Joint Environmental Planning Advisory Committee (EPAC) and Air Quality Subcommittee (AQS) Meeting

9:30 a.m., Thursday, April 11, 2024

Pima Association of Governments
1 E. Broadway Blvd., Suite 401, Tucson

Public Access to Meeting Audio/Presentation: https://youtube.com/live/SsjYeq599H4

Notice is hereby given to the public and to the Committee members that the Environmental Planning Advisory Committee (EPAC) and its Air Quality Subcommittee (AQS) of Pima Association of Governments (PAG) will meet at the above stated time and date.

SPECIAL NOTICE: Members of the EPAC and AQS may attend the meeting remotely or in person. The meeting room will be open to the public. However, members of the public are invited to attend the meeting via the link above. EPAC and AQS members will be provided with a separate link to participate. Members of the public may submit written comments relating to this meeting to info@pagregion.com within one hour of the meeting's posted start time. These comments will be filed with the committee's records.

EPAC is a technical advisory committee established by PAG to make regional environmental planning recommendations to the PAG Executive Director. EPAC provides technical review and develops recommendations on studies, reports, plans, programs and submittals in support of continuous, comprehensive and cooperative sustainability planning and programming within the PAG planning area and in full compliance with PAG policies and procedures. Committee members are prohibited from interfering with administrative functions of the organization.

AQS is a subcommittee of EPAC, a technical advisory committee established by PAG to make regional environmental planning recommendations to the PAG Executive Director. AQS reports to EPAC on an as-needed basis and works on assigned key activities that need to be addressed. AQS evaluates regional compliance issues relating to the 1977 Clean Air Act; reviews and makes recommendations about air quality plans and proposals, such as non-attainment and maintenance area plans; and identifies air-related priorities and provides guidance on these issues to EPAC. Committee members are prohibited from interfering with administrative functions of the organization.

Pima Association of Governments is committed to maintaining high standards of conduct and prohibits harassment and retaliation against all employees pursuant to PAG's Policy Against Discrimination, Harassment and Retaliation. It is the responsibility of all committee members to comply with and to report violations or suspected violations of the Rules of Conduct, PAG policies, or state laws.

AGENDA

1. Call to Order and Introductions

2. In-kind Form

The participants will be asked to confirm their estimated in-kind time for the meeting.

This is an information item.

3. Approval of February 1, 2024, EPAC Meeting Summary

Action: Approval of the Meeting Summary.

4. Briefing and discussion on the Household Travel Study and Assessment

PAG staff will provide information and solicit feedback on the benefits and use of the Household Travel Study and Assessment to support PAG's long-range regional transportation planning efforts.

5. Briefing and discussion on the Dial-a-Ride and Microtransit Service Area Analysis

PAG staff will provide information and solicit feedback on the benefits and use of the Dial-a-Ride and Microtransit Service Area Analysis.

6. Briefing and discussion on the Orthophoto Feature Extraction effort

PAG staff will provide information and solicit feedback on the benefits and use of the Orthophoto Feature Extraction effort to map active transportation infrastructure.

7. Copper World Aquifer Protection Permit and Environmental Impacts

Representatives from the Tohono O'odham Nation and Pima County will discuss the Copper World aquifer protection permit for mining in the Santa Rita Mountains and the environmental and natural heritage impacts of the project.

8. Pima County Priority Climate Action Plan

A representative from the Pima County Department of Environmental Quality will present a summary of the PDEQ Priority Climate Action Plan and the associated Climate Pollution Reduction Grant. The plan is a regional partnership submittal to the U.S. Environmental Protection Agency. The grant has funding available throughout Pima County to all interested jurisdictions. PDEQ is a regulatory authority for all municipalities' air quality in the county except for tribal lands.

9. Future Agenda Items

Future agenda topics to be considered by PAG may be suggested by members of the committee.

****Pursuant to open meeting laws, the committee cannot discuss or act on any matter raised that is not listed on this agenda.*

10. Adjournment

The EPAC/AQS meeting packet containing materials related to the meeting is available at www.PAGregion.com for public review. In compliance with the Americans with Disabilities Act (ADA), those requiring special assistance, such as large typeface print, sign language or other reasonable accommodations, may request those through the administrative offices at: (520) 792-1093 at least two business days before the meeting.

PAG operates its programs without regard to race, color and national origin in compliance with Title VI of the Civil Rights Act. We invite you to complete our voluntary self-identification survey (English/Spanish).

If you need translation assistance, please contact Zonia Kelley at (520) 792-1093. Si necesita ayuda con traducción, llame por favor al (520) 792-1093 y comuníquese con Zonia Kelley.

Environmental Planning Advisory Committee (EPAC) Meeting Summary

Summary of 9:30 a.m., Thursday, February 1, 2024, Meeting

Full Video Recording (YouTube): https://www.youtube.com/watch?v=9a5FIDZmaFk

ATTENDEES

Voting Members
Natalie Shepp, Pima County DEQ
Christina McVie, Tucson Audubon
Barabara Johnson, Tohono O'odham Nation SXD
Kimberly Baeza, Pima County RWRD
Alexandra Chavez, Town of Oro Valley
Teresa Bravo, TEP
Howard Myers, SAHBA
Jessica Rodriguez, Tucson Water
Paula Bluemer, Town of Marana
Charles Stack, Town of Oro Valley citizen
Andrew Agnew, City of Tucson citizen
Michael Catanzaro, City of Tucson
Lyn Loveless, League of Women Voters
Abigail Okrent, Pima County DEQ
David McAllister Romo, Pima County citizen
Ben Elias, City of Tucson
Jessica Rodriguez, City of Tucson
Luke Cole, Sonoran Institute
Brendan Lyons, SAHBA

Non-Voting Members
Katie Predick, Arizona Sonora Desert Museum

Staff Lead
Hannah Oden

1. Call to Order and Introductions

The meeting was conducted in a hybrid format and called to order by the chair at 9:33 a.m.

2. In-kind Form

Members were informed that PAG would calculate in-kind contributions for meeting time from the attendees list. Members were asked to inform PAG Planning Coordinator Hannah Oden if their work is funded by federal dollars.

3. Approval of December 1, 2023, EPAC Meeting Summary

Action: A motion was made by Christina McVie and seconded by Paula Bluemer to approve the December 1, 2023, EPAC Meeting Summary. The motion passed with 18 yes votes and 1 abstention.

Abstention: Andrew Agnew

4. Nomination to fill vacant Professional/Technical Interest Area EPAC committee member

PAG Planning Coordinator Hannah Oden introduced Alejandra Fraijo Arce as a nominee to fill the Professional/Technical interest area vacancy. Ms. Oden provided information on HDR Inc. and reviewed Ms. Arce's qualifications to fill the vacancy.

Action: A motion to nominate Alejandra Fraijo Arce to the Executive Director to fill the vacancy for the professional/technical area interest area was made by Jessica Rodriguez and seconded by Christina McVie. The motion was passed unanimously.

5. EPAC Top Environmental Issues List for 2024

Video Timestamp: 22:40

PAG Planning Coordinator Hannah Oden reviewed the final draft of the EPAC Top Environmental Issues List for 2024 that incorporates additional feedback from members since the Dec. 1, 2023, meeting. Members discussed the refinement of specific language included in the document and its purpose.

Members requested the following amendments:

- End of second paragraph of "Clean Air" section (*added text*):
  To facilitate transitioning away from fossil fuels in energy systems, planning efforts to increase transportation electrification, including infrastructure development, also will be prioritized.
- Final paragraph under "Climate Variability" (instead of "decreasing carbon-based sources"): Locally, key impactful mitigation measures would include increasing renewable energy sources and *transitioning away from fossil fuels in energy systems*, encouraging and protecting alternate modes of travel, and improving electric vehicle infrastructure.
- In the first sentence of the second paragraph of the "Wildlife Connectivity" section, replace "*encouraged*" with "*prioritized.*"

The presentation is available HERE.

Action: A motion to adopt the final draft of the EPAC Top Environmental Issues List for 2024 with the amendments discussed, while requesting written refinement of the Clean Air section before the next meeting to revisit and approve that section separately, was made by Abigail Okrent and seconded by Christina McVie. The motion passed with 20 yes votes and 2 abstentions.

Abstentions: Brendan Lyons and Teresa Bravo

6. City of Tucson Urban Forestry Program

Video Timestamp: 47:11

City of Tucson Urban Forestry Program Manager Nicole Gillett provided an overview of the Urban Forestry Program and Tucson Million Trees project. Ms. Gillett discussed the program's roles, mission, goals, and reviewed the program's action plan and current status. Members were informed of the importance of canopy coverage, ways to improve canopy coverage in Tucson, and available resources.

The presentation is available HERE.

This was an information item.

7. Save Our Saguaros – Beat Back Buffelgrass Month

Video Timestamp: 1:21:07

Arizona Sonora Desert Museum Conservation Scientist Katie Predick provided information on the Save Our Saguaros event on Feb. 3, 9:00 a.m., at Sentinel Peak Park. The event relies on volunteers and will feature a community-driven mural creation.

This was an information item.

8. Future Agenda Items

Members suggested the following items:

- Presentation on an urban national wildlife refuge for the Santa Cruz River
- Pima County Priority Climate Action Plan presentation
- A status update on best management practices to address invasive species
- Equity and Environmental Justice presentation
- Greenhouse gas performance measure
- Fare free public transportation and financial considerations
- Possibilities for incentivizing, normalizing and streamlining the purchase and installation of heat pumps to replace methane gas furnaces
- How the money going toward a new jail and incarceration affects environmental issues
- PFAS presentation form Watershed Planning Subcommittee
- Environmental impact of reduced working days

****Pursuant to open meeting laws, the committee cannot discuss or act on any matter raised that is not listed on this agenda.*

9. Adjournment

The meeting was adjourned at 11:25 a.m.

Attachment A1:

SCOPE OF WORK

PAG Household Travel Study and Assessment

PURPOSE

Since the 2009 national household travel survey (NHTS) add-on conducted, PAG has been focusing on the model development and maintenance of transportation models using additional data sources which includes StreetLight data and Census Bureau data such as The American Community Survey (ACS) and The ACS Public Use Microdata Sample (PUMS).

Transportation is one of the major sources of greenhouse gas emissions, and auto dependency of travel behavior has a significant impact on climate change. Daily travel behavior has been influenced by current technological advancements across various domains, including the working environment, transportation mode, e-commerce, and the adoption of electric vehicles. Furthermore, the COVID-19 pandemic transformed daily travel behavior in terms of change in mode choice and trip frequencies, and it influences current mobility pattern.

As updating the existing old travel patterns and incorporating the newly transformed post-COVID travel behaviors, this household travel study and assessment focuses on collecting post-COVID travel behavior patterns to understand how regional travel behavior has been evolved and affect to air quality and to improve PAG transportation planning models with the collected travel behaviors.

OBJECTIVES

With the purpose addressed above, PAG is considering two major objectives to represent the characteristics of the regional households and their travel patterns. First, a survey design evaluation includes not only the household travel survey (HTS), but also the other supplemental surveys. PAG considers roughly 1% sample of population or households. And, there are supplemental surveys such as 2019 and 2022 regional transit on-board survey, continuous annual employee commuting survey by PAG's travel reduction program (TRP), and collected crowd-sourcing data. Second, considering the concern on climate change and greenhouse gas emissions, the HTS highlights the changes in travel modes compared to the previous survey results, and incorporates preferences for sustainable transportation options to develop a strategic transportation plan for promoting modal shift towards more environmentally friendly transportation in the future.

TASKS

Task 1: Introduction

ETC will conduct a kickoff meeting within 15 business days of receiving a "Notice to Proceed", at which time we will discuss the schedule and key elements of the work approach, discuss the work plan, project management roles, data quality control/assurance plan, responsibilities and discuss methods for reporting work plan progress to the PAG Team.

The ETC Team will then develop a detailed project management plan, including:

- Communication protocols for the project along with proposed meeting schedule
- Defined roles and responsibilities for all involved parties
- A review of deliverables timeline for PAG staff.
- Enumeration of QA/QC procedures and protocols, including a description of data privacy and data protection procedures throughout the project.
- Internal and external communication plan
- Determine air quality and sustainability subject matter experts to ensure proper data capture of those areas
- Resources that the PAG Team will need to provide

ETC will provide project management details via a real-time web link to help promote clear communication among all parties. In addition to the real-time link, ETC will provide weekly/monthly updates via email with attached documents and schedule updates.

A separate, targeted Work Plan can be drafted by the ETC Team after the PMP is developed to obtain clarity on each project Task. This approach is taken to help facilitate faster reviews and to keep the PMP focused on protocols and expectations, while the Work Plan is focused on the scope of work and therefore can require additional discussion and review.

- ***Deliverables:***
  - Kickoff meeting minutes and action items

- Draft and Final Project Management and Work Plan
- Draft and Final Quality Control Plan
- Begin regular project status and schedule update meetings
- Begin Weekly fielding status reports

Task 2: Evaluation of Existing Supplement Data and Integration

The ETC Team, particularly WSP, will review and evaluate the existing supplemental data being used by PAG. Their review will determine the ability to integrate and enrich this survey collection effort. By fusing the high-resolution travel survey data with Streetlight data, our team can likely create a “big survey” dataset that expands the survey data, with improved coverage and representativeness, and, by leveraging WSP’s expertise in machine learning, enrich the big data by inferring trip purposes and modes.

- ***Deliverables:***
  - Task report for evaluation of existing supplemental data and the possibility of integration.
  - Study Materials, including draft questionnaire, sampling plan, & respondent materials in English.

Task 3: Survey Design

In this task, the ETC Team will work closely with the PAG Team to design the survey instrument, develop data collection methods, sampling methods, and a sampling plan. Target performance measures will be proposed.

- In designing the survey instrument for this project, the ETC Team will collaborate with PAG modeling staff to draft and finalize an Excel file listing all key data elements for household, person, vehicle, travel/activity, air quality and sustainability. The ETC team will ensure survey questions are clear, effective, and inclusive for all participants.
- The collection of household travel survey data will be through 3 primary methods: smartphone application, Internet-based/online collection tools including custom CATI system.
- Air quality and sustainability aspects will be appropriately addressed by working alongside the subject matter experts to support sustainability initiatives.
- The ETC Team will provide a dashboard for monitoring complete surveys by sampling goals, etc. Also, weekly/monthly interim reports will be provided to share survey progress, sample disposition, and data summary for key data elements. The ETC Team will administer the incentive program. Data collection will be continued until the sampling goals for the survey are met.

- ***Deliverables:***
  - Task report of survey design and targets.
  - Study Materials, including final questionnaire, sampling plan, and respondent materials in Spanish.

Task 4: Pilot Test and Evaluation

In this task, the ETC Team will recruit households and conduct a pilot test household travel survey of 100 households. It will be used for setting incentive amounts and developing orientation guides for a call center. It can also help catch typos or minor items which can be useful.

- ***Deliverables:***
  - Update Task 3 tools and methods as necessary, based on pilot test results and evaluation.

Task 5: Recruit and Survey

In this task, the ETC team will recruit households and conduct household travel survey. It includes 5,000 household travel surveys broken down into 4,200 randomly sampled households and 800 additional household travel surveys used to specifically target households that include transit riders, households that include a student from the University of Arizona, and households that include a student from Pima Community College.

Prior to conducting a survey, ETC Institute will perform training for interviewers and data entry personnel over a two-day period. ETC also will maintain a dashboard that is displayed in the call center that provides information regarding the calling effort. Also, ETC actively monitors data collection during its field and household travel collection processes to ensure superior data quality and distribution as well as facilitate successful individual performance review. ETC Institute will administer the household survey in accordance with the approved items and procedures developed during previous tasks. ETC will check, edit, and validate the household, travel, person, vehicle and recruitment data including employing the quality assurance/control plan developed previously. ETC will conduct a public outreach effort with the support of the PAG Team. The ETC Team will provide weekly reporting of survey progress and sample disposition, administer the incentive program, and continue collection until the sampling goals for the survey are met.

- ***Deliverables:***
  - Update survey results through a contractor-developed household travel survey webpage or other medium with the achievement of sampling targets.

- Begin data collection (assuming approximately 4200 household travel surveys)
- Collection Dashboard
- Interim datasets delivered as necessary

Task 6: Review and Analysis of the Survey

In this task, ETC institute will conduct internal review of the data collection, analysis of the survey results, and discussion with PAG peers about the survey. After all survey goals have been completed, and all data has been internally approved, the ETC and WSP Team will analyze the data and prepare the report including travel behavior changes, i.e., VMT change, transit mode shift, telework participation, trip frequency changes from 2009 and air quality impact. Before the ETC and WSP Team begins the report, the team will provide a report outline for approval, and the PAG peers will have a discussion on the survey results before finalizing it.

- ***Deliverables:*** Review and peer discussion report

Task 7: Documentation

Survey outputs and summary results will be provided. All survey results will be summarized in a final report which will include reports of individual task, travel behavior analysis incorporated with other supplemental data, and developed codes for data analysis and data management.

- ***Deliverables:***
    - Final report
    - Draft and final weighted datasets
    - Data Codebook and Data Users Guide
    - Developed codes for data analysis and data management

Management Plan and Schedule

This project will be managed by Yunemi Jang, PM at PAG. The PAG PM and ETC Institute will meet regularly according to phase stage. All outcomes and input and output data will be shared with others or submitted to a journal upon approval. A maximum of 14 months is anticipated for the completion of this project.

Project Schedule

Tentative Timeline: 5/24/2024 – 6/30/2025 (14 months)

	Task 1: Introduction	Task 2: Evaluation of Existing Supplement Data and Integration	Task 3: Survey Design	Task 4: Pilot Test and Evaluation	Task 5: Recruit and Survey	Task 6: Review and Analysis of the Survey	Task 7: Documentation
May-24							
Jun-24							
Jul-24							
Aug-24							
Sep-24							
Oct-24							
Nov-24							
Dec-24							
Jan-25							
Feb-25							
Mar-25							
April-25							
May-25							
Jun-25							

Note:
: Phase 1 (weekly meetings)
: Phase 2 (bi-weekly meetings)
: Phase 3 (meetings as necessary)
: Phase 4 (bi-weekly meetings)

Budget by Task

Task	Key Personnel	Cost	%
Task 1: Kick-off Meeting	Chris Tatham (ETC), Nick Jones (ETC), David Ory (WSP), Sara Khoeini (WSP)	$36,534.22	3.05%
Task 2: Evaluation of Existing Supplement Data and Integration	Chris Tatham (ETC), Nick Jones (ETC), David Ory (WSP), Sara Khoeini (WSP)	$12,418.73	1.04%
Task 3: Survey Design	Chris Tatham (ETC), Nick Jones (ETC), David Ory (WSP), Sara Khoeini (WSP)	$78,001.85	6.52%
Task 4: Pilot Test and Evaluation	Chris Tatham (ETC), Nick Jones (ETC), David Ory (WSP), Sara Khoeini (WSP)	$56,937.89	4.76%
Task 5: Recruit and Survey	Chris Tatham (ETC), Nick Jones (ETC)	$892,258.70	74.57%
Task 6: Review of the Survey	Chris Tatham (ETC), Nick Jones (ETC), David Ory (WSP), Sara Khoeini (WSP)	$83,539.94	6.98%
Task 7: Documentation	Chris Tatham (ETC), Nick Jones (ETC), David Ory (WSP), Sara Khoeini (WSP)	$36,813.30	3.08%
Total Budget		$1,196,504.63	100.00%

*Costs shown above include overhead rates, additional personnel costs (including programming), other direct costs, fringe, and fixed fee costs. The project won't exceed the total budget shown.

Hours by Task/Team(Key Personnel)

Task	Chris Tatham-ETC	Nick Jones - ETC	Dave Ory - WSP	Sara Khoeini - WSP	Total Hours**
Task 1: Introduction	24	80	2	8	198
Task 2: Evaluation of Existing Supplement Data and Integration	12	10	4	10	58
Task 3: Survey Design	24	80	4	20	492
Task 4: Pilot Test and Evaluation	30	50	2	10	360
Task 5: Recruit and Survey	110	300	0	0	6,375
Task 6: Review of the Survey	25	70	15	75	531
Task 7: Documentation	15	40	0	0	274
Total Hours	240	630	27	123	8,288

**Total Hours by task includes additional personnel (see Attachment A2).

Budget by Task/Team(Key Personnel)

Task	Chris Tatham-ETC	Nick Jones - ETC	Dave Ory - WSP	Sara Khoeini - WSP	Total Budget***
Task 1: Introduction	$2,251.44	$5,792.00	$226.76	$496.39	$36,534.22
Task 2: Evaluation of Existing Supplement Data and Integration	$1,125.72	$724.00	$453.52	$620.48	$12,418.73
Task 3: Survey Design	$2,251.44	$5,792.00	$453.52	$1,240.97	$78,001.85
Task 4: Pilot Test and Evaluation	$2,814.30	$3,620.00	$226.76	$620.48	$56,937.89
Task 5: Recruit and Survey	$10,319.10	$21,720.00	-	-	$892,258.70
Task 6: Review of the Survey	$2,345.25	$5,068.00	$1,700.70	$4,653.62	$83,539.94
Task 7: Documentation	$1,407.15	$2,896.00	-	-	$36,813.30
Total Budget	$22,514.40	$45,612.00	$3,061.26	$7,631.94	$1,196,504.63

***Total amounts per task include overhead rates, other direct costs, and additional personnel costs (see Attachment A2).

Kimley»Horn

Pima Association of Governments (PAG)
Dial-a-Ride and Microtransit Service Area Analysis

Scope of Services for Proposal
Prepared: 03/25/2024

TASK 1. CREATION OF A NEW MICROTRANSIT PLAN

Task 1.1. Microtransit Goals and Objectives, Performance Metrics, and Service Criteria

CONSULTANT will develop a list of goals, objectives, performance metrics, and service criteria for evaluating and implementing new microtransit services and converting existing Dial-a-Ride services to microtransit in Pima County. The microtransit goals and objectives will rely on existing plans and policies and focus on providing enhanced transit access in underserved communities and improving first and last-mile connectivity to fixed route transit. The goals and objectives will guide the development of performance metrics and service criteria for evaluating the feasibility of implementing new microtransit services or the potential conversion of existing Dial-a-Ride zones to microtransit. The performance metrics and service criteria will be grouped into the following categories and could include:

- **Service levels:** ridership, service coverage, passenger wait times, journey times, vehicle utilization, fares, pick-up/drop-off locations (curb-to-curb or virtual stop)
- **Financial:** capital and operating cost, cost per rider, cost per vehicle revenue hour
- **Environmental:** vehicle-miles traveled (VMT) and greenhouse gas emissions (GHG) reductions

CONSULTANT will work with PAG to develop content for a public-facing project website which will be updated throughout the planning process and serve as a repository for project deliverables and a launch point for project data and outreach. This website will be hosted on the PAG website and will link to external virtual engagement opportunities as needed. CONSULTANT will also create a web-based dashboard that will feature key geospatial datasets, microtransit opportunity zones, and ridership estimates. The dashboard will be created in ArcGIS Online with access available to PAG staff.

Task 1.2. Mobility Needs Assessment and Microtransit Opportunity Zones

CONSULTANT will conduct a high-level mobility needs assessment for Pima County to evaluate the suitability for microtransit implementation across the County. The needs assessment will utilize data to identify gaps in transit service coverage and access and travel behavior for various demographic groups. CONSULTANT will use the needs assessment to identify and prioritize microtransit opportunity areas. The prioritization process will group opportunity zones into high, medium, and low priority areas using a range of metrics including concentrations of population and employment, lowincome residents, zero-car households, short single-occupant vehicle (SOV) trips, and levels of transit access. CONSULTANT will develop near-term (2024) microtransit ridership forecasts for each opportunity zone using fare assumptions, 2023/2024 Replica trip data, and empirical data representing microtransit "capture rates" (percentage of total trips that are expected to shift to microtransit) developed from other microtransit deployments. The analysis will incorporate data and outputs from PAG's activity-based model (ABM) and other available survey data. No long-term forecast will be developed as part of this study.

Task 1.3. Outreach

CONSULTANT will conduct a round of public and stakeholder outreach as part of Task 1 to understand transportation needs across Pima County and how microtransit can improve mobility. This outreach will align with PAG's Regional Active Transportation Plan (RATP), which will be operating along a similar schedule. The outreach activities between the projects will be coordinated as much as possible to share resources and streamline activities and events. The public outreach will consist of up to six (6) virtual or in-person community meetings/workshops spread across Pima County. The CONSULTANT will also identify a Technical Working Group (TWG) consisting of staff from PAG, RTA, and local jurisdictions to provide input and strategic guidance at up to two (2) meetings during Task 1 and up to two (2) meetings during Task 2. The final format (number and location of activities) for the outreach will be determined at the beginning of the project. The outreach will:

- Inform the community of how microtransit works, its benefits, and present scenarios for how it can best be deployed across Pima County.
- Present the needs assessment findings and opportunity zones from Task 1.2 to the public.
- Solicit community feedback on specific mobility needs and barriers, the location of key destinations and activity nodes, the process and prioritization of zones, and the general preferences and attitudes towards using on-demand microtransit services. This information will be used as input to the Implementation Plan in Task 1.6.

Task 1.4. Microtransit Service Models

CONSULTANT will utilize the needs assessment and the public outreach feedback to develop microtransit "use cases" and align these with microtransit service models and their application across Pima County. Use cases provide critical information on travelers, how they interact and utilize transportation services, and their travel preferences and mobility needs. Use cases help inform the microtransit service offerings and how the services can be operated. Service models define the type of microtransit service and its characteristics such as the operator, vehicle type and fleet mix, drivers, pick-up/drop-off locations and curb requirements, pricing, software, technology requirements, etc.

Task 1.5. Microtransit Service Planning

CONSULTANT will develop microtransit service plans for the high priority opportunity areas that include fleet requirements, infrastructure requirements, and capital and operating costs. The service planning analysis utilizes a microtransit ride matching and route optimization model that determines the number of vehicles required to serve the estimated number of microtransit trips. The model utilizes a ride matching and route optimization and simulation tool developed by Kimley-Horn based on NextBillion, a web-based ride matching and route optimization Application Programming Interface

(API) used to simulate microtransit operations. The tool matches microtransit rides with similar origins and destination in similar time windows and then optimizes the dispatch and routing of a vehicle fleet to produce a solution that minimizes cost subject to a range of time constraints.

The model estimates service levels, wait times and vehicle occupancies, fleet requirements, and performance metrics such as vehicle revenue hours and vehicle-miles traveled (VMT). CONSULTANT will develop capital and operating costs for vehicles, drivers, fuel or charging, storage, curbside infrastructure, IT system requirements, maintenance, customer service, and other ancillary costs. The service planning analysis will also include an assessment of how the proposed microtransit services could impact mode shift, VMT reductions, and greenhouse gas (GHG) emissions/carbon reductions.

Task 1.6. Implementation Plan

CONSULTANT will develop an implementation plan that includes a detailed matrix outlining the required steps for microtransit planning, design, procurement, permitting, operation, and monitoring. The implementation roadmap will include various technical, financial, and service requirements such as procurement processes, expansion options, regulatory guidance, public agency coordination/governance, customer service, software implementation, security, vehicle maintenance, infrastructure, operator facilities and storage, marketing and outreach, employer and community partnerships, unbanked or non-smartphone populations, data standards/privacy, and grant funding and revenue opportunities.

Deliverables:

- Task 1 analysis memorandum and implementation plan matrix/roadmap
- Kick-off meeting and virtual bi-weekly coordination calls
- Public outreach virtual/in-person community meetings/workshops
- TWG meetings
- Project website and ArcGIS Online dashboard

TASK 2. UPGRADE OF RTA'S GENERAL PUBLIC DIAL-A-RIDE AREAS TO MICROTRANSIT

Task 2.1. Evaluate Current Dial-a-Ride Operations

CONSULTANT will utilize the data, metrics, and tools developed in Task 1 to evaluate the existing Dial-a-Ride operations and assess the potential to convert these services to microtransit if there are cost and ridership benefits compared to Dial-a-Ride. The analysis will also assess the potential to extend these on-demand services into other parts of Pima County including Picture Rocks, Vail, Corona de Tucson, and other underserved areas. The evaluation will include Dial-a-Ride ridership and cost data and will require coordinating with staff from PAG area transit providers to understand the opportunities and constraints facing Dial-a-Ride operations and identify ways to improve the transit experience, enhance service efficiency, and grow ridership through microtransit.

Task 2.2. Evaluate Upgrading the Microtransit Booking Systems

CONSULTANT will utilize the microtransit analysis tools from Task 1 to simulate and assess the ridership, operations, and cost impacts of implementing on-demand microtransit requests within the Dial-a-Ride service areas. The analysis will consider modifications to the Dial-a-Ride service area, pricing, span of service, vehicle type, and technology.

Task 2.3. Task 2 Public Outreach

CONSULTANT will conduct a second round of outreach as part of Task 2 to understand the specific mobility needs in the Dial-a-Ride areas and to assess the suitability for converting these services to microtransit. The outreach will include up to four (4) community meetings, which the team will try to align with the RATP outreach activities. CONSULTANT will hold up to two (2) TWG meetings that focus on the Dial-a-Ride analysis and findings. The final format for the outreach will be determined at the start of the project.

Task 2.4. Technology, ADA, Title VI, and Safety Assessment

CONSULTANT will assess the technological requirements for Dial-a-Ride and microtransit, which include the smartphone apps, real-time information, vehicle and rider tracking, communications provided to riders through various channels, and other booking options such as call centers or websites. The assessment will also assess ADA and FTA Title VI requirements to identify if there are any transit equity impacts associated with potential changes to Dial-a-Ride services. This task also includes an assessment of ADA-compliant features related to smartphone applications, other booking technologies, and vehicles. CONSULTANT will evaluate safety protocols related to riders, drivers, and data privacy.

Task 2.5. Local Transit Integration

CONSULTANT will evaluate existing fixed route transit service in the Dial-a-Ride and microtransit zones and identify opportunities for integrating fixed route with these new services to fill gaps in the existing network, expand the reach of transit, provide additional transit options, and create first/last-mile connectivity to major routes and transit hubs. Dial-a-Ride and microtransit can grow transit ridership by funneling riders to existing services and expanding the reach of the fixed route transit network. The Dial-a-Ride and microtransit recommendations from this study can support ongoing work by local transit agencies on Comprehensive Operations Analysis (COAs), which are assessing changes to the transit network.

Deliverables:

- Task 2 analysis memorandum
- Public outreach virtual/in-person community meetings/workshops
- TWG meetings
- Updates to the project website and dashboard

TASK 3. DEVELOP A COMPREHENSIVE TRANSIT PLANNING STUDY FOR VAIL AND PICTURE ROCKS

PAG has received a 5305 Statewide Transit Planning Award from ADOT to develop a comprehensive Transit Planning Study for the Picture Rocks and Vail areas. The Federal Aid Project Number is MPD-G-024 and the Project Number is PMP24G3P. Task 3 will include the scope of the award and will be included in the larger Dial-a-Ride and Microtransit Service Area Analysis.

TASK 4. RECOMMENDATIONS

Task 4.1. Develop Microtransit Planning Study

CONSULTANT will combine the findings and recommendations from Tasks 1, 2, and 3 to develop a comprehensive Microtransit Planning Study that provides a decision-making framework for the planning and implementation of new microtransit services across Pima County and for assessing the viability of modifying existing Dial-a-Ride services or converting these services to microtransit. The Study will provide a comprehensive analysis of potential microtransit service areas that will include local demographics, travel behavior and rider profiles, microtransit ridership estimates and service recommendations. The Study will incorporate a scenario analysis that evaluates the costs and benefits of deploying microtransit in various zones and its impacts on local transit and other mobility services including Dial-a-Ride. The Study will also consider scenarios with and without RTA Next funding.

The Study will summarize service planning recommendations for new microtransit zones and changes to Dial-a-Ride services, modifications to existing transit and other transportation infrastructure, policy considerations related to fares and transit access and equity, and implementation actions related to technical, financial, and operational considerations.

The CONSULTANT will deliver a draft version of the Study for review by PAG staff. CONSULTANT will update the Study based on one set of consolidated comments and issue a final version for adoption by the PAG Regional Council.

Task 4.2. Presentations to Boards and Committees

CONSULTANT will conduct up to six (6) virtual presentations to PAG member agency city council or planning commission meetings as directed by PAG. These presentations will be spread throughout the study to inform local stakeholders of the process and findings. These presentations are expected near the mid-point and at the end of the study.

Deliverables:

- Draft/Final Microtransit Planning Study
- Presentation materials
- Attendance at meetings of Boards and Committees

Letter of Transmittal

Sean Lowery
Ecopia AI
sean@ecopiatech.com
(437) 533-2699
March 6, 2024

Ms. Mead Mier-Welborn
Mr. David Atler
Pima Association of Governments

Dear Ms. Mier-Welborn and Mr. Atler,

I am writing to you on behalf of Ecopia AI to express our sincere interest in collaborating with the Pima Association of Governments (PAG) on initiatives aimed at advancing sustainability and urban planning in the Pima County region.

We have prepared a comprehensive statement of work outlining how our advanced artificial intelligence mapping technology can significantly enhance the efficiency and effectiveness of various projects undertaken by PAG. Our proposal is centered on the creation of geospatial data that can be used to address the specific challenges faced by PAG in the greater Tucson area.

Through our cutting-edge geospatial analytics platform, Ecopia AI offers unparalleled insights derived from high-resolution aerial imagery and advanced machine learning algorithms. By leveraging our technology, PAG stands to gain valuable intelligence for informed decision-making, enabling the implementation of sustainable policies and infrastructure development strategies.

We believe that a partnership between Ecopia AI and PAG holds great promise in driving positive change and fostering long-term prosperity for the residents of Pima County. Our team is committed to working closely with PAG to tailor our solutions to your unique requirements and ensure seamless integration into existing workflows.

I have attached our detailed proposal document for your review. We are eager to discuss how our collaboration can contribute to achieving the objectives outlined in PAG's mission and vision.

Thank you for considering our proposal. We look forward to the opportunity to further discuss how Ecopia AI can support PAG's initiatives and contribute to the advancement of sustainable development in Pima County.

Warm regards,

Sean Lowery
Sr. Dir. Business and Products
Ecopia AI

Ecopia

Pima Association of Governments (PAG)
Orthophoto Feature Extraction

Scope of Work

Task 1. Project Initiation

Task 1.1 Project Kickoff

The CONTRACTOR will present at and facilitate a virtual announcement of the project to stakeholders and all interested parties in coordination with PAG. The announcement will be used to bring general awareness of the project to stakeholders and will also be used so that maximum engagement can be achieved during the feedback meetings contained in Task 2.

- Attend meeting and provide brief presentation
- PowerPoint or talking points

Task 1.2 Imagery Coordination

The CONTRACTOR will establish contact and open communication with the orthophotography contractor covering roles and responsibilities to ensure seamless coordination during task 3 and throughout the project.

- Coordination call and email

Task 1.3 Regional Active Transportation Plan (RATP) Consultant Coordination

The CONTRACTOR will establish contact and open communication with PAG's RATP lead, or consultant identifying support needed from CONTRACTOR as the consultant builds the RATP.

- Coordination calls and emails

Task 1.4 Invoicing and Ongoing Coordination

After the completion of tasks 3 and subsequent delivery to PAG (task 4.1), the CONTRACTOR will submit an invoice for the $255,822 firm fixed portion of the contract covering the planimetric data production and delivery. To cover the non firm fixed fee portions, the CONTRACTOR will submit periodic invoices to PAG with a brief progress report that summarizes work completed and which task the work supported.

CONTRACTOR will hold virtual check-in meetings every other week to facilitate continuous communication between the CONTRACTOR and PAG staff.

- Bi-weekly check-ins
- Brief memo accompanying invoices stating tasks and deliverables addressed

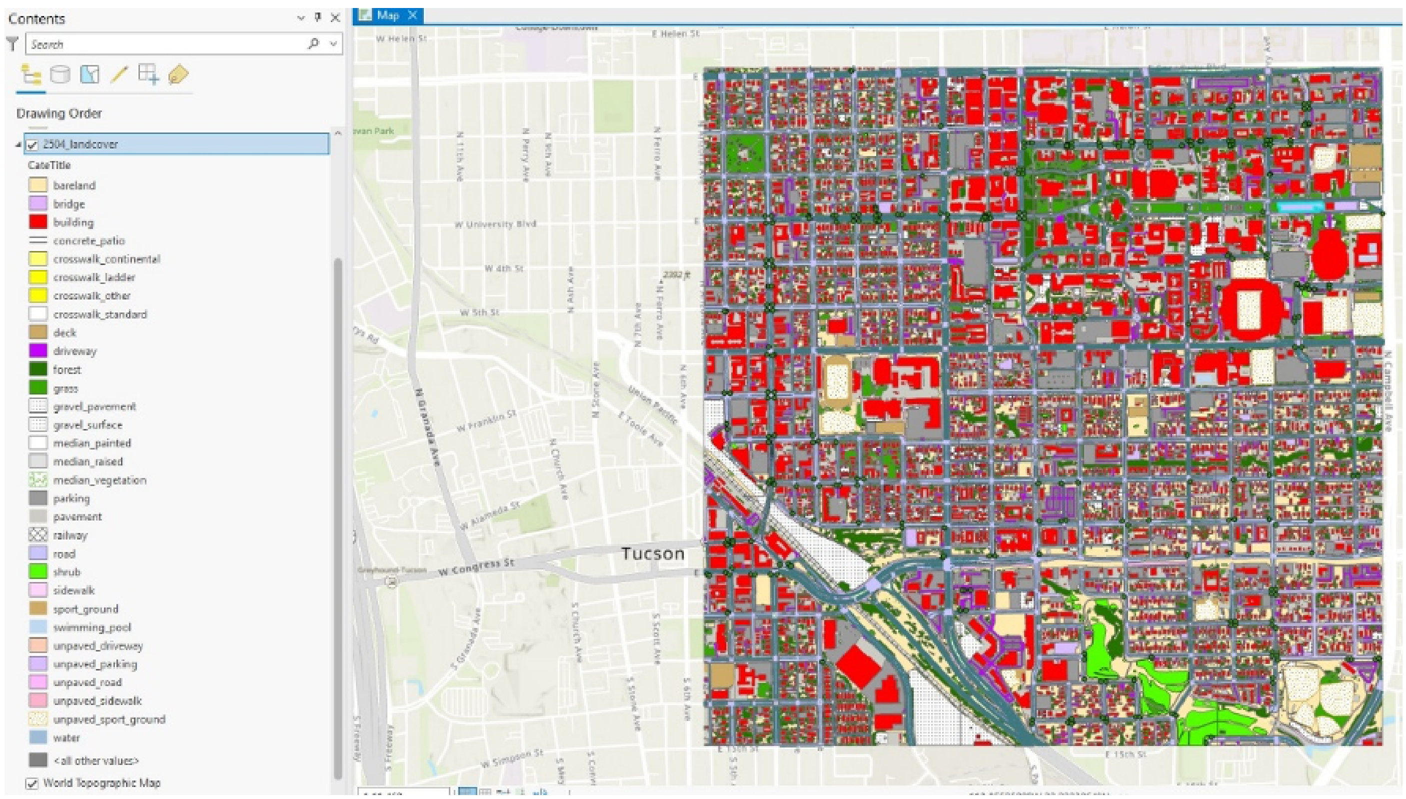
Task 2. Feedback Meetings

Task 2.1 Workshop Facilitation

The CONTRACTOR will present at and facilitate one comprehensive in-person workshop, and one brief virtual workshop with stakeholders and all interested parties in coordination with PAG staff. Expected participants include members of PAG committees, working groups and other focus groups such as, but not limited to:

- ➢ PAG Regional Data Working Group
- ➢ Transportation Planning Committee
- ➢ Regional Mobility and Accessibility Plan Working Group
- ➢ Regional GIS leaders, transportation experts, and jurisdictional planners in the PAG community

During the meetings The CONTRACTOR will get feedback on the University of Arizona Case Study, explore existing local conditions, considering the unique geographical characteristics of the desert region, and interview stakeholders about area and sub-area bicycle and pedestrian facility types as well climate resilience aspects, such as shade, and safety amenities such as medians and landscaping. Discussions will include: features to classify, analysis needed, and what parameters to use for score and normalization of data by Sun Cloud portal and PAG's Alternate Modes dashboards.



The Ecopia Case Study demonstrated advanced impervious and transportation features in the UArizona area.

Aspects to be considered during the workshop include amenities that enable sidewalk accessibility, condition, and comfort; on-street and off-street bicycle facilities; low stress bicycling network connectivity; active transportation districts; shared use paths and rural paved shoulders; integration with local and regional transit; active transportation amenities such as street calming, lighting, shade, and wayfinding, protected intersections, bike boxes and continuous bike lane cycle tracks, pedestrian activated crossings, protected bike lanes, midblock crossing medians, seating, drinking water fountains and restrooms, bike-specific inductive loop sensors, protected bicycle racks, and bicycle and pedestrian priority and preemption.

- In person comprehensive workshop
- Virtual follow up workshop

Task 2.2 Feedback Meeting Report
Summarized results of meetings and interviews will be provided by the CONTRACTOR in a document for PAG describing data refinements needed for accuracy or place based transportation terminology and individual stakeholder follow-up will be included as needed.

- Feedback meeting report summary of classification refinements discovered, use cases considered, and any planned project modifications as a result of the workshops
- Individual stakeholder follow up as necessary

Task 3. Feature Extraction and Classification Production

Task 3.1 Imagery Data Transfer

CONTRACTOR will work with PAG, or directly with the orthophotography contractor as instructed, to ensure transfer of all pertinent raw and processed imagery data including stereo files and auto correlated point cloud which will enable the production of 3D features. CONTRACTOR will be responsible for any fees associated with the data transfer such as external hard drives or fees to upload to CONTRACTOR'S Amazon Web Services instance.

- Communication and Data verification support

Task 3.2 Feature Extraction and Quality Control/ Quality Assurance (QC/QA)
After completion of imagery transfer, CONTRACTOR will send all image files through a unique and proprietary, AI-based extraction and QC/QA workflow. With this being a predominantly automated process with little human intervention, tuned and refined over time, the task will be done under a firm fixed fee cost of $263,310 which has been determined based on the size of the project area, and how urbanized it is. Upon completion of production, CONTRACTOR will provide notice to PAG in the form of a document containing a brief summary of statistics and relevant information about the deliverables.

- Notice of production completion document

Task 4. Data Delivery

Task 4.1 Deliver to PAG
CONTRACTOR will deliver the feature extraction and classification files to PAG along with a summary of the deliverable and any pertinent information gathered during production.

- Feature Extraction Data with metadata

Task 4.2 Deliver to PAG Contacts for Use in Portal
With coordination from PAG, CONTRACTOR will deliver to PAG contacts, the feature extraction and classification files, or a subset or analyzed variation of, and provide light support for the view only use and display via publicly facing internet portals.

- Communication and Data transfer support to data partner portals

Task 4.3 Deliver to CONSULTANT for RATP Analysis
With coordination from PAG, CONTRACTOR will deliver the feature extraction and classification files to RATP CONSULTANT and provide any necessary support to ensure the CONSULTANT can use the data for RATP analysis.

- Communication and Data transfer support to data user

Task 4.4 Public Announcement
Share with Stakeholder Community via one public meeting selected by PAG and one mutually supported media release.

- One virtual group meeting
- One mutually agreed news release

Task 5. Advise on Utilization of Data

As background, PAG's separate RATP contractor is identifying regional connection opportunities including all possible arterial street crossings using safety data and multi-use path and sidewalk connections and how these connections intersect with local and regional transit services. They will analyze relevant data including multimodal data collection, transit data, air quality data, travel behavior data, PAG's household travel survey data, *and the orthophoto extraction data delivered in task 4*. That project will involve corridor and connection identification, multiple network alternatives, regionally significant active transportation corridor renderings, and feasibility analysis.

Task 5.1 Coordination and Discussions
With PAG, applicable stakeholders or advisors, and necessary PAG consultants, CONTRACTOR shall coordinate, engage in, and document discussions regarding how carbon reductions can be achieved and advise future analysis.

- 1 virtual group meeting
- Follow up with individual stakeholders or advisors as necessary
- Meeting notes

Task 5.2 Display of Results
CONTRACTOR will document the results of Task 5 in a final report with a brief executive summary , visuals in a presentation with talking points, or an online storymap. Prior discussion will yield the decision on the most useful format.

- Display of Use Case Discussions

DELIVERABLE PRODUCTS:

Required products of this project are re-listed here as a summary. An administrative draft of each deliverable will be submitted in electronic format and, when requested, hard copy format, to the PAG project manager for review. Comments from the PAG project manager will be incorporated into the deliverable by the CONTRACTOR, before it is distributed for external review. Comments received during the external review process will be incorporated into the final drafts.

- PAG's Regional Data Working Group Feedback Summary (such as meeting notes from each meeting documenting the process, decisions made, use cases discussed, and coordination conducted)
- Feature extraction files including detailed metadata
- Written Media release posted online
- Display of Example Use Cases
- Final billing report with all deliverables listed and checked off

SCHEDULE and BUDGET:

The feature extraction and classification deliverables will be provided as soon as 30 days, and no longer than 90 days after Ecopia receives the 2023 orthophotography and the contract effective date. Continued coordination will be needed thereafter for summary write-up and collaborative efforts to utilize the data.

Below is an anticipated project timeline which assumes an April 29, 2024, or earlier, contract effective date. If the contract effective date is expected to be later than April 29, 2024, the schedule will likely equivalently slide.

PAG PROJECT TIMELINE

2024

		Apr	May			June			July			August			Sep
Task 1. Project Initiation															
1.1 Project Kickoff	May 3		■												
1.2 Imagery Coordination	April 29 - May 3	■	■												
1.3 RATP Consultant Coordination	April 29 - May 3	■	■												
1.4 Invoicing and Ongoing Project Coordination	April 29 - September 4	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Task 2. Feedback Meetings															
2.1 Workshop Facilitation	May 6 - May 10		■												
2.2 Feedback Meeting Report	May 31				■										
Task 3. Feature Extraction and Classification Production															
3.1 Imagery Data Transfer	April 29 - May 10	■	■												
3.2 Feature Extraction and QC/QA	May 13 - June 30			■	■	■	■	■							
Task 4. Data Delivery															
4.1 Deliver to PAG	July 1								■						
4.2 Deliver to PAG Contacts for Use in Portal	July 5								■						
4.3 Deliver to PAG Consultant for RATP Analysis	July 5								■						
4.4 Public Announcement	July 16									■					
Task 5. Advise on Utilization of Data															
5.1 Coordination and Discussion	July 8 - August 31								■	■	■	■	■	■	
5.2 Display of Results	August 31													■	

Ecopia

Budget

Prime Agency Name		Ecopia AI														AZ Certified DBE?	No	
				Task 1. Project Initiation				Task 2. Feedback Meetings		Task 3. Feature Extraction and Classification Production		Task 4. Data Delivery				Task 5. Advise on Utilization of Data		
Employee Name	Project Role	Total Hours	Unit Price	1.1 Project Kickoff	1.2 Imagery Coordination	1.3 RATP Consultant Coordination	1.4 Invoicing and Ongong Coordination	2.1 Workshop Facilitation	2.2 Feedback Meetings Report	3.1 Imagery Data Transfer	3.2 Feature Extraction and QC/QA	4.1 Deliver to PAG	4.2 Deliver to PAG Contacts for Use in Portal	4.3 Deliver to PAG Consultant for RATP Analysis	4.4 Public Announcment	5.1 Coordination and Discussion	5.2 Display of Results	Total
Sean Lowery	Project Manager	50	$200.00	2	1	3	8	16	3			1	1	1	2	8	4	$10,000.00
Abigail Coholic	Stakeholder Engagement	25	$180.00	1		2		16	1							4	1	$4,500.00
Brianna Brown	Writer and Designer	55	$180.00	1		2		16	6						6	8	16	$9,900.00
Carolyn Dawson	Project Accountant	2	$125.00				2											$250.00
Ecopia Production Workflow	Data Production	Firm Fixed	$255,822.00							Firm Fixed	Firm Fixed							
			SUB-TOTAL	$760.00	$200.00	$1,320.00	$1,850.00	$8,960.00	$1,860.00	$0.00	$255,822.00	$200.00	$200.00	$200.00	$1,480.00	$3,760.00	$3,860.00	$280,472.00
			TRAVEL COSTS					$4,000.00										$4,000.00
			OTHER DIRECT COSTS															$0.00
Total Prime Price % of Total Budget	100%		SUBTOTAL	$760.00	$200.00	$1,320.00	$1,850.00	$12,960.00	$1,860.00	$0.00	$255,822.00	$200.00	$200.00	$200.00	$1,480.00	$3,760.00	$3,860.00	$284,472.00
Subconsulting Agency Name		N/A														AZ Certified DBE?		

PROJECT TOTALS		*This Row Labels Invoicable Deliverables*	1.1 Project Kickoff	1.2 Imagery Coordination	1.3 RATP Consultant Coordination	1.4 Invoicing and Ongong Coordination	2.1 Workshop Facilitation	2.2 Feedback Meetings Report	3.1 Imagery Data Transfer	3.2 Feature Extraction and QC/QA	4.1 Deliver to PAG	4.2 Deliver to PAG Contacts for Use in Portal	4.3 Deliver to PAG Consultant for RATP Analysis	4.4 Public Announcment	5.1 Coordination and Discussion	5.2 Display of Results	Total
		Sum of Hours	4.0	1.0	7.0	10.0	48.0	10.0	0.0	0.0	1.0	1.0	1.0	8.0	20.0	21.0	132.0
		Deliverable % of Total Hours	3.0%	0.8%	5.3%	7.6%	36.4%	7.6%	0.0%	0.0%	0.8%	0.8%	0.8%	6.1%	15.2%	15.9%	1.0
Prime % of Project	100%	Sum of Effort $	$760.00	$200.00	$1,320.00	$1,850.00	$8,960.00	$1,860.00	$0.00	$255,822.00	$200.00	$200.00	$200.00	$1,480.00	$3,760.00	$3,860.00	$280,472.00
DBE $	$0.00	Sum of Travel $	$0.00	$0.00	$0.00	$0.00	$4,000.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$4,000.00
DBE % Commitment	0%	Sum of Other Direct Costs $	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Subs % of Project	0%	Total by Deliverable $	$760.00	$200.00	$1,320.00	$1,850.00	$12,960.00	$1,860.00	$0.00	$255,822.00	$200.00	$200.00	$200.00	$1,480.00	$3,760.00	$3,860.00	$284,472.00

Firm fixed for extraction is $255,822

Services are $24,650

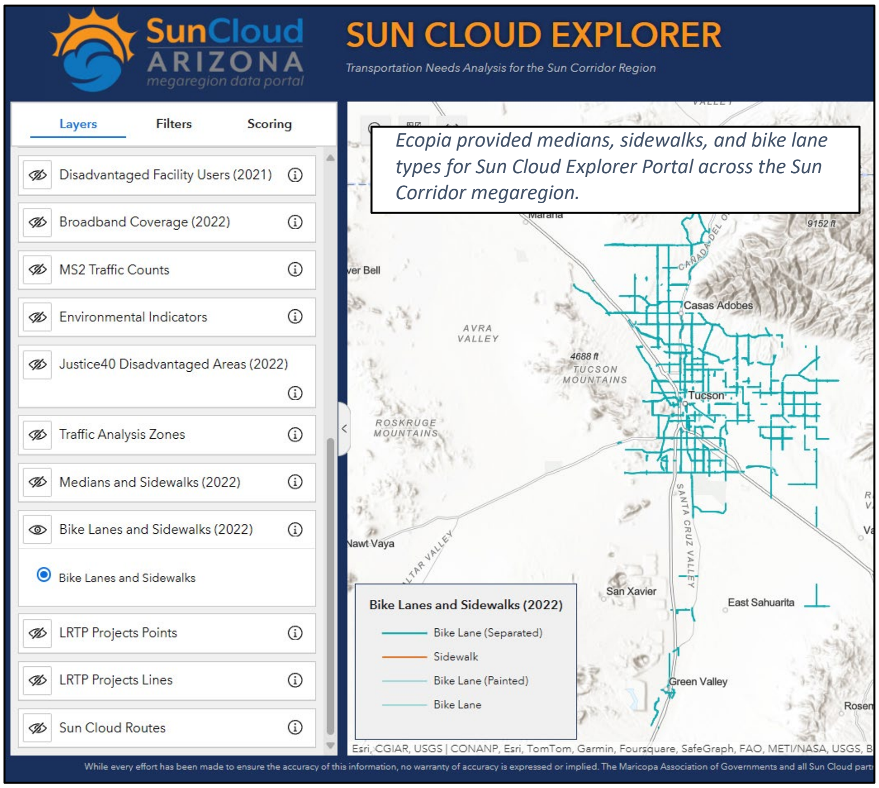
Travel is $4,000

Total is $284,472

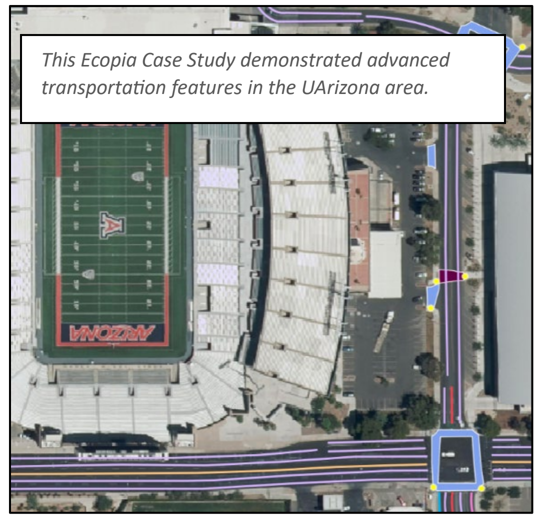
Orthophotography Feature Extraction – Attachment 1

Mapping Active Transportation Infrastructure – Example Data Illustration and Use Cases

Ecopia proposes to create a comprehensive GIS dataset that can be used to plan for the safety, accessibility, sustainability and encouragement of active modes of transportation. PAG, along with the contractor and stakeholders, will refine the data quality and local terminology through a workshop and meetings, considering the unique geographical characteristics of our desert region and our bicycle and pedestrian facility types. Included are climate resilience features, such as tree shade, and safety amenities, such as raised medians and landscaping. Each feature will include attributes such as width, paint, raised, vegetated, etc.



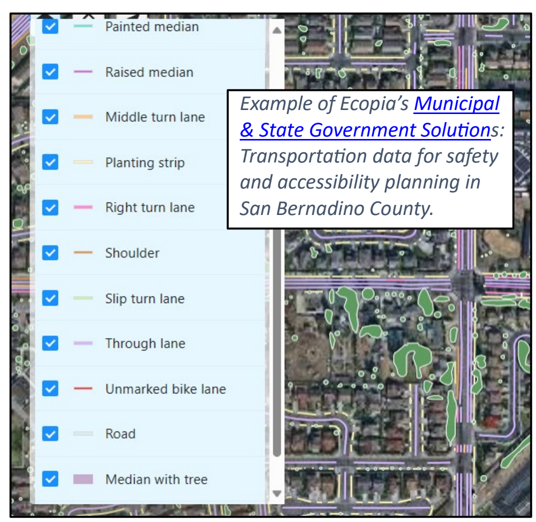
Ecopia provided medians, sidewalks, and bike lane types for Sun Cloud Explorer Portal across the Sun Corridor megaregion.



This Ecopia Case Study demonstrated advanced transportation features in the UArizona area.

As an example use-case, Ecopia's active transportation dataset (Figure on upper left) enables consistency for analysis across the Sun Corridor megaregion. The Sun Cloud portal strengthens regional alignment and planning for smart infrastructure investments to improve mobility and safety. The Sun Cloud portal reduces workloads, removes barriers to data/technology, and provides access to rich data by providing tools to help streamline needs assessment, generate performance metrics, and aid in prioritizing needs using a customizable set of scoring criteria.

Example Three-Dimensional Land Cover Dataset: Ecopia's feature classification efforts in [Houston](#) aided climate resilience planning by analyzing land cover features, demographics, and climate data to uncover climate resilience equity gaps.



Example of Ecopia's Municipal & State Government Solutions: Transportation data for safety and accessibility planning in San Bernadino County.

View the Ecopia Tech website to see story maps and additional details about the example projects in these figures.