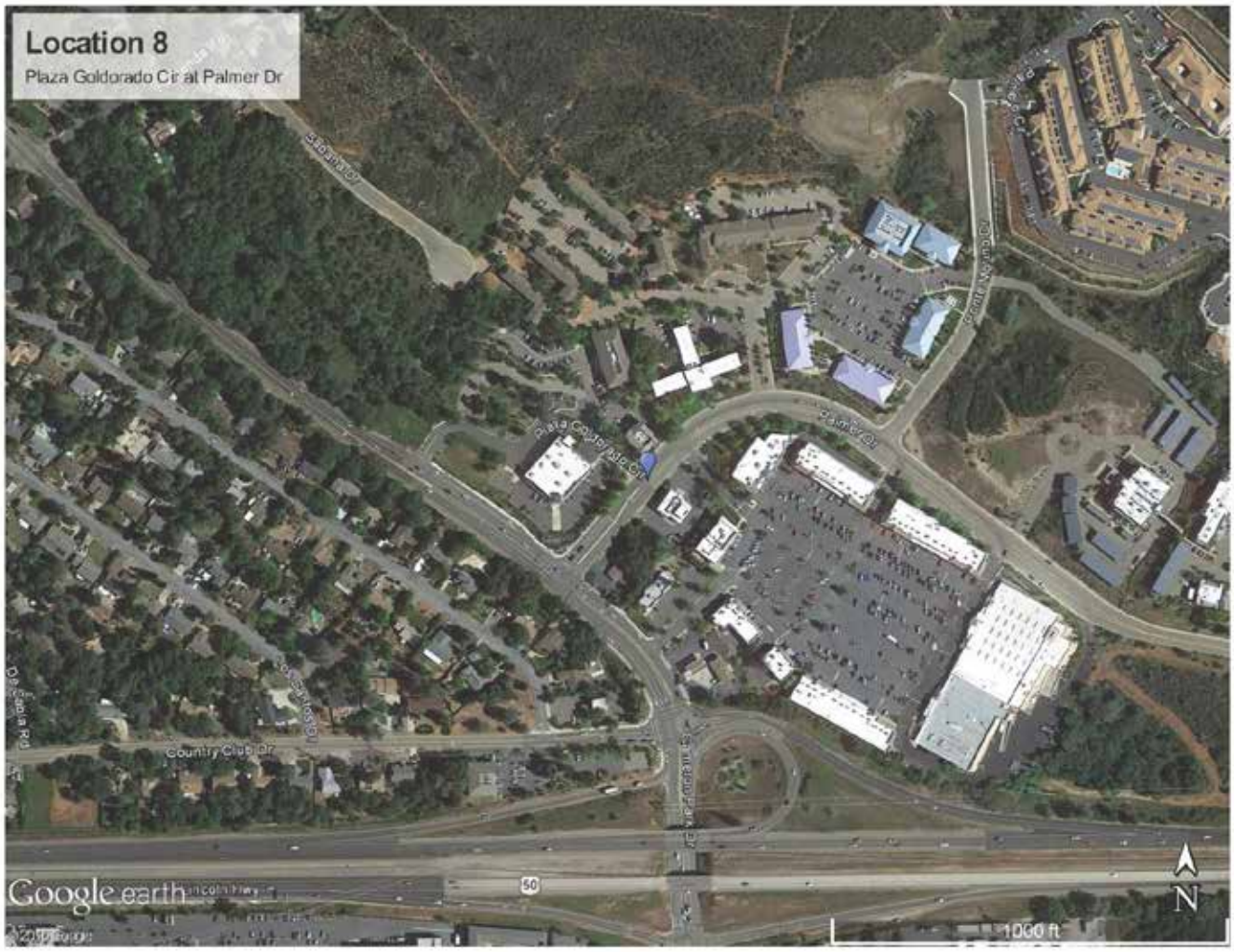

Location 3
Green Valley Rd between Sophia Pkwy and Francisco Dr
Miller Rd
Embarcadero Dr
Google earth
1000 ft
N


Location 4
Sophia Pkwy between Green Valley Rd and Natoma St
Google earth
© 2016 Google
1000 ft
N

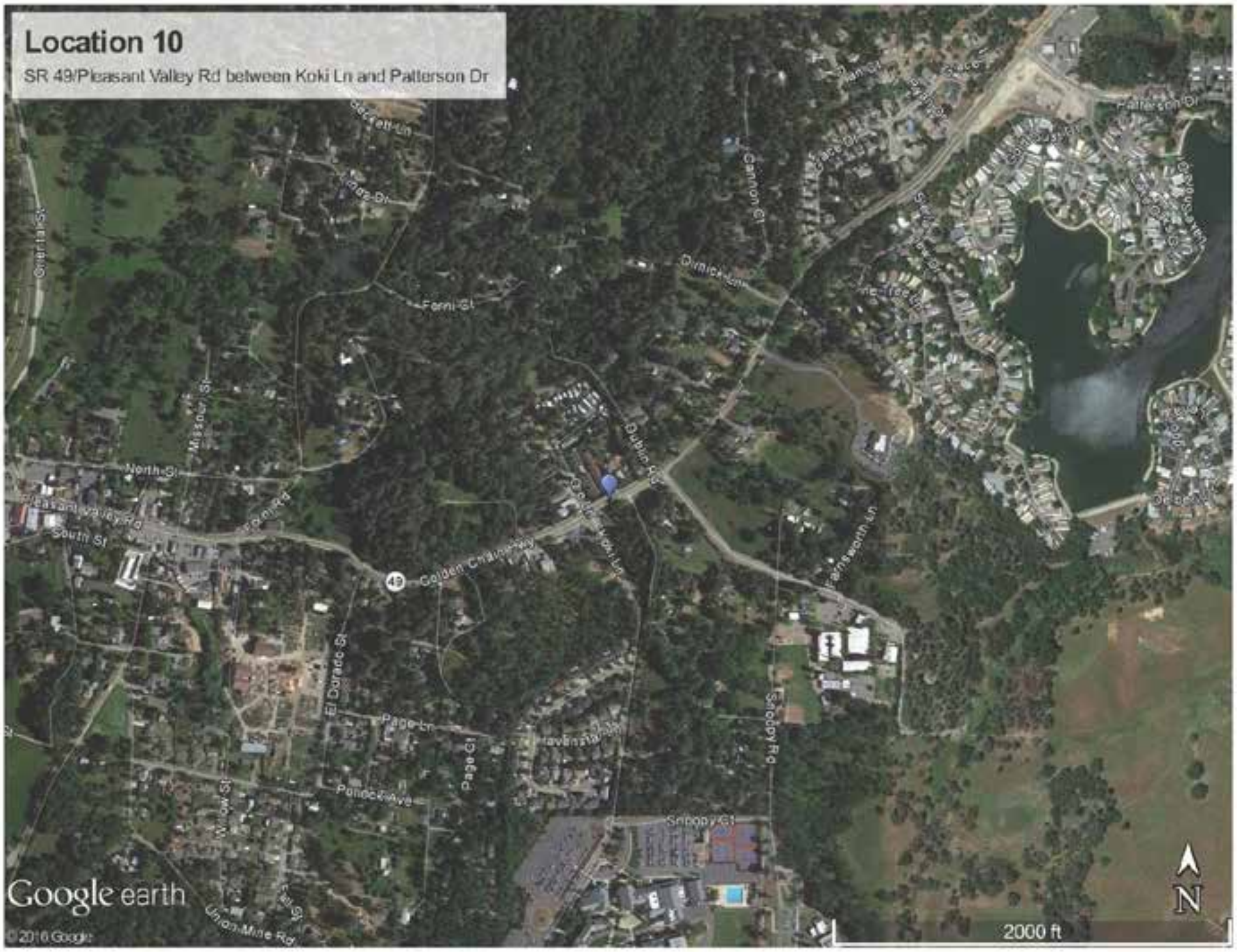

Location 5
Country Club Dr between El Norte Rd and Cambridge Rd
Google earth
1000 ft
N


Location 6
Valley View Pkwy at White Rock Rd
White Rock Rd
Valley View Pkwy
Google earth
1000 ft
N


Location 7
White Rock Rd at Post St
Post St
White Rock Rd
Laredo Rd
Google earth
1000 ft
N


Location 8
Plaza Goldorado Cir at Palmer Dr
Palmer Dr
Country Club Dr
50
Google earth
1000 ft
N

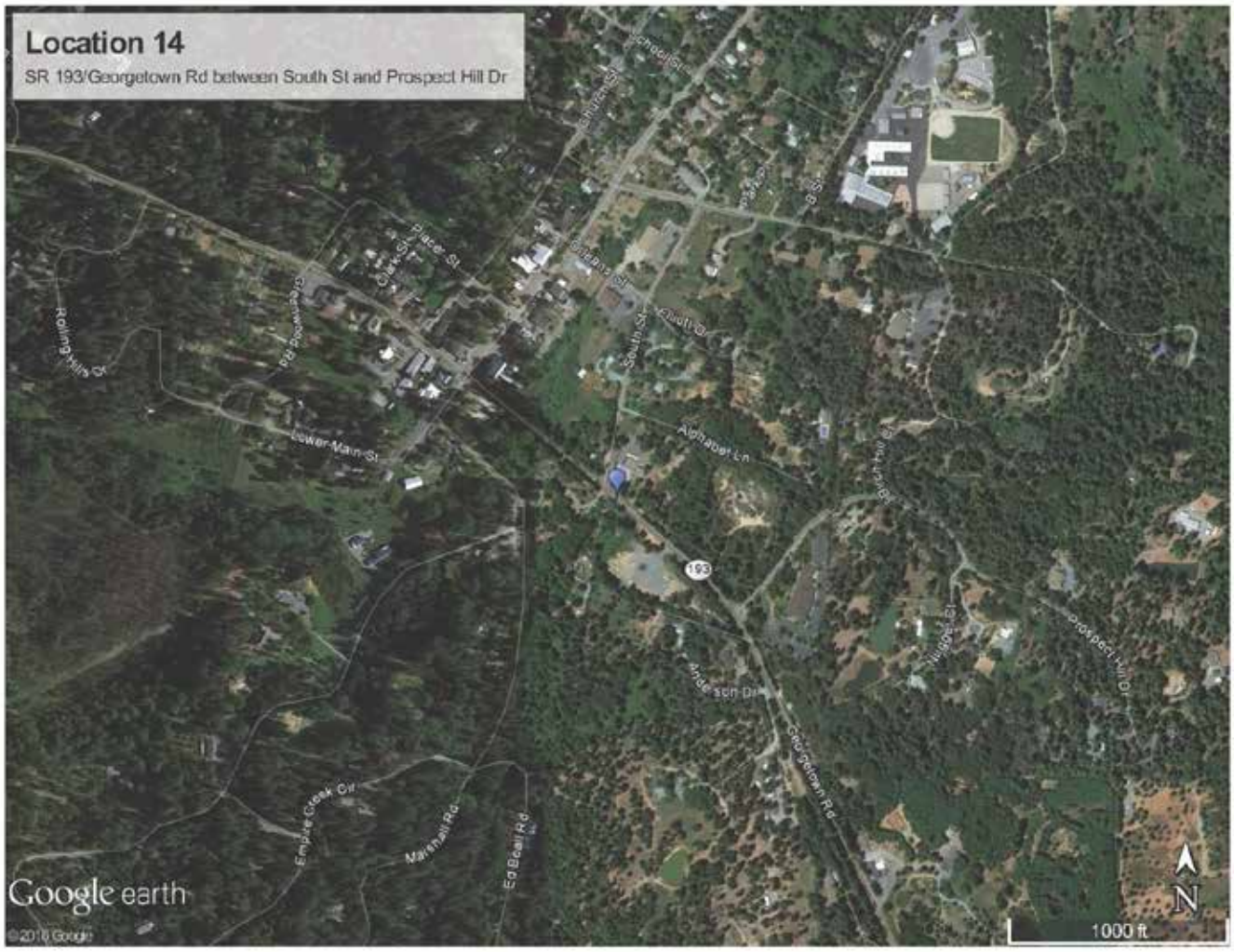

Location 9
Cameron Park Dr at Green Valley Rd
Green Valley Rd
Cameron Park Dr
Samaio Dr
Sundar Rd
Cimmarron Rd
Cimmarron Ct
La Canada Dr
La Canada Ct
Arcadia Dr
Google earth
1000 ft
N


Location 10
SR 49/Pleasant Valley Rd between Koki Ln and Patterson Dr
Patterson Dr
Cannon Ct
Dimick Ln
Forni St
North St
Pleasant Valley Rd
South St
49
Golden Chain Hwy
Dublin Rd
Koki Ln
Farnsworth Ln
El Dorado St
Page Ln
Page Ct
Pollock Ave
Snoopy Ct
Snoopy Rd
Union Mine Rd
Oriental St
Google earth
© 2016 Google
2000 ft
N


Location 11
El Dorado Trail at Schnell School Rd
Schnell School Rd
50
Google earth
700 ft
N


Location 12
El Dorado Trail at Forni Rd
Ray Lawyer Dr
El Dorado Trail
Gold Nugget Way
Nordic Way
Google earth
1000 ft
N


Location 13
Missouri Flat Rd at Golden Center Dr
Google earth
© 2016 Google
700 ft
N


Location 14
SR 193/Georgetown Rd between South St and Prospect Hill Dr
Rolling Hills Ct
Lower Main St
Alphabet Ln
193
Georgetown Rd
Prospect Hill Dr
Empire Creek Dr
Marshall Rd
Ed Beall Rd
Google earth
1000 ft
N


Location 15
SR/49/Coloma Rd between Marshall Rd and Lotus Rd
Marshall Rd
Little Cr
Scott Cr
Beach Cr
Beach View Dr
Amoloc Ln
Lotus Rd
Bass Rd
Monroe Ridge Trail
Coloma Rd
Graves Rd
Mt Murphy Rd
49
Google earth
©2016 Google
3000 ft
N

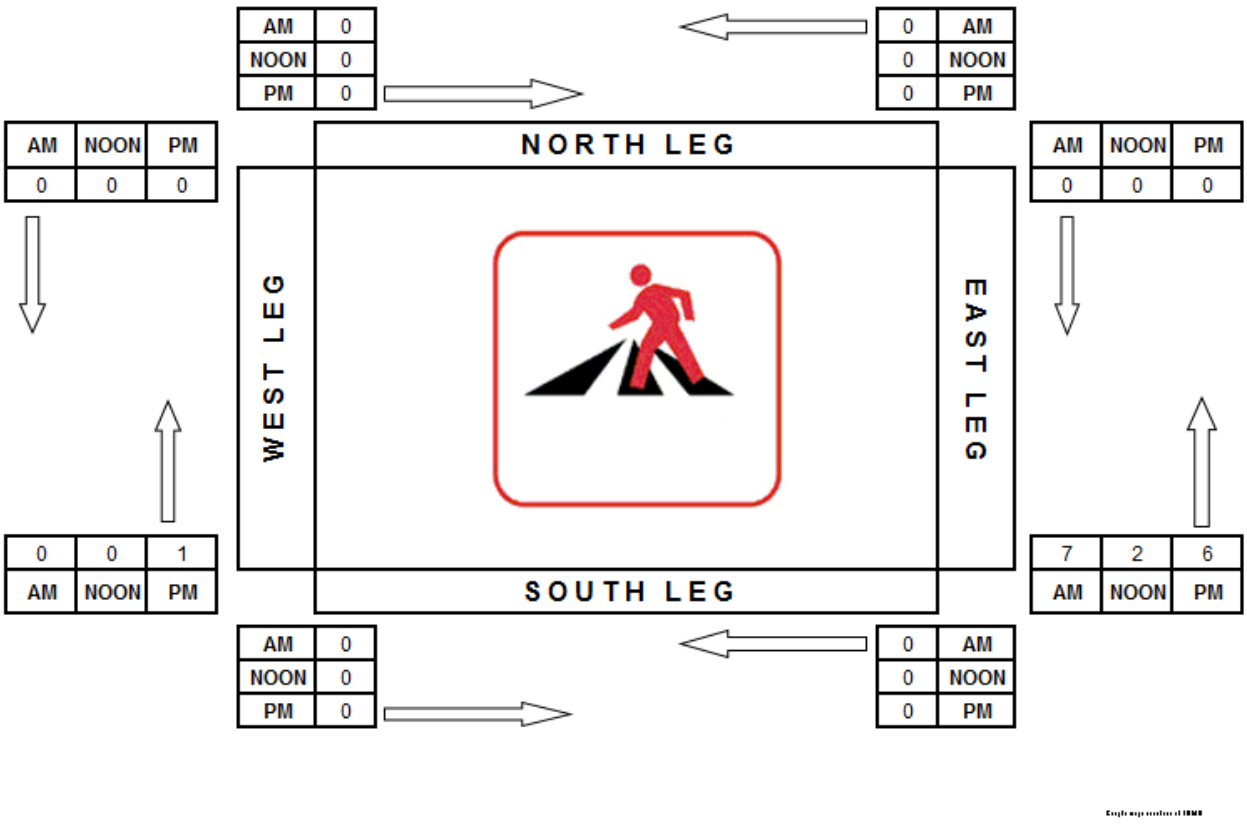

Location 16
Pony Express Trail at Sly Park Rd
Elf Ct
Bandit Ct
Agra St
Dobson Way
Fairview Dr
Rim St
Polaris St
North St
Oak St
Pollock Ave
Elm St
E16
Ridgeway Dr
Greenleaf Ln
Sesame St
Easy St
50
Google earth
1000 ft
N

Appendix C: Locational Diagrams

Pedestrian Count Peak Hour

PROJECT#: 16-7812-001
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Woedee Dr & St. Andrews Dr
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

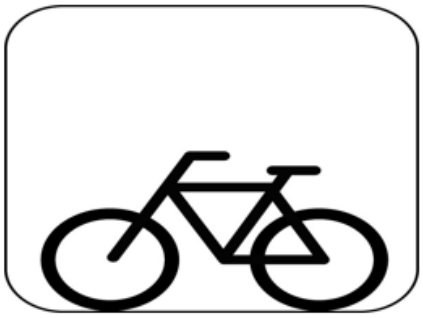
PROJECT#: 16-7812-001
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Woedee Dr & St. Andrews Dr
DATE: 11/1/2016
DAY: Tuesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	2	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

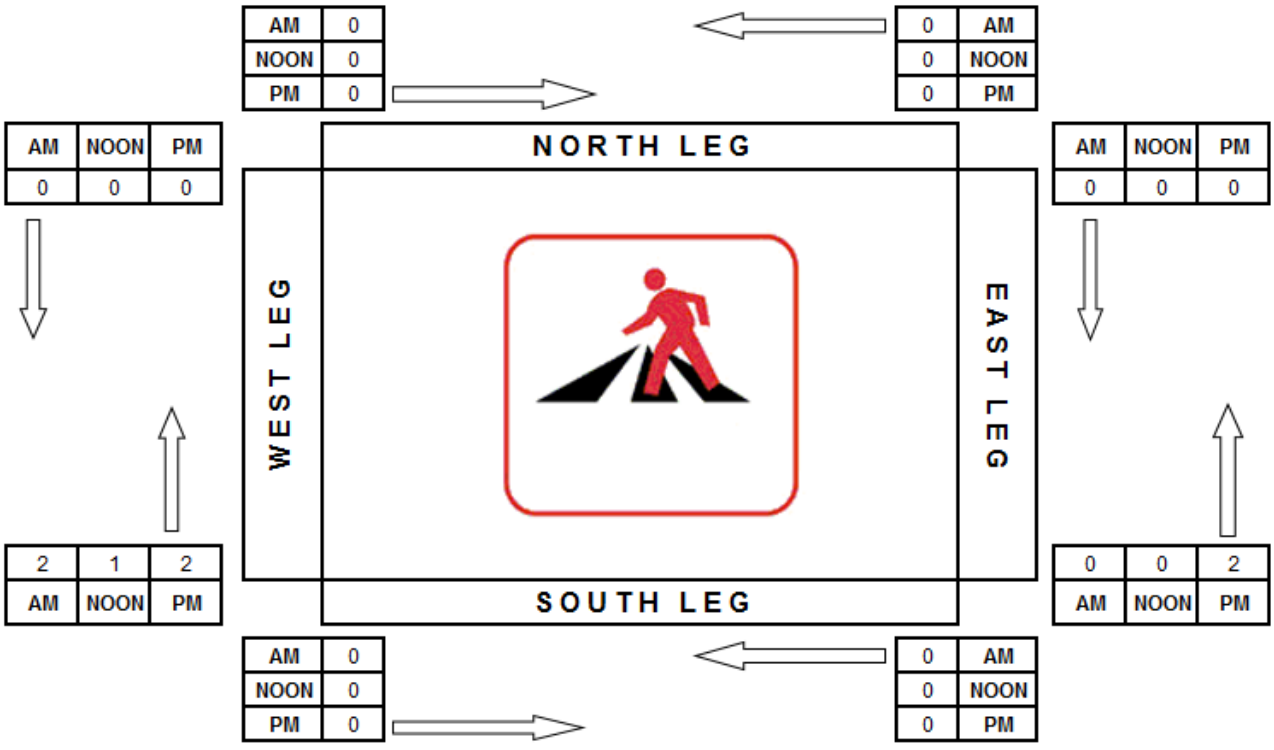
SOUTH LEG

AM	0	4	0
NOON	0	2	0
PM	0	2	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-002
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Green Valley Rd & Francisco Dr
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

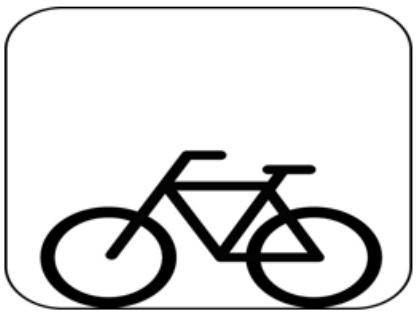
PROJECT#: 16-7812-002
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Green Valley Rd & Francisco Dr
DATE: 11/1/2016
DAY: Tuesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	1	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

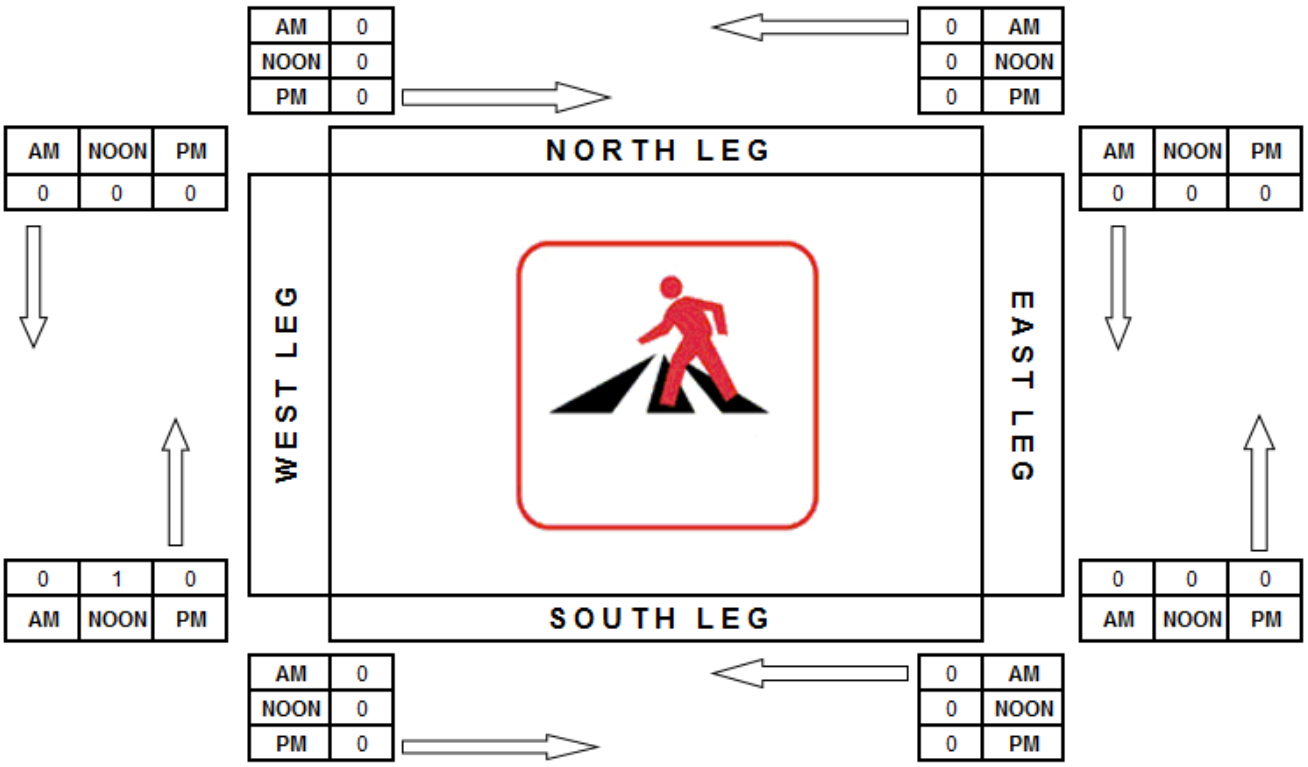
SOUTH LEG

AM	0	2	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-003
N/S Street: Green Valley Rd
E/W Street: Bet. Sophia Pkwy & Francisco Dr
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

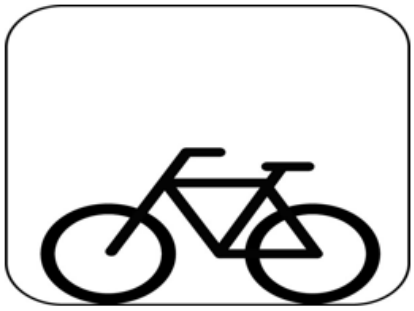
PROJECT#: 16-7812-003
N/S Street: Green Valley Rd
E/W Street: Bet. Sophia Pkwy & Francisco Dr
DATE: 11/1/2016
DAY: Tuesday
CITY: El Dorado County

AM	0	0	0
NOON	0	1	0
PM	0	5	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

SOUTH LEG

AM	0	0	0
NOON	0	3	0
PM	0	3	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-004
N/S Street: Sophia Pkwy
E/W Street: Bet. Green Valley Rd & Natoma St
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	2	1
AM	NOON	PM

SOUTH LEG

0	5	4
AM	NOON	PM

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

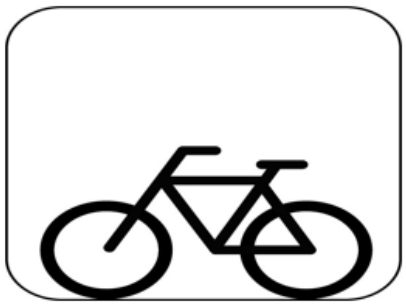
PROJECT#: 16-7812-004
N/S Street: Sophia Pkwy
E/W Street: Bet. Green Valley Rd & Natoma St
DATE: 11/1/2016
DAY: Tuesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	9	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

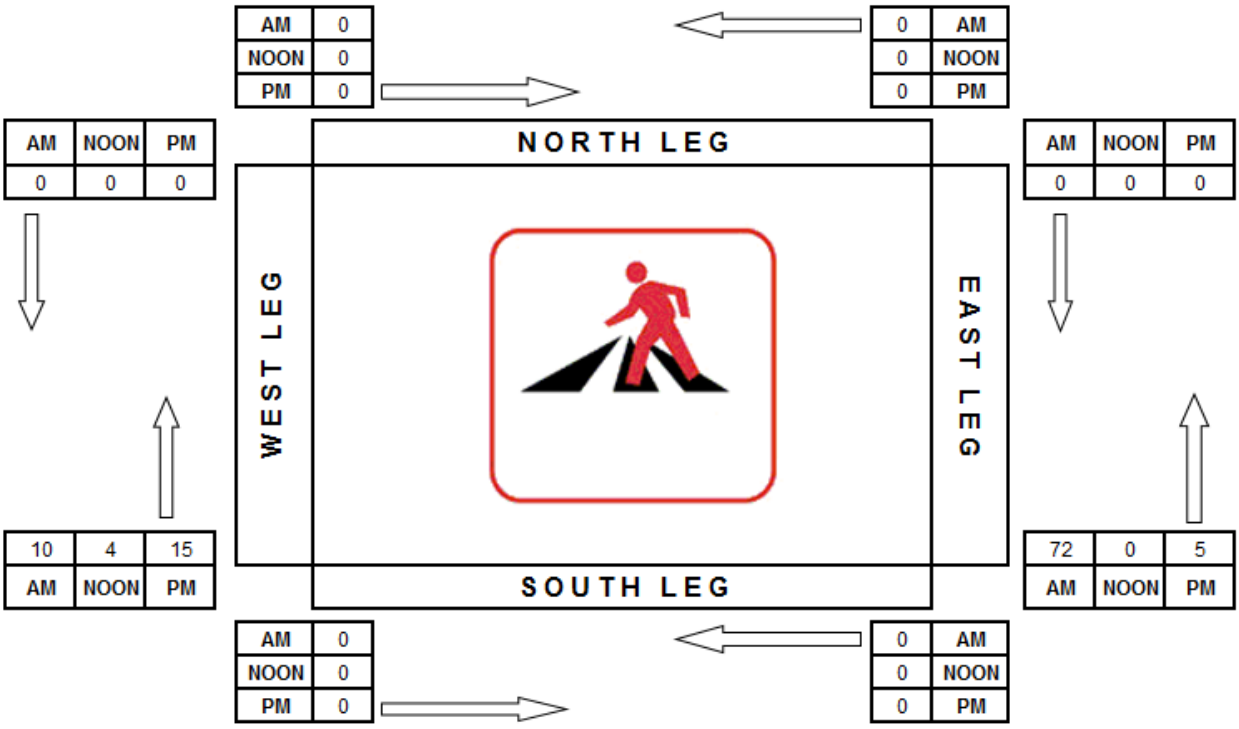
SOUTH LEG

AM	0	0	0
NOON	0	2	0
PM	0	4	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-005
N/S Street: Country Club Dr
E/W Street: Bet. El Norte Rd & Cambridge Rd
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

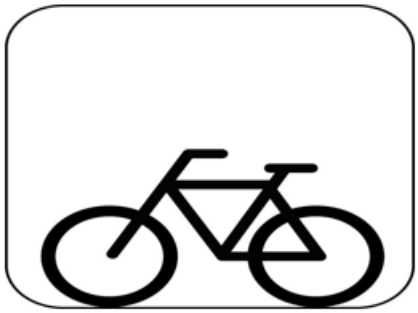
PROJECT#: 16-7812-005
N/S Street: Country Club Dr
E/W Street: Bet. El Norte Rd & Cambridge Rd
DATE: 11/1/2016
DAY: Tuesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	1	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-006
N/S Street: Valley View Pkwy
E/W Street: White Rock Rd
DATE: 11/1/2016
DAY: Tuesday
CITY: El Dorado County

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

7	3	14
AM	NOON	PM

0	0	0
AM	NOON	PM

SOUTH LEG

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

PROJECT#:	16-7812-006
N/S Street:	Valley View Pkwy
E/W Street:	White Rock Rd
DATE:	11/1/2016
CITY:	El Dorado County

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

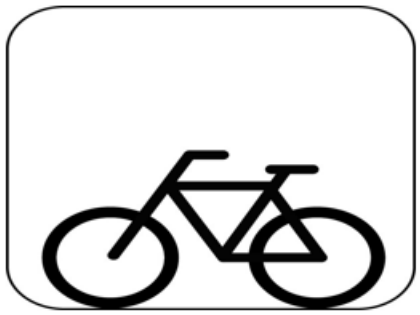
DAY: Tuesday

AM	0	0	0
NOON	0	1	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	2	0
0	0	1
0	0	2

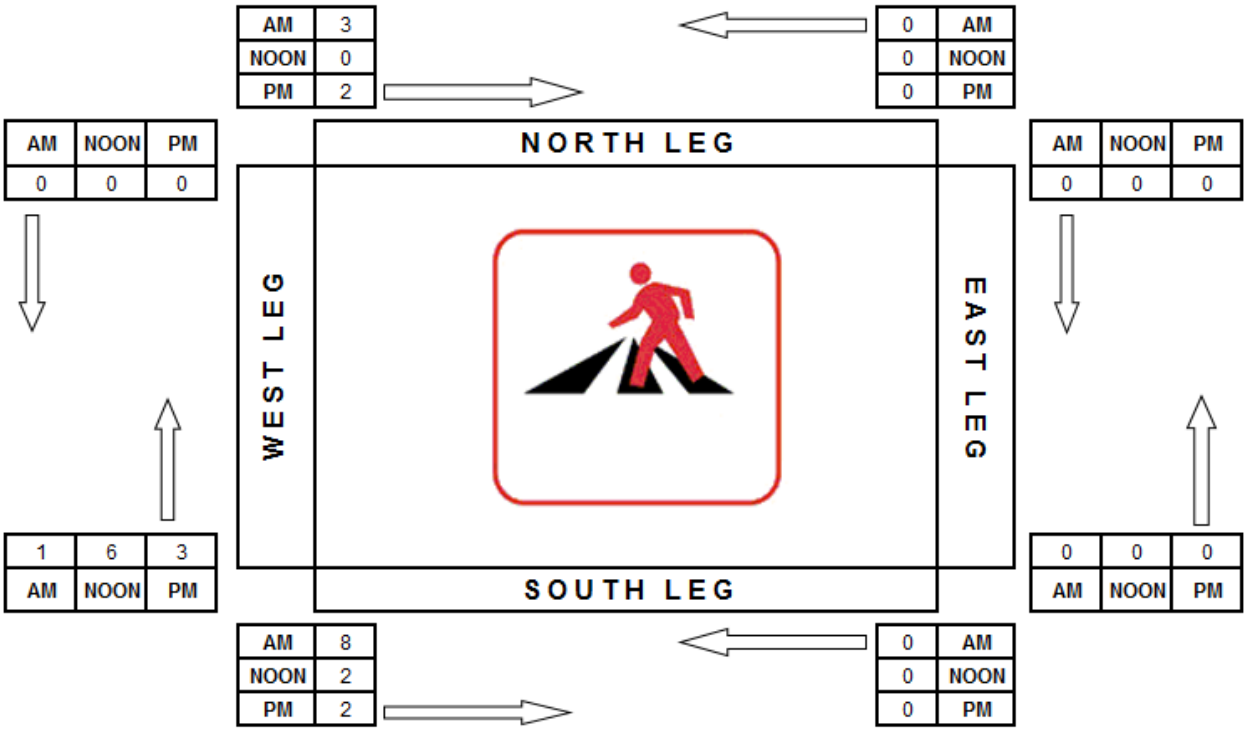
SOUTH LEG

AM	1	0	0
NOON	0	0	0
PM	0	0	2

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-007
N/S Street: Post St
E/W Street: White Rock Rd
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-007
N/S Street: Post St
E/W Street: White Rock Rd
DATE: 11/1/2016
CITY: El Dorado County

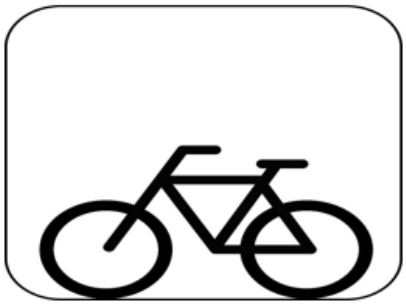
DAY: Tuesday

AM	2	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	1	0
0	0	2
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
1	0	2
0	0	0

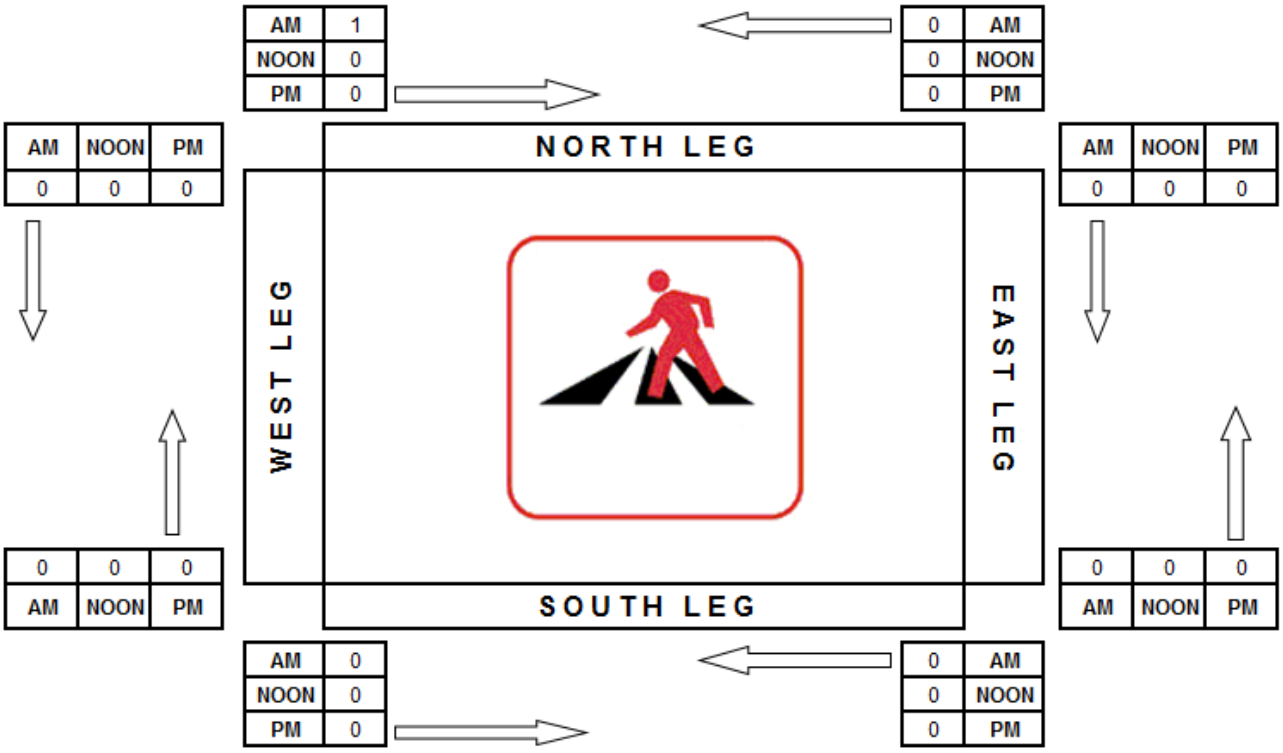
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-008
N/S Street: Plaza Goldorado Cir
E/W Street: Palmer Dr
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-008
N/S Street: Plaza Goldorado Cir
E/W Street: Palmer Dr
DATE: 11/1/2016
CITY: El Dorado County

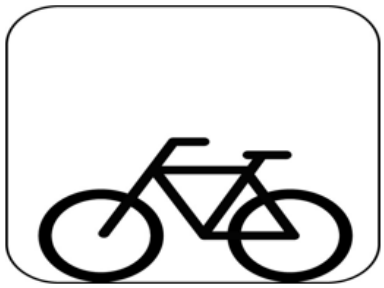
DAY: Tuesday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-009
N/S Street: Cameron Park Dr
E/W Street: Green Valley Rd
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County

AM	0
NOON	1
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	2	1
AM	NOON	PM

0	1	2
AM	NOON	PM

SOUTH LEG

AM	1
NOON	2
PM	0

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-009
N/S Street: Cameron Park Dr
E/W Street: Green Valley Rd
DATE: 11/1/2016
CITY: El Dorado County

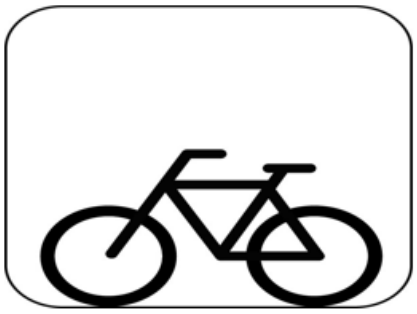
DAY: Tuesday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	1
0	0	0

WEST LEG



AM	NOON	PM
0	0	1
0	1	0
0	0	0

EAST LEG

SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	1	1	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-010
N/S Street: SR 49/Pleasant Valley
E/W Street: Bet. Koki Ln & Patterson Dr
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	1	2
AM	NOON	PM

1	0	18
AM	NOON	PM

SOUTH LEG

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

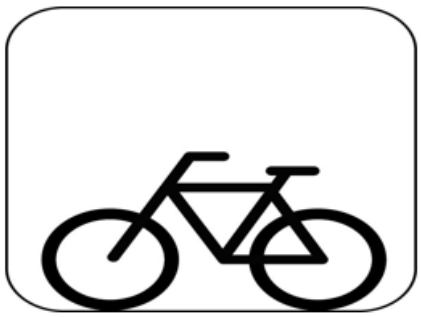
PROJECT#:	16-7812-010
N/S Street:	SR 49/Pleasant Valley
E/W Street:	Bet. Koki Ln & Patterson Dr
DATE:	11/1/2016
CITY:	El Dorado County

DAY: Tuesday

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

	NORTH LEG		
AM	0	0	0
NOON	0	0	0
PM	0	0	0

WEST LEG			
AM	NOON	PM	
0	0	0	
0	0	0	
0	0	0	



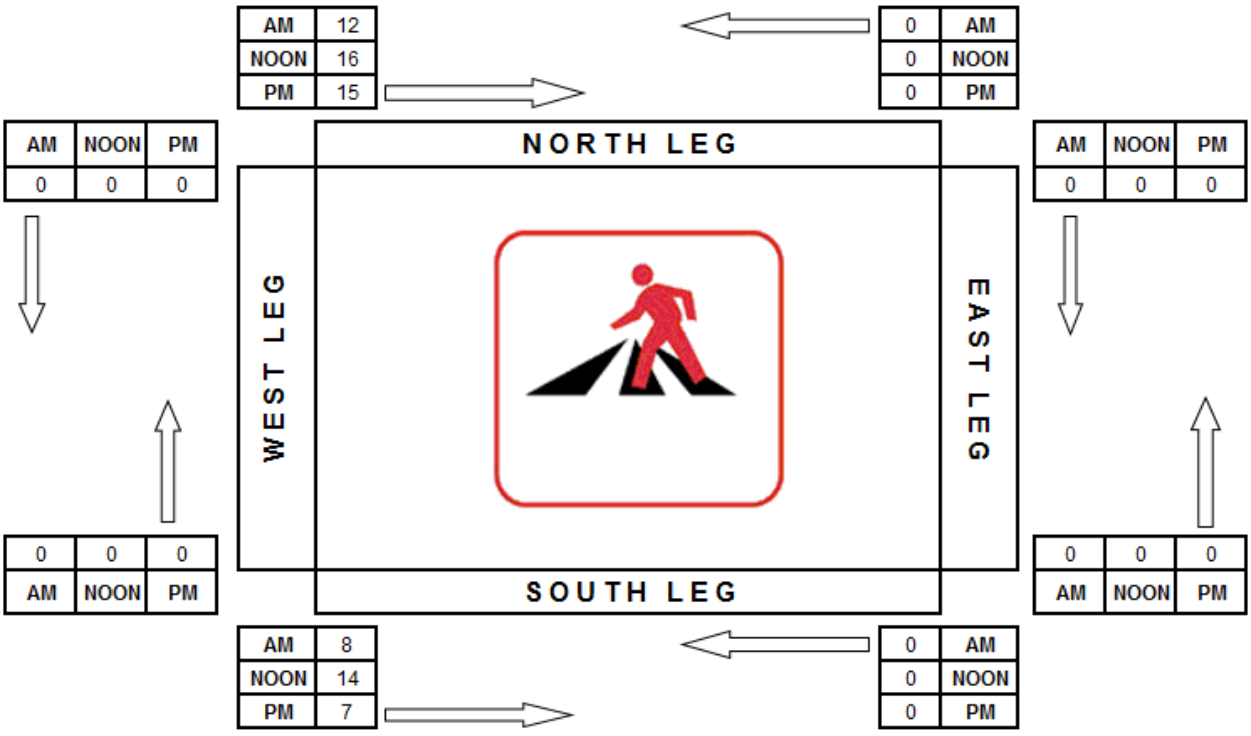
EAST LEG		
AM	NOON	PM
0	0	0
0	0	0
0	0	0

	SOUTH LEG		
AM	0	0	0
NOON	0	1	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-011
N/S Street: Schnell School Rd
E/W Street: El Dorado Trail
DATE: 11/1/2016
DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

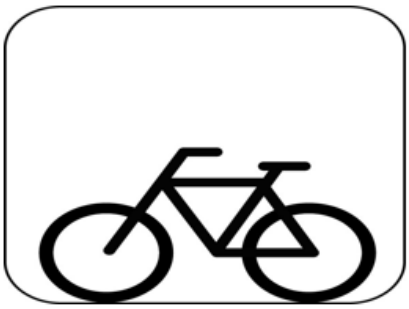
PROJECT#:	16-7812-011
N/S Street:	Schnell School Rd
E/W Street:	El Dorado Trail
DATE:	11/1/2016
CITY:	El Dorado County

DAY: Tuesday

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

	NORTH LEG		
AM	0	0	0
NOON	0	0	0
PM	0	0	0

WEST LEG			
AM	NOON	PM	
0	0	0	
0	1	1	
0	0	0	



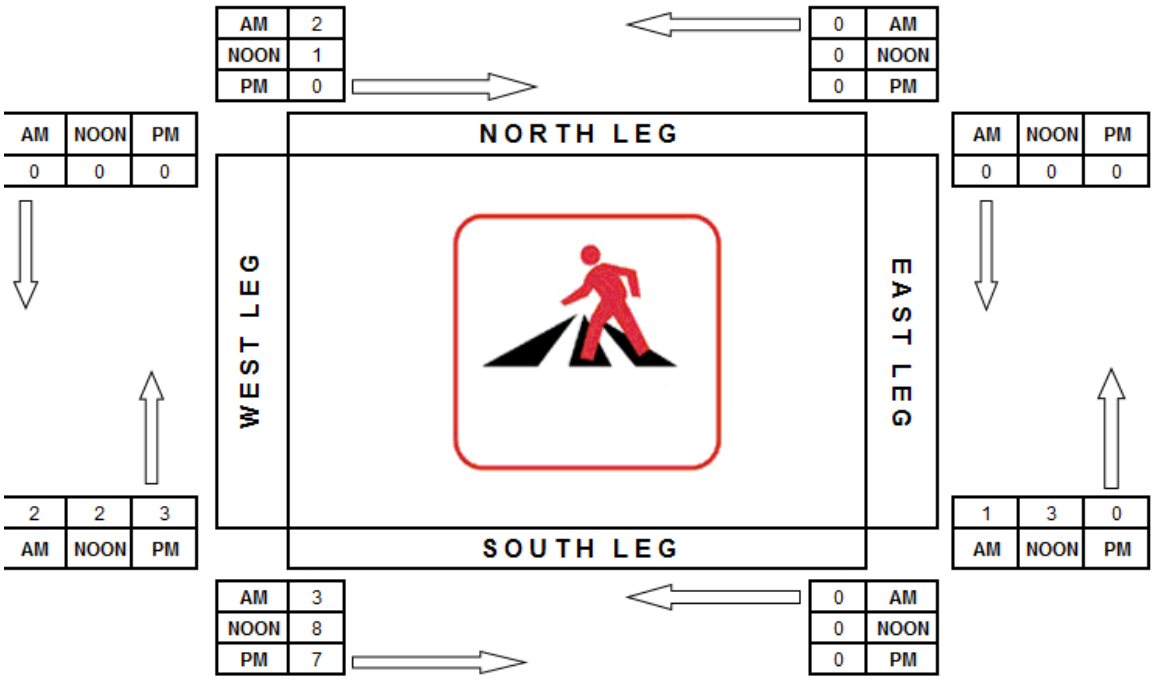
EAST LEG			
AM	NOON	PM	
0	0	0	
0	3	1	
0	0	0	

	SOUTH LEG		
AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-012
N/S Street: Forni Rd
E/W Street: El Dorado Trail
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-012
N/S Street: Forni Rd
E/W Street: El Dorado Trail
DATE: 11/1/2016
CITY: El Dorado County

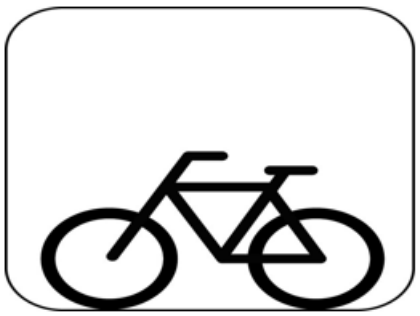
DAY: Tuesday

AM	0	1	0
NOON	0	0	7
PM	0	2	2

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	1	3
0	0	0
0	1	0

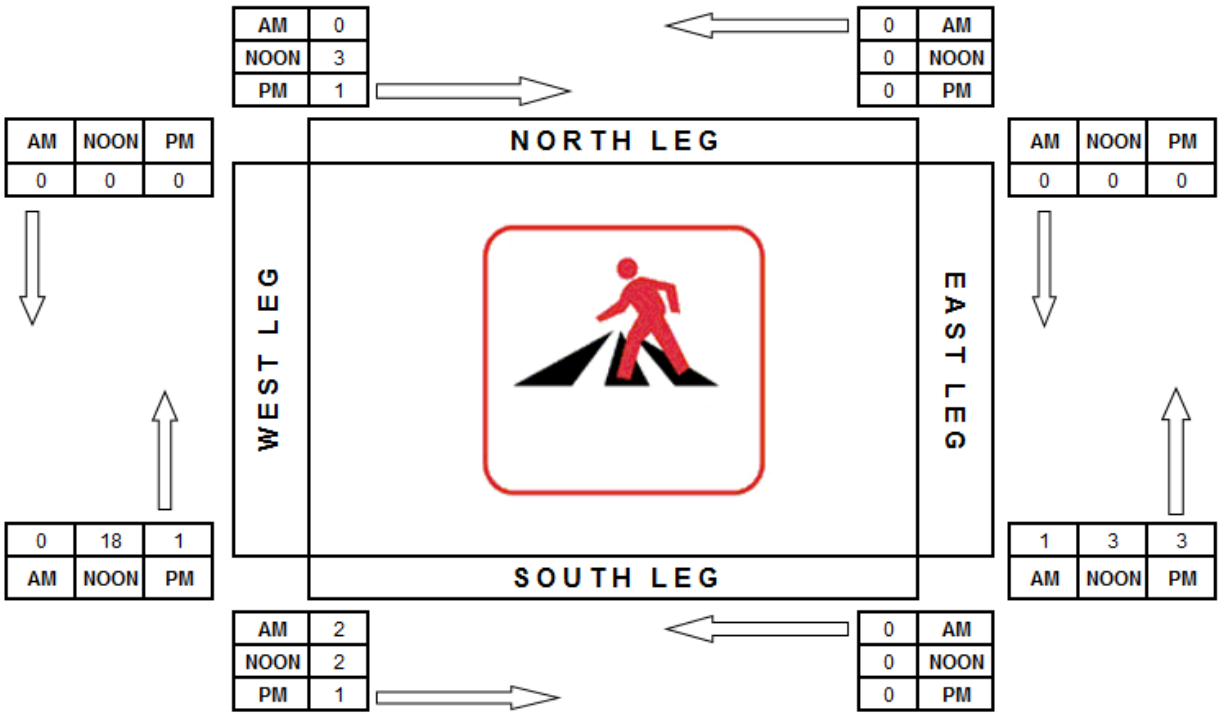
SOUTH LEG

AM	0	0	0
NOON	0	0	2
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-013
N/S Street: Golden Center Dr
E/W Street: Missouri Flat Rd
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-013
N/S Street: Golden Center Dr
E/W Street: Missouri Flat Rd
DATE: 11/1/2016
CITY: El Dorado County

DAY: Tuesday

AM	0	0	0
NOON	0	1	1
PM	0	0	1

NORTH LEG

AM	NOON	PM
0	0	0
0	1	3
0	0	0

WEST LEG

EAST LEG

AM	NOON	PM
0	0	0
1	2	2
0	0	0

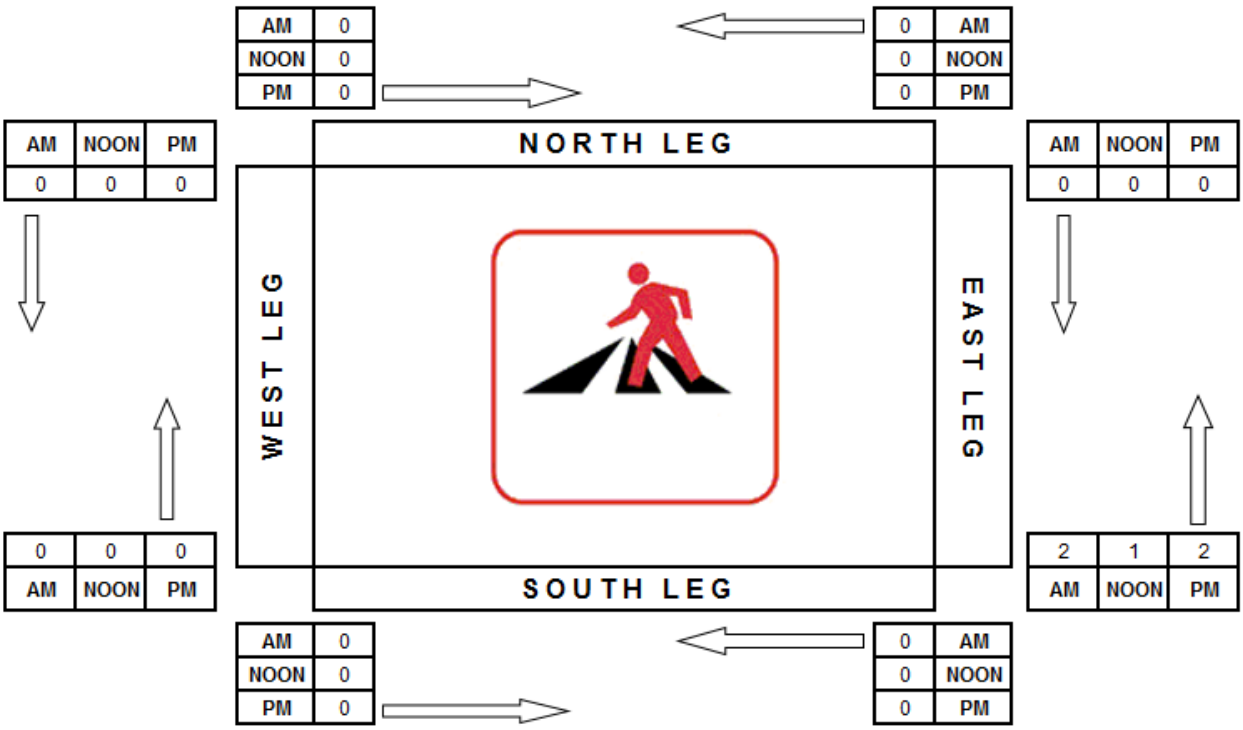
SOUTH LEG

AM	0	0	0
NOON	0	1	0
PM	0	1	1

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-014
N/S Street: SR 193/ Georgetown
E/W Street: Bet. South St & Prospect Hill Dr
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-014
N/S Street: SR 193/ Georgetown
E/W Street: Bet. South St & Prospect Hill Dr
DATE: 11/1/2016
CITY: El Dorado County

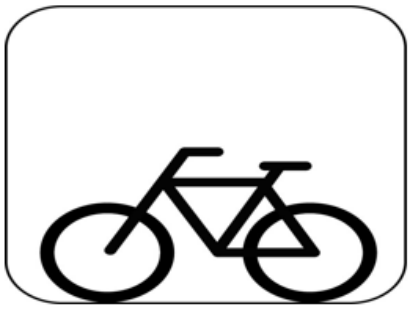
DAY: Tuesday

AM	0	0	0
NOON	0	1	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

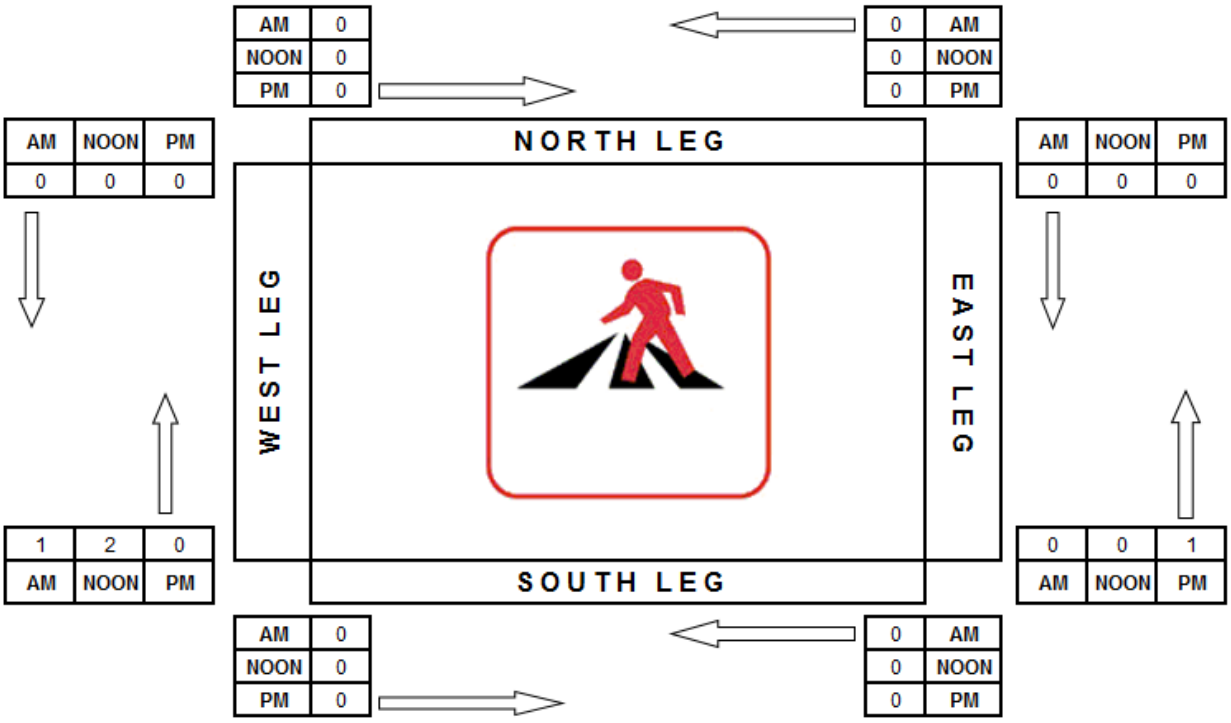
SOUTH LEG

AM	0	0	0
NOON	0	1	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-015
N/S Street: SR 49/Coloma Rd
E/W Street: Bet. #2 15 SR 49/Coloma Rd Marshall Rd & Lotus Rd
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-015
N/S Street: SR 49/Coloma Rd
E/W Street: Bet. #2 15 SR 49/Coloma Rd Marshall Rd & Lotus Rd
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

EAST LEG

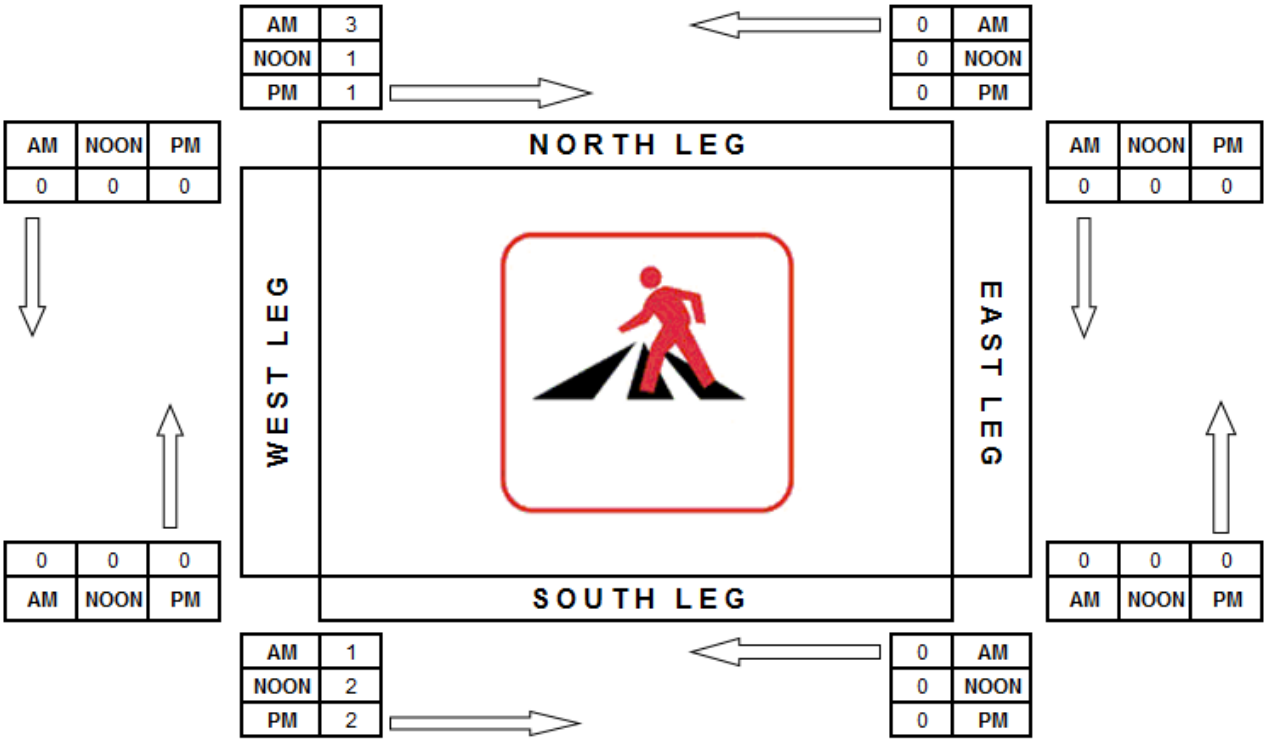
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-016
N/S Street: Pony Express Trail
E/W Street: Bet. Sanders & Sly Park Rd
DATE: 11/1/2016 DAY: Tuesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-016
N/S Street: Pony Express Trail
E/W Street: Bet. Sanders & Sly Park Rd
DATE: 11/1/2016
CITY: El Dorado County

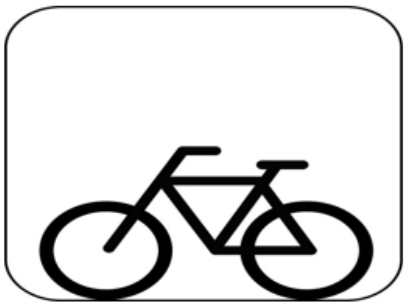
DAY: Tuesday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
1	0	1
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
1	0	1
0	0	0

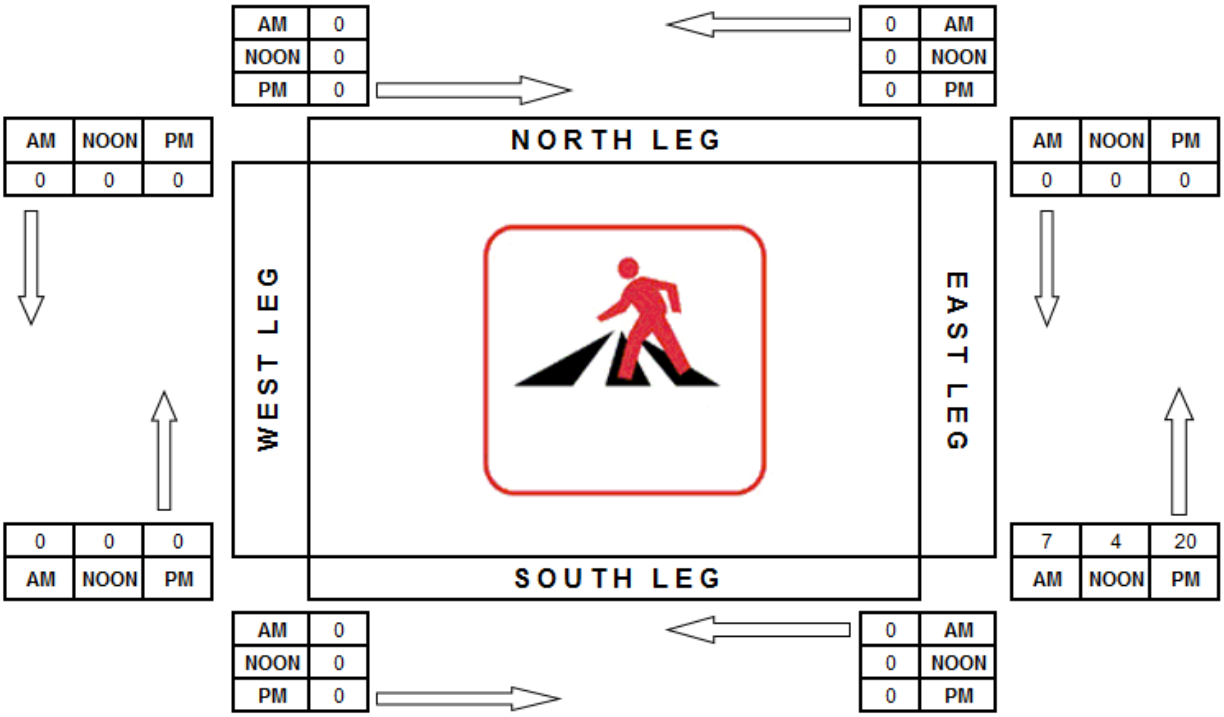
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-001
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Woedee Dr & St. Andrews Dr
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

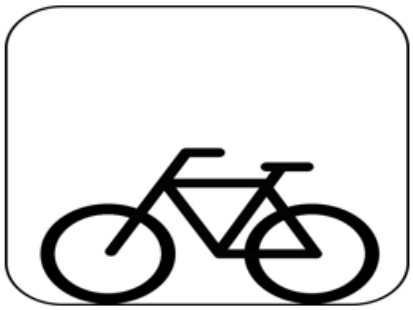
PROJECT#: 16-7812-001
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Woedee Dr & St. Andrews Dr
DATE: 11/2/2016
DAY: Wednesday
CITY: El Dorado County

AM	0	0	0
NOON	0	3	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

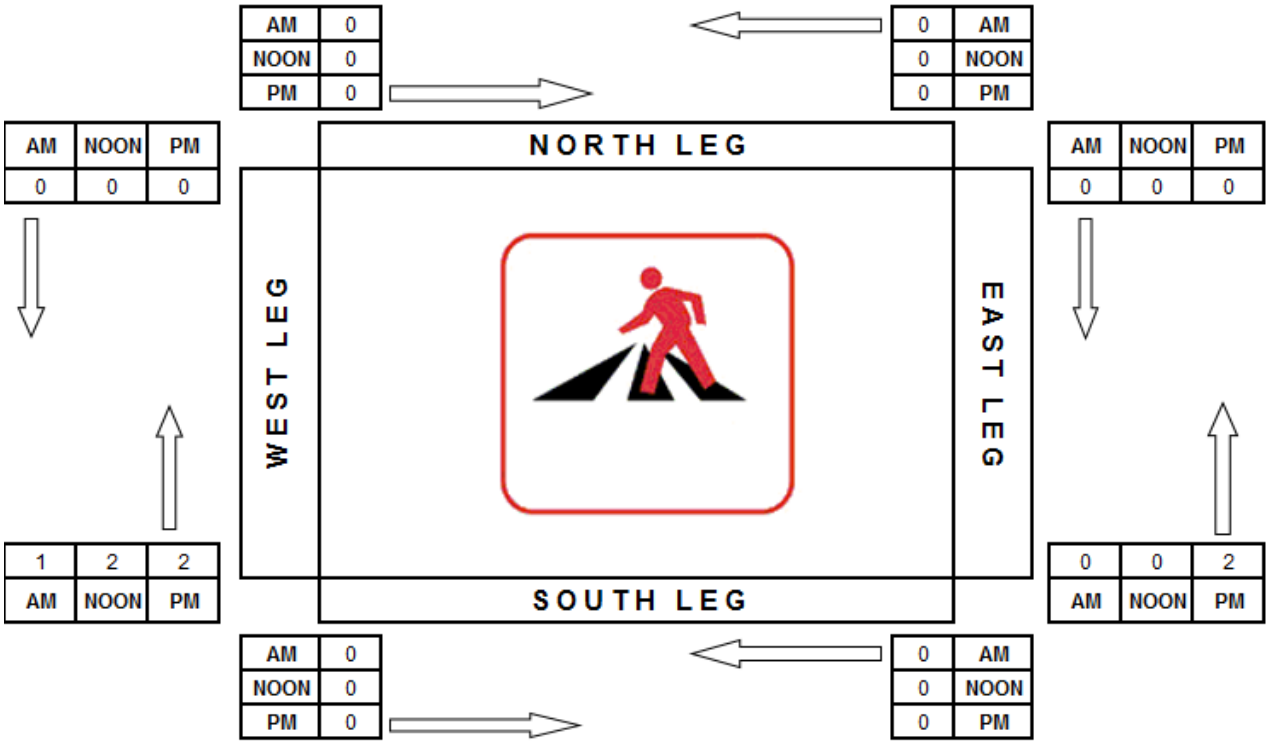
SOUTH LEG

AM	0	2	0
NOON	0	5	0
PM	0	3	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-002
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Green Valley Rd & Francisco Dr
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

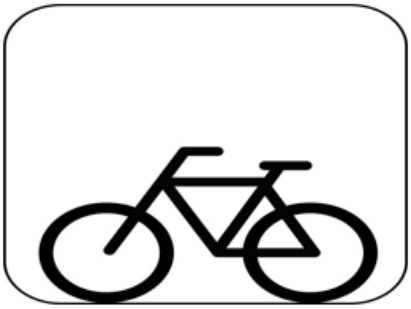
PROJECT#: 16-7812-002
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Green Valley Rd & Francisco Dr
DATE: 11/2/2016
DAY: Wednesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	2	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

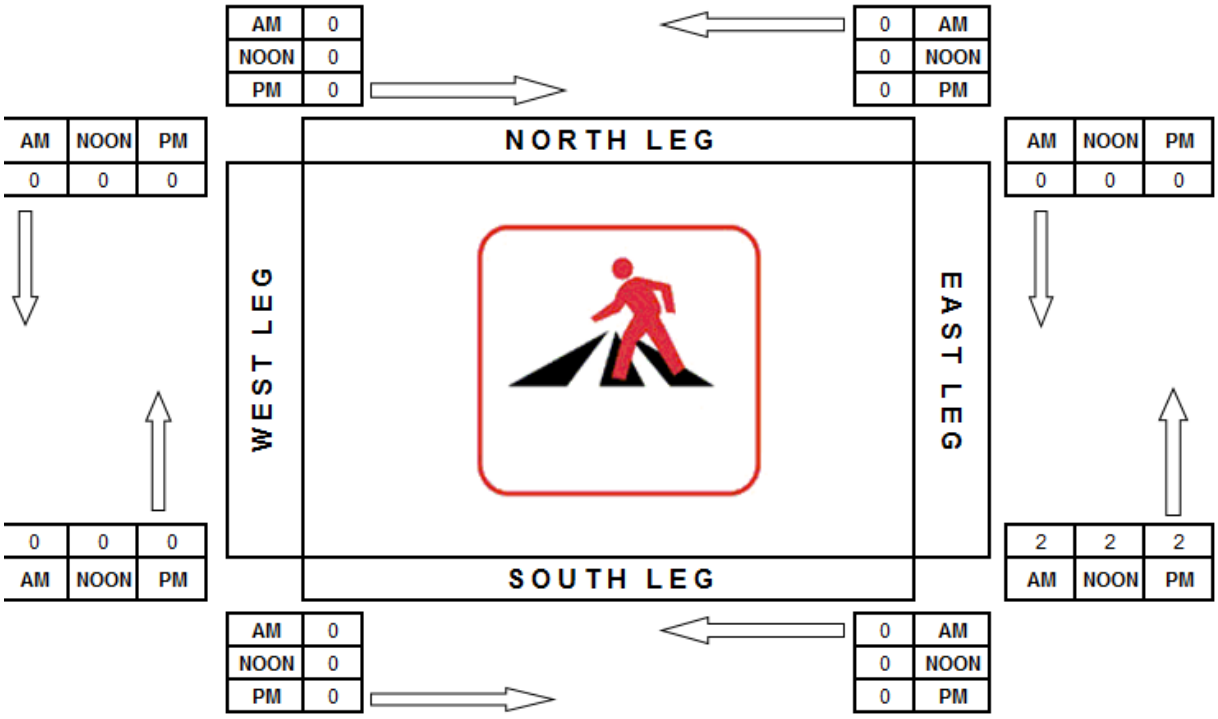
SOUTH LEG

AM	0	1	0
NOON	0	2	0
PM	0	3	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-003
N/S Street: Green Valley Rd
E/W Street: Bet. Sophia Pkwy & Francisco Dr
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

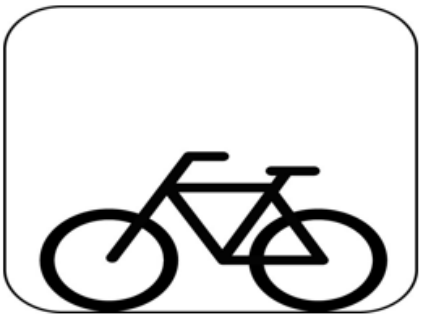
PROJECT#: 16-7812-003
N/S Street: Green Valley Rd
E/W Street: Bet. Sophia Pkwy & Francisco Dr
DATE: 11/2/2016
DAY: Wednesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	3	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



AM	NOON	PM
0	0	0
0	0	0
0	0	0

EAST LEG

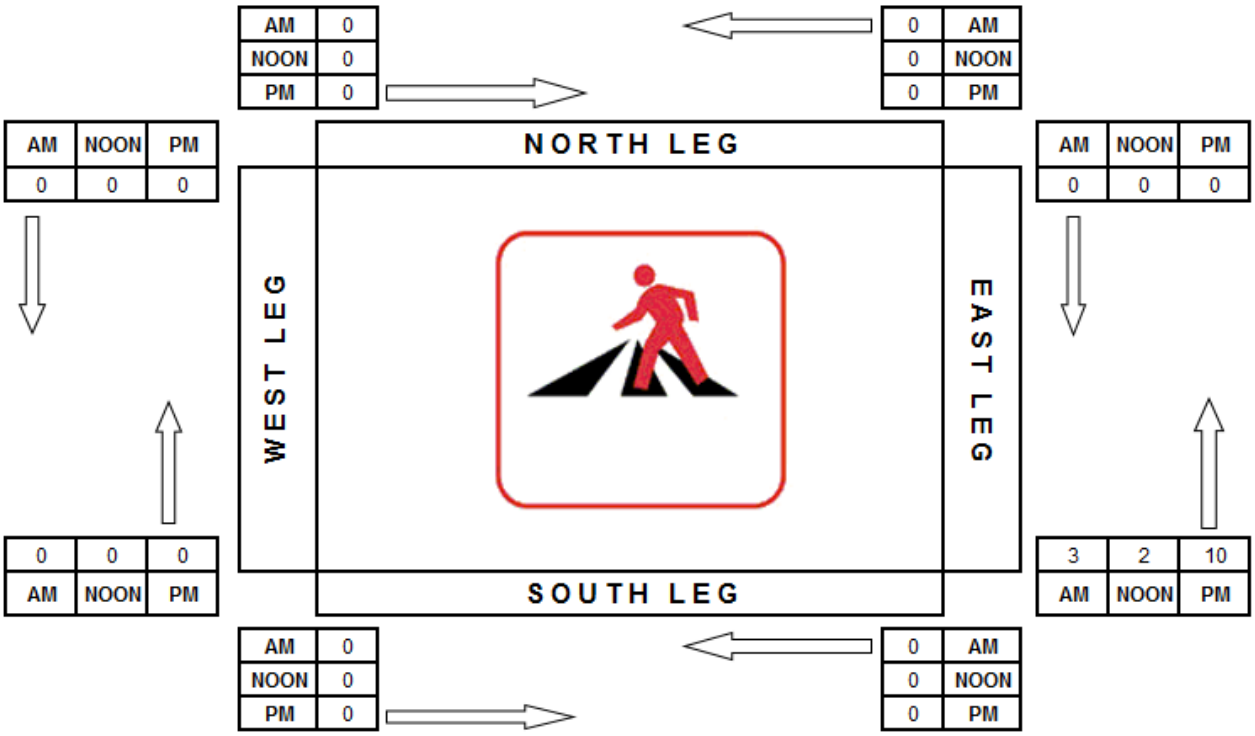
SOUTH LEG

AM	0	3	0
NOON	0	16	0
PM	0	2	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-004
N/S Street: Sophia Pkwy
E/W Street: Bet. Green Valley Rd & Natoma St
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-004
N/S Street: Sophia Pkwy
E/W Street: Bet. Green Valley Rd & Natoma St
DATE: 11/2/2016
CITY: El Dorado County

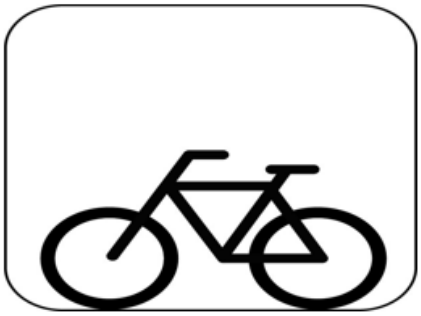
DAY: Wednesday

AM	0	1	0
NOON	0	4	0
PM	0	2	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

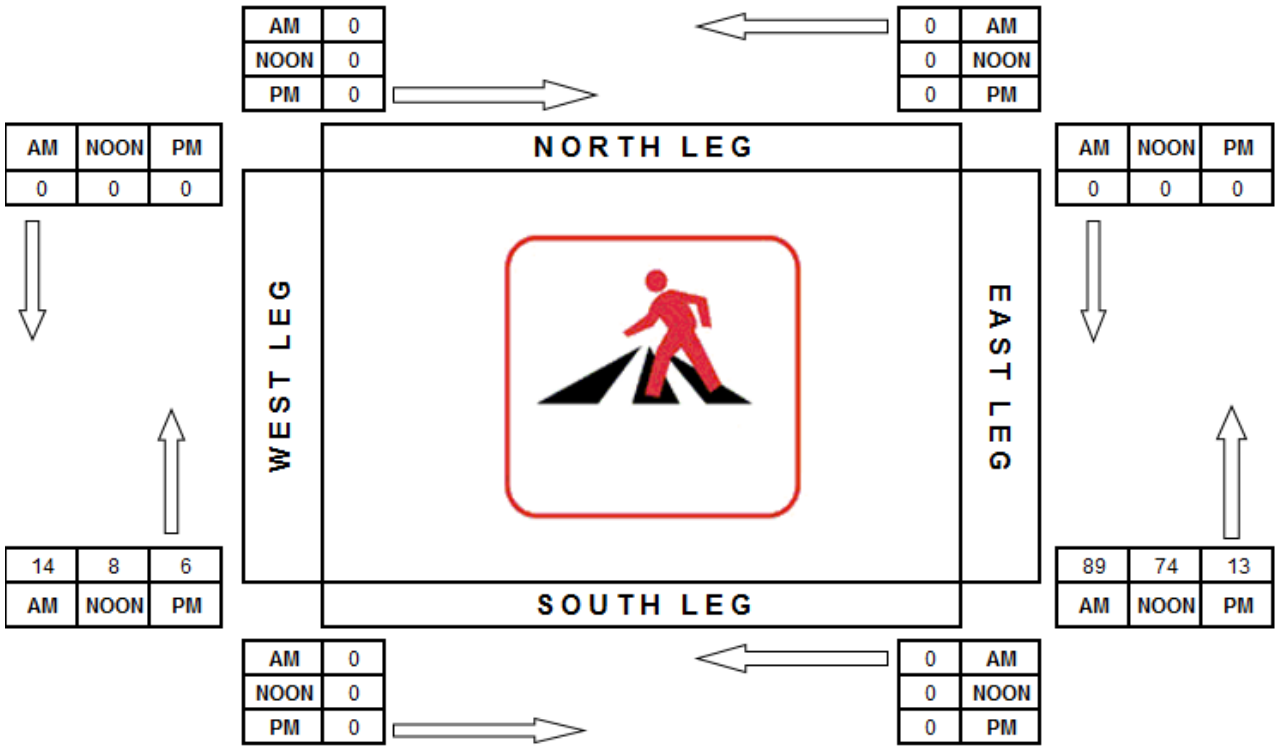
SOUTH LEG

AM	0	1	0
NOON	0	4	0
PM	0	2	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-005
N/S Street: Country Club Dr
E/W Street: Bet. El Norte Rd & Cambridge Rd
DATE: 11/9/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

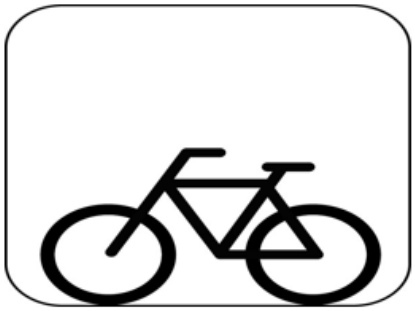
PROJECT#: 16-7812-005
N/S Street: Country Club Dr
E/W Street: Bet. El Norte Rd & Cambridge Rd
DATE: 11/9/2016
DAY: Wednesday
CITY: El Dorado County

AM	0	5	0
NOON	0	2	0
PM	0	1	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

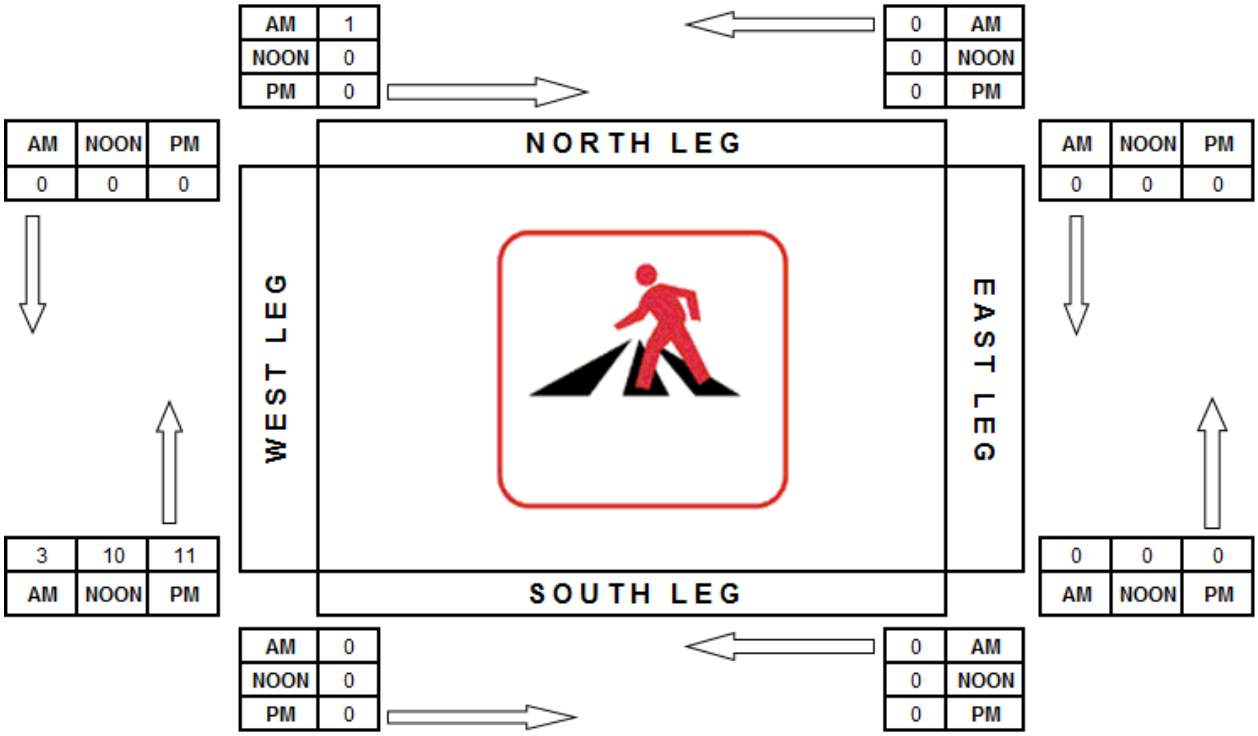
SOUTH LEG

AM	0	0	0
NOON	0	4	0
PM	0	1	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-006
N/S Street: Valley View Pkwy
E/W Street: White Rock Rd
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-006
N/S Street: Valley View Pkwy
E/W Street: White Rock Rd
DATE: 11/2/2016
CITY: El Dorado County

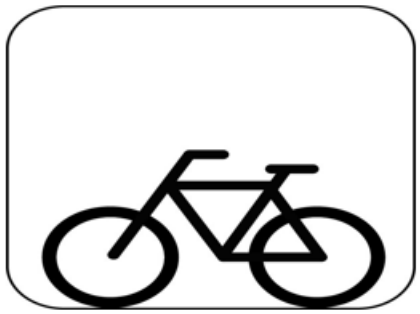
DAY: Wednesday

AM	0	0	0
NOON	0	0	0
PM	0	1	0

NORTH LEG

AM	NOON	PM
0	0	0
0	1	0
0	2	2

WEST LEG



EAST LEG

AM	NOON	PM
1	0	0
0	0	0
0	1	2

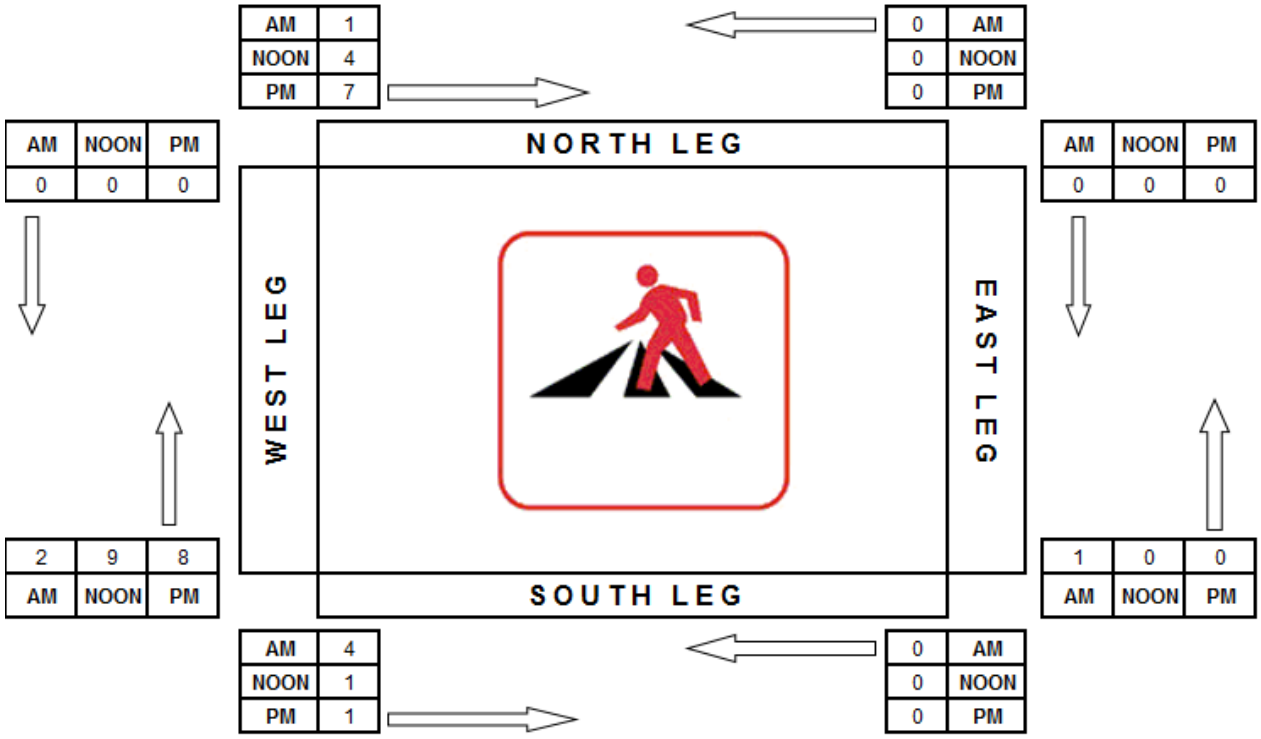
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	5	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-007
N/S Street: Post St
E/W Street: White Rock Rd
DATE: 11/2/2016
DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-007
N/S Street: Post St
E/W Street: White Rock Rd
DATE: 11/2/2016
CITY: El Dorado County

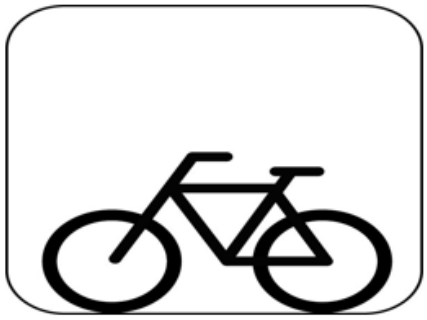
DAY: Wednesday

AM	0	0	0
NOON	0	0	1
PM	0	0	0

NORTH LEG

AM	NOON	PM
1	0	2
0	3	1
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	1	0
0	0	0
0	0	0

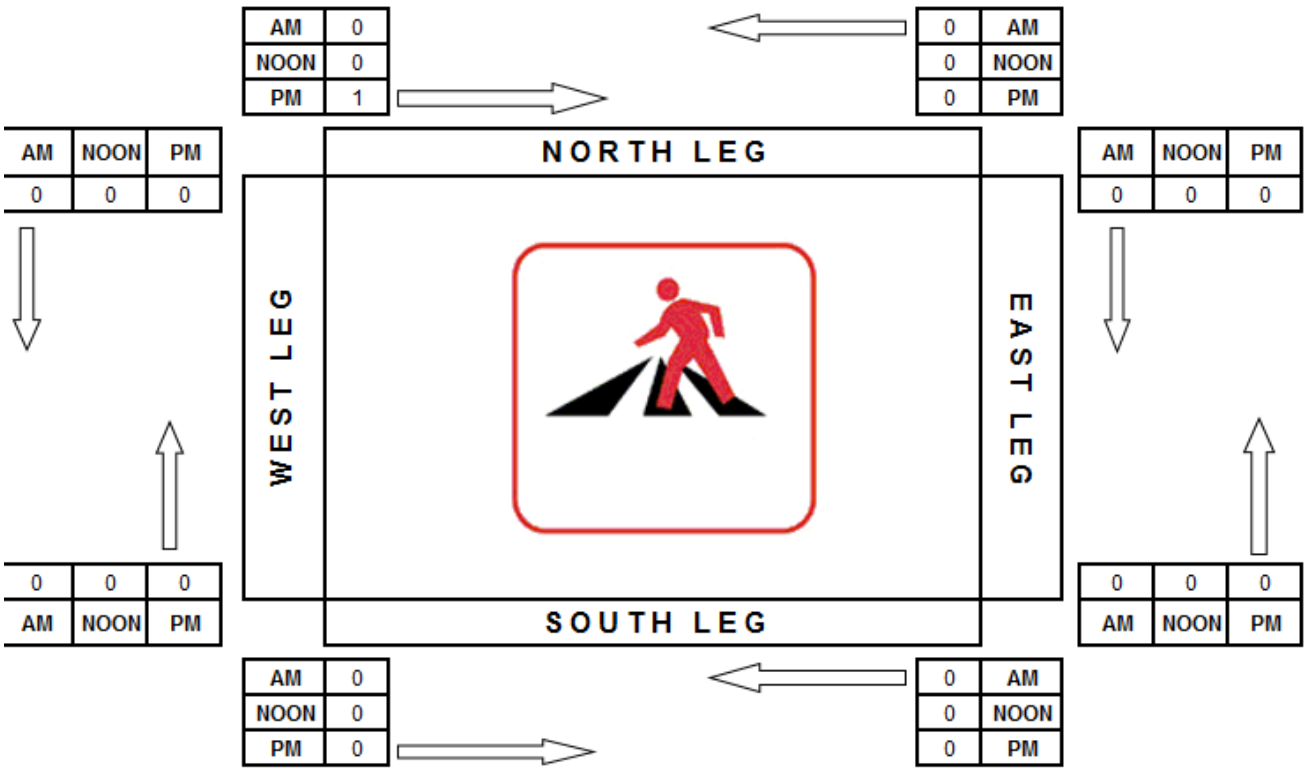
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-008
N/S Street: Plaza Goldorado Cir
E/W Street: Palmer Dr
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-008
N/S Street: Plaza Goldorado Cir
E/W Street: Palmer Dr
DATE: 11/2/2016
CITY: El Dorado County

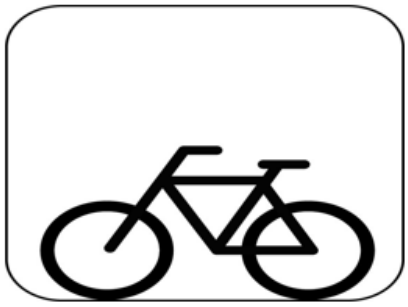
DAY: Wednesday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

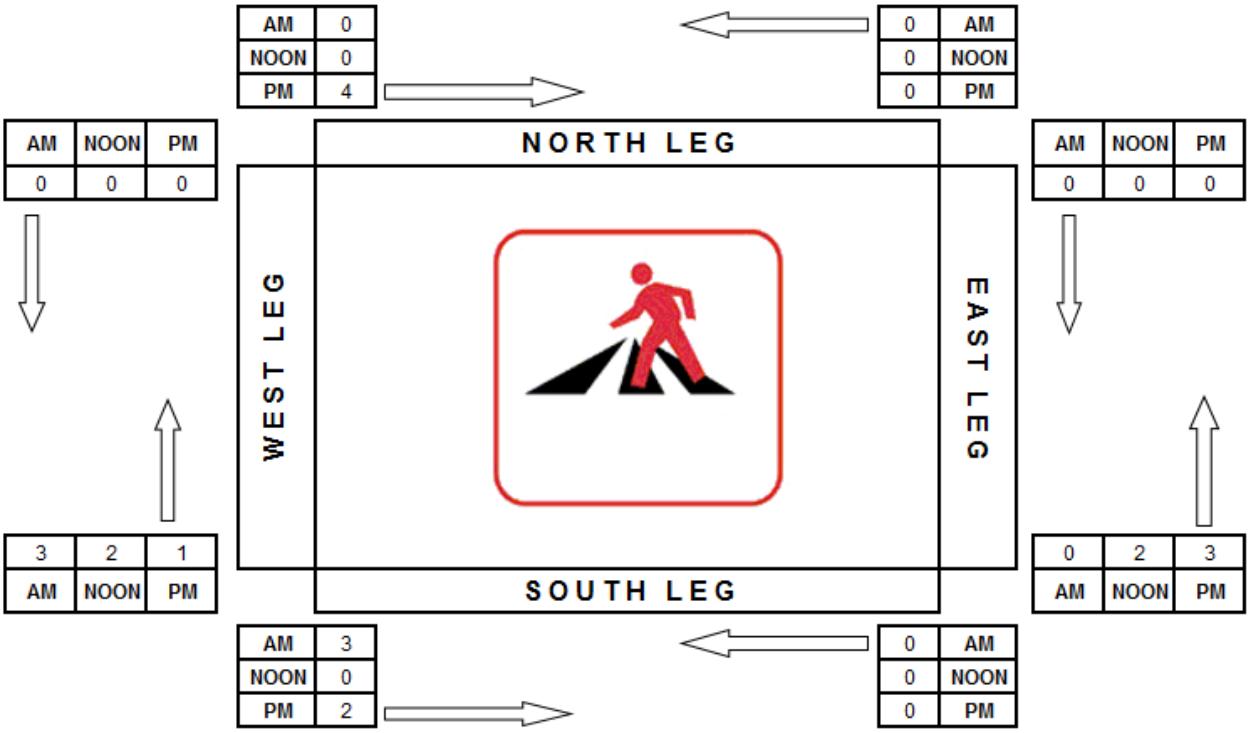
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-009
N/S Street: Cameron Park Dr
E/W Street: Green Valley Rd
DATE: 11/2/2016
DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-009
N/S Street: Cameron Park Dr
E/W Street: Green Valley Rd
DATE: 11/2/2016
CITY: El Dorado County

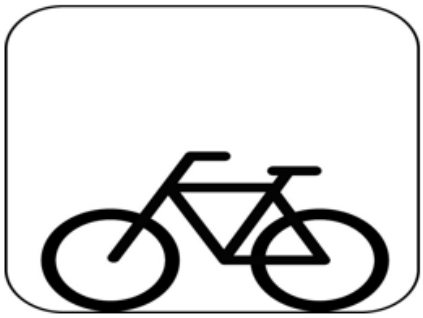
DAY: Wednesday

AM	0	0	0
NOON	1	0	0
PM	1	2	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

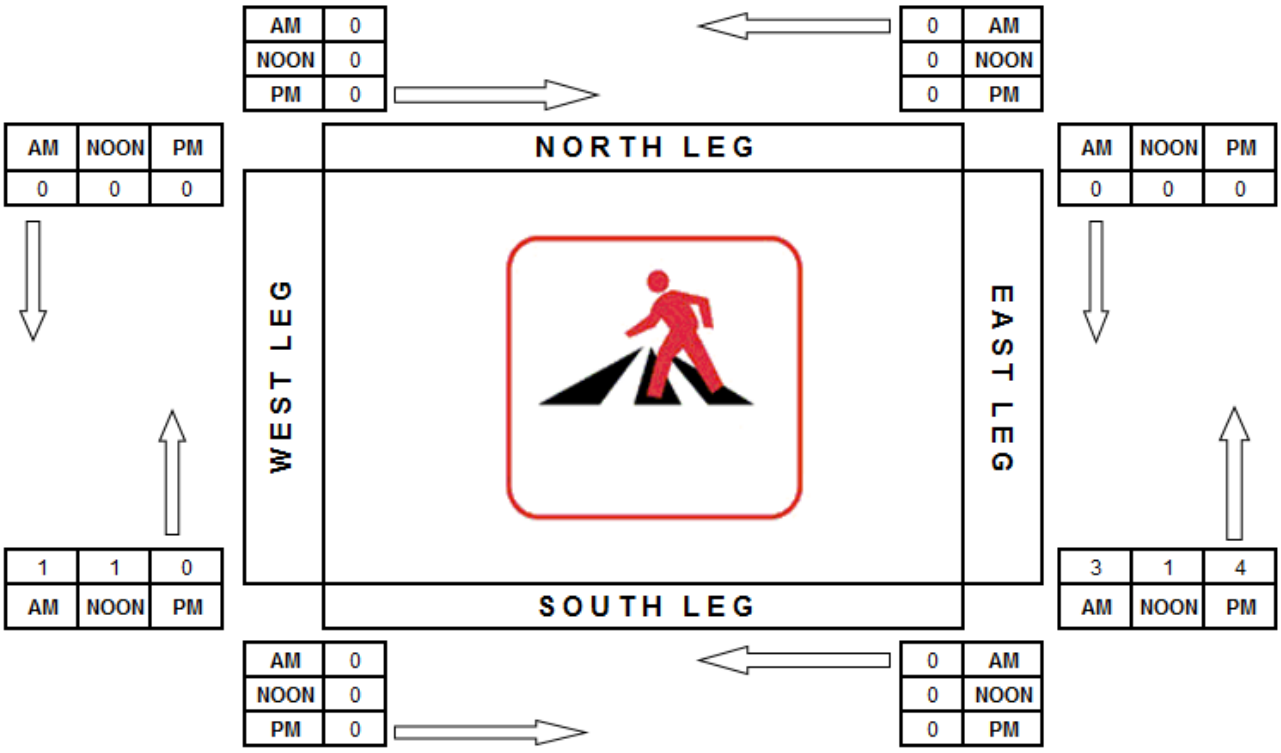
SOUTH LEG

AM	0	0	0
NOON	0	1	0
PM	0	1	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-010
N/S Street: SR 49/Pleasant Valley
E/W Street: Bet. Koki Ln & Patterson Dr
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-010
N/S Street: SR 49/Pleasant Valley
E/W Street: Bet. Koki Ln & Patterson Dr
DATE: 11/2/2016
CITY: El Dorado County

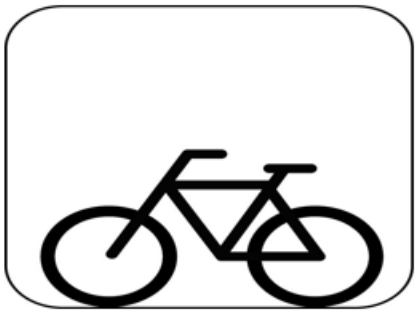
DAY: Wednesday

AM	0	0	0
NOON	0	1	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



AM	NOON	PM
0	0	0
0	0	0
0	0	0

EAST LEG

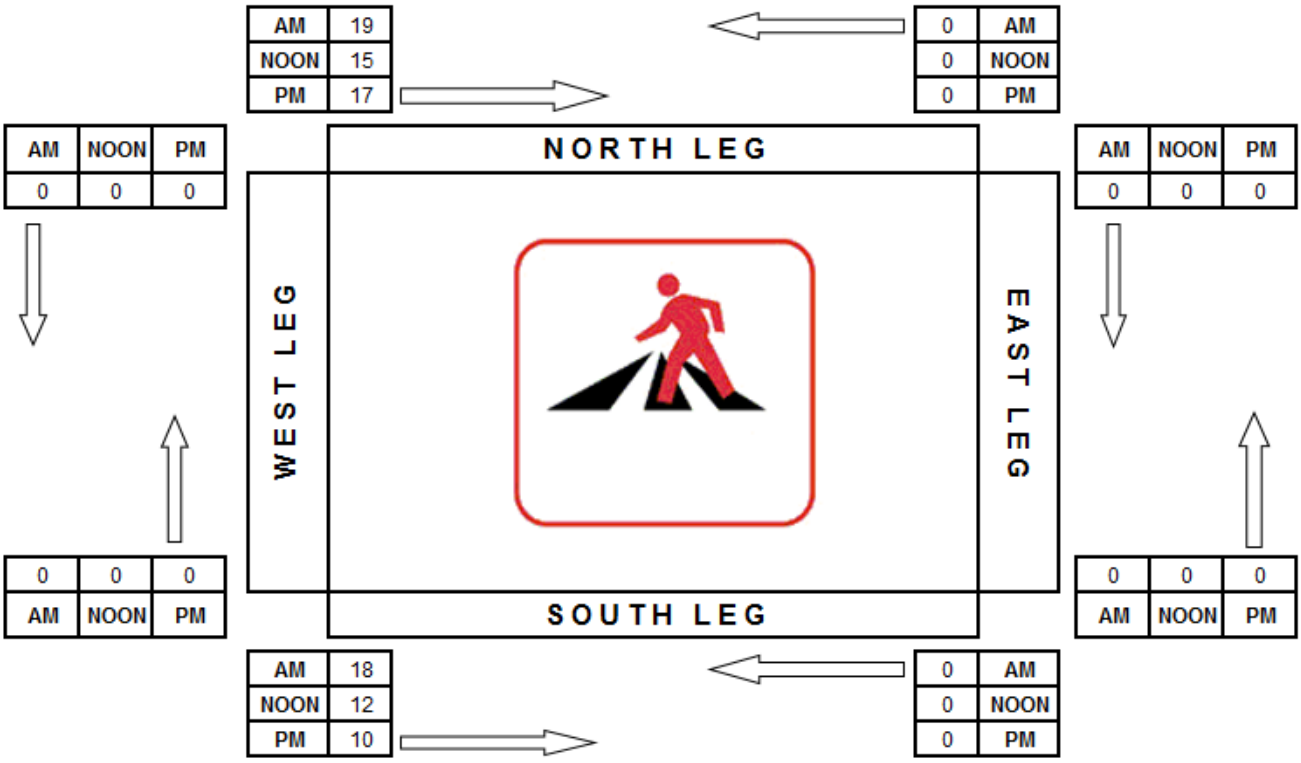
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-011
N/S Street: Schnell School Rd
E/W Street: El Dorado Trail
DATE: 11/9/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-011
N/S Street: Schnell School Rd
E/W Street: El Dorado Trail
DATE: 11/9/2016
CITY: El Dorado County

DAY: Wednesday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
2	5	3
0	0	0

WEST LEG

EAST LEG

AM	NOON	PM
0	0	1
2	3	3
0	0	0

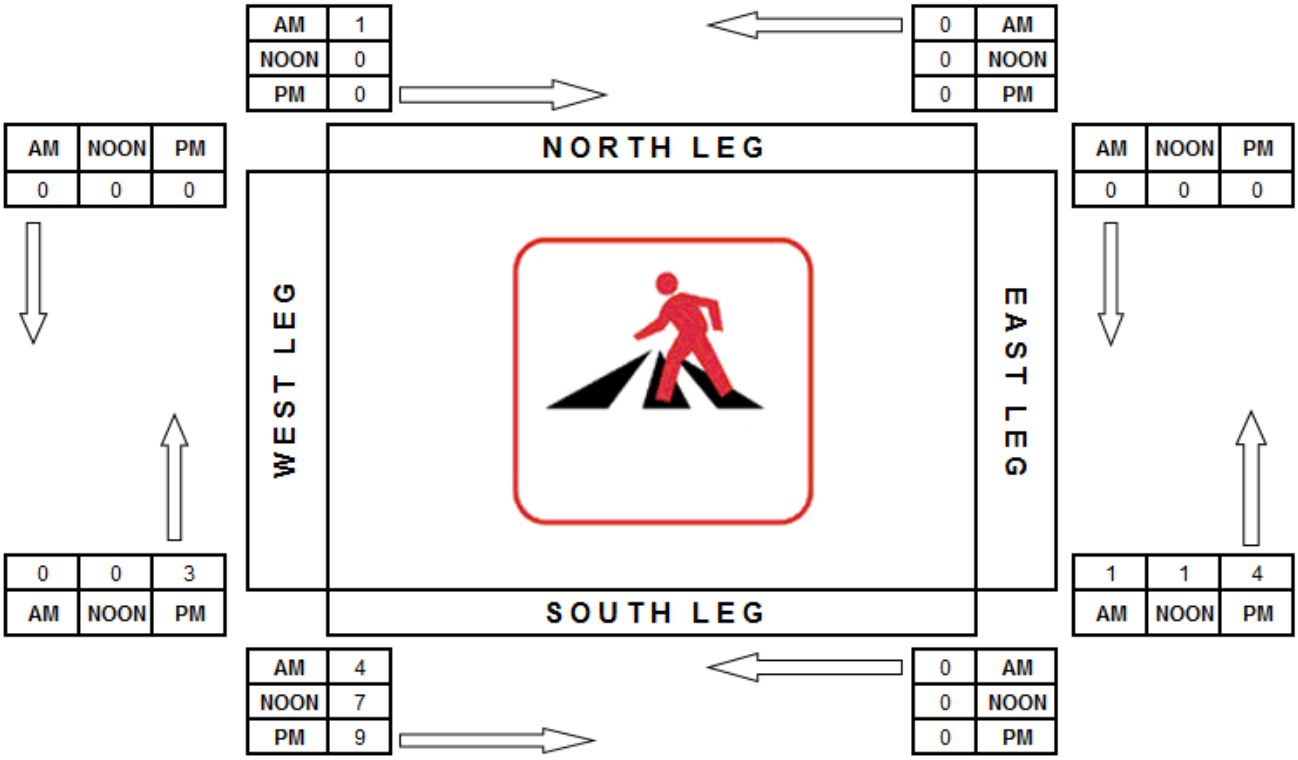
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-012
N/S Street: Forni Rd
E/W Street: El Dorado Trail
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

PROJECT#: 16-7812-012
N/S Street: Forni Rd
E/W Street: El Dorado Trail
DATE: 11/2/2016
CITY: El Dorado County

DAY: Wednesday

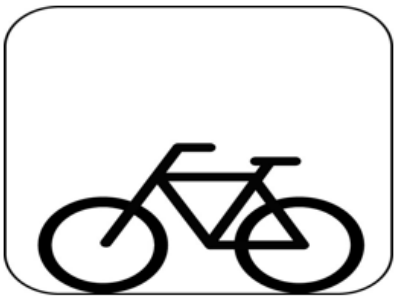
	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

AM	0	1	0
NOON	0	0	4
PM	0	0	4

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	6	4
0	0	0
0	0	0

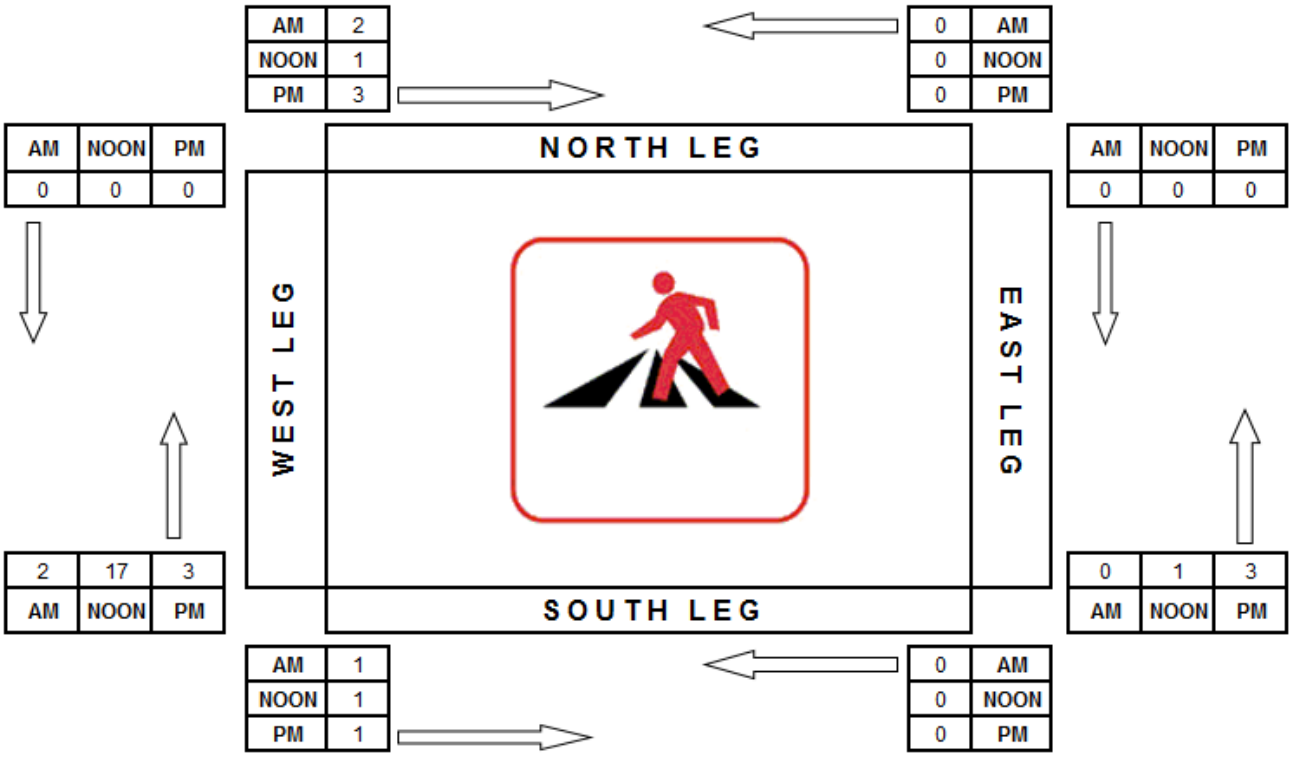
SOUTH LEG

AM	0	0	0
NOON	0	1	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-013
N/S Street: Golden Center Dr
E/W Street: Missouri Flat Rd
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-013
N/S Street: Golden Center Dr
E/W Street: Missouri Flat Rd
DATE: 11/2/2016
CITY: El Dorado County

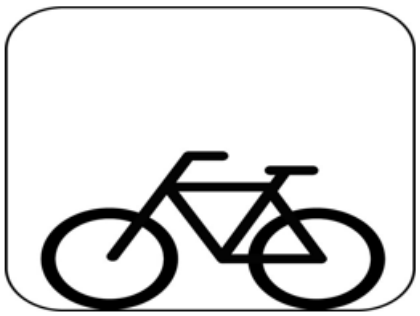
DAY: Wednesday

AM	0	0	1
NOON	0	2	0
PM	0	1	0

NORTH LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	1	0
0	1	1
0	0	0

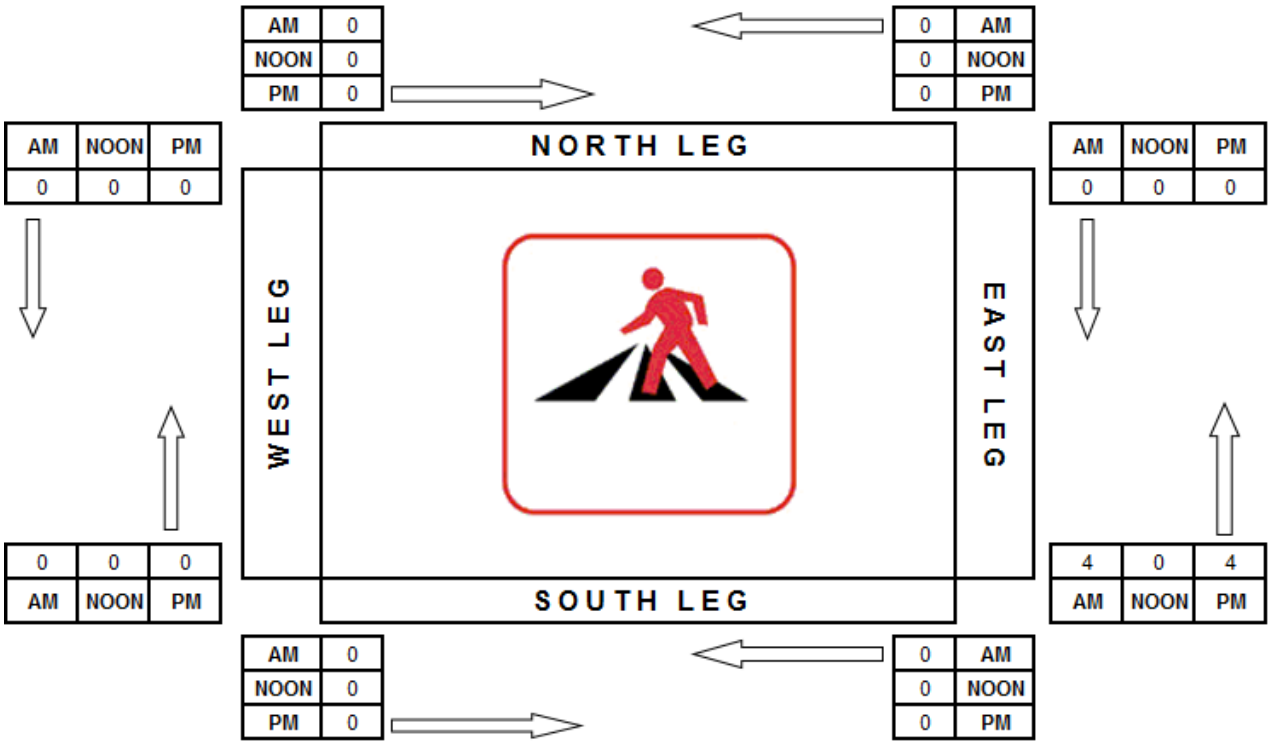
SOUTH LEG

AM	0	0	0
NOON	0	2	0
PM	1	1	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-014
N/S Street: SR 193/ Georgetown
E/W Street: Bet. South St & Prospect Hill Dr
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

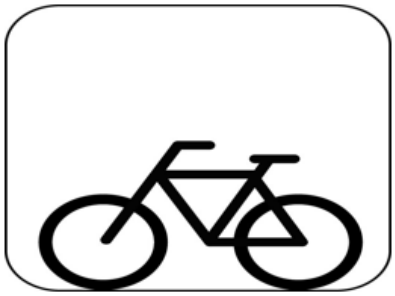
PROJECT#: 16-7812-014
N/S Street: SR 193/ Georgetown
E/W Street: Bet. South St & Prospect Hill Dr
DATE: 11/2/2016
DAY: Wednesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	1	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

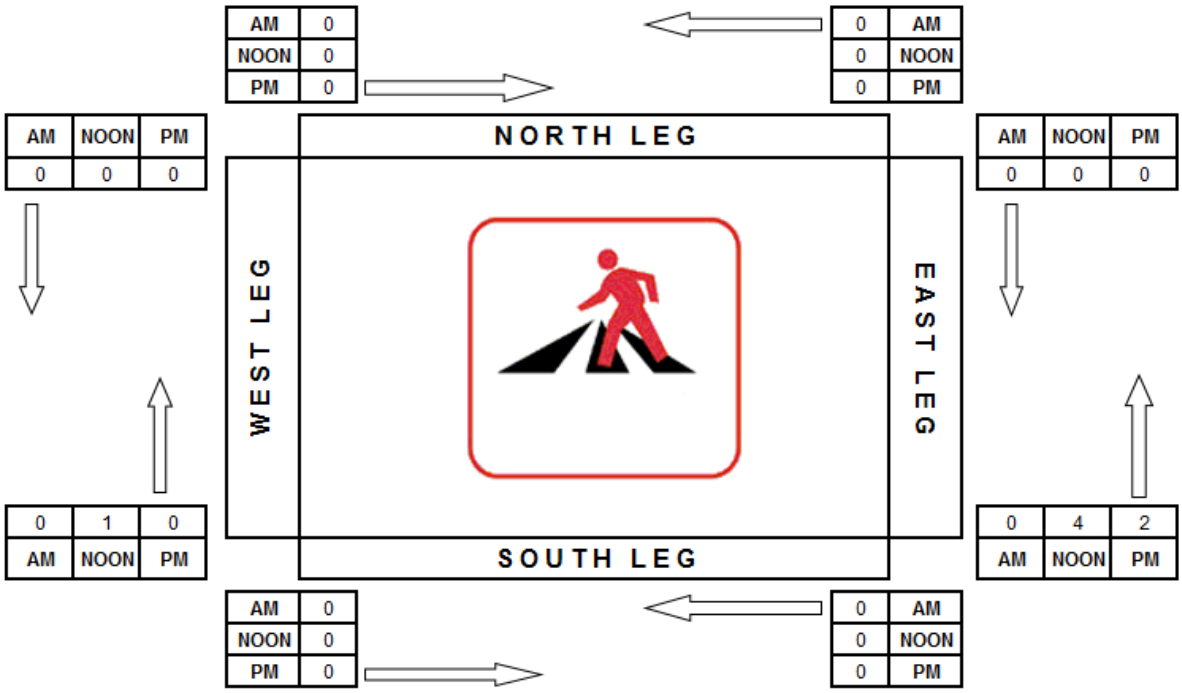
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

PROJECT#: 16-7812-015
N/S Street: SR 49/Coloma Rd
E/W Street: Bet. #2 15 SR 49/Coloma Rd Marshall Rd & Lotus Rd
DATE: 11/9/2016 DAY: Wednesday
CITY: El Dorado County

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

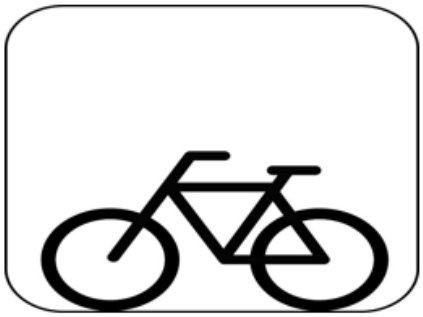
PROJECT#: 16-7812-015
N/S Street: SR 49/Coloma Rd
E/W Street: Bet. #2 15 SR 49/Coloma Rd Marshall Rd & Lotus Rd
DATE: 11/9/2016 DAY: Wednesday
CITY: El Dorado County

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

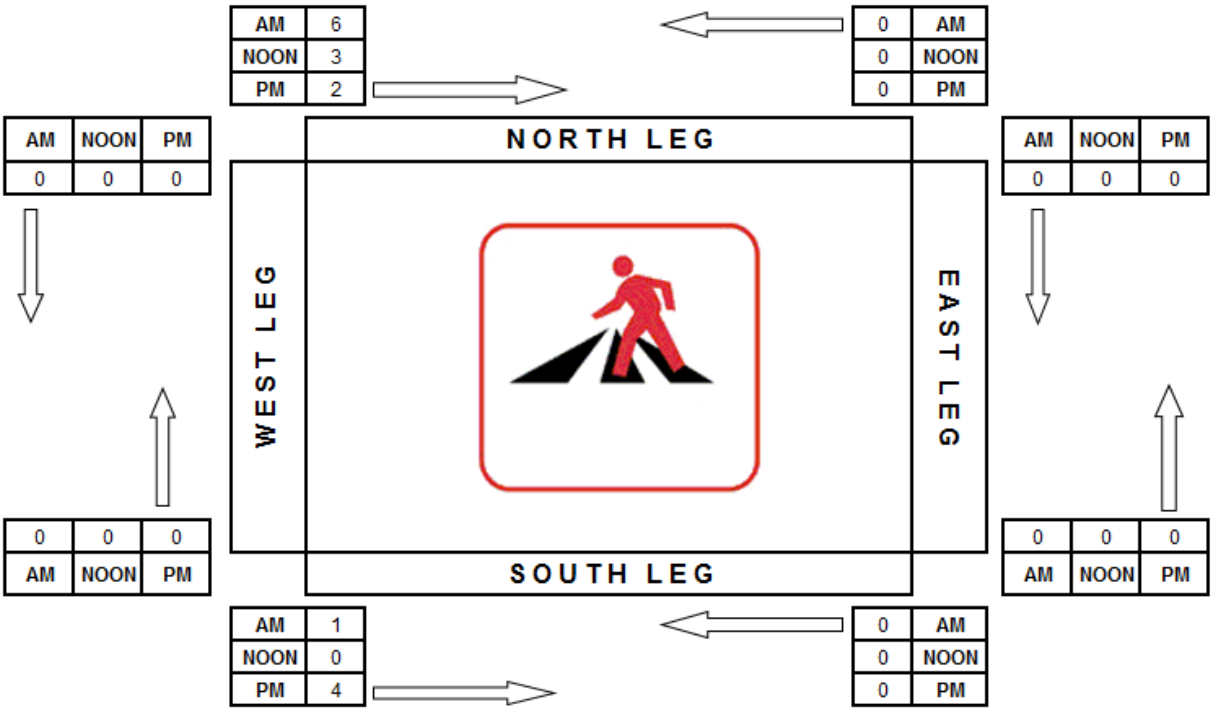
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	3	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-016
N/S Street: Pony Express Trail
E/W Street: Bet. Sanders & Sly Park Rd
DATE: 11/2/2016 DAY: Wednesday
CITY: El Dorado County



Bicycle Count Peak Hour

PROJECT#:	16-7812-016
N/S Street:	Pony Express Trail
E/W Street:	Bet. Sanders & Sly Park Rd
DATE:	11/2/2016
CITY:	El Dorado County

DAY: Wednesday

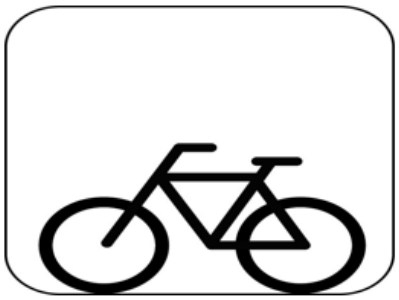
	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
1	3	1
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

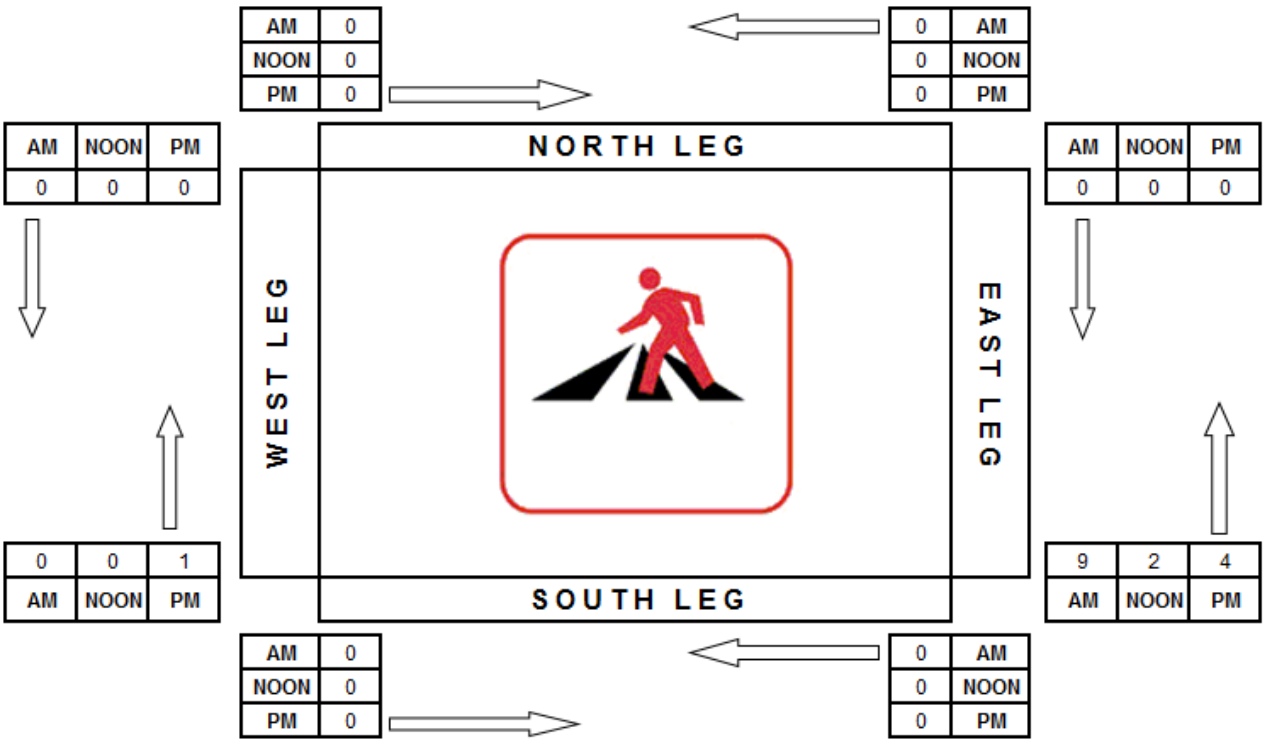
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-001
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Woedee Dr & St. Andrews Dr
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

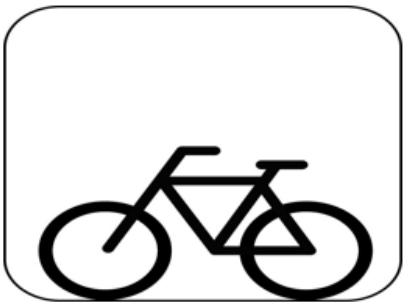
PROJECT#: 16-7812-001
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Woedee Dr & St. Andrews Dr
DATE: 11/3/2016
DAY: Thursday
CITY: El Dorado County

AM	0	1	0
NOON	0	2	0
PM	0	4	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

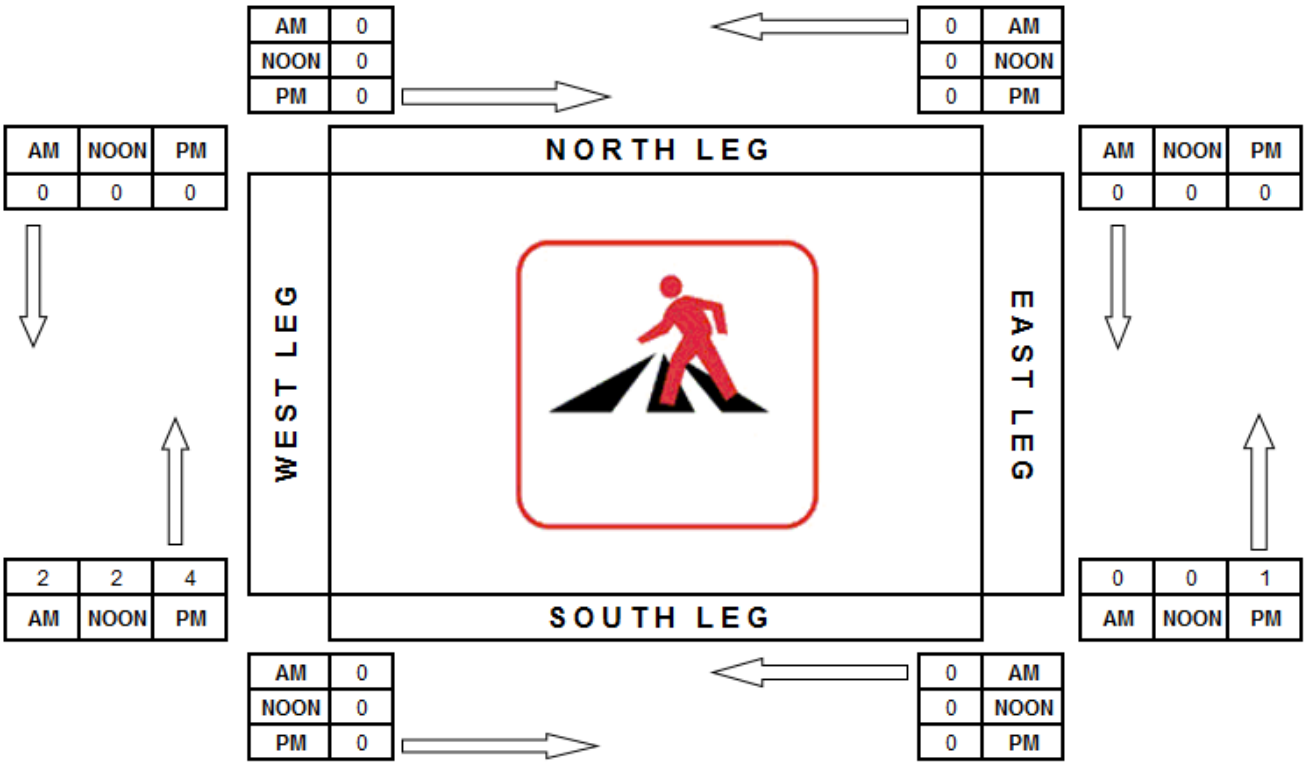
SOUTH LEG

AM	0	2	0
NOON	0	2	0
PM	0	1	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-002
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Green Valley Rd & Francisco Dr
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

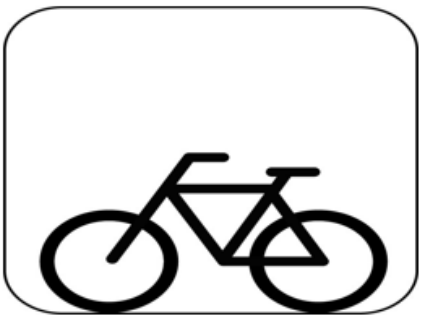
PROJECT#: 16-7812-002
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Green Valley Rd & Francisco Dr
DATE: 11/3/2016
DAY: Thursday
CITY: El Dorado County

AM	0	0	0
NOON	0	1	0
PM	0	1	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

SOUTH LEG

AM	0	0	0
NOON	0	2	0
PM	0	4	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-003
N/S Street: Green Valley Rd
E/W Street: Bet. Sophia Pkwy & Francisco Dr
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	0	1
AM	NOON	PM

SOUTH LEG

1	0	0
AM	NOON	PM

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

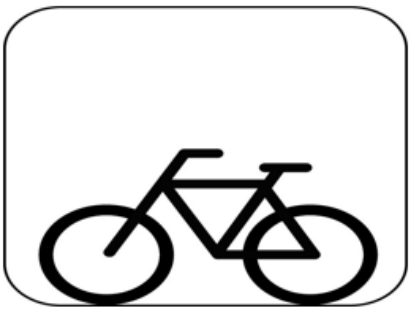
PROJECT#: 16-7812-003
N/S Street: Green Valley Rd
E/W Street: Bet. Sophia Pkwy & Francisco Dr
DATE: 11/3/2016
DAY: Thursday
CITY: El Dorado County

AM	0	0	0
NOON	7	0	0
PM	1	0	0

NORTH LEG

AM	NOON	PM
0	0	1
0	0	0
0	0	0

WEST LEG



AM	NOON	PM
0	0	0
0	0	0
0	0	0

EAST LEG

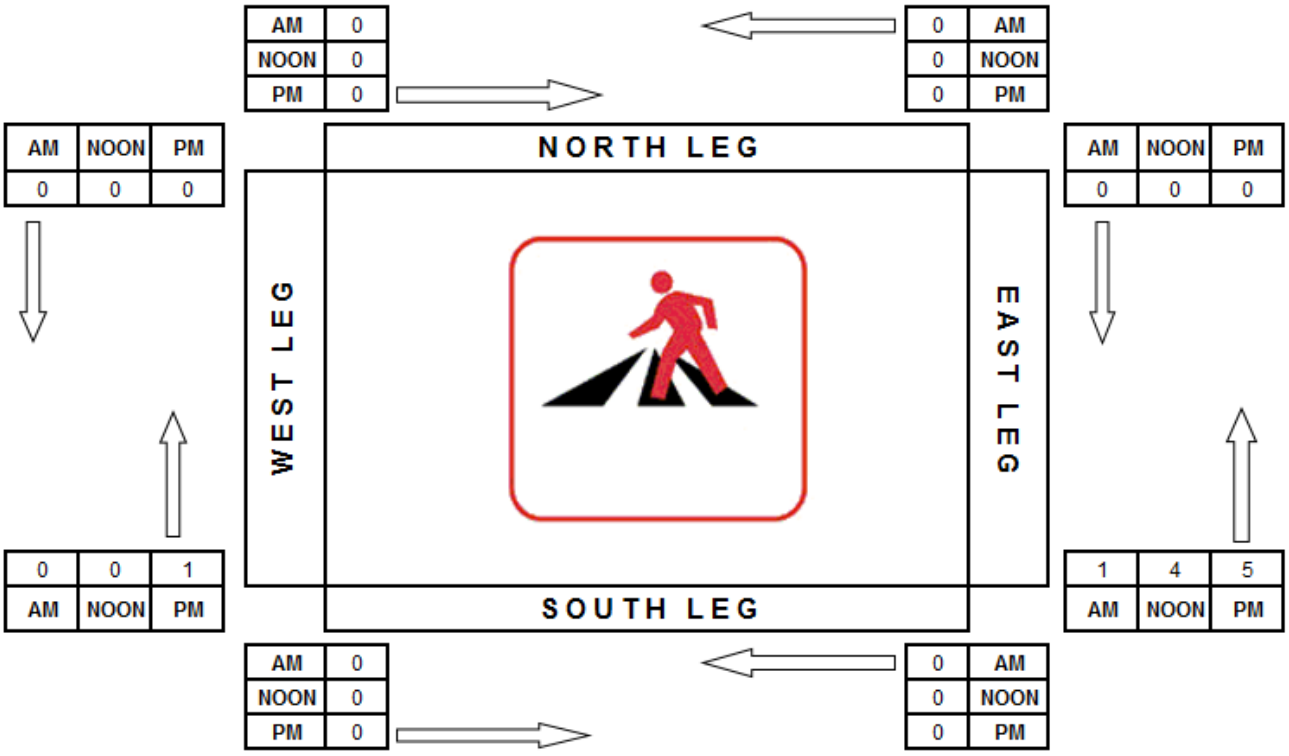
AM	0	0	0
NOON	0	0	5
PM	0	0	3

SOUTH LEG

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-004
N/S Street: Sophia Pkwy
E/W Street: Bet. Green Valley Rd & Natoma St
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-004
N/S Street: Sophia Pkwy
E/W Street: Bet. Green Valley Rd & Natoma St
DATE: 11/3/2016
CITY: El Dorado County

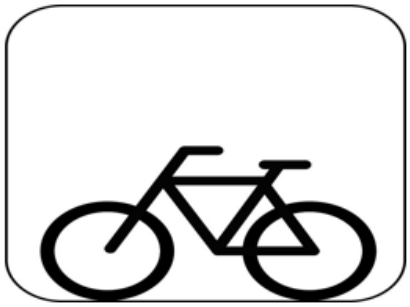
DAY: Thursday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

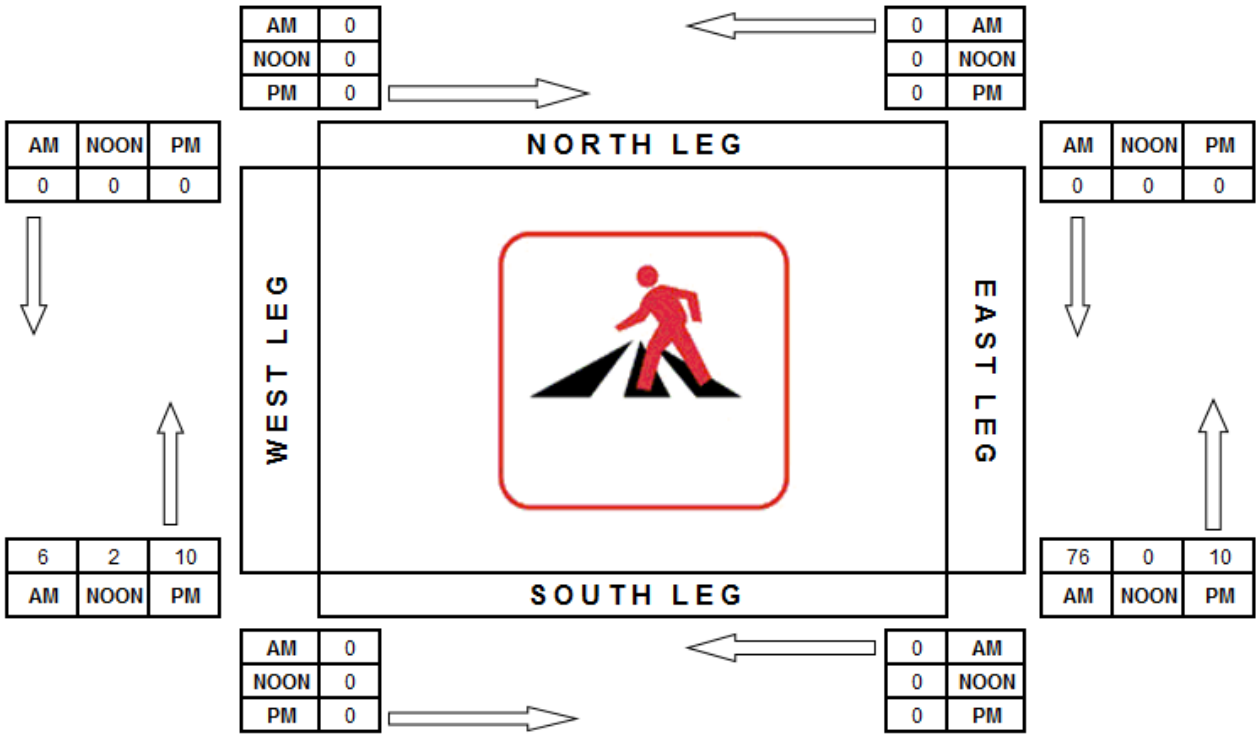
SOUTH LEG

AM	0	1	0
NOON	0	3	0
PM	0	3	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-005
N/S Street: Country Club Dr
E/W Street: Bet. El Norte Rd & Cambridge Rd
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-005
N/S Street: Country Club Dr
E/W Street: Bet. El Norte Rd & Cambridge Rd
DATE: 11/3/2016
DAY: Thursday
CITY: El Dorado County

AM	0	5	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG

EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

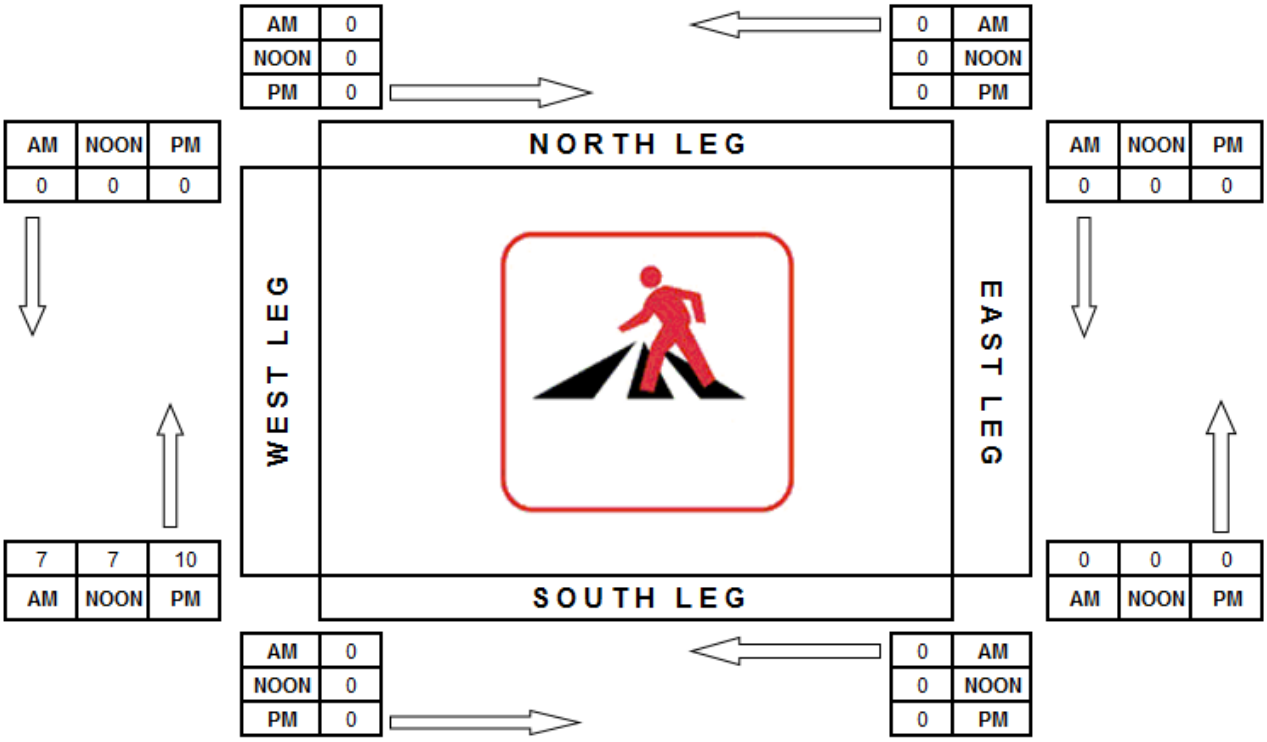
SOUTH LEG

AM	0	1	0
NOON	0	2	0
PM	0	2	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-006
N/S Street: Valley View Pkwy
E/W Street: White Rock Rd
DATE: 11/3/2016
DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-006
N/S Street: Valley View Pkwy
E/W Street: White Rock Rd
DATE: 11/3/2016
CITY: El Dorado County

DAY: Thursday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	1	1
1	0	1

WEST LEG

EAST LEG

AM	NOON	PM
0	1	4
0	0	0
2	2	0

SOUTH LEG

AM	0	0	0
NOON	0	0	2
PM	1	1	2

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-007
N/S Street: Post St
E/W Street: White Rock Rd
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County

AM	2
NOON	3
PM	1

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

3	2	3
AM	NOON	PM

0	0	0
AM	NOON	PM

SOUTH LEG

AM	0
NOON	2
PM	10

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-007
N/S Street: Post St
E/W Street: White Rock Rd
DATE: 11/3/2016
CITY: El Dorado County

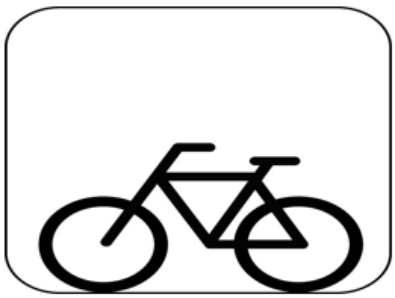
DAY: Thursday

AM	0	0	0
NOON	1	1	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	1	1
1	2	1
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	2	1
0	0	0

SOUTH LEG

AM	0	0	1
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-008
N/S Street: Plaza Goldorado Cir
E/W Street: Palmer Dr
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County

AM	0
NOON	1
PM	2

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	0	0
AM	NOON	PM

SOUTH LEG

0	0	0
AM	NOON	PM

AM	0
NOON	1
PM	1

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-008
N/S Street: Plaza Goldorado Cir
E/W Street: Palmer Dr
DATE: 11/3/2016
CITY: El Dorado County

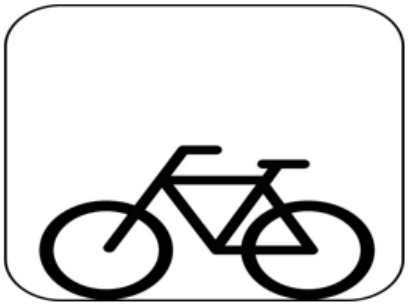
DAY: Thursday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

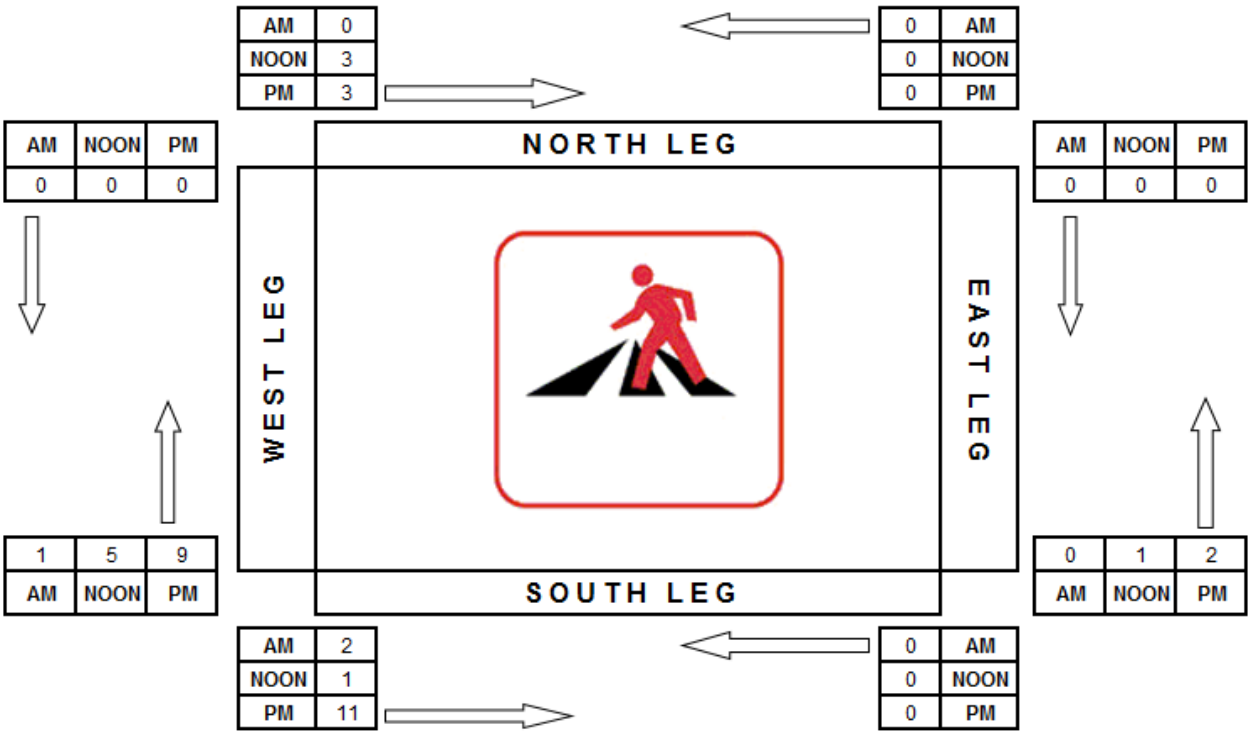
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-009
N/S Street: Cameron Park Dr
E/W Street: Green Valley Rd
DATE: 11/3/2016
DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

PROJECT#: 16-7812-009
N/S Street: Cameron Park Dr
E/W Street: Green Valley Rd
DATE: 11/3/2016
CITY: El Dorado County

DAY: Thursday

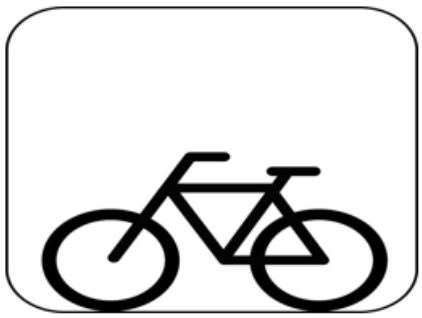
	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

AM	0	0	0
NOON	0	0	0
PM	1	0	0

NORTH LEG

AM	NOON	PM
0	5	0
0	0	1
0	0	1

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	1
0	0	0

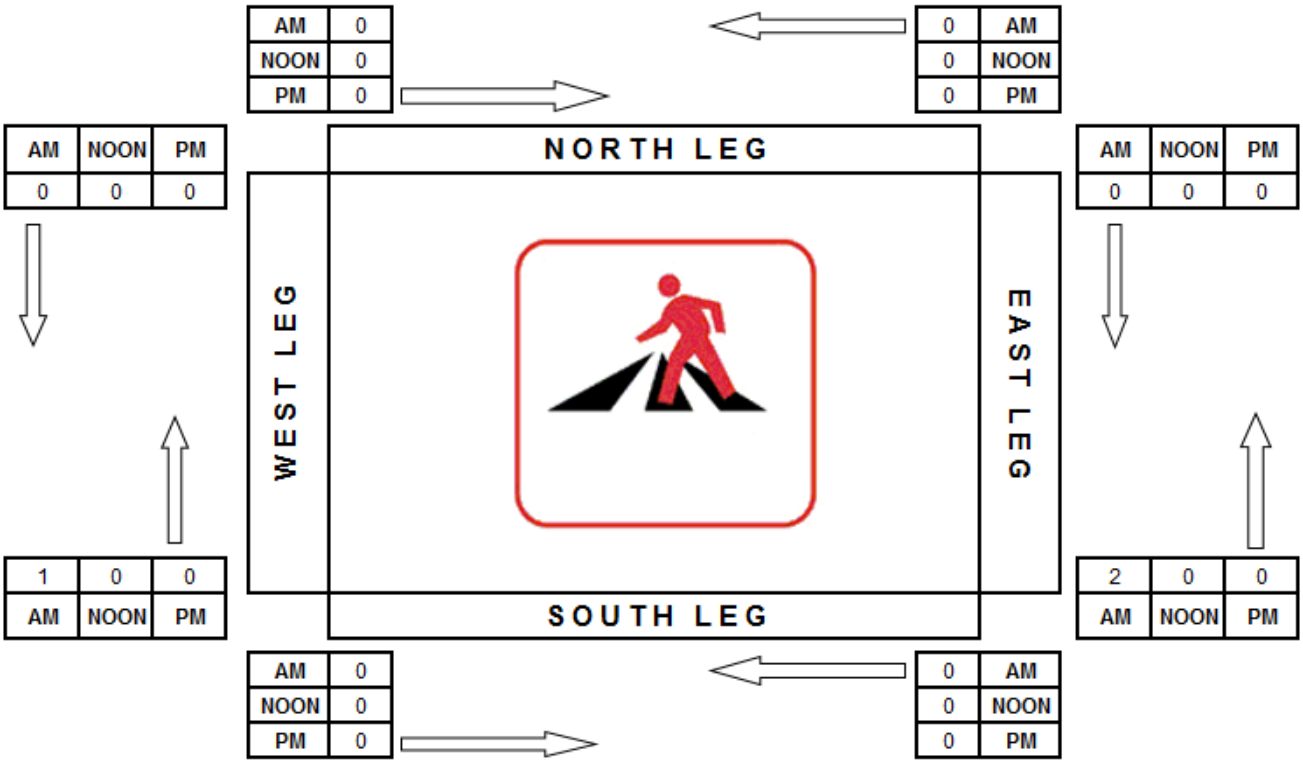
SOUTH LEG

AM	0	0	0
NOON	1	1	0
PM	0	1	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-010
N/S Street: SR 49/Pleasant Valley
E/W Street: Bet. Koki Ln & Patterson Dr
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-010
N/S Street: SR 49/Pleasant Valley
E/W Street: Bet. Koki Ln & Patterson Dr
DATE: 11/3/2016
CITY: El Dorado County

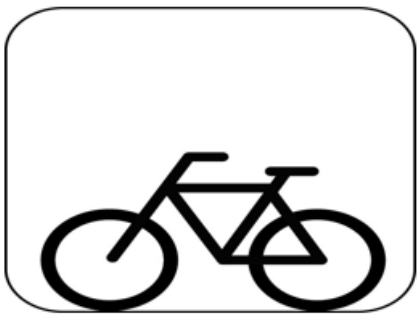
DAY: Thursday

AM	0	1	0
NOON	0	0	0
PM	0	1	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

SOUTH LEG

AM	0	0	0
NOON	0	1	0
PM	0	2	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-011
N/S Street: Schnell School Rd
E/W Street: El Dorado Trail
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County

AM	8
NOON	11
PM	14

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	0	0
AM	NOON	PM

0	0	0
AM	NOON	PM

SOUTH LEG

AM	7
NOON	12
PM	12

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-011
N/S Street: Schnell School Rd
E/W Street: El Dorado Trail
DATE: 11/3/2016
CITY: El Dorado County

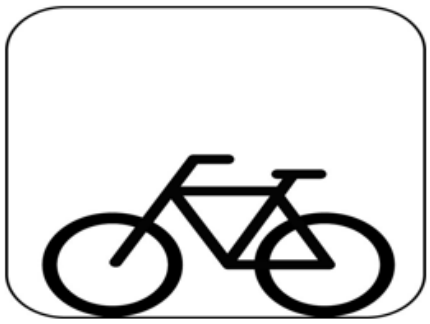
DAY: Thursday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
1	2	9
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
1	4	5
0	0	0

SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-012
N/S Street: Forni Rd
E/W Street: El Dorado Trail
DATE: 11/3/2016
DAY: Thursday
CITY: El Dorado County

AM	0
NOON	1
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

1	2	2
AM	NOON	PM

SOUTH LEG

1	1	3
AM	NOON	PM

AM	2
NOON	6
PM	4

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

PROJECT#:	16-7812-012
N/S Street:	Forni Rd
E/W Street:	El Dorado Trail
DATE:	11/3/2016
CITY:	El Dorado County

DAY: Thursday

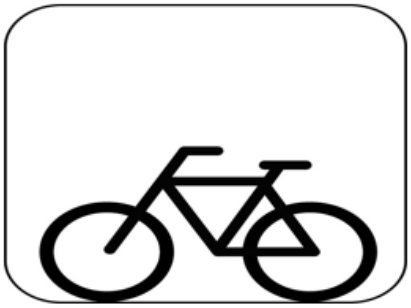
	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

AM	0	2	0
NOON	0	1	6
PM	0	0	9

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	1	6
0	0	0
0	1	0

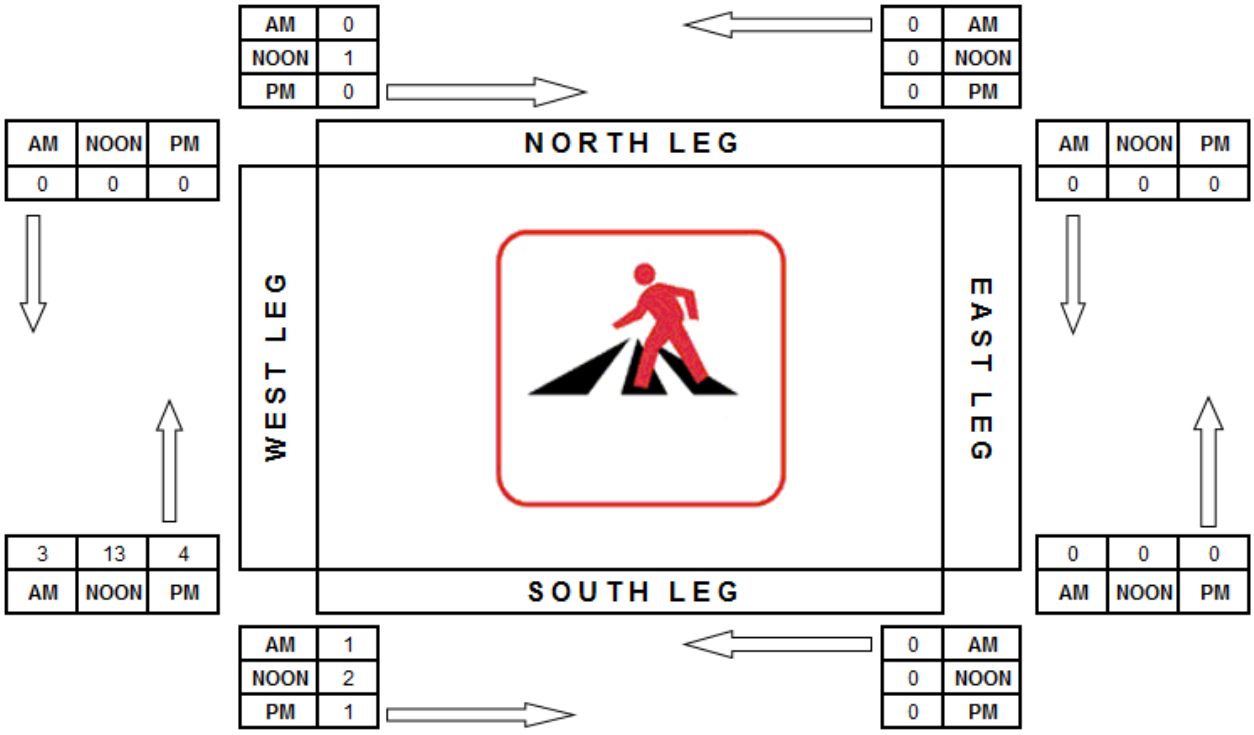
SOUTH LEG

AM	0	0	1
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-013
N/S Street: Golden Center Dr
E/W Street: Missouri Flat Rd
DATE: 11/3/2016
DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-013
N/S Street: Golden Center Dr
E/W Street: Missouri Flat Rd
DATE: 11/3/2016
CITY: El Dorado County

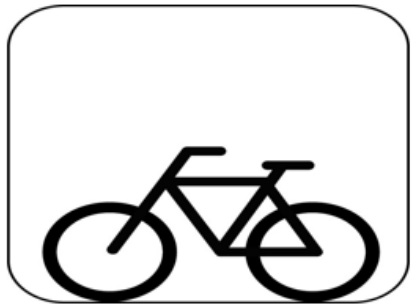
DAY: Thursday

AM	0	0	0
NOON	0	0	1
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	1	2
0	1	1
1	2	0

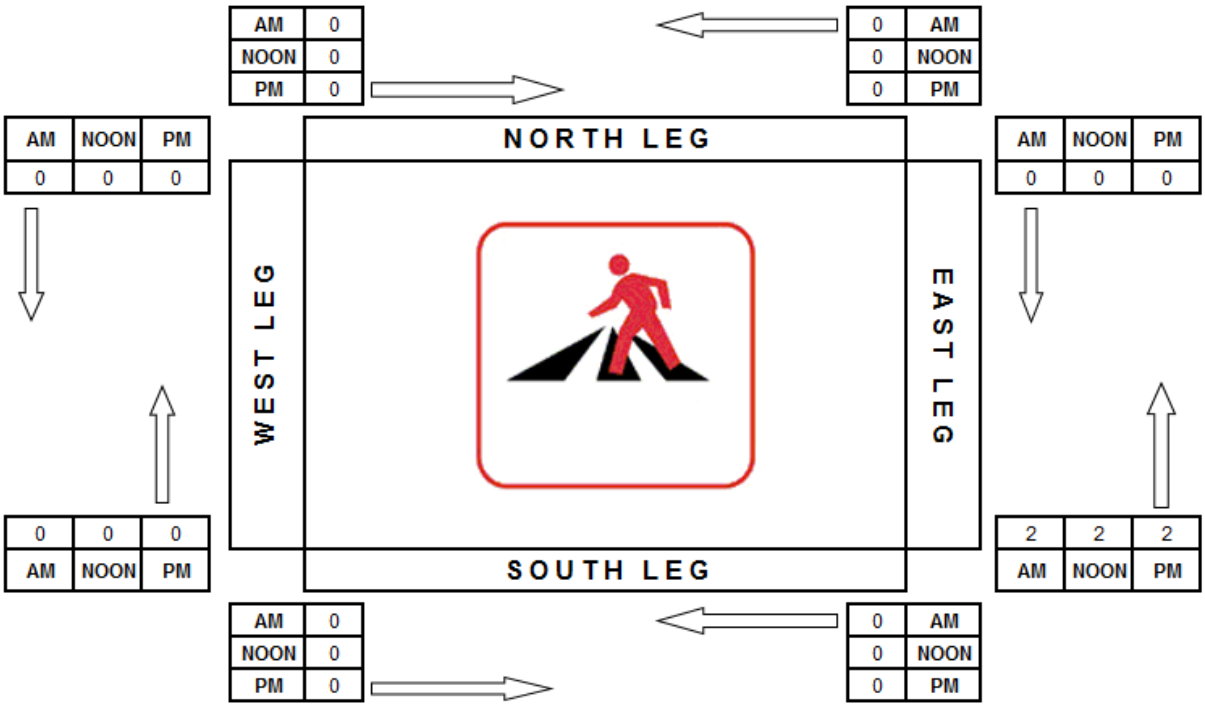
SOUTH LEG

AM	0	0	0
NOON	0	0	1
PM	0	0	1

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-014
N/S Street: SR 193/ Georgetown
E/W Street: Bet. South St & Prospect Hill Dr
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-014
N/S Street: SR 193/ Georgetown
E/W Street: Bet. South St & Prospect Hill Dr
DATE: 11/3/2016
CITY: El Dorado County

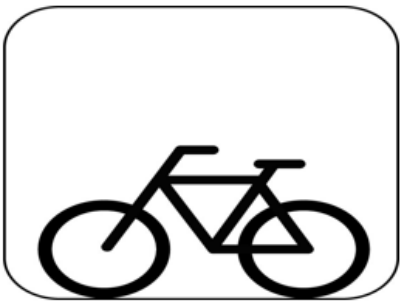
DAY: Thursday

AM	0	0	0
NOON	0	0	0
PM	0	1	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

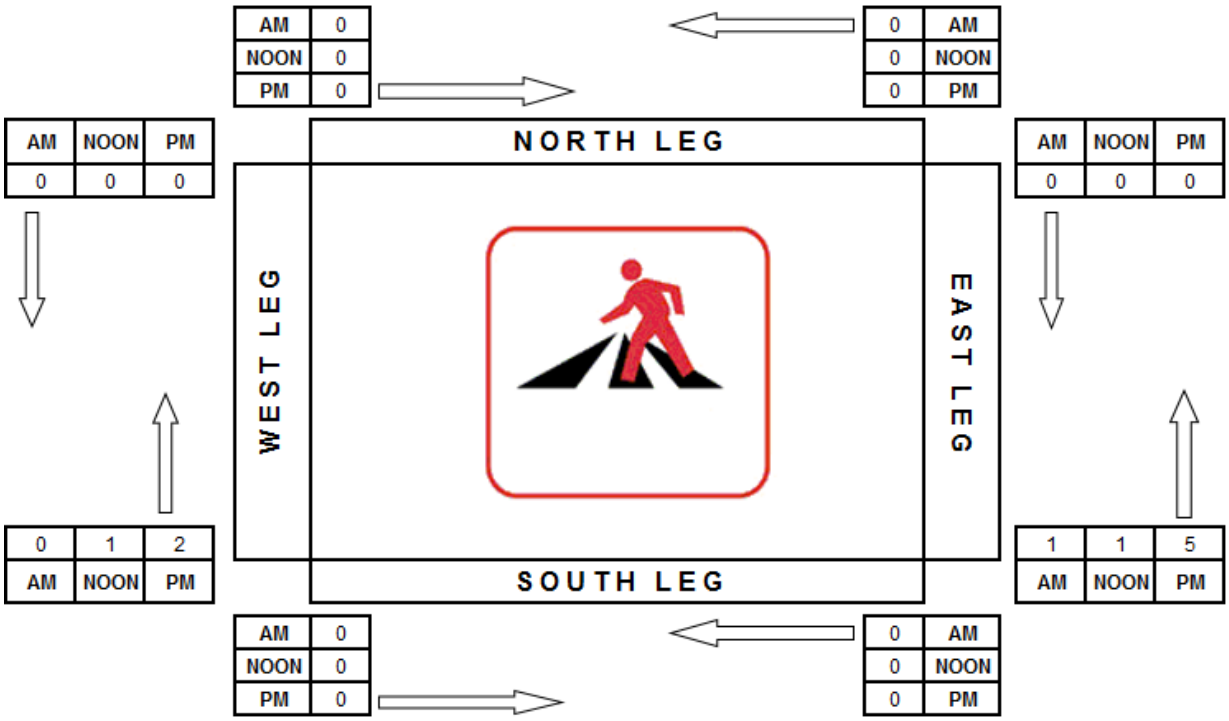
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	1	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-015
N/S Street: SR 49/Coloma Rd
E/W Street: Bet. #2 15 SR 49/Coloma Rd Marshall Rd & Lotus Rd
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County



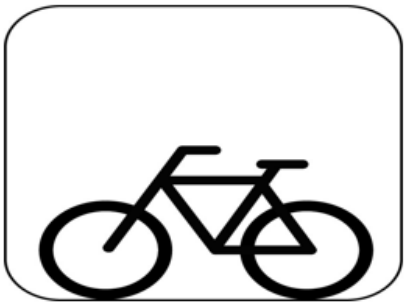
Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-015
N/S Street: SR 49/Coloma Rd
E/W Street: Bet. #2 15 SR 49/Coloma Rd Marshall Rd & Lotus Rd
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County

AM	0	0	0
NOON	0	1	0
PM	0	0	0

NORTH LEG



AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

EAST LEG

SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-016
N/S Street: Pony Express Trail
E/W Street: Bet. Sanders & Sly Park Rd
DATE: 11/3/2016 DAY: Thursday
CITY: El Dorado County

AM	5
NOON	2
PM	8

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	0	0
AM	NOON	PM

SOUTH LEG

0	0	0
AM	NOON	PM

AM	4
NOON	3
PM	9

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM	7:00	9:00
NOON	12:00	14:00
PM	16:00	18:00

PROJECT#: 16-7812-016
N/S Street: Pony Express Trail
E/W Street: Bet. Sanders & Sly Park Rd
DATE: 11/3/2016
CITY: El Dorado County

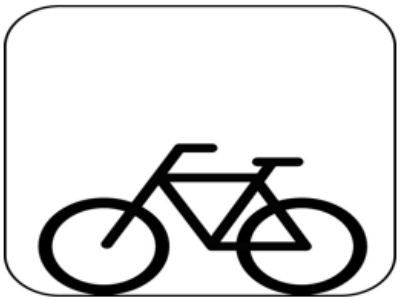
DAY: Thursday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	2	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

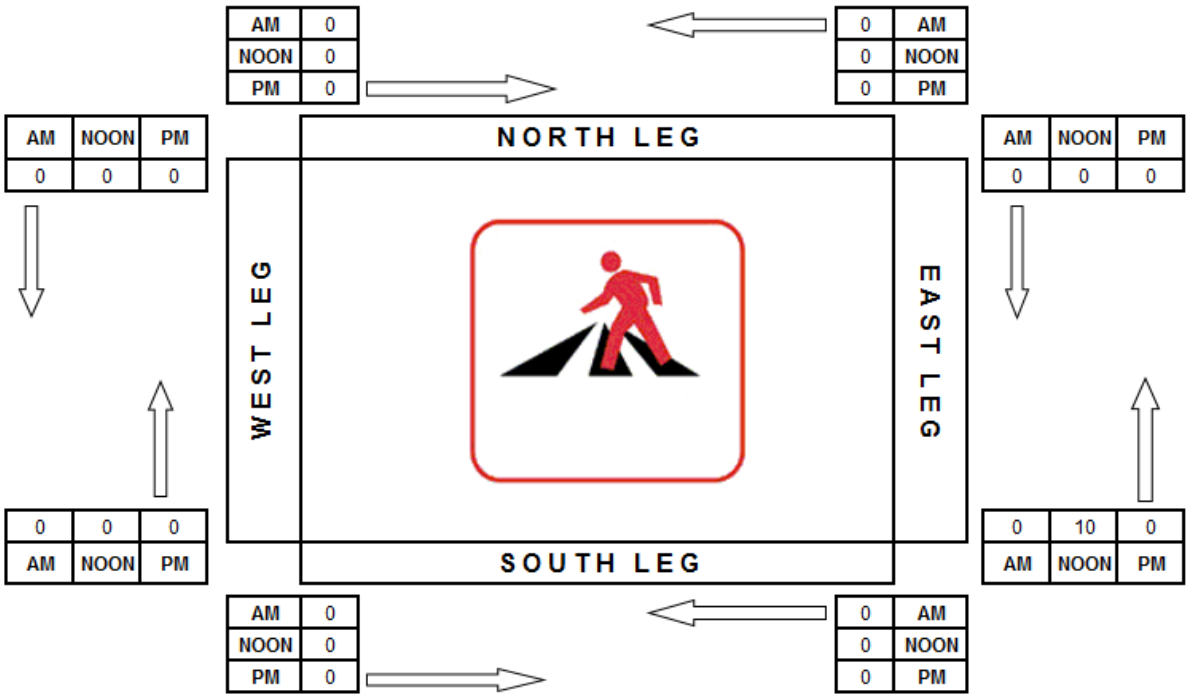
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-001
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Woedee Dr & St. Andrews Dr
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

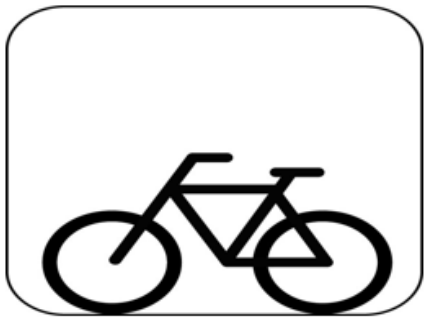
PROJECT#: 16-7812-001
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Woodee Dr & St. Andrews Dr
DATE: 11/5/2016
DAY: Saturday
CITY: El Dorado County

AM	0	0	0
NOON	0	4	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

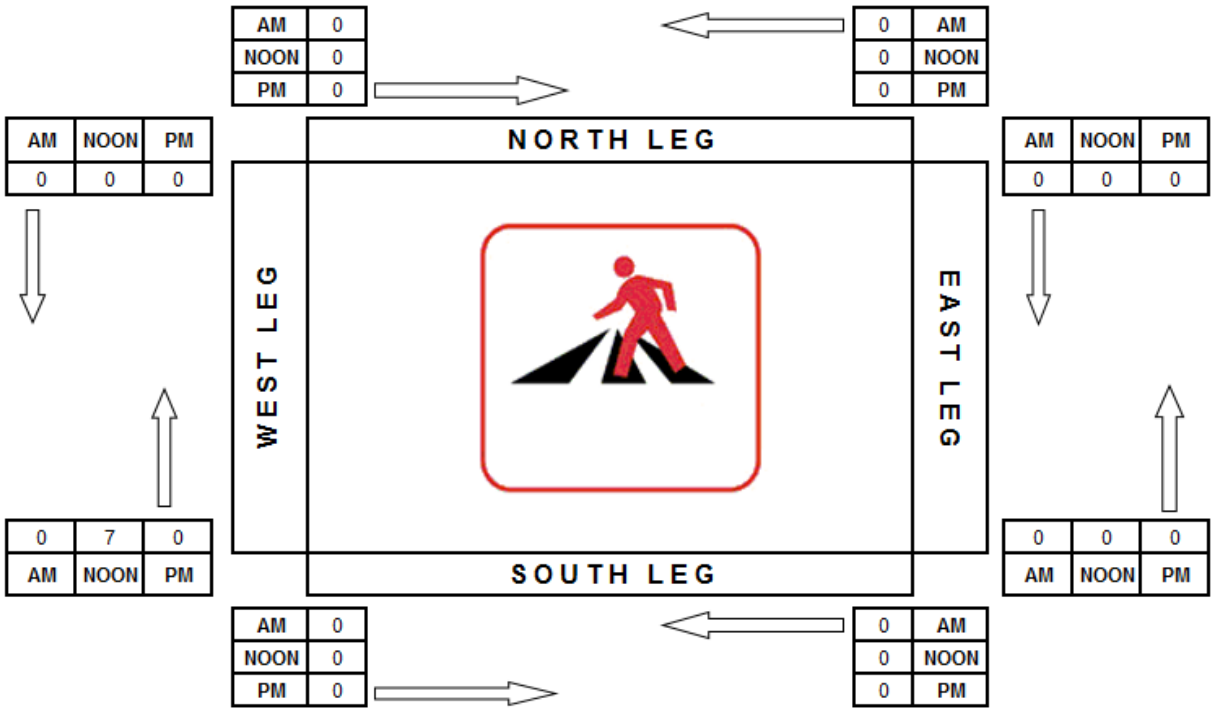
SOUTH LEG

AM	0	0	0
NOON	0	3	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-002
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Green Valley Rd & Francisco Dr
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

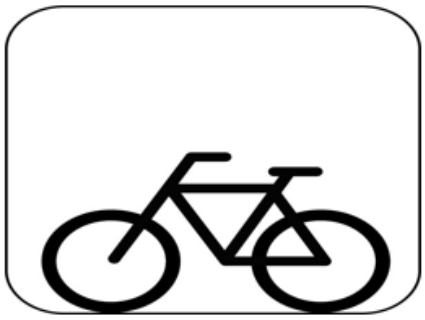
PROJECT#: 16-7812-002
N/S Street: El Dorado Hills Blvd
E/W Street: Bet. Green Valley Rd & Francisco Dr
DATE: 11/5/2016
DAY: Saturday
CITY: El Dorado County

AM	0	0	0
NOON	0	5	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

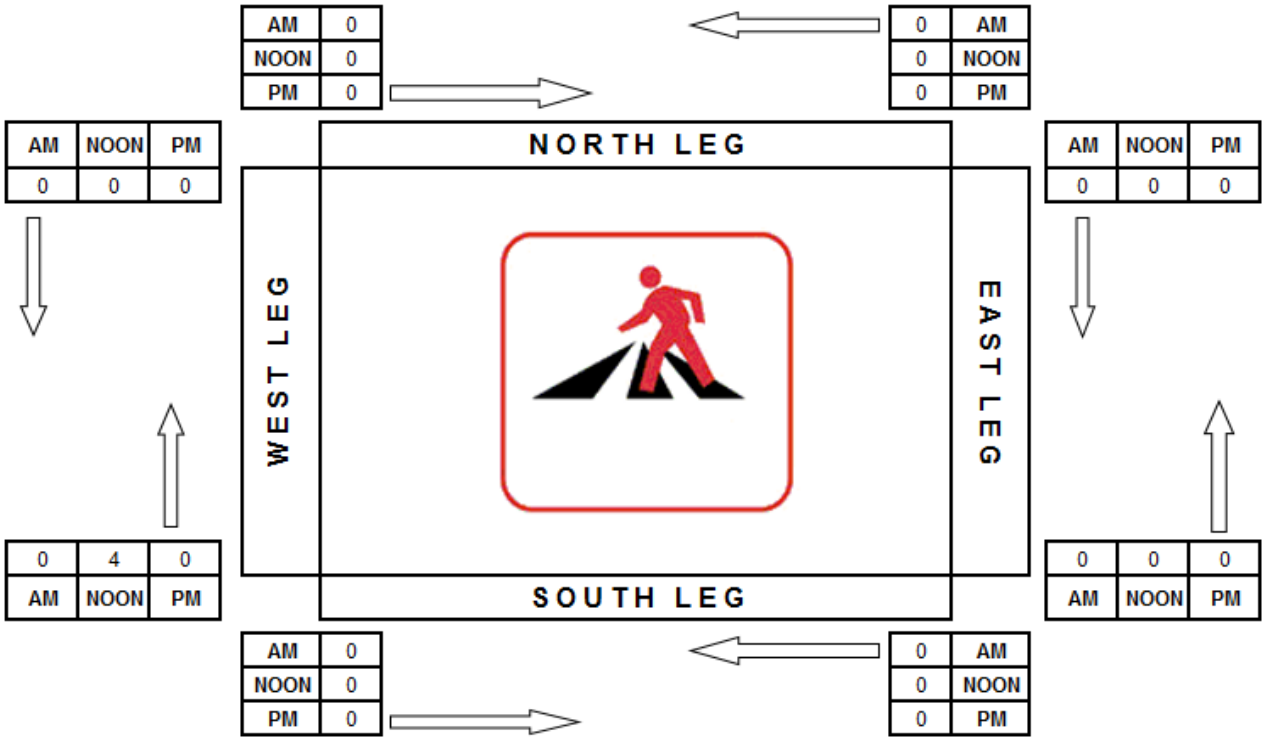
SOUTH LEG

AM	0	0	0
NOON	0	4	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-003
N/S Street: Green Valley Rd
E/W Street: Bet. Sophia Pkwy & Francisco Dr
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-003
N/S Street: Green Valley Rd
E/W Street: Bet. Sophia Pkwy & Francisco Dr
DATE: 11/5/2016
CITY: El Dorado County

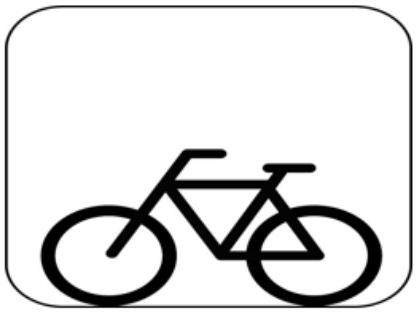
DAY: Saturday

AM	0	0	0
NOON	0	7	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



AM	NOON	PM
0	0	0
0	0	0
0	0	0

EAST LEG

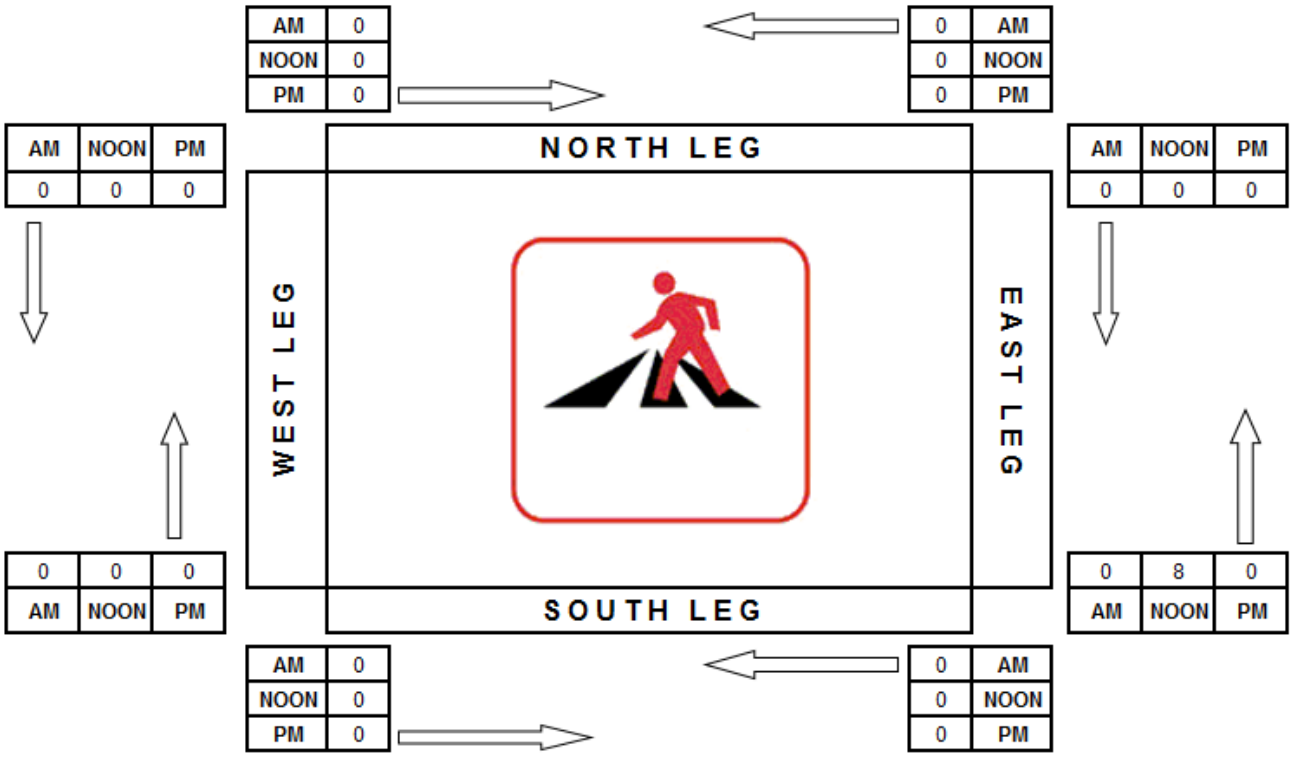
SOUTH LEG

AM	0	0	0
NOON	0	21	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-004
N/S Street: Sophia Pkwy
E/W Street: Bet. Green Valley Rd & Natoma St
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

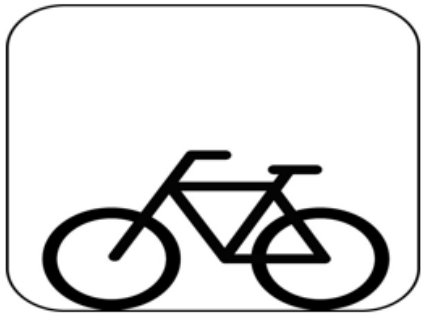
PROJECT#: 16-7812-004
N/S Street: Sophia Pkwy
E/W Street: Bet. Green Valley Rd & Natoma St
DATE: 11/5/2016
DAY: Saturday
CITY: El Dorado County

AM	0	0	0
NOON	0	9	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

SOUTH LEG

AM	0	0	0
NOON	0	3	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-005
N/S Street: Country Club Dr
E/W Street: Bet. El Norte Rd & Cambridge Rd
DATE: 11/12/2016 DAY: Saturday
CITY: El Dorado County

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	4	0
AM	NOON	PM

SOUTH LEG

0	34	0
AM	NOON	PM

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

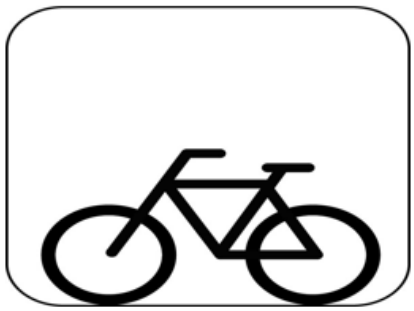
PROJECT#: 16-7812-005
N/S Street: Country Club Dr
E/W Street: Bet. El Norte Rd & Cambridge Rd
DATE: 11/12/2016 DAY: Saturday
CITY: El Dorado County

AM	0	0	0
NOON	0	1	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



AM	NOON	PM
0	0	0
0	0	0
0	0	0

EAST LEG

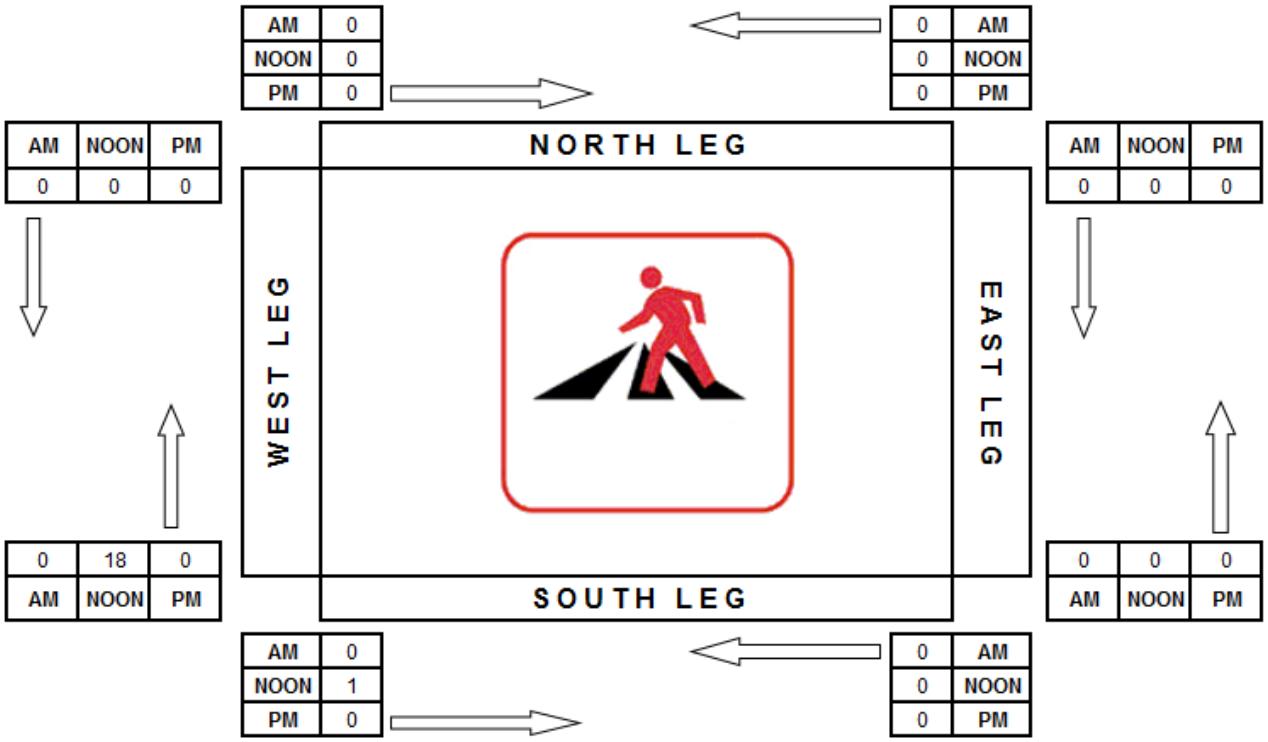
SOUTH LEG

AM	0	0	0
NOON	0	1	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-006
N/S Street: Valley View Pkwy
E/W Street: White Rock Rd
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-006
N/S Street: Valley View Pkwy
E/W Street: White Rock Rd
DATE: 11/5/2016
CITY: El Dorado County

DAY: Saturday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	2	0
0	0	0

WEST LEG

EAST LEG

AM	NOON	PM
0	0	0
0	1	0
0	4	0

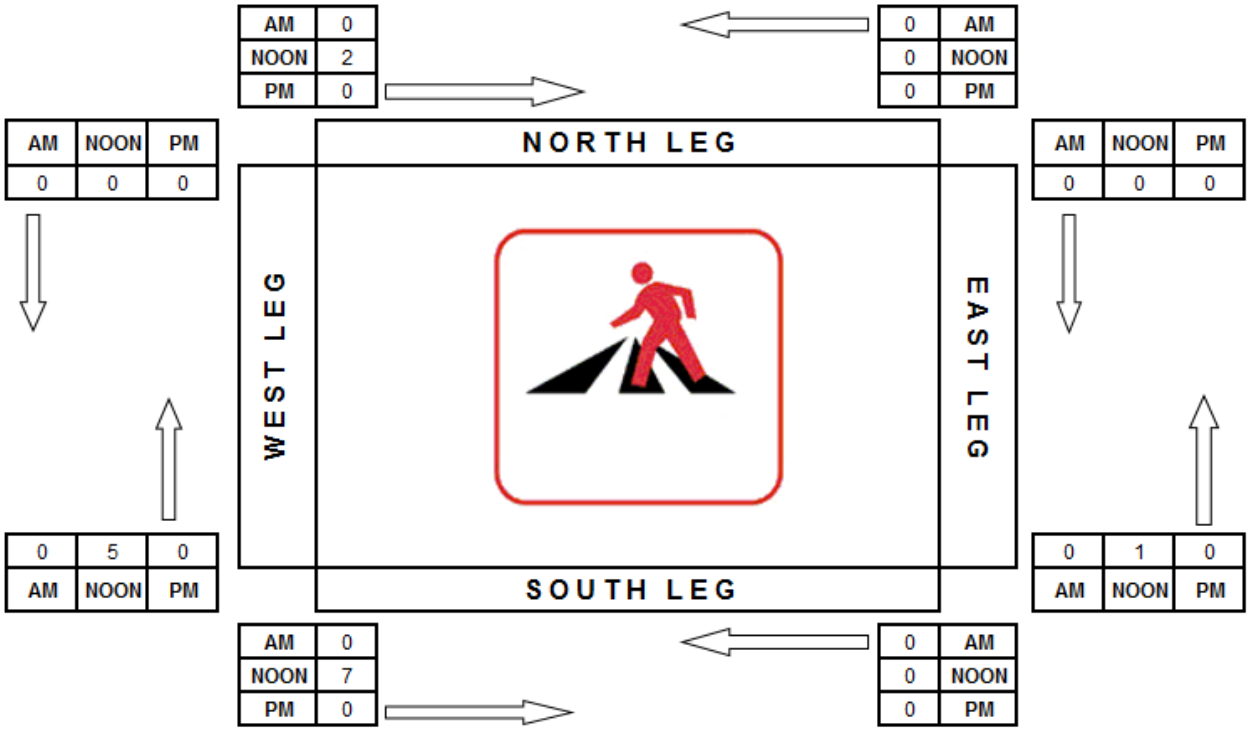
SOUTH LEG

AM	0	0	0
NOON	0	1	2
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-007
N/S Street: Post St
E/W Street: White Rock Rd
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-007
N/S Street: Post St
E/W Street: White Rock Rd
DATE: 11/5/2016
CITY: El Dorado County

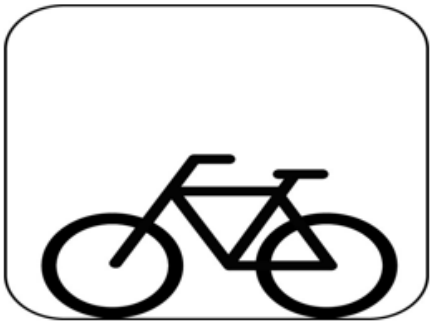
DAY: Saturday

AM	0	0	0
NOON	0	0	1
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	2	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

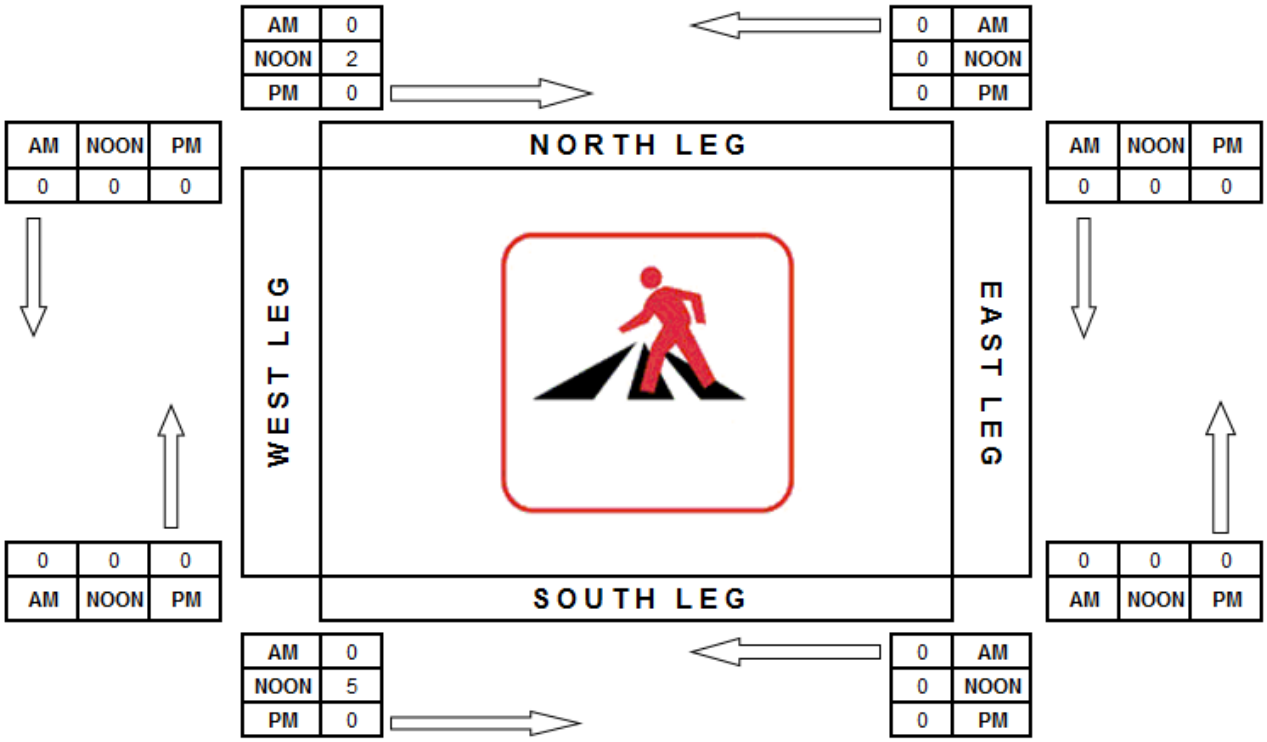
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-008
N/S Street: Plaza Goldorado Cir
E/W Street: Palmer Dr
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-008
N/S Street: Plaza Goldorado Cir
E/W Street: Palmer Dr
DATE: 11/5/2016
CITY: El Dorado County

DAY: Saturday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG

EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

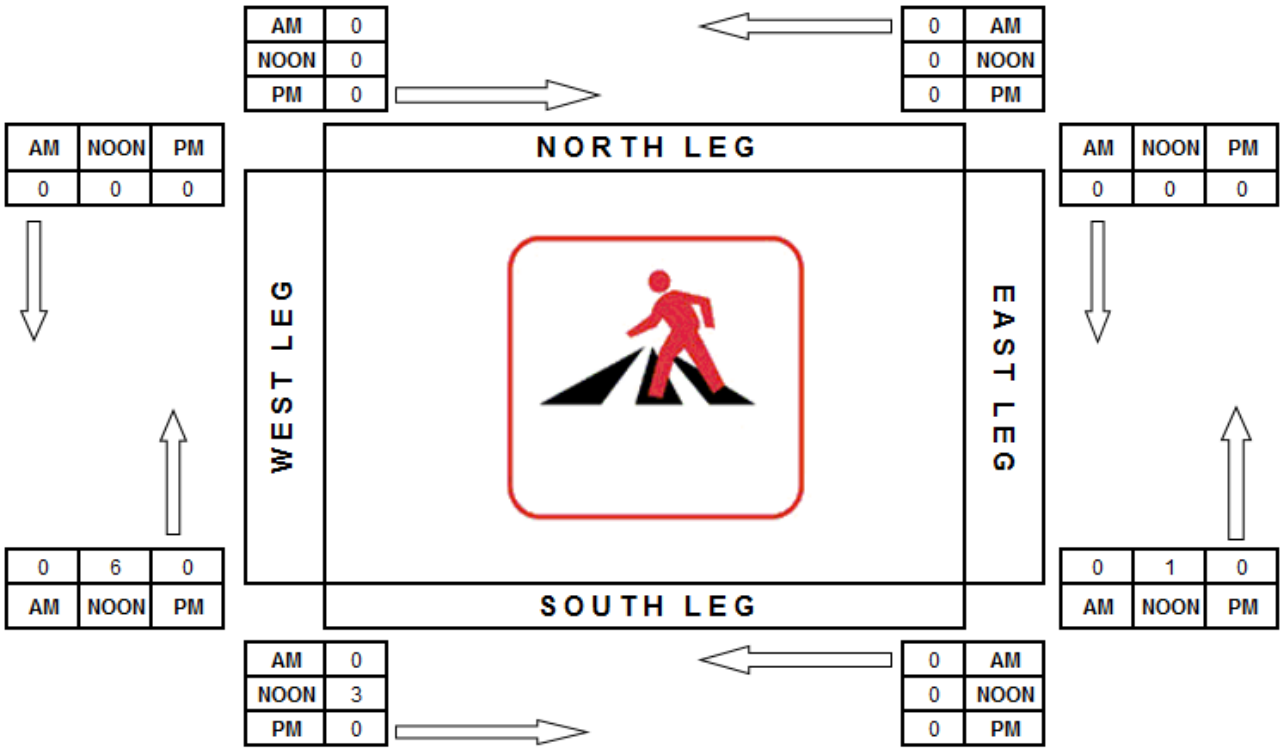
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-009
N/S Street: Cameron Park Dr
E/W Street: Green Valley Rd
DATE: 11/5/2016
DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

PROJECT#:	16-7812-009
N/S Street:	Cameron Park Dr
E/W Street:	Green Valley Rd
DATE:	11/5/2016
CITY:	El Dorado County

	Start:	End:
AM		
NOON	10:00	14:00
PM		

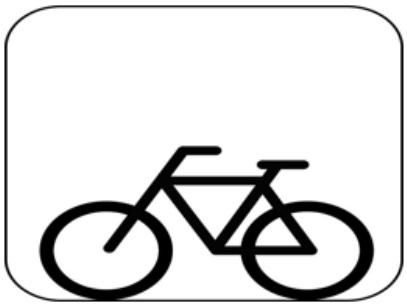
DAY: Saturday

AM	0	0	0
NOON	2	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	1	0
0	0	0

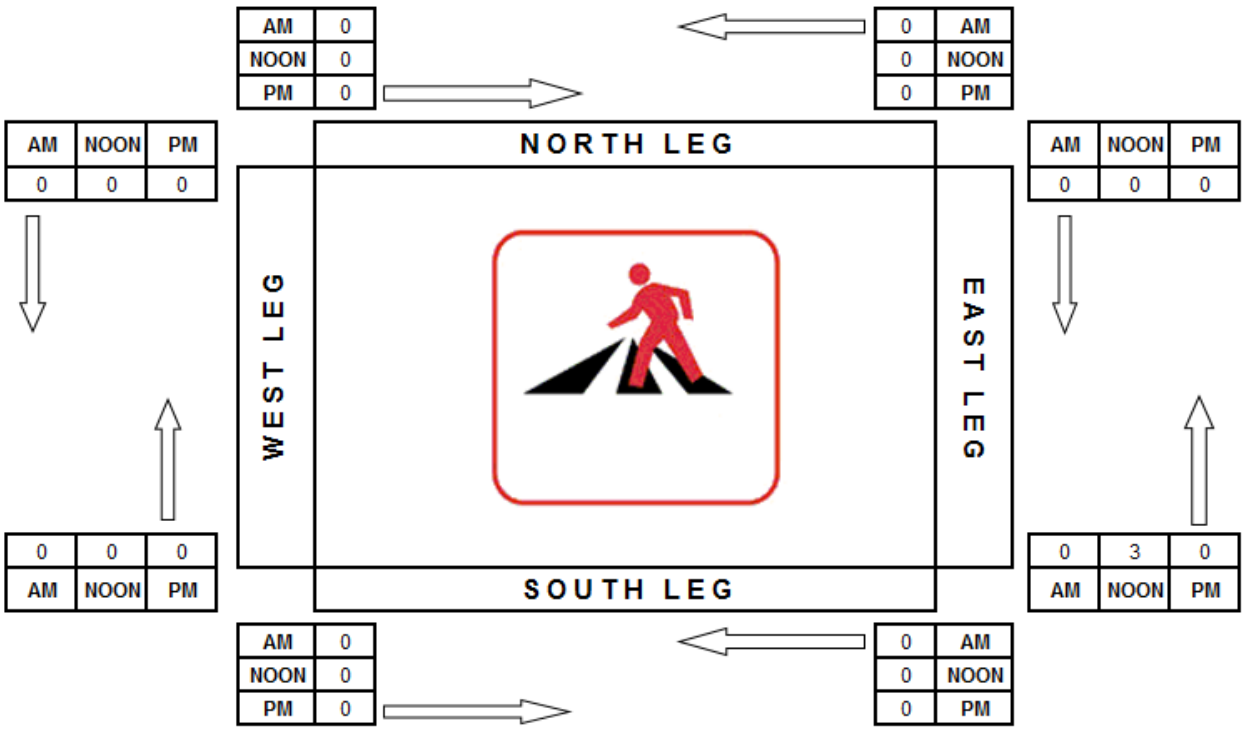
SOUTH LEG

AM	0	0	0
NOON	3	1	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-010
N/S Street: SR 49/Pleasant Valley
E/W Street: Bet. Koki Ln & Patterson Dr
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-010
N/S Street: SR 49/Pleasant Valley
E/W Street: Bet. Koki Ln & Patterson Dr
DATE: 11/5/2016
CITY: El Dorado County

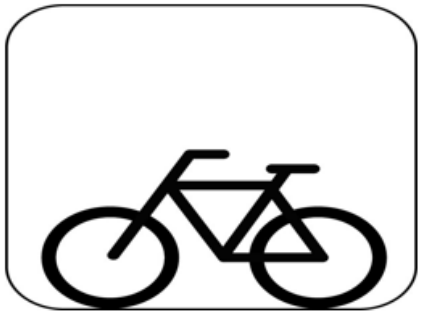
DAY: Saturday

AM	0	0	0
NOON	0	1	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



AM	NOON	PM
0	0	0
0	0	0
0	0	0

EAST LEG

SOUTH LEG

AM	0	0	0
NOON	0	2	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-011
N/S Street: Schnell School Rd
E/W Street: El Dorado Trail
DATE: 11/12/2016 DAY: Saturday
CITY: El Dorado County

AM	0
NOON	18
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	0	0
AM	NOON	PM

SOUTH LEG

0	0	0
AM	NOON	PM

AM	0
NOON	20
PM	0

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

PROJECT#:	16-7812-011
N/S Street:	Schnell School Rd
E/W Street:	El Dorado Trail
DATE:	11/12/2016
CITY:	El Dorado County

DAY: Saturday

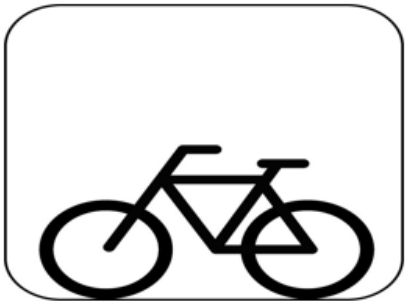
	Start:	End:
AM		
NOON	10:00	14:00
PM		

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	7	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	11	0
0	0	0

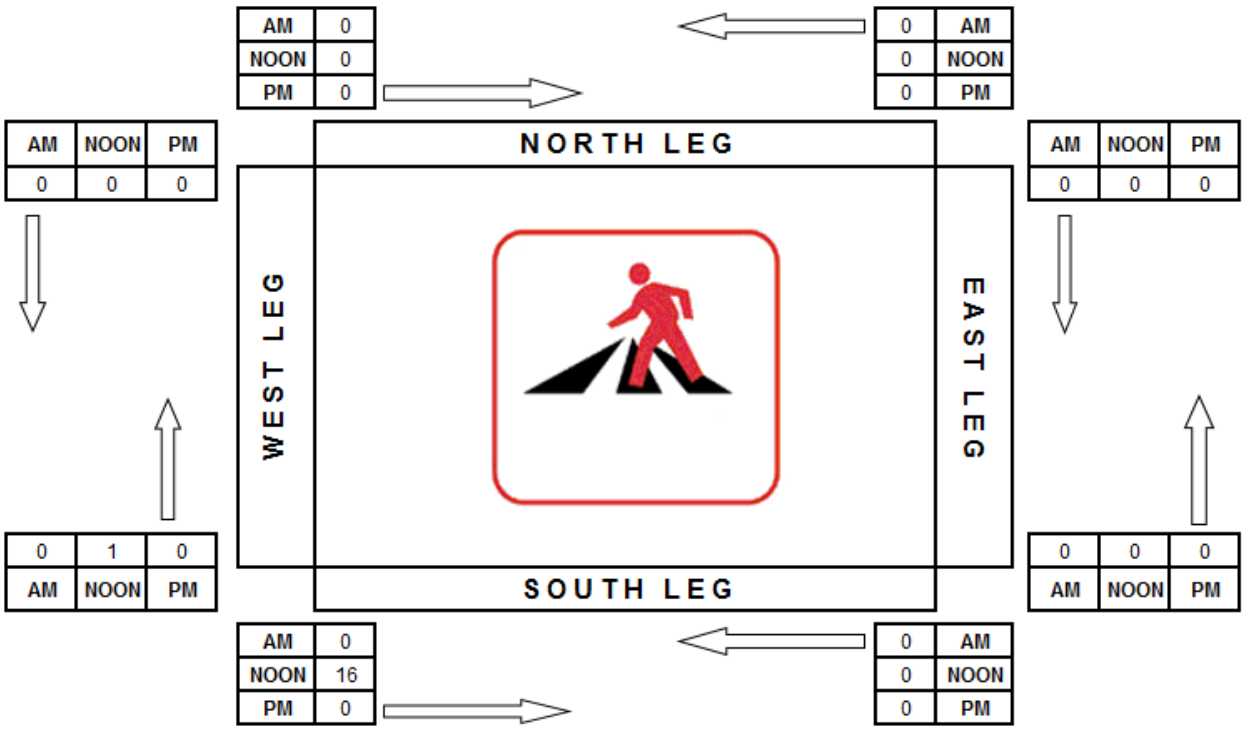
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-012
N/S Street: Forni Rd
E/W Street: El Dorado Trail
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-012
N/S Street: Forni Rd
E/W Street: El Dorado Trail
DATE: 11/5/2016
CITY: El Dorado County

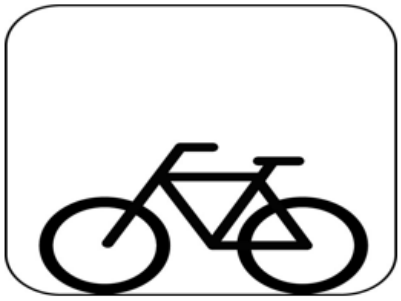
DAY: Saturday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	2	0
0	2	0
0	3	0

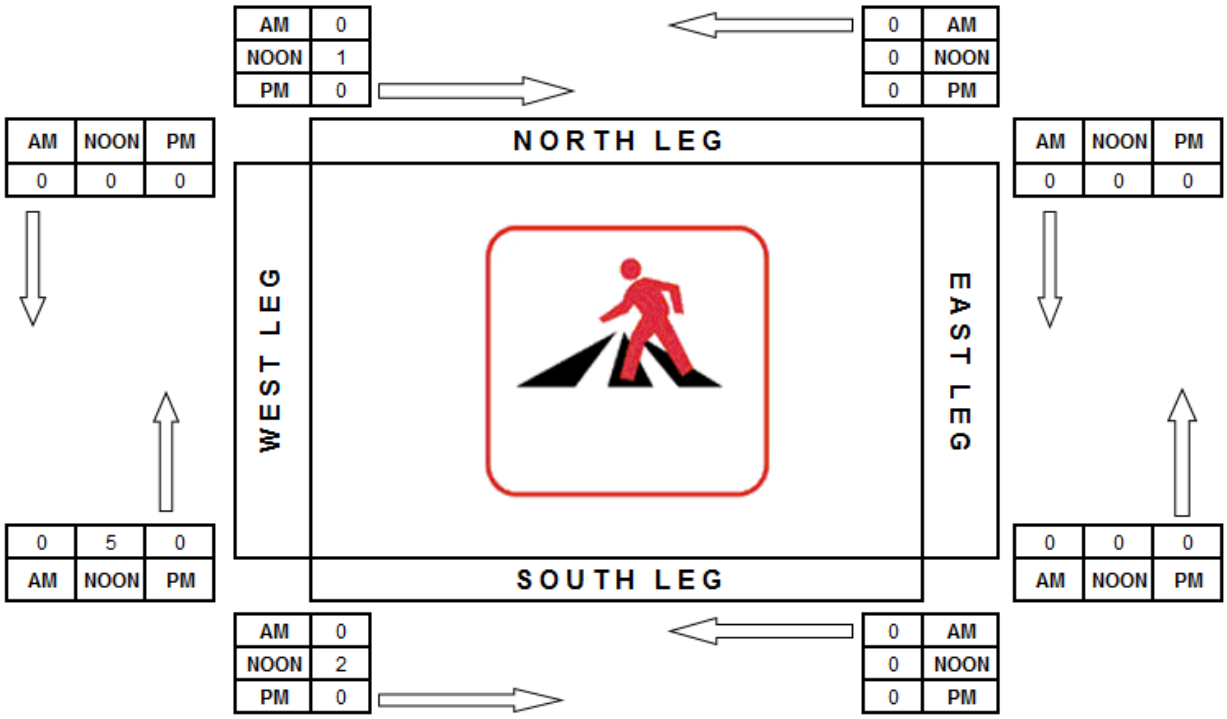
SOUTH LEG

AM	0	0	0
NOON	0	1	2
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-013
N/S Street: Golden Center Dr
E/W Street: Missouri Flat Rd
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-013
N/S Street: Golden Center Dr
E/W Street: Missouri Flat Rd
DATE: 11/5/2016
CITY: El Dorado County

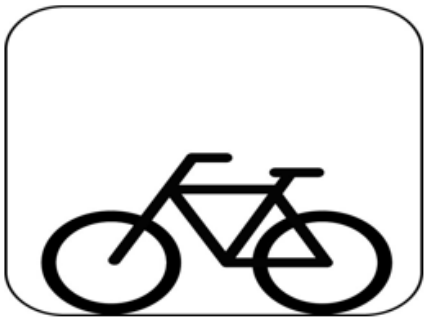
DAY: Saturday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	2	0
0	2	0
0	3	0

SOUTH LEG

AM	0	0	0
NOON	0	1	2
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-014
N/S Street: SR 193/ Georgetown
E/W Street: Bet. South St & Prospect Hill Dr
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

AM	NOON	PM
0	0	0

NORTH LEG

AM	NOON	PM
0	0	0

WEST LEG

EAST LEG

0	0	0
AM	NOON	PM

0	2	0
AM	NOON	PM

SOUTH LEG

AM	0
NOON	0
PM	0

0	AM
0	NOON
0	PM

Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-014
N/S Street: SR 193/ Georgetown
E/W Street: Bet. South St & Prospect Hill Dr
DATE: 11/5/2016
CITY: El Dorado County

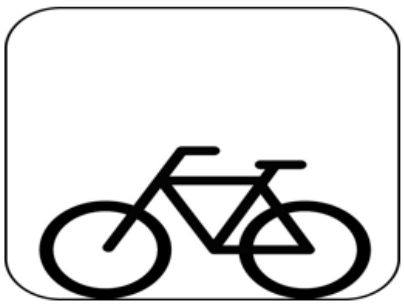
DAY: Saturday

AM	0	0	0
NOON	0	1	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

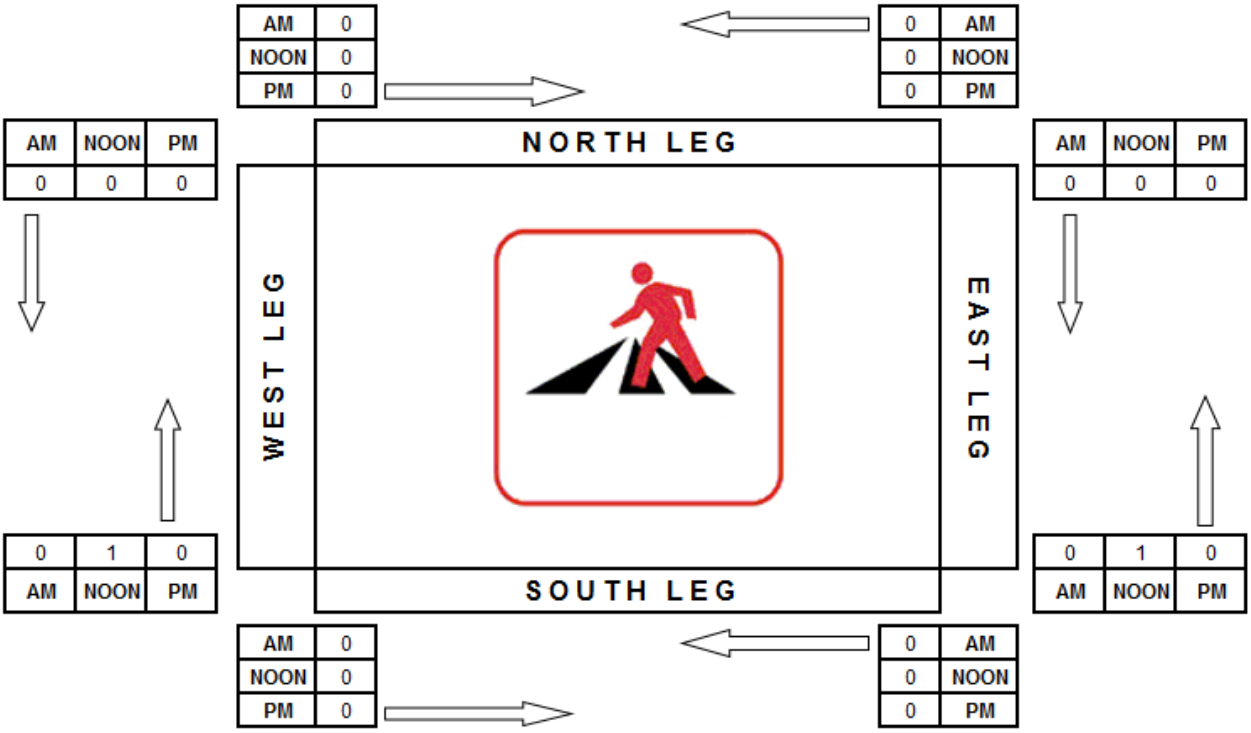
SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-0015
N/S Street: SR 49/Coloma Rd
E/W Street: Bet. #2 15 SR 49/Coloma Rd Marshall Rd & Lotus Rd
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

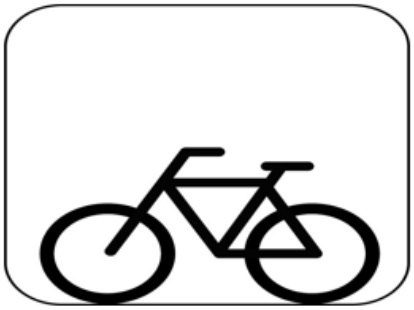
PROJECT#: 16-7812-0015
N/S Street: SR 49/Coloma Rd
E/W Street: Bet. #2 15 SR 49/Coloma Rd Marshall Rd & Lotus Rd
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County

AM	0	0	0
NOON	0	1	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

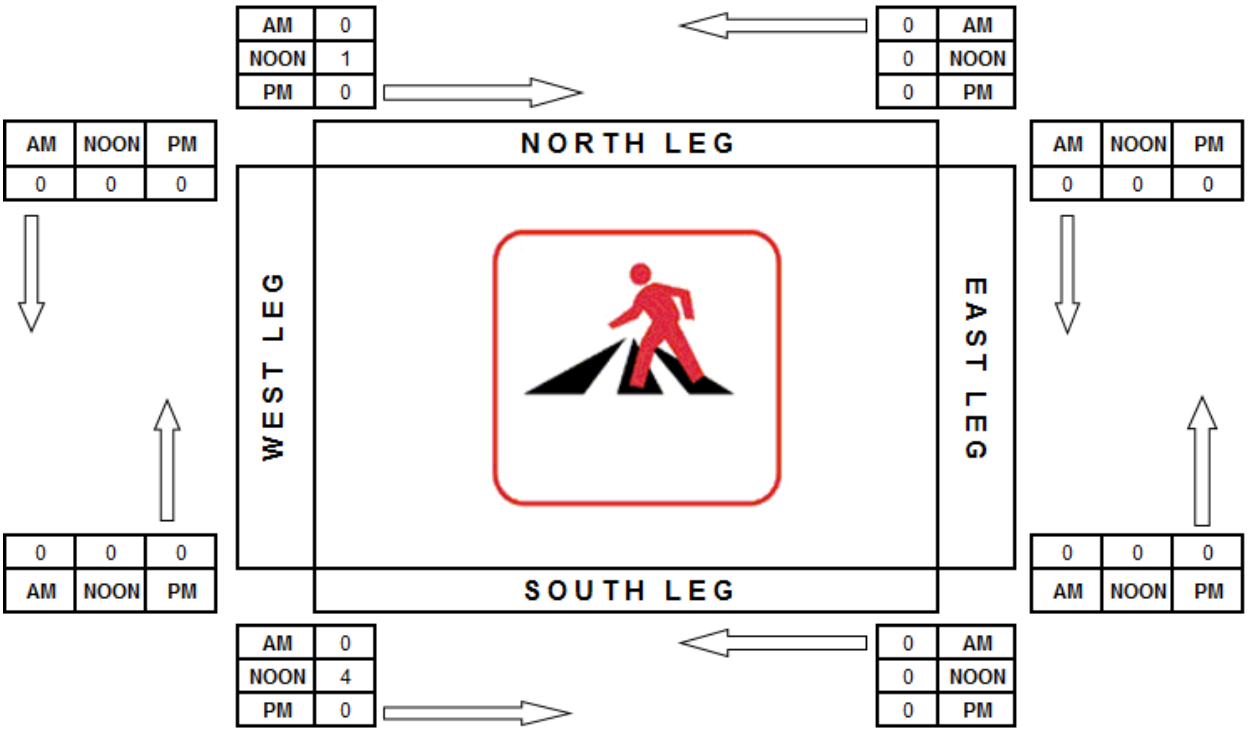
SOUTH LEG

AM	0	0	0
NOON	0	4	0
PM	0	0	0

Pedestrian Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-016
N/S Street: Pony Express Trail
E/W Street: Bet. Sanders & Sly Park Rd
DATE: 11/5/2016 DAY: Saturday
CITY: El Dorado County



Bicycle Count Peak Hour

	Start:	End:
AM		
NOON	10:00	14:00
PM		

PROJECT#: 16-7812-016
N/S Street: Pony Express Trail
E/W Street: Bet. Sanders & Sly Park Rd
DATE: 11/5/2016
CITY: El Dorado County

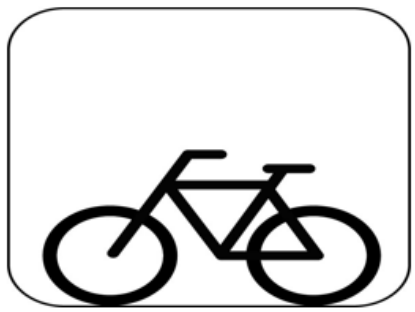
DAY: Saturday

AM	0	0	0
NOON	0	0	0
PM	0	0	0

NORTH LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

WEST LEG



EAST LEG

AM	NOON	PM
0	0	0
0	0	0
0	0	0

SOUTH LEG

AM	0	0	0
NOON	0	0	0
PM	0	0	0

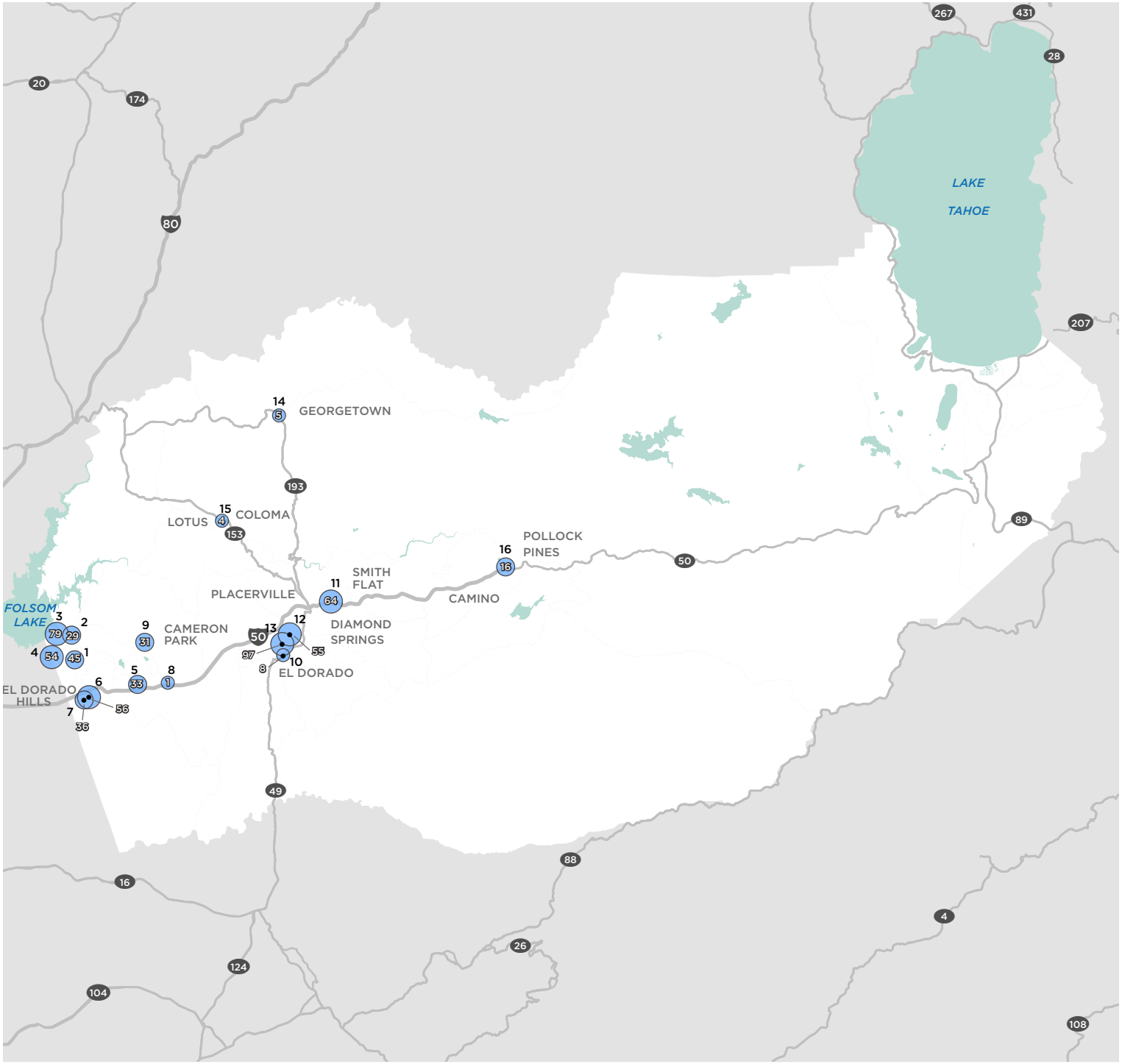
BIKE COUNTS

EL DORADO COUNTY ACTIVE TRANSPORTATION CONNECTIONS STUDY

AVERAGE ANNUAL DAILY BICYCLE TRAFFIC ON A WEEKDAY

- 1 - 15 Pedestrians
- 16 - 45
- 46 - 100
- Count Location

Note: Values within the symbols represent AADT counts (volume of bicycles on a typical weekday).



MILES
0 5 10

Data Source: [NDS, ESRI]
Map produced January, 2017

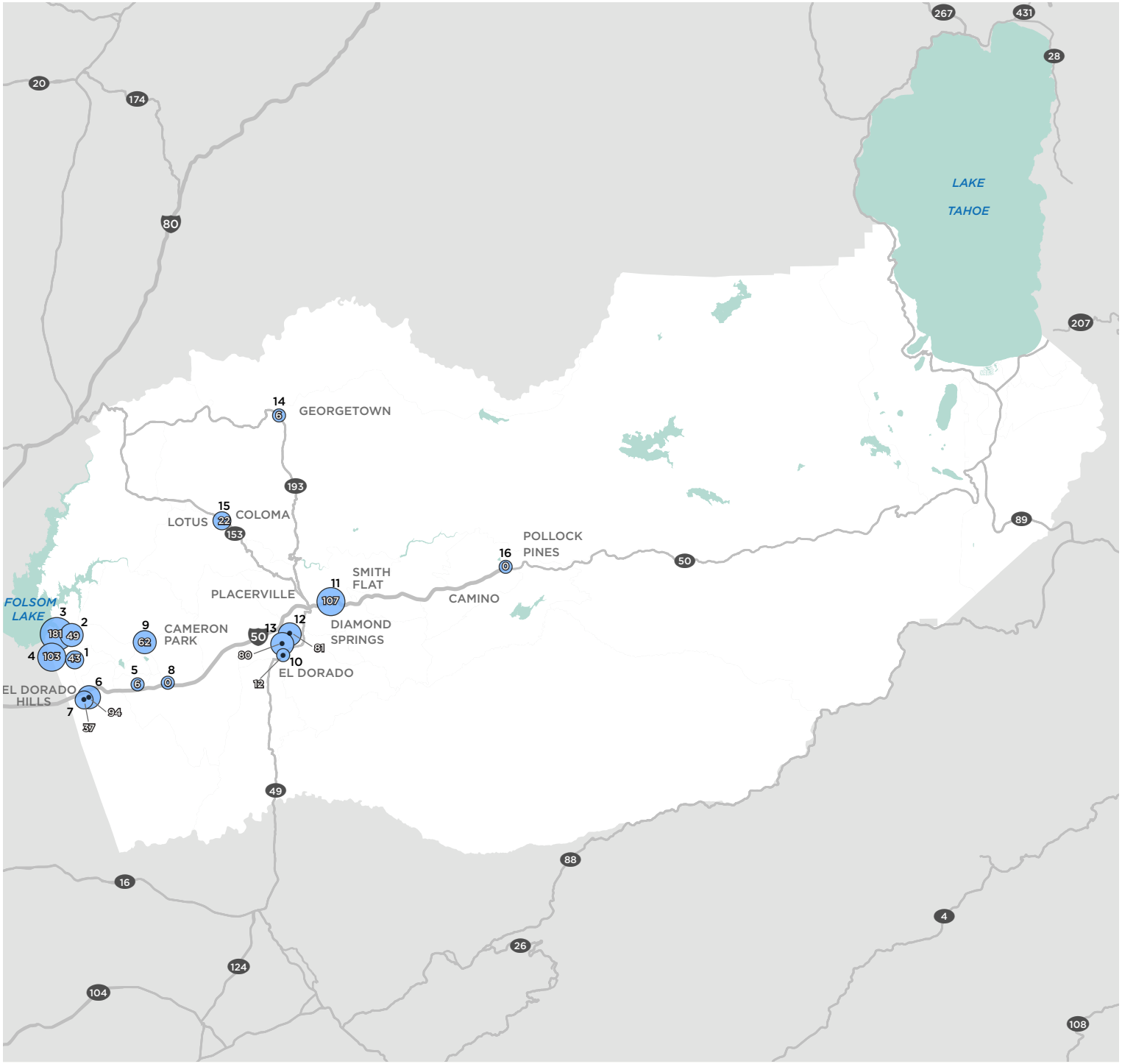
BIKE COUNTS

EL DORADO COUNTY ACTIVE TRANSPORTATION CONNECTIONS STUDY

AVERAGE ANNUAL DAILY BICYCLE TRAFFIC ON A WEEKEND

- 1 - 15 Pedestrians
- 16 - 45
- 46 - 100
- Count Location

Note: Values within the symbols represent AADT counts (volume of bicycles on a typical weekend).



0 5 10 MILES

Data Source: [NDS, ESRI]
Map produced January, 2017

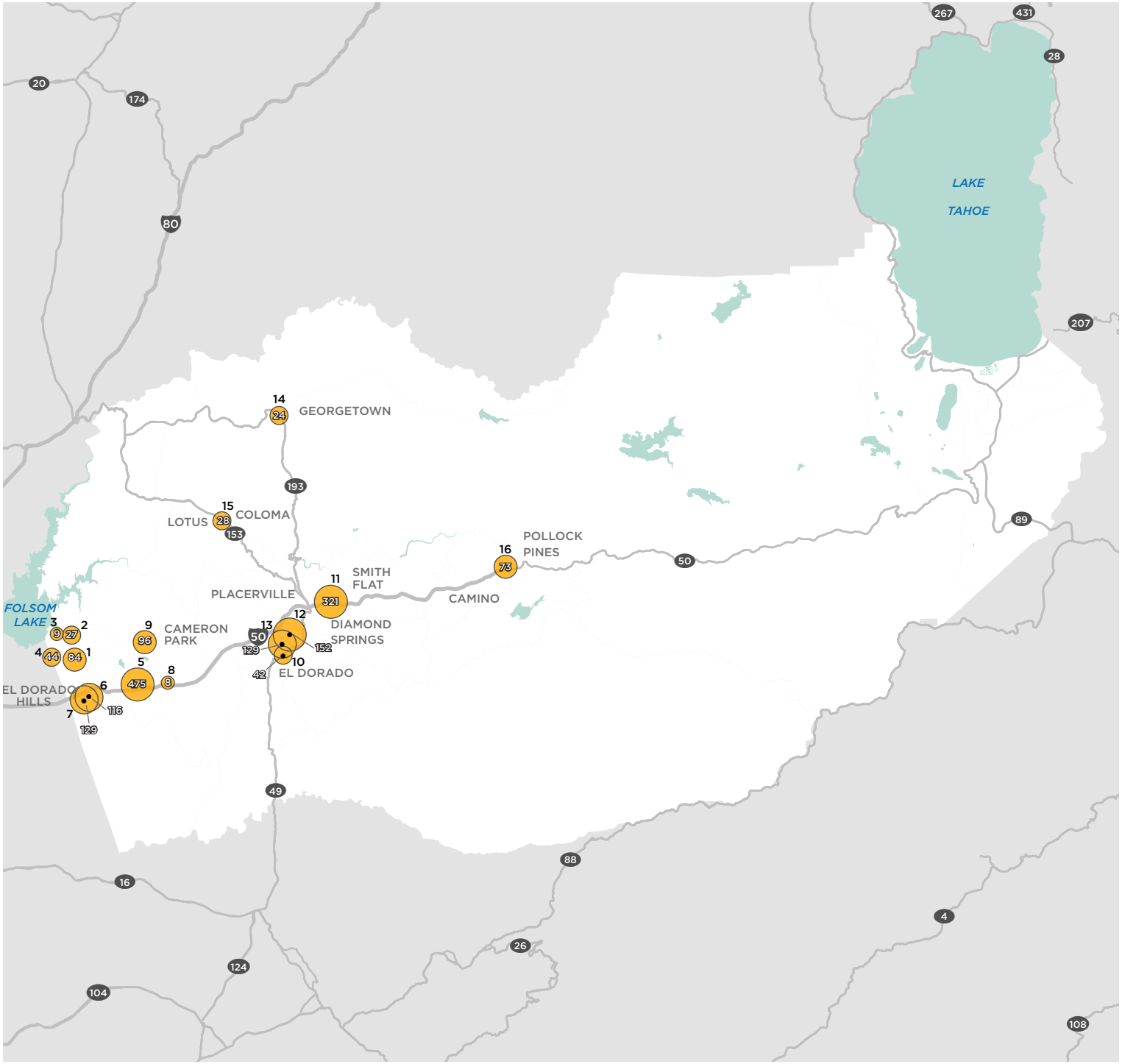
PEDESTRIAN COUNTS

EL DORADO COUNTY ACTIVE TRANSPORTATION CONNECTIONS STUDY

AVERAGE ANNUAL DAILY PEDESTRIAN TRAFFIC ON A WEEKDAY

- 1 - 15 Pedestrians
- 16 - 45
- 46 - 100
- 101 - 150
- 151 - 500
- Count Location

Note: Values within the symbols represent AADT counts (volume of pedestrians on a typical weekday).



0 5 10 MILES

Data Source: [NDS, ESRI]
Map produced January, 2017

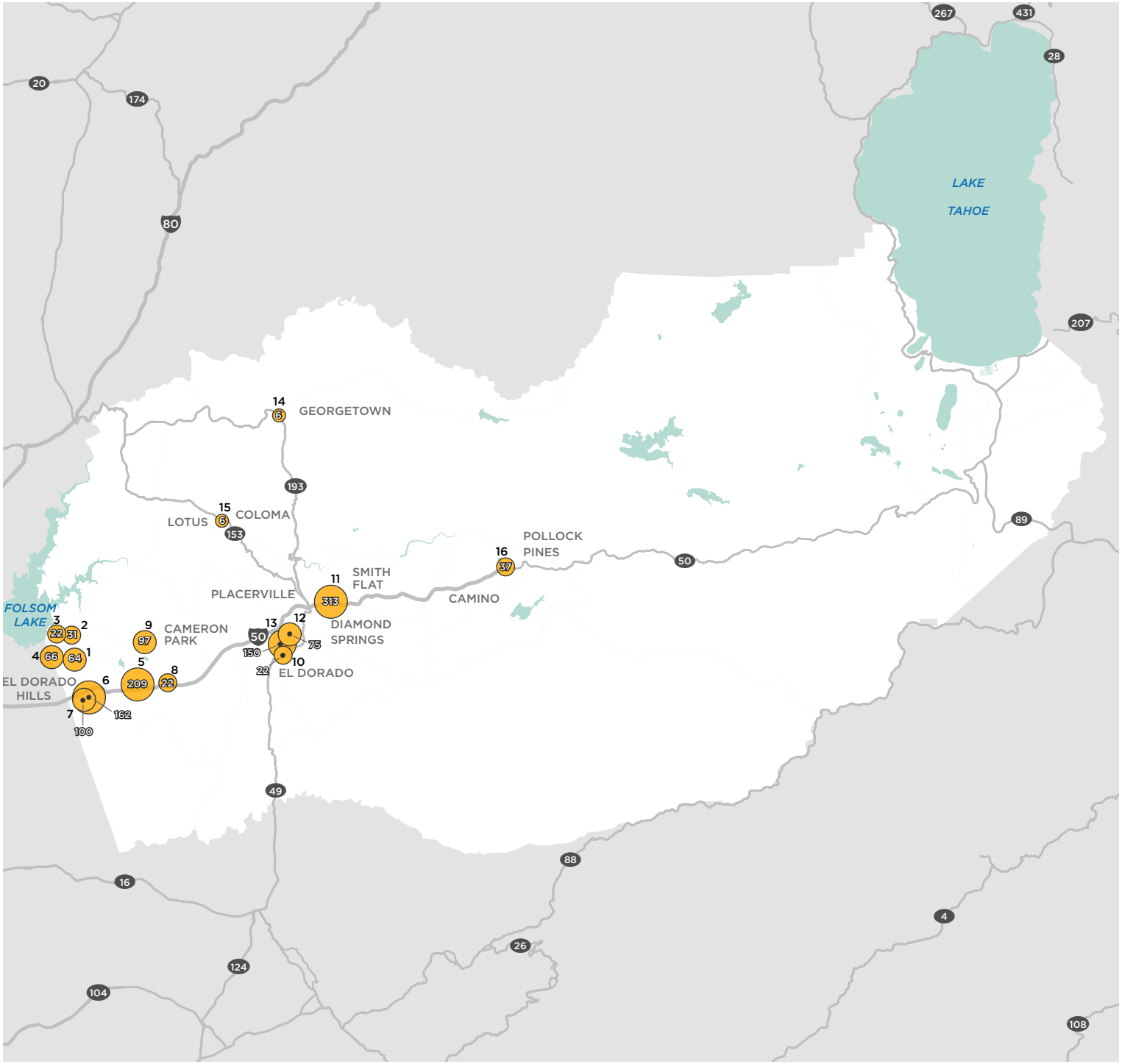
PEDESTRIAN COUNTS

EL DORADO COUNTY ACTIVE TRANSPORTATION CONNECTIONS STUDY

AVERAGE ANNUAL DAILY PEDESTRIAN TRAFFIC ON A WEEKEND

- 1 - 15 Pedestrians
- 16 - 45
- 46 - 100
- 101 - 150
- 151 - 500
- Count Location

Note: Values within the symbols represent AADT counts (volume of pedestrians on a typical weekend day).



Data Source: [NDS, ESRI]
Map produced January, 2017

APPENDIX C: HEALTH ANALYSIS

MEMORANDUM

100 Webster Street, Suite 300
Oakland, CA 94607
(510) 540-5008
www.altaplanning.com

To: Jerry Barton (EDCTC)

From: Hugh Louch, Kyle James, and Jessica Nguyen (Alta Planning + Design)

Date: July 17, 2017

Re: EDCTC Active Transportation Connections Study – Health Analysis

Introduction

This memorandum identifies health-based performance measures for inclusion within the El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study. The purpose of the overall study is to develop a process to identify which proposed pedestrian and bicycle projects within El Dorado County's western slope may be the most competitive under various grant application criteria. Completing competitive grant applications can be time and data intensive, so selecting projects that have the greatest probability of receiving funding helps maximize limited resources. Health impacts of infrastructure is a growing field of study and is increasingly common criteria in active transportation grant requirements. A health-based performance measure will help identify projects with the greatest potential to improve the physical and mental health of El Dorado County residents through walking and bicycling and should be prioritized for inclusion within a grant application.

Why Health?

Walking and bicycling are simple ways for individuals to increase their daily physical activity, which has been shown to lead to positive health outcomes. A growing body of literature links parks, trails, and other infrastructure that encourages physical activity to lowered risk of chronic diseases, greater weight management,[1] increased mental fitness,[2] the reversal of Type II diabetes,[3] and decreased healthcare costs.[4] Designing a transportation network so that residents can reach destinations without relying on a motor vehicle can increase the probability of an individual choosing to walk or bicycle.

[1] The Power of Trails for Promoting Physical Activity in Communities. Active Living Research, San Diego, CA. 2011. <httep://activelivingresearch.org/files/ALRBrief_PowerofTrails_0.pdf/>
[2] K. Yaffe, et al. 2001. Archives of Internal Medicine. <http://www.americantrails.org/resources/benefits/VAcognitive.html>
[3] "A Step in the Right Direction: The Health Benefits of Hiking and Trails." American Hiking Society, Silver Spring, MD. <http://atfiles.org/files/pdf/AHShealthben.pdf/>
[4] S. Carlson, et al. "Inadequate Physical Activity and Health Care Expenditures in the United States." 2015. Progress in Cardiovascular Diseases 57(4): 315-323. <http://dx.doi.org/10.1016/j.pcad.2014.08.002>

Understanding the importance of transportation investments on health outcomes is a featured component in El Dorado County's Regional Transportation Plan. It notes that if the design of new and/or rehabilitated facilities considers the needs of bicyclists and pedestrians, the transportation network can contribute to improved public health. Specifically, Guiding Principle B of the Regional Transportation Plan states, "EDCTC plans and programs will enhance the quality of life in the region by supporting transportation improvements that increase opportunities for a strong jobs-housing balance, environment, economy, education, healthful communities, recreation, and civic involvement."

Grant Criteria

Projects that address public health are more competitive in grant applications such as the Caltrans Active Transportation Program (ATP). The most recent ATP application requirements focused on projects that address the health vulnerabilities of the project's targeted users and have the potential to promote healthy communities.[5] The application form asked applicants to describe the health status of the targeted users of the proposed project, how health benefits were considered when developing the proposed project, and how the proposed project will promote a health community.

Measuring Health

The California Health Interview Survey (CHIS) is a statewide survey covering a variety of health behaviors and outcomes including physical activity, chronic diseases, mental health, and obesity. Data is collected through a random-dial telephone survey and is conducted on a continuous basis, providing one-year estimates at the state and county level. CHIS data is used to generate small area estimates for geographic areas as small as the zip code level through a platform called AskCHIS Neighborhood Edition (AskCHIS NE). Data from AskCHIS NE was used for this analysis in order to evaluate the current health status of El Dorado residents.

Discussion

This memorandum details four approaches to the development of a health-based performance measure for distinguishing between the proposed pedestrian and bicycle projects in El Dorado County: (1) physical activity, (2) prevalence of diabetes, (3) mental health issues, and (4), prevalence of asthma.

"Physical activity" looks at rates of exercise from walking among adults. This potential performance measures showed how many adults within two miles of the proposed projects currently walk for leisure or transportation at least 150 minutes per week. It is an intuitive measure, easy to collect, and showed a good distribution when applied to the proposed project list with some distinction from the state and county averages. However, it only shows one aspect of physical activity – walking – and may not give a full picture of how residents exercise in El Dorado County.

"Prevalence of diabetes" looks at rates of diabetes among adults. This potential performance measures showed how many adults within two miles of the proposed projects have ever been diagnosed with diabetes by a doctor. Like "physical activity", it is an intuitive measure that is also easy to collect and highly correlated with

[5] ATP Purpose and Goals, Caltrans (2015)

health disparities. However, when applied to the proposed project list, the distribution of rates of diabetes was fairly narrowed and outperformed the state average.

"Mental health issues" looks at psychological distress among adults. This potential performance measure showed how many adults within two miles of the proposed projects have reported serious psychological distress within the past 12 months. The data is readily available, but when applied to the project list, all proposed projects outperformed the state average and there was limited variation among the projects. Also, while the connection between the availability of active transportation infrastructure and mental health has gained increased recognition in academic studies, the connection may not be as intuitive as the other potential performance measures.

The final potential performance, "prevalence of asthma", looks at rates of asthma among adults. It showed how many adults within two miles of the proposed projects have ever been diagnosed with asthma by a doctor. It is an intuitive measure that has the most direct relationship with transportation-related health issues among the potential performance measures. Like the other measures, the data is readily available. When applied to the proposed project list, a large number outperformed the state average. However, there was little variation among the results, with just under half of the projects clustered within one category.

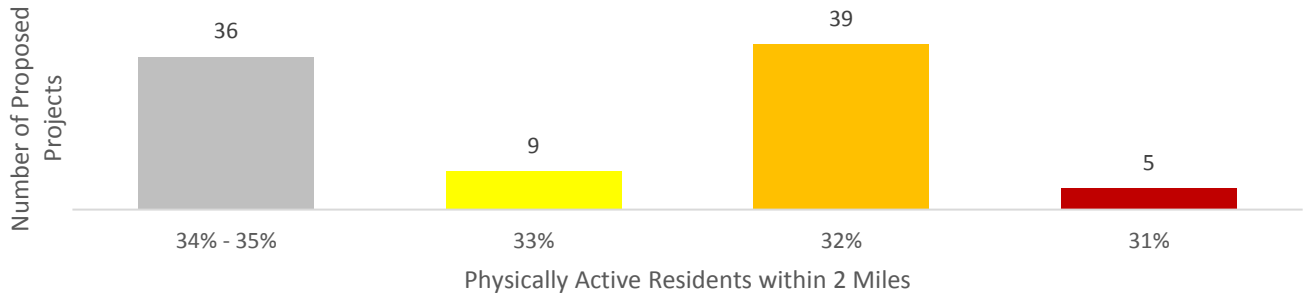
Potential Performance Measures

Four potential health-based performance measures were explored: (1) adults who walked for transportation or leisure for at least 150 minutes in the past week, (2) adults who have ever been diagnosed with diabetes, (3) adults who reported serious psychological distress in the past 12 months, and (4) adults who have ever been diagnosed with asthma. For each of these health indicators, data was extracted for zip codes that fall within a one-half- and two-mile radius of a proposed project. The following sections describe the significance of the health indicators in relation to active transportation and corresponding results for the list of proposed projects in El Dorado County.

Physical Activity

The Centers for Disease Control and Prevention recommends 150 minutes of physical activity per week for adults, and walking and bicycling can help contribute to one's daily amount of physical activity. Although people may also exercise through other activities, the California Health Interview Survey (CHIS) provides data at the state, county, and zip code level on the percentage of adults 18 and older who walked for transportation or leisure for at least 150 minutes in the past week. See **Figure 1** for the distribution of physically active adults within two miles of the proposed projects.

Figure 1: Physically Active Adults within 2 Miles of Proposed Projects (CHIS, 2014)



On average, 33 percent of California residents and 33 percent of El Dorado County residents walk for at least 150 minutes per week. This is comparable to residents living within two miles of the proposed projects. A slight majority of proposed projects (51 percent) showed nearby residents matching or exceeding the state and county average, roughly 44 percent fell one percentage point below the state and county averages, and roughly 6 percent fell two percentage points below the averages; the projects in the lowest ranking areas are listed below:

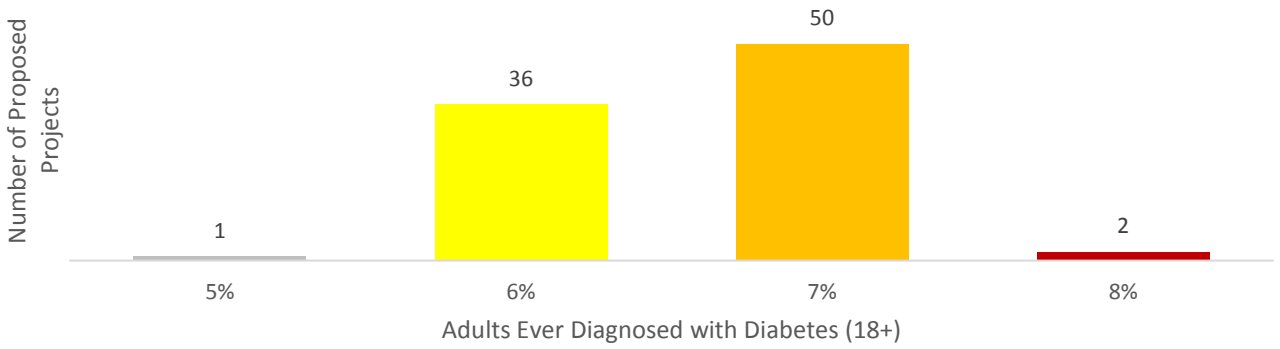
- Project #71: Grizzly Flat Road from Wooded Glen Drive to Sciaroni Road – 31% active
- Project #72: Sciaroni Road from Grizzly Flat Road to Tyler Drive – 31% active
- Project #75: Marshall Road from Prospect Road (north) to Black Oak Mine Road – 31% active
- Project #78: Garden Valley Road from Marshall Road to 400' east of Whitney Court – 31% active
- Project #80: Green Valley Road from Mallard Lane to Placerville Drive – 31% active

See **Table 1** for the percent of adults near the proposed Class I projects who are physically active and **Table 2** for the percent of adults near the proposed Class II projects who are physically active.

Diabetes

Physical activity, including walking and bicycling, can help prevent the onset of diabetes or manage it for people who have already been diagnosed. CHIS provides data on the percentage of adults 18 and older who have ever been diagnosed with diabetes by a doctor. See **Figure 2** for the distribution of residents with diabetes within two miles of the proposed projects.

Figure 2: Prevalence of Diabetes among Adults within 2 Miles of Proposed Projects (CHIS, 2014)



On average, 9 percent of California adults and 7 percent of El Dorado County adults have been diagnosed with diabetes. The adults living within two miles of the all proposed projects had lower rates of diabetes compared to the state average (between 5 percent and 8 percent) and were closely aligned with the county average. Below is a list of the two projects with the highest rates of diabetes within two miles of the proposed alignment:

- Project #78: Garden Valley Road from Marshall Road to 400' east of Whitney Court – 8% diagnosed
- Project #80: Marshall Road from Black Oak Mine Road to Lower Main Street – 8% diagnosed

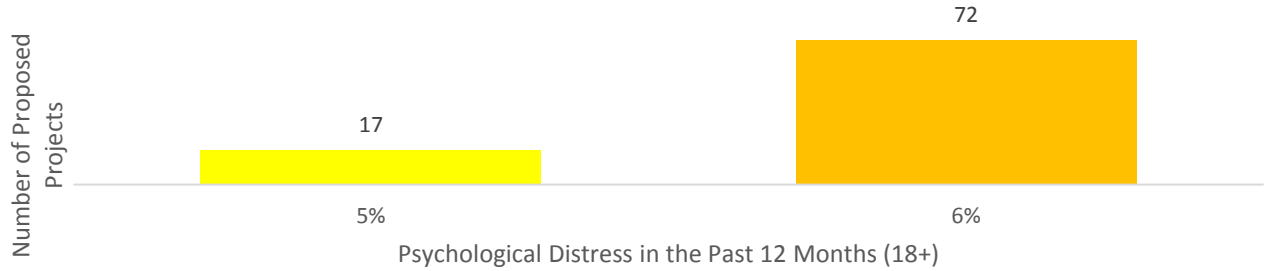
See **Table 1** for the percent of adults near the proposed Class I projects ever diagnosed with diabetes and **Table 2** for percent of adults near the proposed Class II projects ever diagnosed with diabetes.

Mental Health

Exercise and access to green/open space is known to have mental health benefits. In the El Dorado Community Health Assessment, mental health issues were identified as a concern during interviews, noting the importance of recognizing and addressing psychological issues before they become critical. CHIS provides data on the percentage of adults 18 and older who reported serious psychological distress in the past 12 months.[6] See **Figure 3** for the distribution of adults living within two miles of the proposed projects that reported serious psychological distress.

[6] Based on the Kessler 6 Scale, a tool used to assess anxiety and depressive symptoms.

Figure 3: Psychological Distress among Adults within 2 Miles of Proposed Projects (CHIS, 2014)

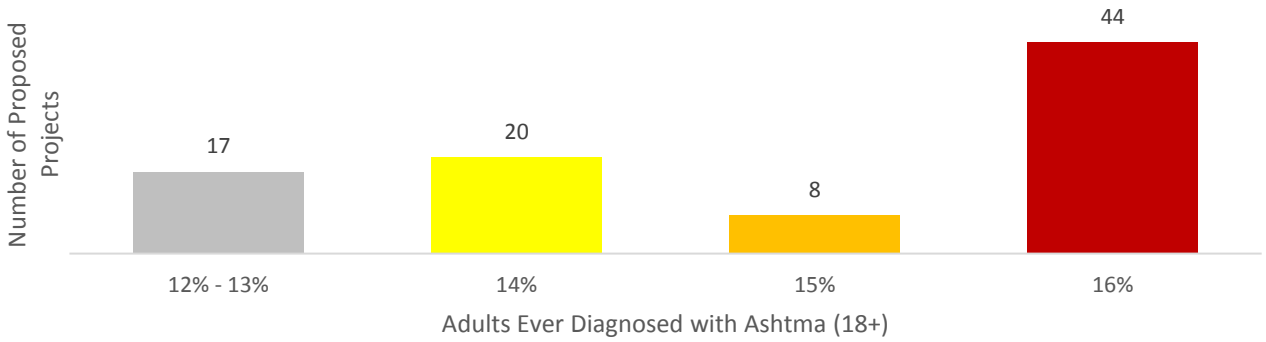


On average, 8 percent of adults in California and 6 percent of adults in El Dorado County reported serious psychological distress in the past 12 months. Adults living within two miles of all of the proposed projects reported lower rates than the state average (5 percent to 6 percent) and were roughly aligned with the county average. Little variation existed among rates of psychological distress near the proposed projects. See **Table 1** for the percent of adults with recent psychological districts near the proposed Class I projects and **Table 2** for its application to proposed Class II projects.

Asthma

Although genetic factors also contribute to the development of asthma, exposure to air pollution can increase an individual's risk of developing asthma or exacerbate existing sensitivities. CHIS provides data on the percentage of adults 18 and older who have ever been diagnosed with asthma by a doctor. (Measures of environmental exposure, a more direct indicator, is included in the Environment Analysis of the EDCTC Active Transportation Connections Study.) See **Figure 4** for the distribution of adults ever diagnosed with asthma within two miles of the proposed projects.

Figure 4: Prevalence of Asthma among Adults with 2 Miles of Proposed Projects (CHIS, 2014)



On average, 14 percent of adults in California and 15 percent of adults within El Dorado County have been diagnosed with asthma. The majority of proposed projects had adults living within two miles of proposed alignments with higher rates of asthma (58 percent), with 49 percent of proposed projects exceeding the state average by 2 percentage points. See **Table 1** for the percent of adults ever diagnosed with asthma near the proposed Class I projects and **Table 2** for its application to proposed Class II projects.

Table 1: Resident Health Conditions near Proposed Class I Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	0.34	0.35	0.06	0.06	0.06	0.05	0.14	0.13
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	0.34	0.34	0.06	0.06	0.06	0.06	0.14	0.14

Table 1: Resident Health Conditions near Proposed Class I Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	0.34	0.34	0.06	0.06	0.06	0.06	0.14	0.14
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	0.34	0.32	0.06	0.07	0.06	0.06	0.14	0.16
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	0.33	0.33	0.07	0.07	0.06	0.06	0.16	0.16

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALL ACTIVE (2 MILES)	% PYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	0.34	0.35	0.06	0.06	0.06	0.05	0.14	0.13
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	0.34	0.34	0.06	0.06	0.06	0.06	0.14	0.14
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	0.34	0.35	0.06	0.06	0.06	0.05	0.14	0.13
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	0.35	0.35	0.06	0.06	0.05	0.05	0.13	0.13
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	0.34	0.34	0.06	0.06	0.06	0.06	0.14	0.14

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	0.34	0.33	0.06	0.07	0.06	0.06	0.14	0.15
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	0.34	0.32	0.06	0.07	0.06	0.06	0.14	0.16
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	0.34	0.32	0.06	0.07	0.06	0.06	0.14	0.16
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	0.34	0.34	0.06	0.06	0.06	0.06	0.14	0.14
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	0.34	0.32	0.06	0.07	0.06	0.06	0.14	0.16
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	0.34	0.32	0.06	0.07	0.06	0.06	0.14	0.16
35	COACH LN	RODEO RD	END OF COACH LN	0.34	0.32	0.06	0.07	0.06	0.06	0.14	0.16
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	0.33	0.32	0.07	0.07	0.06	0.06	0.15	0.16
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	0.34	0.34	0.06	0.06	0.06	0.06	0.14	0.14
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	0.33	0.32	0.06	0.07	0.06	0.06	0.15	0.16
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	0.33	0.32	0.07	0.07	0.06	0.06	0.15	0.16
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	0.34	0.32	0.06	0.07	0.06	0.06	0.14	0.16
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	0.34	0.35	0.06	0.06	0.06	0.05	0.14	0.13
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	0.34	0.34	0.06	0.06	0.06	0.06	0.14	0.14
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	0.33	0.32	0.07	0.07	0.06	0.06	0.16	0.16
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	0.33	0.32	0.07	0.07	0.06	0.06	0.16	0.16
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
62	CARSON RD	JACQUIER RD	LARSEN DR	0.33	0.33	0.07	0.07	0.06	0.06	0.16	0.16
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	0.33	0.33	0.07	0.07	0.06	0.06	0.16	0.16
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	0.32	0.31	0.07	0.07	0.06	0.06	0.16	0.16

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
69	SNOWS RD	FUJI CT	CARSON RD	0.33	0.34	0.07	0.07	0.06	0.06	0.16	0.15
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	0.32	0.32	0.07	0.07	0.06	0.06	0.15	0.15
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	0.31	0.31	0.07	0.07	0.06	0.06	0.16	0.16
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	0.31	0.31	0.07	0.07	0.06	0.06	0.16	0.16
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	0.34	0.34	0.05	0.06	0.05	0.05	0.12	0.12
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	0.31	0.31	0.07	0.07	0.06	0.06	0.15	0.15
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	0.32	0.32	0.07	0.07	0.06	0.06	0.15	0.15

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	0.32	0.32	0.07	0.07	0.06	0.06	0.14	0.14
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	0.31	0.31	0.08	0.07	0.06	0.06	0.15	0.15
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	0.32	0.31	0.07	0.07	0.06	0.06	0.16	0.15
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	0.31	0.31	0.08	0.08	0.06	0.06	0.15	0.15
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16

Table 2: Resident Health Conditions near Proposed Class II Projects (CHIS, 2014)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	% PHYSICALLY ACTIVE (2 MILES)	% PHYSICALLY ACTIVE (1/2 MILE)	% DIAGNOSED WITH DIABETES (2 MILES)	% DIAGNOSED WITH DIABETES (1/2 MILE)	% MENTAL HEALTH ISSUES (2 MILES	% MENTAL HEALTH ISSUES (1/2 MILE)	% DIAGNOSED WITH ASHTMA (2 MILES)	% DIAGNOSED WITH ASHTMA (1/2 MILE)
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16
89	BROADWAY	MOSQUITO RD	BLAIR LN	0.32	0.32	0.07	0.07	0.06	0.06	0.16	0.16

APPENDIX D:
ENVIRONMENTAL ANALYSIS

MEMORANDUM

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To: Jerry Barton (EDCTC)

From: Hugh Louch, Kyle James, and Jessica Nguyen (Alta Planning + Design)

Date: July 17, 2017

Re: EDCTC Active Transportation Connections Study – Environment Analysis

Introduction

This memorandum identifies an environment-based performance measure for inclusion within the El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study. The purpose of the overall study is to develop a process to identify which proposed pedestrian and bicycle projects within El Dorado County may be the most competitive under various grant application criteria. Completing competitive grant applications can be time and data intensive, so selecting projects that have the greatest probability of receiving funding helps maximize limited resources. The reduction in environmental impacts resulting from a project is a criterion in some grant requirements related to active transportation. An environment-based performance measure will help identify the projects that may be most competitive under those grant criteria

Why Environment?

Transportation systems that support walking and bicycling reduce reliance on motor vehicles for short trips such as shopping, visiting friends or family, commuting to work, or commuting to school. This reduction in motor vehicle trips can result in fewer emissions of greenhouse gases and other criteria pollutants, improving air quality conditions. In addition, a reduction in miles traveled by motor vehicles can reduce the potential for pollutants in surface runoff, helping to reduce threats to groundwater and local waterways.

Less people driving, and more people walking or biking, also supports state climate action goals such as the Sustainable Communities and Climate Protection Act (SB 375, 2008) to meet greenhouse gas reduction targets through coordinated transportation and land use strategies. It also supports El Dorado County's Regional Transportation Plan, which seek to create a safe, efficient, accessible, and convenient multimodal transportation system, and aligns with Guiding Principle B: Livability ("EDCTC plans and programs will enhance the quality of life in the region by supporting transportation improvements that increase opportunities for a strong jobs-housing balance, environment, economy, education, healthful communities, recreation, and civic involvement").

Grant Criteria

Projects that encourage sustainable transportation are more competitive in grant applications such as the U.S. DOT's Transportation Investment Generating Economic Recovery (TIGER) discretionary grant, California Natural Resources Agency's Urban Greening Grant Program, and Caltrans' Sustainable Transportation Planning Grant Program. Two of the primary selection criteria in the TIGER grant requirements are quality of life and environmental sustainability, which allow for a quantitative and qualitative discussion about environmental impacts. The Urban Greening Program focuses on greenhouse gas emissions reductions and requires applicants to provide a quantitative analysis how their proposed project shows a net emissions benefit. The Sustainable Transportation Planning Grant provides funding support to projects that help California reach its climate change goals, such as reducing greenhouse gas emissions and increasing resiliency to the anticipated effects of global warming.

Measuring Environmental Impacts

Vehicle miles traveled, greenhouse gas emissions, and ozone concentration can serve as indicators to evaluate the potential impacts of a transportation system on the environment. The first two potential performance measures can be estimated as a function of pedestrian and bicycle demand. That is, if more people walk and bicycle, it may result in a reduction in the miles traveled in a motor vehicle and the pounds of greenhouse gases emitted into the air. The third potential performance measure, ozone concentration, is derived from the CalEnviroScreen 3.0 tool developed by the Office of Environmental Health Hazzard Assessment. This tool identifies communities that are disproportionately burdened by multiple types of air pollution, such as ozone, and population characteristics that make them more sensitive to pollution. The tool is a common feature in the California-based grant applications, such as the Urban Greening Grant Program and Caltrans' Active Transportation Planning (ATP) grant program. Ozone concentration data for the tool is derived from air monitoring data collected by the California Air Resources Board.

Discussion

This memorandum details three potential environmental performance measures for distinguishing between the proposed pedestrian and bicycle projects in El Dorado County: (1) estimates of reduced vehicle miles traveled, (2) estimates of reduced greenhouse gas emissions, and (3) ozone concentration.

"Vehicle Miles Traveled" looks at the number of miles driven in a motor vehicle per year that would be replaced by a walk or bicycle trip if the proposed projects are built. This potential performance measure, while not often included in grant application requirements, provides a useful, high-level estimate look at the potential of a proposed project to encourage a reduction in motor vehicle trips. The measure relies on a demand analyses and national trip replacement and trip distance factors, limiting its ability to exactly represent local conditions.

"Greenhouse Gas Emissions" looks at the pounds of greenhouse gases and other criteria pollutants that would be removed from the atmosphere per year if the proposed projects are built. This potential performance is a factor of an estimate in the reduction of vehicle-miles traveled and, therefore, is subject to the same limitations as vehicle-miles traveled. However, it more clearly ties a reduction in a direct environmental harm to implementation of the proposed projects.

"Ozone Concentration", unlike the first two potential performance measures, looks at the existing conditions around a proposed project to see which study areas are most burdened by air quality issues. This measure is tracked by the California's Air Resource Board, making it easy to include in analysis. However, the difference in environmental burden surrounding the proposed project list is limited and may not offer as compelling a narrative within a grant application.

Potential Performance Measures

Three potential environment-based performance measures were explored: (1) vehicle miles traveled, (2) greenhouse gas emissions, and (3) ozone concentration. The following sections describe the significance of the environment indicators in relation to active transportation and corresponding results for the list of proposed projects in El Dorado County.

Vehicle Miles Travelled

Reducing the number of vehicle-miles traveled (VMT) by encouraging walking and bicycling can have significant impacts on the environment. Estimating reductions in VMT begins with an analysis of potential demand for the proposed list of projects (see *Demand Analysis Memorandum* for how demand was estimated for each proposed project). Then the forecasted demand is multiplied by a "trip replacement factor", as shown in **Table 1**. While some people would choose to drive for a given trip if they are unable to walk or bicycle due to a lack of available infrastructure, not all walk and bicycle trips replace motor vehicle trips. Trip replacement factor help isolate only the walk and bicycle trips that would replace motor vehicle trips. This value varies by trip purpose, but this analysis assumes an average trip replacement factor of 51.4 percent for walking and 49.5 percent for bicycling.

Table 1: Motor Vehicle Trip Replacement Factors*

	Walk	Bike
Commute Trips	23.7%	23.6%
College Trips	85.1%	82.1%
K-12 Trips	50.0%	44.7%
Utilitarian Trips	82.7%	81.4%
Social/Recreational Trips	15.5%	15.5%
Average	51.4%	49.5%

*Estimated by comparing local commute mode share data from the American Community Survey (2011-2015) to national mode share data for all trip purposes.

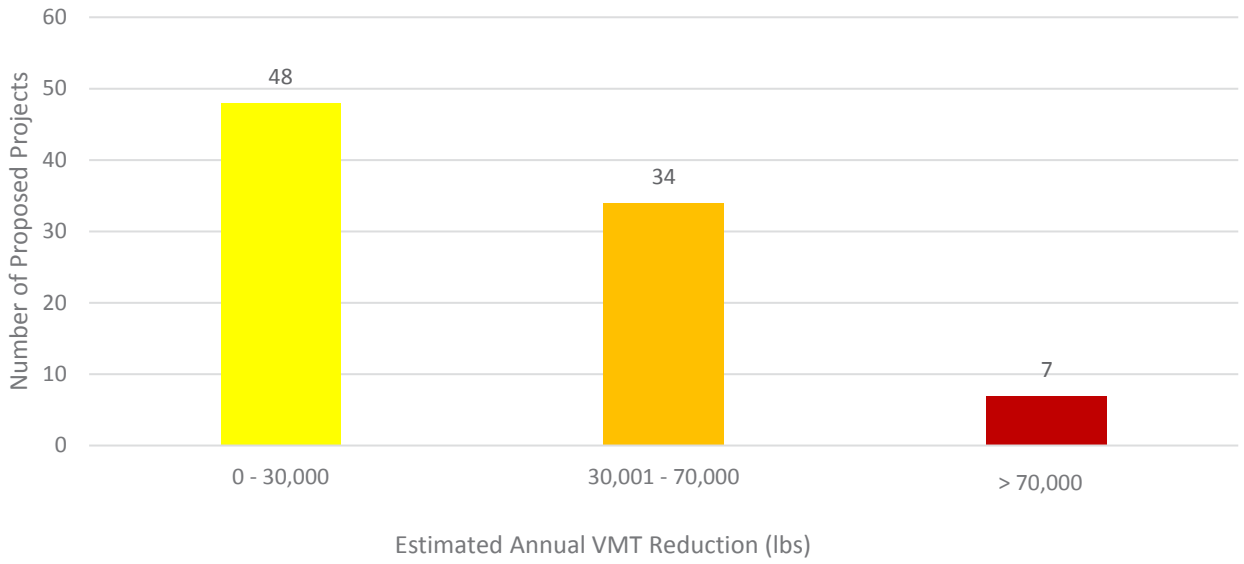
The final step in estimating VMT reduction is factoring in estimated average trip distance and extrapolating to an annual value. **Table 2** shows the estimated average walk trip distance is 0.608 miles and the estimated average bicycle trip distance is 2.140 miles for the study area. **Figure 1** shows the distribution of estimated annual reductions in VMT for the proposed project list.

Table 2: Estimated Trip Distance

	Walk (miles)	Bike (miles)
Commute Trips	0.670	3.540
College Trips	0.480	2.090
K-12 Trips	0.360	0.770
Utilitarian Trips	0.670	1.890
Social/Recreational Trips	0.860	2.410
Average	0.608	2.140

* Based on estimated trip distances by trip purpose from the National Household Travel Survey and the National Center for Safe Routes to School.

Figure 1: Estimated Annual Reduction in Vehicle-Miles Traveled



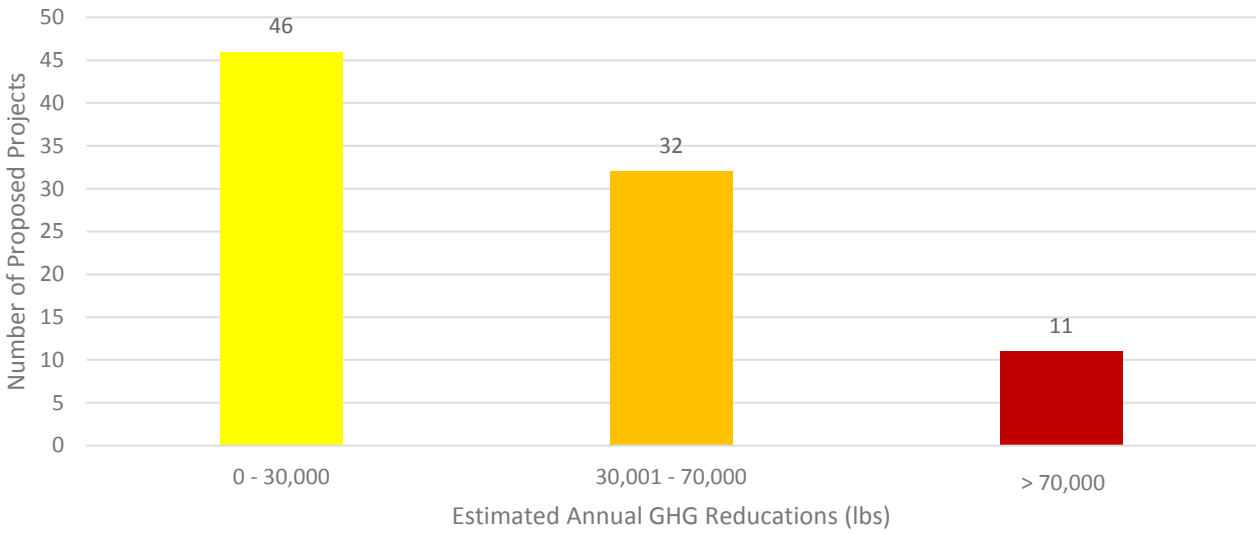
Estimates for the reduction in VMT ranged between 0 miles per year to roughly 116,000 miles per year. While just over half of the proposed projects are estimated to reduce annual VMT by 30,000 miles or less (48 out of 89 proposed projects), 38 percent are estimated to reduce annual VMT between 30,001 and 70,000 (34 out of 89 proposed projects), and 8 percent are estimated to reduce VMT between 70,001 and 116,000 (7 out of 89 proposed projects). See **Table 1** for the application of the measure to proposed Class I projects and **Table 2** for its application to proposed Class II projects.

Greenhouse Gas Emissions

A reduction in greenhouse gas emissions and other criteria pollutants (e.g., particulate matter, nitrous oxides, sulfur oxides, volatile organic compounds, and carbon dioxide) is directly related to a reduction in VMT. For each vehicle-miles removed from the road, this analysis assumes that an estimated 1.09 lbs of greenhouse gas emissions are prevented from entering the atmosphere based on data from the EPA.[1] **Figure 2** shows the distribution of estimated reductions greenhouse gases for the proposed project list.

[1] Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks (2008). <http://www3.epa.gov/otaq/consumer/420f08024.pdf>

Figure 2: Estimated Annual Greenhouse Gas Reductions (lbs)

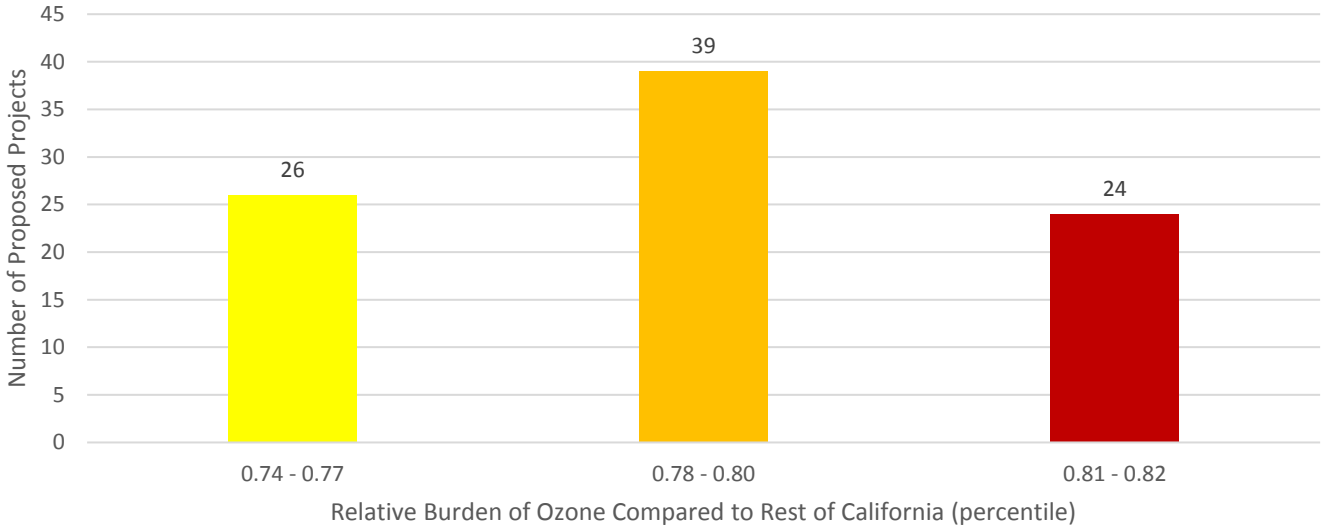


Because estimates of reductions in greenhouse gas emissions are directly related to VMT reduction estimates, the distribution in estimated annual greenhouse gas reductions resulting from implementation of the proposed projects is similar to **Figure 1**. Just over half of the proposed projects would result in 30,000 fewer pounds of greenhouse gas emissions per year (46 out of 89 proposed projects), 36 percent would result in between 30,001 and 70,000 fewer pounds of greenhouse gas emissions per year (32 out of 89 proposed projects), and 12 percent would result in over 70,000 fewer pounds of greenhouse gas emissions per year (11 out of 89 proposed projects). See **Table 1** for the application of the measure to proposed Class I projects and **Table 2** for its application to proposed Class II projects.

Ozone Concentration

Ozone is the main ingredient of smog. At ground level, ozone is formed when pollutants chemically react in the presence of sunlight. The main sources of ozone are trucks, cars, planes, trains, factories, farms, construction, and dry cleaners. It is one of the most widespread air pollution threats in California, and exposure to ozone pollution can contribute to a variety of negative health outcomes including lung irritation, inflammation, and exacerbation of existing chronic conditions. CalEnviroScreen 3.0 measures the mean of summer months (May-October) of daily maximum 8-hour average concentrations across all monitoring sites in California, averaged from 2012 to 2014. Each census tract is assigned a weighted score and ranked by percentile score which indicates the relative burden compared to other census tracts. A higher percentage represents a higher relative burden. Data was extracted for census tracts that fall within a two-mile radius of a proposed project and adjusted for the area of the census tract to which the radius intersects. See **Figure 3** for the distribution of ozone concentration within two miles of the proposed projects.

Figure 3: Relative Burden of Ozone (OEHHA, 2017)



Ozone concentrations near the proposed projects range from the 74th to 82nd percentile of relative ozone burden within California (the higher the percentile, the higher the relative burden). Among the proposed projects, 27 percent (24 out of 89 proposed projects) fell within the 81st to 82nd percentile. See **Table 1** for the application of the measure to proposed Class I projects and **Table 2** for its application to proposed Class II projects.

Table 3: Environmental Performance Measures near Proposed Class I Projects

HIGH | MEDIUM | LOW

Project ID	Project	Begin	End	Est. VMT Reduced/ Year (Walk & Bike)	Est. lbs of GHG Reduced/ Year (Walk & Bike)	Relative Ozone Burden (percentile)
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	40,000	44,000	0.78
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	69,000	75,000	0.77
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	26,000	28,000	0.78
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	69,000	75,000	0.77
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	71,000	78,000	0.77
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	52,000	57,000	0.78
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	95,000	104,000	0.78
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	56,000	61,000	0.78
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	63,000	69,000	0.76
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	59,000	65,000	0.78
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	41,000	45,000	0.81
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	40,000	44,000	0.81

Table 4: Environmental Performance Measures near Proposed Class II Projects

HIGH MEDIUM LOW

Project ID	Project	Begin	End	Est. VMT Reduced (mi)	Est. GHG Reduced (lbs)	Relative Ozone Burden (percentile)
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	66,000	72,000	0.77
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	25,000	27,000	0.77
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	39,000	43,000	0.74
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	63,000	69,000	0.76
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	46,000	50,000	0.78
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	35,000	38,000	0.76
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	7,000	8,000	0.77
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	9,000	10,000	0.78
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	23,000	25,000	0.78
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	14,000	15,000	0.78
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	26,000	28,000	0.74

Table 4: Environmental Performance Measures near Proposed Class II Projects

HIGH | MEDIUM | LOW

Project ID	Project	Begin	End	Est. VMT Reduced (mi)	Est. GHG Reduced (lbs)	Relative Ozone Burden (percentile)
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	95,000	104,000	0.78
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	5,000	5,000	0.78
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	27,000	30,000	0.77
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	29,000	32,000	0.77
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	100,000	109,000	0.78
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	83,000	91,000	0.77
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	69,000	75,000	0.78
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	50,000	55,000	0.77
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	115,000	126,000	0.78
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	47,000	51,000	0.78
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	35,000	38,000	0.78
35	COACH LN	RODEO RD	END OF COACH LN	38,000	42,000	0.78

Table 4: Environmental Performance Measures near Proposed Class II Projects

HIGH | MEDIUM | LOW

Project ID	Project	Begin	End	Est. VMT Reduced (mi)	Est. GHG Reduced (lbs)	Relative Ozone Burden (percentile)
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	31,000	34,000	0.78
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	19,000	21,000	0.79
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	92,000	101,000	0.77
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	48,000	53,000	0.78
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	33,000	36,000	0.78
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	41,000	45,000	0.77
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	23,000	25,000	0.79
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	58,000	63,000	0.79
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	24,000	26,000	0.79
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	27,000	30,000	0.78
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	21,000	23,000	0.79
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	29,000	32,000	0.77

Table 4: Environmental Performance Measures near Proposed Class II Projects

HIGH | MEDIUM | LOW

Project ID	Project	Begin	End	Est. VMT Reduced (mi)	Est. GHG Reduced (lbs)	Relative Ozone Burden (percentile)
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	35,000	38,000	0.76
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	37,000	40,000	0.74
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	35,000	38,000	0.76
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	12,000	13,000	0.81
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	13,000	14,000	0.81
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	7,000	8,000	0.81
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	0	0	0.81
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	1,000	1,000	0.81
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	7,000	8,000	0.81
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	16,000	18,000	0.81
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	0	0	0.81
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	0	0	0.81

Table 4: Environmental Performance Measures near Proposed Class II Projects

HIGH | MEDIUM | LOW

Project ID	Project	Begin	End	Est. VMT Reduced (mi)	Est. GHG Reduced (lbs)	Relative Ozone Burden (percentile)
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	16,000	18,000	0.81
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	23,000	25,000	0.81
62	CARSON RD	JACQUIER RD	LARSEN DR	4,000	4,000	0.80
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	0	0	0.81
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	40,000	44,000	0.80
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	18,000	20,000	0.80
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	8,000	9,000	0.81
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	9,000	10,000	0.81
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	4,000	4,000	0.78
69	SNOWS RD	FUJI CT	CARSON RD	10,000	11,000	0.81
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	7,000	8,000	0.79
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	5,000	5,000	0.78

Table 4: Environmental Performance Measures near Proposed Class II Projects

HIGH | MEDIUM | LOW

Project ID	Project	Begin	End	Est. VMT Reduced (mi)	Est. GHG Reduced (lbs)	Relative Ozone Burden (percentile)
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	5,000	5,000	0.78
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	0	0	0.78
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	34,000	37,000	0.79
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	6,000	7,000	0.76
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	0	0	0.79
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	0	0	0.77
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	6,000	7,000	0.76
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	7,000	8,000	0.78
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	10,000	11,000	0.76
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	19,000	21,000	0.82
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	34,000	37,000	0.82
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	35,000	38,000	0.82

Table 4: Environmental Performance Measures near Proposed Class II Projects

HIGH | MEDIUM | LOW

Project ID	Project	Begin	End	Est. VMT Reduced (mi)	Est. GHG Reduced (lbs)	Relative Ozone Burden (percentile)
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	37,000	40,000	0.79
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	31,000	34,000	0.82
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	27,000	30,000	0.75
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	41,000	45,000	0.82
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	0	0	0.82
89	BROADWAY	MOSQUITO RD	BLAIR LN	3,000	3,000	0.82

APPENDIX E: DEMAND ANALYSIS

MEMORANDUM

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To: Jerry Barton (EDCTC)

From: Hugh Louch and Kyle James (Alta Planning + Design)

Date: July 17, 2017

Re: EDCTC Active Transportation Connections Study – Demand Analysis

Introduction

This memorandum outlines the process used for forecasting pedestrian and bicycle demand near proposed active transportation projects as part of the El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study. The purpose of the study is to develop a process to identify the proposed pedestrian and bicycle projects within El Dorado County's western slope that may be the most competitive under various grant application criteria. Completing competitive grant applications can be time and data intensive, so selecting projects that have the greatest probability of receiving funding helps maximize limited resources. The ability of a project to be well used by local residents and visitors is a commonly featured criterion in active transportation grant requirements. Forecasting demand will help identify the projects that could attract the largest number of users and will help prioritize which projects should be included in a grant application.

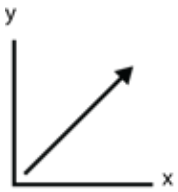
Why Demand

Projects that can demonstrate demand from local residents and visitors tend to be more competitive in grant applications such as Caltrans' Active Transportation Program (ATP), Caltrans' Highway Safety Improvement Program (HSIP) grant applications, and U.S. DOT's Transportation Investment Generating Economic Recovery (TIGER) discretionary grants. The most recent ATP scoring rubric (Cycle 3) assigned up to 18 points (out of 100 total points) to projects that could "clearly and convincingly demonstrate" that its implementation would result in "meaningful increases in the number… of walking and bicycling users in the project area. In addition, Caltrans requested that applicants provide one year and five year estimates of pedestrian and bicyclist demand. Similarly, HSIP applications require estimates of average daily traffic, including pedestrian and bicyclist traffic, and TIGER applications include selection criteria such as economic competitiveness and environmental sustainability the require an understanding of user demand to answer with clarity.

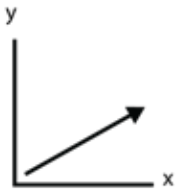
Funding and building projects with high user demand is also consistent with the goals discussed in the Regional Transportation Plan, which calls for the development of an integrated multi-modal transportation system that supports the needs of its users and enhances the overall quality of life for the region. Specifically, Objective C under the "Highways, Streets, and Regional/Inter-Regional Roadways" goal focuses on cost effectiveness, demand, and prioritization for all travel modes and all users.

Method

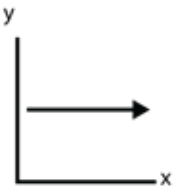
The approach used in this memorandum to forecast pedestrian and bicycle demand relies on a statistical process called **regression analysis**. This analysis helps answer questions about how one factor, like how many people are bicycling on a path, relates to a series of other factors, such as the number of people living near the path, their ages, and how much money they make. To understand these relationships, a regression analysis asks questions like 'what is the average number of people bicycling on a path if the population, age, and income of people living nearby are held constant?' That is, if we built a new path next to the same number of people, that were all the same age, and had the same annual income as the people living near an existing path, should we expect there to be a similar demand for people wanting to bicycle on the new path as there is on the existing path?



Perfect Positive Relationship (+1.0)



Strong Positive Relationship (+0.4)



No Relationship (0.0)

To answer this type of question requires two sets of information: (1) counts of the number of people bicycling on paths, bicycle lanes, and other travelways similar to the kind you want to forecast demand for and (2) demographic, socioeconomic, and other data about the people, places, and facilities that are nearby or directly related to the path you want to study. As part of the Active Transportation Connections Study, EDCTC collected pedestrian and bicycle count data at 19 locations in El Dorado County's western slope (see *Bicycle and Pedestrian Count Data Memorandum* in Appendix B for more information on how and where the counts were collected), and as part of this demand analysis, demographic, socioeconomic, and other data about the people, places, and facilities near the count locations was collected. **Table 1** shows a full list of factors considered in the regression analysis.

Strong Negative Relationship (-0.4)

Perfect Negative Relationship (-1.0)

While all these factors were considered in the regression analysis, only a few showed a strong relationship with the number of existing pedestrians and bicyclists at the 19 count locations. In a regression analysis, the strength of a relationship between two factors is measured by a statistical tool called the **correlation coefficient**. The values for this tool range from -1.0 to 1.0, with -1.0 representing a perfect negative relationship, 0.0 representing no relationship, and +1.0 representing a perfect positive relationship. That is, if two factors return a correlation coefficient of -1.0, that means that as one increases, the other decreases proportionately. If two factors return a correlation coefficient of +1.0, that means that as one increases, the other also increases proportionately. It's unlikely that any two factors for a demand analysis would have a perfect negative or positive relationship, but some can show a strong negative or positive relationship by getting "closer" to these values. In the case of this analysis, "closer" means value less than -0.4 or greater than +0.4. While not all of these factors necessarily represent strong relationships, looking at combinations of multiple factors with moderately strong relationships – which is called **multiple regression** – allows an analyst to see how many factors play off one another to influence pedestrian and bicycle demand.

Table 1: Factors Considered

Factors	Detail	Buffer Distance(s) (mi)	Source
Presence of Class I Facility	N/A	N/A	EDCTC
Presence of Class II Facility	N/A	N/A	EDCTC
Presence of Sidewalk	N/A	N/A	Google Maps
Total Bicycle- and Pedestrian-involved Collisions	N/A	1.00, 0.50 miles	SWITRS (2009-2013), Safety Memorandum
Bicycle- and Pedestrian-involved Collision Severity (minor, severe, fatal)	N/A	1.00, 0.50 miles	SWITRS (2009-2013), Safety Memorandum
Safety Issues	N/A	Directly adjacent to proposed project or along parallel route	Safety Memorandum
All Trips (2010)	All trips originating or ending in the Transportation Analysis Zone(s) surrounding the project	N/A	El Dorado County, Connectivity Memorandum
Bicycle and Walk Trips (2010)	All trips originating or ending in the Transportation Analysis Zone(s) surrounding the project	N/A	El Dorado County, Connectivity Memorandum
All Short Distance Trips (2010)	All trips originating or ending in the Transportation Analysis Zone(s) surrounding the project	N/A	El Dorado County, Connectivity Memorandum
Number of Activity Centers	Schools, businesses, etc.	2.00, 1.00, 0.50, 0.25	ESRI, Connectivity Memorandum
Population	Total, under 18, 18-34, over 64	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Race	Non-white (total and percent)	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Employment	Employed, unemployment (total and percent of civilian labor force)	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Daily Commute Trips by Mode	Drive alone, transit, bicycle, walk	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Commute Mode Share	Drive alone, transit, bicycle, walk	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)

Factors	Detail	Buffer Distance(s) (mi)	Source
Commute Travel Time	Less than 5 minutes, less than 10 minutes, greater than 44 minutes (total commuters and percent of total commuters)	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Number of Households	N/A	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Single-Parent Households	(total and percent of total households)	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Median Household Income	Less than $50,000, greater than $150,000 (total households and percent of total households)	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Access to a Motor Vehicle	Households with no access to a motor vehicle (total and percent of total households)	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Poverty	Number of individuals living below poverty level (total and percent)	2.00, 1.00, 0.50, 0.25	ACS (2011-2015)
Land Use	Acres of residential, commercial, industrial, non-residential land use	2.00, 1.00, 0.50, 0.25	El Dorado County
Population per Acre of Residential Land Use	N/A	2.00, 1.00, 0.50, 0.25	ACS (2011-2015), El Dorado County
Employed Population per Acre of Non-residential Land Use	N/A	2.00, 1.00, 0.50, 0.25	ACS (2011-2015), El Dorado County
Acres of Parks	N/A	2.00, 1.00, 0.50, 0.25	El Dorado County
Number of Schools	N/A	2.00, 1.00, 0.50, 0.25	El Dorado County
Number of Transit Stops	N/A	2.00, 1.00, 0.50, 0.25	El Dorado Transit
Transit Activity	Combined boardings and alightings	2.00, 1.00, 0.50, 0.25	El Dorado Transit
Street Density	Miles of roadways within buffer distance	2.00, 1.00, 0.50, 0.25	TIGER

Pedestrian Demand

Eleven factors had moderate to strong relationships with the number of pedestrian trips on a typical weekday near the count locations. The relationship between pedestrian trips and these factors is detailed below.

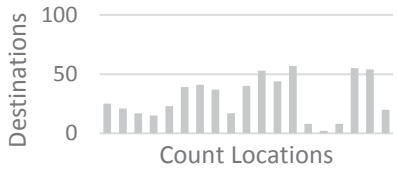
Presence of Class I Facility

Correlation Coefficient: 0.46 (moderate)
Standard Error: 101.79 (large)
p-value: 0.11 (not significant at α=0.05)

Distribution

Number of Activity Centers

Within 2 miles
Correlation Coefficient: 0.56 (moderate)
Standard Error: 7.42 (small)
p-value: 0.32 (not significant at α=0.05)

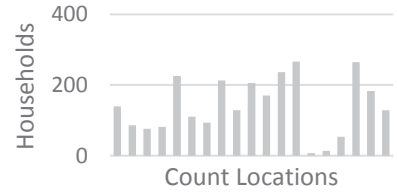


Street Density

Within 2 miles
Correlation Coefficient: 0.70 (strong)
Standard Error: 0.36 (small)
p-value: 0.42 (not significant at α=0.05)

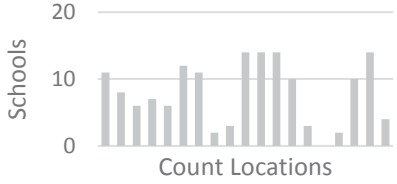
Access to a Motor Vehicle

Within 2 miles
Correlation Coefficient: 0.62 (moderate)
Standard Error: 1.35 (small)
p-value: 0.20 (not significant at α=0.05)



Number of Schools

Within 2 miles
Correlation Coefficient: 0.40 (moderate)
Standard Error: 14.80 (large)
p-value: 0.50 (not significant at α=0.05)



Population (18-34 years)

Within 0.5 miles
Correlation Coefficient: 0.33 (moderate)
Standard Error: 0.23 (small)
p-value: 0.31 (not significant at α=0.05)

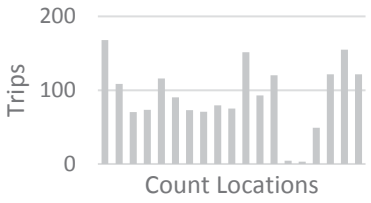
Distribution

% Commutes <10 min.

Within 0.5 miles
Correlation Coefficient: 0.64 (moderate)
Standard Error: 847.99 (large)
p-value: 0.60 (not significant at α=0.05)

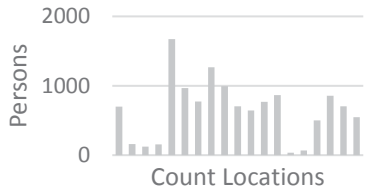
Commutes <5 min.

Within 2 miles
Correlation Coefficient: 0.57 (moderate)
Standard Error: 2.03 (small)
p-value: 0.17 (not significant at α=0.05)



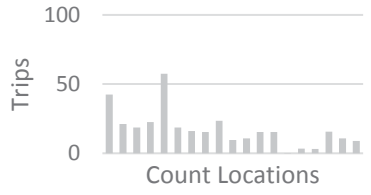
People below Poverty

Within 2 miles
Correlation Coefficient: 0.52 (moderate)
Standard Error: 0.18 (small)
p-value: 0.70 (not significant at α=0.05)



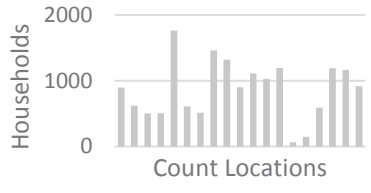
Transit Commute Trips

Within 0.5 miles
Correlation Coefficient: 0.30 (weak)
Standard Error: 9.90 (small)
p-value: 0.10 (not significant at α=0.05)



Income <$50,000

Within 2 miles
Correlation Coefficient: 0.60 (moderate)
Standard Error: 0.34 (small)
p-value: 0.38 (not significant at α=0.05)



Combining these 11 factors into a **linear regression model** produces the following equation to forecast the estimated number of pedestrians near a proposed project on a typical day in the western slope of El Dorado County:

Est. Number of Pedestrians = - 56.09 (constant)
+ 187.84 (Presence of Existing Class I Facility)
+ 7.90 (Number of Activity Centers within 2 miles)
+ 0.31 (Street Density within 2 miles)
- 1.92 (Households without Access to a Motor Vehicle within 2 miles)
- 10.48 (Number of Schools within 2 miles)
- 0.25 (Population between 18-34 years within 0.5 miles)
+ 470.06 (Percent of Commute Trips less than 10 minutes within 0.5 miles)
- 3.13 (Commute Trips less than 5 minutes within 2 miles)
+ 0.07 (Individuals Living Below Poverty Level within 2 miles)
+ 19.08 (Transit Commute Trips within 0.5 miles)
+ 0.32 (Household Annual Incomes less than $50,000 within 2 miles),

where Est. Number of Pedestrians ≥0

To discuss the accuracy and limitations of using the above equation, a few additional statistical tools are helpful. The first is **Adjusted R^2**, which shows the *explanatory power* of a regression model with multiple factors. The model helped *explain* part of the relationship between the number of people walking near the count locations and the surrounding demographic, socioeconomic, and environmental factors that might encourage walking. In fact, because the Adjusted R^2 value was 0.49, the model helped explain 49 percent of the what was influencing pedestrian demand. This means that other factors not included in the model may help explain the remaining 51 percent of what influences pedestrian demand. The other factors influencing people to walk near the count locations might include good views of nature, potholes, cracks in the sidewalk, randomness in the data, or any number of other factors that aren't easily included in the model.

A second statistical tool used for understanding the accuracy and limitations of the pedestrian demand model is **Standard Error**. This is the range above or below (+/-) the estimated number of pedestrians to which we know the model might may be off by at a certain level of confidence. In this case, we are 95 percent confident that the pedestrian demand model is accurate within +/- 118 pedestrians.

A third statistical tool used for understanding the accuracy and limitations of the pedestrian demand model is **Residuals**. This technique plugs the data for each count location into the equation above and shows how far off from the observed value (what was collected in the field) the equation is. **Table 2** shows the residuals for the 19 count locations.

Table 2: Residual Values for Pedestrian Demand at Count Locations

ID*	Count Location	Observed Pedestrians on a Typical Weekday**	Forecasted Pedestrian Demand using Model	Residual Value (observed - forecasted)
1	EL DORADO HILLS BLVD. FROM WOEDEE DR TO ST ANDREWS DR	84	158	-74
2	EL DORADO HILLS BLVD FROM GREEN VALLEY RD TO FRANCISCO DR	27	29	-2
3	GREEN VALLEY RD FROM SOPHIA PKWY TO FRANCISCO DR	9	0	9
4	SOPHIA PKWY FROM GREEN VALLEY RD TO NATOMA ST	44	29	15
5	COUNTRY CLUB DR FROM EL NORTE RD TO CAMBRIDGE RD	475	427	48
6	VALLEY VIEW PKWY AT WHITE ROCK RD	116	88	28
7	POST ST AT WHITE ROCK RD	129	146	0
8	PLAZA GOLDORADO CIR AT PALMER DR	8	90	-82
9	CAMERON PARK DR AT GREEN VALLEY RD	96	110	-14
10	SR 49/PLEASANT VALLEY FROM KOKI LN TO PATTERSON DR	42	8	34
11	SCHNELL SCHOOL RD AT EL DORADO TRAIL	321	355	-34
12	FORNI RD AT EL DORADO TRAIL	218	320	-101
13	GOLDEN CENTER DR AT MISSOURI FLAT RD	152	252	-100
14	SR 193/GEORGETOWN FROM SOUTH ST TO PROSPECT HILL DR	24	43	-19
15	SR 49/COLOMA RD. FROM MARSHALL RD. TO LOTUS RD	28	79	-51
16	PONY EXPRESS TRAIL AT SLY PARK RD	73	0	73
17	EL DORADO TRAIL AT MISSOURI FLAT RD	557	356	201
19	EL DORADO TRAIL AT MOSQUITO RD	394	358	36
20	EL DORADO TRAIL AT JACQUIER RD	169	195	-26

* Count location #18 was averaged with count location #12 as they were the same location collected at different points in time using different data collection methods.

** See *Bicycle and Pedestrian Count Data Memorandum* for how the observed pedestrian values were extrapolated to average annual daily value.

The residual value – *or the difference between the observed and forecasted values* - ranged between 2 pedestrians and 201 pedestrians in **Table 2**. While this may seem like a large range, it is reasonable given the relatively low number of observations (count locations), the high degree of variability and randomness in pedestrian counts, and the fact that the observed pedestrian values were extrapolated to average daily values using national data because local data was unavailable. Applying this pedestrian demand model to the proposed project, while imperfect, gives a rough estimate of demand for pedestrian trips near the proposed alignments. See **Figure 1** and **Table 3** for the pedestrian demand estimates of the proposed project list.

Figure 1: Pedestrian Demand Estimates (+/- 118 pedestrians)

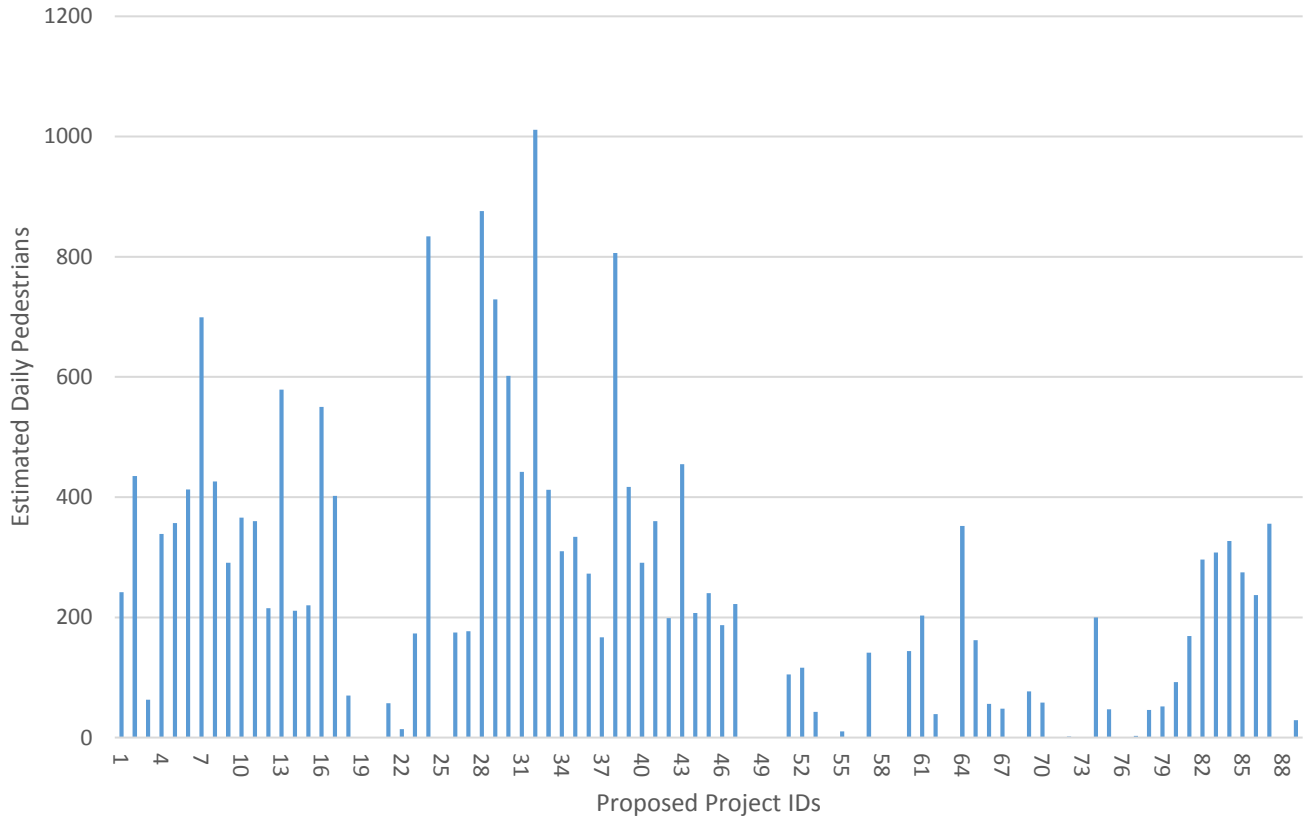


Table 3: Pedestrian Demand Estimates (+/- 118 pedestrians)

ID	Corridor	Begin	End	Est. Number of Pedestrians	Simplified Output*
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	242	Mid
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	435	High
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	63	Low
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	339	High
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	357	High
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	413	High
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	699	High
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	426	High
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	291	Mid
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	366	High
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	360	High
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	215	Mid
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	579	High
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	211	Mid
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	220	Mid
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	550	High
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	402	High
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	70	Low
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	0	Low

Table 3: Pedestrian Demand Estimates (+/- 118 pedestrians)

ID	Corridor	Begin	End	Est. Number of Pedestrians	Simplified Output*
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	0	Low
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	57	Low
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	14	Low
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	173	Mid
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	834	High
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	0	Low
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	175	Mid
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	177	Mid
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	876	High
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	729	High
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	602	High
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	442	High
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	1,011	High
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	412	High
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	310	High
35	COACH LN	RODEO RD	END OF COACH LN	334	High
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	273	Mid
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	167	Mid
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	806	High
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	417	High
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	291	Mid
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	360	High
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	199	Mid
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	455	High
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	207	Mid
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	240	Mid
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	187	Mid
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	222	Mid

Table 3: Pedestrian Demand Estimates (+/- 118 pedestrians)

ID	Corridor	Begin	End	Est. Number of Pedestrians	Simplified Output*
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	0	Low
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	0	Low
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	0	Low
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	105	Mid
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	116	Mid
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	43	Low
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	0	Low
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	10	Low
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	0	Low
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	141	Mid
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	0	Low
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	0	Low
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	144	Mid
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	203	Mid
62	CARSON RD	JACQUIER RD	LARSEN DR	39	Low
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	0	Low
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	352	High
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	162	Mid
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	56	Low
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	48	Low
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	0	Low
69	SNOWS RD	FUJI CT	CARSON RD	77	Low
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	58	Low

Table 3: Pedestrian Demand Estimates (+/- 118 pedestrians)

ID	Corridor	Begin	End	Est. Number of Pedestrians	Simplified Output*
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	0	Low
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	2	Low
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	0	Low
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	200	Mid
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	47	Low
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	0	Low
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	3	Low
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	46	Low
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	52	Low
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	92	Low
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	169	Mid
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	296	Mid
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	308	High
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	327	High
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	275	Mid
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	237	Mid
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	356	High
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	0	Low
89	BROADWAY	MOSQUITO RD	BLAIR LN	29	Low

*'Low' represents minimum to 25th percentile of estimated number of pedestrians, 'Mid' represents 26th percentile to 50th percentile of estimated number of pedestrians, and 'High' represents 51st percentile to max number of pedestrians/.

Bicyclist Demand

Eight factors had moderately strong relationships with the number of bicycle trips on a typical weekday near the count locations. The relationship between bicycle trips and these factors is detailed below.

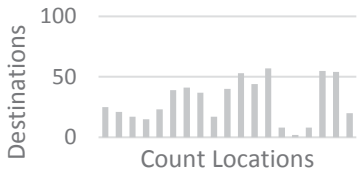
Presence of Class I Facility

Correlation Coefficient: 0.61 (moderate)
Standard Error: 13.86 (large)
p-value: 0.07 (not significant at α=0.05)

Distribution

Number of Activity Centers

Within 2 miles
Correlation Coefficient: 0.47 (moderate)
Standard Error: 0.68 (small)
p-value: 0.03 (significant at α=0.05)

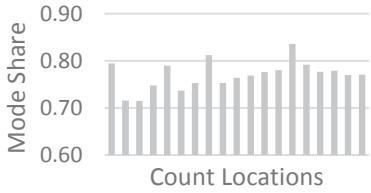


% Single-Parent

Within 2 miles
Correlation Coefficient: -0.35 (moderate)
Standard Error: 214.16 (large)
p-value: 0.47 (not significant at α=0.05)

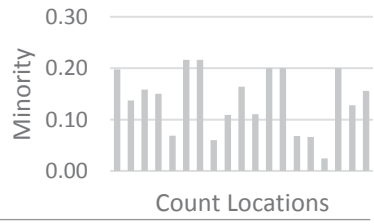
Drive Alone Mode Share

Within 1 mile
Correlation Coefficient: -0.37 (moderate)
Standard Error: 211.35 (large)
p-value: 0.39 (not significant at α=0.05)



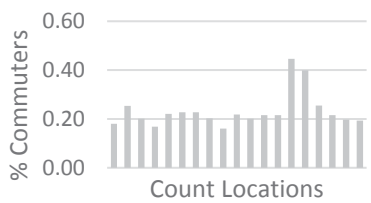
% Minority

Within 0.25 miles
Correlation Coefficient: 0.58 (moderate)
Standard Error: 125.90 (large)
p-value: 0.03 (significant at α=0.05)



% Commutes >44 min.

Within 0.25 miles
Correlation Coefficient: -0.51 (moderate)
Standard Error: 112.01 (large)
p-value: 0.11 (not significant at α=0.05)



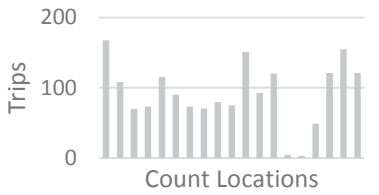
Street Density

Within 2 miles
Correlation Coefficient: 0.56 (moderate)
Standard Error: 0.04 (small)
p-value: 0.01 (significant at α=0.05)

Distribution

Commutes <5 min.

Within 2 miles
Correlation Coefficient: 0.61 (moderate)
Standard Error: 0.24 (small)
p-value: 0.25 (not significant at α=0.05)



Combining these eight factors into a **linear regression model** produces the following equation to forecast the estimated number of bicyclists near a proposed project on a typical day in the western slope of El Dorado County):

Est. Number of Bicyclists = + 194.05 (constant)
+ 28.70 (Presence of Existing Class I Facility)
- 1.73 (Number of Activity Centers within 2 miles)
+ 159.95 (Percent of Households with Single Parents within 2 miles)
- 188.23 (Drive Alone Mode Share within 1 mile)
+ 324.92 (Percent Minority within 0.25 miles)
- 194.72 (Percent of Commute Trips greater than 44 minutes within 0.25 miles)
+ 0.12 (Street Density within 2 miles)
- 0.29 (Percent of Commute Trips less than 5 minutes within 2 miles),

where Est. Number of Bicyclists ≥0

To discuss the accuracy and limitations of using the above equation, a few additional statistical tools are helpful. The first is **Adjusted R^2**, which shows the *explanatory power* of a regression model with multiple factors. The model helped *explain* part of the relationship between the number of people bicycling near the count locations and the surrounding demographic, socioeconomic, and environmental factors that might encourage bicycling. In fact, because the Adjusted R^2 value was 0.65, the model helped explain 65 percent of the what was influencing bicyclist demand. This means that other factors not included in the model may help explain the remaining 35 percent of what influences bicyclist demand. The other factors influencing people to bicycle near the count locations might include good views of nature, potholes, poor pavement quality, randomness in the data, or any number of other factors that aren't easily included in the model.

A second statistical tool used for understanding the accuracy and limitations of the bicyclist demand model is **Standard Error**. This is the range above or below (+/-) the estimated number of bicyclists to which we know the model might may be off by at a certain level of confidence. In this case, we are 95 percent confident that the pedestrian demand model is accurate within +/- 18 bicyclists.

A third statistical tool used for understanding the accuracy and limitations of the pedestrian demand model is **Residuals**. This technique plugs the data for each count location into the equation above and shows how far off from the observed value (what was collected in the field) the equation is. **Table 4** shows the residuals for the 19 count locations.

Table 4: Residual Values for Bicyclist Demand at Count Locations

ID*	Count Location	Observed Bicyclists on a Typical Weekday**	Forecasted Bicyclist Demand using Model	Residual Value (observed - forecasted)
1	EL DORADO HILLS BLVD. FROM WOEDEE DR TO ST ANDREWS DR	45	47	-2
2	EL DORADO HILLS BLVD FROM GREEN VALLEY RD TO FRANCISCO DR	29	50	-21
3	GREEN VALLEY RD FROM SOPHIA PKWY TO FRANCISCO DR	79	50	29
4	SOPHIA PKWY FROM GREEN VALLEY RD TO NATOMA ST	54	45	9
5	COUNTRY CLUB DR FROM EL NORTE RD TO CAMBRIDGE RD	33	33	0
6	VALLEY VIEW PKWY AT WHITE ROCK RD	56	48	8
7	POST ST AT WHITE ROCK RD	36	33	3
8	PLAZA GOLDORADO CIR AT PALMER DR	1	0	1
9	CAMERON PARK DR AT GREEN VALLEY RD	31	42	-11
10	SR 49/PLEASANT VALLEY FROM KOKI LN TO PATTERSON DR	8	40	-32
11	SCHNELL SCHOOL RD AT EL DORADO TRAIL	64	58	6
12	FORNI RD AT EL DORADO TRAIL	90	90	0
13	GOLDEN CENTER DR AT MISSOURI FLAT RD	55	66	-11
14	SR 193/GEORGETOWN FROM SOUTH ST TO PROSPECT HILL DR	5	0	5
15	SR 49/COLOMA RD. FROM MARSHALL RD. TO LOTUS RD	4	13	-9
16	PONY EXPRESS TRAIL AT SLY PARK RD	16	16	0
17	EL DORADO TRAIL AT MISSOURI FLAT RD	79	73	6
19	EL DORADO TRAIL AT MOSQUITO RD	85	71	14
20	EL DORADO TRAIL AT JACQUIER RD	89	93	-4

* Count location #18 was averaged with count location #12 as they were the same location collected at different points in time using different data collection methods.

****** See *Bicycle and Pedestrian Count Data Memorandum* for how the observed pedestrian values were extrapolated to average annual daily value.

The residual value – *or the difference between the observed and forecasted values* - ranged between 0 bicyclists and 32 bicyclists in **Table 4**. Applying this bicyclist demand model to the proposed project, gives a rough estimate of demand for bicyclists trips near the proposed alignments. See **Figure 2** and **Table 5** for the bicyclist demand estimates of the proposed project list.

Figure 2: Bicyclist Demand Estimates (+/- 18 bicyclists)

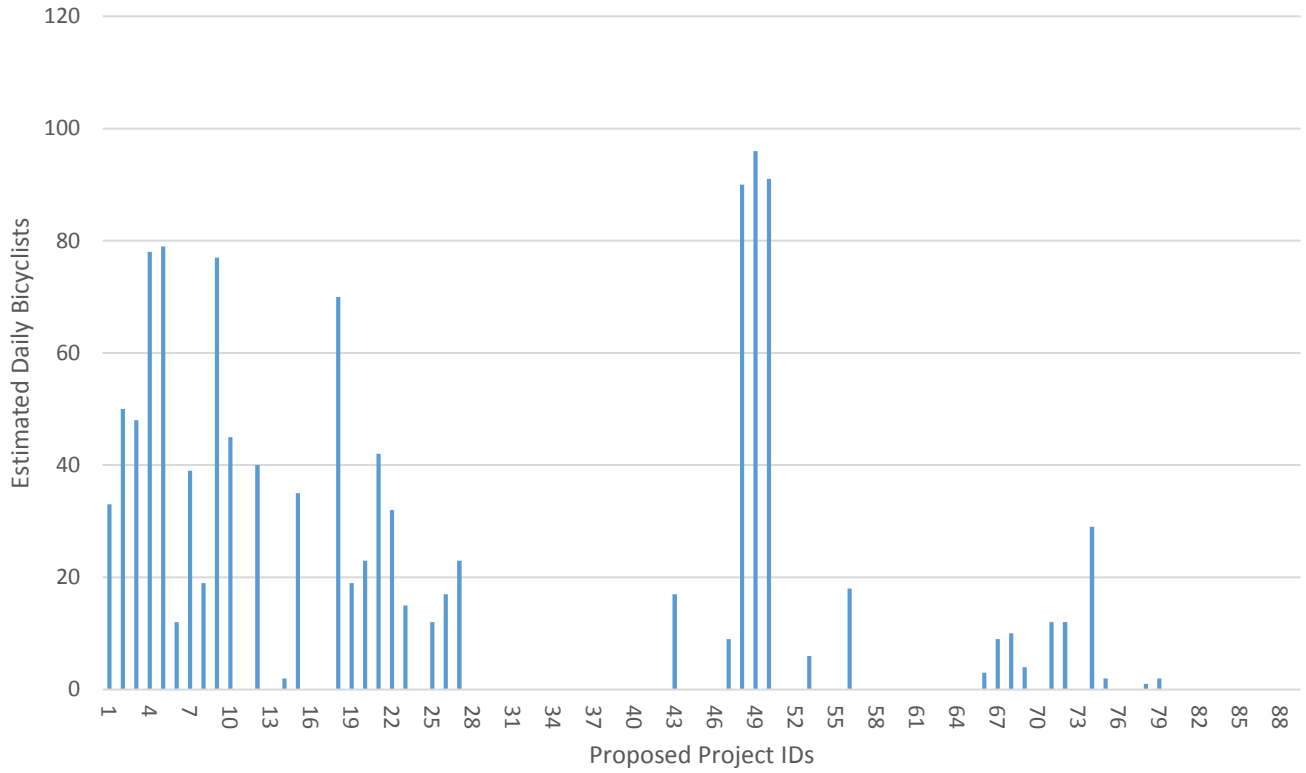


Table 5: Bicyclist Demand Estimates (+/- 18 bicyclists)

ID	Corridor	Begin	End	Est. Number of Bicyclists	Simplified Output*
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	33	Mid
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	50	High
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	48	High
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	78	High
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	79	High
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	12	Mid
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	39	Mid
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	19	Mid
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	77	High
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	45	High
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	0	Low
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	40	Mid
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	0	Low
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	2	Low
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	35	Mid
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	0	Low
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	0	Low
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	70	High
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	19	Mid

Table 5: Bicyclist Demand Estimates (+/- 18 bicyclists)

ID	Corridor	Begin	End	Est. Number of Bicyclists	Simplified Output*
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	23	Mid
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	42	Mid
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	32	Mid
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	15	Mid
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	0	Low
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	12	Mid
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	17	Mid
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	23	Mid
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	0	Low
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	0	Low
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	0	Low
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	0	Low
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	0	Low
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	0	Low
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	0	Low
35	COACH LN	RODEO RD	END OF COACH LN	0	Low
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	0	Low
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	0	Low
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	0	Low
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	0	Low
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	0	Low
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	0	Low
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	0	Low
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	17	Mid
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	0	Low
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	0	Low
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	0	Low
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	9	Low

Table 5: Bicyclist Demand Estimates (+/- 18 bicyclists)

ID	Corridor	Begin	End	Est. Number of Bicyclists	Simplified Output*
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	90	High
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	96	High
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	91	High
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	0	Low
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	0	Low
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	6	Low
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	0	Low
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	0	Low
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	18	Mid
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	0	Low
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	0	Low
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	0	Low
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	0	Low
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	0	Low
62	CARSON RD	JACQUIER RD	LARSEN DR	0	Low
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	0	Low
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	0	Low
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	0	Low
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	3	Low
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	9	Low
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	10	Low
69	SNOWS RD	FUJI CT	CARSON RD	4	Low
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	0	Low

Table 5: Bicyclist Demand Estimates (+/- 18 bicyclists)

ID	Corridor	Begin	End	Est. Number of Bicyclists	Simplified Output*
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	12	Mid
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	12	Mid
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	0	Low
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	29	Mid
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	2	Low
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	0	Low
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	0	Low
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	1	Low
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	2	Low
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	0	Low
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	0	Low
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	0	Low
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	0	Low
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	0	Low
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	0	Low
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	0	Low
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	0	Low
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	0	Low
89	BROADWAY	MOSQUITO RD	BLAIR LN	0	Low

* 'Low' represents minimum to 25th percentile of estimated number of bicyclists, 'Mid' represents 26th percentile to 50th percentile of estimated number of bicyclists, and 'High' represents 51st percentile to max number of bicyclists.

APPENDIX F:
CONNECTIVITY ANALYSIS

MEMORANDUM

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To: Jerry Barton (EDCTC)

From: Hugh Louch, Kyle James, and Jessica Nguyen (Alta Planning + Design)

Date: July 17, 2017

Re: EDCTC Active Transportation Connections Study – Connectivity Analysis

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Introduction

This memorandum identifies connectivity-based performance measures for inclusion within the El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study. The purpose of the overall study is to develop a process to identify the proposed pedestrian and bicycle projects within El Dorado County's western slope that may be the most competitive under various grant application criteria. Completing competitive grant applications can be time and data intensive, so selecting projects that have the greatest probability of receiving funding helps maximize limited resources. Impacts of a project on connectivity and accessibility are a commonly featured criterion in active transportation grant requirements. The identification of a connectivity-based performance measure will help identify the projects that could have the largest impact on making destinations more accessible by foot or bicycle and help prioritize which projects should be included in a grant application.

Why Connectivity?

Connectivity refers to the ability to get from point A to point B. Pedestrians and bicyclists are more sensitive to connectivity and its effect on trip distance than motorists. A small increase in distance may be a minor inconvenience for a motorist, but it can add significant time on a trip for a pedestrian or bicyclist. Having multiple route alternatives for reaching destinations ensures that the full range of road users, including pedestrians, bicyclists, transit riders, and motorists, are adequately served by the transportation network.

Projects that demonstrate the potential to improve connectivity tend to be more competitive in grant applications such as the Caltrans Active Transportation Program (ATP). ATP requires a description of the how a project can improve connectivity for non-motorized transportation users (ATP Cycle 3 Guidelines).

Improving connectivity in El Dorado County also aligns with the Guiding Principles and Goals identified in the Regional Transportation Plan, which seeks to "Promote a safe, convenient, and efficient non-motorized transportation system which is part of a balanced overall transportation system for all users."

Discussion

This memorandum provides an overview of three approaches to the development of a connectivity performance measure for distinguishing between the proposed pedestrian and bicycle projects in El Dorado County: (1) proximity to activity centers, (2) connections to existing facilities, and (3) origins-destinations.

"Proximity to activity centers" counted the number of schools, government buildings, hospitals, and other major destinations within one-half mile and two miles of a proposed project. This provides a high-level look at the number of places that could be reached by walking and bicycling if the proposed facility were to be constructed. The data for this potential performance measure is readily available, easy to calculate, directly aligns with grant application criteria, and provided a good range of results when applied to the proposed project list. However, this performance measure does not provide insight into the relationship between the proposed facility and existing facilities. For example, closing a small gap between two larger existing active transportation facilities may improve connectivity for pedestrians and bicyclists, but if there are no activity centers near the gap closure project, the performance measure will not highlight its connection to a larger network that extends to many activity centers.

"Connection to existing facilities" highlights this connection to a larger network by showing how many miles of existing active transportation infrastructure a proposed project intersects. The data for this performance measure is readily available and easy to calculate. However, it does not directly align with grant application criteria and, when applied to the proposed project list, provided a limited range of results with only a small number of proposed projects overlapping with existing facilities. As more facilities are built, this measure could become more useful.

The final performance measure discussed was "origins-destinations". This measure highlights the existing number of trips into and out of Transportation Analysis Zones (TAZs) intersecting with a given proposed project. The data for this performance measure requires some knowledge about travel demand modeling to calculate, making it less intuitive compared to the other potential measures. However, it does provide the best approximate of existing activity near a proposed facility. Although "proximity to activity centers" shows the number of potential destinations near a proposed project, "origins-destinations" shows how many people may be visiting those destinations, helping to distinguish between minor and major activity centers.

Advisory Committee's Recommendation

While each of the three potential performance measures provides a proxy for how a proposed project could improve pedestrian and bicycle connectivity in El Dorado County, the Active Transportation Connections Study's advisory committee recommended "origins-destinations" as the preferred measure because it provided the most nuanced view of connectivity in a single measure.

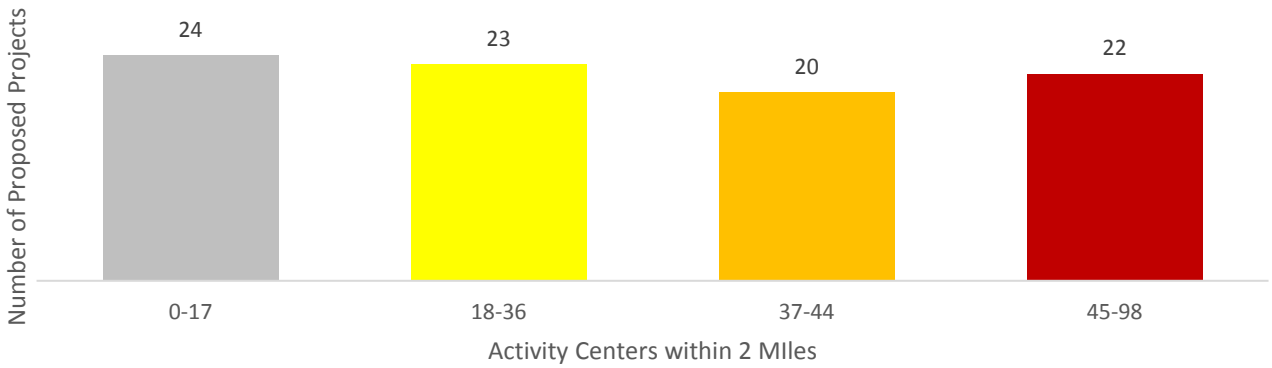
Potential Performance Measures

Based on existing literature and common grant application requirements, we have identified three potential approaches to measuring connectivity. Each approach presents tradeoffs between data inputs, time to perform the calculations, and intuitiveness to the public and decision makers. The three approaches included in this memorandum are: (1) proximity to activity centers, (2) connection to existing active transportation infrastructure, and (3) origins-destinations (number of trips to and from the area surrounding proposed projects). The following sections describe the data sources, methods, and results for each of the potential connectivity-based performance measures.

Proximity to Activity Centers

The first approach to measuring connectivity was the proximity of a given project to activity centers, such as schools, libraries, government buildings, cemeteries, museums, places of worship, and hospitals/clinics. Activity center data from ESRI, a geographic software company, was downloaded for El Dorado County, and the total number of activity centers within one-half mile and two miles of each proposed project were identified. See **Figure 1** for a distribution of activity centers within two miles of the proposed projects.

Figure 1: Activity Centers within 2 Miles of Proposed Projects



Proposed Class I Projects

The number of activity centers near the proposed Class I multi-use path projects range between 0 and 19 within one-half mile and 10 to 63 within two miles. Proposed **Project #11: SPTC – El Dorado Trail (Phase I)** from El Dorado Road to Missouri Flat Road had the greatest proximity to activity centers with 63 within a two-mile radius around the proposed project extents (See **Table 1**).

Proposed Class II Projects

The number of activity centers near the proposed Class II on-street bicycle facility projects ranged from 0 to 34 activity centers within one-half mile and from 1 to 98 activity centers within two miles. Proposed **Project #83: Forni Road** from Ray Lawyer Drive to Highway 50/ Placerville Drive had the greatest proximity to activity centers with 98 within a two-mile radius around the proposed project extents (See **Table 2**).

Proposed Pedestrian Projects

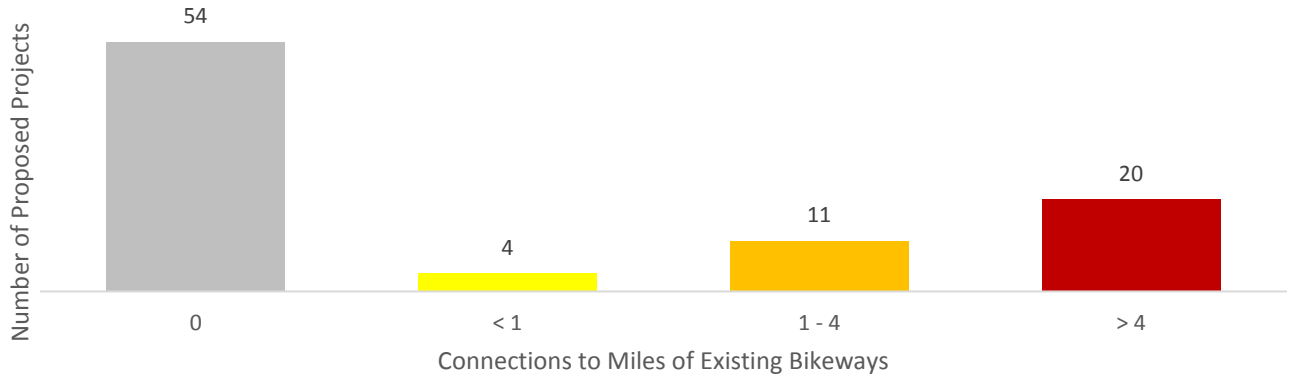
While this analysis only assessed adopted active transportation projects and, therefore only includes Class I and Class II bikeways, the intention of the analysis to set up a process by which pedestrian projects can be included once they are adopted through a formal process.

This approach captures how many different destinations that an individual could reach by foot or bicycle if a project were constructed. However, for proposed projects that close relatively small gaps in an otherwise large network, this potential performance measure does not show how the proposed project relates to the network as a whole.

Connection to Existing Facilities

The second approach to measuring connectivity assesses how a proposed project connects to existing pedestrian and bicycle facilities. For example, a proposed Class I project that connects to five miles of existing multi-use paths and one mile of existing Class II on-street bikeways would connect to a total of six miles of existing active transportation infrastructure. This approach shows the relationship between a proposed project and the network as a whole, but provides limited insight into whether a proposed project will get an individual where he or she wants to go. See **Figure 2** for a distribution of the miles of existing facilities to which the proposed projects connect.

Figure 2: Connection of Proposed Projects to Existing Facilities



Proposed Class I Projects

Due to the lack of existing bicycle facilities and multi-use paths in El Dorado County, the connections to proposed Class I multi-use paths and existing facilities was minimal (See **Table 1**). Only four out of the 16 proposed Class I projects connected to an existing facility. Below is a list of those four proposed projects:

- #1: El Dorado Hills Boulevard Bike Path (Phase 1) from Brittany Place to Governor Drive/ St. Andrews Drive – Connects to 1.97 miles of existing bikeways
- #2: El Dorado Hills Boulevard Bike Path (Phase 2) from Serrano Parkway to El Dorado Hills Village Shopping Center – Connects to 5.34 miles of existing bikeways
- #3: El Dorado Hills New York Creek Trail (Phase 2) from Tam O'Shanter Drive to the current New York Creek Trail terminus – Connects to 0.25 miles of existing bikeways
- #11: SPTC – El Dorado Trail (Phase 1) from El Dorado Road to Missouri Flat Road – Connects to 3.13 miles of existing bikeways

Proposed Class II Projects

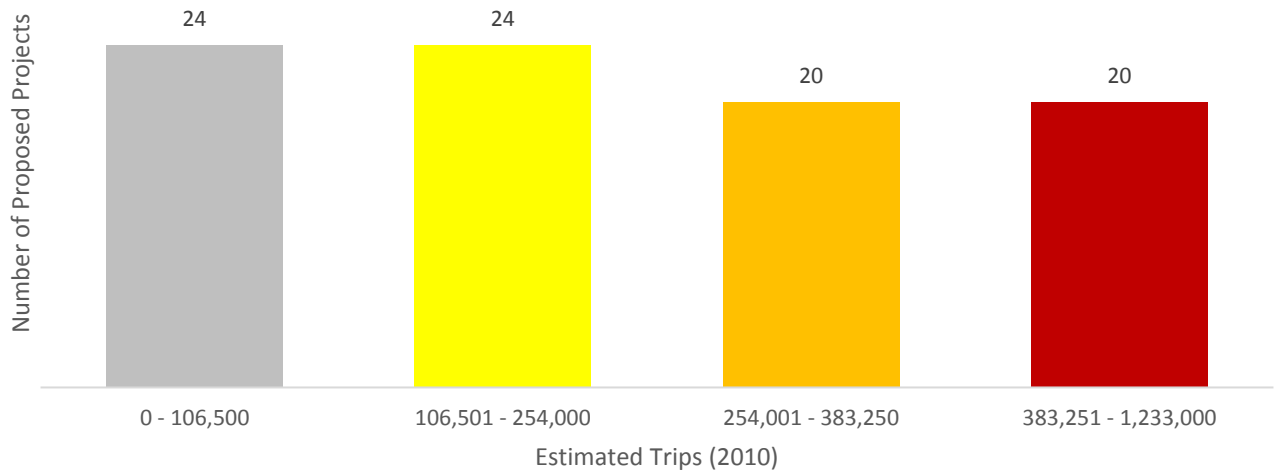
Similarly, small percent of proposed Class II on-street bikeways would connect to existing facilities (See **Table 2**). Thirty-one of the 71 projects would connect with at least one existing bikeway; with five connecting to over 8 miles of bikeways (listed below):

- #15: White Rock Road from County Boundary (west) to Carson Crossing Road – Connects to 8.37 miles of existing bikeways
- #18: Latrobe Road from Wetsel-Oviatt Road to SPTC – El Dorado Trail – Connects to 8.37 miles of existing bikeways
- #23: Post Street from Town Center Boulevard to White Rock Road – Connects to 8.37 miles of existing bikeways
- #27: Golden Foothill Parkway from Latrobe Road (north) to Latrobe Road (south) – Connects to 8.37 miles of existing bikeways
- #47: Latrobe Road from Investment Boulevard to SPTC – El Dorado Trail – Connects to 8.37 miles of existing bikeways

Origins-Destinations

The third approach to measuring connectivity involved estimating the number of existing and future trips that originate and end near each proposed project. Trip origin and destination data was obtained from El Dorado County's travel demand model. The model divides the county into 624 zones, known as Transportation Analysis Zones (TAZ), and estimates the number of trips that travel from one zone (origin) to another (destination), including trips within individual zones. This provides a high-level view of travel patterns in El Dorado County and gives a general idea of the areas that residents most want to go. See **Figure 3** for a distribution of the estimated number of trips that originated or ended in the TAZs surrounding a given proposed project.

Figure 3: Estimated Number of Trips Originating or Ending in TAZs near Proposed Projects (2010)



Proposed Class I Projects

The estimated number of trips in 2010 that originated or ended in a TAZ surrounding the proposed Class I projects ranged between 1,000 and 480,000 per year. The three proposed Class I projects with the most estimated trips are listed below:

- #1: El Dorado Hills Boulevard Bike Path (Phase 1) from Brittany Place to Governor Drive/ St. Andrews Drive – 480,000 estimated trips per year
- #5: Highway 50 Crossing from El Dorado Hills Village Shopping Center to El Dorado Hills Town Center – 405,000 estimated trips per year
- #7: Bass Lake Bike Path Connection from Covello Circle (east) to Summer Drive – 376,000 estimated trips per year

Proposed Class II Projects

The estimated number of trips in 2010 that originated or ended in a TAZ surrounding the proposed Class II projects ranged between 0 and 1,233,000 per year. The three proposed Class II projects with the most estimated trips are listed below:

- #17: EL Dorado Hills Boulevard (Phase 2) from Governor Drive/ St. Andrews Drive to Green Valley Road – 955,000 estimated trips per year
- #29: Cameron Park Drive from Durock Road to Highway 50 – 1,099,00 estimated trips per year
- #47: Latrobe Road between Investment Boulevard to SPTC – El Dorado Trail – 1,233,000 estimated trips per year

Table 1: Activity Centers and Miles of Existing Facilities near Proposed Class I Multi-use Paths

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	ACTIVITY CENTERS WITHIN 2 MILES	ACTIVITY CENTERS WITHIN HALF MILE	MILES OF EXISTING FACILITIES	ANNUAL TRIPS (2010)
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	31	2	1.97	480,000
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	40	7	5.34	151,000
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	23	1	0.25	205,000
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	40	1	0.00	1,000
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	40	9	0.00	405,000
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	31	9	0.00	89,000
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	29	0	0.00	376,000
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	33	3	0.00	75,000
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	25	1	0.00	19,000
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	28	2	0.00	252,000

Table 1: Activity Centers and Miles of Existing Facilities near Proposed Class I Multi-use Paths

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	ACTIVITY CENTERS WITHIN 2 MILES	ACTIVITY CENTERS WITHIN HALF MILE	MILES OF EXISTING FACILITIES	ANNUAL TRIPS (2010)
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	63	19	3.13	253,000
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	10	3	0.00	56,000

Table 2: Activity Centers and Miles of Existing Facilities near Proposed Class II Bikeways

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	ACTIVITY CENTERS WITHIN 2 MILES	ACTIVITY CENTERS WITHIN HALF MILE	MILES OF EXISTING FACILITIES	ANNUAL TRIPS (2010)
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	52	16	1.97	693,000
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	38	1	0.00	226,000
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	36	2	8.37	907,000
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	58	17	0.25	910,000
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	41	16	6.81	955,000
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	16	0	8.37	325,000
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	21	8	1.97	336,000
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	23	7	4.32	304,000
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	23	3	4.84	176,000
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	24	2	0.00	229,000
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	57	7	8.37	463,000
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	56	10	4.46	834,000
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	17	6	0.00	243,000
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	40	17	0.00	338,000

Table 2: Activity Centers and Miles of Existing Facilities near Proposed Class II Bikeways

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	ACTIVITY CENTERS WITHIN 2 MILES	ACTIVITY CENTERS WITHIN HALF MILE	MILES OF EXISTING FACILITIES	ANNUAL TRIPS (2010)
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	39	23	8.37	589,000
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	37	4	2.33	505,000
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	1	24	1.56	1,099,000
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	40	18	0.00	619,000
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	29	7	0.00	345,000
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	39	12	1.56	916,000
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	50	4	0.00	428,000
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	38	13	0.00	224,000
35	COACH LN	RODEO RD	END OF COACH LN	40	14	0.00	270,000
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	40	17	0.00	515,000
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	32	11	0.00	262,000
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	36	10	0.00	368,000
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	24	11	1.56	452,000
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	44	3	0.00	145,000
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	28	7	0.00	273,000
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	31	9	0.00	214,000
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	12	6	0.64	340,000

Table 2: Activity Centers and Miles of Existing Facilities near Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	ACTIVITY CENTERS WITHIN 2 MILES	ACTIVITY CENTERS WITHIN HALF MILE	MILES OF EXISTING FACILITIES	ANNUAL TRIPS (2010)
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	32	10	0.00	265,000
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	36	12	0.00	78,000
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	31	10	0.00	78,000
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	46	32	8.37	1,233,000
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	1	1	0.00	57,000
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	1	1	0.00	40,000
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	2	2	0.00	40,000
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	58	10	0.00	292,000
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	52	19	5.75	407,000
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	24	1	5.18	32,000
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	41	15	0.00	339,000
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	44	25	0.00	380,000
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	14	4	0.00	257,000

Table 2: Activity Centers and Miles of Existing Facilities near Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	ACTIVITY CENTERS WITHIN 2 MILES	ACTIVITY CENTERS WITHIN HALF MILE	MILES OF EXISTING FACILITIES	ANNUAL TRIPS (2010)
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	68	3	5.73	77,000
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	43	13	0.00	146,000
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	42	13	0.00	103,000
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	62	12	5.73	125,000
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	56	4	0.00	255,000
62	CARSON RD	JACQUIER RD	LARSEN DR	27	7	0.00	134,000
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	15	1	0.00	96,000
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	72	3	0.00	304,000
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	44	10	0.00	305,000
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	37	6	0.00	105,000
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	4	4	0.00	147,000
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	3	3	0.00	41,000
69	SNOWS RD	FUJI CT	CARSON RD	10	2	0.00	69,000
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	17	13	0.00	436,000
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	1	1	0.00	53,000
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	1	1	0.00	53,000

Table 2: Activity Centers and Miles of Existing Facilities near Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	ACTIVITY CENTERS WITHIN 2 MILES	ACTIVITY CENTERS WITHIN HALF MILE	MILES OF EXISTING FACILITIES	ANNUAL TRIPS (2010)
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	5	2	1.85	227,000
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	5	3	0.00	238,000
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	5	4	0.00	146,000
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	9	6	1.85	277,000
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	17	8	1.85	393,000
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	5	1	0.00	119,000
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	3	0	0.64	62,000
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	13	7	0.00	107,000
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	59	13	5.75	693,000
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	83	19	5.75	92,000
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	98	15	5.75	0
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	76	15	5.75	0
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	66	15	5.75	92,000
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	73	22	0.00	239,000

Table 2: Activity Centers and Miles of Existing Facilities near Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	ACTIVITY CENTERS WITHIN 2 MILES	ACTIVITY CENTERS WITHIN HALF MILE	MILES OF EXISTING FACILITIES	ANNUAL TRIPS (2010)
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	79	16	0.00	239,000
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	61	34	0.00	239,000
89	BROADWAY	MOSQUITO RD	BLAIR LN	56	30	5.18	239,000

APPENDIX G: SAFETY ANALYSIS

MEMORANDUM

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To: Jerry Barton (EDCTC)

From: Hugh Louch, Kyle James, and Jessica Nguyen (Alta Planning + Design)

Date: April 4, 2017

Re: EDCTC Active Transportation Connections Study – Safety Analysis

Introduction

This memorandum identifies a safety-based performance measure for inclusion within the El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study. The purpose of the overall study is to develop a process to identify which proposed pedestrian and bicycle projects within El Dorado County may be the most competitive under various grant application criteria. Completing competitive grant applications can be time and data intensive, so selecting projects that have the greatest probability of receiving funding helps maximize limited resources. Impacts of a project on safety and the perception of safety are a commonly featured criterion in active transportation grant requirements and are often heavily weighted in the various scoring rubrics. The identification of a safety-based performance measure will help identify the projects that could have the largest impact on reducing walking and bicycling safety concerns and should be prioritized for inclusion within a grant application.

Why Safety?

Safety and the perception of safety influence peoples' mode choice, comfort level, and travel behavior and are directly linked to health and economic benefits of active transportation. Pedestrians and bicyclists encounter unique safety concerns from other road users. For example, many roadways are primarily designed for motor vehicles with high speeds and wide crossing distances, making it convenient for motorists to drive quickly and comfortably, but potentially reducing real or perceived safety for pedestrians and bicyclists. In addition, pedestrians and bicyclists have less protection than motorists and, thus, are more vulnerable to injuries and fatalities in the event of a collision.

Improved safety conditions make the transportation network more accessible and comfortable for people of varying abilities, enabling more people to experience the benefits of active transportation. The results of this study's online survey showed that people are more likely to walk and bicycle when they feel the infrastructure adequately protects them. As interest and demand for walking and bicycling increase in El Dorado County, it will be important to understand the safety challenges that the county residents and visitors face and prioritize safety improvements to further support pedestrians and bicyclists.

Improving safety in El Dorado County supports the goals identified in the County's Regional Transportation Plan, which seek to create a safe, efficient, accessible, and convenient multimodal transportation system and aligns with Guiding Principle F: Safety and Security ("EDCTC will plan for transportation investments which improve and/or maintain the safety and security of the transportation system and its users").

Grant Criteria

Projects that address safety are more competitive in grant applications such as the Caltrans Active Transportation Program (ATP) and the federal Highway Safety Improvement Program (HSIP). One goal of ATP is to increase "safety and mobility for nonmotorized users."[1] To support this goal, application requirements focus on projects that have the potential to reduce the number or risk of pedestrian and bicycle injuries and fatalities, as well as directly address underlying factors that contribute to these collisions. HSIP application requirements also work to identify projects that effectively reduce "the number of crashes, fatalities, and serious injuries" on a jurisdiction's roadways, and place large emphasis on crash reduction factors. [2]

Measuring Safety

Collision rates in El Dorado County are relatively low compared to other counties in California (See **Figure 1** and **Figure 2**). However, safety remains an important issue. Between 2011 and 2015, 193 collisions involving a pedestrian or bicyclist occurred in El Dorado County, and 54 of those collisions occurred within one mile of a proposed Class I or Class II bicycle project, according to the California Statewide Integrated Traffic Report System (SWITRS). It is important to note that the number of collisions reported to SWITRS may underestimate the actual number of collisions that occur because some parties do not report minor collisions to law enforcement, particularly collisions not resulting in injury. Although under-reporting and omissions of "near-misses" limit our understanding of safety issues, analyzing the available collision data does help to identify spatial trends, behavioral trends of pedestrians, bicyclists, and motorists, and design factors that may contribute to collisions in El Dorado County.

Collisions patterns are traditionally analyzed through two methods: "hot spot" analysis and "systemic safety" analysis. A "hot spot" analysis identifies locations where a high number of collisions are clustered, helping planners, engineers, and public officials to dedicate resources to improving conditions at locations where the most collisions have occurred. This reactive approach, however, does not capture locations where people would like to travel but do not due to perceived safety concerns or where there are a large number of near-miss collisions. Alternatively, a "systemic safety" analysis identifies the types of locations and roadway features, such as speed limit, width, and roadway geometry that are associated with a higher risk for collisions. Locations where these roadway features are present on the transportation network are identified and considered for treatment, regardless of whether collisions have historically occurred there. "Systemic safety" analysis is especially useful for rural areas, where collisions do not occur as frequently or with the same density as they do in urban areas and may not emerge as priorities with the hotspot analysis approach.

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[1] ATP Purpose and Goals, Caltrans (2015)
[2] Chapter 9 Highway Safety Improvement Program Guidelines, Caltrans (2016)

Figure 1: Pedestrian-related Collision Rates in California

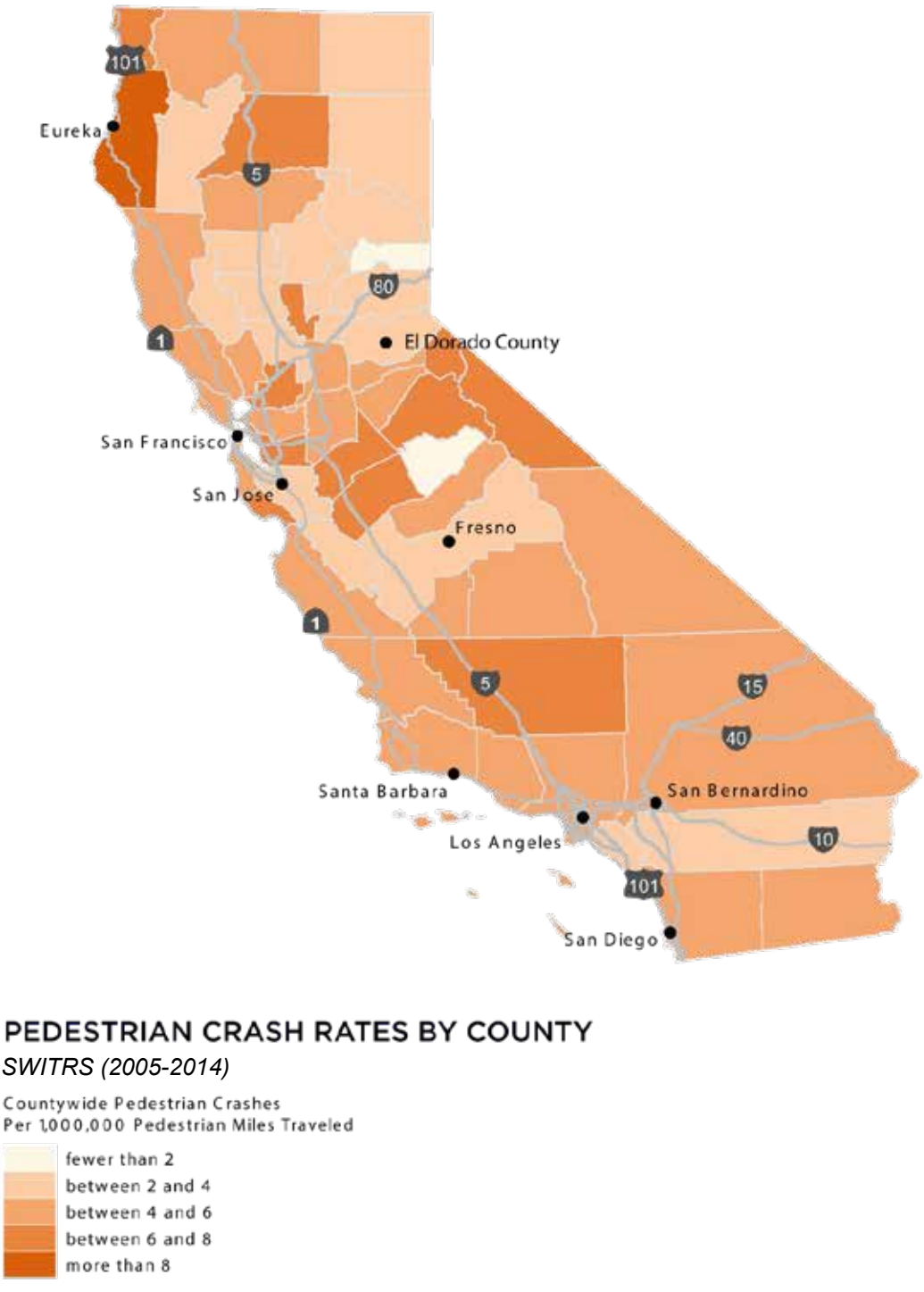
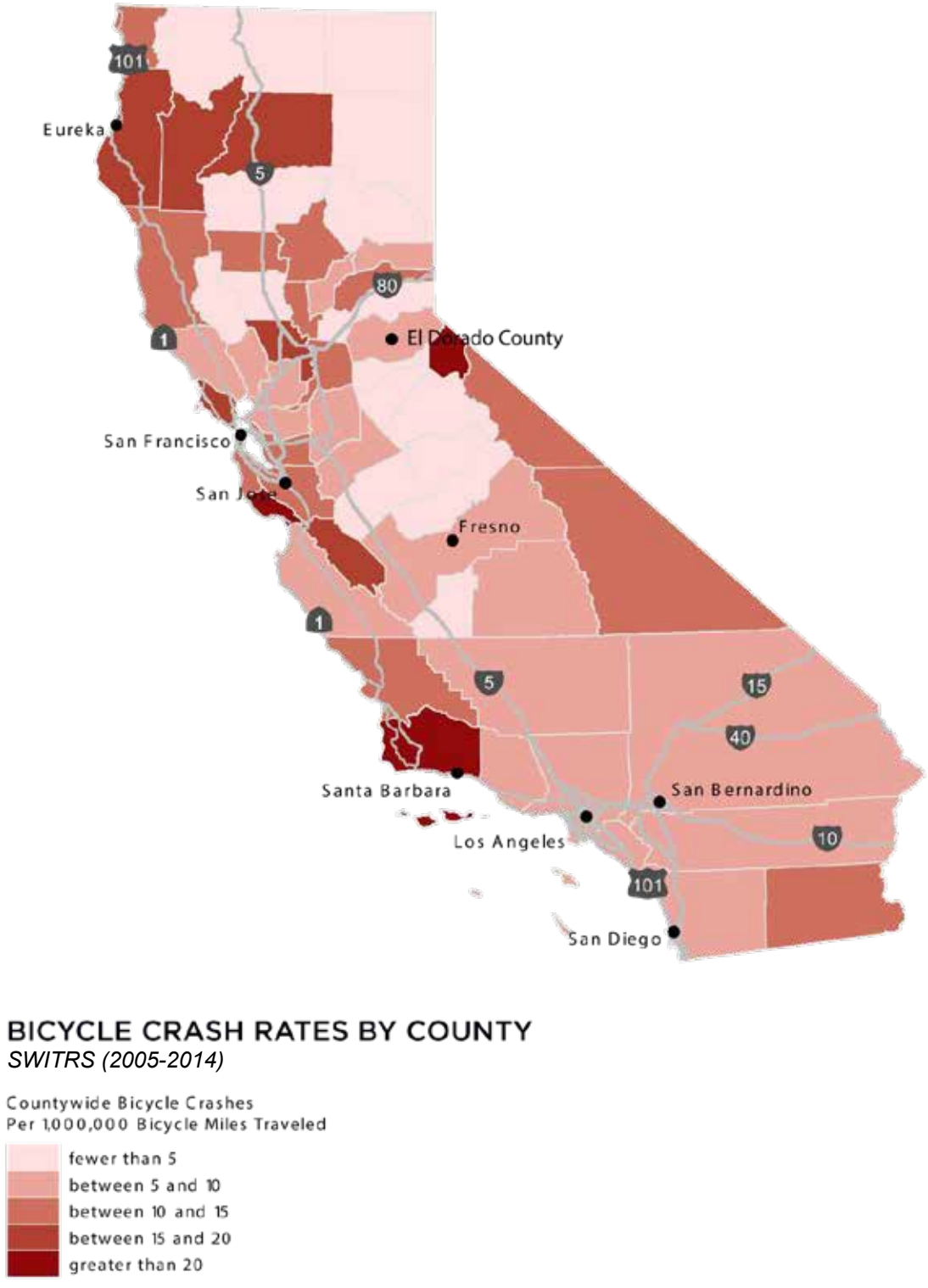


Figure 2: Bicycle-related Collsion Rates in California



Discussion

This memorandum details three approaches to the development of a safety performance measure for distinguishing between the proposed pedestrian and bicycle projects in El Dorado County: (1) total collisions, (2) severity of collisions, and (3) safety barriers removed.

Total collisions provide a high-level analysis of the total pedestrian- and bicycle-involved collisions within one-half and one mile of each proposed project. It is the most intuitive performance measure and is applicable to most, if not all, relevant grant applications. Collision data is also readily available, making it easy to apply the performance measure as additional projects are added. However, because there is a low number of total pedestrian- and bicycle-involved collisions in El Dorado County compared to more urbanized jurisdictions and because reported collision data represents an incomplete data set, some projects that may address existing or future safety concerns are not identified.

Severity of collisions provide a slightly more detailed look at pedestrian and bicycle safety concerns in El Dorado County compared to total collisions. By identifying whether a collision resulted in a fatality, severe injury, or minor injury, the urgency to address a safety concern becomes more apparent. Like total collisions, collision severity as a performance measure is intuitive, applies to most grant applications, and is easy to collect. However, it also relies on an incomplete data set and does not account for near misses, unreported collisions, or locations where collisions are likely but have not yet occurred.

The final performance measure discussed was the number of safety barriers removed if a project were to be implemented. This involved manually identifying safety concerns that might be directly addressed for each proposed project. This is a time-intensive process when applied to a large project list and relies on subjective categorization. However, it also provides a more nuanced view of collisions in a rural area such as El Dorado County. Unlike total collisions and collision severity, safety barriers removed accounts for locations that present a safety concern but where there may not be any reported collisions currently, such as a new pathway that will allow people to walk near a roadway that they otherwise would have avoided altogether.

Advisory Committee's Recommendation

Each of the three potential performance measures directly or indirectly addresses common active transportation grant application requirements. The advisory committee for the Active Transportation Connections Study recommended using safety barriers as the preferred safety-based performance measure because it best distinguished the safety impacts of proposed active transportation projects and was more sensitive to the safety needs of a rural area.

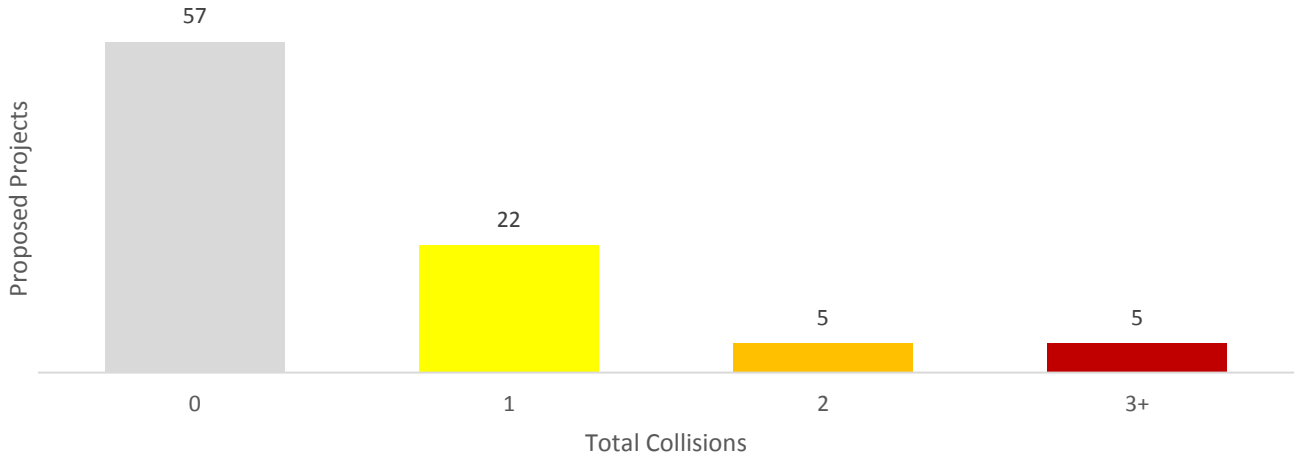
Potential Performance Measures

Three potential safety-based performance measures were considered: (1) the total number of pedestrian- and bicycle- involved collisions, (2) severity of pedestrian- and bicycle-involved collisions, and (3) extent to which proposed bicycle projects address current pedestrian and bicyclist safety concerns. The following sections describe the sources of data, methods for estimating each potential measure, and corresponding results for the list of proposed projects in El Dorado County.

Total Collisions

The number of collisions involving a pedestrian or bicyclist within a one-half-mile and one-mile radius of a proposed project were collected and totaled for the most recent five years of available data (2011-2015). Specifically, reported collisions resulting in a fatality, serious injury, minor injury, or complaint of pain were included, but collisions resulting only in property damage were not included.[3] **Table 1** shows the total number of collisions near proposed Class I off-street multi-use path projects, and **Table 2** shows the total number of collisions near proposed Class II on-street bicycle lane projects (SWITRS, 2011-2015). See **Figure 3** for the distribution of total collisions for all proposed projects.

Figure 3: Total Reported Collisions within One Mile of Proposed Projects



Proposed Class I Projects

Few pedestrian- or bicycle-involved collisions were reported between 2011 and 2015 near the proposed Class I projects (one or more collisions occurred near 5 out the 12 proposed Class I projects). The proposed Class I projects with the most nearby collisions between 2011 and 2015 was proposed **Project #1: El Dorado Hills Boulevard Bike Path (Phase I)** from Brittany Place to Governor Drive/ St. Andrews Drive where 2 total collisions occurred within one mile of the proposed alignment.

[3] While property damage data is available from SWITRS, it is not often included in grant application requirements and is not readily available.

Proposed Class II Projects

Similarly, few collisions occurred within one-half mile and one mile of proposed Class II projects (one or more collisions occurred near 30 out of the 77 proposed Class II projects). The proposed Class II projects with the most nearby collisions between 2011 and 2015 are listed below:

- #22: Brittany Way/Brittany Place from Elmores Way to El Dorado Hills Boulevard – 3 total collisions within one mile
- #28: Bass Lake Road from Country Club Drive to Green Valley Road – 4 total collisions within one mile
- #32: Cambridge Road from Country Club Drive to Green Valley Road – 4 total collisions within one mile

Table 1: Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class I Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE COLLISIONS WITHIN 1 MILE	BICYCLE COLLISIONS WITHIN 0.5 MILES	PEDESTRIAN COLLISIONS WITHIN 1 MILE	PEDESTRIAN COLLISIONS WITHIN 0.5 MILES
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	2	0	0	0
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	0	0	0	0
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	0	0	0	0
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	0	0	0	0
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	0	0	0	0
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	0	0	1	1
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	0	0	1	1
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	0	0	0	0
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	0	0	0	0
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	0	0	0	0
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	1	1	0	0
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	1	0	0	0

Table 2: Total Reported Bicycle- and Pedestrian-involved Collisions near Proposed Class II Projects
(SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE COLLISIONS WITHIN 1 MILE	BICYCLE COLLISIONS WITHIN HALF MILE	PEDESTRIAN COLLISIONS WITHIN 1 MILE	PEDESTRIAN COLLISIONS WITHIN HALF MILE
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	1	0	0	0
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	0	0	0	0
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	0	0	0	0
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	1	1	0	0
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	2	1	0	0
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	0	0	0	0
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	1	0	0	0
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	1	1	0	0
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	2	1	0	0
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	3	0	0	0
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	0	0	0	0
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	0	0	0	0
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	1	1	0	0

Table 2: Total Reported Bicycle- and Pedestrian-involved Collisions near Proposed Class II Projects
(SWITRS, 2011-2015)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE COLLISIONS WITHIN 1 MILE	BICYCLE COLLISIONS WITHIN HALF MILE	PEDESTRIAN COLLISIONS WITHIN 1 MILE	PEDESTRIAN COLLISIONS WITHIN HALF MILE
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	0	0	0	0
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	0	0	0	0
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	1	0	3	1
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	1	1	3	3
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	0	0	1	1
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	0	0	0	0
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	1	1	3	2
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	1	0	0	0
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	0	0	1	1
35	COACH LN	RODEO RD	END OF COACH LN	0	0	1	1
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	0	0	1	1
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	0	0	0	0
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	0	0	0	0

Table 2: Total Reported Bicycle- and Pedestrian-involved Collisions near Proposed Class II Projects
(SWITRS, 2011-2015)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE COLLISIONS WITHIN 1 MILE	BICYCLE COLLISIONS WITHIN HALF MILE	PEDESTRIAN COLLISIONS WITHIN 1 MILE	PEDESTRIAN COLLISIONS WITHIN HALF MILE
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	1	0	2	2
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	0	0	0	0
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	0	0	0	0
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	0	0	0	0
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	0	0	0	0
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	0	0	0	0
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	0	0	1	0
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	0	0	0	0
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	0	0	0	0
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	0	0	0	0
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	0	0	0	0
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	0	0	0	0

Table 2: Total Reported Bicycle- and Pedestrian-involved Collisions near Proposed Class II Projects
(SWITRS, 2011-2015)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE COLLISIONS WITHIN 1 MILE	BICYCLE COLLISIONS WITHIN HALF MILE	PEDESTRIAN COLLISIONS WITHIN 1 MILE	PEDESTRIAN COLLISIONS WITHIN HALF MILE
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	0	0	0	0
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	1	1	0	0
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	1	0	0	0
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	1	1	0	0
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	1	0	0	0
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	0	0	0	0
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	0	0	0	0
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	1	1	0	0
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	1	0	0	0
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	1	1	0	0
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	0	0	0	0

Table 2: Total Reported Bicycle- and Pedestrian-involved Collisions near Proposed Class II Projects
(SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE COLLISIONS WITHIN 1 MILE	BICYCLE COLLISIONS WITHIN HALF MILE	PEDESTRIAN COLLISIONS WITHIN 1 MILE	PEDESTRIAN COLLISIONS WITHIN HALF MILE
62	CARSON RD	JACQUIER RD	LARSEN DR	2	0	0	0
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	0	0	0	0
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	0	0	0	0
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	0	0	0	0
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	0	0	0	0
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	0	0	0	0
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	0	0	0	0
69	SNOWS RD	FUJI CT	CARSON RD	1	0	0	0
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	2	2	0	0
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	0	0	0	0
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	0	0	0	0

Table 2: Total Reported Bicycle- and Pedestrian-involved Collisions near Proposed Class II Projects
(SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE COLLISIONS WITHIN 1 MILE	BICYCLE COLLISIONS WITHIN HALF MILE	PEDESTRIAN COLLISIONS WITHIN 1 MILE	PEDESTRIAN COLLISIONS WITHIN HALF MILE
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	0	0	0	0
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	0	0	0	0
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	0	0	0	0
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	0	0	0	0
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	0	0	0	0
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	0	0	0	0
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	0	0	0	0
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	0	0	0	0
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	0	0	1	0
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	0	0	1	0
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	0	0	0	0
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	0	0	1	0
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	0	0	0	0

Table 2: Total Reported Bicycle- and Pedestrian-involved Collisions near Proposed Class II Projects
(SWITRS, 2011-2015)

HIGH MEDIUM LOW

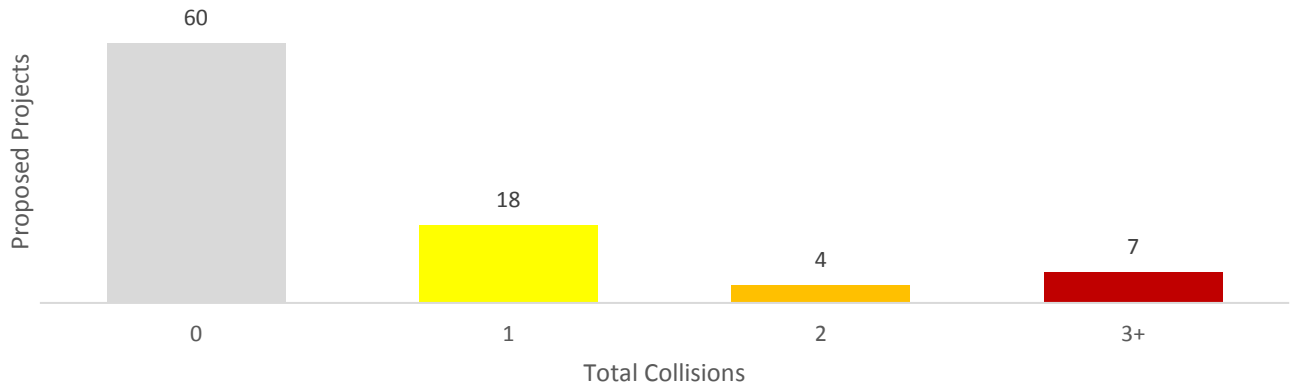
PROJECT ID	PROJECT	BEGIN	END	BICYCLE COLLISIONS WITHIN 1 MILE	BICYCLE COLLISIONS WITHIN HALF MILE	PEDESTRIAN COLLISIONS WITHIN 1 MILE	PEDESTRIAN COLLISIONS WITHIN HALF MILE
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	0	0	0	0
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	0	0	0	0
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	0	0	0	0
89	BROADWAY	MOSQUITO RD	BLAIR LN	0	0	0	0

Collision Severity

While the total number of collisions pinpoint the location of pedestrian- and bicycle-involved collisions, examining the severity of those collisions helps identify where improved infrastructure could help mitigate more intense collisions. **Table 3** and **Table 4** show the severity of pedestrian-involved collisions within one-half mile of proposed projects and bicycle-involved collisions within one mile of proposed projects (SWITRS, 2011-2015). The severity of collisions is broken into three categories: collisions resulting in a (1) fatality, (2) severe injury, or (3) minor injury.

The most recent iteration of the Active Transportation Program (ATP), a major source of grant funding for pedestrian and bicycle projects in California, scores projects based on the severity of collisions within one-half mile of pedestrian projects and one mile of bicycle projects. Collisions resulting in a fatality receive three points, and every collision resulting in a severe or minor injury receives one point.[4] This ranking system helps differentiate projects and is reflected in **Table 3** and **Table 4**. See **Figure 4** for the distribution of collision severity using the ATP Cycle 3 grant criteria.

Figure 4: Ranking of Reported Collision Severity under ATP Cycle 3 Criteria



Proposed Class I Projects

Of the 12 proposed Class I projects, five would have received a score of one or more points under the previous ATP grant criteria. The highest scoring proposed project was **Project #1: El Dorado Hills Boulevard Bike Path (Phase I)** from Brittany Place to Governor Drive/ St. Andrews Drive where two severe bicycle-involved injuries occurred within one mile of proposed alignment. Under the ATP scoring scheme, this means that the most points any of the currently proposed Class I projects in El Dorado County could receive is two out of six possible points.

[4] Active Transportation Program Scoring Rubric, Caltrans (2016)

Proposed Class II Projects

Conversely, 24 out of the 77 proposed Class II projects would have received a score of one or more points under the previous ATP grant criteria. Of those 24 proposed projects, 4 would have received a score of 4 or more points. The highest scoring Class II projects are listed below:

- #21: Elmores Way from Sophia Parkway to Brittany Way - 4 points
- #22: Brittany Way from Elmores Way to El Dorado Hills Boulevard – 5 points
- #24 Serrano Parkway from El Dorado Hills Boulevard to Bass Lake Road – 5 points
- #70: Pony Express Trail from Carson Road to Sly Park Road – 4 points

Table 3: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class I Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL ATP SCORE
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	0	0	2	0	0	0	0	0	2
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	0	0	0	0	0	0	0	0	0
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	0	0	0	0	0	0	0	0	0
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	0	0	0	0	0	0	0	0	0
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	0	0	0	0	0	0	0	0	0
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	0	0	0	0	0	0	1	0	1

Table 3: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class I Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL ATP SCORE
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	0	0	0	0	0	0	0	1	1
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	0	0	0	0	0	0	0	0	0
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	0	0	0	0	0	0	0	0	0
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	0	0	0	0	0	0	0	0	0
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	0	0	0	1	0	0	0	0	1
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	0	0	0	1	0	0	0	0	1

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	0	0	1	0	0	0	0	0	1
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDER S WAY	0	0	0	0	0	0	0	0	0
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	0	0	0	0	0	0	0	0	0
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	0	0	1	0	0	0	0	0	1
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	0	0	2	0	0	0	0	0	2
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	0	0	0	0	0	0	0	0	0
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	0	0	1	0	0	0	0	0	0
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	0	0	1	0	0	0	0	0	0

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	1	3	0	1	0	0	0	0	4
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	1	3	1	1	0	0	0	0	5
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	0	0	0	0	0	0	0	0	0
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	0	0	0	0	0	0	0	0	5
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	0	0	1	0	0	0	0	0	1
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	0	0	0	0	0	0	0	0	0
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	0	0	0	0	0	0	0	0	0
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	0	0	1	0	0	0	0	1	2
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	0	0	1	0	0	0	1	2	3

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	0	0	0	0	0	0	1	0	0
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRY CHASE DR	0	0	0	0	0	0	0	0	0
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	0	0	1	0	0	0	0	2	3
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALOR AN CT	0	0	1	0	0	0	0	0	1
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	0	0	0	0	0	0	1	0	1
35	COACH LN	RODEO RD	END OF COACH LN	0	0	0	0	0	0	1	0	1
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	0	0	0	0	0	0	1	0	1
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	0	0	0	0	0	0	0	0	0
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	0	0	0	0	0	0	0	0	0

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	0	0	1	0	0	0	0	2	3
40	MEDER RD (PHASE 2)	PALORAN CT	PONDE ROSA RD	0	0	0	0	0	0	0	0	0
41	CAMBRIDGE DR	MERRYCHA SE DR	CRAZY HORSE RD	0	0	0	0	0	0	0	0	0
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENC H CREEK RD	0	0	0	0	0	0	0	0	0
43	LOTUS RD	GREEN VALLEY RD	HIGHW AY 49	0	0	0	0	0	0	0	0	0
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHW AY 50	0	0	0	0	0	0	0	0	0
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDE ROSA RD	0	0	0	0	0	0	0	0	0
46	NORTH SHINGLE RD	PONDEROS A RD	SPORTS CLUB DR	0	0	0	0	0	0	0	0	0
47	LATROBE RD	INVESTME NT BLVD	SPTC - EL DORAD O TRAIL	0	0	0	0	0	0	0	0	0

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	0	0	0	0	0	0	0	0	0
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	0	0	0	0	0	0	0	0	0
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	0	0	0	0	0	0	0	0	0
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	0	0	0	0	0	0	0	0	0
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	0	0	0	1	0	0	0	0	1
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	0	0	0	1	0	0	0	0	1
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	0	0	0	1	0	0	0	0	1

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	0	0	0	1	0	0	0	0	1
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	0	0	0	0	0	0	0	0	0
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	0	0	0	0	0	0	0	0	0
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	0	0	0	1	0	0	0	0	1
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	0	0	0	1	0	0	0	0	1
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	0	0	0	1	0	0	0	0	1
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	0	0	0	0	0	0	0	0	0
62	CARSON RD	JACQUIER RD	LARSEN DR	0	0	0	2	0	0	0	0	2

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	0	0	0	0	0	0	0	0	0
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	0	0	0	0	0	0	0	0	0
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	0	0	0	0	0	0	0	0	0
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	0	0	0	0	0	0	0	0	0
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	0	0	0	0	0	0	0	0	0
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	0	0	0	0	0	0	0	0	0
69	SNOWS RD	FUJI CT	CARSON RD	0	0	0	1	0	0	0	0	0
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	1	3	0	1	0	0	0	0	4

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	0	0	0	0	0	0	0	0	0
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	0	0	0	0	0	0	0	0	0
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	0	0	0	0	0	0	0	0	0
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	0	0	0	0	0	0	0	0	0
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	0	0	0	0	0	0	0	0	0
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	0	0	0	0	0	0	0	0	0
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	0	0	0	0	0	0	0	0	0
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	0	0	0	0	0	0	0	0	0

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	0	0	0	0	0	0	0	0	0
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	0	0	0	0	0	0	0	0	0
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	0	0	0	0	0	0	0	0	0
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	0	0	0	0	0	0	0	0	0
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	0	0	0	0	0	0	0	0	0
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	0	0	0	0	0	0	0	0	0
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	0	0	0	0	0	0	0	0	0
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	0	0	0	0	0	0	0	0	0

Table 4: Severity of Reported Pedestrian- and Bicycle-involved Collisions near Proposed Class II Projects (SWITRS, 2011-2015)

HIGH MEDIUM LOW

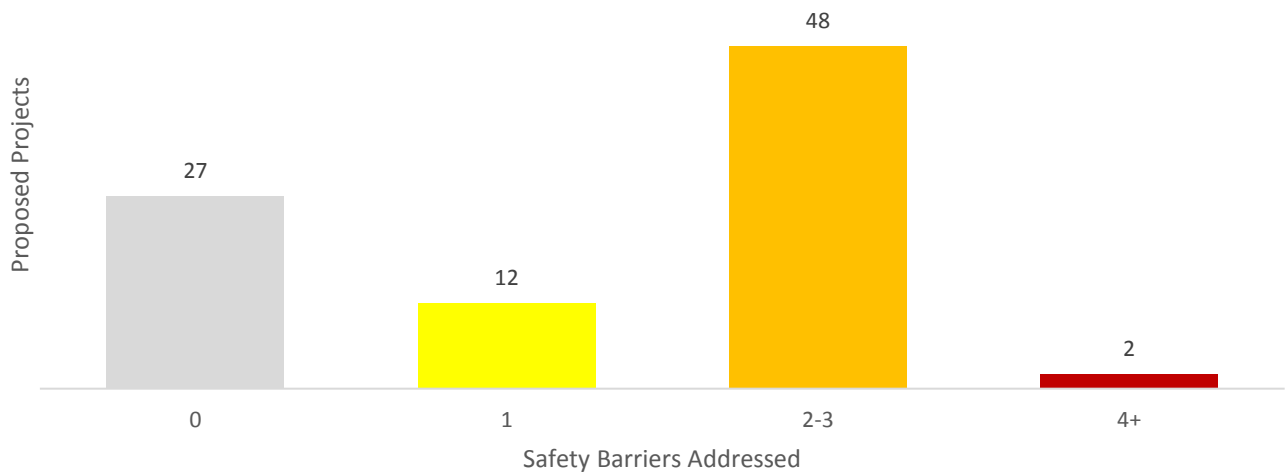
PROJECT ID	PROJECT	BEGIN	END	BICYCLE FATALITIES	WEIGHTED BICYCLE FATALITIES (X3)	BICYCLE SEVERE INJURIES	BICYCLE MINOR INJURIES	PEDESTRIAN FATALITIES	WEIGHTED PEDESTRIAN FATALITIES (X3)	PEDESTRIAN SEVERE INJURIES	PEDESTRIAN MINOR INJURIES	TOTAL
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	0	0	0	0	0	0	0	0	0
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	0	0	0	0	0	0	0	0	0
89	BROADWAY	MOSQUITO RD	BLAIR LN	0	0	0	0	0	0	0	0	0

Barriers to Safety

In addition to the total number of collisions and the severity of collisions, proposed projects were evaluated based on the number of barriers to safety that would be removed if the project were implemented. Safety barriers were identified for each of the proposed Class I and Class II projects in El Dorado County, and assessed for the potential to be addressed through the project (shown in **Table 5** and **Table 6**). Safety barriers that would be addressed with the addition of Class I or Class II facilities include wide lanes, narrow or absent shoulder, limited sight distance, high traffic speed, high traffic volume, and access to schools. Safety barriers that would not directly be addressed by the current list of projects include wide turning radii, incline, narrow road, turning conflicts, and long crossing distances. However, these additional safety concerns or others may be addressed by a proposed project if or once a more detailed concept for the project is developed.

The most recent iteration of the Active Transportation Program (ATP) grant application required a description of how projects will address safety hazards and the underlying factors that contribute to pedestrian- and bicycle-involved collisions. Inclusion of barriers to safety as a performance measure helps identify projects that could address these safety concerns and provide a starting point for developing a narrative about collision countermeasures (an estimate of the change, positive or negative, in collisions that might be expected after implementing a given project). See **Figure 5** for the distribution of safety barriers addressed near the proposed projects.

Figure 5: Safety Barriers Addressed near Proposed Projects



Proposed Class I Projects

Among the 12 proposed Class I projects, all but one project would address one or more safety hazards. Proposed **Project #5: Highway 50 Crossing** from the El Dorado Hills Village Shopping Center to El Dorado Hills Town Center would address the most safety concerns by helping to address high traffic speeds, high traffic volumes, incline, turning conflict, and sight distance issues for pedestrians and bicyclists.

Proposed Class II Projects

Among the 77 proposed Class II projects, 50 address at least one safety hazard and ten address three or more safety hazards. Proposed Project #86: Highway 49 from Placerville City Limit to Green Street would address the most safety concerns by helping to address sight distance, high traffic volume, high traffic speed, narrow/no shoulders, and school access issues for pedestrians and bicyclists.

Table 5: Safety Barriers Addressed with Proposed Class I Multi-use Paths

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSED	NUMBER OF SAFETY CONCERNS ADDRESSED
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	EL DORADO HILLS	High speed, high volume	High speed, high volume	2
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS	School access	School access	1
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	EL DORADO HILLS	None	None	0
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	EL DORADO HILLS	Narrow roadway, narrow/no shoulder, wide turning radii, sight distance	Narrow roadway, narrow/no shoulder, sight distance	3
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	EL DORADO HILLS	High Speed, high volume, incline, turning conflicts, sight distance	High Speed, high volume, incline, turning conflicts, sight distance	5
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	CAMERON PARK/ SHINGLE SPRINGS	Narrow/no roadway, narrow shoulder	Narrow roadway, narrow/no shoulder	2
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	CAMERON PARK/ SHINGLE SPRINGS	Narrow roadway, narrow/no shoulder	Narrow roadway, narrow/no shoulder	2
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	CAMERON PARK/ SHINGLE SPRINGS	Narrow roadway, narrow/no shoulder, high speed	Narrow roadway, narrow/no shoulder, high speed	3

Table 5: Safety Barriers Addressed with Proposed Class I Multi-use Paths

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSED	NUMBER OF SAFETY CONCERNS ADDRESSED
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	EL DORADO HILLS/LATROBE	Narrow roadway, narrow/no shoulder, high speed	Narrow roadway, narrow/no shoulder, high speed	3
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	LATROBE	Narrow roadway, narrow/no shoulder, high speed	Narrow roadway, narrow/no shoulder, high speed	3
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/no shoulder, high volumes, turning conflicts	Narrow/no shoulder, high volumes, turning conflicts	3
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/no shoulder, high speed	Narrow/no shoulder, high speed	2

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	EL DORADO HILLS	High speed, high volume	High speed, high volume	2
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	EL DORADO HILLS	None	None	0
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	EL DORADO HILLS	None	None	0
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	EL DORADO HILLS	None	None	0
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	EL DORADO HILLS	None	None	0
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	EL DORADO HILLS	None	None	0
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	EL DORADO HILLS	School access	School access	1
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	EL DORADO HILLS	None	None	0

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	EL DORADO HILLS	School access	School access	1
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	EL DORADO HILLS	Incline, sight distance, school access	Sight distance, school access	2
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	EL DORADO HILLS	Turning conflicts	None	0
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	EL DORADO HILLS	High speed	High speed	1
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	EL DORADO HILLS	High speed, narrow/no shoulder	High speed, narrow/no shoulder	2
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	EL DORADO HILLS	High Speed, school access	High speed, school access	2
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	EL DORADO HILLS	School access, sight distance, high speed	School access, sight distance, high speed	3
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	CAMERON PARK/ SHINGLE SPRINGS	Narrow/no shoulder, school access	Narrow/no shoulder, school access	2
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	CAMERON PARK/ SHINGLE SPRINGS	High Speed, narrow roadway, narrow/no shoulder, wide turning radii, turning conflicts	High speed, narrow/no shoulder	2
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	CAMERON PARK/ SHINGLE SPRINGS	Narrow roadway, narrow/no shoulder, wide turning radii, sight distance, incline	Narrow/no shoulder, sight distance	2
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	CAMERON PARK/ SHINGLE SPRINGS	None	None	0

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	CAMERON PARK/ SHINGLE SPRINGS	Narrow/no shoulder, narrow roadway, sight distance	Narrow/no shoulder, sight distance	2
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	CAMERON PARK/ SHINGLE SPRINGS	sight distance, narrow/no shoulder	Narrow/no shoulder, sight distance	2
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	CAMERON PARK/ SHINGLE SPRINGS	High speed, sight distance, wide turning radii, long crossing distance, incline	High speed, sight distance	2
35	COACH LN	RODEO RD	END OF COACH LN	CAMERON PARK/ SHINGLE SPRINGS	High speed, high volume	High speed, high volume	2
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	CAMERON PARK/ SHINGLE SPRINGS	High speed, narrow/no shoulder, sight distance	High speed, narrow/no shoulder, sight distance	3
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	CAMERON PARK/ SHINGLE SPRINGS	Narrow/no shoulder, sight distance	Narrow/no shoulder, sight distance	2
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	CAMERON PARK/ SHINGLE SPRINGS	Narrow roadway, narrow/no shoulder, wide turning radii, sight distance	Narrow/no shoulder, sight distance	2
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	CAMERON PARK/ SHINGLE SPRINGS	Narrow/no shoulder, sight distance, school access	Narrow/no shoulder, sight distance, school access	3

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	CAMERON PARK/ SHINGLE SPRINGS	None	None	0
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	CAMERON PARK/ SHINGLE SPRINGS	High speed, Interchange	High speed, interchange	2
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	CAMERON PARK/ SHINGLE SPRINGS	None	None	0
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	CAMERON PARK/ SHINGLE SPRINGS	Narrow/no shoulder, sight distance, school access	Narrow/no shoulder, sight distance, school access	3
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	CAMERON PARK/ SHINGLE SPRINGS	Narrow/no shoulder, sight distance	Narrow/no shoulder, sight distance	2
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	CAMERON PARK/ SHINGLE SPRINGS	School access	School access	1
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	CAMERON PARK/ SHINGLE SPRINGS	None	None	0
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	LATROBE	None	None	0
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	LATROBE	None	None	0

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	LATROBE	Narrow/no shoulder, school access	Narrow/no shoulder, school access	2
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	LATROBE	Narrow/no shoulder, sight distance	Narrow/no shoulder, sight distance	2
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	DIAMOND SPRINGS/ GREATER PLACERVILLE	School access, narrow/no shoulder	Narrow/no shoulder, school access	2
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/no shoulder, sight distance, incline	Narrow/no shoulder, sight distance	2
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	DIAMOND SPRINGS/ GREATER PLACERVILLE	Wide turning radii, school access, sight distance	School access, sight distance	2
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/no shoulder	Narrow/no shoulder	1
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0
62	CARSON RD	JACQUIER RD	LARSEN DR	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/no shoulder, sight distance, narrow road	Narrow/no shoulder, sight distance	2
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/no shoulder, incline, sight distance, school access, narrow road	Narrow/no shoulder, sight distance, school access	3
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	None	None	0
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/ no shoulder, sight distance, narrow road	Narrow/no shoulder, sight distance	2
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	CAMINO/ POLLOCK PINES/ FAIRPLAY	Narrow/no shoulder, sight distance, school access	Narrow/no shoulder, sight distance, school access	3
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	CAMINO/ POLLOCK PINES/ FAIRPLAY	School access, sight distance, no shoulder	Narrow/no shoulder, school access, sight distance	3
69	SNOWS RD	FUJI CT	CARSON RD	CAMINO/ POLLOCK PINES/ FAIRPLAY	School access, narrow/no shoulder	Narrow/no shoulder, school access	2
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	CAMINO/ POLLOCK PINES/ FAIRPLAY	Narrow/no shoulder, sight distance	Narrow/no shoulder, sight distance	2
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	CAMINO/ POLLOCK PINES/ FAIRPLAY	Incline, sight distance	Sight distance	1
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	CAMINO/ POLLOCK PINES/ FAIRPLAY	School access, narrow road	School access	1

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	GEORGETOWN/ COOL/ COLOMA	None	None	0
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	GEORGETOWN/ COOL/ COLOMA	Narrow/no shoulder, sight distance	Narrow/no shoulder, sight distance	2
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	GEORGETOWN/ COOL/ COLOMA	Narrow/no shoulder	Narrow/no shoulder	1
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	GEORGETOWN/ COOL/ COLOMA	School access, narrow/no shoulder	Narrow/no shoulder, school access	2
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	GEORGETOWN/ COOL/ COLOMA	None	None	0
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	GEORGETOWN/ COOL/ COLOMA	None	None	0
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	GEORGETOWN/ COOL/ COLOMA	Narrow/no shoulder	Narrow/no shoulder	1
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	GEORGETOWN/ COOL/ COLOMA	None	None	0
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	DIAMOND SPRINGS/ GREATER PLACERVILLE	High speed, narrow/no shoulder	High speed, narrow/no shoulder	2

Table 6: Safety Barriers Addressed with Proposed Class II Bikeways

HIGH MEDIUM LOW

PROJECT ID	PROJECT	BEGIN	END	AREA	SAFETY CONCERNS	SAFETY CONCERNS ADDRESSES	NUMBER OF SAFETY CONCERNS ADDRESSES
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	DIAMOND SPRINGS/ GREATER PLACERVILLE	High speed, narrow/no shoulder, wide turning radii, turning conflicts, high volume	High speed, narrow/ no shoulder, high volume	3
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	DIAMOND SPRINGS/ GREATER PLACERVILLE	High speed, wide turning radii, turning conflicts, interchange	High speed	1
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	DIAMOND SPRINGS/ GREATER PLACERVILLE	Sight distance, narrow/ no shoulder, turning conflicts, high speed, wide turning radii	Sight distance, narrow/no shoulder, high speed	3
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	High speed, narrow/no shoulder, wide turning radii, turning conflicts	High speed, narrow/ no shoulder	2
86	HIGHWAY 49 (COLOMA STREET)	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	DIAMOND SPRINGS/ GREATER PLACERVILLE	Sight distance, turning conflicts, wide turning radii, high volume, high speed, narrow, no shoulder, school access	Sight distance, high volume, high speed, narrow/ no shoulder, school access	4
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/no shoulder, high speed	Narrow/no shoulder, high speed	2
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	DIAMOND SPRINGS/ GREATER PLACERVILLE	Narrow/no shoulder	Narrow/ no shoulder	1
89	BROADWAY	MOSQUITO RD	BLAIR LN	DIAMOND SPRINGS/ GREATER PLACERVILLE	Wide turning radii, turning conflicts, high volume, high speed, narrow/ no shoulder	High volume, high speed, narrow/ no shoulder	3

APPENDIX H: EQUITY ANALYSIS

MEMORANDUM

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To: Jerry Barton (EDCTC)

From: Hugh Louch, Kyle James, and Jessica Nguyen (Alta Planning + Date:

Date: July 17, 2017

Re: EDCTC Active Transportation Connections Study – Equity Analysis

Introduction

This memorandum identifies equity-based performance measures for inclusion within the El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study. The purpose of the overall study is to develop a process to identify which proposed pedestrian and bicycle projects within El Dorado County's western slope may be the most competitive under various grant application criteria. Completing competitive grant applications can be time and data intensive, so selecting projects that have the greatest probability of receiving funding helps maximize limited resources. Improving transportation options and access to recreational facilities for disadvantaged or vulnerable communities is a commonly featured criterion in active transportation grant requirements. An equity-based performance measure will help identify the projects that could have the greatest impact on improving transportation opportunities in communities that have historically experienced inequities or are dependent on active transportation services.

Why Equity?

Without access to multiple transportation options, individuals may have difficulty in getting to work, buying healthy food, seeing a doctor, going to school, or being involved in community activities. While residents of El Dorado County have access to multiple transportation options, including bikeways and walkways, not all residents have equal access these options. Disparities in access to convenient, safe, and affordable means of transportation may be the result of geographic, economic, or cultural issues. Referenced here as "communities of concern", equity in this memorandum is defined as populations who have been historically disadvantaged or are otherwise considered vulnerable to unsafe, disconnected, or incomplete active transportation facilities.

Transportation facilities are essential for people to be able to take advantage of available economic opportunities and for reducing the disproportionate health burdens on communities of concern.[1] Often, traditionally vulnerable populations, such as children, older adults, people of color, people with limited English proficiency, people with limited access to motor vehicles, and low-income individuals rely heavily on walking,

[1] Center for Infrastructure Equity. Transportation Equity. *PolicyLink*. 2016. http://www.policylink.org/focus-areas/infrastructure-equity/transportation-equity.

bicycling, and transit.[2] [3] [4] Further, many areas with a concentration of low-income or non-English speaking populations suffer from a historic underinvestment in transportation infrastructure. A lack of high-quality walking, biking, and transit facilities can result in unsafe travel conditions and/or long travel times. One way this disparity manifests itself is in the disproportionate number of collisions involving bicyclists or pedestrians in within communities of concern.[5]

Addressing equity in El Dorado County supports the goals identified in the County's Regional Transportation Plan, which seek to create a safe, efficient, accessible, and convenient multimodal transportation system, and aligns with Guiding Principle E: Diversity ("EDCTC plans and programs will recognize the multitude of needs and the variety of perspectives and backgrounds of the people that live, work, and visit the region by promoting a range of equitable transportation choices that are designed with sensitivity to the desired context while preserving the unique character of each community or sub region.").

Grant Criteria

Projects that address equity are more competitive in grant applications such as the Caltrans Active Transportation Program (ATP). The ATP application evaluates how a proposed project closes a gap, provides connections to, or addresses a deficiency in an active transportation network within a community of concern and the extent of improved pedestrian and bicycle access for members of the community of concern.[6] The most recent ATP grant criteria defined communities of concern as the households with median incomes less than 80 percent of the statewide median, CalEnviroScreen scores within the lowest 25th percentile in the state, or students who are eligible to receive a free or reduced lunch. The potential performance measures for equity included within this memorandum include median household income and student eligibility for free and reduced lunch. CalEnviroScreen scores were not included because no census tracts within El Dorado County's western slope would have met the previous ATP grant application minimum threshold.

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[2] Dannenberg A, Frumkin H, Jackson R. *Making Healthy Places*. 1st ed. Washington D.C.: Island Press; 2011.
[3] Mckenzie B. Modes Less Traveled—Bicycling and Walking to Work in the United States: 2008–2012. *Am Community Surv Reports*. 2014.
[4] Center for Infrastructure Equity. Transportation Equity. *PolicyLink*. 2016. http://www.policylink.org/focus-areas/infrastructure-equity/transportation-equity.
[5] Smart Growth America. Benefits of Complete Streets: Complete Streets Mean Equity Streets. https://smartgrowthamerica.org/app/uploads/2016/08/cs-equity.pdf. Accessed December 2016.
[6] ATP Purpose and Goals, Caltrans (2015)

Discussion

This memorandum details four approaches to the development of an equity-based performance measure for distinguishing between the proposed pedestrian and bicycle projects in El Dorado County: (1) median household income, (2) student eligibility for free or reduced lunch, (3) youth and senior population, and (4) no access to motor vehicles.

"Median household income" provides a good proxy for wealth disparities. This potential performance measure showed the median income of households within two miles of the proposed projects. It is an intuitive, reliable, and easy to collect measurement that showed good variation when applied to the proposed project list. However, none of the proposed projects met the minimum threshold set in the most recent ATP application of 80 percent below the statewide median household income. In addition, median household may not fully capture equity issues among households with relatively large incomes *and* relatively large household size.

"Free or reduced lunches" looked at the percent of students who were eligible to receive subsidized meals. This performance measure is intuitive, easy to collect, and represents one of the most vulnerable populations: youths from low-income households. However, none of the proposed projects met the minimum threshold in the most recent ATP application of more than 75 percent of students within the project study are being eligible for a free or reduced lunch.

"Youths and seniors" looked at the combined number of people below the age of 18 and above the age of 64. This performance measure is intuitive, easy to collect, represents a growing concern in El Dorado County, and produced good variation when applied to the proposed project list. Unfortunately, it is not a common grant application criteria.

The final potential performance measure, "no access to motor vehicles", looked at the number of households without access to at least one motor vehicle. Similar to the other potential performance measures, it is an intuitive measure that is easy to collect. While it provides insight into populations that may rely more on active transportation infrastructure, it is not a common grant application criteria, and there was limited variation when applied to the proposed project list.

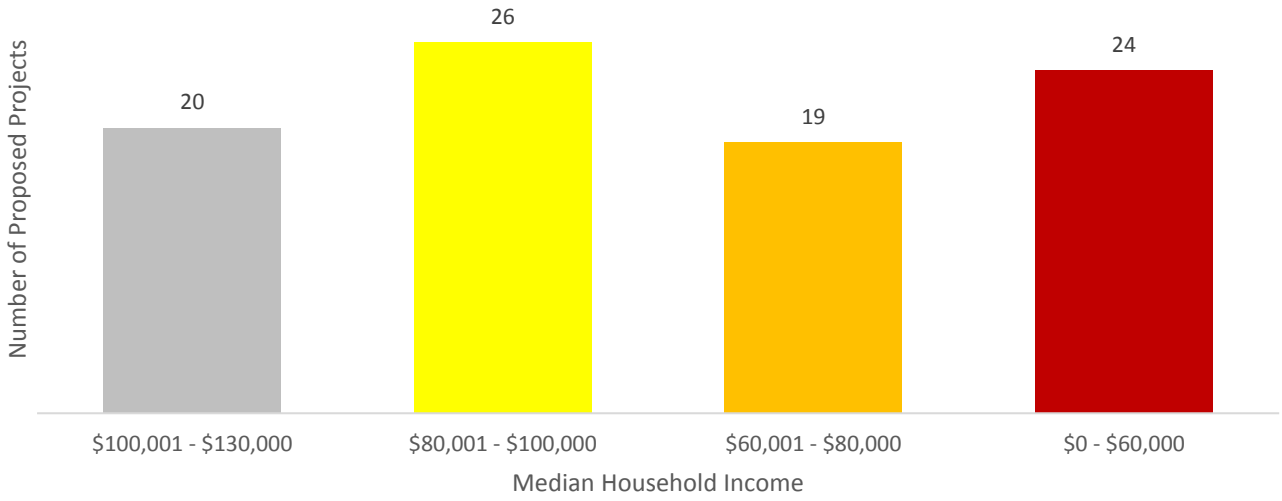
Potential Performance Measures

Four potential equity-based performance measures were explored: (1) median household income, (2) student eligibility for free or reduced lunch, (3) youth and senior population, and (4) no access to motor vehicles. For each of these indicators, data was extracted for census tracts that fall within a one-half and two-mile buffer radius of a proposed project and adjusted proportionately to the buffer radius size. The following section describes the significance of the equity indicators in relation to active transportation and corresponding results for the list of proposed project in El Dorado County.

Median Household Income

Median household income provides a rough estimate of the financial position of households and was included in the most recent ATP grant application criteria. The median household income in California was $61,818, and the ATP scoring rubric gave applicants one point for project study areas below 80 percent of the median household income ($49,454), two points for below 75 percent ($46,364), three points for below 70 percent ($43,273), and four points for below 65 percent ($40,182). Median household income was calculated using values from the American Community Survey (5-year estimates, 2011-2015). See **Figure 1** for the distribution of median income for households within two miles of the proposed projects. No proposed projects met the ATP median household income requirements.

Figure 1: Median Household Income within 2 Miles of Proposed Projects (ACS, 2011-2015)

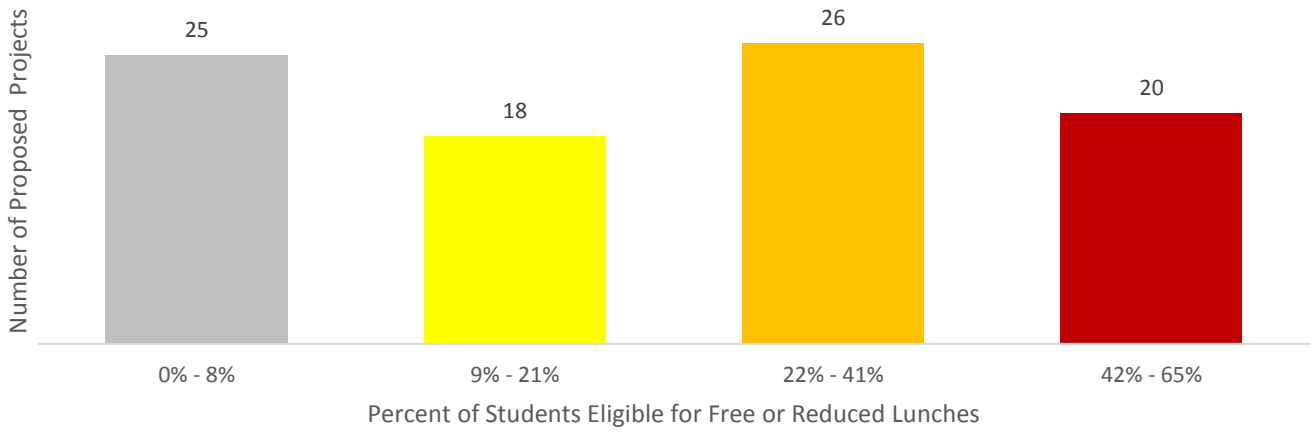


No proposed projects would have received points for servicing a community of concern under the most recent ATP grant criteria of median household income, as the lowest median household income within two miles of the proposed projects was just above the minimum threshold (Project #68: E16/ Mt. Aukum Road from Mountain Creek Middle School to Fairplay Road - $50,761). See **Table 1** for the application of the performance measure to the proposed Class I projects and **Table 2** for its application to the proposed Class II projects.

Eligibility for Free or Reduced Lunch

The percentage of students who are eligible for free or reduced lunches (FRL) is used as a proxy for income among households with children. This potential performance measure is directly relevant for projects that are in close proximity to schools, which is a common grant application question. School enrollment and FRL data is publicly available through the California Department of Education (CDE) and is updated annually. Similar to median household income, FRL was included in the most recent ATP grant application criteria. Applicants received one point for more than 75 percent of students within the project study area being eligible for FRL, two points for more than 80 percent, three points for more than 85 percent, and four points for more than 90 percent. See **Figure 2** for the distribution of FRL within two miles of the proposed projects.

Figure 2: Free or Reduced Lunch Eligible Students within 2 Miles of Proposed Projects (CDE, 2016)

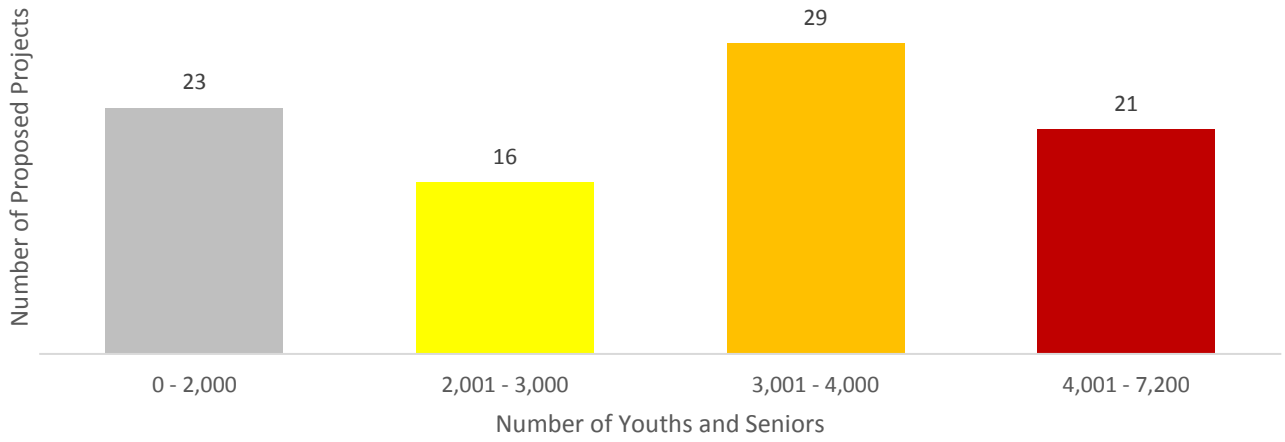


No proposed projects would have received points for servicing a community of concern under the most recent ATP grant criteria of FRL, as the highest percent of students that were eligible for FRL within two miles of the proposed projects was far below the minimum threshold (Project #53: Jacquier Road from El Dorado Trail (south) to Carson Road – 65 percent). See **Table 1** for the application of the performance measure to the proposed Class I projects and **Table 2** for its application to the proposed Class II projects.

Youth and Senior Population

Although not included as an evaluation criteria in the most recent ATP grant application, youth (under 18 years old) and seniors (65 years and over) are considered to be vulnerable populations because they have greater susceptibility to environmental exposures, such as motor vehicle emissions, and greater difficulty walking and bicycling without dedicated facilities. Youth are thought to have higher active transportation infrastructure need because they have less access to motor vehicles and may rely more on walking and bicycling for transportation compared to older age groups. Seniors may have greater mobility needs than the general adult population, as they reduce the amount of driving they do or stop driving altogether. According to the El Dorado Community Health Assessment, the population of the County is aging at a faster rate than California as a whole. Population data by age is available from the American Community Survey (5-year estimates, 2011-2015). See **Figure 3** for the distribution of youths and seniors within two miles of the proposed projects.

Figure 3: Number of Youths and Seniors within 2 Miles of Proposed Projects (ACS, 2011-2015)



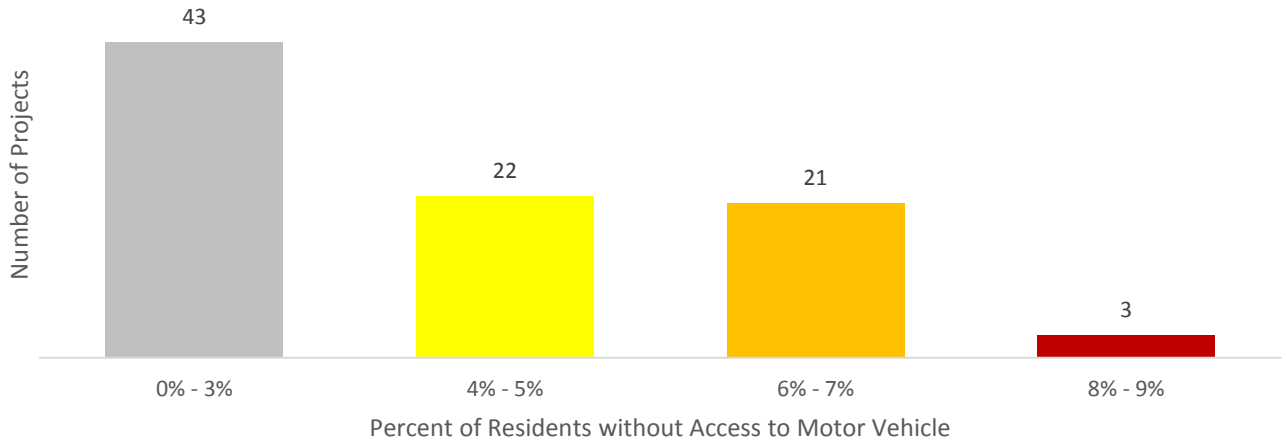
The number of combined youths and seniors within two miles of the proposed projects ranged between 134 and 7,163. The three highest rankings proposed projects are listed below:

- Project #1: El Dorado Hills Boulevard Bike Path (Phase 1) from Brittany Place to Governor Drive/ St. Andrews Drive – 7,036 youths and seniors
- Project #16: Silva Valley Parkway from Green Valley Road to Highway 50 – 7,163 youths and seniors
- Project #39: Green Valley Road from Cameron Park Drive to Lotus Drive – 7,029 youths and seniors

No Access to Motor Vehicle

Not included in recent grant application criteria but a good proxy for populations that may rely on active transportation is the percent of households without access to a motor vehicle. Vehicle occupancy data included in this analysis was retrieved from the American Community Survey (5-year estimates, 2011-2015). See **Figure 4** for the distribution of households within two miles of the proposed projects with no access to a motor vehicle.

Figure 4: Households with No Access to a Motor Vehicle (ACS, 2011-2015)



Roughly 8 percent of residents in California and 5 percent of residents in El Dorado County to not have access to at least one motor vehicle. This is comparable to residents living within two miles of the proposed projects, which ranged between 2 percent and 9 percent. The highest ranking proposed projects are listed below:

- Project #53: Jacquier Road from El Dorado Trail (south) to Carson Road – 8% no vehicle access
- Project #88: Marshall Way from Cedar Ravine Road to Rowland Street – 9% no vehicle access
- Project #89: Broadway from Mosquito Road to Blair Lane – 8% no vehicle access

Table 1: Application of Equity Performance Measures to Proposed Class I Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUDENTS FREE/ REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	$124,498	$137,067	0.06	0.07	7,036	1,346	0.02
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	$120,154	$120,154	0.06	0.08	3,016	235	0.03
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	$124,498	$135,910	0.06	0.05	5,529	628	0.02
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	$110,381	$102,416	0.06	0.00	3,682	148	0.03
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	$117,023	$120,154	0.06	0.05	3,173	190	0.03
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	$83,060	$81,209	0.14	0.00	4,581	298	0.04
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	$95,181	$95,881	0.24	0.00	3,773	2,071	0.03
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	$86,830	$88,750	0.18	0.00	2,577	304	0.04

Table 1: Application of Equity Performance Measures to Proposed Class I Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUDENTS FREE/ REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	$94,071	$99,391	0.08	0.08	3,671	515	0.03
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	$83,678	$94,071	0.08	0.08	5,130	839	0.03
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	$63,948	$56,737	0.34	0.48	3,368	367	0.07
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	$58,667	$71,061	0.49	0.49	2,826	251	0.05

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	$123,188	$127,804	0.06	0.06	5,206	832	0.02
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	$120,154	$113,283	0.07	0.00	3,256	240	0.03
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	$118,517	$99,391	0.07	0.07	2,820	39	0.02
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	$111,825	$125,312	0.06	0.07	7,163	1,231	0.03
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	$114,746	$126,587	0.06	0.07	4,796	1,716	0.02
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	$94,071	$99,391	0.00	0.00	1,923	185	0.03
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	$128,046	$137,893	0.06	0.06	3,984	1,239	0.02
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	$123,659	$126,221	0.06	0.10	2,521	342	0.02
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	$123,659	$142,934	0.06	0.04	2,547	921	0.02

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	$123,659	$140,408	0.06	0.07	2,642	1,110	0.02
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	$118,517	$108,421	0.07	0.07	2,956	108	0.02
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	$105,896	$113,471	0.12	0.07	6,864	1,374	0.03
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	$123,659	$126,221	0.06	0.00	2,451	315	0.02
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	$120,154	$99,391	0.07	0.00	3,068	78	0.03
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	$120,154	$99,391	0.07	0.00	3,979	158	0.03
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	$95,181	$99,123	0.18	0.36	6,679	1,001	0.03
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	$89,221	$80,449	0.21	0.07	5,034	970	0.03
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	$90,817	$87,032	0.18	0.00	4,593	728	0.03

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	$90,783	$90,861	0.22	0.22	3,623	273	0.03
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	$95,181	$87,674	0.24	0.36	6,070	1,176	0.03
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	$88,058	$65,223	0.20	0.00	4,717	1,117	0.03
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	$85,102	$81,209	0.16	0.00	3,040	357	0.03
35	COACH LN	RODEO RD	END OF COACH LN	$85,102	$81,209	0.18	0.00	3,034	352	0.03
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	$85,102	$83,690	0.19	0.00	4,166	618	0.03
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	$77,932	$85,142	0.18	0.14	3,976	333	0.04
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	$95,781	$94,113	0.16	0.22	5,851	594	0.03
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	$87,940	$79,517	0.27	0.27	7,029	1,017	0.03

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	$83,825	$75,545	0.20	0.14	4,632	979	0.03
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	$90,783	$90,861	0.22	0.22	3,554	255	0.03
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	$83,690	$85,142	0.18	0.00	3,298	259	0.04
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	$74,134	$80,780	0.31	0.31	3,228	394	0.05
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	$83,690	$85,142	0.18	0.00	3,609	331	0.04
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	$83,060	$85,142	0.18	0.00	5,490	371	0.04
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	$83,690	$85,142	0.18	0.00	3,116	218	0.04
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	$120,154	$120,154	0.06	0.00	5,353	824	0.03
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	$94,071	$99,391	0.08	0.08	2,558	300	0.03

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	5 YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	$99,391	$99,391	0.08	0.08	1,022	95	0.02
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	$83,654	$99,391	0.08	0.08	1,417	258	0.02
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	$63,286	$59,424	0.44	0.42	3,803	637	0.07
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	$57,734	$50,927	0.34	0.50	2,502	268	0.05
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	$58,105	$57,912	0.65	0.00	423	319	0.08
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	$61,269	$51,148	0.34	0.59	3,052	551	0.07
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	$63,948	$56,737	0.34	0.29	3,678	413	0.07
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	$59,666	$57,432	0.42	0.37	1,489	934	0.06
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	$59,814	$59,424	0.38	0.48	2,404	395	0.07

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE, REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	$59,814	$51,148	0.34	0.59	2,400	298	0.07
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	$59,814	$51,148	0.34	0.59	2,121	207	0.07
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	$59,814	$51,148	0.34	0.48	2,494	325	0.07
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	$63,948	$69,356	0.38	0.00	3,195	336	0.07
62	CARSON RD	JACQUIER RD	LARSEN DR	$58,268	$64,448	0.56	0.49	836	848	0.05
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	$62,265	$62,949	0.52	0.00	4,785	835	0.07
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	$60,950	$58,816	0.38	0.53	767	608	0.07
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	$70,940	$74,473	0.21	0.27	4,074	684	0.06
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	$65,336	$56,737	0.34	0.00	1,587	105	0.06

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	$61,084	$71,034	0.37	0.37	1,164	393	0.06
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	$50,761	$50,761	0.55	0.55	147	14	0.02
69	SNOWS RD	FUJI CT	CARSON RD	$62,344	$71,061	0.49	0.49	1,943	166	0.04
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	$62,890	$62,867	0.50	0.55	747	802	0.04
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	$50,761	$50,761	0.61	0.61	134	11	0.02
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	$50,761	$50,761	0.61	0.61	142	12	0.02
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	$74,335	$84,943	0.34	0.00	537	74	0.04
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	$64,530	$72,119	0.31	0.31	702	754	0.05
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	$59,801	$63,726	0.44	0.44	193	85	0.04

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	$68,474	$75,918	0.32	0.34	2,890	467	0.06
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	$68,181	$68,181	0.45	0.62	665	148	0.04
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	$59,801	$63,726	0.44	0.44	148	50	0.04
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	$71,406	$71,406	0.44	0.00	835	133	0.04
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	$59,801	$59,801	0.48	0.62	232	37	0.04
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	$56,217	$53,873	0.41	0.50	3,240	209	0.07
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	$56,217	$49,557	0.41	0.10	3,782	383	0.07
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	$55,740	$51,681	0.42	0.07	3,285	387	0.06
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	$57,658	$47,306	0.41	0.50	1,488	414	0.05

Table 2: Application of Equity Performance Measures to Proposed Class II Projects

HIGH | MEDIUM | LOW

PROJECT ID	PROJECT	BEGIN	END	MEDIAN HOUSEHOLD INCOME (2 MILES)	MEDIAN HOUSEHOLD INCOME (1/2 MILE)	% STUD. FREE REDUCED LUNCH (2 MILES)	% STUDENTS FREE/ REDUCED LUNCH (1/2 MILE)	% YOUTHS/ SENIORS (2 MILES)	% YOUTHS/ SENIORS (1/2 MILE)	% NO ACCESS TO MOTOR VEHCLE (2 MILES)
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	$56,217	$46,413	0.41	0.44	3,211	238	0.07
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	$56,179	$49,330	0.44	0.54	452	323	0.04
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	$56,217	$47,740	0.41	0.38	3,422	306	0.07
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	$51,302	$51,321	0.44	0.38	3,163	249	0.09
89	BROADWAY	MOSQUITO RD	BLAIR LN	$53,789	$51,295	0.44	0.54	2,934	259	0.08

APPENDIX I:
COST-EFFECTIVENESS ANALYSIS

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MEMORANDUM

To: Jerry Barton (EDCTC)

From: Hugh Louch and Kyle James, (Alta Planning + Design)

Date: July 17, 2017

Re: EDCTC Active Transportation Connections Study – Cost-Effectiveness Analysis

Introduction

This memorandum identifies cost-effectiveness performance measures for inclusion within the El Dorado County Transportation Commission's (EDCTC) Active Transportation Connections Study. The purpose of the overall study is to develop a process to identify the proposed pedestrian and bicycle projects within El Dorado County's western slope that may be the most competitive under various grant application criteria. Completing competitive grant applications can be time and data intensive, so selecting projects that have the greatest probability of receiving funding helps maximize limited resources. The cost-effectiveness of a project on is a commonly featured criterion in active transportation grant requirements, whether stated directly in the scoring rubric as an indirect measure. The identification of a cost-effectiveness performance measure will help identify the projects that could have the greatest impact at the lowest cost and help prioritize which projects should be included in a grant application.

Why Cost-Effectiveness?

Cost-effectiveness refers to the degree to which a proposed project results in benefits relative to its overall costs. Being able to weigh the health, environmental, demand, connectivity, safety, and equity benefits of a proposed project against its costs help place it on an even playing field for evaluation. While a large project may show considerable benefits, its costs may be prohibitive to pursuing outside funding. Likewise, a small project may not show as many benefits as other projects, but its relatively low cost may make it a more cost-effective choice for implementation. Further, a combination of low-cost projects may have as large an impact as one project with a hefty price tag.

El Dorado County's Regional Transportation Plan promotes the concept of Complete Streets because integrating sidewalks, bike lanes, and other multi-modal infrastructure is more cost-effective to design into a project from the start than to add after construction. Objective C of the plan calls for a focus on cost-effectiveness when maintaining the County's transportation system. Similarly, a common grant application requirement is to show a measure of cost-effectiveness, ranging from a quantitative cost-benefit ratio for Highway Safety Improvement Program (HSIP) grants to a more qualitative description in Caltrans' Active Transportation Program (ATP) grants.

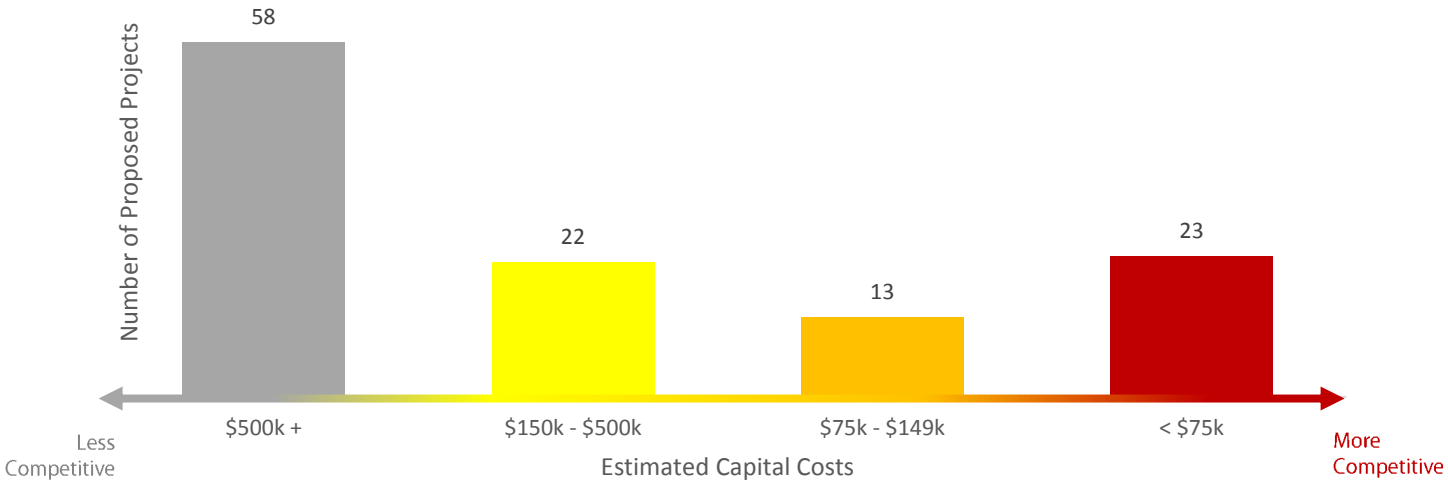
Potential Performance Measures

Based on common grant application requirements, we have identified two potential approaches to measuring cost-effectiveness: (1) estimated capital costs and (2) benefit-cost ratio. The following sections describe the data sources, methods, and results for each of the potential cost-effectiveness performance measures.

Estimated Capital Costs

The first approach to measuring cost-effectiveness was a simple look at the proposed projects' total estimated capital costs, or how much it would take to build a given proposed project. While a certain level of design is necessary to provide an accurate estimate of capital costs, some resources are available that provide guidance on high-level cost estimates for active transportation projects. In the UNC Highway Safety Research Center's Costs for Pedestrian and Bicyclist Infrastructure Improvements (2013), the authors' database of bid letting sheets and project cost summaries found that the average cost of one mile of Class II on-street bicycle lanes was $133,170. Applied to El Dorado County, the cost of Class II facilities can vary widely depending on the need to expand the roadway, vertical separation, and other factors. Local cost estimates assume an average of $1,000,000 per mile of Class I multi-use path. This, too, can vary widely due to variations in right-of-way acquisition, topography, and selected construction materials. While this study only evaluated the estimated capital costs of Class I and Class II bikeways, the UNC report contains cost estimates for sidewalks and other active transportation project components. The authors note that costs vary substantially for infrastructure projects based on materials used and right-of-way costs. As such, these general estimates likely underestimate the cost of major infrastructure projects such as an undercrossing or overcrossing. See **Figure 1**, **Table 2**, and **Table 3** for a distribution of estimated capital costs of the proposed projects.

Figure 1: Estimated Capital Costs of Proposed Projects



Benefit-Cost Ratio

The second approach to measuring cost-effectiveness is the benefit-cost ratio, which totals the estimated monetized benefits of a proposed project against and divides it by the total estimated capital and maintenance costs over a given time period. A benefit-cost ratio greater than 1.00 indicates that the benefits outweigh the costs, and a ratio less than 1.00 indicates that the costs outweigh the benefits. A recent trend in active transportation grant applications is the requirement of applicants to provide a benefit-cost ratio for their proposal. ATP Cycle 2 required applicants use Caltrans' benefit-cost calculator and to report back a benefit-cost ratio. Because the tool was new and untested, the scoring rubric for ATP Cycle 2 only awarded points for having completed the analysis and providing feedback on the tool, not for the resulting ratio. In ATP Cycle 3, applicants were asked to discuss the cost-effectiveness of their proposed project, leaving the response open to a quantitative analysis or a qualitative discussion. Caltrans is currently working on updating the active transportation component of its benefit-cost calculator, and it is anticipated that it will be a component of ATP Cycle 4 requirements. HSIP grant applicants also require applicants to complete a benefit-cost analysis using a separate tool developed by Caltrans. This tool focuses solely on safety benefits and does not include other benefits such as health, environmental, or transportation cost savings.

This analysis weighs high-level health, environmental, and transportation cost savings against rough capital and maintenance costs over a ten-year period. The method used for estimating each of these components is listed in **Table 1**.

Table 1: Benefit-Cost Factors

	Factor
Annual Estimated Healthcare Cost Savings	$1,444 per newly active person (estimated as 10% of population between 18 and 34)[1]
Annual Estimated Environmental Benefits	$0.02 per pound of greenhouse gas emissions reduced (source)[2]
Annual Estimated Household Transportation Cost Savings	$0.63 per vehicle-mile traveled reduced (source)[3]
Annual Estimated Congestion Cost Savings	$0.06 per vehicle-mile traveled reduced (source)[4]
Annual Estimated Collision Cost Savings	$0.33 per vehicle-mile traveled reduced (source) [5]
Annual Estimated Roadway Maintenance Cost Savings	$0.14 per vehicle-mile traveled reduced (source) [6]
Capital Costs	$481,140 per mile of Class I and $133,170 per mile of Class II (source)[7]
Annual Maintenance Costs	10% of estimated capital costs

[1] http://www.cdc.gov/nccdphp/dnpao/docs/carlson-physical-activity-and-healthcare-expenditures-final-508tagged.pdf
[2] https://www3.epa.gov/otaq/consumer/420f08024.pdf
[3] http://exchange.aaa.com/automobiles-travel/automobiles/driving-costs/#.Vw_xCPkrKUk>
[4] http://www.camsys.com/pubs/2011_AAA_CrashvCongUpd.pdf
[5] http://www.camsys.com/pubs/2011_AAA_CrashvCongUpd.pdf
[6] https://trid.trb.org/view.aspx?id=261768
[7] http://www.pedbikeinfo.org/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf

Applied to the proposed project list, as shown in **Figure 2**, **Table 1**, and **Table 2** the benefit-cost ratio for the proposed projects range between 0.04 and 241.97.

Figure 2: Benefit-Cost Ratio of Proposed Projects

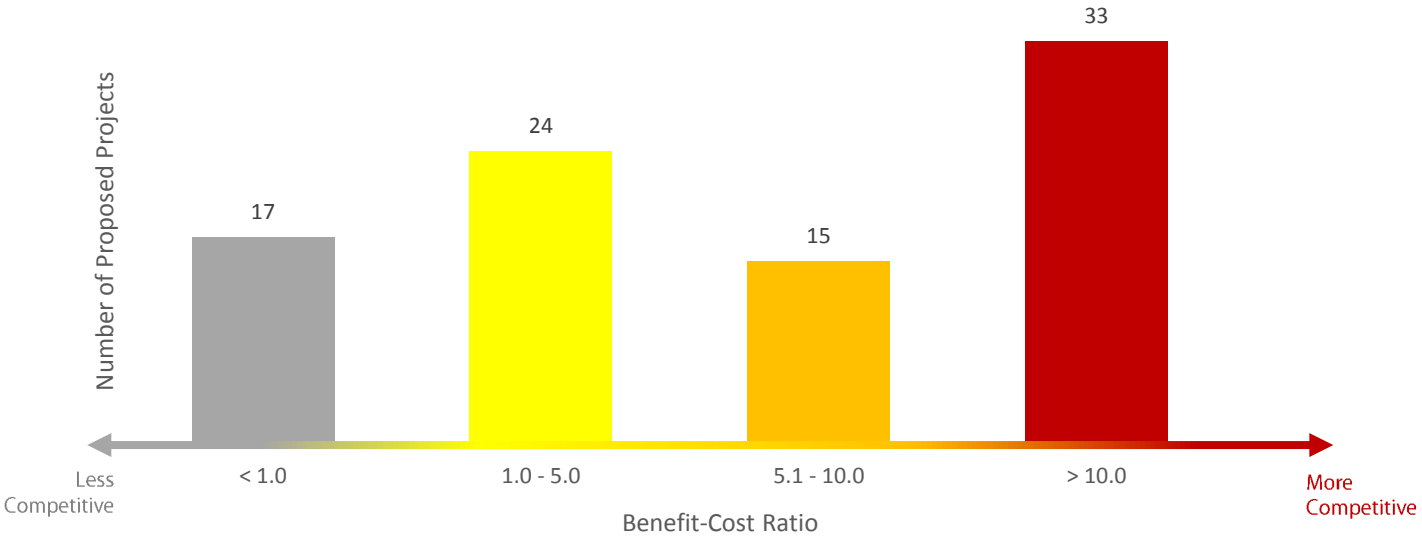


Table 2: Estimated Cost-Effectiveness of Proposed Class I Multi-use Paths

PROJECT ID	PROJECT	BEGIN	END	LENGTH (MILES)	ESTIMATED CAPITAL COSTS	BENEFIT-COST RATIO
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	0.96	$960,000	2.02
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	0.29	$292,000	10.57
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	0.08	$81,000	14.76
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	0.33	$333,000	9.43
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	0.08	$10,000,000	0.31
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	0.32	$322,000	6.97
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	0.75	$753,000	5.97
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	1.26	$1,259,000	1.92
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	6.76	$6,762,000	0.41
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	8.27	$8,271,000	0.32
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	2.61	$2,607,000	0.78
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	1.20	$1,201,000	1.45

Table 3: Estimated Cost-Effectiveness of Proposed Class II Bikeways

Less Competitive — More Competitive

PROJECT ID	PROJECT	BEGIN	END	LENGTH (MILES)	ESTIMATED CAPITAL COSTS	BENEFIT-COST RATIO
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	4.80	$639,000	5.06
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	0.55	$73,000	15.47
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	0.05	$7,000	234.26
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	3.88	$517,000	6.37
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	3.38	$450,000	5.56
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	1.91	$254,000	5.98
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	0.43	$57,000	8.42
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	0.53	$71,000	7.47
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	0.89	$119,000	9.87
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	0.78	$103,000	8.05
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	0.21	$28,000	40.29
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	3.66	$488,000	9.99
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	0.43	$57,000	5.40
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	0.35	$47,000	24.20
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	1.59	$211,000	5.98
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	3.79	$505,000	10.32
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	3.22	$429,000	10.34

Table 3: Estimated Cost-Effectiveness of Proposed Class II Bikeways

Less Competitive → More Competitive

PROJECT ID	PROJECT	BEGIN	END	LENGTH (MILES)	ESTIMATED CAPITAL COSTS	BENEFIT-COST RATIO
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	1.61	$214,000	15.85
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	0.29	$38,000	63.86
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	3.01	$401,000	15.41
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	1.18	$157,000	14.58
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	0.56	$74,000	21.87
35	COACH LN	RODEO RD	END OF COACH LN	0.52	$69,000	25.26
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	1.93	$257,000	5.57
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	0.83	$111,000	8.04
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	1.99	$266,000	17.28
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	4.14	$552,000	4.18
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	1.26	$168,000	9.13
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	0.21	$27,000	71.62
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	0.47	$62,000	16.27
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	6.79	$904,000	2.86
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	0.82	$109,000	9.69
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	1.01	$135,000	9.19
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	0.27	$36,000	26.38
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	2.95	$392,000	3.42
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	3.59	$478,000	3.20

Table 3: Estimated Cost-Effectiveness of Proposed Class II Bikeways

Less Competitive — More Competitive

PROJECT ID	PROJECT	BEGIN	END	LENGTH (MILES)	ESTIMATED CAPITAL COSTS	BENEFIT-COST RATIO
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	0.60	$80,000	19.85
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	2.97	$395,000	3.88
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	1.73	$231,000	2.61
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	0.93	$124,000	5.77
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	0.90	$120,000	3.20
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	2.07	$275,000	0.79
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	2.89	$385,000	0.77
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	5.05	$672,000	0.86
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	0.75	$100,000	8.18
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	0.77	$102,000	1.44
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	0.29	$39,000	2.30
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	0.90	$120,000	7.25
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	2.04	$272,000	4.54
62	CARSON RD	JACQUIER RD	LARSEN DR	4.91	$653,000	0.53

Table 3: Estimated Cost-Effectiveness of Proposed Class II Bikeways

Less Competitive — More Competitive

PROJECT ID	PROJECT	BEGIN	END	LENGTH (MILES)	ESTIMATED CAPITAL COSTS	BENEFIT-COST RATIO
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	4.66	$620,000	0.25
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	3.25	$433,000	4.46
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	3.49	$465,000	2.03
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	0.14	$19,000	19.57
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	2.98	$397,000	1.10
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	0.65	$87,000	1.91
69	SNOWS RD	FUJI CT	CARSON RD	0.53	$71,000	6.60
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	5.47	$728,000	0.71
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	0.30	$40,000	4.96
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	0.48	$64,000	3.26
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	0.86	$114,000	0.11
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	4.41	$588,000	2.69
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	2.26	$301,000	0.93
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	11.62	$1,548,000	0.06
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	11.30	$1,504,000	0.06
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	0.99	$132,000	1.89
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	3.21	$427,000	0.72
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	3.46	$461,000	1.02

Table 3: Estimated Cost-Effectiveness of Proposed Class II Bikeways

Less Competitive → More Competitive

PROJECT ID	PROJECT	BEGIN	END	LENGTH (MILES)	ESTIMATED CAPITAL COSTS	BENEFIT-COST RATIO
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	0.19	$25,000	35.10
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	0.82	$109,000	14.13
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	0.77	$102,000	15.74
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	0.79	$105,000	16.04
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	0.16	$22,000	63.15
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	0.49	$66,000	18.53
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	0.38	$51,000	35.21
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	0.26	$35,000	2.57
89	BROADWAY	MOSQUITO RD	BLAIR LN	0.37	$50,000	4.45

APPENDIX J: PROPOSED PROJECTS

MEMORANDUM

100 Webster Street, Suite 300
Oakland, CA 94607
(510) 540-5008
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To: Jerry Barton (EDCTC)

From: Hugh Louch and Kyle James (Alta Planning + Design)

Date: April 9, 2017

Re: EDCTC Active Transportation Connections Study – Proposed Projects

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Table 1 shows the proposed Class I multi-use path projects and **Table 2** shows the proposed Class II on-street bicycle lane projects considered in the initial Active Transportation Connections Study. These projects were pulled from two adopted plans: El Dorado County Bicycle Transportation Plan (2010) and City of Placerville Non-Motorized Transportation Plan (2010). As future plans with proposed active transportation projects - including pedestrian projects - become adopted, they should be considered for inclusion within this analysis.

Table 1: Proposed Class I Projects

PROJECT ID	PROJECT	BEGIN	END	SOURCE	DISTRICT(S)
1	EL DORADO HILLS BLVD BIKE PATH (PHASE 1)	BRITTANY PLACE	GOVERNOR DR/ ST ANDREWS DR	El Dorado County Bicycle Transportation Plan (2010)	1
2	EL DORADO HILLS BLVD BIKE PATH (PHASE 2)	SERRANO PKWY	EL DORADO HILLS VILLAGE SHOPPING CENTER	El Dorado County Bicycle Transportation Plan (2010)	1
3	EL DORADO HILLS NEW YORK CREEK TRAIL (PHASE 2)	TAM O' SHANTER DR	CURRENT NEW YORK CREEK TRAIL TERMINUS (430' EAST OF TAM O'SHANTER DR)	El Dorado County Bicycle Transportation Plan (2010)	1
4	OLD BASS LAKE RD (PHASE 1)	EL DORADO HILLS	BASS LAKE CONNECTION	El Dorado County Bicycle Transportation Plan (2010)	1
5	HIGHWAY 50 CROSSING	EL DORADO HILLS VILLAGE SHOPPING CENTER	EL DORADO HILLS TOWN CENTER	El Dorado County Bicycle Transportation Plan (2010)	1
6	PALMER DRIVE BIKE PATH CONNECTION	PALMER DRIVE	WILD CHAPARRAL DR	El Dorado County Bicycle Transportation Plan (2010)	4
7	BASS LAKE BIKE PATH CONNECTION	COVELLO CIRCLE (EAST)	SUMMER DR	El Dorado County Bicycle Transportation Plan (2010)	1, 2
8	SPTC - EL DORADO TRAIL	SHINGLE LIME MINE RD	SHINGLE SPRINGS DR	El Dorado County Bicycle Transportation Plan (2010)	2
9	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY (WEST)	LATROBE RD	El Dorado County Bicycle Transportation Plan (2010)	2
10	SPTC - EL DORADO TRAIL (PHASE 7)	LATROBE RD	SHINGLE LIME MINE RD	El Dorado County Bicycle Transportation Plan (2010)	2
11	SPTC - EL DORADO TRAIL (PHASE I)	EL DORADO RD	MISSOURI FLAT RD	El Dorado County Bicycle Transportation Plan (2010)	3
12	SPTC - EL DORADO TRAIL (PHASE 5)	HALCON RD	SNOWS RD	El Dorado County Bicycle Transportation Plan (2010)	3

Table 2: Proposed Class II Projects

PROJECT ID	PROJECT	BEGIN	END	SOURCE	DISTRICT(S)
13	EL DORADO HILLS BLVD	SARATOGA WAY	GOVERNOR DR/ ST ANDREWS DR	El Dorado County Bicycle Transportation Plan (2010)	1
14	SARATOGA WAY EXTENSION	IRON POINT RD	FINDERS WAY	El Dorado County Bicycle Transportation Plan (2010)	1
15	WHITE ROCK RD	COUNTY BOUNDARY (WEST)	CARSON CROSSING RD	El Dorado County Bicycle Transportation Plan (2010)	1
16	SILVA VALLEY PKWY	GREEN VALLEY RD	HIGHWAY 50	El Dorado County Bicycle Transportation Plan (2010)	1
17	EL DORADO HILLS BLVD (PHASE 2)	GOVERNOR DR/ ST ANDREWS DR	GREEN VALLEY RD	El Dorado County Bicycle Transportation Plan (2010)	1
18	LATROBE RD	WETSEL-OVIATT RD	SPTC - EL DORADO TRAIL	El Dorado County Bicycle Transportation Plan (2010)	2
19	HARVARD WAY	EL DORADO HILLS BLVD	SILVA VALLEY PKWY	El Dorado County Bicycle Transportation Plan (2010)	1
20	FRANCISCO DR	GREEN VALLEY RD	EL DORADO HILLS BLVD	El Dorado County Bicycle Transportation Plan (2010)	1
21	ELMORES WAY	SOPHIA PKWY	BRITTANY WAY	El Dorado County Bicycle Transportation Plan (2010)	1
22	BRITTANY WAY/ BRITTANY PL	ELMORES WAY	EL DORADO HILLS BLVD	El Dorado County Bicycle Transportation Plan (2010)	1
23	POST ST	TOWN CENTER BLVD	WHITE ROCK RD	El Dorado County Bicycle Transportation Plan (2010)	1
24	SERRANO PKWY	EL DORADO HILLS BLVD	BASS LAKE RD	El Dorado County Bicycle Transportation Plan (2010)	1

Table 2: Proposed Class II Projects

PROJECT ID	PROJECT	BEGIN	END	SOURCE	DISTRICT(S)
25	VILLAGE CENTER DR	FRANCISCO DR	SALMON FALLS RD	El Dorado County Bicycle Transportation Plan (2010)	1
26	WINDFIELD WAY	WHITE ROCK RD	GOLDEN FOOTHILL PKWY	El Dorado County Bicycle Transportation Plan (2010)	1
27	GOLDEN FOOTHILL PKWY	LATROBE RD (NORTH)	LATROBE RD (SOUTH)	El Dorado County Bicycle Transportation Plan (2010)	1, 2
28	BASS LAKE RD	COUNTRY CLUB DR	GREEN VALLEY RD	El Dorado County Bicycle Transportation Plan (2010)	1, 2
29	CAMERON PARK DR	DUROCK RD	HIGHWAY 50	El Dorado County Bicycle Transportation Plan (2010)	4
30	COUNTRY CLUB DRIVE (PHASE 1)	CAMBRIDGE RD	CAMERON PARK DR	El Dorado County Bicycle Transportation Plan (2010)	2, 4
31	CAMBRIDGE RD	COUNTRY CLUB DR	MERRYCHASE DR	El Dorado County Bicycle Transportation Plan (2010)	2
32	CAMBRIDGE RD	COUNTRY CLUB DR	GREEN VALLEY RD	El Dorado County Bicycle Transportation Plan (2010)	2, 4
33	MEDER RD (PHASE 1)	CAMERON PARK DR	PALORAN CT	El Dorado County Bicycle Transportation Plan (2010)	4
34	PALMER DR	CAMERON PARK DR	500 FT EAST OF KEVIN ST	El Dorado County Bicycle Transportation Plan (2010)	4
35	COACH LN	RODEO RD	END OF COACH LN	El Dorado County Bicycle Transportation Plan (2010)	2
36	DUROCK RD	CAMERON PARK DR	SOUTH SHINGLE RD	El Dorado County Bicycle Transportation Plan (2010)	2

Table 2: Proposed Class II Projects

PROJECT ID	PROJECT	BEGIN	END	SOURCE	DISTRICT(S)
37	PONDEROSA RD	HIGHWAY 50	MEDER RD	El Dorado County Bicycle Transportation Plan (2010)	4
38	COUNTRY CLUB DR (PHASE 2)	BASS LAKE RD	CAMBRIDGE RD	El Dorado County Bicycle Transportation Plan (2010)	1, 2
39	GREEN VALLEY RD	CAMERON PARK DR	LOTUS RD	El Dorado County Bicycle Transportation Plan (2010)	4
40	MEDER RD (PHASE 2)	PALORAN CT	PONDEROSA RD	El Dorado County Bicycle Transportation Plan (2010)	4
41	CAMBRIDGE DR	MERRYCHASE DR	CRAZY HORSE RD	El Dorado County Bicycle Transportation Plan (2010)	2
42	MOTHER LODE DR	SOUTH SHINGLE RD	FRENCH CREEK RD	El Dorado County Bicycle Transportation Plan (2010)	2, 4
43	LOTUS RD	GREEN VALLEY RD	HIGHWAY 49	El Dorado County Bicycle Transportation Plan (2010)	4
44	SOUTH SHINGLE RD	SPTC - EL DORADO TRAIL	HIGHWAY 50	El Dorado County Bicycle Transportation Plan (2010)	2, 4
45	WILD CHAPARRAL DR	MANY OAKS LN	PONDEROSA RD	El Dorado County Bicycle Transportation Plan (2010)	4
46	NORTH SHINGLE RD	PONDEROSA RD	SPORTS CLUB DR	El Dorado County Bicycle Transportation Plan (2010)	4
47	LATROBE RD	INVESTMENT BLVD	SPTC - EL DORADO TRAIL	El Dorado County Bicycle Transportation Plan (2010)	1, 2
48	LATROBE RD	SPTC - EL DORADO TRAIL	SOUTH SHINGLE RD	El Dorado County Bicycle Transportation Plan (2010)	2

Table 2: Proposed Class II Projects

PROJECT ID	PROJECT	BEGIN	END	SOURCE	DISTRICT(S)
49	SOUTH SHINGLE RD	LATROBE RD	LATROBE ELEMENTARY SCHOOL	El Dorado County Bicycle Transportation Plan (2010)	2
50	LATROBE RD	SPTC - EL DORADO TRAIL	EL DORADO COUNTY BOUNDARY	El Dorado County Bicycle Transportation Plan (2010)	2
51	MISSOURI FLAT RD (PHASE 1)	CAMPUS DR	PLAZA DR	El Dorado County Bicycle Transportation Plan (2010)	3, 4
52	MISSOURI FLAT RD (PHASE 2)	GOLDEN CENTER DR	PLEASANT VALLEY RD/ HIGHWAY 49	El Dorado County Bicycle Transportation Plan (2010)	3
53	JACQUIER RD	EL DORADO TRAIL (SOUTH)	CARSON RD	El Dorado County Bicycle Transportation Plan (2010)	3
54	PLEASANT VALLEY RD (PHASE 1)	MISSOURI FLAT RD	BIG CUT RD	El Dorado County Bicycle Transportation Plan (2010)	3
55	PLEASANT VALLEY RD (PHASE 2)	MOTHER LODE DR	MISSOURI FLAT RD	El Dorado County Bicycle Transportation Plan (2010)	3
56	PLEASANT VALLEY RD (PHASE 3)	BIG CUT RD	COWBOY TRAIL	El Dorado County Bicycle Transportation Plan (2010)	2, 3
57	MOTHER LODE DR (PHASE 1)	LINDBERG AVE	MISSOURI FLAT RD	El Dorado County Bicycle Transportation Plan (2010)	3
58	ENTERPRISE DR	FORNI RD	MISSOURI FLAT RD	El Dorado County Bicycle Transportation Plan (2010)	3
59	COMMERCE WAY	ENTERPRISE DR	HIGHWAY 49	El Dorado County Bicycle Transportation Plan (2010)	3
60	FORNI RD	ENTERPRISE DR	MISSOURI FLAT RD	El Dorado County Bicycle Transportation Plan (2010)	3

Table 2: Proposed Class II Projects

PROJECT ID	PROJECT	BEGIN	END	SOURCE	DISTRICT(S)
61	MOTHER LODE DR (PHASE 2)	PLEASANT VALLEY RD	LINDBERG AVE	El Dorado County Bicycle Transportation Plan (2010)	3
62	CARSON RD	JACQUIER RD	LARSEN DR	El Dorado County Bicycle Transportation Plan (2010)	3
63	NEWTOWN RD	PARKWAY DR	PLEASANT VALLEY RD	El Dorado County Bicycle Transportation Plan (2010)	3
64	HIGHWAY 49	GOLD HILL RD	BAKER RD	El Dorado County Bicycle Transportation Plan (2010)	3, 4
65	MOTHER LODE DR (PHASE 3)	FRENCH CREEK RD	PLEASANT VALLEY RD	El Dorado County Bicycle Transportation Plan (2010)	2, 3, 4
66	HIGHWAY 49	PLEASANT VALLEY RD	UNION MINE RD	El Dorado County Bicycle Transportation Plan (2010)	3
67	PLEASANT VALLEY RD	COWBOY TRAIL	SLY PARK RD	El Dorado County Bicycle Transportation Plan (2010)	2, 3
68	E16/ MT AUKUM RD	MOUNTAIN CREEK MIDDLE SCHOOL	FAIRPLAY RD	El Dorado County Bicycle Transportation Plan (2010)	2
69	SNOWS RD	FUJI CT	CARSON RD	El Dorado County Bicycle Transportation Plan (2010)	3
70	PONY EXPRESS TRAIL	CARSON RD	SLY PARK RD	El Dorado County Bicycle Transportation Plan (2010)	3, 5
71	GRIZZLY FLAT RD	WOODED GLEN DR	SCIARONI RD	El Dorado County Bicycle Transportation Plan (2010)	2
72	SCIARONI RD	GRIZZLY FLAT RD	TYLER DR	El Dorado County Bicycle Transportation Plan (2010)	2

Table 2: Proposed Class II Projects

PROJECT ID	PROJECT	BEGIN	END	SOURCE	DISTRICT(S)
73	HIGHWAY 193	HIGHWAY 49	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	El Dorado County Bicycle Transportation Plan (2010)	4
74	LOTUS RD	GOLD HILL RD	HIGHWAY 49	El Dorado County Bicycle Transportation Plan (2010)	4
75	MARSHALL RD	PROSPECTOR RD (NORTH)	BLACK OAK MINE RD	El Dorado County Bicycle Transportation Plan (2010)	4
76	HIGHWAY 49	COLD SPRINGS RD	HIGHWAY 193	El Dorado County Bicycle Transportation Plan (2010)	4
77	HIGHWAY 193	AMERICAN RIVER TRAIL/ TRIPLE 7 RD	MAIN ST	El Dorado County Bicycle Transportation Plan (2010)	4
78	GARDEN VALLEY RD	MARSHALL RD	400 FT EAST OF WHITNEY CT	El Dorado County Bicycle Transportation Plan (2010)	4
79	MARSHALL RD	HIGHWAY 49	PROSPECTOR RD (NORTH)	El Dorado County Bicycle Transportation Plan (2010)	4
80	MARSHALL RD	BLACK OAK MINE RD	LOWER MAIN ST	El Dorado County Bicycle Transportation Plan (2010)	4
81	GREEN VALLEY RD	MALLARD LN	PLACERVILLE DR	City of Placerville Non-Motorized Transportation Plan (2010)	3
82	PLACERVILLE DR	GREEN VALLEY RD/ RAY LAWYER DR	HIGHWAY 50	City of Placerville Non-Motorized Transportation Plan (2010)	3
83	FORNI RD	RAY LAWYER DR	HIGHWAY 50/ PLACERVILLE DR	City of Placerville Non-Motorized Transportation Plan (2010)	3
84	COLD SPRINGS RD	PLACERVILLE CITY LIMIT (NEAR CASWELL RD)	PLACERVILLE DR	City of Placerville Non-Motorized Transportation Plan (2010)	3

Table 2: Proposed Class II Projects

PROJECT ID	PROJECT	BEGIN	END	SOURCE	DISTRICT(S)
85	PIERROZ RD	PLACERVILLE DR	COLD SPRINGS RD	City of Placerville Non-Motorized Transportation Plan (2010)	3
86	HIGHWAY 49	PLACERVILLE CITY LIMIT (NEAR COLOMA CT)	GREEN ST	City of Placerville Non-Motorized Transportation Plan (2010)	3
87	MIDDLETOWN RD	CANAL ST	COLD SPRINGS RD	City of Placerville Non-Motorized Transportation Plan (2010)	3
88	MARSHALL WAY	CEDAR RAVINE RD	ROWLAND ST (MARSHALL HOSPITAL ENTRANCE)	City of Placerville Non-Motorized Transportation Plan (2010)	3
89	BROADWAY	MOSQUITO RD	BLAIR LN	City of Placerville Non-Motorized Transportation Plan (2010)	3

APPENDIX K: PUBLIC ENGAGMENT

MEMORANDUM

100 Webster Street, Suite 300
Oakland, CA 94607
(510) 540-5008
www.altaplanning.com

To: Jerry Barton (EDCTC)

From: Hugh Louch and Kyle James (Alta Planning + Design)

Date: May 10, 2017

Re: EDCTC Active Transportation Connections Study – Public Engagement

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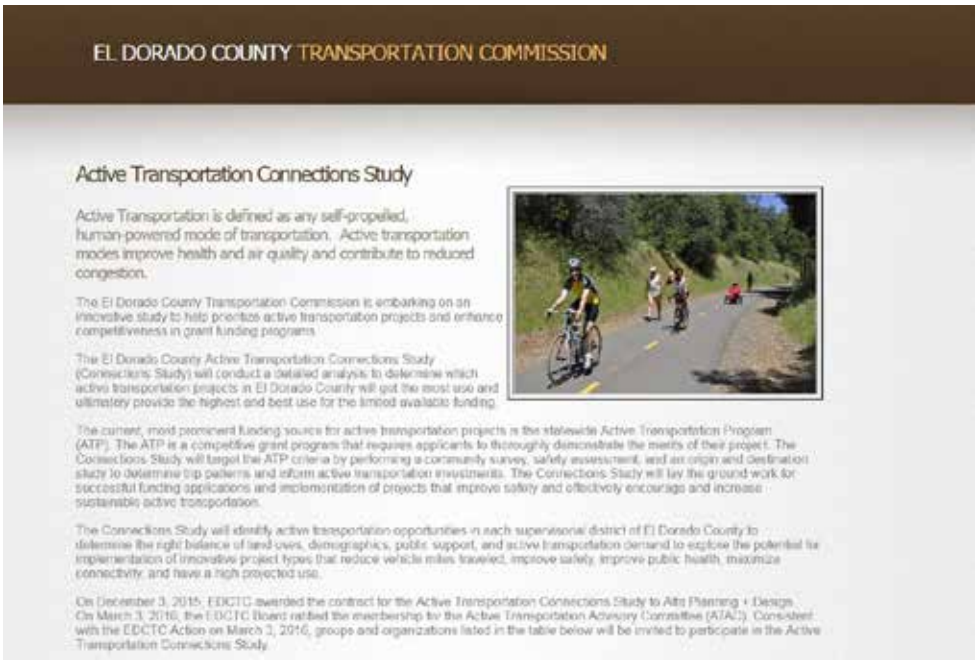
Public engagement for the Active Transportation Connections Study consisted of three components:

- Project Webpage & Online Community Survey
- Advisory Committee Meetings
- Public Workshop

The El Dorado County Transportation Commission (EDCTC) hosted a project-specific webpage for the life of the study, available at http://www.edctc.org/3/ATP.html. The webpage contained a description of the project, scope, and completed analyses (see **Figure 1** for a screenshot of the project webpage). The webpage was updated regularly throughout the life of the study.

Figure 1: Screenshot of Project Webpage



The webpage also contained a link to the community survey which was developed on Survey Monkey, an online survey platform. The survey was opened on August 2, 2016 and closed November 29, 2016. It was advertised through the County's website and email blasts to interested parties. For more information on the contents and results of the survey, see the *Survey Results Memorandum*.

Two advisory committees were formed to guide the development of the study: an active transportation advisory committee (TAC) comprised of interested citizens and a technical advisory committee comprised of County and other local agency staff. EDCTC hosted a total of six meetings, four of which consisted of both ATAC and TAC members and two that only consisted of TAC members. Below is a list of topics discussed at each meeting (see meeting presentations and meeting notes for more information):

- **Meeting #1, TAC + ATAC (05-04-2016)**
    - Project background
    - Webpage
    - Roles and responsibilities
    - Project schedule
    - Draft survey
    - Land use and demographic analysis
    - Approach to ranking projects
- **Meeting #2, TAC (08-18-2016)**
    - Project background and purpose
    - Scope of technical analysis and performance measures
    - TAC role and schedule
    - Survey update
    - Demand method
    - Prioritization method
- **Meeting #3, TAC + ATAC (09-29-2016)**
    - Survey status update
    - Review scope
    - Review goals of bicycle and pedestrian counts
    - Discuss count locations
- **Meeting #4, TAC webinar (01-25-2017)**
    - Survey results
    - Count results
    - Demand analysis
- **Meeting #5, TAC + ATAC (02-28-2017)**
    - Grant criteria and performance measures
    - Count and survey results
    - Safety and connectivity options
- **Meeting #6, TAC + ATAC webinar (05-18-2017)**
    - Draft report

In addition to the project webpage, online community survey, and advisory committee meetings, EDCTC hosted a public workshop at the Placerville Earth Day Festival on April 22, 2017. Attendees were asked to complete a prioritization exercise in which they indicated their preference for each of the evaluation criteria through head-to-head match-ups. For example, in a head-to-head match-up between health and demand, attendees indicated on a sliding scale that health was 'much more important', 'slightly more important', 'slightly less important', or 'much less important' than demand as a measure for deciding which active transportation projects should be prioritized for funding. This process, known as pairwise comparisons, allowed EDCTC to understand the weight that residents place on various components of pedestrian and bicycle projects and to contrast those weights with common grant application weighting schemes. Thirty members of the public completed the prioritization exercise, and collectively they ranked safety and connectivity as the most important factors for prioritizing active transportation projects (see **Table 1** for the prioritization exercise results; note cost-effectiveness was excluded from the exercise for time management reasons).

Table 1: Prioritization Exercise Results

Measure	Weighting	Rank
Safety	27	1
Connectivity	20	2
Environment	15	3
Equity	13	4
Health	13	5
Demand	11	6

APPENDIX L:
MEETING NOTES & PRESENTATIONS

Agenda & Notes

PROJECT	Active Transportation Connections Study	**ORGANIZER**	EDCTC
SUBJECT	ATAC/TAC Meeting #1	**DATE**	May 4, 2016
VENUE	Cameron Park Community Center	**TIME**	2:00 PM – 4:00 PM

Item	Discussion, Responses, & Actions
1. Introductions	• Technical Advisory Committee (TAC) and Active Transportation Advisory Committee (ATCAC) members introduced themselves, along with Jerry Barton of EDCTC and the consultant team. • Key interests identified by the group during introductions included: incorporating active transportation into project, public safety, health, mobility, implementation, recreation, enjoying our community, livability, access, trails, aging, historic preservation, ADA, safe routes to schools and for children generally, completing gaps, and increasing overall connectivity
2. Project Background + Web Page	Consultant team provide project background. Noted that the team will start with existing plans, especially the EDCTC Bicycle Plan. Questions raised included • Request to include pedestrian improvements, especially for transit access and elderly access to shopping. Noted lack of existing pedestrian plan but that many of the bicycle plan projects will include pedestrian elements • Discussion that the analysis tools will not be mode specific, but work on whatever types of active transportation projects are of interest. • Suggested making sure that projects in plans like the Cameron Park Mobility Action Plan or the El Dorado Hills Parks Masterplan be included in the list of potential projects. Consultant team clarified that the purpose is not to generate new projects, but that any already existing projects can be evaluated.
3. Roles and Responsibilities	• Consultant team and Jerry Barton clarified that the TAC is made up of other public agencies and has a role in reviewing technical analysis products and providing data. , The ATAC is representative of the communities of western El Dorado County and provides overall project input and direction.
4. Project Schedule	• The consultant team presented the overall schedule completion date of Spring 2017.
5. Draft Survey	The consultant team walked through the survey, a draft of which was provided to the TAC and ATAC at the meeting. Comments and questions included: • Would like to see additional questions related to walking in the survey • Would like to consider recreational needs to the extent they overlap with utilitarian needs. *Note, because the focus of this project is on applying for grant funding and because grant programs largely focus on non-recreational travel, the focus of the survey and project is primarily on utilitarian trips.* • Recommend requesting zip code • For the questions with photos, suggested using pictures of sharrows (i.e., street markings that indicate shared use for bicycles and automobiles) in Placerville along Broadway to make sure to show correct sharrow placement

Item	Discussion, Responses, & Actions
	• Participants discussed the importance of TAC and ATAC members sharing the survey with their groups • Suggestion to ask about number of licensed drivers in the household
6. Land Use and Demographic Analysis	• Some surprise that El Dorado County is considered a 'young' county. Discussion that there can be a larger proportion of both over 65 and under 20, but fewer folks in between. • Discussion of the potential to track volunteering as a type of "employment" within the County
7. Approach to Ranking	• General discussion about developing a robust analytic method for each criteria (e.g., connectivity, health), but to let weighting of different factors be determined by future grant programs. The grant program requirements will guide which projects to put forward for funding.
8. Adjourn	

EL DORADO COUNTY
ACTIVE TRANSPORTATION
CONNECTIONS STUDY

alta
PLANNING + DESIGN

AGENDA

- Introductions
- Project Background + Web Page
- Roles and Responsibilities
- Project Schedule
- Draft Survey
- Land Use and Demographic Analysis
- Approach to Ranking
- Adjourn

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INTRODUCTIONS

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OBJECTIVES

- Build on El Dorado County Bike Plan
- Identify active transportation projects and corridors with strong user potential
  - Projects in each supervisor district
- Develop measures and data to support EDCTC and its partners in applying for Caltrans ATP grants

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TECHNICAL PRODUCTS

- Land Use & Demographic Analysis
  - Project feasibility and potential
- Origin-Destination Study
  - Travel patterns
  - Evaluate community survey
- Draft project list
  - Public input to review
- Develop performance measures and tools
  - Safety, demand, environmental, health, equity, benefit/cost, public support
  - Weighting approach

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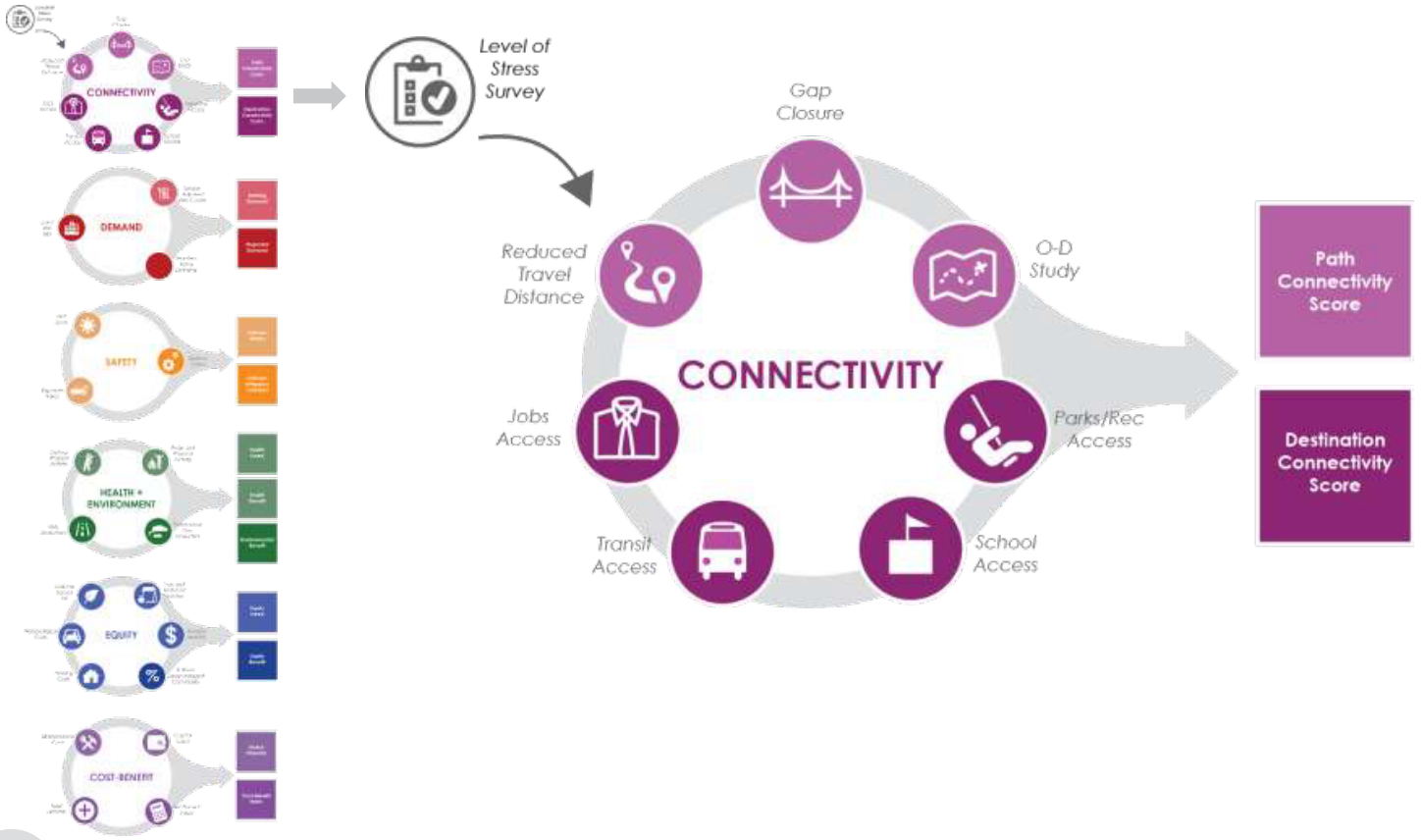
TECHNICAL PRODUCTS



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ULTIMATE PRODUCTS

Belle Terrace Bike Lanes

Stine Road to Madison Street
Distance: 3.04 miles

This project will provide dedicated roadway space for bicyclists along Belle Terrace, extending an existing bike lane to the east, providing an important east-west connector parallel to Route 58.

Existing Conditions: Near Stephens Dr

Existing Issues
Bikeway network gap
Proximity to bicycle related collision areas
Adjacent to Sequoia Middle School
Community-identified challenge area

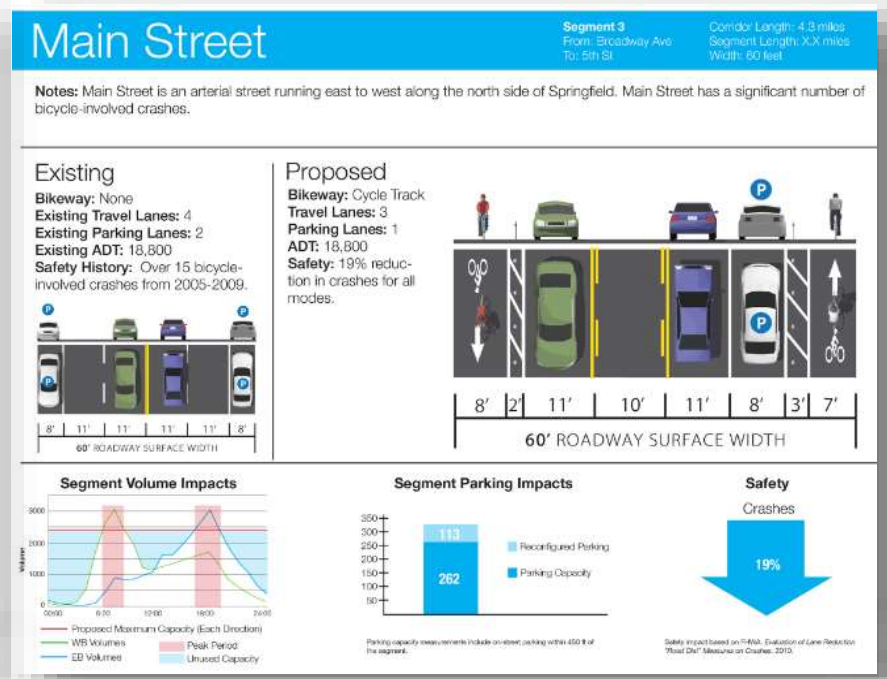
Project Illustration

Belle Terrace Bikeway Project

Project Benefits
Improves bicyclist safety and comfort by providing designated roadway space.
Improves connection to Sequoia Middle School

Cost Estimate
Materials: $129,500
Mobilization/Traffic Control: $19,400
Contingency: $32,300
Engineering: $19,400
Total: $200,600

City of Bakersfield Bicycle Transportation Plan



Main Street

Segment 3
From: Broadway Ave
To: 5th St

Corridor Length: 4.3 miles
Segment Length: X.X miles
Width: 60 feet

Notes: Main Street is an arterial street running east to west along the north side of Springfield. Main Street has a significant number of bicycle-involved crashes.

Existing
Bikeway: None
Existing Travel Lanes: 4
Existing Parking Lanes: 2
Existing ADT: 18,800
Safety History: Over 15 bicycle-involved crashes from 2005-2009.

8' 11' 11' 11' 11' 8'
60' ROADWAY SURFACE WIDTH

Proposed
Bikeway: Cycle Track
Travel Lanes: 3
Parking Lanes: 1
ADT: 18,800
Safety: 19% reduction in crashes for all modes.

8' 2' 11' 10' 11' 8' 3' 7'
60' ROADWAY SURFACE WIDTH

Segment Volume Impacts
Proposed Maximum Capacity (Each Direction)
WB Volumes
EB Volumes
Peak Period
Unused Capacity

Segment Parking Impacts
113
262
Reconfigured Parking
Parking Capacity

Safety
Crashes
19%

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ROLES AND RESPONSIBILITIES

EDCTC

Project management
Oversight

TAC

Public agencies review technical work products

ATAC

Diverse range of community groups and individuals representing El Dorado County

alta PLANNING + DESIGN

Consulting firm supporting EDCTC

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SCHEDULE

Project Title	Active Transportation Connections	Grantee	El Dorado County Transportation Commission		
		Fiscal Year 2015/16	FY 2016/17	FY 2017/18	
Task Number		Responsible Party	J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J		Deliverable
1	***Public Outreach***				
1.1	Establish Technical Advisory Committee (TAC) Membership	EDCTC			TAC membership List
1.2	Establish and Ratify Active Transportation Advisory Committee (ATAC)	EDCTC/Consultant			ATAC Membership List, EDCTC Staff Report
1.3	Project Web Page, Meeting Notices, Flyers Meeting Rooms	EDCTC/Consultant			Project Web Page, Meeting Notices, Flyers, Meeting Rooms
1.4	Conduct TAC and ATAC Meetings	EDCTC/Consultant			TAC and ATAC Meeting Agendas and Summaries
1.5	Community Survey	EDCTC/Consultant			Community Survey in Digital and Paper Format, Detailed Survey Analysis
1.6	Public Meeting	EDCTC/Consultant			Public Meeting exhibits, Agenda, Meeting Summary, Sign in Sheet
2	***Determine Projects***				
2.1	Land Use and Demographic Analysis	Consultant			Land Use and Demographic Analysis, Maps, Graphs and Tables
2.2	Origin and Destination Study	EDCTC/Consultant			Origin and Destination Study Outcome Analysis
2.3	Draft Recommended Projects List	EDCTC/Consultant			Draft Recommended Projects List
3	***Project Level Analysis and Final Project List***				
3.1	Develop Performance Measures and Analytical Tools	Consultant			Project Level Performance Measures and Analytical Tools
3.2	Apply Performance Based Planning To Active Transportation Projects	EDCTC/Consultant			Performance Based Active Transportation Projects List
3.3	Community Survey and Public Outreach Summary	Consultant			Community Survey and Public Outreach Summary
3.4	Final Draft Recommendations	Consultant			Final Draft Recommendations, Individual Project Summaries
4	***Develop Comprehensive Active Transportation Connections Study***				
4.1	Prepare and Distribute Draft Study	EDCTC/Consultant			Draft Study
4.2	Present Draft Study to Board of Supervisors, EDCTC TAC and EDCTC Board	EDCTC/Consultant			Draft Study Presentation
4.3	Incorporate Comments, Finalize Draft, Present to Board of Supervisors and EDCTC for Adoption	EDCTC/Consultant			Staff Reports
4.4	Distribute Final Study, Project Close Out, Next Steps	EDCTC/Consultant			Final El Dorado County Active Transportation Connections Study

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- Project completed by Spring 2018
- Public outreach conducted throughout
  - TAC/ATAC meetings every 2 – 4 months
  - Public workshop later in the process
- Project identification and analysis begins now
  - Start with existing identified projects
  - Analysis conducted over the next year
- Next meetings
  - TAC – Review land use and origin-destination analysis
  - ATAC – Draft project list and public workshop plan

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- Handouts provided

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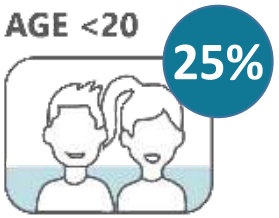
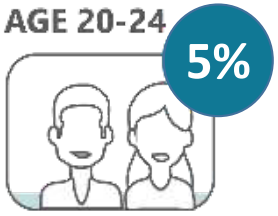
DEMOGRAPHICS

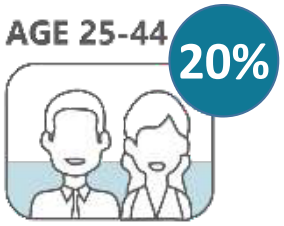
over 150k people live in El Dorado Co.

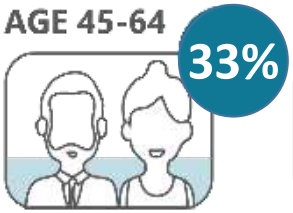
(excluding S. Lake Tahoe)

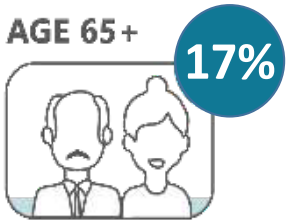
El Dorado Co. is younger than the state on average











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DEMOGRAPHICS

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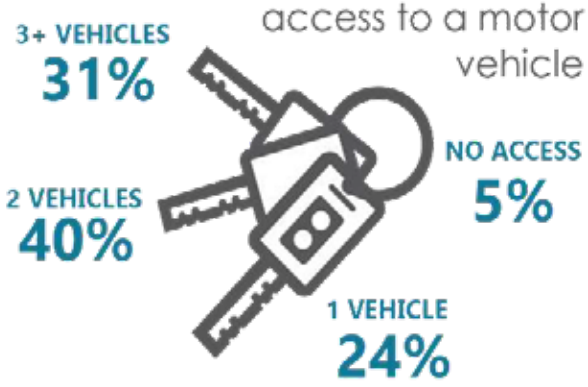
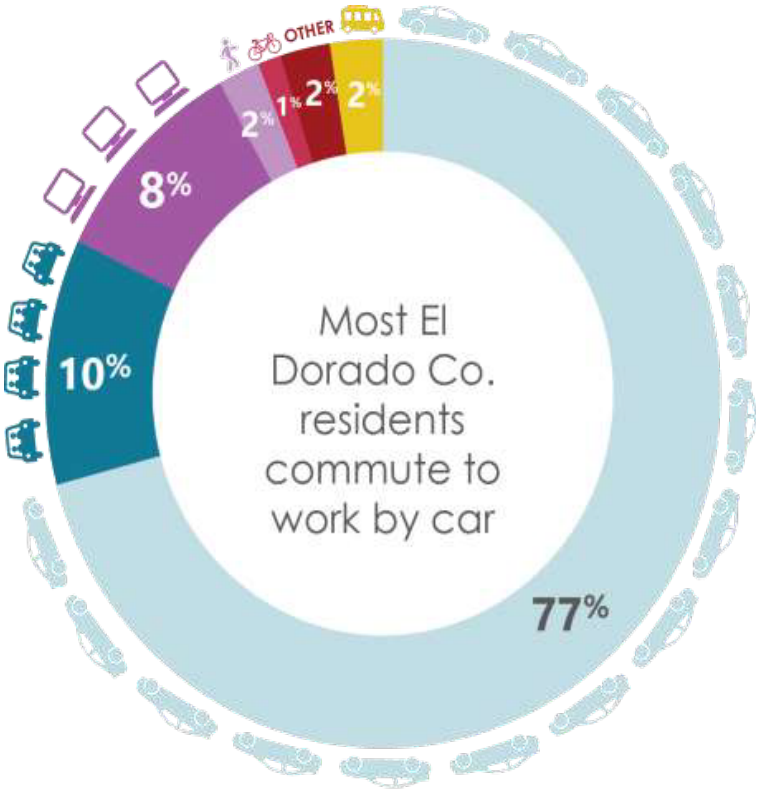
RANKING APPROACH

Most households in El Dorado Co. have access to a motor vehicle



Households have a higher median income than the state as a whole

MODE SHARE



AND ONLY

3%

COMMUTE BY ACTIVE TRANSPORTATION

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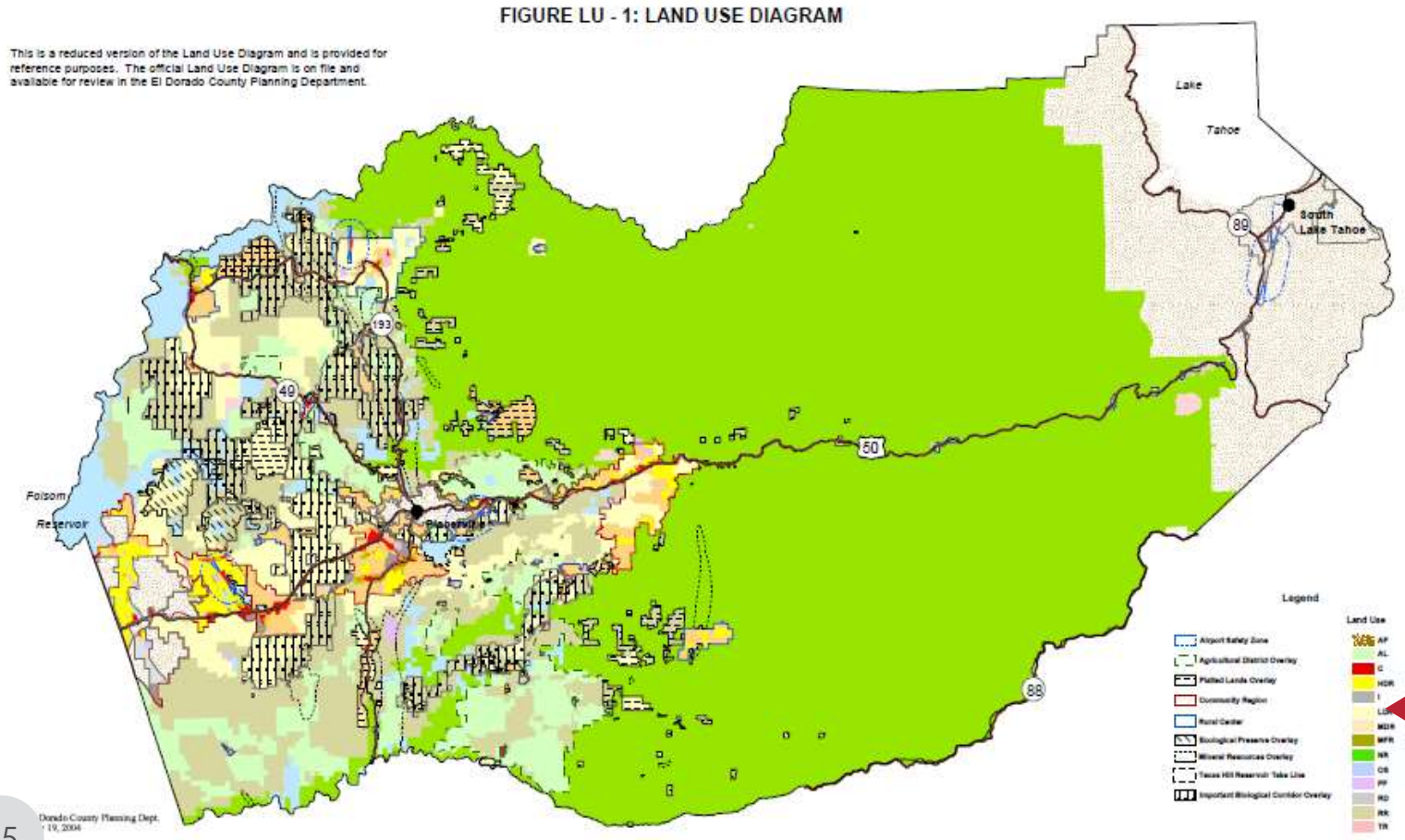
LAND USE/ACTIVITY CENTERS



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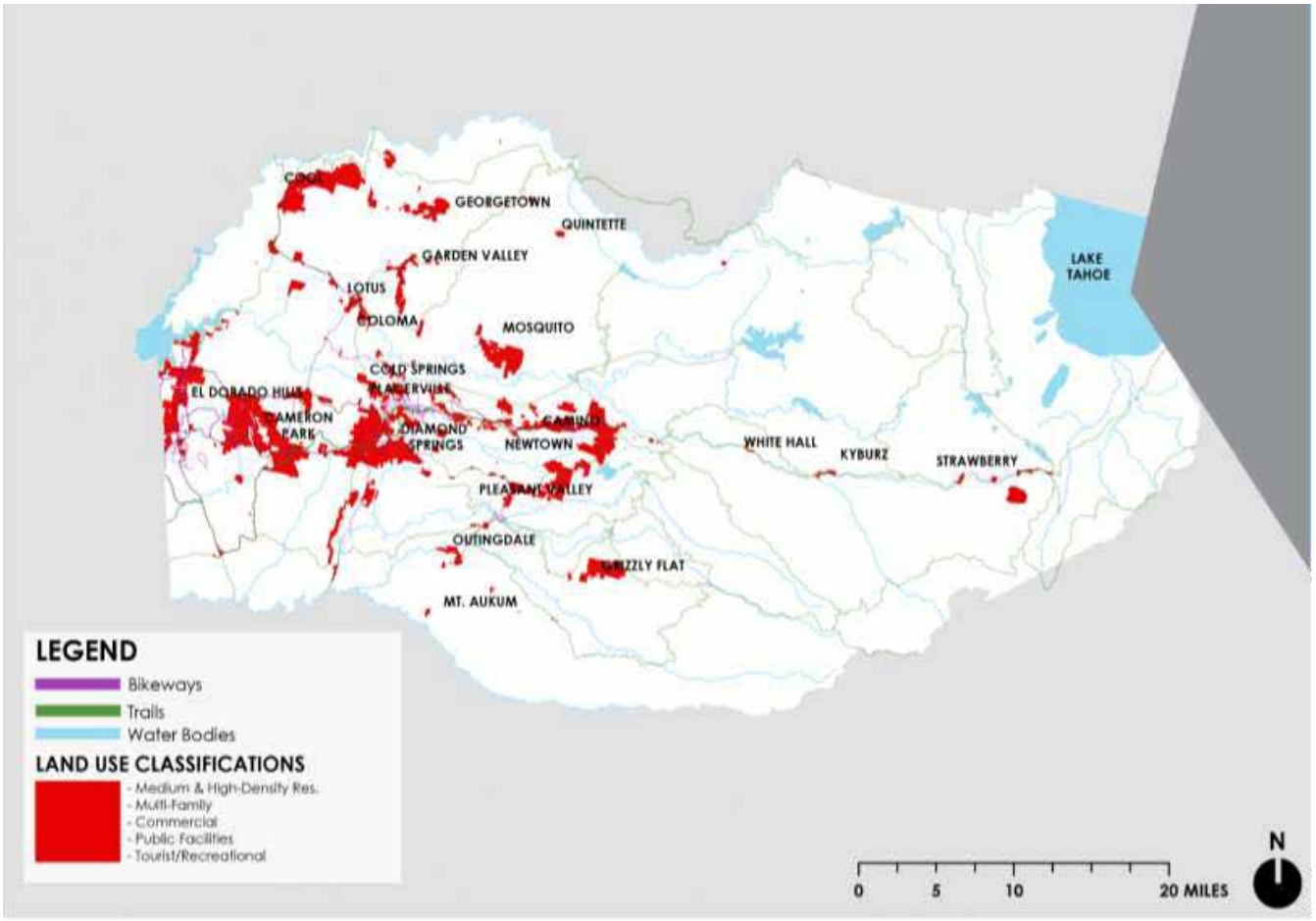

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RANKING APPROACH

- Develop robust analysis of individual performance areas
- Leave open weighting scheme to accommodate focus of grant applications

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ADJOURN

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Contacts

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Hugh Louch, Alta Planning + Design
hughlouch@altaplanning.com

Meeting Minutes

PROJECT	EDCTC Active Transportation Connections Study	**ORGANIZER**	Jerry Barton
SUBJECT	Meeting #2: TAC	**DATE**	August 19, 2016
VENUE	2828 Easy Street, Suite 1	**TIME**	10:00 AM – 11:30 AM

Attendees:

Item	Discussion, Responses, & Actions
1. Introductions	Meeting began at 10:05 AM.
2. Review Project Background, Scope, Schedule, Roles, and Responsibilities	Alta provided a brief review of the project objectives, noting the desire to identify active transportation projects and corridors with strong user potential in each supervisorial district to assist in the creation of competitive grant applications. Alta provided a high-level summary of the performance measures that the group will be working to develop over the course of the project for the following categories: connectivity, demand, safety, health + environment, equity, and cost-benefit. The TAC will provide guidance on the development of the performance measures and will review technical work products.
3. Share Final Survey	At the time of the meeting, the online survey received a total of 140 responses, with above expected representation from the target audience of people who do not currently bike/walk but would like to bike/walk more (55 percent of respondents identified as "non-bicyclists" and 67 percent of respondents indicated that they would like to bicycle or walk more than they do now). To further promote the survey, it should be shared with the EDC GO and EDCTA Commuter lists.

Item	Discussion, Responses, & Actions
4. Review Demand Analysis Method	The first performance measure is demand. Alta will combine its internal Seamless Travel Demand Model with adjustment factors from NCHRP Report 770 and the online survey results estimating the percent of El Dorado County residents that fall within each of the four types of bicyclists categories defined by Roger Geller. El Dorado County's travel demand model can provide population and employment density (2015 baseline and 2035 planning horizon) estimates for use in Alta's Seamless Travel Demand Model. These estimates have been adjusted to address locational issues and take into account parcel-level data. El Dorado Transit recently published its six-month operations report and is working on its annual report. El Dorado Transit can provide boarding and alighting data for inclusion in the demand analysis. The boarding and alighting information is collected by drivers entering the number of riders through a tablet. The ability of the demand analysis to capture linking trips is critical for El Dorado County (i.e., bike to transit), given its geographic constraints.
5. Route Selection	In conjunction with the demand analysis, Alta will look at route selection to identify where which routes (by motor vehicle) are most popular and which destinations El Dorado County residents are the most critical for providing transportation options. El Dorado County O-D forecasts includes three trip types: home-based work, home-based other, and non-home-based trips. It has a 5D component that applies to Placerville and El Dorado Hills. To supplement the El Dorado County O-D data, the project can dedicated resources to purchasing third-party data. Streetlight data allows users to understand travel patterns between select zones and could provide more detail on areas such as Placerville, El Dorado Hills, and the northern areas of Cameron Park. Alta will work with EDCTC to determine if the purchase of third-party data is necessary and, if so, to refine the selection of zones.

Item	Discussion, Responses, & Actions
6. Counts	Another way to support the demand analysis is to collect bicycle and pedestrian count data. El Dorado County and the Friends of El Dorado Trail are currently collecting counts. Ideal locations include along existing facilities that are demonstrative of the facility type that El Dorado County would like to replicate (i.e., El Dorado Trail), along routes that connect to major destinations such as schools (i.e., SR 49), and/or comparing two similar roadways with and without bike/ped facilities. Several grant criteria do not allow the inclusion of social/recreational trips. Outside of intercept surveys of existing trail users, counts of trail users during peak commuting hours may serve as a good proxy for non-social/recreational trip counts. Viewing Strava heat maps for the study region may provide additional insight into which locations have the highest existing use and provide direction on potential count locations. Count locations discussed: • Bob Smart Trail (Missouri Flat, parallel to US 50) • Diamond Springs • Placerville Drive
7. Review Ranking Method	Alta identified three broad approaches to project prioritization: Prioritization Matrix, Strategy Grids, and Modified Hanlon Method. The TAC discussed the advantages and disadvantages of each approach. Factors considered include the flexibility of one ranking system to be applied to multiple grant applications and their varying criteria, the level of subjectivity involved in the weighting scheme, and the ability to communicate the results. The TAC selected the Modified Hanlon Method as most appropriate for the project because it provides an easy to understand end product while allowing the public or public officials to dig deeper into the method if desired.
8. Adjourn	Meeting adjourned at 11:40 AM.

EL DORADO COUNTY
ACTIVE TRANSPORTATION
CONNECTIONS STUDY

TAC MEETING #2
AUGUST 18, 2016

AGENDA

- Introductions
- Project Background + Purpose
- Scope of Technical Analysis + Performance Measures
- TAC Role + Schedule
- Survey Update
- Demand Method
- Prioritization Method
- Adjourn

(RE)INTRODUCTIONS

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BACKGROUND

- Build on El Dorado County Bike Plan
- Identify competitive active transportation projects and corridors with strong user potential
  - Projects in each supervisor district
- Develop measures and data to support EDCTC and its partners in applying for grants

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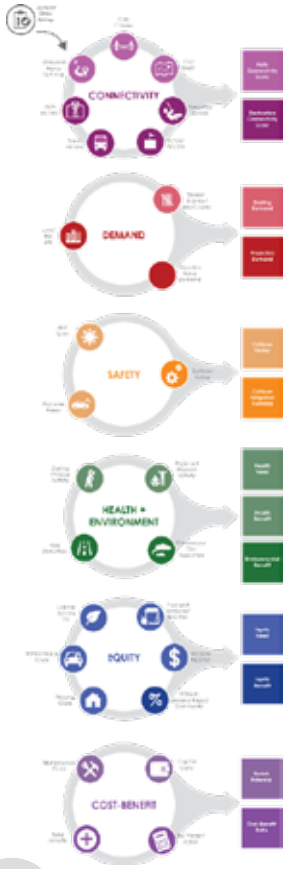

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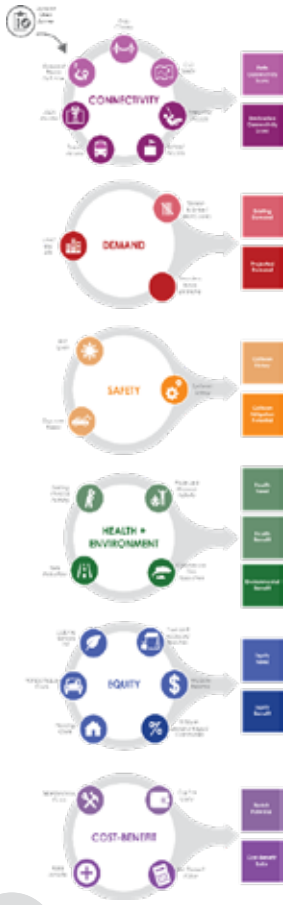

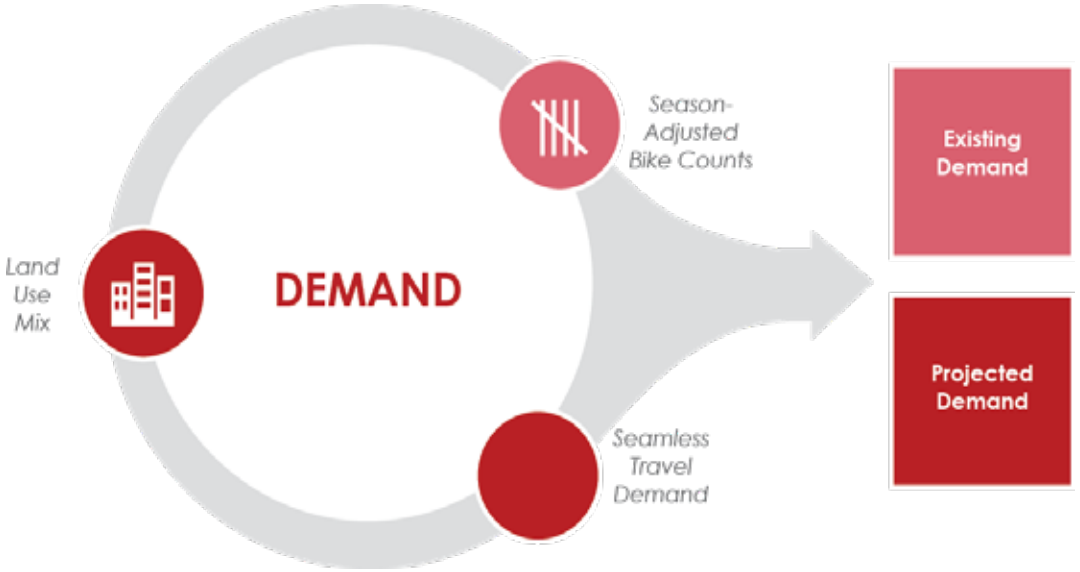

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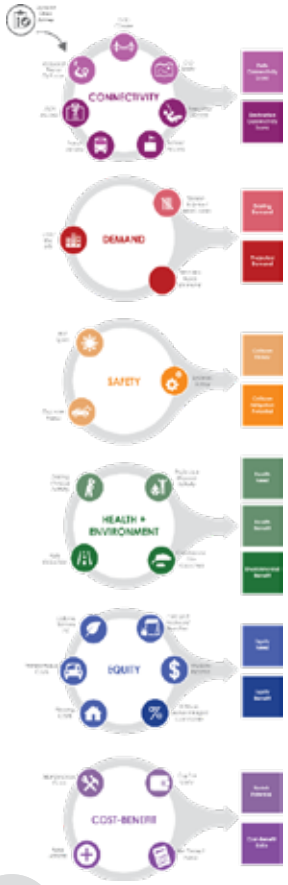

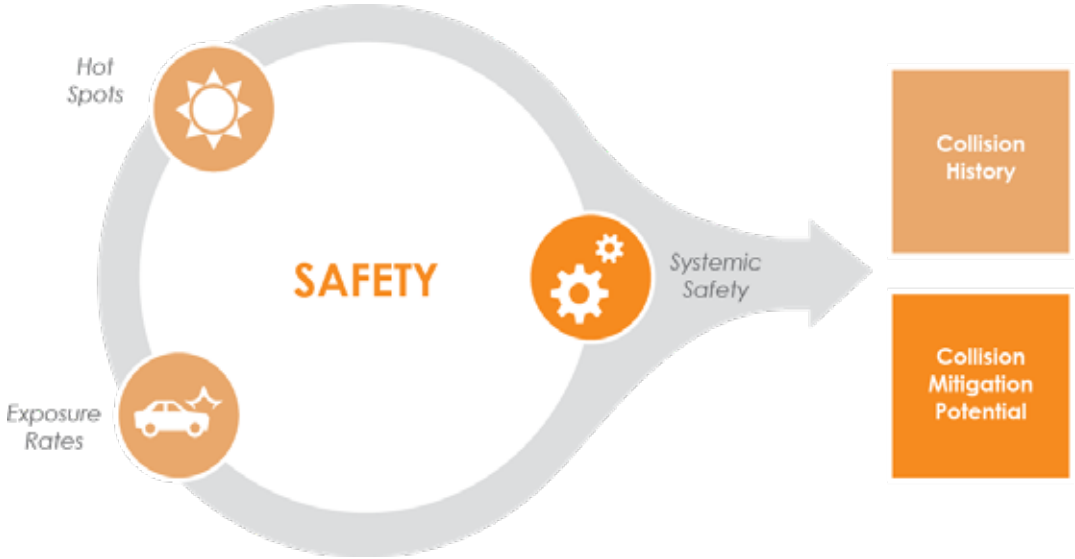

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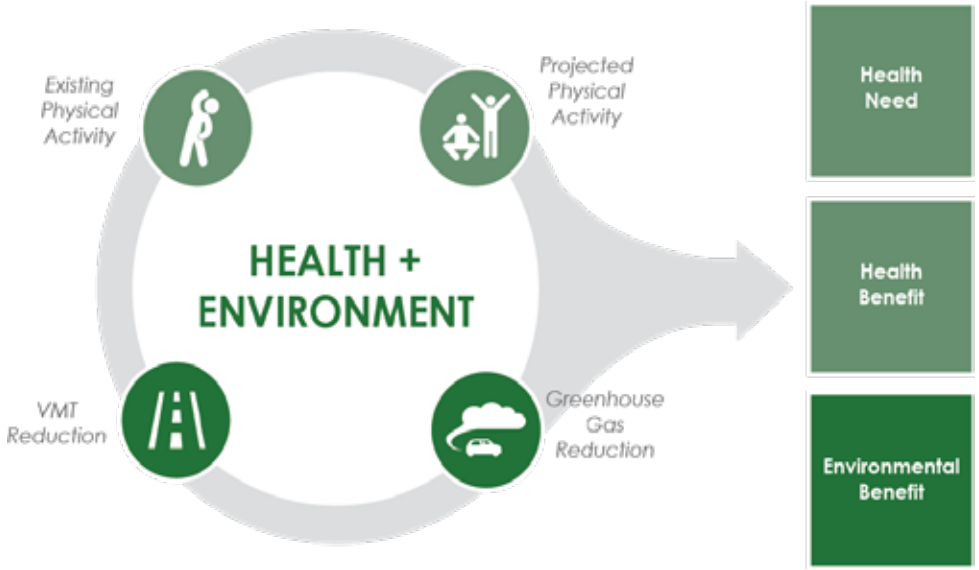

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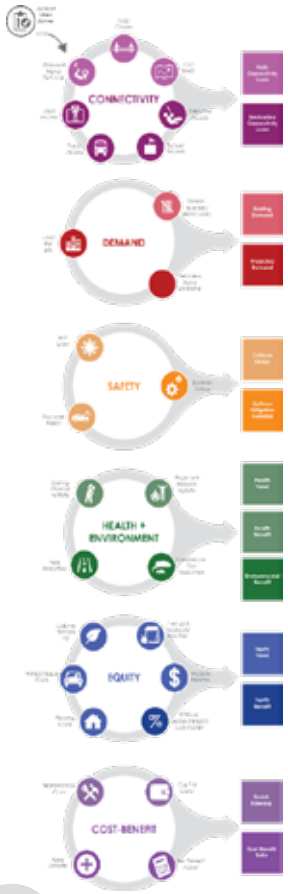

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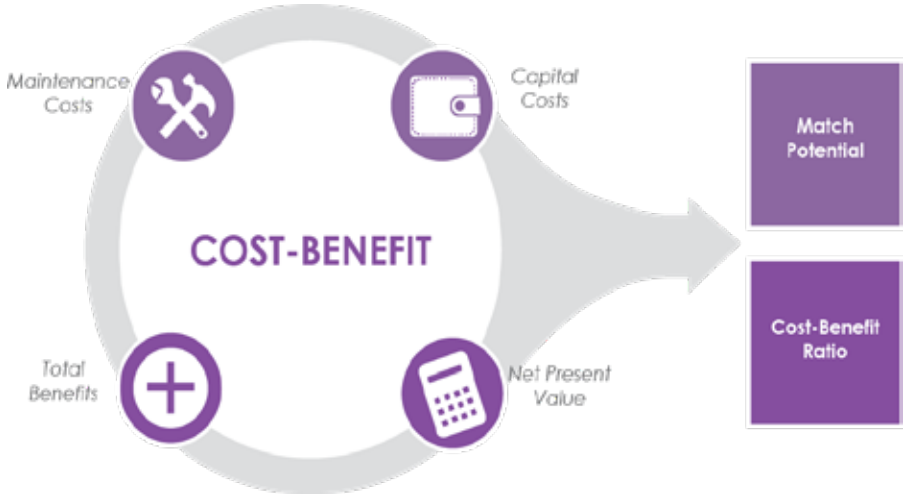

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TAC ROLE

EDCTC

Project management
Oversight

TAC

Public agencies review technical work products

ATAC

Diverse range of community groups and individuals representing El Dorado County

alta PLANNING + DESIGN

Consulting firm supporting EDCTC

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SCHEDULE

DEMAND + PRIORITIZATION METHOD

SAFETY + HEALTH/ENVIRON. METHOD

EQUITY METHOD

COST-BENEFIT METHOD + WORKSHOP

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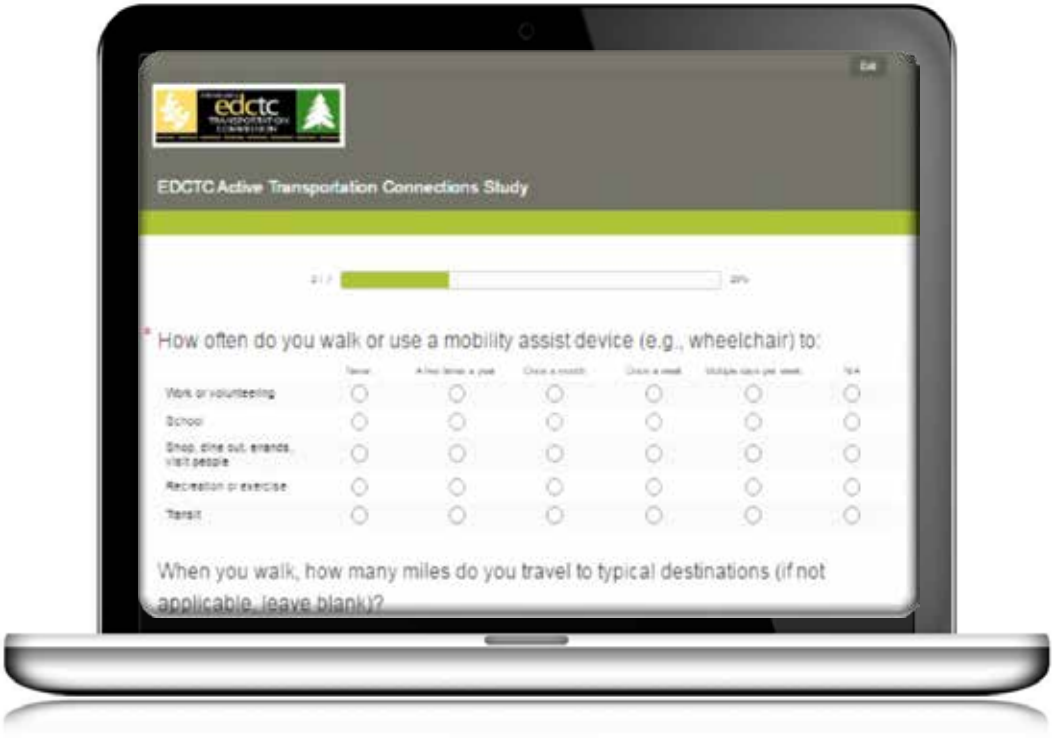

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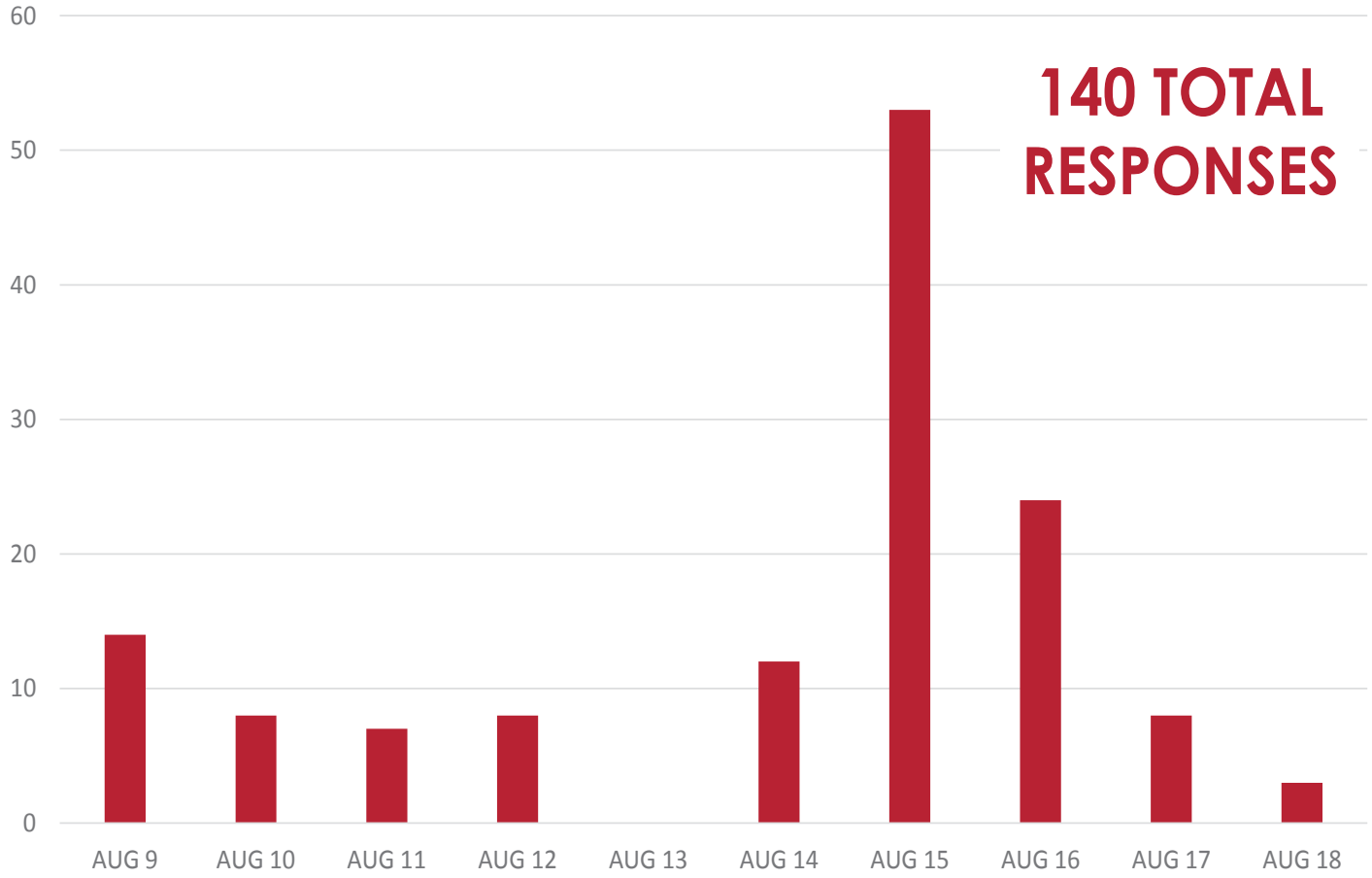

140 TOTAL RESPONSES

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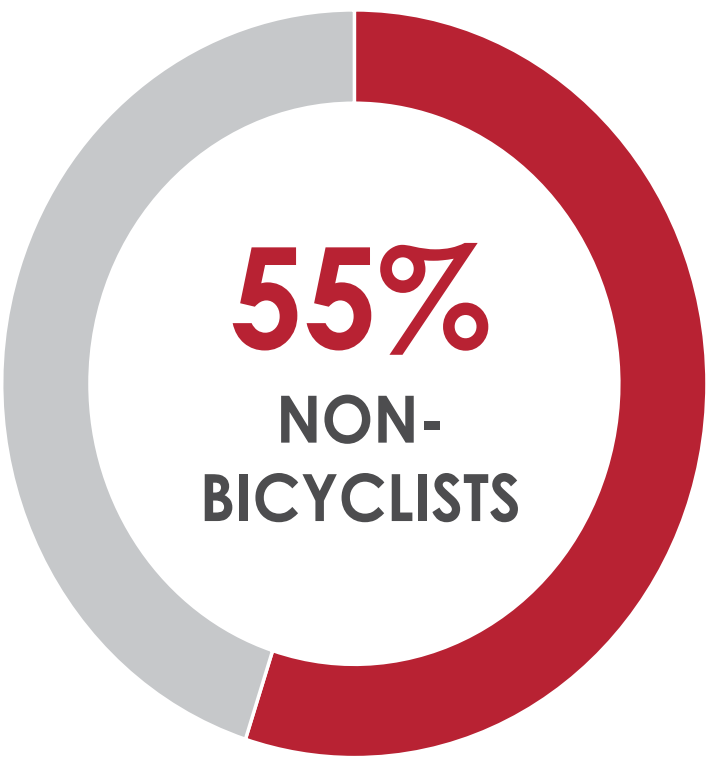

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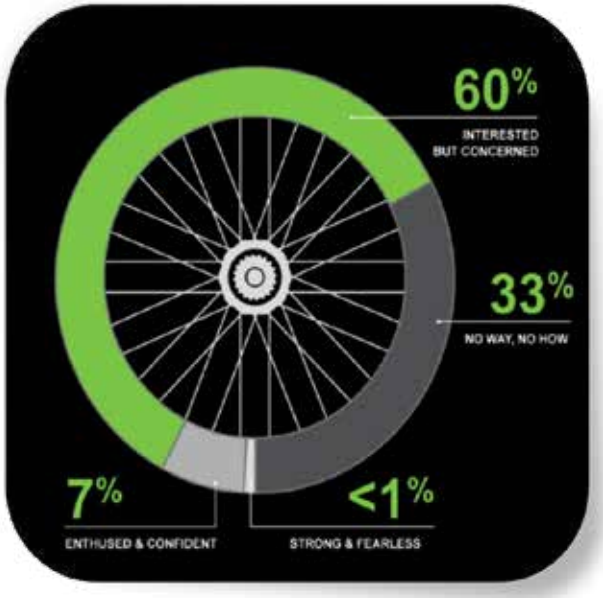
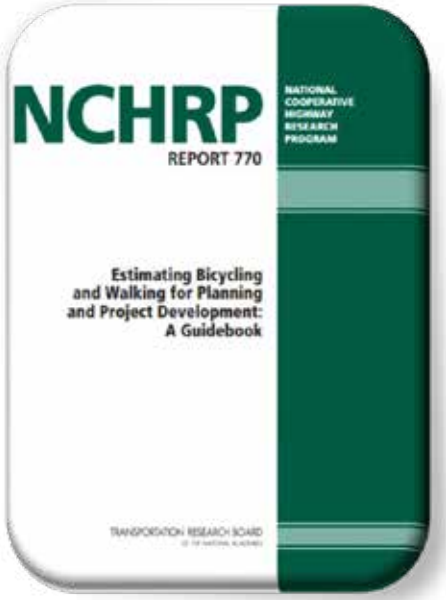
SEAMLESS DEMAND MODEL



4 TYPES OF BICYCLISTS



NCHRP REPORT 770

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SEAMLESS DEMAND MODEL

DEVELOPED BY ALTA

EMPHASIS ON:

- POPULATION DENSITY
- EMPLOYMENT DENSITY
- TRANSIT RIDERSHIP
- NETWORK DENSITY

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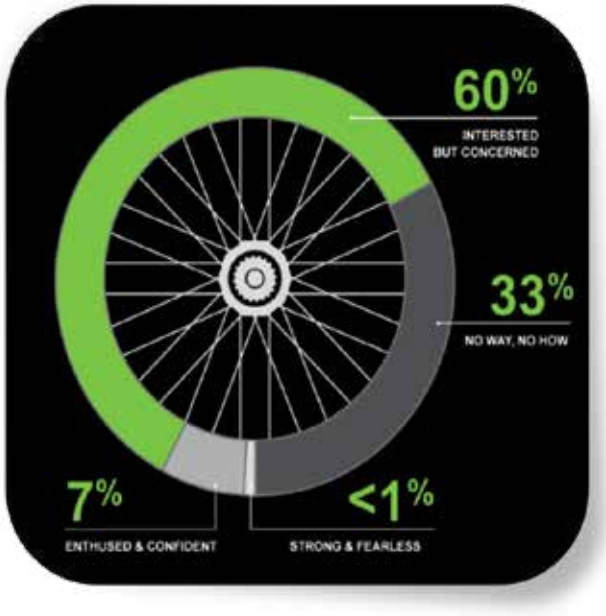

4 TYPES OF BICYCLISTS

DEVELOPED BY ROGER GELLER

FOCUS OF THE ONLINE SURVEY

HELPS IDENTIFY:

- LATENT DEMAND

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BEST PRACTICES

GUIDELINES FOR SELECTING APPROPRIATE MODEL

UPDATED FACTORS

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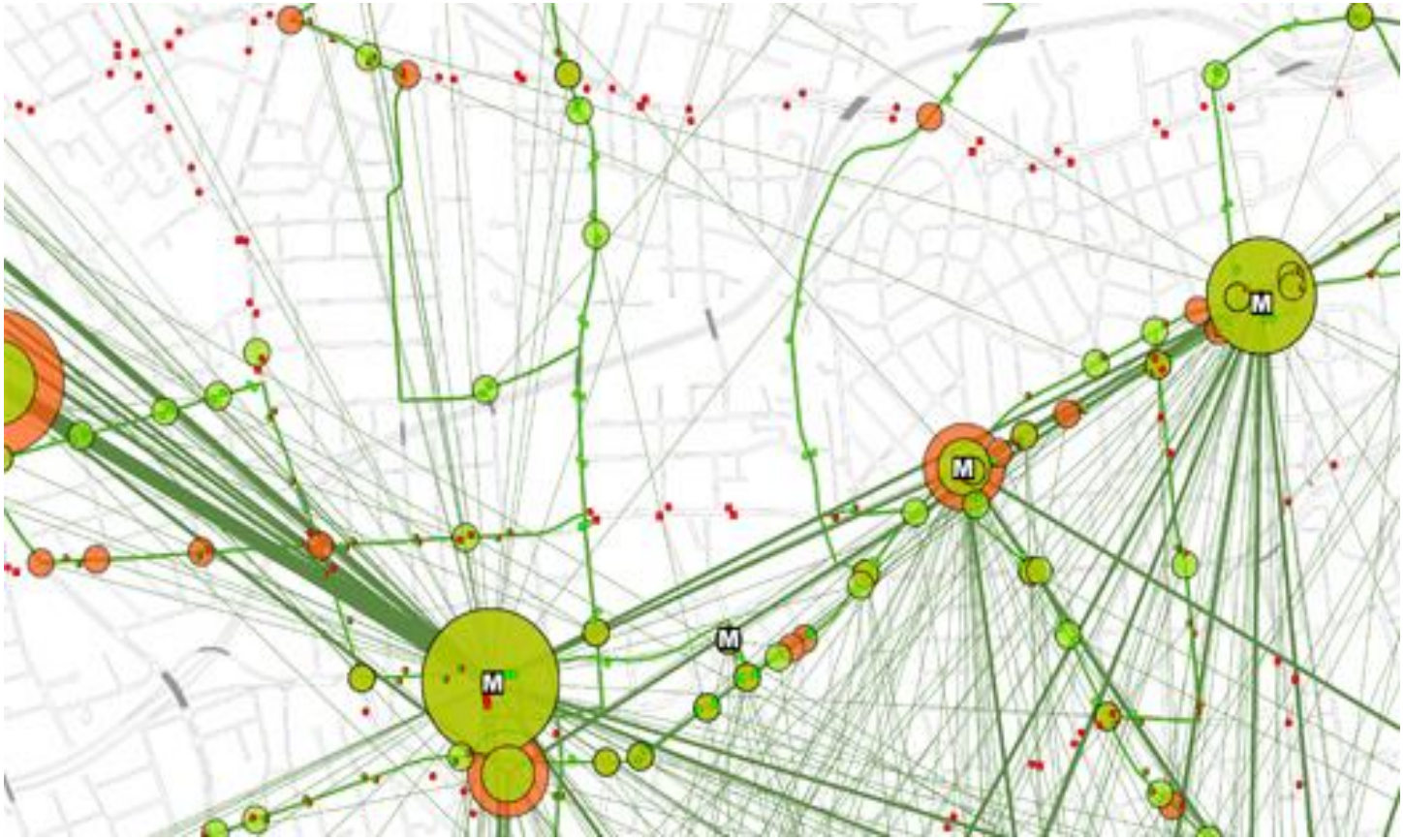
O-D Matrix



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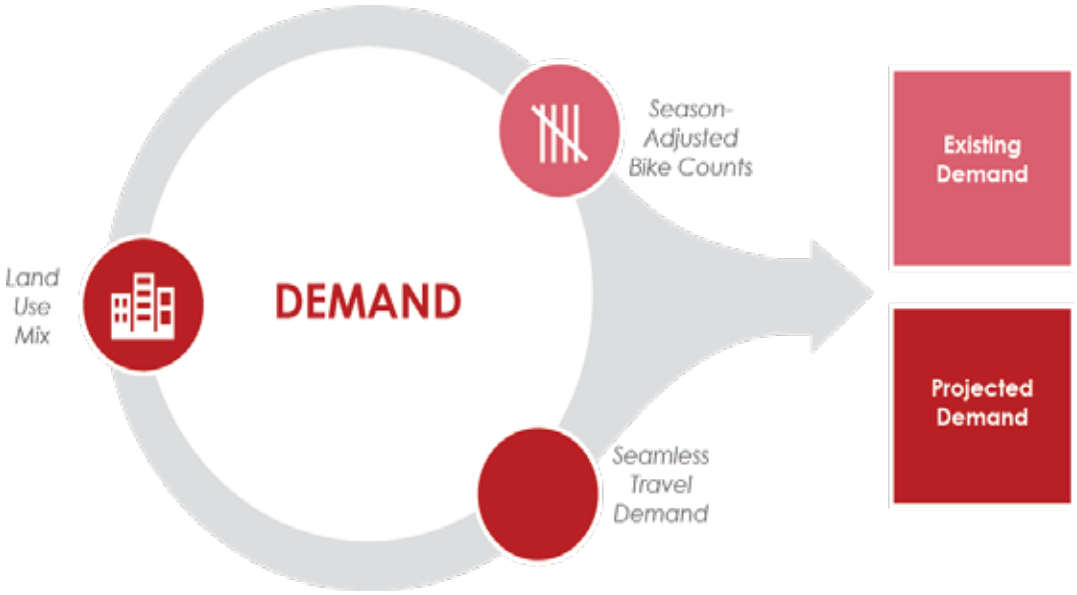
PERFORMANCE MEASURE



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PERFORMANCE MEASURE

ATP CYCLE 3

POTENTIAL FOR INCREASED WALKING & BIKING, ESPECIALLY AMONG STUDENTS

- CURRENT ESTIMATES
- FORECAST (1 YR)
- SUBSET FOR STUDENTS

NO DIRECT POINTS BUT ENHANCES NARRATIVE RESPONSES

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PERFORMANCE MEASURE

HSIP 8

AVERAGE DAILY TRAFFIC AS IT RELATES TO EXPOSURE

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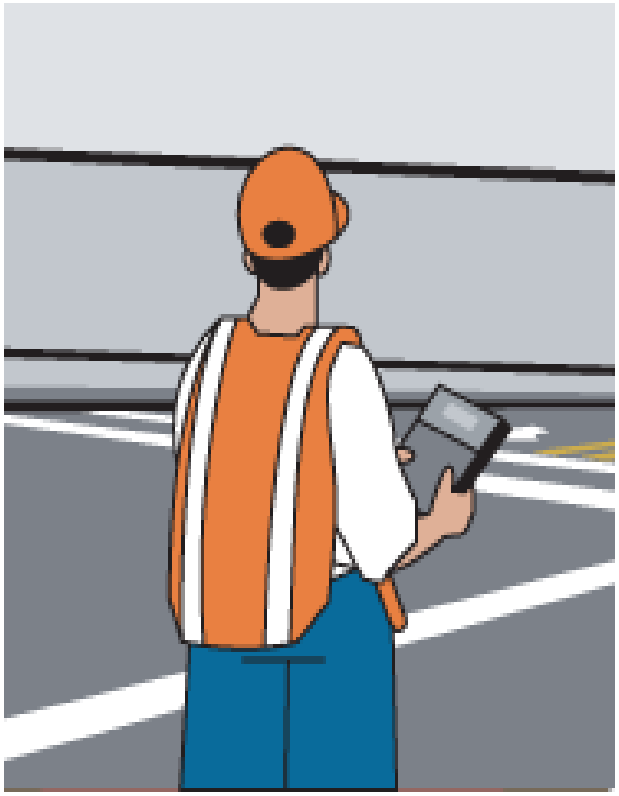
COUNT LOCATIONS



NEED TO IDENTIFY REPRESENTATIVE LOCATIONS

POTENTAL:

- EL DORADO TRAIL
- PLACERVILLE DR. BIKE LANES
- RAY LAWYER DR. BIKE LANES
- EL DORADO HILLS BLVD, MULT-USE PATH
- SOPHIA PARKWAY BIKE LANES
- SERRANO TRAILS

http://eldoradobikemap.outerspatial.com/applications/10/embed#9/38.7402/-120.5557

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COUNT LOCATIONS

THINGS TO CONSIDER:

- LOCATIONS W/ HISTORIC COUNT DATA
- CO-BENEFITS W/ PROPOSED & ONGOING STUDIES

http://eldoradobikemap.outerspatial.com/applications/10/embed#9/38.7402/-120.5557

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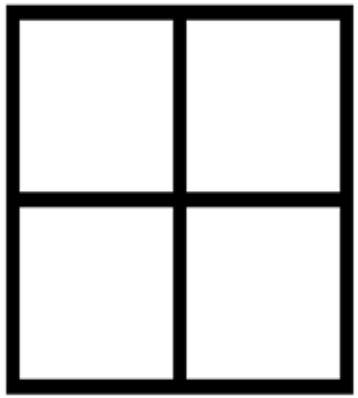
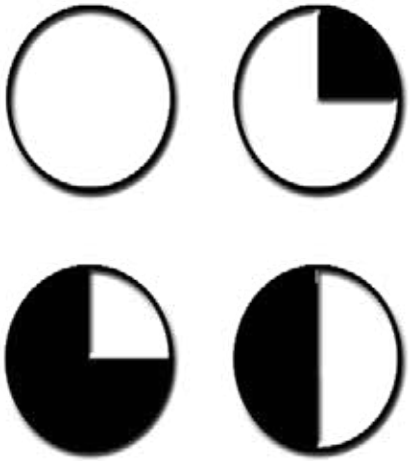
PRIORITIZATION METHOD

PRIORITIZATION MATRIX



STRATEGY GRIDS



MODIFIED HANLON METHOD

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PRIORITIZATION MATRIX

Table 5.1: Example Prioritization Matrix

	Criterion 1 (Rating X Weight)	Criterion 2 (Rating X Weight)	Criterion 3 (Rating X Weight)	Priority Score
Health Problem A	2 X 0.5 = 1	1 X .25 = .25	3 X .25 = .75	2
Health Problem B	3 X 0.5 = 1.5	2 X .25 = 0.5	2 X .25 = 0.5	2.5
Health Problem C	1 X 0.5 = 0.5	1 X .25 = .25	1 X .25 = .25	1

1. **LIST PERFORMANCE MEASURES**
2. **RATE PROJECTS**
3. **WEIGHT**
4. **SCORE**

PRIORITIZATION MATRIX

	Pre-Pilot	Performance Level					Calculations			
	Performance Measure	1	2	3	4	5	Value	Level	Weight	Score
Safety	Emergency Response Time	4	3	2	1	0	0	5	9	44
	Motor Vehicle Speed	27	25	23	21	19	27	1	9	9
	Reported Safety Concerns	4	3	2	1	0	0	5	4	21
	Collisions	10	8	6	4	2	8	2	7	14
Mobility	Travel Time Reliability	00:24	00:19	00:15	00:11	00:06	00:20	2	8	15
	Bicycle Counts	0	50	100	150	200	74	2	4	8
	Pedestrian Delay	E	D	C	B	A	A	5	6	30
	Transit Ridership	359	363	368	372	376	369	2	4	8
	Traffic Diversion	62%	58%	54%	50%	48%	58%	2	6	11
Vibrancy	Noise	72.0	71.0	70.0	69.0	68.0	70.3	3	5	15
	Bicyclist Demographics	20%	25%	30%	40%	45%	28%	3	4	13
	Pedestrian Counts	325	350	375	400	425	348	2	8	16
	Parking Occupancy	0.43	0.46	0.50	0.54	0.57	0.43	1	6	6
	Resident Survey	30%	40%	50%	60%	70%	35%	2	7	13
Economy	Sales	-	-	-	-	-		-	9	0
	Business Survey	30%	40%	50%	60%	70%	50%	3	6	19
	Complete Street Score									241
	Complete Street Goal									275

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PRIORITIZATION MATRIX

PROS	CONS
• …	• …

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STRATEGY GRID

SELECT 2 BROAD CATEGORIES

Low Need/High Feasibility Sixteen parenting classes in a primarily aging community with a low teen pregnancy rate	**High Need/High Feasibility** High blood pressure screening program in a community with rapidly increasing rates of stroke
Low Need/Low Feasibility Investing in health education materials in Spanish in a community with <1% non-English speaking population	**High Need/Low Feasibility** Access to dental care in a community with a largely uninsured population.

high ↑ **Feasibility** ↓ *low*

low ← **Need** → *high*

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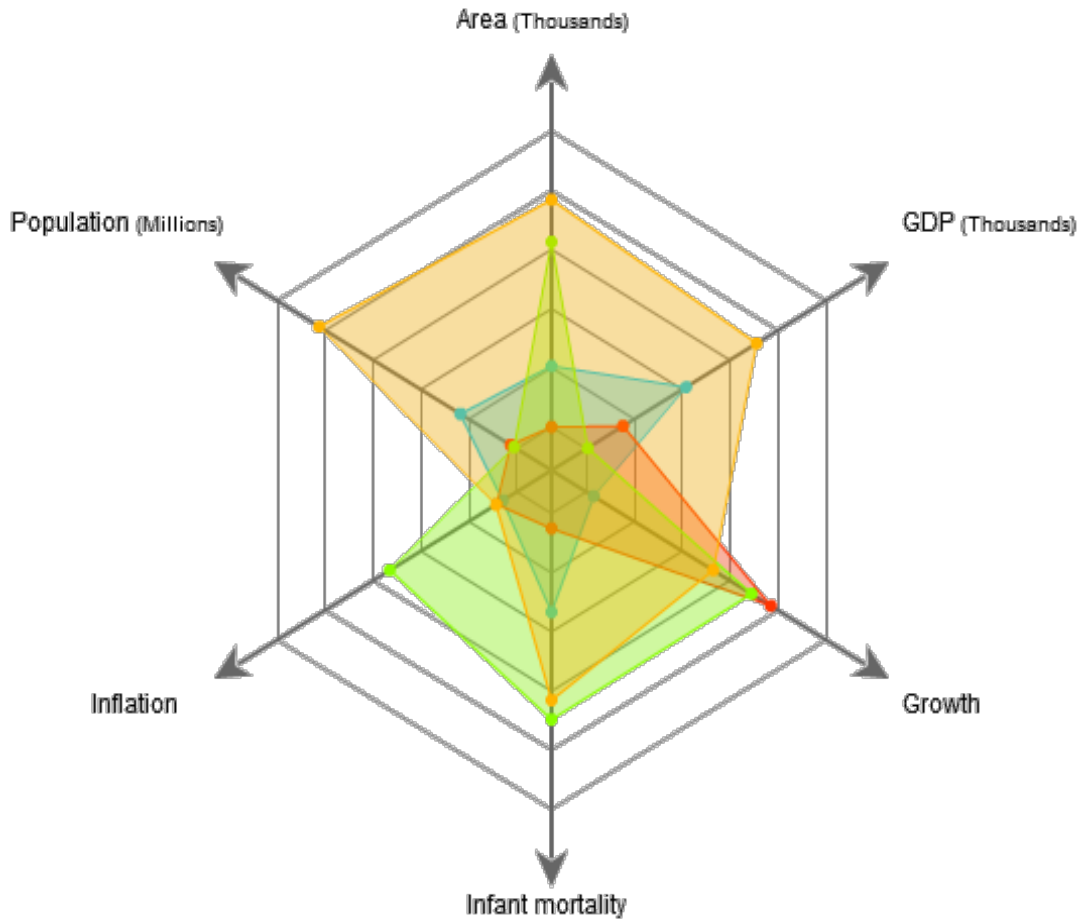
STRATEGY GRID



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STRATEGY GRID

PROS	CONS
• …	• …

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MODIFIED HANLON METHOD

1. **RATE CRITERIA (ORDINAL SCALE)**
2. **SCREEN OUT LOW FEASIBILITY PROJECT**
3. **OPTIONAL: WEIGHT**
4. **LEAVE TO OPEN TO INTERPRETATION**

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PRIORITIZATION METHOD

MODIFIED HANLON METHOD

EVALUATION CRITERIA		E EXISTING	1 EXPANDED PEDESTRIAN SPACE	2A DEDICATED BIKE LANE	2B BUFFERED BIKE LANE	3 SIMPLE
PEDESTRIAN	Accessibility	FAIR	BEST	GOOD	GOOD	FAIR
	Total pedestrian space as per centage of right-of-way	LOWEST	HIGHEST	HIGH	HIGH	LOW
	Width of sidewalk clear zone	MINIMUM	WIDEST	AVERAGE	AVERAGE	MINIMUM
	Sidewalk clear zone separation from motor vehicle travel lanes	MINIMUM	MORE	MOST	MINIMUM	MINIMUM
	Length of crosswalks	LONGEST	SHORTEST	LONG	LONG	LONGEST
BICYCLE	Bicycle level of service (separation and protection)	SHARED	SHARED	DESIGNATED	DESIGNATED	SHARED
	Bicycle parking availability	LOWEST	HIGH	HIGH	HIGH	HIGH
TRANSIT	Effect on transit travel time	NONE	INCREASE	INCREASE	INCREASE	INCREASE
	Space for bus stop amenities	LOWEST	HIGHEST	HIGH	HIGH	LOWEST
	Ease of pedestrian access to bus stops	FAIR	BEST	GOOD	GOOD	FAIR
MOTOR VEHICLES	Effect on average motor vehicle speed	NONE	REDUCE	REDUCE	REDUCE	NONE
	Effect on motor vehicle travel time	NONE	INCREASE	INCREASE	INCREASE	INCREASE
	Motor vehicle parking availability	HIGHEST	HIGH	HIGH	HIGH	HIGH
	Effect on through truck traffic	NONE	DISCOURAGE	DISCOURAGE	DISCOURAGE	DISCOURAGE
SAFETY	Potential to reduce pedestrian crashes (CRF)	LOWEST	HIGHEST	HIGH	HIGH	LOW
	Potential to reduce bicycle crashes (CRF)	LOWEST	LOW	HIGHEST	HIGHEST	HIGH
	Potential to reduce motor vehicle crashes (CRF)	LOW	HIGHEST	HIGH	HIGH	HIGH
$ ECONOMIC	Opinion of business owners along corridor	GOOD	BEST	GOOD	FAIR	POOR
PUBLIC SAFETY/ EMERGENCY RESPONSE	Effect on emergency response time (includes alternative routes)	NONE	INCREASE	INCREASE	INCREASE	INCREASE
	Emergency vehicle maneuverability	BEST	POOR	FAIR	GOOD	GOOD

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PRIORITIZATION METHOD

MODIFIED HANLON METHOD

Employee life cycle	Customer-led value generation	Operational excellence	Portfolio Management	Right skills, right attitude
Design organisation structure	◑	◕	●	●
Recruit	◔	◔	◕	◑
Induct	◕	◑	◕	◑
Personnel development plans	◕	◑	●	◑
Manage individual performance	●	◕	●	◕
Review salary	◕	◕	◕	◑
Incentive program	◑	◑	◕	◑
Disciplinary action	●	◕	●	◕
Resignations and terminations	●	●	●	●
Review reasons for turnover	○	○	○	○

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MODIFIED HANLON METHOD

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ADJOURN

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PRIORITIZATION METHOD

Contacts

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Agenda

PROJECT	EDCTC Active Transportation Connections Study	**ORGANIZER**	Jerry Barton
SUBJECT	Meeting #3: ATAC + TAC	**DATE**	September 30, 2016
VENUE	2828 Easy Street, Suite 1 , Placerville, CA	**TIME**	2:30 PM – 4:00 PM

Attendees: 14 attendees

Action items highlighted in red

Item	Discussion, Responses, & Actions
1. Survey Status Update	The survey has received 305 responses to date (336 as of 10/5/2016). The project team's goal is roughly 400 responses. There is no current closing date for the survey.
2. Review Scope	The goal of the project is to identify which bicycle and pedestrian projects within adopted plans would be the most competitive in grant applications. The structure of the project is to create a framework for analyzing individual bicycle and pedestrian projects by: • Identifying **typical questions** that are included in grant application requirements • Selecting a series of **performance measures** that will provide quantitative or qualitative data to support responses to those typical grant application requirements • **Collecting and analyzing available data** for proposed bicycle and pedestrian projects to estimate how they may perform for the given performance measures • Creating a **flexible prioritization framework** that will allow EDCTC to add additional projects in the future and adjust the ranking system for different grant requirements

Item	Discussion, Responses, & Actions
3. Review Goals of Bike/Ped Count Collection	Bicycle and pedestrian counts will inform the development of a demand performance measure that will help quantify existing and potential future demand for the adopted projects. Projects will come from the El Dorado County Bicycle Plan, Cameron Park Mobility Action Plan, Diamond Springs and El Dorado Area Mobility and Livable Community Plan, and the proposed extension of the El Dorado Trail (Mr. Barton to share with project team). Subsequently, results of the demand analysis will assist in the development of other analyses (safety, health/environment, and cost-benefit). While count data is important for developing a demand performance measure, it is only one of several inputs into the analysis, including employment data, population data, mode share data, and the results of the online survey. Which technology is used to collect counts and the length of the observation window impact how much conducting counts cost and the number of locations the project team can include in the counts. There are six commonly used bicycle and pedestrian count technologies: • **Passive Infrared** – detects body heat but cannot differentiate between bicyclists and pedestrians • **Active Infrared** – counts each time an object passes through its beam but cannot differentiate between bicyclists and pedestrians • **Radio Beam** – counts each time an object passes through its beam but cannot differentiate between bicyclists and pedestrians • **Video** – records site location via a camera and analyzed later manually or by computer algorithm • **Manual** – in-person observation • **Tube** – pneumatic tube street or bicycle facility records only the number of bicyclists Video is proposed for this study due to ability to collect both bicycle and pedestrian counts and its accuracy compared to manual counts. Local municipalities and adjacent property owners will need to be notified of the cameras to preemptively address any potential privacy issues and to avoid damage to the equipment. There may be existing count data available from the Friends of the El Dorado Trail, as well as a recent land use analysis (Mr. Barton and Ms. Keeler to follow-up). The El Dorado Hills Community Service District (EDHCSD) has an interest in conducting bicycle and pedestrian counts in the El Dorado Hills area, and may be open to paying for additional counts and/or coordinating with local schools on manual counts. EDCTC to follow-up with Mr. Loewen after the meeting.

4. Discuss Count Locations	EDCTC provided members of the TAC and ATAC a list of recommended count locations for their review. The list included twelve (12) count locations and nine (9) alternative count locations. Priorities for selecting count locations so that they are most useful in the demand analysis are listed below: • Collecting counts across a **range of existing facility types** (e.g., Class I, Class II, Class III, and Class IV bicycle facilities) • Collecting **geographically dispersed** counts in each of the five (5) supervisorial districts • Collecting counts at the **location of proposed** bicycle and pedestrian projects • Collecting counts at the **location of historic** bicycle and pedestrian counts A list of proposed count locations was distributed to the TAC and ATAC ahead of the meeting. Below is a list of suggested additional count locations from TAC and ATAC members sent ahead of the meeting: • Lawson at El Dorado Hills Blvd (John Raslear) • Green Valley Road at Francisco Drive (John Raslear) • Silva Valley Parkway between Harvard Way and Green Valley Road (John Raslear) • Malcolm Dixon Road between Salmon Falls Road and Green Valley Road (John Raslear) • White Rock Road between Latrobe Road and Mountain View (John Raslear) • Mountain View to Serrano Parkway (John Raslear) • Ponderosa Road between Meder Road and N. Shingle Road/Wild Chaparral Drive (Donna Keeler) • Georgetown Road between Golden Chain Highway/Coloma Road and Cherry Acres Road *or* Cololma Road between Georgetown Road and Ranch Creek Circle (Donna Keeler) • Main Street between Pacific Street and Reservoir Street (Donna Keeler) Initial comments on the count locations included: • Consider the location of signal timing/phasing projects that improve pedestrian and bicycle mobility as part of the project list • There is a traffic camera near the transit stop on Missouri Flat Road. Consider using that camera and other traffic cameras as video inputs for counts. • Consider using SACOG's "Bike and Walk" mobile application to help with improving manual count consistency. • Consider reaching out to local school districts to solicit volunteers for conducting manual pedestrian and bicycle counts (Mr. Loewen will reach out the local El Dorado Hills school

district, and Alta will provide background information on conducting manual counts)

- There are currently no connections to the Boys & Girls Club
- Because the counts will be conducted in the fall, consider not placing as high of a priority on count locations along recreational facilities that are mainly used in the summer
- El Dorado County is either first or second in the state in terms of the percent of the population that are senior citizens
- The El Dorado County Health and Human Services Agency is conducting a transportation survey to better understand transportation needs in El Dorado County. The results of the survey may be able to inform this study.
- Consider conducting counts at Cambridge Road and Merrychase Drive
- Consider conducting counts near Green Valley Road between Hastings Drive and Starbuck Road/Cameron Park Drive

The ATAC and TAC members participated in a visual prioritization exercise of potential count locations by placing dot stickers on a map of El Dorado County at the location of their three highest priority segments or intersections. The only priority locations that did not conform to the original count location list provided to the group ahead of the meeting were three count locations in Cool, CA (See maps attached). The highest priority count locations are listed below (in no particular order):

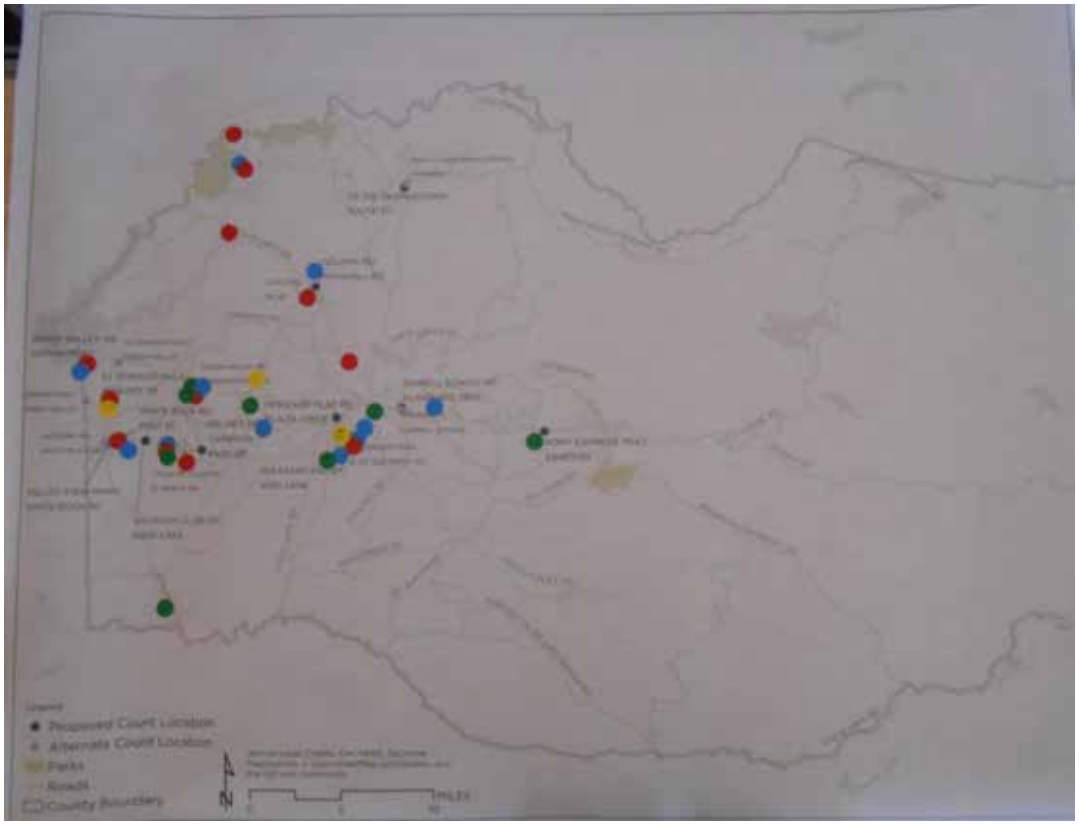
- Green Valley Road at Cameron Park Drive
- SR49/Pleasant Valley Road between Koki Lane and Patterson Drive
- Schnell School Road at El Dorado Trail
- Pony Express Trail between Sanders Drive & Sly Park Road
- Valley View Parkway at White Roach Road
- El Dorado Trail at Missouri Flat Road

Lower priority count locations included:

- El Dorado Hill Boulevard between Woedee Drive and St. Andrews Drive *or* El Dorado Hills Boulevard between Green Valley Road and Francisco Drive
- Green Valley Road between Sophia Parkway and Francisco Drive *or* Sophia Parkway between Green Valley Road and Natoma Street
- Country Club Drive between Bass Lake Drive and El Norte Road *or* Country Club Drive between El Norte Road and Cambridge Road
- White Rock Road at Post Street *or* El Dorado Hills Boulevard at Harvard Way *or* Latrobe Road between White Rock Road and Golden Foothill Parkway
- Palmer Drive at Cameron Park Drive *or* at Plaza Goldorado

Item	Discussion, Responses, & Actions
	• Broadway at Schnell School • Missouri Flat Road at Plaza Drive • SR 193/Georgetown between South Street and Prospect Hill Drive *or* Main Street/Wentworth Springs at Harkness • SR 49/Coloma Road between Marshall Road to Lotus Road *or* Lotus Road between SR 49 and Henningsen Lotus Park
5. Adjourn	

High-priority bicycle and pedestrian count locations


Proposed Count Location
Alternate Count Location
Parks
Roads
County Boundary
N
MILES


Proposed Count Location
Alternate Count Location

EL DORADO COUNTY
ACTIVE TRANSPORTATION
CONNECTIONS STUDY

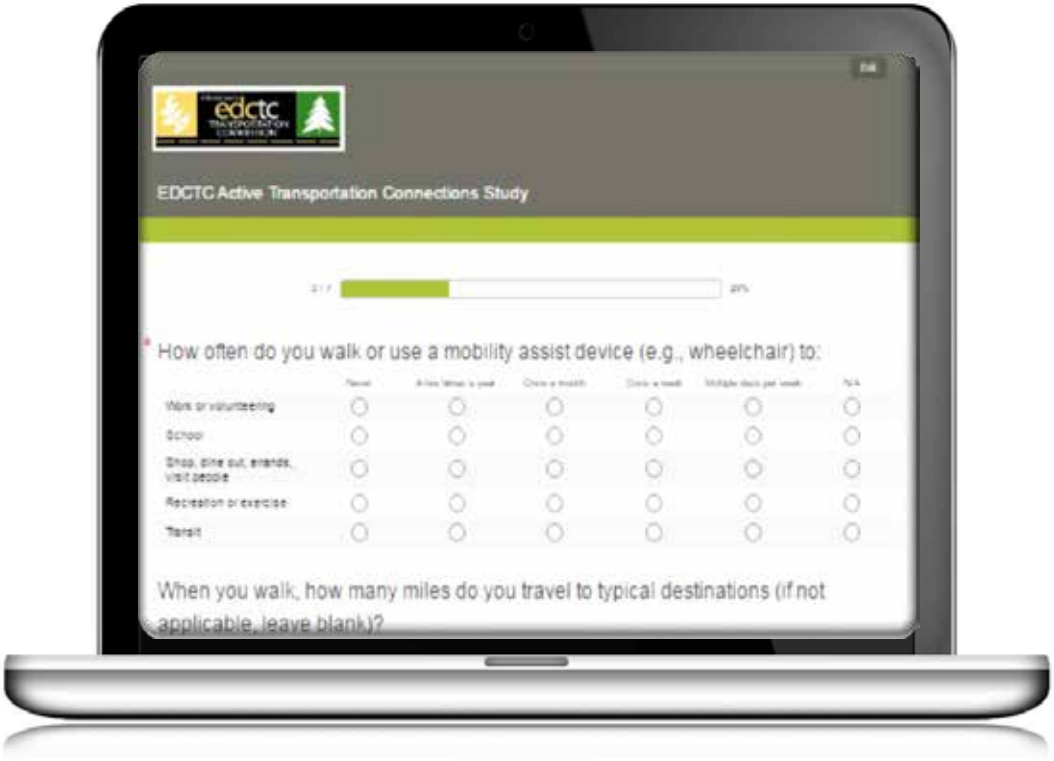
TAC MEETING #4
SEPTEMBER 30, 2016

AGENDA

- Survey Status Update
- Review Scope
- Review Goals of Bike/Ped Count Collection
- Discuss Count Locations

SURVEY

AGENDA
SURVEY
SCOPE
GOALS
LOCATIONS



SURVEY

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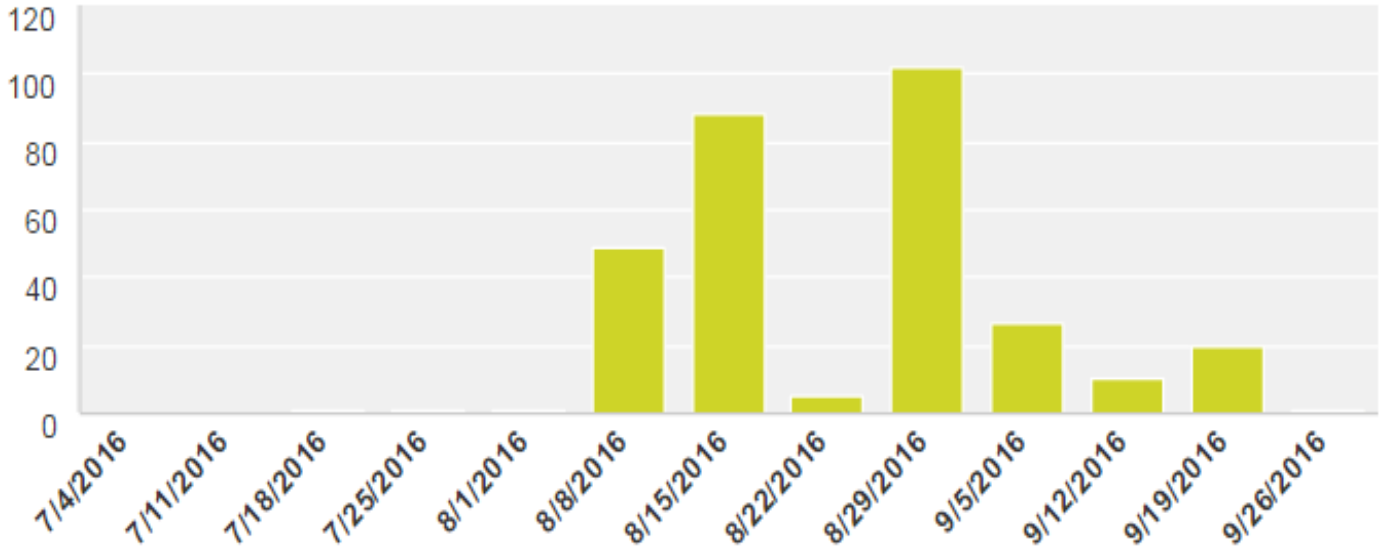
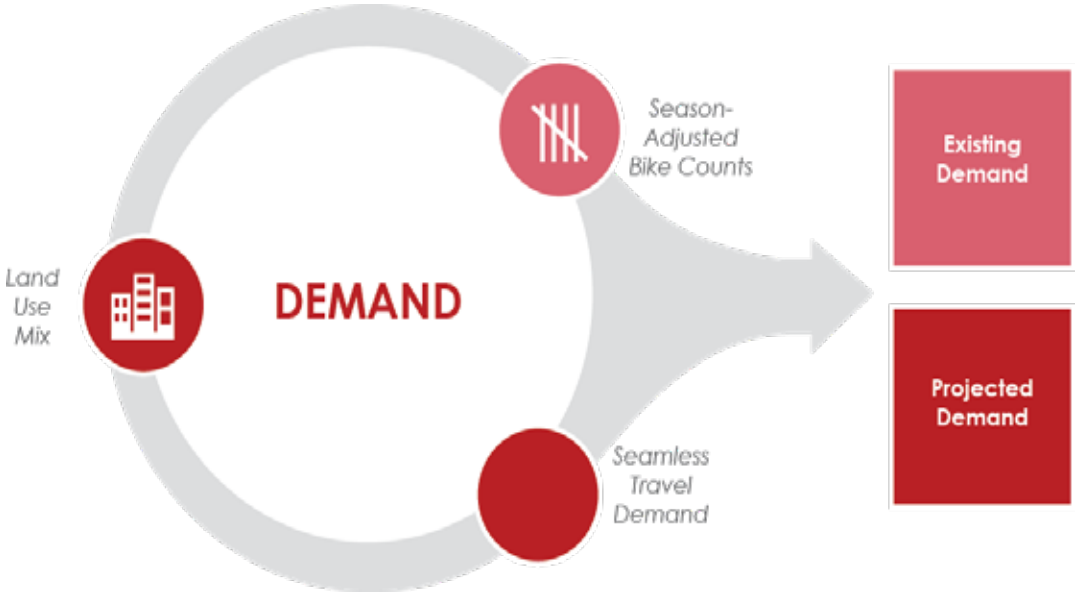
305 TOTAL RESPONSES



SCOPE



AGENDA
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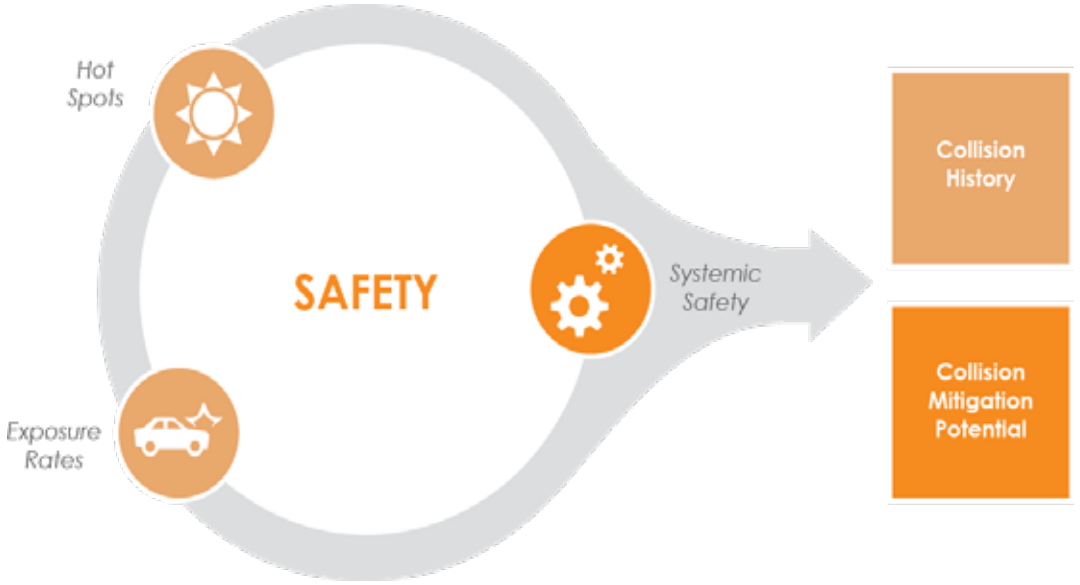
SCOPE



AGENDA
SURVEY
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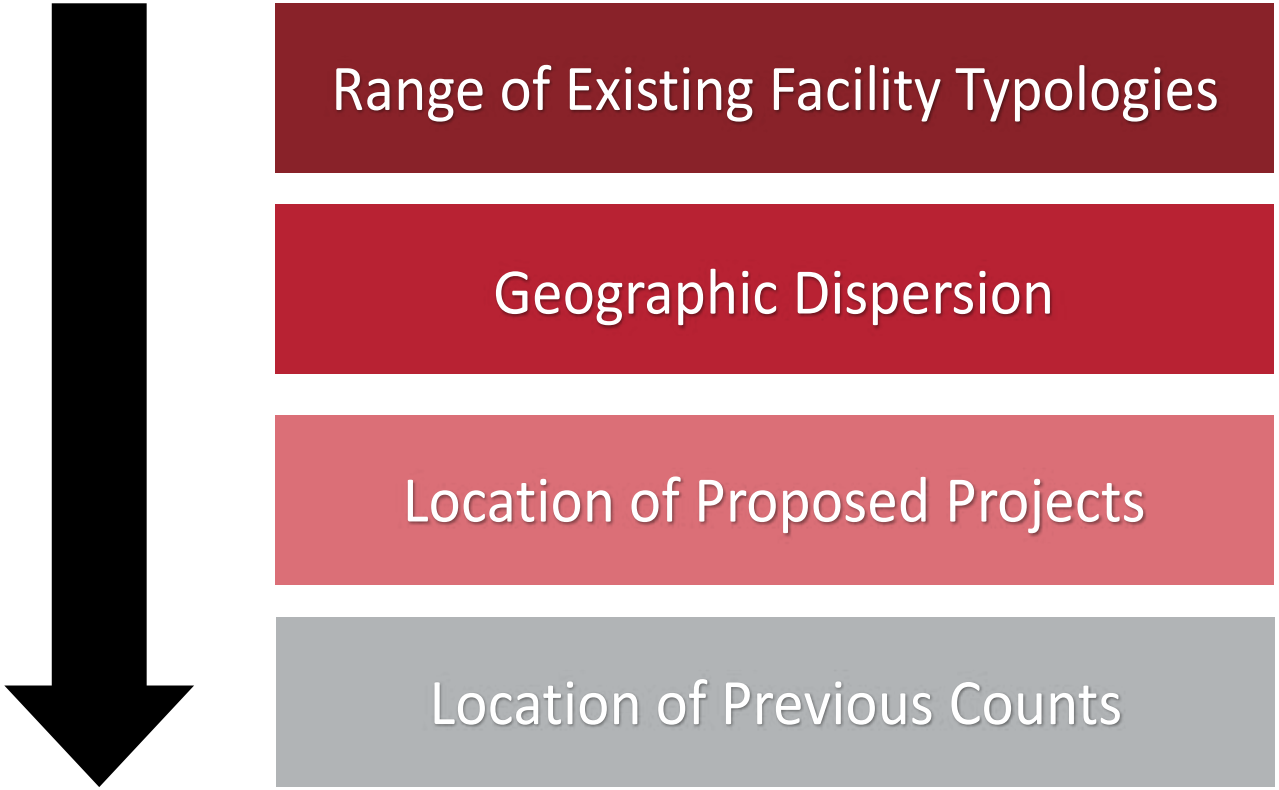
GOALS & PRIORITIES

1. Identify projects that will be competitive in grant applications
2. Identify projects that will be well used

GOALS & PRIORITIES



AGENDA
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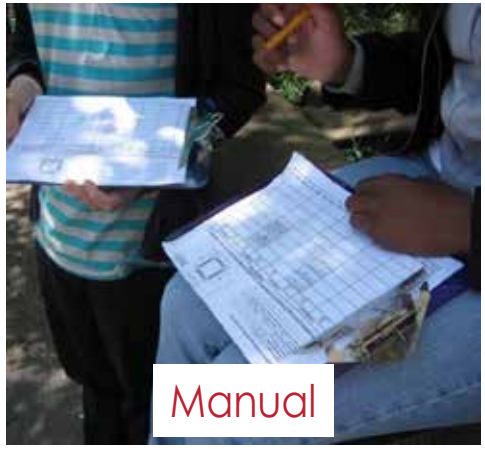
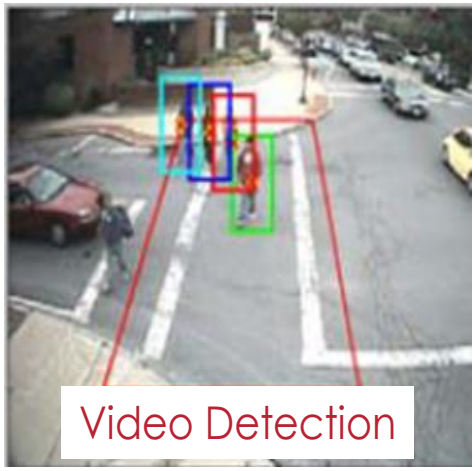
LOCATIONS – TECHNOLOGIES


Passive Infrared


Radio Beam


Manual


Active Infrared


Video Detection


Tube

AGENDA
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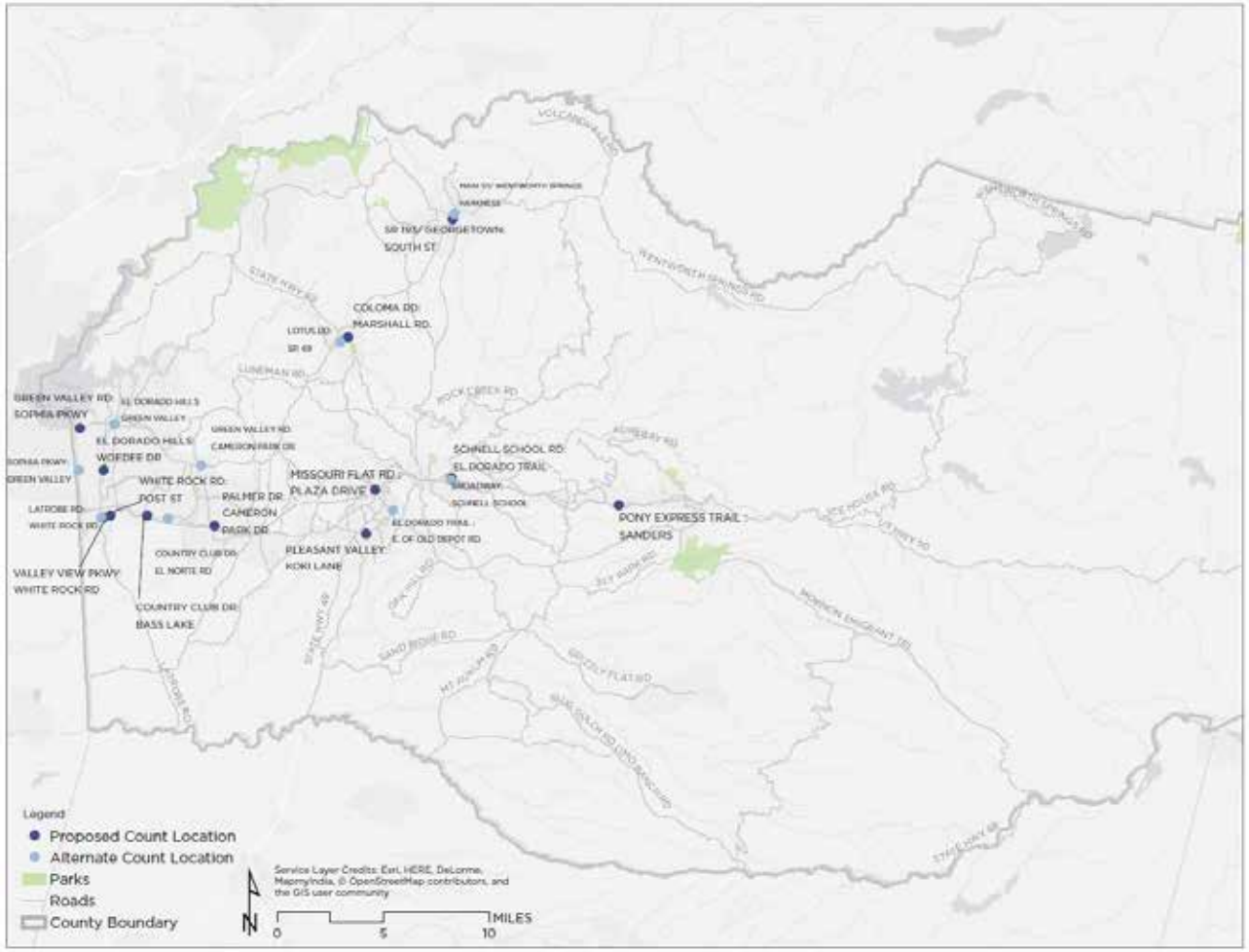
LOCATIONS – TECHNOLOGIES

Technology	Technology	Notes
Passive infrared	Detects body heat	• Potential issues with large groups • Can't distinguish bikes and peds
Active infrared	Break beam	• Can't distinguish bikes and peds
Radio Beam	Similar to active infared	• Emerging technology • Most do not distinguish bikes and peds
Video	Video capture with manual review	• Bikes and Peds • Somewhat higher cost
Manual	Labor or volunteer	• Bikes and Peds • Typically 2 hour periods only • Volunteers have accuracy issues
Tube	Similar to auto counters	• Bikes only • Relatively lower cost

LOCATIONS



AGENDA
SURVEY
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LOCATIONS

LOCATIONS

AGENDA
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LOCATIONS

NEED TO IDENTIFY REPRESENTATIVE LOCATIONS

http://eldoradobikemap.outerspatial.com/applications/10/embed#9/38.7402/-120.5557

ADJOURN

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Agenda

PROJECT	EDCTC Active Transportation Connections Study	**ORGANIZER**	Jerry Barton
SUBJECT	Meeting #4: TAC	**DATE**	January 10, 2017
VENUE	Webinar	**TIME**	10:00 AM – 12:00 PM

Attendees:

Item	Discussion, Responses, & Actions
1. Survey Results	
2. Summary of Bicycle and Pedestrian Counts	
3. Review Preliminary Demand Analysis	
4. Upcoming Analyses/Schedule	
5. Adjourn	

EL DORADO COUNTY
ACTIVE TRANSPORTATION
CONNECTIONS STUDY

TAC MEETING #5
January 25, 2017

AGENDA

- Survey Results
- Count Results
- Demand Analysis
- Next Steps
  - Connectivity Analysis
  - Safety Analysis
  - Schedule

SURVEY: PURPOSE

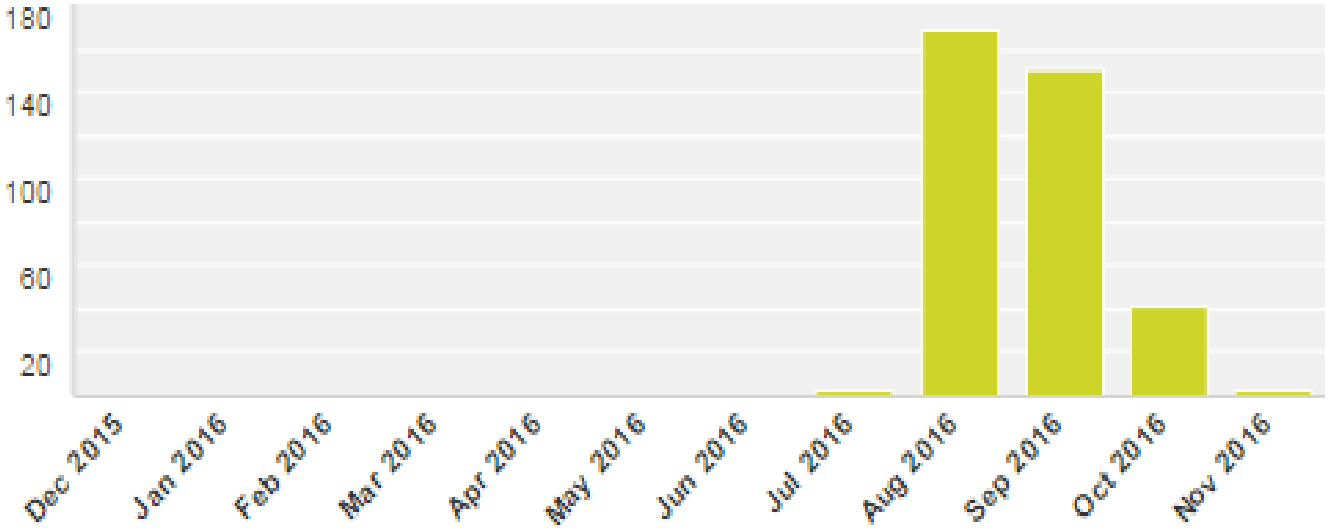
1. Understand walking and bicycling travel behavior on El Dorado County
2. Identify latent demand for bicycling to inform demand analysis
3. Provide background information to support future grant applications

SURVEY: METHOD

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

365 TOTAL RESPONSES

Survey Monkey (online) from August 2, 2016 to November 29, 2016



RESPONDENT DEMOGRAPHICS

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Age Group	Survey Responses		El Dorado County (ACS)
Under 18	0.0%	<	21.3%
18-35 years (survey); 20-34 years (ACS)	9.1%	<	15.2%
36-54 years (survey); 35-54 years (ACS)	40.4%	>	27.4%
55 and over	50.6%	>	33.7%

Annual Household Income	Survey Responses		El Dorado County (ACS)
Less than $10,000	0.4%	<	4.4%
$10,000 to $24,999	2.6%	<	12.5%
$25,000 to $49,999	8.7%	<	19.6%
$50,000 to $74,999	16.0%	=	16.6%
$75,000 to $99,999	16.9%	>	12.4%
$100,000 to $149,999	34.2%	>	16.8%
$150,000 to $199,999	12.6%	>	8.2%
$200,000 or more	8.7%	<	9.2%

FINDINGS: WALKING

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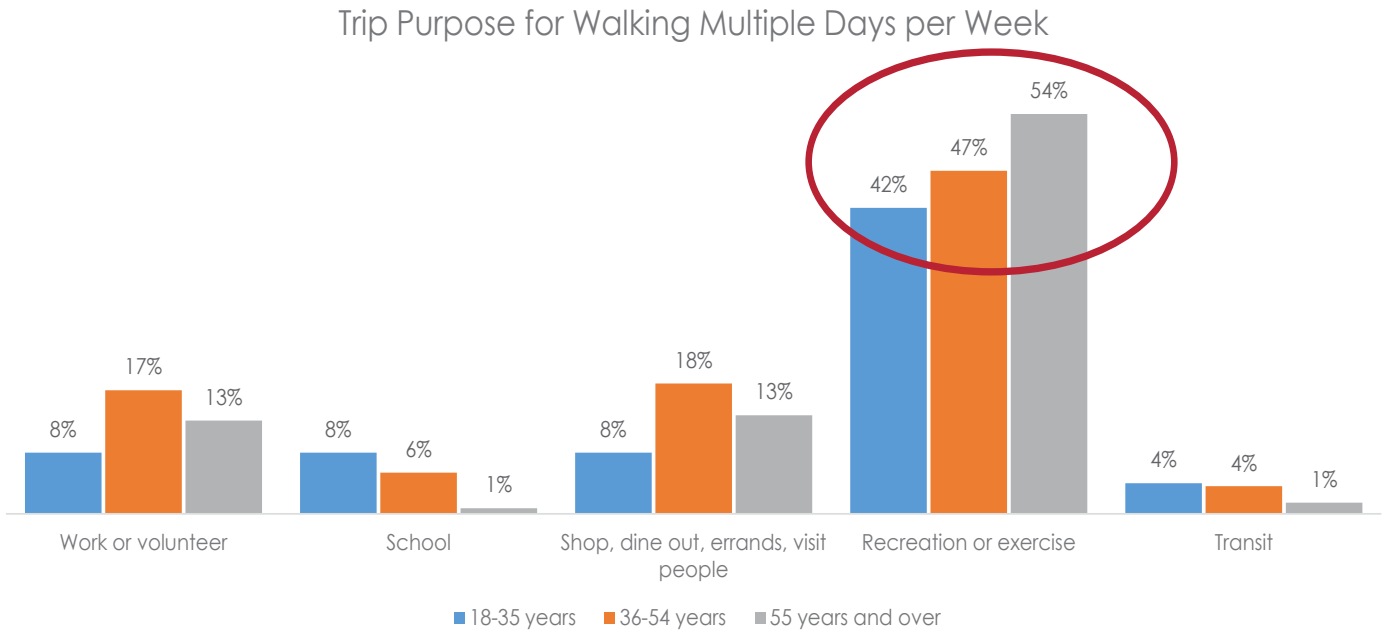
NEXT STEPS

Across all age groups, recreation and exercise were the most common purpose for walking.



FINDINGS: BICYCLING

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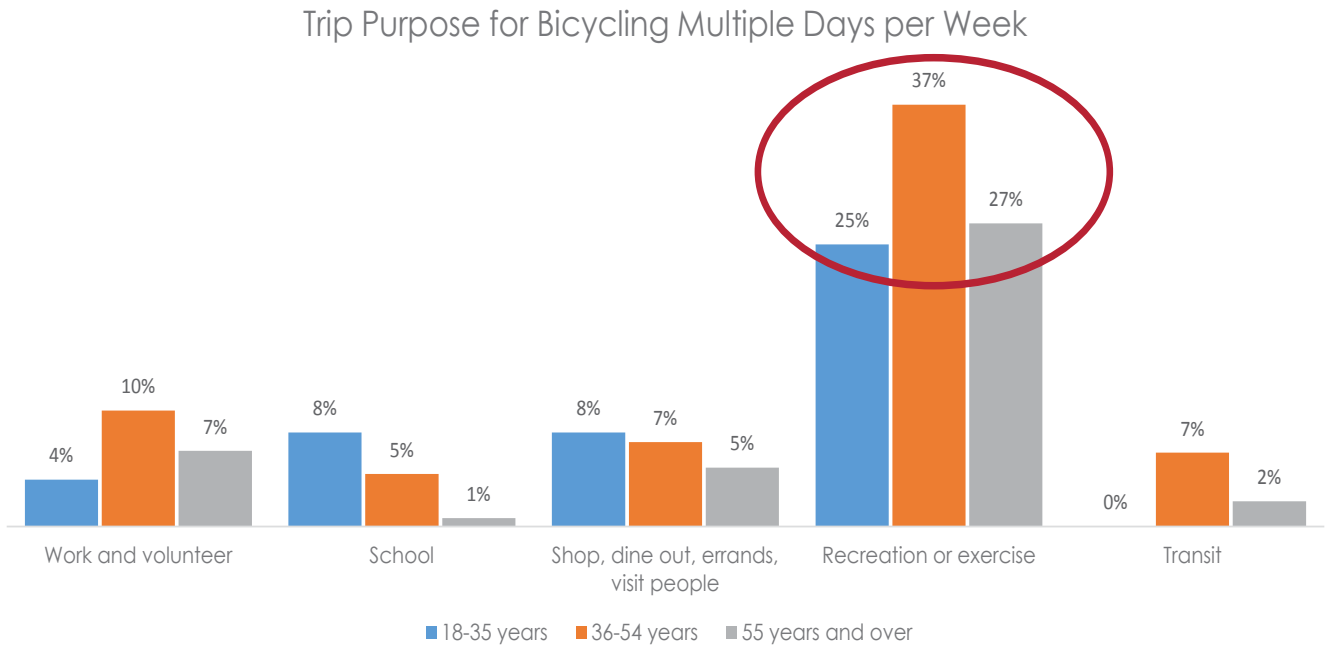
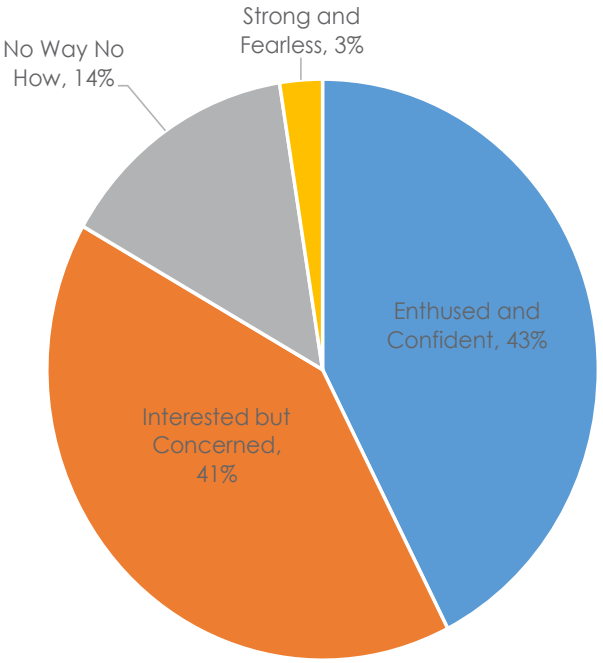
Across all age groups, recreation and exercise were also the most common purpose for bicycling, but there is more variation between age groups.



FINDINGS: TYPES OF BICYCLISTS



Strong and Fearless: Very comfortable riding on commercial streets alongside vehicles without a bicycle lane.
Enthused and Confident: Very comfortable riding on commercial streets alongside vehicles with a bicycle lane.
Interested but Concerned: Not comfortable riding alongside vehicles, even with a bicycle lane or on a paved path separate from the street, but indicate that they would like to travel by bicycle more than they currently do.
No Way No How: Generally, very uncomfortable with bicycling, even on a paved path separate from the street, and are not interested in changing their bicycling habits.

FINDINGS: TYPES OF BICYCLISTS

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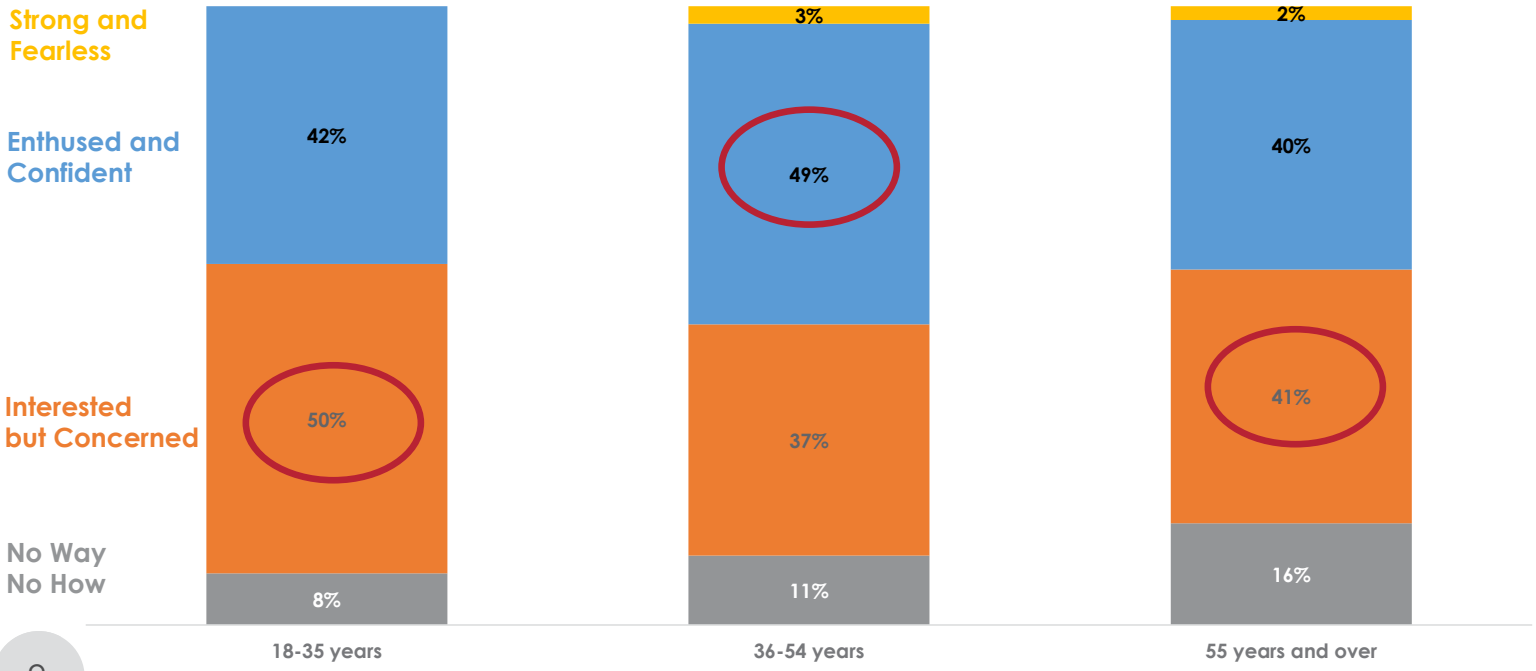
Respondents between 18 to 35 years old and 55+ were more likely to be "Interested but Concerned", while residents 36 to 54 years old were more likely to be "Enthused and Confident" bicyclists.



FINDINGS: TYPES OF BICYCLISTS

AGENDA
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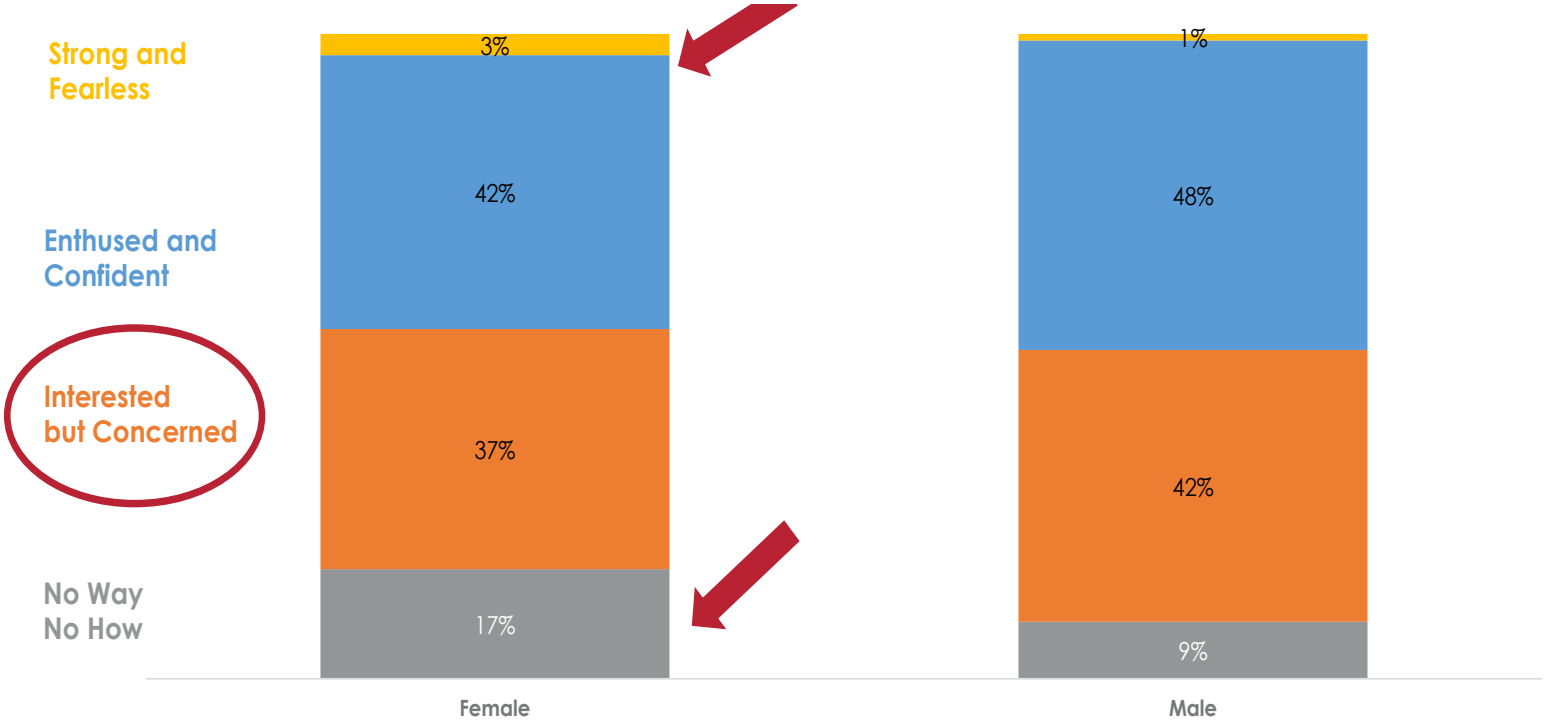
NEXT STEPS

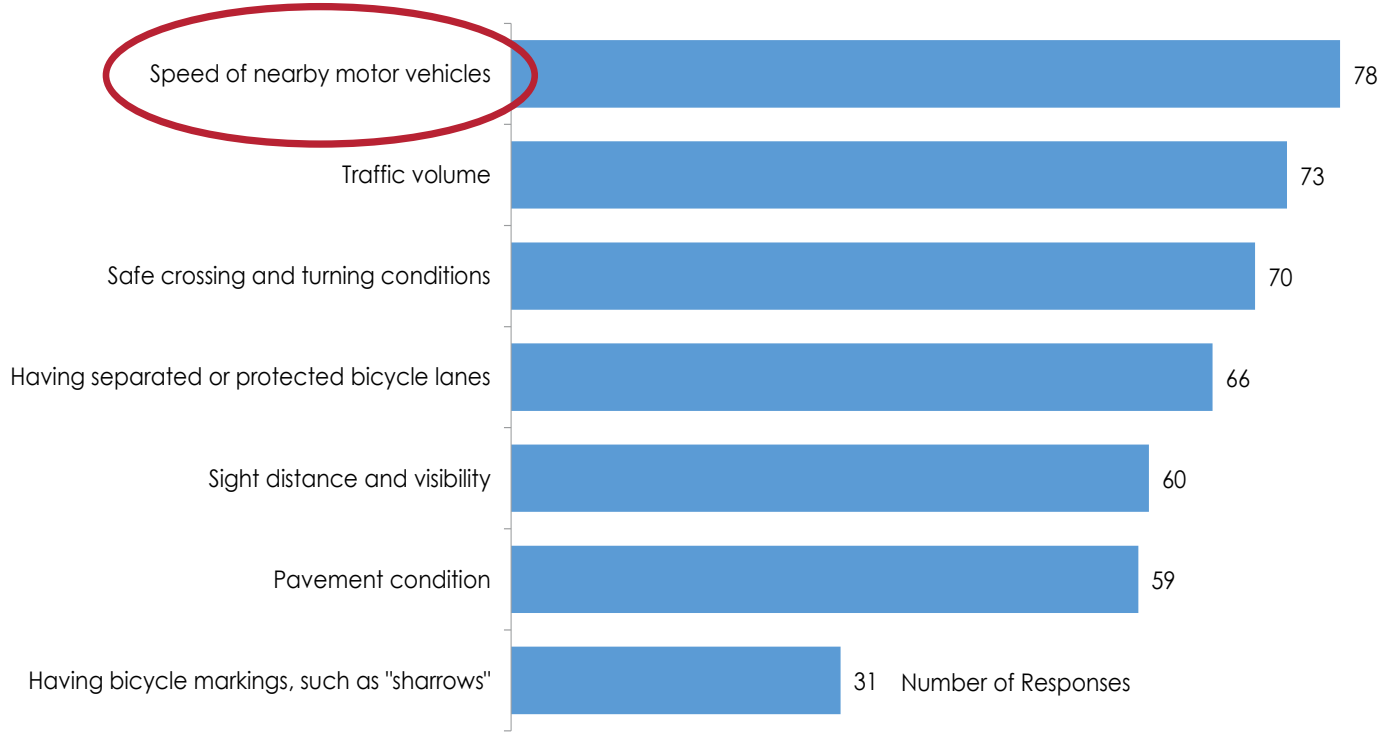
A larger proportion of women identified as "strong and fearless" but also as "no way no how".



FINDINGS: SAFETY

AGENDA
COUNTS
SURVEY
DEMAND
NEXT STEPS

Safety Factors When Choosing a Bicycle Route for "Interested but Concerned" Bicyclists



FINDINGS: TRIP PURPOSE

AGENDA
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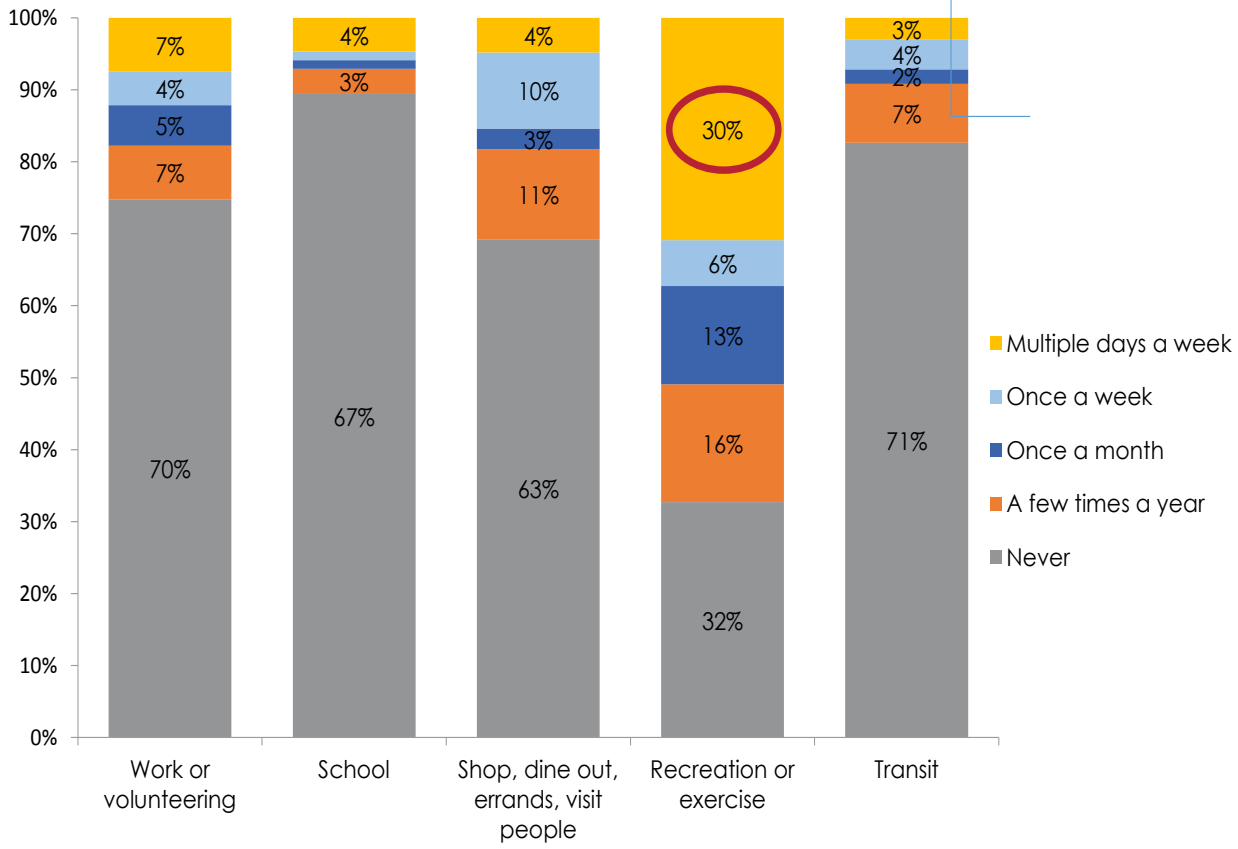
NEXT STEPS

30 percent of "Interested but Concerned" bicyclists ride for recreation or exercise multiple days a week. About 7 percent or less bicycle for utilitarian purposes (work, school, transit) multiple days a week.



FINDINGS: WEATHER

AGENDA
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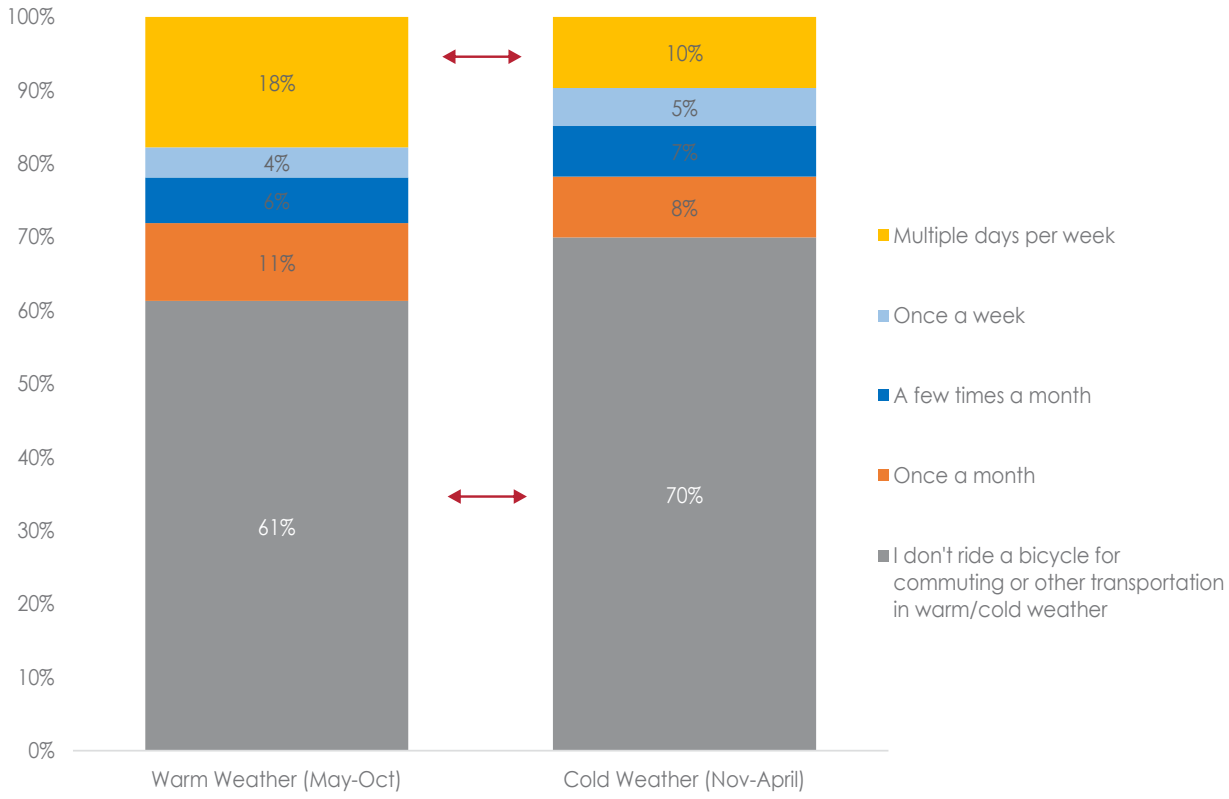
NEXT STEPS

Bicycling is less common during cold weather months than during warm weather months.



FINDINGS: EXERCISE

AGENDA
SURVEY
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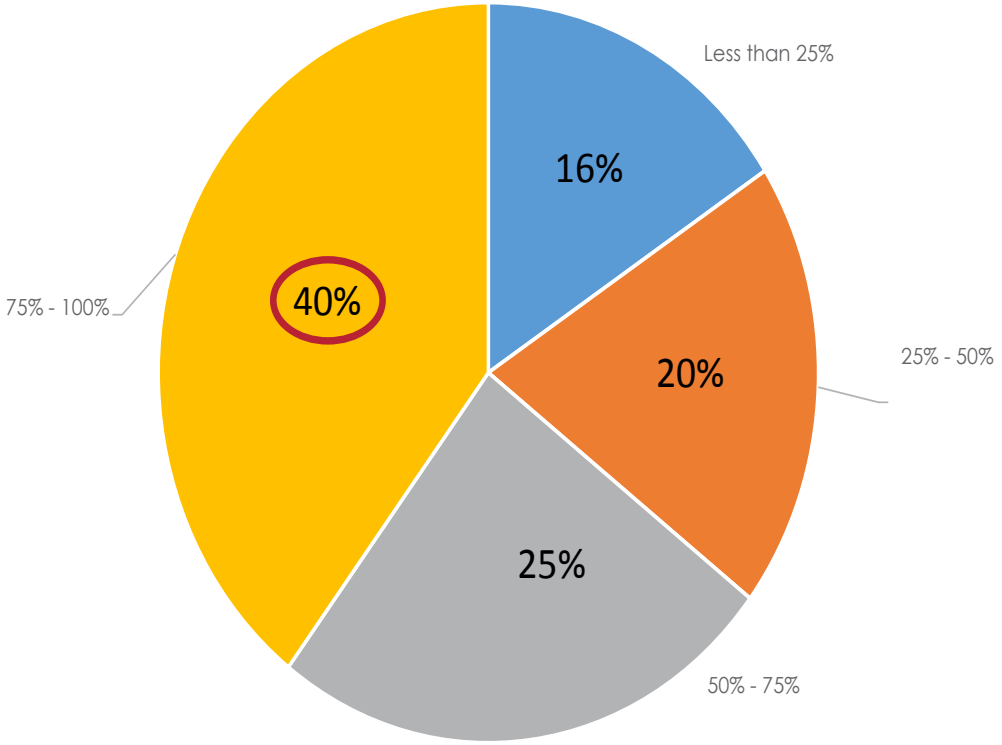
NEXT STEPS

Walking or bicycling is the main source of exercise for about 40 percent of respondents.

What percentage of your exercise comes from walking or bicycling outside?



COUNTS: PURPOSE

1. Inform demand analysis for forecasted pedestrian and bicycle trips
2. Serve as baseline for planned pedestrian and bicycle infrastructure projects
3. Enhance competitiveness in grant funding applications

COUNTS: METHOD

AGENDA
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DEMAND
NEXT STEPS

- 16 locations in western slope
  - November 1, 2016 to November 12, 2016
- 4 locations on El Dorado Trail
  - 4 days in May 2012; 2 days in September 2012

Location Criteria:

1. Existing and Proposed Facilities
2. Facility Type
3. Coverage of all Five County Board of Supervisor Districts
4. Expected Volumes
5. Mix of Trip Types

COUNTS: SELECTED LOCATIONS

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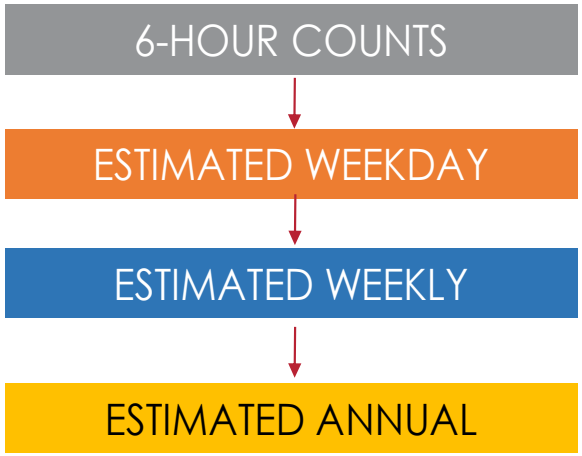
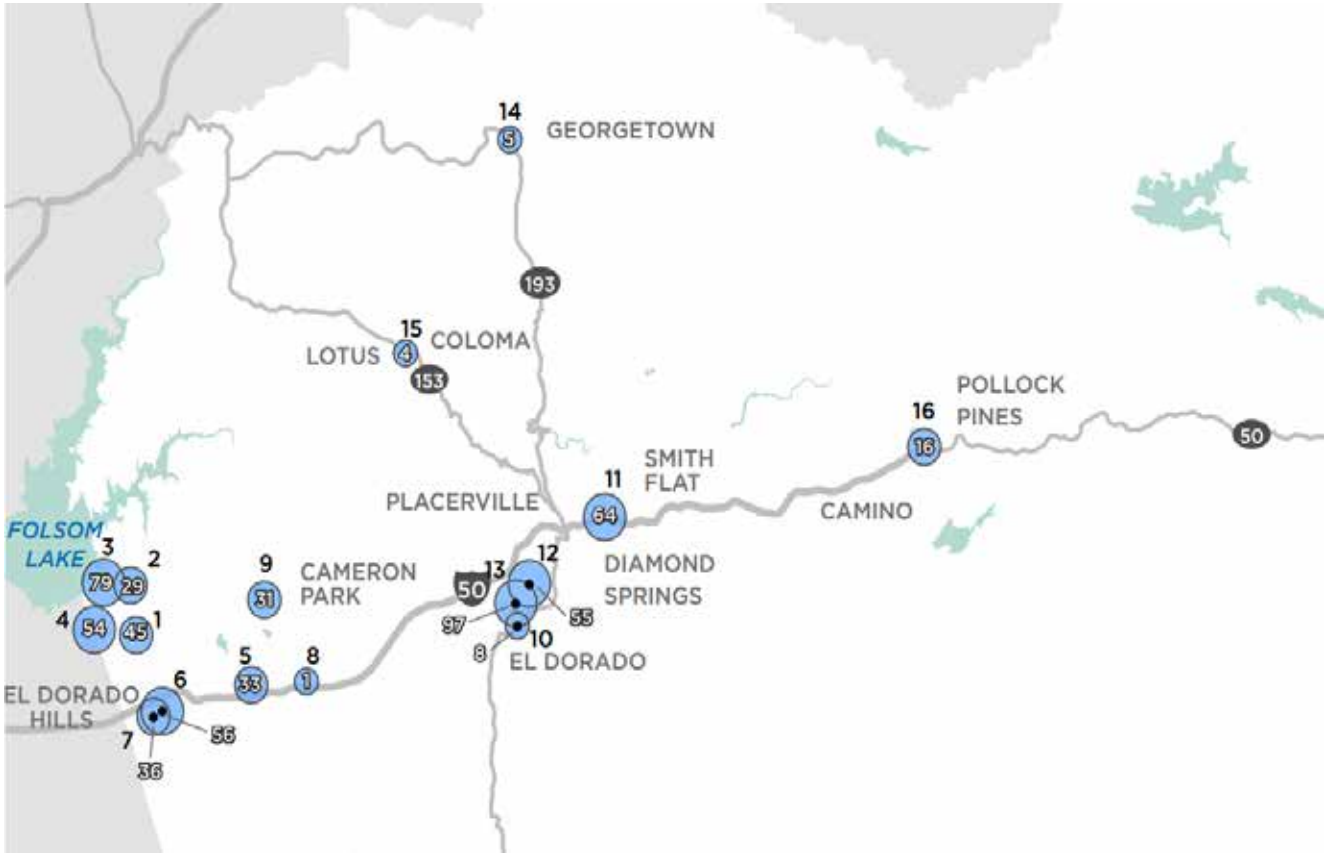
	Location				Bicycle Facility		
No.	Route	Begin/At	End	District	Existing	Proposed	Near School
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	1	Class I	N/A	Yes
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	1	Class I	Class II	Yes
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	1	Class II	N/A	No
4	Sophia Pkwy	Green Valley Rd	Natoma St	1	Class II	N/A	No
5	Country Club Dr	El Norte Rd	Cambridge Rd	2	N/A	Class II	Yes
6	Valley View Pkwy	White Rock	-	2	Class II	N/A	Yes
7	Post St	White Rock	-	2	Class II	N/A	No
8	Plaza Goldorado Cir	Palmer Dr	-	2	N/A	Class II	No
9	Cameron Park Dr	Green Valley Rd	-	2	Class II	N/A	No
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	3	N/A	Class II	Yes
11	Schnell School Rd	El Dorado Trail	-	3	Class I	N/A	Yes
12	Forni Rd	El Dorado Trail	-	3	Class I	N/A	Yes
13	Golden Center Dr	Missouri Flat Rd	-	3	Class II	N/A	Yes
14	SR 193/ Georgetown	South St	Prospect Hill Dr	4	N/A	Class II	Yes
15	SR 49/ Coloma Rd	Marshall Rd	Lotus Rd	4	Class II	N/A	No
16	Pony Express Trail	Sly Park Rd	-	5	N/A	Class II	No

ADJUSTMENTS



AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

BICYCLE AADT: WEEKDAY



AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

PEDESTRIAN AADT: WEEKDAY

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

AADT

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

Table 9: Estimated Average Annual Daily Traffic (AADT)

	LOCATION				WEEKDAY*		WEEKEND*	
No.	Route	Begin/At	End	Type	Bike	Ped	Bike	Ped
1	El Dorado Hills Blvd	Woedee Dr	St Andrews Dr	Path	45	84	43	64
2	El Dorado Hills Blvd	Green Valley Rd	Francisco Dr	Path	29	27	49	31
3	Green Valley Rd	Sophia Pkwy	Francisco Dr	Street	79	9	181	22
4	Sophia Pkwy	Green Valley Rd	Natoma St	Street	54	44	103	66
5	Country Club Dr	El Norte Rd	Cambridge Rd	Street	33	475	6	209
6	Valley View Pkwy	White Rock	-	Street	56	116	94	162
7	Post St	White Rock	-	Street	36	129	37	100
8	Plaza Goldorado Cir	Palmer Dr	-	Street	1	8	0	22
9	Cameron Park Dr	Green Valley Rd	-	Street	31	96	62	97
10	SR 49/Pleasant Valley	Koki Ln	Patterson Dr	Street	8	42	12	22
11	Schnell School Rd	El Dorado Trail	-	Path	64	321	107	313
12	Forni Rd	El Dorado Trail	-	Path	97	129	80	150
13	Golden Center Dr	Missouri Flat Rd	-	Street	55	152	81	75
14	SR 193/ Georgetown	South St	Prospect Hill Dr	Street	5	24	6	6
15	SR 49/ Coloma Rd	Marshall Rd	Lotus Rd	Street	4	28	22	6
16	Pony Express Trail	Sly Park Rd	-	Path	16	73	0	37

*Estimated Average Annual Daily Traffic. Rounded to nearest ones place.

DEMAND ANALYSIS

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

1. Identify readily available inputs that are correlated with bicycle and pedestrian activity
2. Develop equations to forecast bicycle and pedestrian demand
3. Apply equations to proposed projects

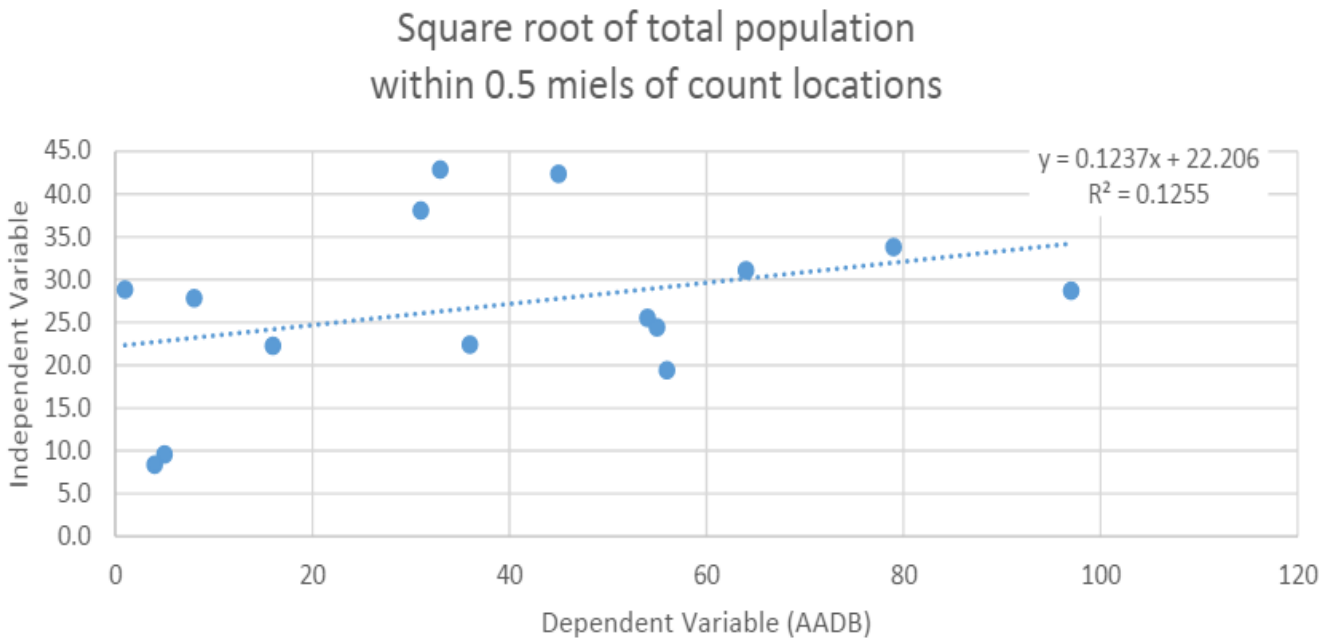
BIKE DEMAND

Independent Variables	Model A		Model B		Model C		Model D		Model E		Model F		Model G	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Constant	1.33	30.61	-12.55	32.49	-2.06	30.63	-8.88	25.42	10.38	18.40	-17.61	25.87	11.97	17.90
Class I dummy variable	48.26	18.28	60.60	24.28	49.68	22.85	47.15	21.14	50.87	21.79	58.34	21.76	60.60	24.04
Class II dummy variable	31.51	14.76	34.67	14.98	30.20	15.14	31.41	14.22	28.00	13.94	35.33	14.03	30.11	13.98
Square root of total population (0.25 mile)	0.33	4.19	-	-	2.54	4.88	4.28	2.86	-	-	-	-	-	-
Square root of total population (0.5 mile)	-	-	2.20	2.43	-	-	-	-	-	-	2.74	1.49	-	-
Population under 18 years old (0.25 mile)	0.17	0.68	-	-	0.43	0.96	-	-	0.83	0.57	-	-	-	-
Population under 18 years old (0.5 mile)	-	-	0.06	0.21	-	-	-	-	-	-	-	-	0.21	0.14
People of color (0.5 mile)	-	-	-0.23	0.17	-0.18	0.16	-0.14	0.13	-0.18	0.15	-0.21	0.14	-0.21	0.16
Acres of commercial land uses (0.5 mile)	-	-	-0.11	0.15	-0.11	0.17	-0.15	0.13	-0.06	0.14	-0.13	0.13	-0.06	0.14
Overall														
Multiple R	0.76		0.83		0.82		0.81		0.81		0.83		0.82	
Adjusted R^2	0.42		0.47		0.42		0.47		0.47		0.52		0.48	
SE	22.15		21.20		22.08		21.08		21.17		20.09		21.00	
df	4		6		6		5		5		5		5	
F-test	3.52		3.05		2.71		3.52		3.47		4.05		3.56	
Significance F	0.05		0.07		0.10		0.05		0.05		0.03		0.05	
Average absolute value of residuals	14.89		12.39		13.46		14.18		12.85		12.88		12.01	

*15 total observations (Location #2 on El Dorado Hills Boulevard between Green Valley Road and Francisco Drive was removed as an outlier). Significant at 95 percent level of significance

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

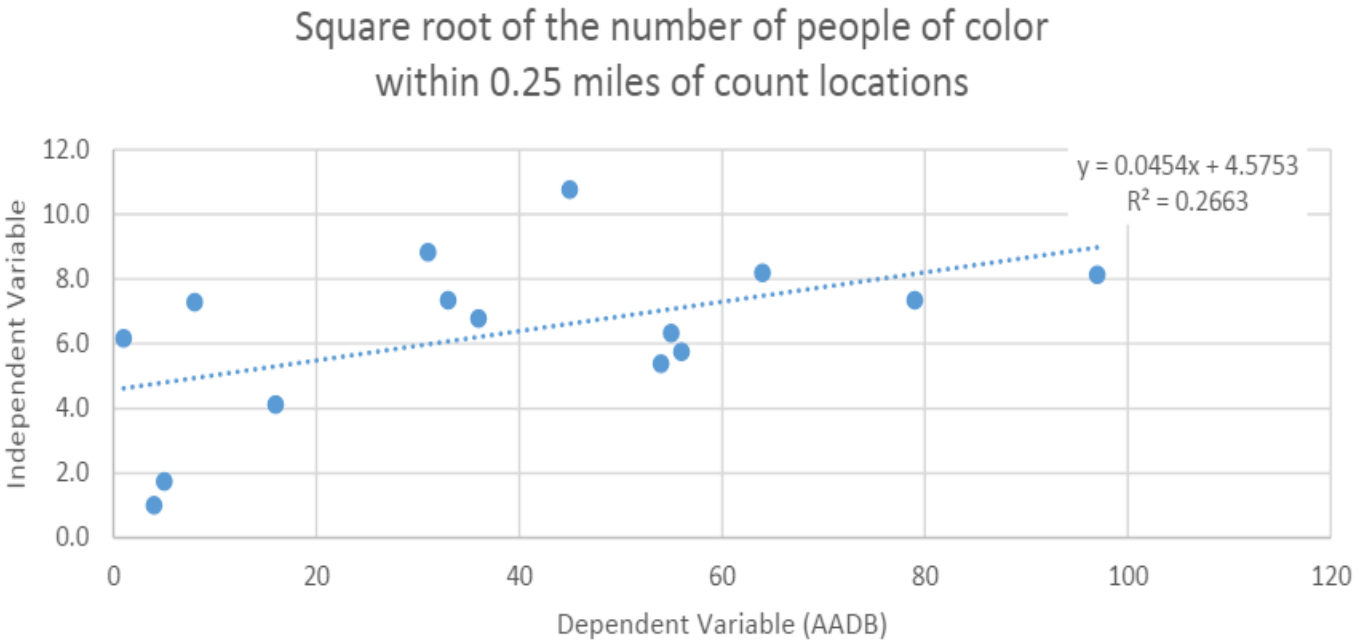
BIKE DEMAND



AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

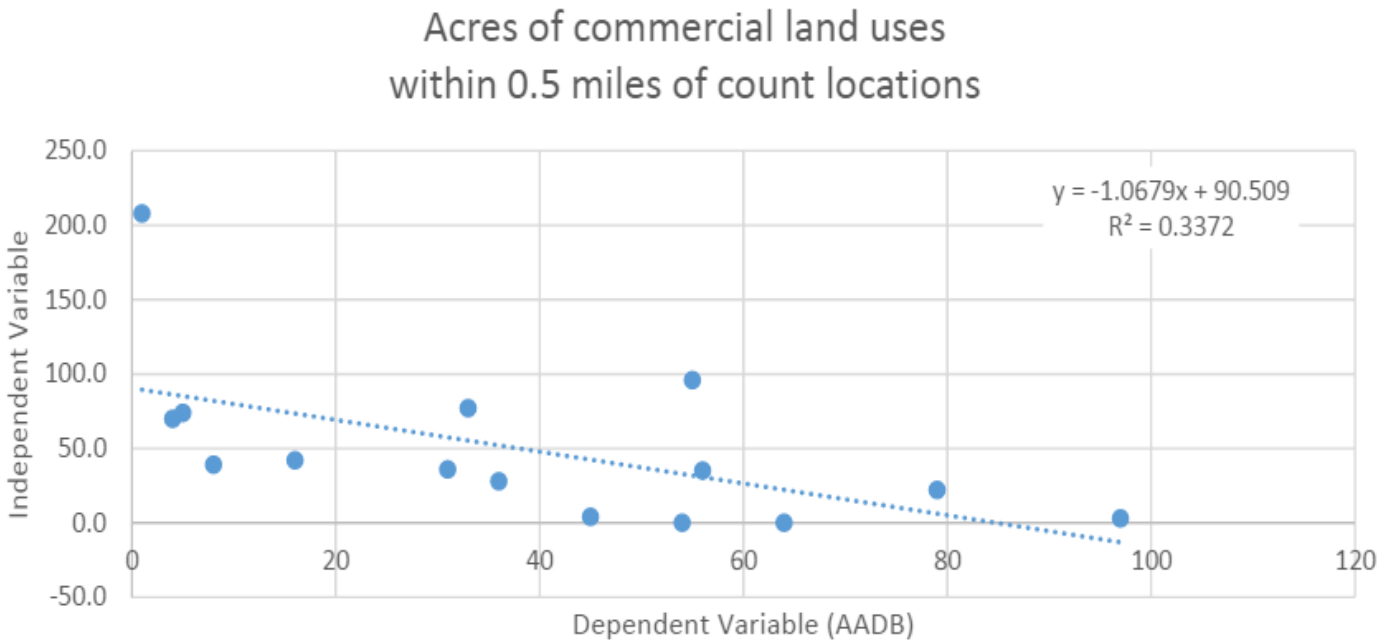
BIKE DEMAND

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS



BIKE DEMAND

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS



BIKE DEMAND

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

$AADB = -17.6118 + 58.3352 (D_1) + 35.3288 (D_2) + 2.7353 (POP) – 0.2101 (POC) – 0.1308 (C)$, where $AADB \geq 0$.

Where:

AADB = Average annual daily bicyclists

D_1 = Class I dummy variable (1 = yes; 0 = no)

D_2 = Class II dummy variable (1 = yes; 0 = no)

POP = Square root of total population within one-half mile

POC = People of color within one-half mile

C = Acres of commercial land uses within one-half mile

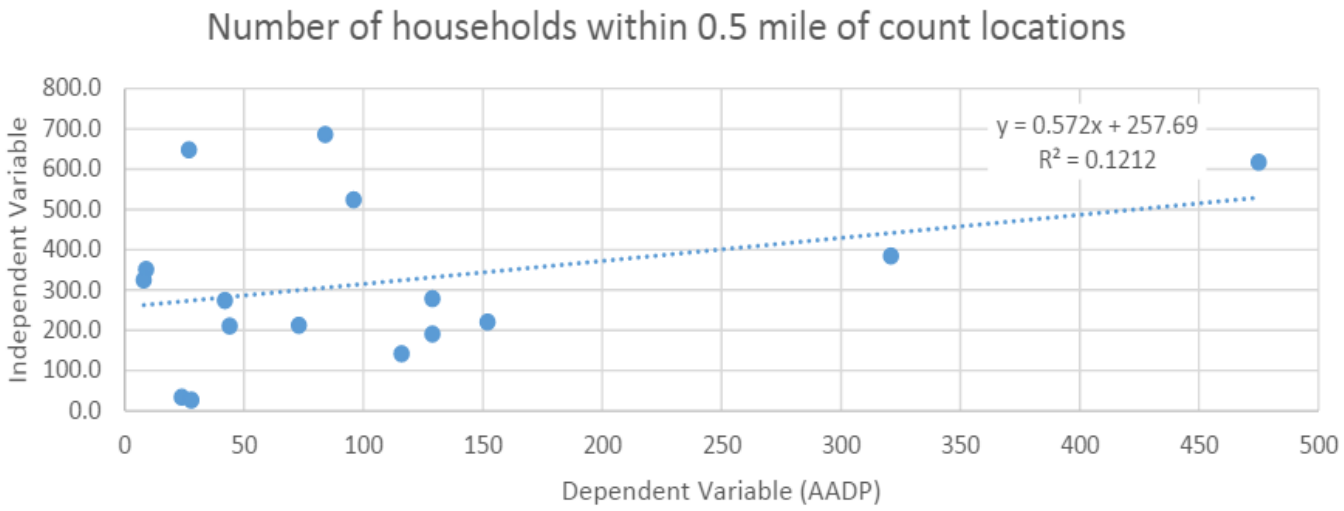
PED DEMAND

Independent Variables	Model A		Model B		Model C		Model D		Model E		Model F		Model G	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Constant	-13.35	45.97	-15.43	55.20	-7.57	58.81	4.96	60.21	-17.68	54.88	-23.01	39.41	-24.8	39.7
Number of individuals below poverty level (0.25 mile)	6.59	4.00	-	-	4.56	4.60	-	-	-	-	-	-	-	-
Number of individuals below poverty level (0.5 mile)	-	-	1.66	1.04	-	-	-	-	-	-	2.33	0.85	2.9	1.1
Households without access to a motor vehicle (0.25 mile)	-8.63	9.83	-	-	-	-	-1.33	8.93	-	-	-13.19	8.28	-13.2	8.3
Street density	1532.70	465.30	1406.89	476.79	1370.59	546.90	1080.07	481.89	1036.87	464.94	1544.08	386.58	1711.5	430.3
Number of households (0.5 mile)	-	-	-0.23	0.29	-0.28	0.32	-0.21	0.34	0.11	0.13	-	-	-	-
Population between 18 to 24 years old (0.5 mile)	-	-	0.90	0.94	1.20	0.99	1.13	1.04	-	-	-	-	-	-
Number of transit stops (0.5 mile)	-	-	-15.07	25.66	-6.17	29.05	19.15	22.35	16.62	17.25	-	-	-20.0	21.9
Overall														
Multiple R	0.73		0.79		0.76		0.73		0.69		0.80		0.82	
Adjusted R^2	0.41		0.44		0.36		0.30		0.35		0.55		0.55	
SE	95.64		92.93		99.40		104.05		100.74		83.21		83.79	
df	3		5		5		5		3		3		4	
F-test	4.50		3.40		2.72		2.31		3.66		7.22		5.55	
Significance F	0.02		0.05		0.08		0.12		0.04		0.00		0.01	
Average absolute value of residuals	59.67		59.72		64.17		66.20		61.80		55.71		55.18	

*16 total observations

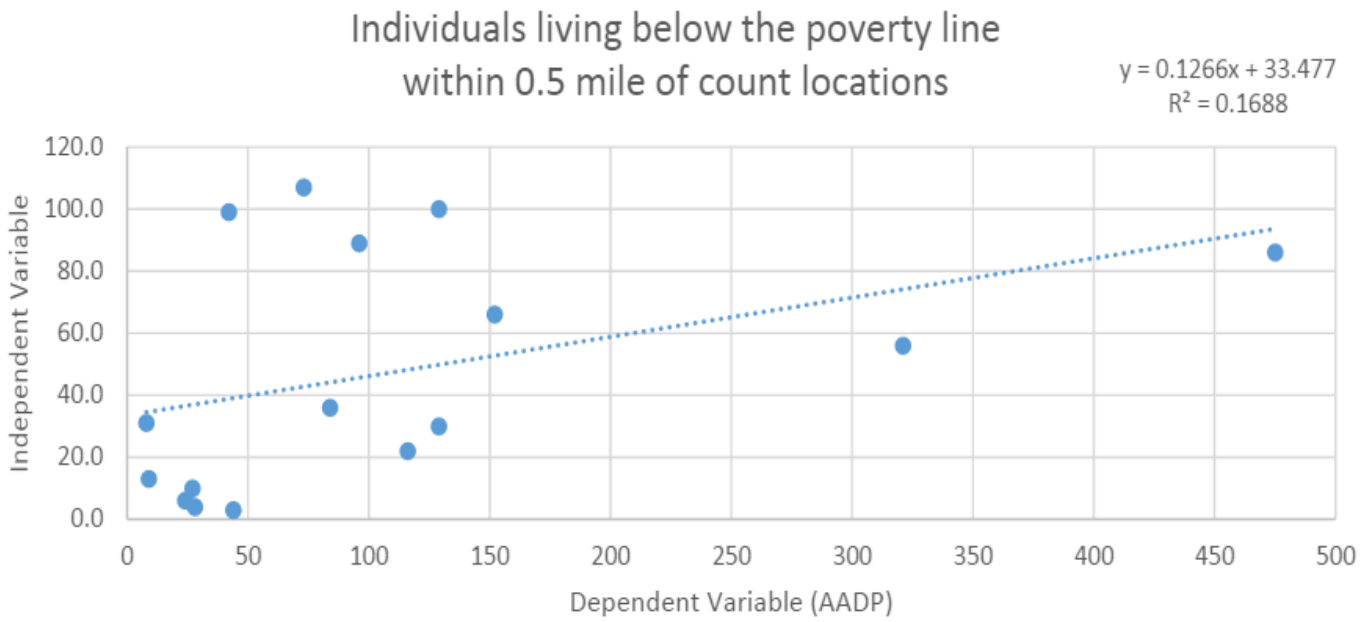
AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

PED DEMAND



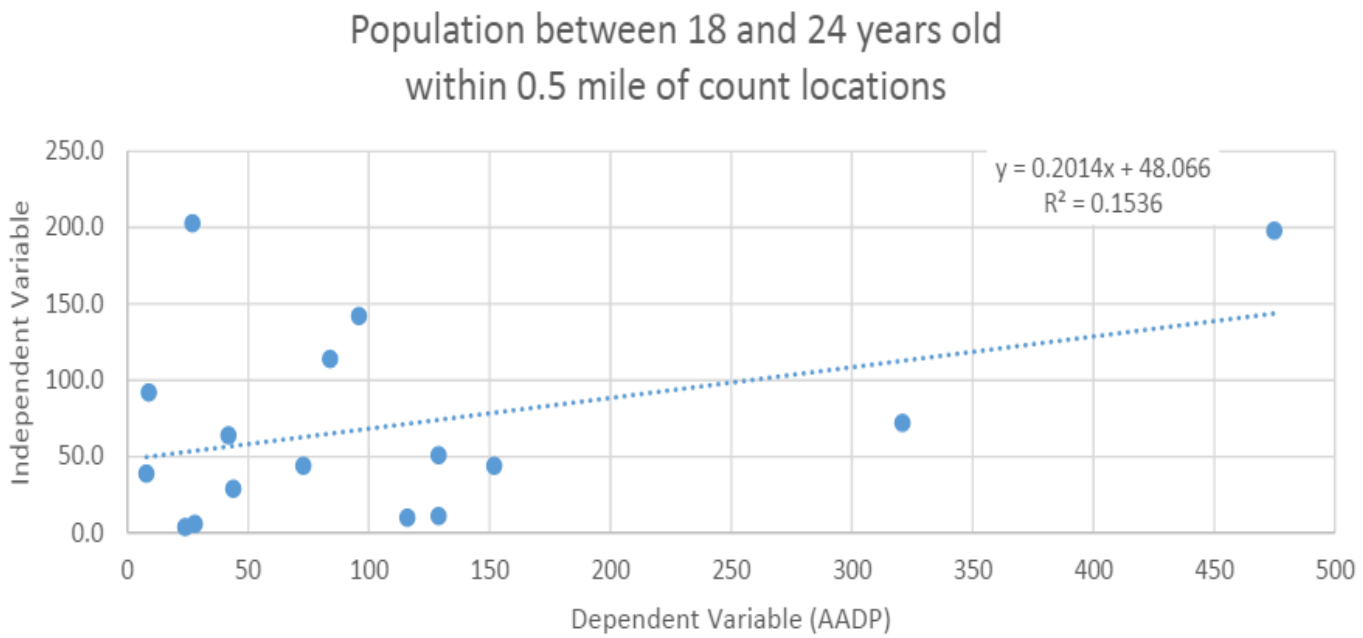
AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

PED DEMAND



AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

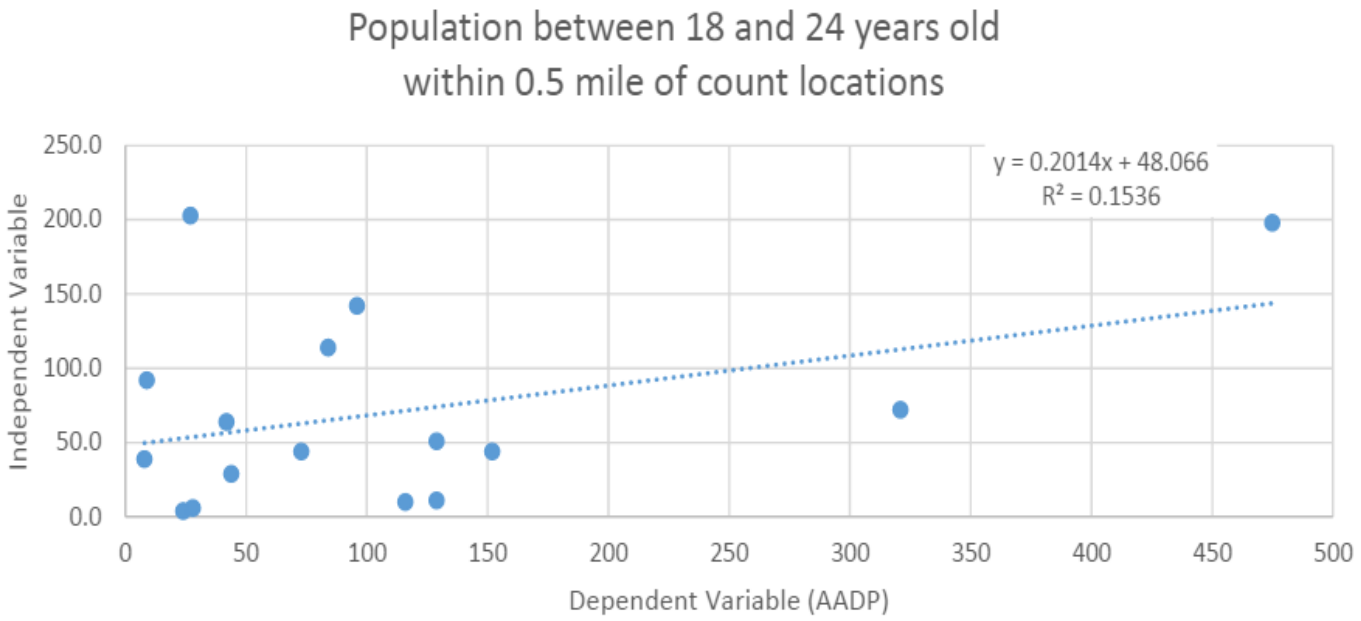
PED DEMAND



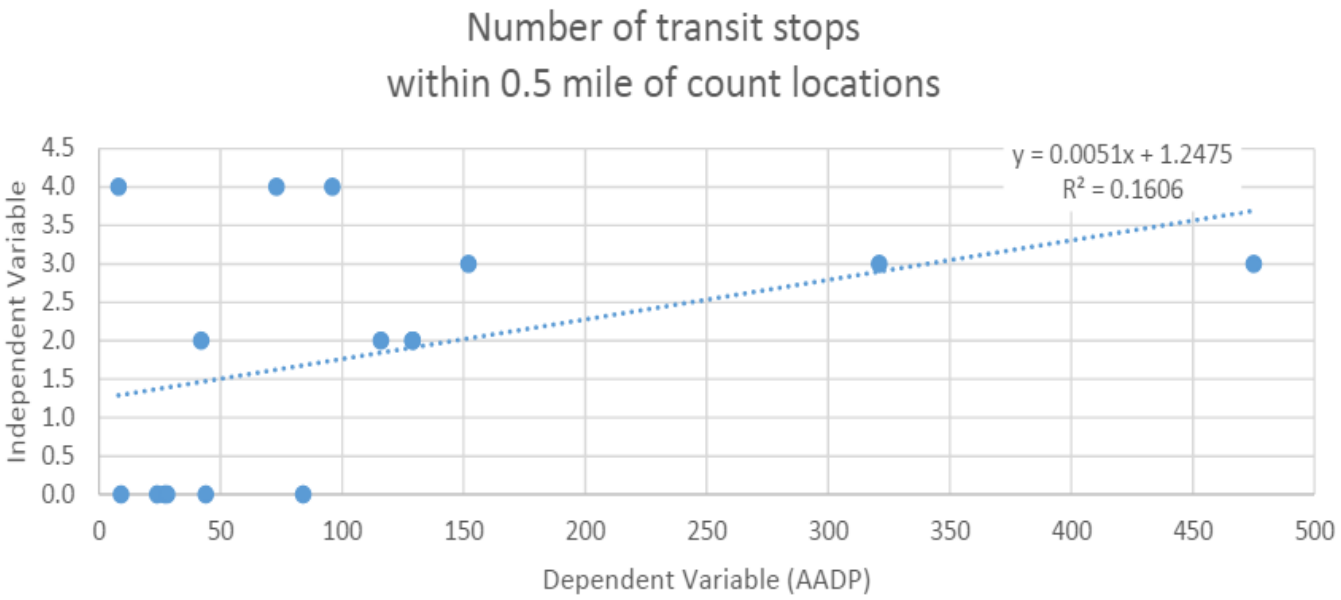
AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

PED DEMAND

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS



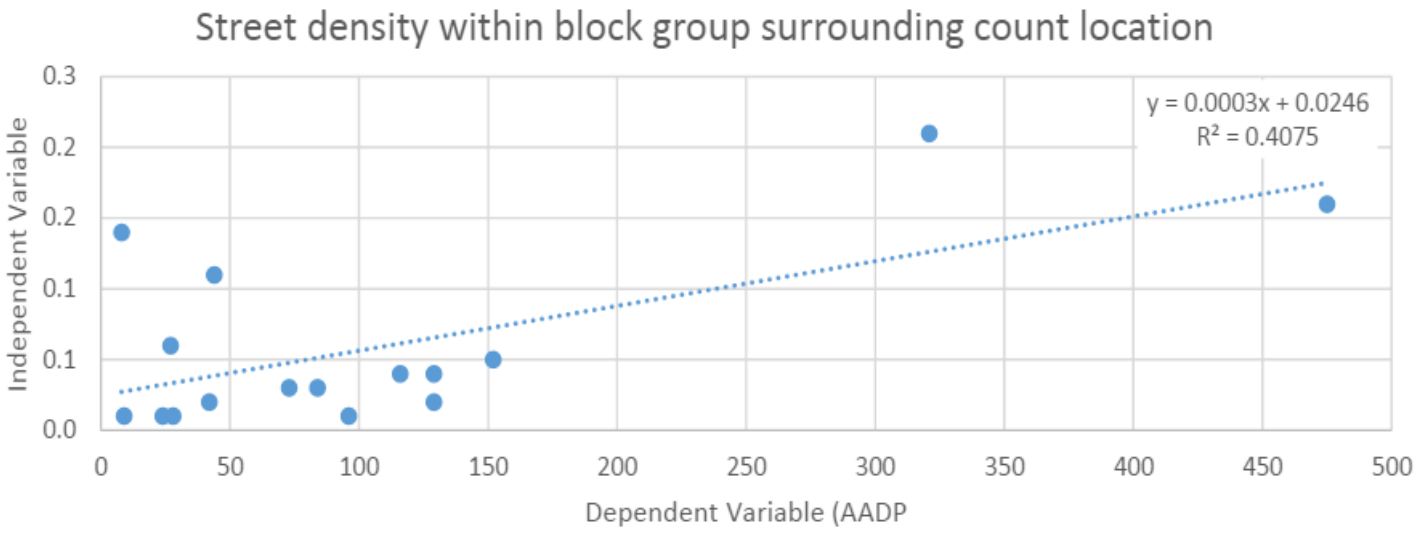
PED DEMAND



AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

PED DEMAND

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS



PED DEMAND

AGENDA
SURVEY
COUNTS
DEMAND
NEXT STEPS

$AADP = -15.4275 - 0.2281\ (HH) + 16.6619\ (POV) + 0.9034\ (POP_{18\text{-}24}) - 1{,}406.8883\ (DEN) - 15.0737\ (TRA)$, where $AADP \geq 0$.

Where:

AADP = Average annual daily pedestrians

HH = Number of households within one-half mile

POV = Number of people living below the poverty level within one-half mile

$POP_{18\text{-}24}$ = Population between 18 and 24 years old within one-half mile

DEN = Density of the street network within the surrounding block group

TRA = Number of transit stops within one-half mile

NEXT STEPS

- **Connectivity Analysis**
  - Origin and Destinations (motor vehicles)
  - Number of activity centers with buffer distance
  - Number of miles of existing facilities
- **Safety Analysis**
  - Absolute collisions within buffer distance
  - Severity of collisions
  - Safety barriers removed
- **Schedule**
  - Share/update demand analysis memo
  - Conduct connectivity and safety analyses
  - ATAC/TAC Meeting in late February

ADJOURN

Contacts

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Hugh Louch, Alta Planning + Design
hughlouch@altaplanning.com

Agenda

PROJECT	EDCTC Active Transportation Connections Study	**ORGANIZER**	Jerry Barton
SUBJECT	Meeting #5: TAC + ATAC	**DATE**	February 28, 2017
VENUE	Cameron Park Community Services District (Social Room), 2502 Country Club Drive, Cameron Park, CA 945682	**TIME**	3:00 – 5:00 PM

Attendees: 12 (including 3 project team members)

Item	Discussion, Responses, & Actions
1. Survey Results	After introductions, Alta Planning + Design shared results of the online survey with the TAC + ATAC, with a particular focus on results related to safety and connectivity. Those in attendance discussed the strengths and weaknesses of the findings, how the findings can be used in grant applications, and how the findings may inform the selection of performance measures. Comments from the TAC + ATAC included: • Because the survey instrument's slider did not allow respondents to select values less than 1 without using the write-in box off to the side, some respondents may have selected a value of 1 when they intended a lower value. Consider aggregating all responses of less than 1 together for questions that included the slider. • Consider adding the full list of survey questions as an appendix to the survey memorandum, including the photographs used in the visual preference survey. • Consider aggregating trip purpose results into two categories: utilitarian trips (work, school, shopping/errands, to transit) and recreational trips
2. Summary of Pedestrian and Bicycle Counts	Alta Planning + Design shared the findings from the pedestrian and bicycle data collection, noting the variety of count locations, facility types, count times, and extrapolation methods.
3. Safety Methods	Alta Planning + Design presented three potential safety performance measures: total collisions, collision severity, and safety barriers. The TAC + ATAC discussed the strengths and weaknesses of each measure and recommended to EDCTC to include safety barriers as the preferred safety performance measures in the final report. The TAC + ATAC selected this measure because of the relatively low number of pedestrian- and bicycle-involved collisions in El Dorado County and because the collision data would need to updated and included in most grant applications anyway. One ATAC member suggested that if total collisions or collision severity were to be used as the preferred performance measure, to consider including all collisions as motor vehicle collisions may be representative of locations that pedestrians and bicyclists may avoid.

Item	Discussion, Responses, & Actions
4. Connectivity Methods	Alta Planning + Design presented three potential connectivity performance measures: activity centers, existing facilities, and origins-destinations. The TAC + ATAC discussed the strengths and weaknesses of each measure and recommended to EDCTC to include origins-destinations as the preferred connectivity performance measures in the final report. Although there was not a strong consensus among the group, the TAC + ATAC selected this measure because of it provided the most nuanced view of where people currently travel within El Dorado County. Recommendations for refinements to the potential connectivity performance measures included: • Expanding the buffer for activity centers to two miles • Including transit stops and stations as activity centers • Including Strava trip data to show how the proposed projects would connect to existing facilities being used by pedestrians and bicyclists.
5. Adjourn	Alta Planning + Design will update the draft safety and connectivity memorandums to include the recommendations from the TAC + ATAC.

EL DORADO COUNTY
ACTIVE TRANSPORTATION
CONNECTIONS STUDY

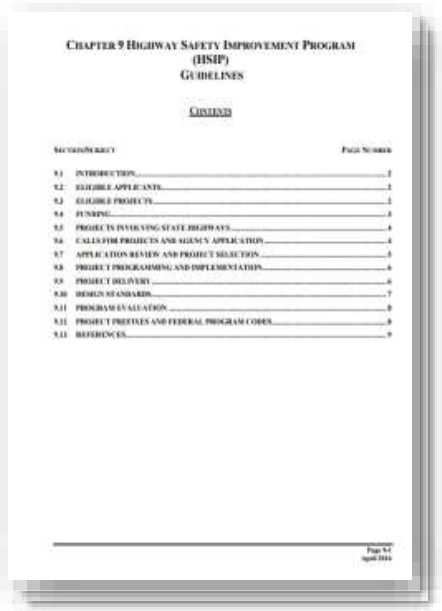
ATAC+ TAC MEETING #6
February 28, 2017

AGENDA

- Grant Criteria
- Performance Measures
- Count Results
- Survey Results
- Safety Options
- Connectivity Options
- Next Steps

GRANT CRITERIA

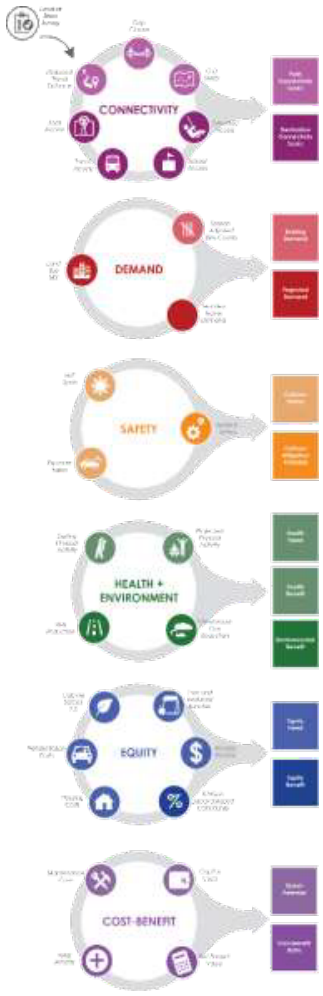
ACTIVE TRANSPORTATION PROGRAM (ATP)



HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

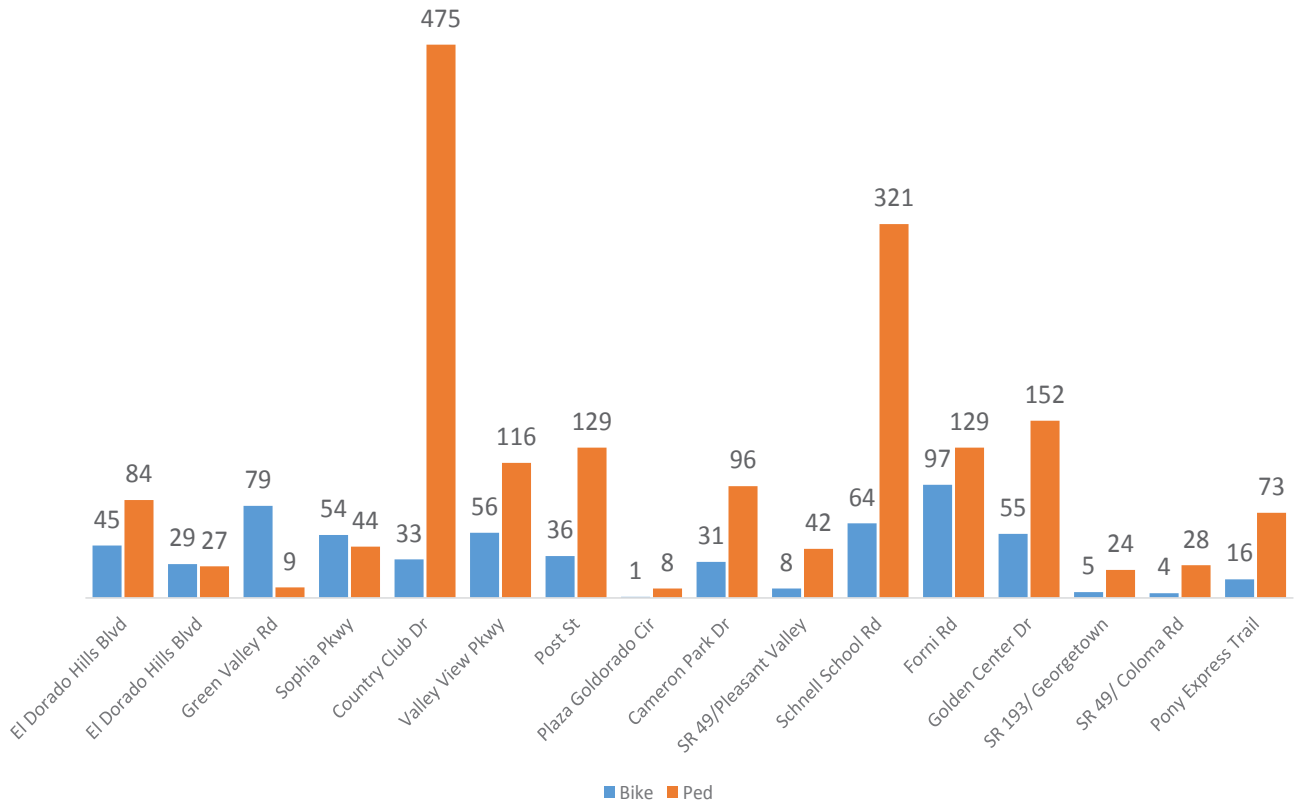
PERFORMANCE MEASURES



Inputs	Goals/Areas	Measures
• Survey	**Connectivity**	• Activity centers • Existing network • Origin-Destination
• Land Use • Counts • Connectivity	**Demand**	• Predicted Use
• Collision data • Survey	**Safety**	• Collisions • Collision severity • Safety barriers
• Demand • Survey	**Health & Environment**	TBD
• Demand • Survey	**Equity**	TBD
• All	**Cost Benefit**	TBD

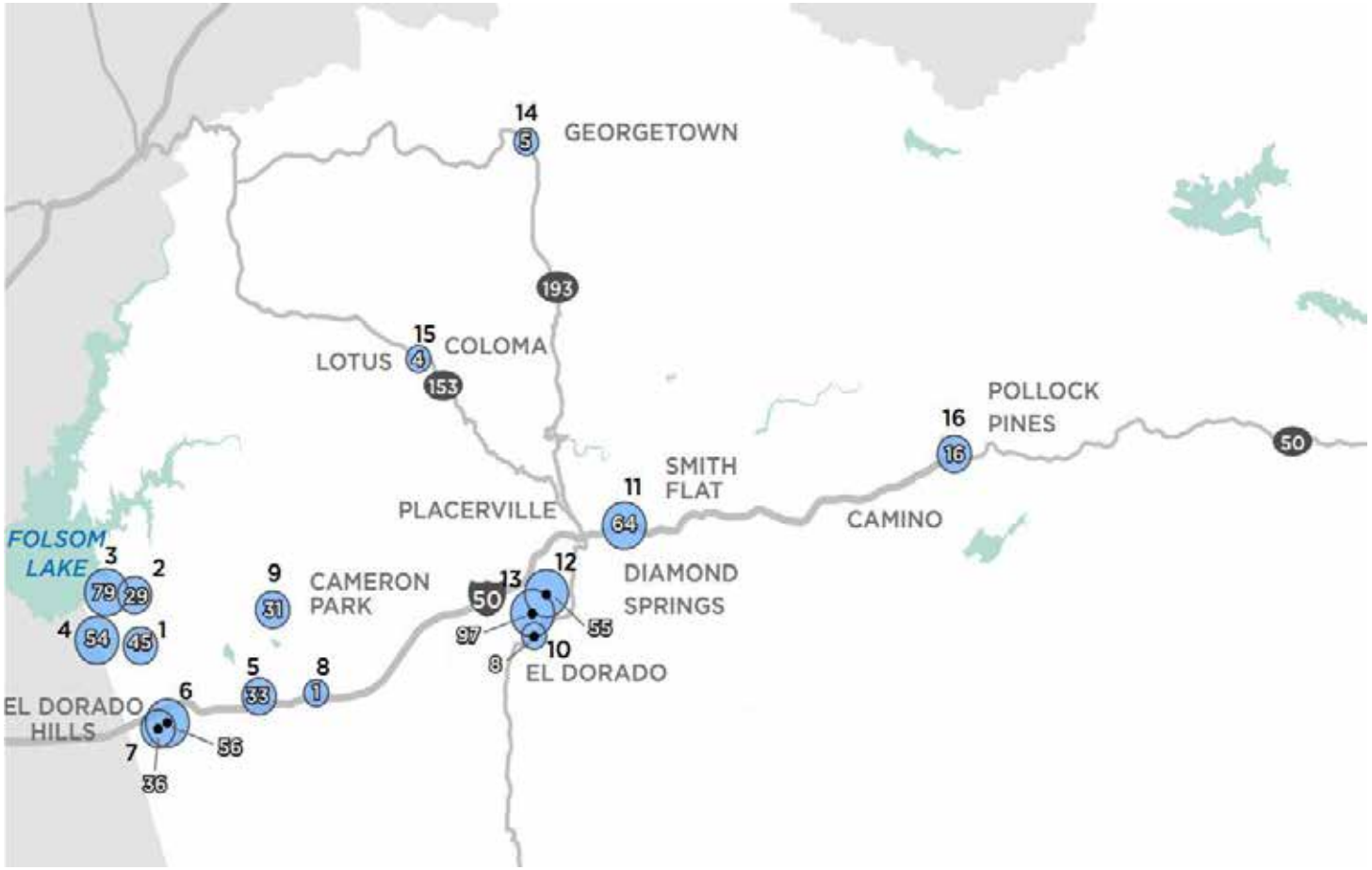
AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

COUNT RESULTS



AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

COUNT RESULTS



AGENDA
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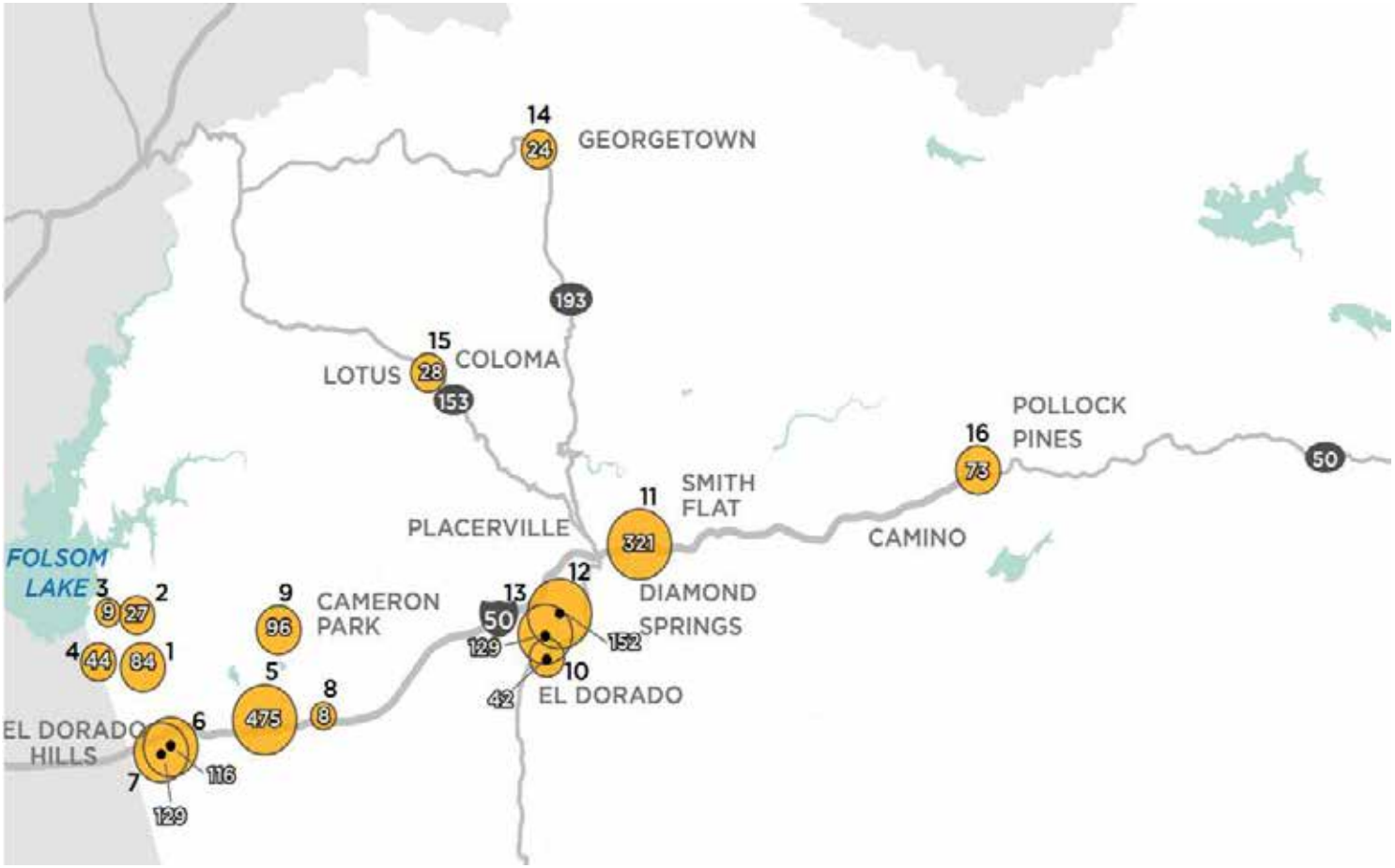
NEXT STEPS

COUNT RESULTS



AGENDA
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NEXT STEPS

SURVEY RESULTS

AGENDA
GRANTS
MEASURES
COUNTS
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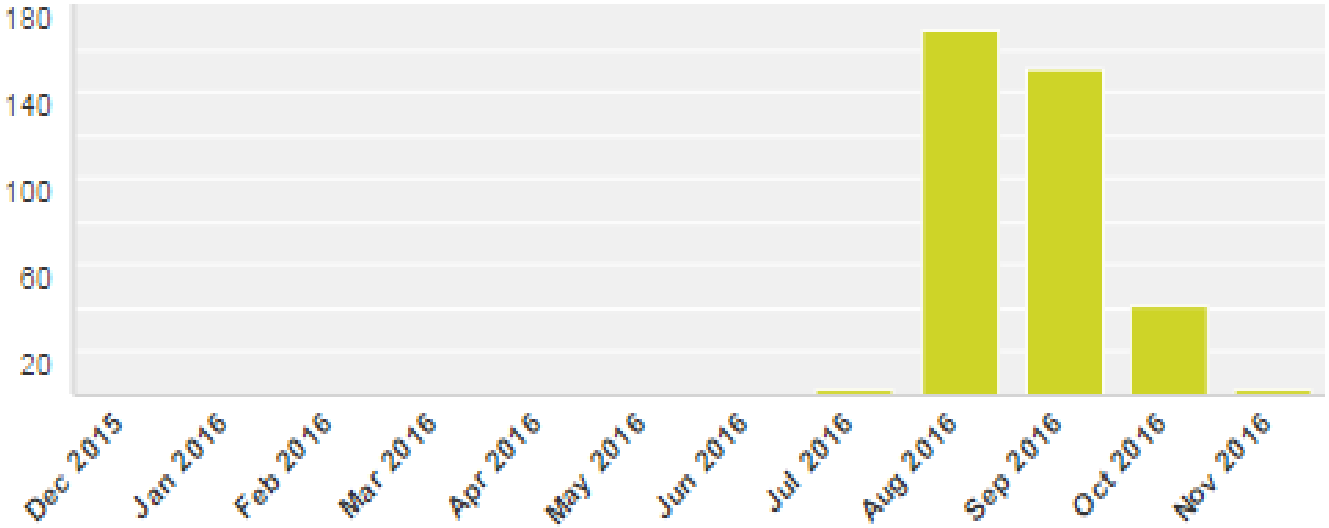
CONNECTIVITY
NEXT STEPS

365 TOTAL RESPONSES

Survey Monkey (online) from August 2, 2016 to November 29, 2016



SURVEY RESULTS

AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
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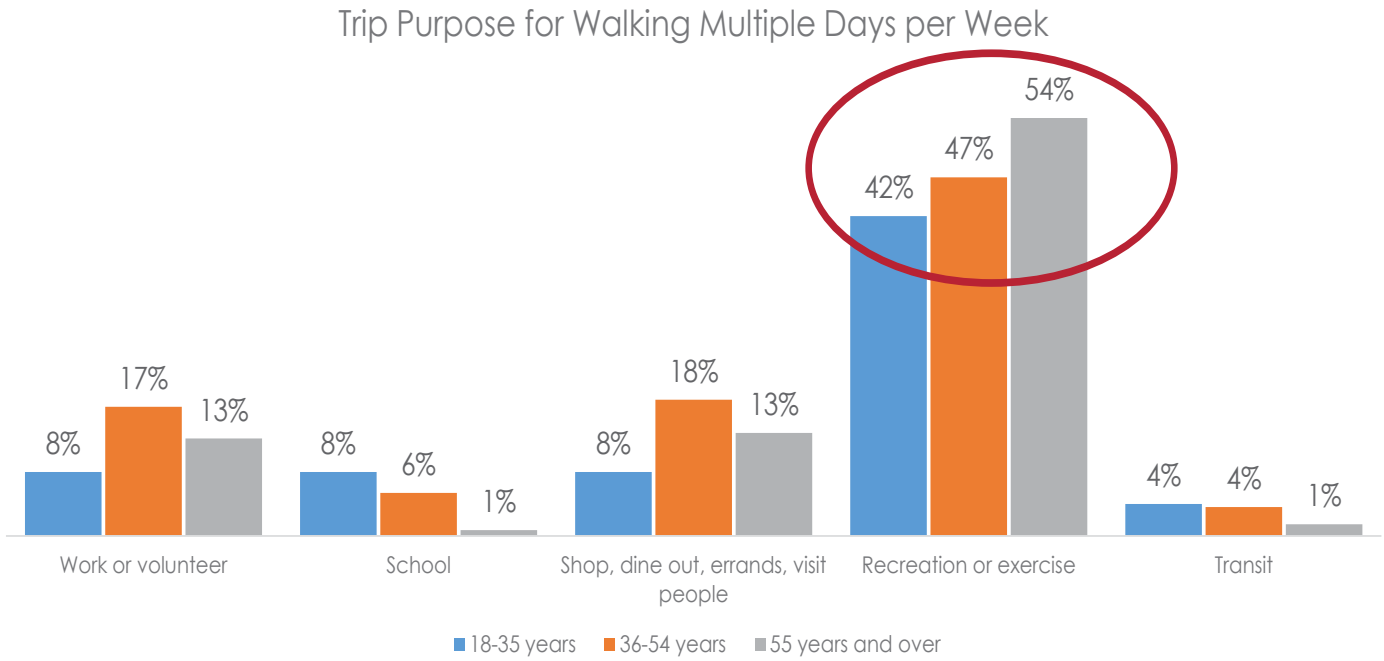
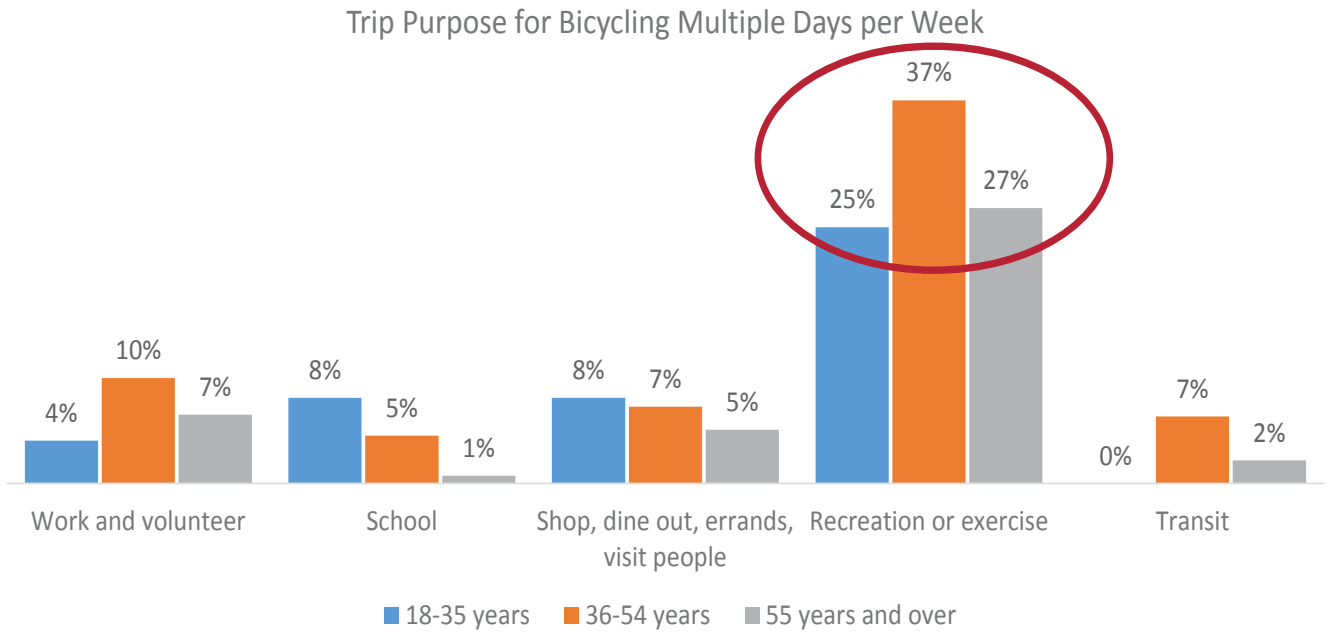
NEXT STEPS

Across all age groups, recreation and exercise were the most common purpose for walking.



Survey Results

Across all age groups, recreation and exercise were also the most common purpose for bicycling, but there is more variation between age groups.



AGENDA
GRANTS
MEASURES
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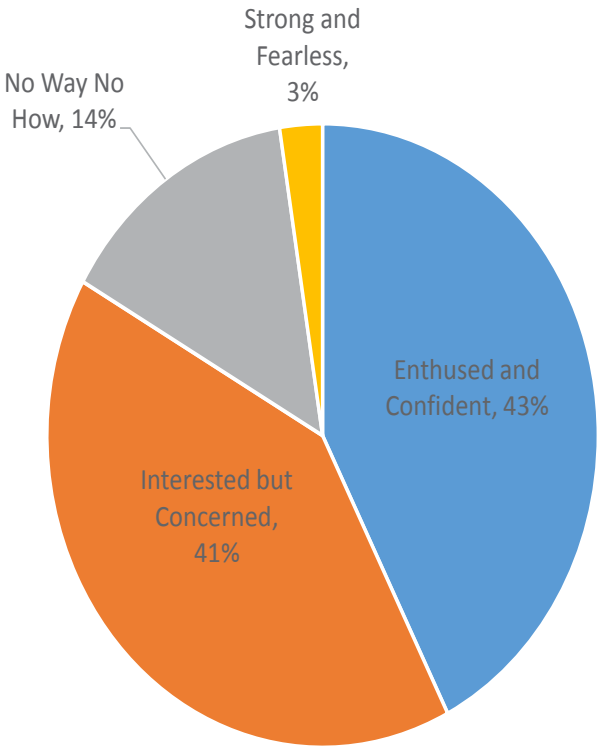
SAFETY
CONNECTIVITY
NEXT STEPS

Survey Results



Strong and Fearless: Comfortable on commercial streets alongside vehicles without a bicycle lane.

Enthused and Confident: Comfortable riding alongside vehicles with a bicycle lane.

Interested but Concerned: Not comfortable riding alongside vehicles, but comfortable on a paved path or interested in traveling by bicycle more.

No Way No How: Uncomfortable with bicycling, even on a paved path. Not interested in changing

AGENDA
GRANTS
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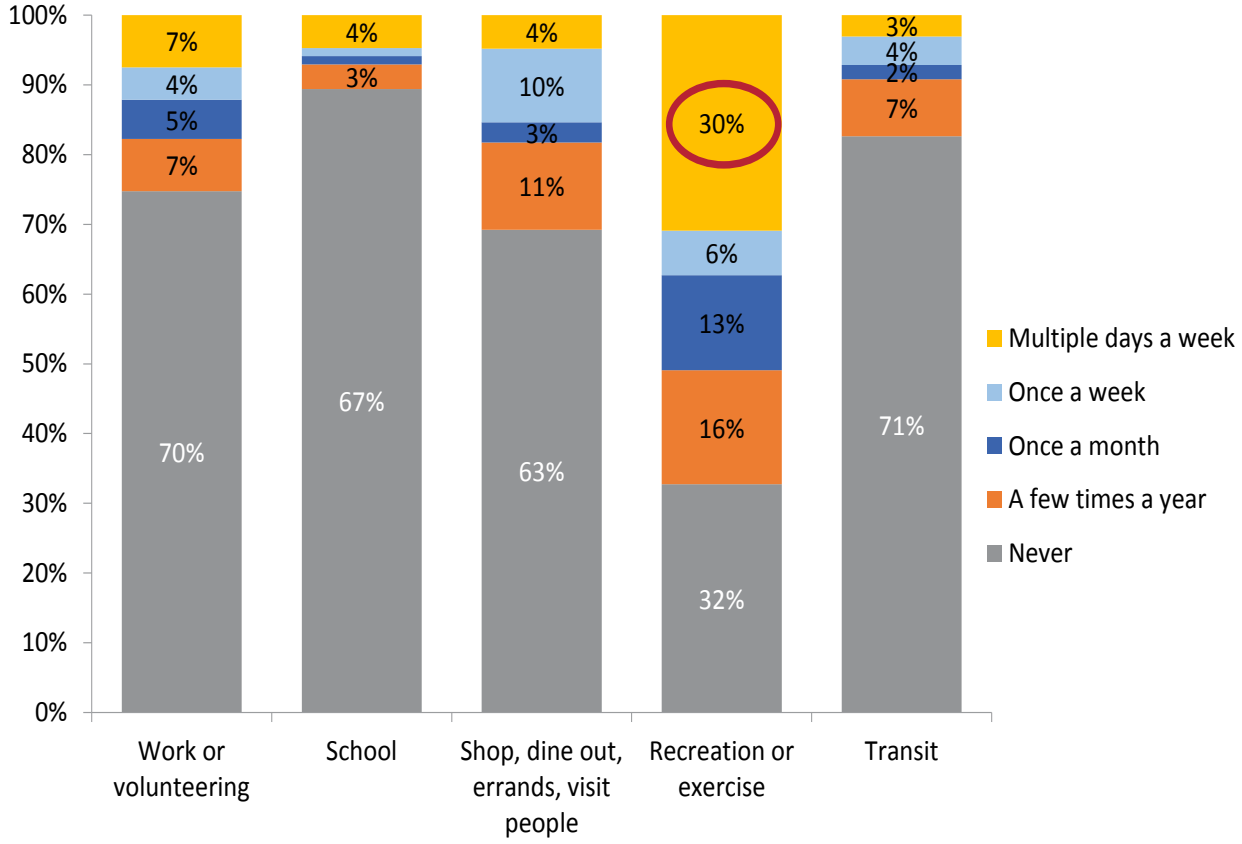
CONNECTIVITY
NEXT STEPS

SURVEY RESULTS

30 percent of "Interested but Concerned" bicyclists ride for recreation or exercise multiple days a week. About 7 percent or less bicycle for utilitarian purposes (work, school, transit) multiple days a week.



AGENDA
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COUNTS
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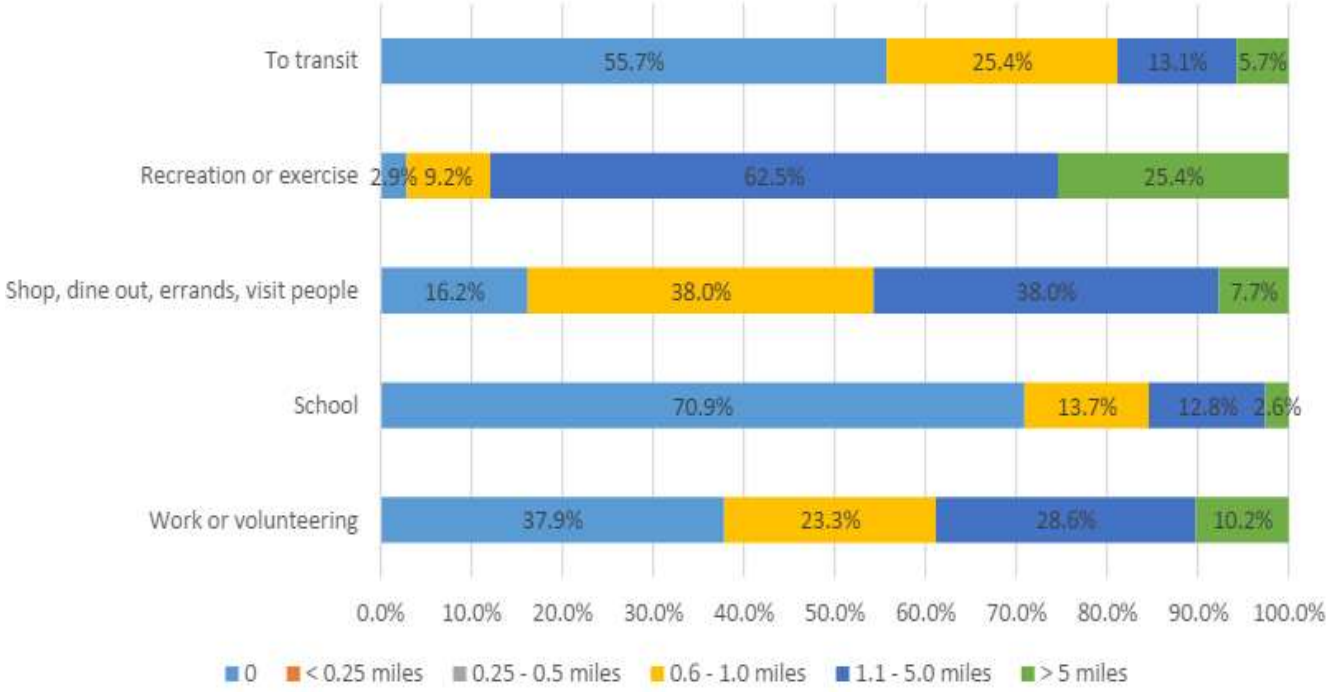
CONNECTIVITY
NEXT STEPS

SURVEY RESULTS

AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

Figure 2: Average Walk Trip Distance by Trip Purpose



SURVEY RESULTS

AGENDA
GRANTS
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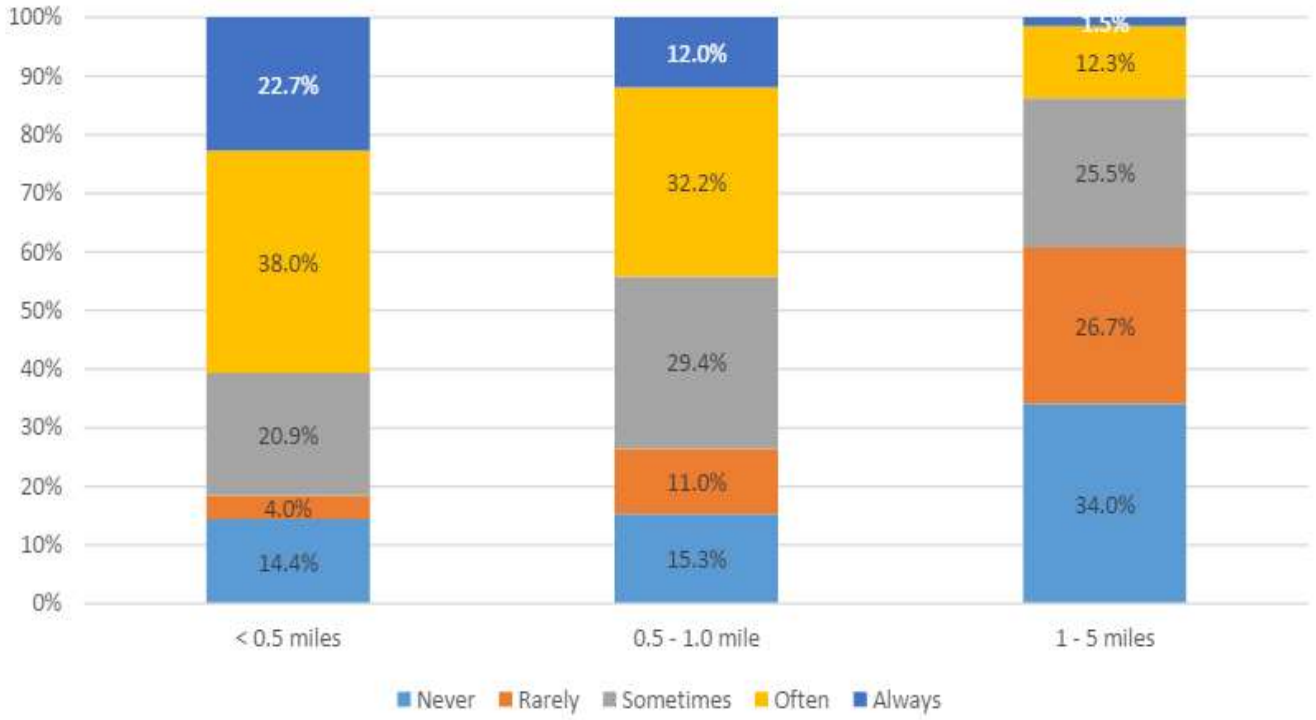
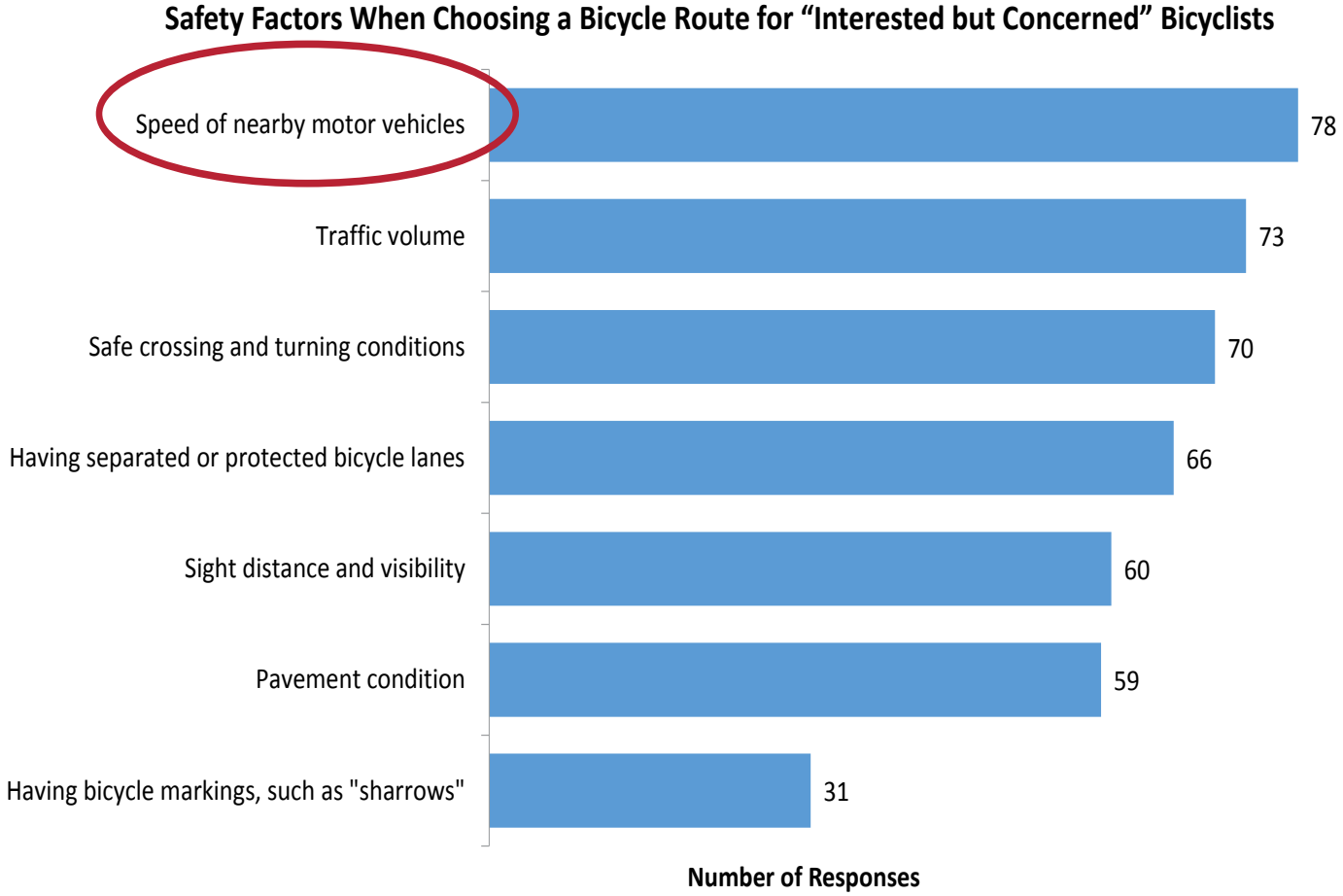
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

Figure 3: Willingness to Walk by Distance of Trip



SURVEY RESULTS



AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

SAFETY OPTIONS

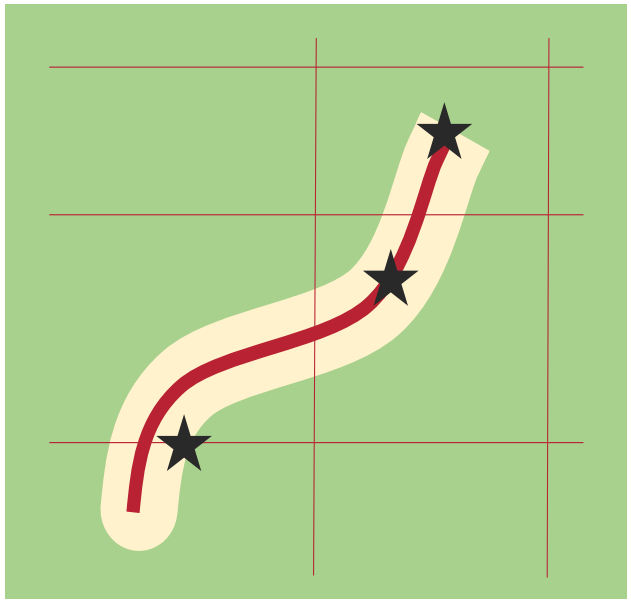
TOTAL COLLISIONS

COLLISION SEVERITY

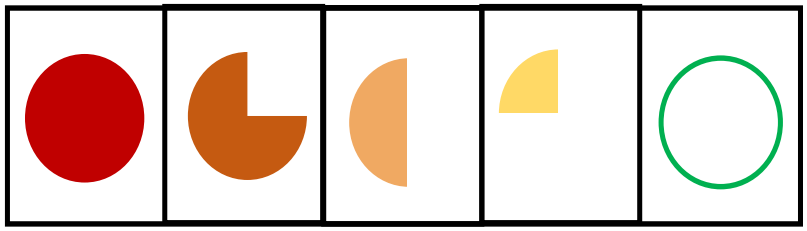
SAFETY BARRIERS

AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

SAFETY OPTIONS



TOTAL COLLISIONS



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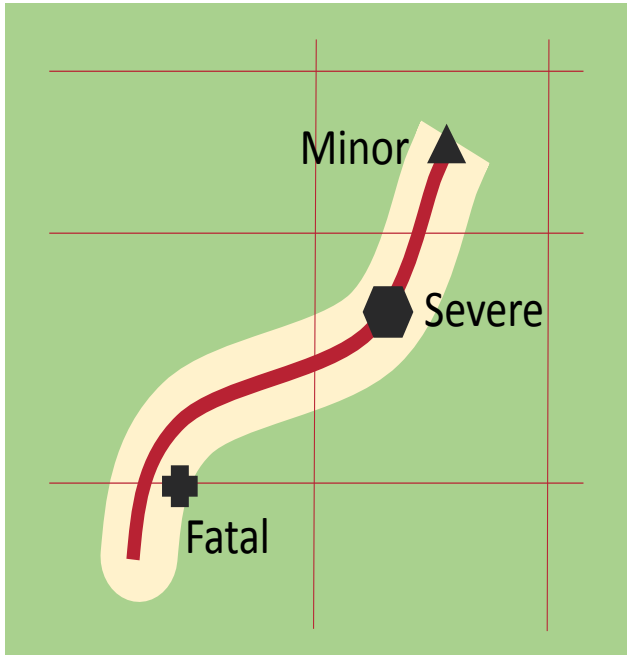
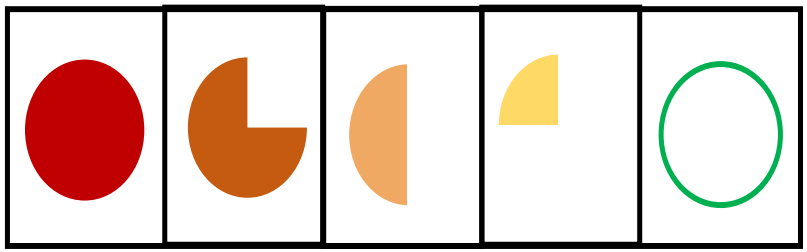
AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

SAFETY OPTIONS



COLLISION SEVERITY



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AGENDA
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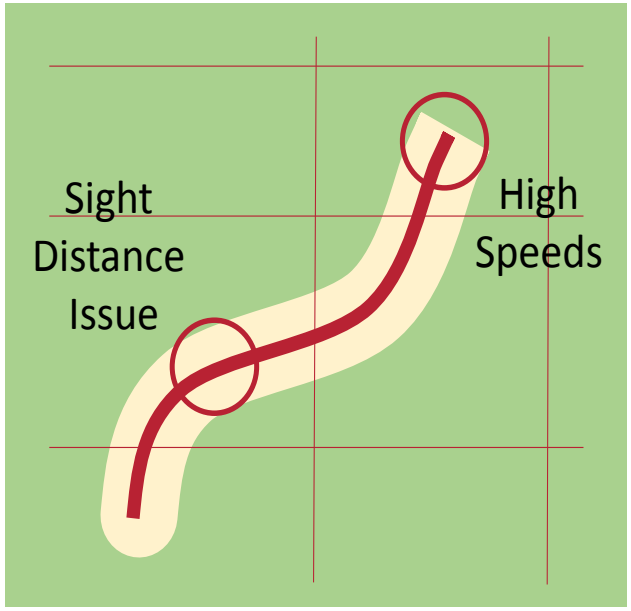
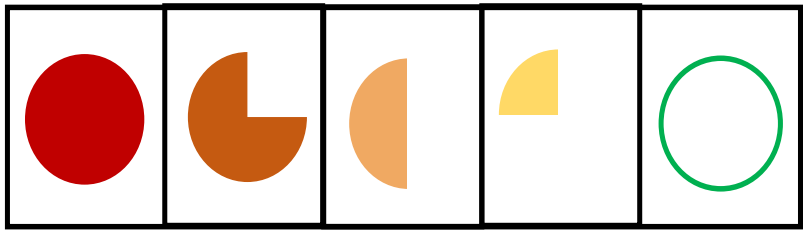
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

SAFETY OPTIONS



SAFETY BARRIERS



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AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

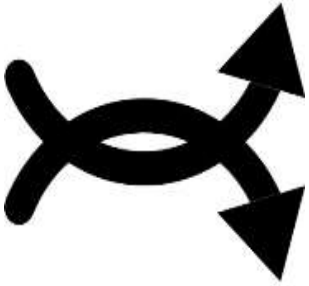
SAFETY OPTIONS

	 TOTAL COLLISIONS	 COLLISION SEVERITY	 SAFETY BARRIERS
+	• Intuitive • Directly relevant • Easy data • Easy calc.	• Intuitive • Directly relevant • Easy data • Easy calc. • Magnitude	• Directly relevant • Easy calc. • Magnitude • Applicable to rural areas
-	• Not great in rural areas • Reactive	• Not great in rural areas • Reactive	• Time intensive • Subjective

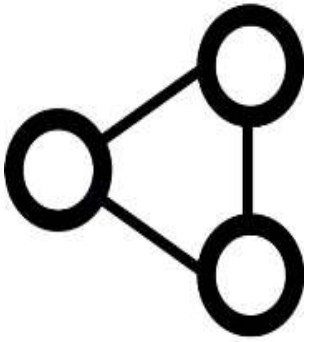
AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

CONNECTIVITY OPTIONS

ACTIVITY CENTERS



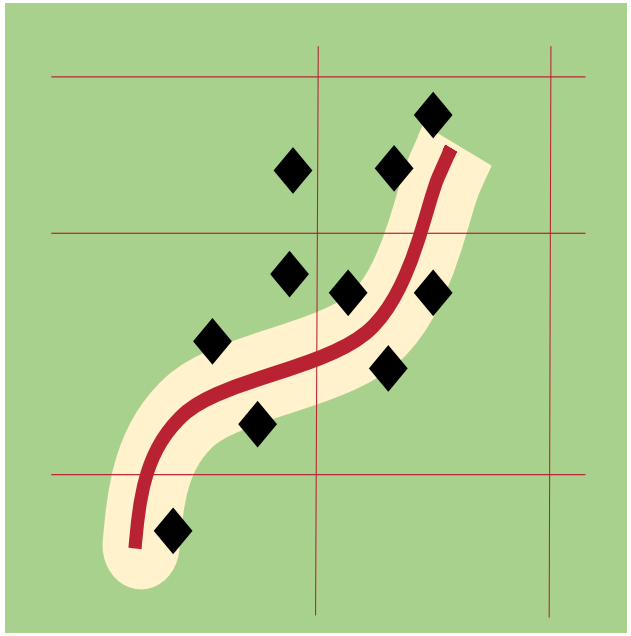
EXISTING FACILITIES



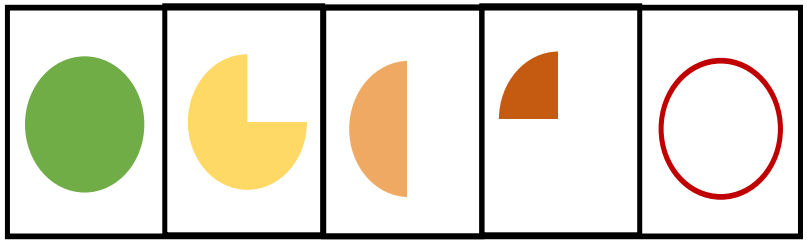
ORIGINS-DESTINATIONS

AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

CONNECTIVITY OPTIONS



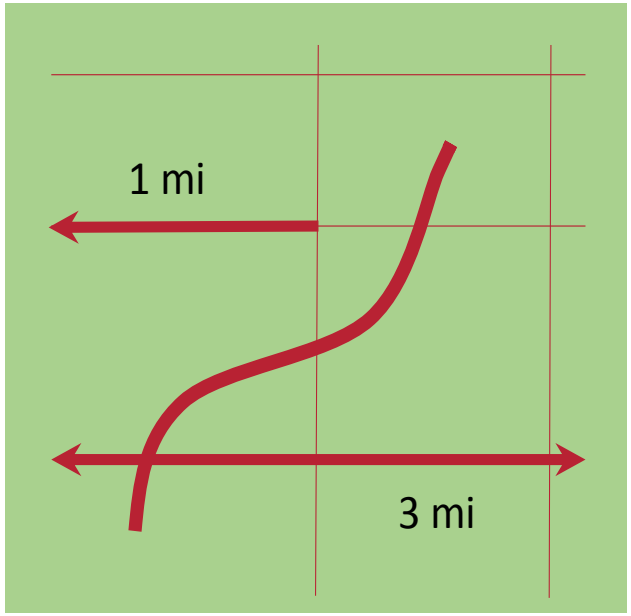
ACTIVITY CENTERS

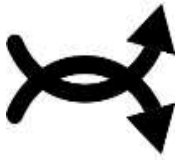


41+ 31-40 21-30 11-20 0-10

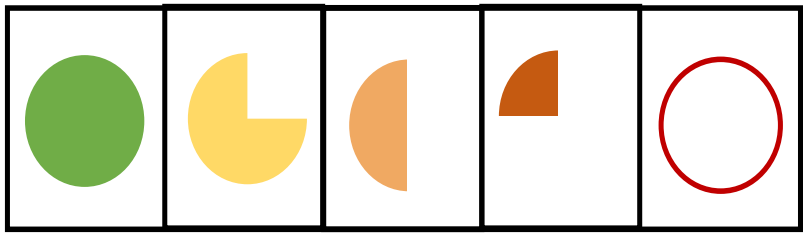
AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

CONNECTIVITY OPTIONS





MILES OF EXISTING FACILITIES



AGENDA
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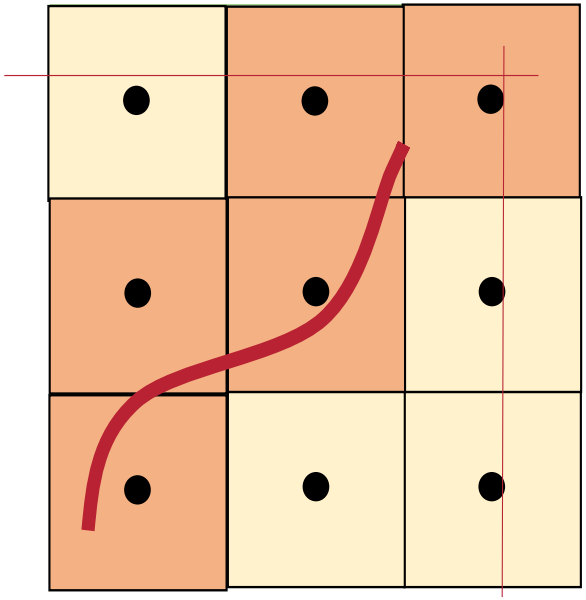
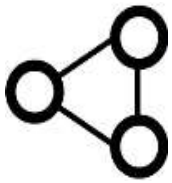
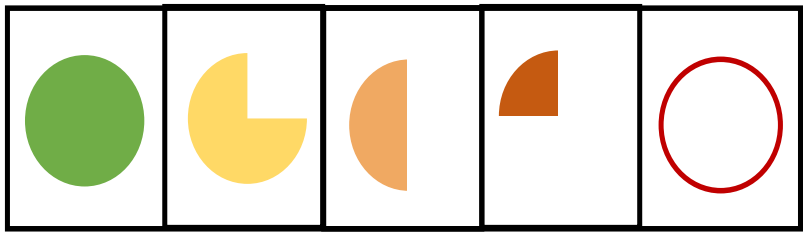
CONNECTIVITY
NEXT STEPS

CONNECTIVITY OPTIONS





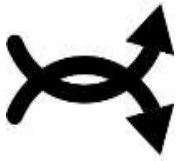
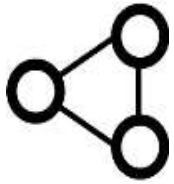
ORIGINS-DESTINATIONS



20k+ 15-20k 10-15k 5-10k 0-5k

AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

CONNECTIVITY OPTIONS

	 ACTIVITY CENTERS	 EXISTING FACILITIES	 ORIGINS-DESTINATIONS
+	• Intuitive • Directly relevant • Easy data • Easy calc.	• Intuitive • Easy calc. • Highlights small projects with big impact	• Easy data • Good distribution • Answers the "right" question
-	• Does not highlight small projects with big impacts	• Not directly relevant • Needs ped. data • Less applicable to areas without a strong network	• Not as intuitive • Requires "expert" to calculate

AGENDA
GRANTS
MEASURES
COUNTS
SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

NEXT STEPS

- Finalize Safety Memo & Share
- Finalize Connectivity Memo & Share
- Demand Analysis
- Health Analysis
- Environmental Analysis

AGENDA
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SURVEY
SAFETY
CONNECTIVITY
NEXT STEPS

APPENDIX M: STUDY COMMENT LOG

EDCTC Active Transportation Connections Study **Agenda Item 4B**
Comment Log

Last 7/13/2017

No.	Source	Date Received	Comment	Alta Action	EDCTC Note
1	M. Bean	7/10/2017	Verify the supervisorial district(s) for Project #30: Country Club Drive (Phase 1) from Cambridge Rd to Cameron Park Dr.	Please advise. Verified the project is primarily located in District 2, except for the intersection of Country Club Rd at Cameron Park Dr which straddles District 2 and District 4.	No action. Project straddles two districts.
2	M. Bean	7/10/2017	Verify the supervisorial district(s) for Project #32: Cambridge Rd from Country Club Dr to Green Valley Rd.	Please advise. Verified the project is primarily located in District 2, except for the intersection of Cambridge Rd at Green Valley Rd which straddles District 2 and District 4.	No action. Project straddles two districts.
3	M. Bean	7/10/2017	Project #43: Lotus Rd from Green Valley Rd to State Route 49 and Project #40: Meder Rd (Phase 2) from Paloran Ct to Ponderosa Rd "has opportunity for two foot shoulders at much lower cost, often filling gaps where unpaved shoulders exist. Priority should be Bassi Rd to Hwy 49 given campgrounds/raft outfitters/businesses and Hennigsen Lotus Park. Even there two foot shoulder would be a huge improvement."	No action. Comments documented for consideration in future update of County Bicycle Plan.	-
4	M. Bean	7/10/2017	Project #39: Green Valley Rd from Cameron Park Dr to Lotus Rd "is border of districts 4 and 2 which is fine. Highest priority portion of this segment for me is Deer Valley Rd (East) to Lotus Rd."	No action. Comments documented for consideration in future update of County Bicycle Plan.	-
5	M. Bean	7/10/2017	Verify the supervisorial district(s) for Project #29: Cameron Park Dr from Durock Rd to State Route 50.	Please advise. Map shows project extents as Cameron Park Dr from State Route 50 to Green Valley Rd which straddles District 2 and District 4.	Update map to show Cameron Park Dr from Durock Rd to State Route 50 as described in the prioritization tool.
6	N. Porter, D. Keeler	7/10/2017	"It would be helpful to have a table of contents and a list of the attached memos."	No action. Page 1 contains a Table of Contents with links and Page 23 contains a list of Appendices with links.	-
7	N. Porter, D. Keeler	7/10/2017	"Check the pagination. There are multiple locations with blank pages, and a few locations were [sic] tables were split between pages."	Deleted unintentional blank pages in Appendix A pages 15, 18, and 31.	-
8	N. Porter, D. Keeler	7/10/2017	"The numbering of tables was not consistent throughout the document."	Not intended as a single document but rather a summary report with attached appendices and, therefore, each appendix may have a format that meets its unique needs. Added cover page at start of each appendix to help differentiate appendices from one another. Made the following corrections to figure and table numbering: Appendix A (changed Figure 4 to Figure 7).	-
9	N. Porter, D. Keeler	7/10/2017	"If a table is split between two or more pages, the title should be repeated on the additional pages with a notation that this is a continuation of the table. Not all have repeated titles."	No action. Issue addressed in previous iteration of the draft.	-

No.	Source	Date Received	Comment	Alta Action	EDCTC Note
10	N. Porter, D. Keeler	7/10/2017	"Adjust the column widths, alignment of text or font size to avoid having a single word being split onto two lines, or the percentage symbol being placed on the line below the number."	Please advise. Available options are to reduce font size, break into multiple tables, change page size, or allow to break onto two lines.	No action.
11	N. Porter, D. Keeler	7/10/2017	"Will there be a hard copy version of the report? Multiple links in the electronic document will not translate into a printed version."	Please advise on preferred final format.	For print, add in intentional blank pages so that new appendices all start on even page, allowing for tabs in binder.
12	N. Porter, D. Keeler	7/10/2017	"On some of the tables with survey results, it would be interesting to compare with state or national data. Are the responses similar on a national level?"	No action. Responses comparable to '4 Types of Cyclists results identified in California State Bicycle and Pedestrian Plan (http://www.cabikepedplan.org/), Berkeley Bicycle Plan (http://www.bikeberkeley.com/), and others.	-
13	N. Porter, D. Keeler	7/10/2017	"Page 5, suggest removing the word 'volunteering' at the beginning of the last paragraph and replace with 'volunteer activities.'"	No action. Unable to locate the word "volunteering" on Page 5 or the main document. Appendix A on the survey results contains references to volunteering and suggest keeping the wording as it best reflects how the questions were worded in the survey.	-
14	N. Porter, D. Keeler	7/10/2017	"Page 13, in text after the bullet points states that 375 responses were received for the online survey. The rest of the document references 365 responses."	Updated Page 13 to state "365 responses".	-
15	N. Porter, D. Keeler	7/10/2017	"Survey Results Memorandum, Appendix A, page 13, table for Question 3 is split between pages 13 and 14."	No action. Table showing responses to Question 3 is on Page 13 and narrative summary of responses takes place on Page 14.	-
16	N. Porter, D. Keeler	7/10/2017	"Survey Results Memorandum, Appendix A, page 32, El Dorado Hills in not a city."	Updated from "biggest city" to "most populated community"	-
17	N. Porter, D. Keeler	7/10/2017	"Bicycle and Pedestrian Count Data Memorandum, page 9, second paragraph, should the final sentence be with no existing facilities?"	Updated as suggested.	-
18	N. Porter, D. Keeler	7/10/2017	"Health Analysis Memorandum, page 2, first paragraph under 'Discussion', mental health issues is listed as one of the four approaches to the development of a health-based performance measure but in the second sentence it is listed as one that made it hard to distinguish between proposed projects."	No action. Typo removed in previous draft iteration.	-
19	N. Porter, D. Keeler	7/10/2017	"Health Analysis Memorandum, page 3, third paragraph, missing the word “than” in the fourth sentence."	No action. Typo removed in previous draft iteration.	-
20	N. Porter, D. Keeler	7/10/2017	"Health Analysis Memorandum, page 7, Table 1, it is unclear what the numbers in the table mean. Please provide a brief explanation of what “application of the measure to proposed Class I projects” means. It would be helpful to label if the numbers are percentages or something else. This is applicable to Table 2 as well."	Updated as suggested.	-

No.	Source	Date Received	Comment	Alta Action	EDCTC Note
21	N. Porter, D. Keeler	7/10/2017	"Environmental Analysis Memorandum, page 8, should this be Table 1? Environmental Analysis Memorandum, page 9, should this be Table 2?	No action. Tables 1 and 2 on Page 4 of the Environmental Analysis memo preceed Table 3 on Page 8.	-
22	N. Porter, D. Keeler	7/10/2017	"Environmental Analysis Memorandum, page 8, what does the number under Ozone burden mean? Maybe footnote or expand the title of the column."	Updated column header to "Relative Ozone Burden (percentile)".	-
23	N. Porter, D. Keeler	7/10/2017	"Demand Analysis Memorandum, page 2, there is a reference to the Bicycle and Pedestrian Count Data Memorandum, as this is now part of the report should you cite a page number or location in the report?"	Added reference to Appendix B.	-
24	N. Porter, D. Keeler	7/10/2017	"Demand Analysis Memorandum, page 11, was there a statistical way that the 'simplified output' categories were determined? Demand Analysis Memorandum, page 21, same question regarding the "simplified output" as for the pedestrian table."	Added note to columns labeled "Simplified Output" for Table 3 and Table 5 that states: "* 'Low' represents minimum to 25th percentile of estimated number of pedestrians/bicyclists, 'Mid' represents 26th percentile to 50th percentile of estimated number of pedestrians/bicyclists, and 'High' represents 51st percentile to max number of pedestrians/bicyclists."	-
25	N. Porter, D. Keeler	7/10/2017	"Demand Analysis Memorandum, page 11, it doesn't seem correct to assume 0 pedestrians on Harvard Way between El Dorado Hills Blvd and Silva Valley Parkway as Oak Ridge High School, the El Dorado Hills CSD and Rolling Hills Middle School either front along Harvard Way or directly load onto the roadway. Similar note for Marshall Way and Cedar Ravine Road and Francisco Drive between Green Valley Rd and El Dorado Hills Blvd. Suggest re-looking at the locations with estimated low or zero number of pedestrians. Demand Analysis Memorandum, page 21, multiple projects on this table show a value of 0, these do not seem correct and suggest re-examining the projections. Demand Analysis Memorandum, page 22, there is an additional project with a value of 0 that should be re-examined."	No action. There is a margin of error of +/- 118 pedestrians and +/- 18 bicyclists. This margin may be reduced and the respective models may be improved with the collection of additional count data.	-
26	N. Porter, D. Keeler	7/10/2017	"Demand Analysis Memorandum, page 12, it seems highly unlikely that the largest pedestrian demand is on Cambridge Road."	No action. Pedestrian demand estimates based on best available data. The model may be improved and the results may change with the incorporation of additional pedestrian count data and count locations.	-
27	N. Porter, D. Keeler	7/10/2017	"Demand Analysis Memorandum, page 18, the residual value for the #17 is incorrect."	Updated residual value for Project #17: El Dorado Trail at Missouri Flat Rd from "7" to "6".	-
28	N. Porter, D. Keeler	7/10/2017	Demand Analysis memo, Page 22: List of bicyclist demand estimates unintentionally cuts off at Project #47 and does not list estimates for Project #48 through Project #89.	No action. Error removed in previous draft iteration.	-
29	N. Porter, D. Keeler	7/10/2017	"Connectivity Analysis Memorandum, page 1, update the date as this has been changed from the previous April 4, 2017 version."	Updated all edited memo dates.	-
30	N. Porter, D. Keeler	7/10/2017	"Connectivity Analysis Memorandum, page 5, under Proposed Class II Projects, where is the 8.37 mile bikeway that all these projects connect to?"	No action. The 8.37 miles of existing bikeways to which projects #15, #18, #23, #27, and #47 connect are multiple bikeways and not a single bikeway.	-

No.	Source	Date Received	Comment	Alta Action	EDCTC Note
31	N. Porter, D. Keeler	7/10/2017	"Connectivity Analysis Memorandum, page 6, under Proposed Class II Projects, second sentence, change Class I to Class II."	Updated as suggested.	-
32	N. Porter, D. Keeler	7/10/2017	"Safety Analysis Memorandum, page 5, last line is an incomplete sentence."	No action. Typo removed in previous draft iteration.	-
33	N. Porter, D. Keeler	7/10/2017	"Safety Analysis Memorandum, page 30, Safety Barriers Removed implies you are removing things that provide safety. The previous title seemed more appropriate for the subject matter. Also, where are the numerical values for the x axis of Figure 5?"	No action. "Safety Barriers Removed" was determined as the preferred terminology based on advisory committee comments. The x-axis numbering was also removed based on advisory committee comments and replaced with numbers above the individual bars.	-
34	N. Porter, D. Keeler	7/10/2017	"Equity Analysis Memorandum, Table 1 and 2 column headers, please indicate what the metric is for the free/reduced lunch and the no access to motor vehicles, i.e., % of population or % of children for free lunch."	Modified Table 1 header of Equity Analysis memo to read "% Students Free/ Reduced Lunch" and "% Households No Access to Motor Vehicles".	-
35	N. Porter, D. Keeler	7/10/2017	"Cost Effectiveness Analysis Memorandum, Table 1, page 3, please cite reference materials with the backup for these costs."	Updated as suggested.	-
36	N. Porter, D. Keeler	7/10/2017	"Cost Effectiveness Analysis Memorandum, Table 2, page 5, the Highway 50 crossing cost estimate is too low – this is a structure over a wide highway not a pathway. "	Updated Table 2 of the Cost Effectiveness memo to show an estimated captial cost of $10 million for Project #5: Highway 50 Crossing from El Dorado Hills Village Shopping Center to El Dorarod Hills Town Center as documented in the prioritization tool.	-
37	N. Porter, D. Keeler	7/10/2017	"Cost Effectiveness Analysis Memorandum, Table 3, page 6 and 7, a spot check of lengths of segments in the table reveal errors. Harvard Way between El Dorado Hills Blvd. and Silva Valley Parkway is approximately half a mile long, but the length is listed as 8.27 miles. El Dorado Hills Blvd. between Governor Dr./St. Andrews and Green Valley Road is closer to 2 miles in length but is listed as 6.76 miles long. The Meder Road segment also does not seem to be correct. Please double check the lengths used as this would affect the benefit-cost ratio."	Corrected copy and paste error.	-
38	L. Price	7/10/2017	"A strong case can be made for active transportation projects without resorting to exaggeration. Add a section to the report with recommendations for building on the results of this study, for example: (recommended edits) This study provides a starting point for prioritizing future adopted active transportation projects in relation to various funding opportunities. Because the currently adopted projects focus on bicycling infrastructure, this plan has emphasized bicycling over walking, so that it will be immediately applicable to the already adopted projects. The TAZs (Transportation Analysis Zones) provide a basic framework for analysis to which can be supplemented with more detailed information. To appropriately prioritize pedestrian projects additional focus on pedestrians will be needed which should include:	No action. The Active Transportation Connections has not emphasized bicycling over walking. It has outlined a method for evaluating pedestrian-only projects into future iterations of the analysis and clearly states that once a pedestrian plan or pedestrian-only projects are adopted by El Dorado County or local municipalities, those adopted projects should be incorporated into the analysis.	-

No.	Source	Date Received	Comment	Alta Action	EDCTC Note
39	L. Price	7/10/2017	"·A pedestrian focused survey with pedestrian scale distances, and questions with photos of various pedestrian facilities for survey respondents to rate, and questions about where people walk or want to walk to meet their transportation needs.	No action. In the event of a future survey, selection of survey format that incorporates these elements will be considered.	-
40	L. Price	7/10/2017	"·Outreach to users of local transit to more fully address first mile/last mile needs of transit users.	No action. This comment is documented for consideration for inclusion in a future update of the County's bicycle plan or the creation of a County pedestrian plan.	-
41	L. Price	7/10/2017	"·A study of pedestrian access to transit, which includes pedestrian counts in relation to transit stops with the times and locations selected in relation to transit boarding data and service times.	No action. This comment is documented for consideration for inclusion in a future update of the County's bicycle plan or the creation of a County pedestrian plan.	-
42	L. Price	7/10/2017	"·Survey questions framed by travel time rather than by distance since people usually know how much time their trip takes, but their estimate of distance may be unreliable. The distances derived from typical walking rates may be more accurate.	No action. This comment is documented for consideration for inclusion in a future update of the County's bicycle plan or the creation of a County pedestrian plan.	-
43	L. Price	7/10/2017	"·Specific outreach to lower income groups who were under-represented in the survey responses.	No action. This comment is documented for consideration for inclusion in a future update of the County's bicycle plan or the creation of a County pedestrian plan.	-
44	L. Price	7/10/2017	"·Mapping and analysis of pedestrian and bicycling routes from origins to destinations to build on the analysis provided at the TAZ (Transportation Analysis Zone) level.	No action. This comment is documented for consideration for inclusion in a future update of the County's bicycle plan or the creation of a County pedestrian plan.	-
45	L. Price	7/10/2017	"·Additional break down of age categories for ages beyond 55 due to El Dorado County's high percentage of seniors.	No action. This comment is documented for consideration for inclusion in a future update of the County's bicycle plan or the creation of a County pedestrian plan.	-
46	L. Price	7/10/2017	"·Expand the information on cost-effectiveness to include more pedestrian facilities such sidewalks, marked crosswalks, signal timing, pedestrian and senior signage, and traffic control devices.	No action. The UNC Highway Safety Research Center's Costs for Pedestrian and Bicyclist Infrastructure Improvements (2013) linked in the Cost-Effectiveness memo was included because it provides a resource for future pedestrian facility capital cost estimates.	-
47	L. Price	7/10/2017	"·Add the option of reducing motor vehicle speed as an option for improving walking and bicycling.	No action. "High traffic speed" is listed as a potential safety barrier in the Safety Analysis memo.	-
48	L. Price	7/10/2017	"·Add information from California Department of Public Health's upcoming report of pedestrian and bicyclist injuries based on hospital and emergency room data."	No action. The inclusion of the anticipated report will be documented for consideration in future iterations of the analysis.	-
49	L. Price	7/10/2017	Page 2: Remove "proposed" from the first sentence.	No action. The intention of including the word "proposed" is to emphasis that projects being evaluated are not finalized and are subject to change.	-

No.	Source	Date Received	Comment	Alta Action	EDCTC Note
50	L. Price	7/10/2017	Page 13: "The online survey received 375 responses between August 2, 2016 and November 29, 2016 and was advertised through a project specific webpage, the County's website, and email blasts to interested groups" List the groups!	Please advise.	Groups and stakeholders connected or associated with the diverse members of the active transportation connections study advisory committee (refer to list of stakeholders).
51	L. Price	7/10/2017	Page 13: Modify sentence to read: "Taken together, this suggests that El Dorado County residents may make more walking and bicycling trips if infrastructure is built that provides the amenities of a comfortable route, connections to …"	The importance of recreation as a trip purpose for multi-use paths was a focus of survey respondents. Updated text on Page 13 as follows: "Taken together, this suggests that El Dorado County residents may make more walking and bicycling trips if infrastructure is built that provides a comfortable route that can serve a recreation use, connects to multiple destinations, and decreases safety concerns."	-
52	L. Price	7/10/2017	Page 13: Modify sentence to read: "An advisory committee composed of residents and staff from various public agencies in El Dorado County provided input on the development of the online survey…"	Updated as suggested.	-
53	L. Price	7/10/2017	Safety Analysis memo, Page 2: Modify sentence to read: "It is important to note that the number of collisions reported to SWITRS may underestimate the actual number of collisions that occur because collisions on Class I Bike Paths and off-street multi-use paths are not included in SWITRS data, some parties do not report collisions to law enforcement, and law enforcement sometimes treats pedestrian and bicyclist crashes as medical assistance rather than as collisions to be reported to SWITRS. Although under-reporting an ..."	No action. While it is unlikely, collisions resulting in an injury and emergency assistance on a Class I multi-use path can or will be documented in SWITRS. While it is possible that collisions are being under reported, we don't want to give the impression that we know the full scale of the underreporting.	-
54	L. Price	7/10/2017	Survey Analysis memo, Page 4: "Delete Figure 2: Average Walk Trip Distance by Trip Purpose, and Figure 3: Willingness to Walk by Distance of Trip due to survey format that did not facilitate responses of less than one mile."	Please advise.	No action. Figure 2 reflects survey responses as received. In future surveys, we will consider using a format that addresses the issue described.

No.	Source	Date Received	Comment	Alta Action	EDCTC Note
55	L. Price	7/10/2017	Survey Analysis memo, Page 6-11: "Delete discussion of "four groups of bicyclists" "Type of Bicyclist". The argument is circular, with people placed into categories based on their responses and then additional unsupported description added. The information from the survey should be presented in a straight forward manner without embroidering it with circular imaginings."	Please advise.	No action. Important to retain discussion because it reflects what was included in the survey.
56	L. Price	7/10/2017	Survey Analysis memo, Question 2: "Collapse distance categories to correspond with survey as presented and as possible to enter with slider, i.e., <1 mile, 1 mile, 2 miles, etc."	No action. This comment is documented for consideration for inclusion in a future update of the County's bicycle plan or the creation of a County pedestrian plan.	-
57	L. Price	7/10/2017	Survey Analysis memo, Page 13: Modify footnote to read: " Additional instructions added after ___ surveys had been submitted(leave blank if not applicable or enter decimal number in the text box if less than 1 mile, i.e., .25, .5 or .75)?"	Please advise.	No action. Footnote was previously updated in response to advisory committee suggestion.
58	J. Barton	7/14/2017	Remove references to "draft" on cover; add "August 2017"	Updated as suggested.	-

APPENDIX N: STAFF REPORT

CONSENT CALENDAR

STAFF REPORT

DATE: **AUGUST 3, 2017**

TO: **EL DORADO COUNTY TRANSPORTATION COMMISSION**

FROM: **JERRY BARTON, SENIOR TRANSPORTATION PLANNER**

SUBJECT: **FINAL ACTIVE TRANSPORTATION CONNECTIONS STUDY**

REQUESTED ACTION

Accept the Final Active Transportation Connections Study as complete.

BACKGROUND

The El Dorado County Active Transportation Connections Study (Study) was funded by a Sustainable Communities grant awarded to EDCTC by Caltrans. The Study outlines a process for identifying which currently-planned active transportation projects may be the most competitive under various grant application criteria and provides for prioritization of those projects. The Study provides for the application of various performance measures (consistent with current grant application criteria) to allow for the prioritization of proposed projects. The Study has the extended benefit of the application of these performance measurement strategies to newly planned projects in conjunction with the update of future plans.

The Study was completed in coordination with the Active Transportation Advisory Committee (ATAC), whose membership was ratified by the EDCTC Board in March of 2016. Participation by the ATAC enabled the project to engage a diverse range of community groups and individuals representing various interest groups and project areas in the western slope of El Dorado County.

DISCUSSION

The purpose of the Study was to develop a tool to assist EDCTC and partner jurisdictions with the challenge of prioritizing active transportation projects in an area where need far exceeds available grant funding. The Study was limited to projects contained in the adopted 2010 El Dorado County Bicycle Transportation Plan and City of Placerville Non-Motorized Transportation Plan and current known funding sources.

However, the performance measures and project ranking formula were designed to be applied to future planned projects including the future update of a countywide Active Transportation Plan, and new fund sources as they become available. The project ranking formula provides the opportunity to adjust the weight of certain criteria or to tailor project rankings to a specific fund source, which will help EDCTC jurisdictions gain insight into a project's competitiveness as they consider whether or not to dedicate valuable staff time to prepare a grant application for funding. As with most transportation projects, other factors will need to be considered in the ultimate selection of projects. These factors include, but are not limited to, project timing, influence by other related projects or developments, and partner agency collaboration.

The Draft document was presented to the EDCTC Board at the June 1, 2017 Board meeting. ATAC members were e-mailed in June and asked to provide any comments by Monday July 10th. Comments received were incorporated to the extent feasible. With the Commission's acceptance of the document as complete, EDCTC staff will proceed with next steps as follows:

- Posting the Final Document on the EDCTC web page
- In coordination with City and County partners, use the connections study formulas to analyze projects for preparation of funding applications
- Utilize the study as a performance measurement tool for the inclusion of future proposed projects in new or updated plans

Approved for Agenda:

_____
Woodrow Deloria, Executive Director

Attachments: A) Final Active Transportation Connections Study (Short Version), Long version with embedded links to attachments provided online here http://edctc.org/3/ATP.html
B) Comment Tracking