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# The Economic Impact of Bicycling in Arizona

ADOT MPD Task Assignment 64-12  
Contract # ADOT11-013181



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## Work Plan

*Prepared by:*



*Prepared for:*  
ARIZONA DEPARTMENT OF TRANSPORTATION

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## 1. Project Background and Need

Arizona has long been known as a great place to live, work, visit, and recreate. Arizonans enjoy a wide range of climates, topography, and natural beauty. ADOT recognizes its role, in partner with other state, regional, and city agencies, as a driver of the state's economy. For example, ADOT's website identifies its role in Arizona's economy, as summarized below.

*"We [ADOT] continue to examine diverse, integrated transportation options for moving people and goods to create jobs and deliver economic and quality-of-life benefits for Arizona residents and businesses. ADOT's role is to assist policymakers by providing objective information that helps them decide the best solutions to connect communities across Arizona with the full range of resources available."*

In addition to building highways that facilitate the transport of goods and services, ADOT is a strong supporter of tourism and recreation. The Arizona State Transportation Board, according to the *Arizona State Transportation Board Policies* revised in January of 2011, is committed to:

*"A transportation system that promotes Arizona's tourism and economic well-being, and serves the needs of its population and visitors. . . Based on cooperatively developed indicators for each transportation mode, employ performance-based standards to monitor, plan and select projects to improve the transportation system performance and integrate a broader range of objectives such as environmental concerns, quality of life issues and economic competitiveness"*

Also, for over 85 years ADOT has published Arizona Highways Magazine, an award-winning publication that provides travel and tourism information to residents and tourists alike. The Arizona Scenic Roads Section dedicates staff and resources to fund, designate, inventory and maintain scenic roads and byways in Arizona.

The ADOT Bicycle and Pedestrian Program has also taken significant steps to support tourism and economic development. Many of the completed activities were recommendations of the 2003 ADOT Bicycle and Pedestrian Plan. Recent activities include:

- ADOT publishes the Cycle Arizona, Bicycle User Map – Your Guide to Cycling in Arizona. The map is distributed to individuals all across the country who desire to visit and cycle in Arizona.
- ADOT's Bicycle and Pedestrian Program website ([azbikeped.org](http://azbikeped.org)) includes a section on Bicycle Touring and Recreation.
- The ADOT Bicycle and Pedestrian Program has been recognized as a Bicycle Friendly State by the League of American Bicyclists. Arizona is one of only 10 states designated by the League as a "Bicycle Friendly State."
- In 2011, the League of American Bicyclists (LAB) ranked Arizona number 16 in the nation for bicycling. The LAB notes that "Arizona plays host to many great recreational and encouragement events. El Tour de Tucson and the Great Arizona Bicycle Adventure, a multi-day ride that starts in Northern Arizona and terminates at the Mexico border, are must-do events for cycling enthusiasts from around the world." Arizona is home to eight of the League's "Bicycle Friendly Communities" including Scottsdale and Tucson (Gold level), Flagstaff and Tempe (Silver level), and Chandler, Gilbert, Mesa, Sedona (Bronze level). Only four other states have more designated cities than Arizona.

While the specific economic benefits of bicycling in Arizona are not well known, other studies have evaluated the economic impact of related outdoor industries. A study recently completed by the Access Fund evaluated the economic impact of outdoor recreation in Arizona and found significant economic benefits.

This study, the Economic Impacts of Bicycling in Arizona, will examine the specific benefits of bicycling in Arizona.

## 2. Study Objectives

The purpose of this study is to assess certain key segments of the economic impacts of bicycling in Arizona. The study emphasis will be placed on developing an objective and defensible model for determining direct, indirect, and induced economic impact, in terms of annual costs and benefits (in dollars) of:

- A. The bicycle industry (manufacturing, sales, and service), as measured by revenue and employment, and
- B. Bicycle tourism and visitor spending associated with events that include organized tours, races, and charity rides.

The results will be used to help educate decision makers, state and local governments, the business community, planners, advocates, and other stakeholders; and may suggest policy changes and other actions that should be considered to further the economic and other benefits of this non-motorized mode of transportation.

Effective planning for public- and private-sector projects and programs, such as ADOT's Bicycle and Pedestrian Program, requires a systematic analysis of the economic impacts of this program on Arizona and its sub-state regions. Furthermore, a systematic analysis provides a definitive statement of how important the bicycle production/sales industry is to the Arizona economy and present a defensible picture of the overall economic impacts associated with event-based (and to some extent other aspects of) bicycle tourism and visitor spending in Arizona. Finally, a systematic analytical approach provides a benchmark basis for developing subsequent updates of the final economic report.

### ***Integration with the Efforts and Accomplishments of the ADOT Bicycle and Pedestrian Program***

In 2003, ADOT developed the first Arizona Statewide Bicycle and Pedestrian Plan. The 2003 Plan has since guided the work activities of the ADOT Bicycle and Pedestrian Program, including completion of the following:

- 2011 ADOT Bicycle Safety Action Plan (BSAP). The BSAP was a comprehensive review of bicycle-motor vehicles crashes on the State Highway System (SHS).
- 2009 Pedestrian Safety Action Plan (PSAP).
- 2009 Cycle Arizona Bicycle User Map (noted previously). The map documents bicycle conditions, including traffic volume, shoulder width, and other conditions applicable to bicycling on Arizona highways. This is a valuable resource for tourists.
- 2009 Complete Street training courses, to spur state and local decision makers to invest in

streets and highways that meet the needs of all users.

- 2007 Bicycle and Pedestrian “Be a Roll Model” Safety Campaign.

ADOT recently initiated an update to the Statewide Bicycle and Pedestrian Plan. The 2012 Plan will update the most critical elements of the 2003 Plan. This Economic Impacts of Bicycling Study will provide results that can be integrated into the ongoing update of the Statewide Bicycle and Pedestrian Plan. For example, this study may inform the ADOT Bicycle and Pedestrian Plan Update by:

- Recommending strategies that can be developed and implemented by ADOT to attract more bicyclists to Arizona.
- Identifying key geographic locations, corridors, and events that attract bicyclists to Arizona, and identifying what ADOT can do, through infrastructure or programmatic investment, to support and enhance these events.
- Providing a basis for comparing ADOT investment in bicycling infrastructure and programs to economic benefits.

These prior and ongoing efforts and accomplishments provide a solid foundation on which to undertake the Economic Impacts of Bicycling in Arizona Study. Findings from this inaugural economic study will continue the momentum that ADOT has achieved in improving bicycling in Arizona. Moreover, results from this benchmark study will further demonstrate the integral relationship between transportation and tourism in Arizona.

### 3. Project Team

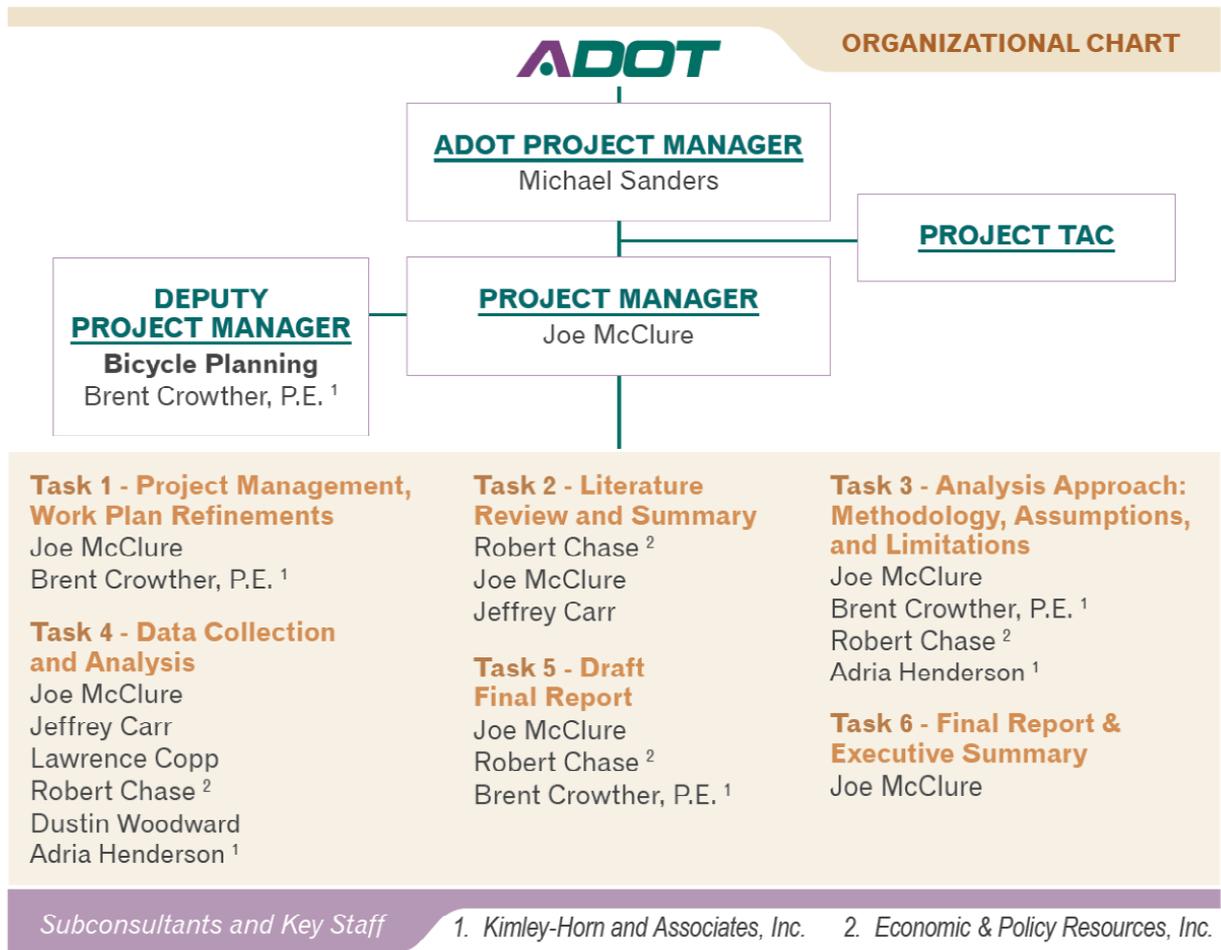
Arizona Department of Transportation, Multimodal Planning Division, will lead the study. Michael Sanders serves as ADOT Project Manager.

McClure Consulting LLC serves as the prime consultant for the study. The McClure Consulting Team includes the following firms:

McClure Consulting LLC  
Kimley-Horn and Associates, Inc.  
Economic & Policy Resources, Inc. (EPR)

The project organization chart is presented in **Figure 1**. Project Team contact information is listed in **Table 1**.

**Figure 1. Project Organization Chart**



**Table 1. Project Team Contact Information**

<b>Name, Organization</b>	<b>Role</b>	<b>Contact Information</b>
Michael Sanders, ADOT	ADOT Project Manager	ADOT Multimodal Planning Division 206 S. 17th Avenue 310B Phoenix, AZ 85007 msanders@azdot.gov 602-712-8141
Joseph McClure, McClure Consulting LLC	Project Manager; economic research and analysis	2944 N. 44th Street, Suite 101 Phoenix, AZ 85018 (602) 840-3699 jmclure@jemclure.com
Brent Crowther, P.E., Kimley-Horn and Associates, Inc.	Deputy Project Manager, Bicycle and Pedestrian Planning Considerations	333 East Wetmore Road, Suite 280 Tucson, AZ 85705 (520) 615-9191 brent.crowther@kimley-horn.com
Robert Chase, Economic & Policy Resources, Inc.	Economic research and analysis	400 Cornerstone Drive, Suite 310 P.O. Box 1660 Williston, VT 05495 (802) 878-0346   rac@epreconomics.com

#### 4. Technical Advisory Committee

TAC members include at a minimum representatives from the diverse set of stakeholders below:

- ADOT, Communication and Community Partnerships Division (CCP)
- ADOT, Multimodal Planning Division (MPD), Bicycle and Pedestrian Program
- ADOT, MPD, Transportation Analysis
- ADOT, MPD, Research Center
- ADOT, MPD, Tribal Transportation
- Arizona Office of Tourism
- Arizona State Parks
- Federal Highway Administration – Arizona Division
- MPOs and COGs

TAC meetings (approximately two hours) will be held throughout the study at as minimum according to the Work Plan Schedule (Figure 2). The purpose of these meetings will be to update the TAC on the project status, receive input in the planning process, and discuss project

deliverables. The team will prepare and present PowerPoint presentations at each TAC meeting. In addition, we will prepare and distribute agendas and meeting minutes via e-mail for each meeting. A user-friendly file transfer protocol (ftp) site will be established to facilitate the transfer of information to and from the TAC. Teleconferencing will be made available for all TAC meetings. Five TAC meetings are proposed. These will be scheduled to follow major project milestones and report submittals.

We will seek input from TAC members with respect to technical matters such as review (e.g., scope and schedule, preliminary findings), feedback (e.g., on approach, methodologies, and data sources), and guidance (e.g., verify policy implications/directives, and the potential for obtaining unpublished data from state agencies such as the Arizona Department of Administration (Office of Employment and Population Statistics) and Department of Revenue).

## 5. Project Schedule

The project will be completed within a 12-month timeframe. The project schedule is presented in **Figure 2**. Key elements of the project schedule are listed below.

<b>TAC Meetings</b>	<b>TAC Meeting Focus</b>
Late March 2012	Work Plan
Early May 2012	Working Paper No. 1 - Literature Review and Summary of Bicycling Economic Impacts Studies and Methodologies
June 2012	Working Paper No. 2 - Analysis Approach: Methodology, Assumptions, and Limitations
October 2012	Working Paper No. 3 - Data Collection and Analysis (and this phase of work will include interim deliverables as appropriate)
December 2012	Draft Final Report
February 2012	Final Report and Executive Summary

**Figure 2. Work Plan Schedule**  
**The Economic Impact of Bicycling in Arizona**

Task	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13
Milestones	▲ ★	▲	★ ▲	★				★		▲	▲	★
Task 1 - Project management, Work Plan Refinements	 											
Task 2 - Literature Review and Summary		 										
Task 3 - Refinement of Methodology			 									
Task 4 - Data Collection and Analysis				 								
Task 5 - Draft Final Report										 		
Task 6 - Final Report & Executive Summary												

 = Review period

**Milestones Legend**

In-person meetings with Technical Advisory Committee = ★

Delivery of Working Papers/Draft = ▲

## 6. Work Tasks

### Project Approach to Work Tasks

The scope of work in this Work Plan is consistent with the Task Assignment's specification of the impact categories to be analyzed, as follows:

- A. The bicycle industry (manufacturing, sales, and service), as measured by revenue and employment, and
- B. Bicycle tourism and visitor spending associated with events that include organized tours, races, and charity rides.

Economic activity associated with the bicycle-related industry can be measured in terms of employment, personal income, and output (value of total economic activity, roughly similar to sales). The effects of bicycle-related activity ripple outward throughout the state providing further business, increased incomes, and additional jobs. Similarly, bicycle-related tourism (via augmenting visitor spending) will be transmitted throughout the region by these secondary or indirect economic effects.

As stated in the Task Assignment, impacts will be measured in terms of annual costs and benefits (in dollars), using "an objective and defensible model for determining direct, indirect, and induced economic impact." Once direct impacts are determined using the procedures outlined in the Work Plan, indirect and induced impacts will be estimated using a third-party modeling system such as IMPLAN (MIG, Inc.) or REDYN (Regional Dynamics) for specific geographic areas (see Regional Input-Output Model Options, below).

Impact categories A and B above will be documented and accounted for separately within the modeling system. The data collection and other documentation will be based on a combination of approaches for obtaining primary, survey-based data. A number of tools are available for this purpose, including: web-based surveys, mailed send out/mail back printed survey forms, and surveys conducted by telephone, in each case targeting specific firms and individuals/titles within each firm. There are advantages and disadvantages to each of these systems, and the actual method applied in this study will be derived in the course of refinements of the work scope in Work Task 1 and Work Task 3. For example, conducting interviews person-to-person over the telephone allows more control of the process, and is also compatible with a controlled-sample methodology; although it tends to be more costly on a per-survey basis.

The detailed approach outlined in the work tasks of this Work Plan assumes that the survey method will rely primarily on telephone interviews with key informants conducted by senior-level consultant staff, using structured questionnaires.

This primary data collection process will be supplemented by relevant secondary data that will be used to help calibrate the survey data and provide other insights into the analysis topics. A key element of the data collection process will be identifying bicycle industry establishments, event sponsors, and the like, and this will be accomplished through a combination of networking with stakeholders and other industry informants and the use of directories, organizational membership

lists, etc.

For all data employed in this study, the McClure Team will adhere to the process of triangulation and reconciliation of all data sources to ensure high-quality impact estimates that are credible and defensible. Triangulation and reconciliation are estimation techniques EPR has successfully employed elsewhere in their benchmark studies of the economic contribution of the tourism industry as well as the economic impact of bicycling and walking activities to the Vermont economy. This process included rigorous tests and reconciles all activity estimates using at least two independent data sources before such activity estimates were accepted and used in the impact assessment analyses. Because of the success of that process in these prior studies, we will employ the same approach for defining data sources for the economic impact assessment of biking in Arizona.

This project has certain specific areas of technical focus, as described in this Work Plan and in the Task Assignment. The McClure Team will conduct the project with this focus firmly in mind, while recognizing that there are other potential benefits that are described in other studies, which are of interest to some of this study's stakeholders. The review of existing studies (Work Task 2) will in some cases involve some of these other benefit topics that are beyond the scope of this particular Work Plan. In such cases we will summarize, qualitatively, key issues associated with these ancillary economic benefits, strategic directions, etc. including their applicability to Arizona. Also, notwithstanding the fact that investments in infrastructure are not a part of this project, the McClure Team will use readily obtainable data on the miles of bike lanes, shared paths, etc. by city/county, to compare with the economic data, in order to provide additional insight into the relationship between investment in bicycling facilities and usage.

### ***Regional Input-Output Model Options***

Economic impact analysis is a technique for measuring the net effects of new spending and investment on a region's employment, wages, and business output (e.g., sales). This is accomplished by estimating the amount of net new spending as a direct result of the project (direct effects). The principal tool used in ascertaining economic impacts associated with bicycle activity is an input-output model. Effective planning for public- and private-sector projects and programs at the state and local levels requires a systematic analysis of the economic impacts of these projects and programs on affected regions. In turn, systematic analysis of economic impacts must account for the inter-industry relationships within regions because these relationships largely determine how regional economies are likely to respond to project and program changes. Regional input-output models, which account for inter-industry relationships within regions, are useful tools for conducting regional economic impact analysis.

For this project, we propose to use either the REDYN or IMPLAN input-output models for estimating the direct, indirect, and induced impacts associated with bicycle activity in the state. REDYN is an internet-based model and is the newest and in many ways most advanced input-output model available. It was developed by people formerly affiliated with the REMI model, and employs a number of innovative concepts and analysis frameworks. The REDYN model is currently maintained from an office in Scottsdale, Arizona.

The IMPLAN model is also an option and is a tool that calculates job creation for each category of economic activity. This model and other input/output models are based on the concept of a production function, which determines the quantities of inputs required to produce a unit of output. The basic data are collected by the U.S. Commerce Department from a variety of sources, such as

the Annual Survey of Manufacturers and various annual surveys of the service sector. The IMPLAN model is maintained by the Minnesota IMPLAN Group, Inc. The model has been widely used for the type of analyses discussed in the Task Assignment for this project by public entities (particularly the U.S. Forest Service) and in the private sector.

As part of this study, the McClure Team will evaluate which input-output tool will be employed for this impact assessment analysis based on the results of the Literature and Data Review (Task 2 of our Work Plan). The technical “Pros and Cons” of each tool will be evaluated, input will be solicited from the TAC, and a final decision will be made based on which tool will provide the most accurate, supported impact estimates. In addition to the technical aspects of the evaluation, factors to be considered in this decision include agency preferences, matching the desired format and content of results with modeling system capabilities and their strengths and limitations, and ease of use for periodic updates.

Depending on the methodology chosen, we will develop a functioning input-output model at the state level as well as the sub-state regional level, which will measure the short-and long-term economic (and fiscal) benefits (e.g., output, jobs, and personal income; revenues and expenditures) of:

- The “Visitor Spending” impacts related to bike tourism, and
- Bicycle-related business/industry activity.

Specific Work Tasks to be completed are outlined below. Our Work Plan consists of six tasks, consistent with the Task Assignment, and enhanced based on our expertise conducting similar studies.

### **Work Task 1: Initial Work Plan Refinements**

**Purpose:** Interactively derive a detailed scope of work (acknowledging that certain methodological matters will be finalized in Work Task 3), which will include:

- Study goals and objectives
- Problem and need statement
- Key issues and challenges
- Project schedule

**Approach:** This task will involve a refinement of the proposed work scope, in consultation with the ADOT project manager and the TAC. This refinement will be carried out with the understanding that further refinements to the project methodology will be produced in Work Task 3, based on the Literature Review and Summary of the Work Task 2.

**Activities:** The task will be carried out with a workshop session involving the TAC in which TAC members and ADOT management share their goals, interests, objectives, perceptions of challenges, and other issues and observations related to this project.

- 1.1. Prepare for and conduct a kick-off meeting with the ADOT Project Manager and other ADOT representatives to discuss the Work Plan. The McClure Team will prepare a meeting summary.
- 1.2. Develop a draft Work Plan. The Work Plan will include a detailed description of work tasks and associated products, schedule, problem and need statement, initial

interpretations of study goals and objectives, and key issues and challenges.

- 1.3. Address ADOT's comments to the Work Plan. Submit a revised Work Plan to the ADOT Project Manager for review and approval for distribution to the TAC.
- 1.4. Schedule, prepare for, and attend TAC Meeting No. 1. Present the Work Plan to the TAC for review and comment. The McClure Team will prepare a meeting summary.
- 1.5. Address TAC comments made at TAC Meeting No. 1 and prepare the final work plan; submit the final work plan to the ADOT Project Manager.
- 1.6. Coordinate schedules for meetings, as depicted in the Project Schedule on page 27, to update the TAC on the project status, discuss findings, and receive input in the planning process.
- 1.7. Prepare monthly status reports, update schedule, and identify any issues that may impact the project's schedule and budget.

***Deliverables:***

- Kick-off meeting agenda, presentation materials, and meeting summary.
- Draft and Final Project Work Plan, subject to further revision in Task 3: detailed scope of work, key issues and challenges, preliminary/draft study goals and objectives, problem statement and need, and project schedule.
- TAC Meeting No. 1 agenda, presentation materials, and meeting summary.
- Monthly status report format and updated project schedule.

## **Work Task 2: Literature and Data Source Review and Summary**

***Purpose:*** The purpose of this task is to conduct a comprehensive review of all available data and literature sources for the purposes of conducting this analysis.

***Approach:*** The approach to this work task will be similar to the recently completed and relevant Economic Impact of Bicycling and Walking in Vermont study. In this prior study, EPR conducted a thorough literature and internet search, reviewing prior studies with respect to coverage, metrics, approach, and utilization (such as, in policies and programs). The task in this prior study included an unpublished annotated bibliography addressing, among other things, an assessment/appropriateness of methods utilized in determining economic impacts. [For example, this annotated bibliography includes an assessment of appropriate uses, misuses, and abuses (e.g., pitfalls to avoid) in conducting economic analyses of bicycling.]

***Activities:*** The McClure Team will complete a full literature and internet search of (1) recent studies of the economic (and fiscal) impacts of bicycling; (2) methodological approaches utilized as well as identification of data and information sources that could be used directly and/or indirectly for the study; and (3) recent and ongoing activities of state/provincial department of transportation bicycle and pedestrian programs. We will also inventory all appropriate state, tribal, and local sources, including ADOT, the Office of Tourism, ADOA (Office of Employment and Population Statistics), Arizona Department of Health Services, ADOR, and Arizona Commission of Indian Affairs, for any and all valid data that could be reasonably employed to develop the bicycle-related estimates.

***Deliverables:*** Results will be summarized in Working Paper 1 for review and comment by the ADOT Program Manager and TAC.

Following TAC review of Working Paper 1, the McClure Team will prepare the final Working Paper No. 1 and meet with the TAC to formally present our review findings, recommended approach(es), and preliminary observations. This meeting will provide the TAC and stakeholders with an opportunity to comment on our approach and to help identify other factors that should be considered as the study moves forward.

### **Work Task 3: Refinement of Methodology**

**Purpose:** This task provides a formal process for the further refinement of the study methodology based on the findings of the literature review performed under Work Task 2.

**Approach:** This work task will combine the results of Work Tasks 1 and 2 in order to derive a detailed methodology for collecting and analyzing the data relevant to the project, obtaining appropriate and timely input, etc. As part of this function we will be refining our understanding of data sources, etc. (this may include processing some baseline work that is performed within the Task 4 time allocation, including perhaps initial stakeholder outreach), to help ensure that the Task 3 process is well informed.

The process of refining the methodology and formulating the research design to be used in this study will address, at a minimum, the following topics, which are also discussed in more detail in Work Task 4:

- Procedures in addition to Work Task 1 for coordinating TAC and other stakeholder input into the process.
- Assessment of third-party data from Task 2, completion of a rigorous assessment of the best data sources that could be employed to develop a defensible estimate of state and regional economic (and fiscal) impact. Identification and evaluation of data sources from recognized, high-quality sources for relevance to the defined objective of the study—including data to support the input/output model, and fiscal data to support bicycle transportation infrastructure planning. These data will be assembled into a data set suitable for preliminary interim impact assessment analysis purposes.
- The targets, protocols, samples, question structures, and other details associated with the primary research – interviews of business persons, organizational representatives, tourism representatives, etc.
- The types, sources, etc. of secondary data that will be compiled as a backup to the primary research, as described in more detail under Work Task 4.
- Details of the data collection and analysis process and a plan for periodic updating of the final report for this project. The update plan will address: 1) the data used in the analysis and also various benchmarking indicators that can be used for developing index-based interim updates, and 2) the work required and associated costs of updating the report findings at various levels of specificity.

#### **Activities**

- 3.1. Prepare and submit to the ADOT Project Manager an outline of Working Paper 2. Refine the outline based on ADOT Project Manager input.
- 3.2. Prepare draft Working Paper 2. Working Paper No. 2 will address the topics described above, as identified in Task 3.

- 3.3. Submit draft Working Paper 2 to the ADOT Project Manager for review and approval for distribution to the TAC.
- 3.4. Schedule, prepare for, and attend TAC Meeting No. 2 where we will present Working Paper 3. The McClure Team will prepare a meeting summary.
- 3.5. Address TAC comments and prepare the final Working Paper 2 and submit the final Working Paper to the ADOT Project Manager.

***Deliverables:***

Working Paper 2, containing: 1) a detailed methodology for the work to be done in Task 4, and 2) a plan for updating the project at varying levels of detail and time frames.

### **Work Task 4: Data Collection and Analysis**

***Purpose:*** This task is the heart of the data collection and analysis process from which the quantitative findings will result. Economic impact data and analysis will be performed for the following two major categories:

- A. The bicycle industry (manufacturing, sales, and service), as measured by revenue and employment, and
- B. Bicycle tourism and visitor spending associated with events that include organized tours, races, and charity rides.

***Approach:*** Impact categories A and B above will be documented and accounted for separately within the modeling system. The data collection and other documentation will be based on a combination of alternative approaches for obtaining primary, survey-based data. While a number of tools are available for this purpose, as discussed in the prior section “Project Approach to Work Tasks,” there are advantages and disadvantages to each of these systems, and the actual method applied in this study will be derived in the course of refinements of the work scope in Work Task 1 and Work Task 3. The detailed approach outlined in the work scope of this Work Plan assumes that the survey method will rely primarily on telephone interviews with key informants conducted by senior-level consultant staff using structured questionnaires.

This primary data collection process will be supplemented by relevant secondary data that will be used to help calibrate the survey data and provide other insights into the analysis topics.

A key element of the data collection process will be identifying bicycle industry establishments, event sponsors, and the like, and this will be accomplished through a combination of networking with stakeholders and other industry informants and the use of directories, organizational membership lists, etc.

***Activities***

- 4.1. Obtain data for the bicycle industry in Arizona – manufacturing, sales, and service.
  - 4.1.1. From an outline of information to be obtained from stakeholders, implement procedures for obtaining stakeholder input, according to procedures designed in Work Task 3, which might include one or more workshops, in-person and phone interviews, etc. Stakeholder processes will simultaneously obtain input on the bicycle industry and bicycle tourism.
  - 4.1.2. Compile databases of each relevant industry category, using 1) typical industry directories and 2) institutional knowledge obtained from stakeholders (above):

- 4.1.2.1. Bicycle manufacturing and manufacturers of key components and accessories.
- 4.1.2.2. Retail establishments, including bicycle shops, regular and discount department stores, and other outlets, and the service component of establishments.
- 4.1.3. Compile secondary data, as a complement to primary data (below) and backup for data that are likely to be limited, such as department store sales of bicycles. Data sources will include published material from the Economic Census, published and possibly unpublished data from the ADOR, Arizona Office of Employment and Population Statistics, and others.
- 4.1.4. Set up database format and review with stakeholders. Establish geographic extent of regions by which data will be analyzed and reported.
- 4.1.5. Prepare documents and protocols for interview processes:
  - 4.1.5.1. Prepare separate questionnaires for manufacturers, wholesalers/distributors, retailers, and repair service providers. Questionnaires will generally be structured to progress sequentially into increasing levels of detail, for example from questions about employment (by full-time, part-time, etc.) to questions about sales. Questions will also probe aspects of manufacturers' locational choices, for example the relationship between the "bicycle friendly" nature of Arizona and/or specific communities, and the presence of the firm in that particular place.
  - 4.1.5.2. Prepare introductory materials for contacts in coordination with the TAC, explaining the purpose for interviews, asking for key contacts, preferred methods of contact, etc.
  - 4.1.5.3. Establish interview samples, contact protocols, follow-up procedures, options by which respondents can provide input, etc., with procedures based primarily on Work Task 3. Our working assumption for the Work Plan is that we will attempt to interview 90+% of manufacturers/wholesalers, 100-125 bicycle shops/rental establishments, and target 40-50 other retail (department stores, sporting goods, etc.) establishments. While outreach processes will be structured to maximize responses, to the extent responses are limited, additional effort can be applied to using secondary data, analysis, etc. to refine results. Special questionnaires, interview processes etc. will be designed for the other retailers, and the use of secondary data is anticipated since interview results will probably be limited for that specific group.
- 4.1.6. Conduct interviews.
- 4.1.7. Record interview results into formatted database structures and project-defined regions.
- 4.2. Obtain data for bicycle tourism and related visitor spending, related to both casual tourism, and seasonal visitors, to the extent possible (although there are numerous challenges to accomplishing this) and specific events.
  - 4.2.1. Compile database of each bicycle-tourism-related category of interest to this project, including bicycle rentals, events, use of bicycles at resorts, bicycle tours,

- etc., using 1) available databases, and 2) institutional knowledge obtained from stakeholders (above).
- 4.2.2. Compile secondary data, as a complement to primary data (below) and backup for data that may be limited, such as the relationship between general tourism and tourism where bicycling is a major motivating factor.
  - 4.2.3. Set up database format that reflects the geographic distinctions and review with the TAC.
  - 4.2.4. Prepare documents and protocols for interview processes.
    - 4.2.4.1. Prepare questionnaires for representatives of events and other contacts who might be identified in the course of stakeholder input, such as tourism-industry key informants, etc. Questionnaires for event representatives will be structured to obtain, at a minimum, information about the organizations themselves, overall participation and participation from outside the state, and (to the extent practical) information about the travel and other characteristics of outside visitors. If necessary and practical within the time constraints of this project and other considerations, it might be possible to coordinate with one or more event sponsors to obtain additional detail about visiting event participants, potentially even devising methods for surveying visiting participants.
    - 4.2.4.2. Prepare introductory materials for interview contacts in coordination with appropriate project representatives, explaining the purpose for interviews, asking for key contacts, preferred methods of contact, etc.
    - 4.2.4.3. Establish contact protocols, follow-up procedures, options by which respondents can provide input, etc., based primarily on Work Task 3 input. If necessary, prepare introductory materials for contacts.
  - 4.2.5. Conduct interviews.
  - 4.2.6. Record interview results into formatted database structures and project-defined regions.
  - 4.2.7. Compare economic data (both direct and within the regional analysis models as described below), by sub-state region, to readily obtainable data on the miles of bike lanes, shared paths, etc. by city/county, to provide additional insight into the relationship between investment in bicycling facilities and the economic impacts.
  - 4.2.8. Data Reconciliation: As noted above, the McClure Team will conduct an independent reconciliation of multiple data sources to help assure a comprehensive and accurate impact assessment analysis. This process is envisioned to be similar to that employed by EPR in its prior work. The intent is to approach the activity estimates of each segment of the analysis and the measures of economic impact from at least two different directions—looking for a congruence of primary data secondary data, and analysis work.
- 4.3. Set up and execute the input-output modeling system.
    - 4.3.1. Estimate expenditures for Bicycle Activities. Similar to many other studies our team has completed for similar projects, the third-party data will be condensed into an estimate of final demand change related to the various segments or activity areas (businesses, tourism inputs to I/O model) associated with bicycling to

- produce the most reliable estimates in the state and sub-state regions.
- 4.3.2. Set up the system for using and processing results through a regional analysis modeling system such as IMPLAN or REDYN, specifying, analyzing, and reporting results using procedures that make clear the distinction in what the model output figures mean, in terms of local versus general impacts, etc. The model will be set up to run separately for the defined sub-state regions, from Work Task 3, and also reflect state totals. Work Task 3 will be the basis for choosing a regional analysis model from available alternatives. The goal of that process will be to establish a system for completing a fully considered and defensible estimate of the major economic benefits of bicycling activity in the state and sub-state regions using the best available information that is available and can be developed to complete this estimate.
  - 4.3.3. Compile results for the state and by sub-state regions selected as part of the work scope refinement process.
- 4.4. Develop Working Paper 3.
- 4.4.1. Prepare and submit to the ADOT Project Manager an outline of Working Paper 3. Refine the outline based on ADOT Project Manager input.
  - 4.4.2. Prepare draft Working Paper 3. Working Paper 3 will summarize each component of the analyses conducted in Work Task 4 and other details as noted below.
  - 4.4.3. Submit draft Working Paper 3 to the ADOT Project Manager for review and approval for distribution to the TAC.
  - 4.4.4. Schedule, prepare for, and attend TAC Meeting No. 3 where we will present Working Paper 3. The McClure Team will prepare a meeting summary.
  - 4.4.5. Address TAC comments and prepare the final Working Paper 3, and submit the final Working Paper to the ADOT Project Manager.
  - 4.4.6. Deliverables: Working Paper 3, summarizing each component of the analyses conducted in Work Task 4, and describing the methodologies applied, relating these back to the outcome of Work Task 3 and Working Paper 2.

## **Work Task 5: Draft Final Report**

**Purpose:** Prepare a Draft Final Report of The Economic Impact of Bicycling in Arizona

**Approach:** The Draft Plan will compile findings from Working Papers 1, 2, and 3. The Draft Final Report will in addition make reference, in a qualitative sense, to the relationship of broader benefits, outside the scope of this project but identified through literature reviews and other project activities, to the technical aspects of the impacts that are the focus of this study.

The Draft Final Report will also address recommendations for enhancing the economic benefit of bicycling in Arizona, based on the research findings, and suggestions/steps for the most feasible approaches to generating periodic updates to these benchmark findings.

The Draft Final Report will be presented at TAC Meeting No. 4. The Draft Final Report may also be made available for public comment. Comments received from the TAC and the public review will be discussed with the TAC and addressed in a revised Final Report in Task 6.

### **Activities**

- 5.1. Prepare a Final Report and Executive Summary outline that provides the most relevant information from Working Papers No. 1, 2, and 3. Present to the ADOT Project Manager for approval. Prepare draft Final Report and draft Executive Summary in conformance with the approved outline.
- 5.2. Submit the draft Final Report and draft Executive Summary to the ADOT Project Manager for review, approval, and distribution to the TAC.
- 5.3. Schedule, prepare for, and attend TAC Meeting No. 4 at which the draft Final Report and Executive Summary will be presented. The McClure Team will prepare a meeting summary.
- 5.4. Compile comments received on the draft Final Report and draft Executive Summary and prepare a comment resolution summary.
- 5.5. Prepare a PowerPoint presentation for use by ADOT to present findings of the study.

***Deliverables***

- Draft Final Report of The Economic Impact of Bicycling in Arizona.
- Draft Executive Summary.
- PowerPoint Presentation.
- TAC Meeting No. 4 agenda, presentation materials, and meeting summary.

**Work Task 6: Final Report & Executive Summary**

***Purpose:*** Prepare a Final Report and Executive Summary.

***Activities***

- 6.1. In conformance with comments provided on the Draft Final Report and draft Executive Summary, prepare the Final Report of The Economic Impact of Bicycling in Arizona, and an Executive Summary describing the key aspects of the research and findings. Present to the ADOT Project Manager for approval.
- 6.2. Produce and distribute to each member of the TAC one hard copy and one CD containing the Working Papers, Final Report, and the Executive Summary. In addition, produce and submit to the ADOT project manager 10 hard copies and 5 CD copies of the same materials.

***Deliverables***

- Final Economic Impact of Bicycling in Arizona.
- Final Executive Summary.
- PowerPoint presentation of the Final Report.
- Working Papers and Final Report and Executive Summary on CDs.

**Presentation and documentation of Study Results**

As a summary, our team’s deliverables will include meeting materials (presentation, agendas, meeting summaries), working papers, an executive summary, and a final report:

- Refined Work Plan (Work Task 1)
- Working Paper 1: Literature Review and Summary of Bicycling Economic Impacts Studies and Methodologies (Work Task 2)

- Working Paper 2: Analysis Approach: Methodology, Assumptions, and Limitations (Work Task 3)
- Working Paper 3: Data Collection and Analysis (Work Task 4)
- Draft Final Report: (Work Task 5)
- Final Report, Executive Summary, and PowerPoint Presentation (Work Task 6): One hard copy and one CD copy delivered to each TAC member, plus up to ten hard copies and CD copies delivered to ADOT. Each CD will contain all working papers and the final report.

The McClure Consulting team has a number of reporting and presentation tools to assist us in serving ADOT. We will prepare each deliverable using Microsoft Office (Word, Excel, PowerPoint) software and maximize the use of tables and graphics. Study products will be delivered in Word and Adobe .pdf format. Working files of all study products will be made available upon request of the ADOT Project Manager. These products will enable ADOT to effectively communicate study results to other technical staff, stakeholders, management, and elected officials.