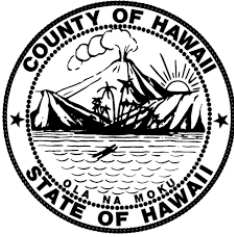


Hawai'i Island Shared Mobility Roadmap

February 2020



Project Partners



Hawai'i County is one of four counties in the State of Hawai'i, with jurisdiction over Hawai'i Island. The County is nearly 4,028 square miles and is home to over 185,000 people. The County seeks to build a community of trust based on transparency, community, and collaborative problem solving to protect the environment and plan for the future of kamali'i (children). Hawai'i County is an equal opportunity provider and employer.



Ulupono Initiative is a Hawai'i-focused impact investment firm working to improve the quality of life for island residents in four key areas: locally produced food; clean, renewable energy; and better management of water and waste.



The Shared-Use Mobility Center (SUMC) is a public-interest organization dedicated to achieving equitable, affordable, and environmentally sound mobility across the U.S. through the efficient sharing of transportation assets. By connecting the public and private sectors, piloting programs, conducting new research, and providing policy and technical expertise to cities and regions, SUMC seeks to extend the benefits of shared mobility for all.

Core Planning Team

April Suprenant, County of Hawai'i, Planning
Brenda Carreira, County of Hawai'i, Mass Transit
Greg Gaug, Ulupono Initiative
Karissa Moffett, County of Hawai'i, R&D
Kathleen Rooney, Ulupono Initiative
Margaret Larson, State Energy Office
Michelle Agbigay, County of Hawai'i, R&D
Natasha Soriano, County of Hawai'i, Planning

Riley Saito, County of Hawai'i, R&D
Ron Whitmore, County of Hawai'i, R&D
Roy Takemoto, County of Hawai'i, Mayor's Office
Tiffany Kai, County of Hawai'i, Mass Transit
Tina Clothier, PATH Hawai'i

Stakeholder Group

Aki Marceau, Elemental Excelsior
Aza Summers, Summers Architects
Carol Ignacio, Blue Zones Project - Sharecare
Chandler Carlson, Elemental Excelsior
Charles Melton, Turo
David Yamamoto, County of Hawai'i, Public Works
Debbie Baker, Kailua Village Improvement Business District (KVBID)
James Hustace, South Kohala Traffic Safety Committee
Jason Young, Roberts Hawai'i
Jay Kimura, Hawai'i County Economic Opportunity Council
Kanani Iaea, Enterprise Holdings
Kelly Alonzo, Waikoloa Beach Marriott
Kelvin Kohatsu, Hawai'i Electric Light
Kelvin Tjia, Secure Bike Share Hawai'i
Kris Kindschuh, Polynesian Adventure Tours
Lauren Reichelt, Blue Planet Foundation
Lea Kapuni, County Council, District 5
Margo Bunnell, Roberts Hawai'i

Marisa Oishi, Secure Bike Share Hawai'i
Matt Rubin, County of Hawai'i
Nahelani Webster, BT Consulting, Inc.
Noel Morin, Hawai'i Island Electric Vehicle Association
Paul Strauss, Hawai'i Department of Health
Richard Ha, Hamakua Springs
Rob Mora, Lyft
Robert Miyasaki, Hawai'i DOT
Ryan Fujii, Hawai'i DOT
Sharon Hirota, County of Hawai'i, Housing and Community Development
Sherilyn Wee, UH Mānoa Public Policy Center
Stephanie Donoho, Kohala Coast Resort Association
Sue Lee Loy, County of Hawai'i
Toby Taniguchi, Hawai'i Island Chamber of Commerce
Wendy Laros, Kona-Kohala Chamber of Commerce

Table of Contents

Glossary of Acronyms	6
Summary of Roadmap Strategies	7
1. Project Overview	10
1.1 Planning Process and Roadmap Contents.....	10
1.2 Stakeholder Engagement.....	12
2. Existing Conditions	14
2.1 Land Use and Demographics.....	14
2.2 Housing and Jobs Access.....	14
2.3 Travel Patterns and Challenges.....	15
2.3.1 Commuting.....	15
2.3.2 Town Centers	16
2.3.3 Social Service Trips	17
2.3.4 Tourism and Visitor Trips	17
2.4 Transportation Energy and GHG Emissions.....	18
2.5 Existing Transit and Multimodal Services	18
2.5.1 County Transit.....	20
2.5.2 Other Private Sector Services	21
2.5.3 Bikesharing.....	21
2.6 Policy Context.....	21
2.6.1 County General Excise Tax Surcharge	21
2.6.2 Transit and Multimodal Transportation Master Plan	22
2.6.3 Downtown Hilo Multimodal Master Plan.....	23
2.6.4 Federal-Aid Highways 2035 Transportation Plan.....	23
3. Mobility Goals and Strategies.....	24
Foundational Strategies	24
FS1. Mobility Management Framework.....	24
FS2. Pilots and Partnerships	25
FS3. Scaling and Integration.....	27
FS4. Stakeholder Engagement	27
FS5. Community Outreach	28
FS6. Funding	28
FS7. Reliable Transit	30
FS8. Clean Fleets.....	30

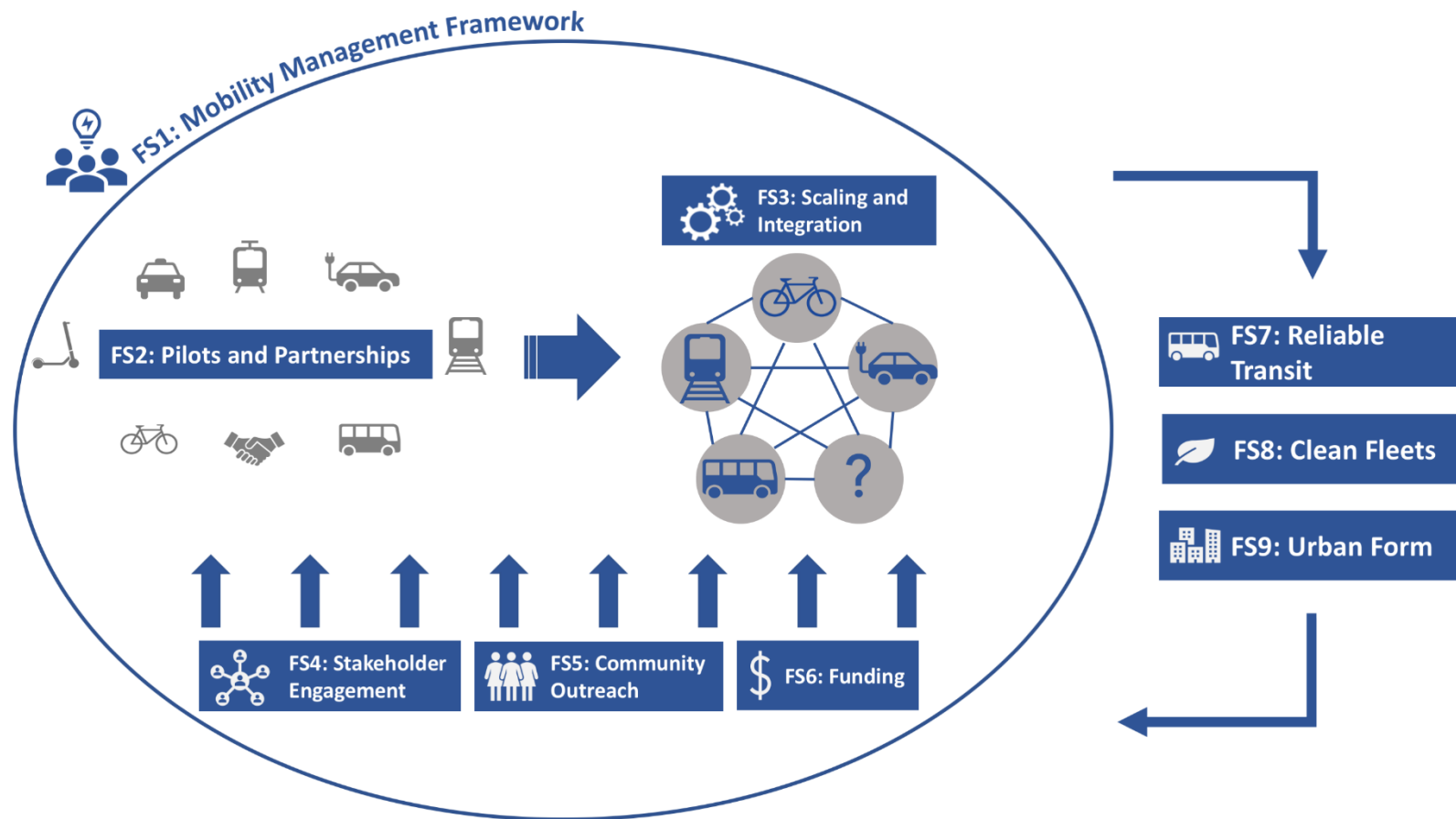
FS9. Urban Form.....	31
Targeted Strategies	32
TS1. Bikesharing in Town Centers.....	32
TS2. Carsharing Partnerships	32
TS3. Pooled Rides for Long Trips	33
TS4. Employer-led Initiatives.....	33
TS5. Mobility Options for Tourism.....	35
TS6. Visitor Education	36
TS7. Services for Vulnerable Populations.....	36
TS8. Improve Student Mobility.....	38
TS9. Infrastructure for Shared Mobility	39
4. Conclusion and Next Steps	40
Appendix 1: Shared Mode Penetration Levels and Potential Outcomes	41
Appendix 2: Image Sources	43

Glossary of Acronyms

ADA	Americans with Disability Act
BEV	Battery Electric Vehicles
County R&D	The County Office of Research and Development
EV	Electric Vehicles
FCEV	Fuel Cell Electric Vehicles
FS	Foundational Strategy
FTA	Federal Transit Administration
GET	General Excise Tax
GHG	Greenhouse Gas
MIP	Mobility Innovation Partnership
MPO	Metropolitan Planning Organization
MTA	Metropolitan Transportation Authority
SOV	Single-Occupancy Vehicles
TDM	Transportation Demand Management
TMA	Transportation Management Association
TNC	Transportation Network Company
TS	Targeted Strategy
VMT	Vehicle Miles Traveled
VTO	Volunteer Transportation Organization
WAV	Wheelchair Accessible Vehicles
ZEV	Zero-Emission Vehicles

Summary of Roadmap Strategies

Foundational Strategies (FS)		
Strategy No.	Name	Description
FS1	Mobility Management Framework	Build internal capacity to guide mobility policy and implementation through a Mobility Management Framework and dedicated staff.
FS2	Pilot and Partnerships	Create a Mobility Innovation Partnership (MIP) program to identify, test, and evaluate mobility pilot projects.
FS3	Scaling and Integration	Create opportunities for transit riders to conveniently connect with shared mobility services through multi-modal integration platforms.
FS4	Stakeholder Engagement	Engage diverse stakeholders in shared mobility planning and implementation.
FS5	Community Outreach	Develop a sustained community outreach campaign that builds understanding and support for transportation options.
FS6	Funding	Optimize existing County revenue allocations and pursue additional sources of funding.
FS7	Reliable Transit	Restore and expand reliable mainline bus service.
FS8	Clean Fleets	Incorporate zero emission vehicles (ZEV) into existing shared mobility services, and ensure new County-supported services are zero-emission.
FS9	Urban Form	Pursue housing, land use, and urban design approaches that increase mobility options for residents.



Targeted Strategies (TS)		
Strategy No.	Name	Description
TS1	Bikesharing in Town Centers	Continue bikeshare expansion with an emphasis on populations who are currently unserved or unable to use the system.
TS2	Carsharing Partnerships	Develop creative partnerships to deploy carsharing services in select locations.
TS3	Pooled Rides for Long Trips	Build on early success in carpooling and vanpooling to expand the availability of shared rides for longer trips.
TS4	Employer-led Initiatives	Pursue County Transportation Demand Management (TDM) programs and employer-led initiatives to incentivize using shared mobility options.
TS5	Mobility Options for Tourism	Develop mobility options to provide more flexibility to visitors in meeting different types of tourism-related travel needs.
TS6	Visitor Education	Communicate the availability of multi-modal mobility options to the hospitality industry, and work with the industry to help educate visitors.
TS7	Services to Increase Mobility	Pursue innovative partnerships to expand mobility services for seniors and disabled populations.
TS8	Improve Student Mobility	Address student mobility challenges and school trips' ripple effect throughout Hawai'i Island's transportation system.
TS9	Infrastructure for Shared Mobility	Develop "quick-build" infrastructure and right-of-way improvements that improve safety and efficiency for shared mobility.

1. Project Overview

Hawai'i Island is a diverse and dynamic region with deeply held values around family, community, and sustainability. The County of Hawai'i is committed to ensuring that the Island's transportation systems reflect those values, enabling residents and visitors to enjoy everything this special place has to offer.

Building and maintaining a vibrant transportation system is fundamental to quality of life on Hawai'i Island. The transportation network can promote economic opportunity, social equity, and environmental sustainability, but it can also exacerbate challenges around economy, equity, and environment when improvements to the network do not keep pace with change. The Island is undergoing change locally relating to demographics, jobs access, and associated travel patterns, and residents are also concerned about the role that local transportation plays in contributing to global climate change.

Shared mobility holds promise in addressing many of these challenges. New, shared mobility options that can complement the Island's existing transportation system include various forms of carsharing, bikesharing, and ridesharing. These new services and technologies also offer a means by which the Island can more quickly transition to cleaner fuels and zero emission vehicles (ZEV). However, new policies, plans, and programs are needed to harness the potential benefits of shared mobility.

The Hawai'i Island Shared Mobility Roadmap (Roadmap) brings together a cross-sectoral group of stakeholders to establish strategies for building out a County-wide, multi-modal transportation system founded on partnerships, technology, and innovation. The Roadmap aligns with a variety of important efforts emerging around the Island, including the County's Transportation Hui process, implementation of the County Transit and Multimodal Master Plan,¹ programming of the County General Excise Tax (GET) surcharge funds, the forthcoming 2040 General Plan, and multi-faceted efforts to reduce greenhouse gas (GHG) emissions. Ultimately, the Roadmap can serve as a shared playbook for Island stakeholders as they collaborate in creating a reliable, affordable, and sustainable transportation system for all.

1.1 Planning Process and Roadmap Contents

The Roadmap was developed over a 12-month process beginning in January 2019. The process was led by the Shared-Use Mobility Center (SUMC) in close collaboration with the Hawai'i County Office of Research and Development. The effort included a variety of research and analysis activities and an extensive stakeholder engagement component, with an overarching goal to build capacity and create buy-in among stakeholders around new mobility approaches.

Specific project activities and deliverables included:

Existing Conditions Research. SUMC conducted literature reviews and interviews to establish current area conditions and projected trends.

¹ The Roadmap is intended to reinforce and complement the Transit and Multimodal Master Plan, which contains implementation details on many of the strategies presented in this document. While the Roadmap presents new strategies that go beyond the Master Plan, the Master Plan should continue to serve as the primary document informing transit planning and investments, as the Roadmap does not address traditional public transit strategies.

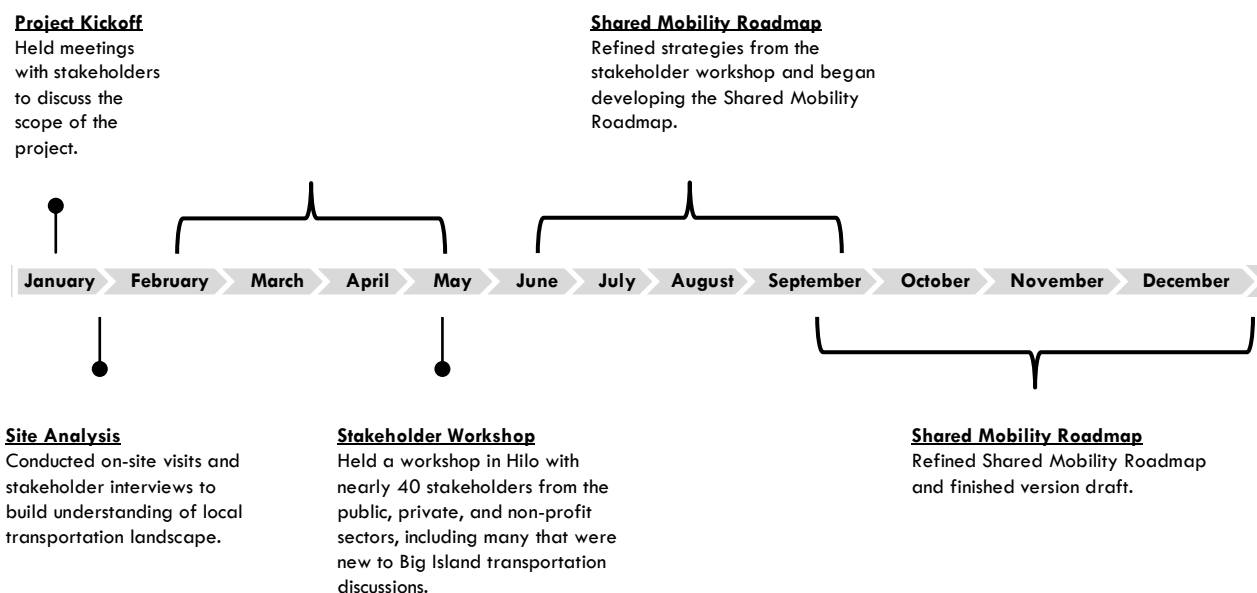
Goals and Benefits Analysis. SUMC utilized its Shared Mobility Benefits Calculator to create several scenarios for shared mode penetration, vehicle miles traveled (VMT) reductions, and emissions and cost outcomes. This analysis was used to inform development of cost-effective and impactful Roadmap strategies.

Stakeholder Engagement. SUMC formed a stakeholder working group, conducted a series of stakeholder interviews, and held a full-day workshop in May 2019 to elicit community input on goals and strategies, in addition to a Transportation Hui meeting earlier in the year.

Draft Shared Mobility Roadmap. SUMC prepared a Draft document containing strategic recommendations for stakeholder review, and collected comments on the document.

Final Shared Mobility Roadmap. SUMC prepared this final Roadmap document containing strategic recommendations for County Council acceptance.

The planning process is described in more detail below.



1.2 Stakeholder Engagement

Stakeholder engagement in the development of Roadmap goals and strategies occurred through several different groups and venues, as described below.

A **Core Planning Team** was composed of organizations and County departments who would ultimately be responsible for implementing any Roadmap recommendations. The Core Team provided direction and insight throughout the process, including:

- Input on project design and key topics during kickoff meeting and on-site research.
- Input on formation of the stakeholder group and workshop approach.
- Participation in stakeholder workshop as speakers and facilitators.
- Feedback on Draft Roadmap.

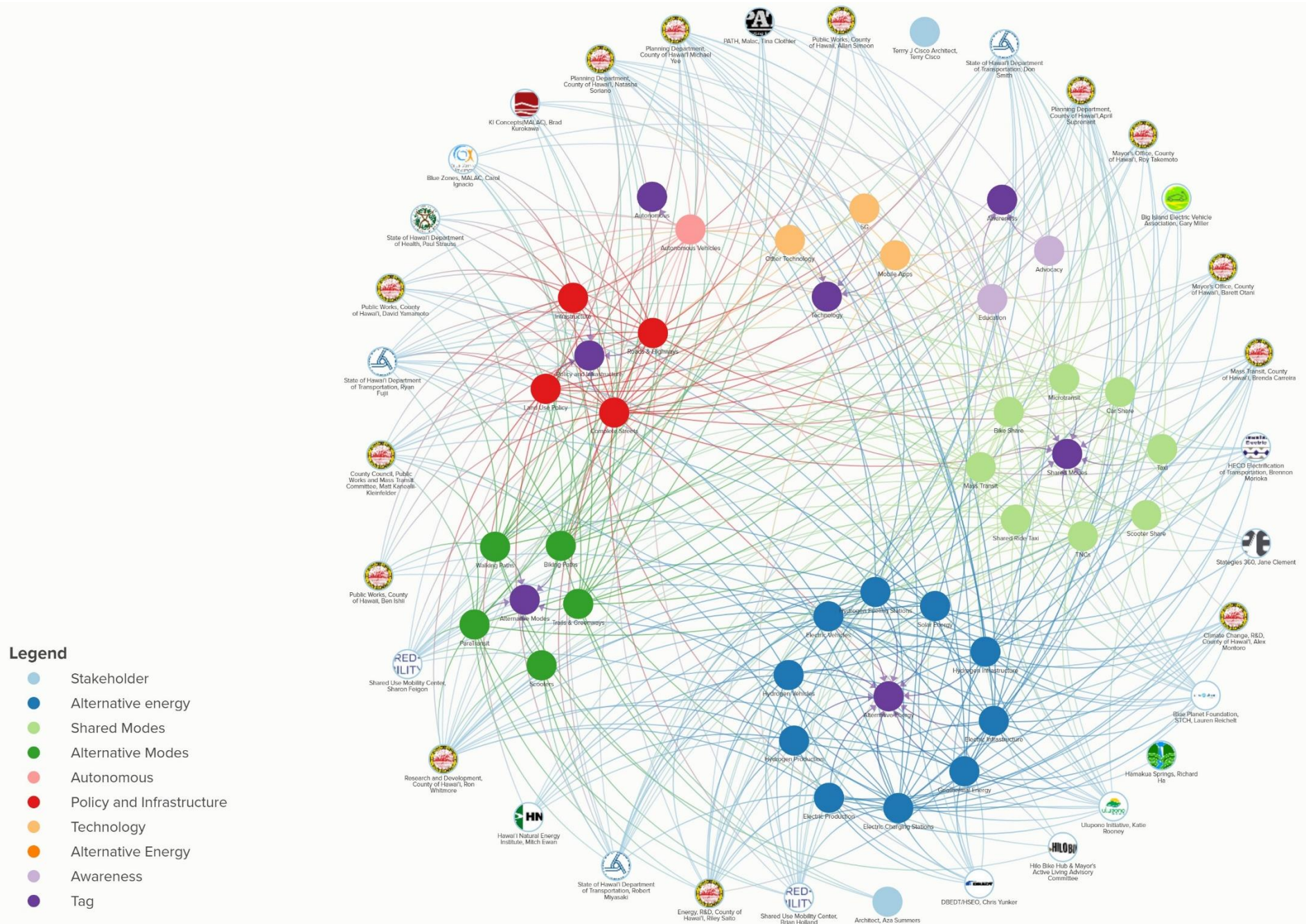
The **Roadmap Stakeholder Committee** was composed of organizations with a strong interest in mobility. These organizations were engaged through:

- Input during information-gathering (interviews).
- Participation in the May 2019 stakeholder workshop (below)



The **Transportation Hui** consists of members of the above two Roadmap groups, as well as additional stakeholders focused on other elements of transportation such as public health and pedestrian facilities. The County Office of Research and Development (County R&D) organized the first Transportation Hui on February 1st, 2019 and developed the network map shown below in Figure 1. Subsequent Hui meetings have occurred on a regular basis and will continue to convene as needed to advance further dialogue.

Figure 1. Transportation Hui Network Map



2. Existing Conditions

New mobility strategies must be informed by an understanding of the transportation landscape of Hawai‘i Island. This section summarizes land use, demographics, travel patterns and challenges, existing transportation services, and policy context that underpins the Island’s transportation systems.

2.1 Land Use and Demographics

Hawai‘i Island is largely rural. Only 60% of the population lives in its eight urban areas, and even in those places population density is low. These land use patterns present special challenges for mobility. The dispersal of people and the distances between trip origins and destinations often discourage utilization of transit and other shared modes, which rely on concentrations of people and destinations to function efficiently. This low-density land use pattern instead creates a reliance on personally owned (and often single-occupant) vehicles to get from point A to point B in a more flexible manner. **Mobility strategies** for Hawai‘i County operate within these constraints and **must be tailored to locations based partly on their density and typical trip lengths**.

Hawai‘i County is undergoing demographic changes that are putting increasing strain on the existing transportation system. The County’s population is expected to grow by 50% by 2040.² A significant share of the population has special mobility needs or constraints that should be reflected in the County’s mobility strategies:

- Around 17% of residents live in poverty,³ and many of these do not have access to a car.
- Beyond those living in poverty, around 45% of households are ALICE (Asset Limited, Income Constrained, Employed) families, living on a household survival budget that does not leave a cushion for savings or unexpected expenses.⁴
- Seniors comprise a large and growing share of the population.
- Around 13% have a disability that affects their mobility.

Visitors make up more than 15% of the population on any given day (around 35,000 in 2018), and over the course of the year, more than 1.7 million visitors pass through the island.⁵

2.2 Housing and Jobs Access

Hawai‘i Island faces a shortage of affordable housing, with more than 50% of households qualifying as “shelter-burdened.” Overcrowding in homes is also common. Much of the Island’s more affordable housing is located distant from jobs, approximately 25% of which are tourism-related and thereby clustered in tourist areas. Commute-related travel demand is increasing due to these imbalances between job and housing centers on the Island, leading to higher VMT and associated GHG emissions as well as higher transportation

² County of Hawai‘i Planning Department. *Key Findings from the General Plan Comprehensive Review Trends and Forecasts Report*, Sept. 2016 <http://www.hiplanningdept.com/wp-content/uploads/2017/01/TrendsForecastsKeyFindings.pdf>

³ US Census, American Community Survey Five-Year Estimates, 2013-2017. Retrieved from: <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

⁴ United for ALICE National Comparisons, 2016. Retrieved from: <https://www.unitedforalice.org/national-comparison>

⁵ Hawai‘i Tourism Authority Monthly Visitor Statistics, December 2018 <http://files.Hawaii.gov/dbedt/visitor/tourism/2018/Dec18.pdf>

costs, which only further strain household finances. Planning for a multimodal transportation system should be geared towards providing more affordable and convenient options for residents at all income levels.

2.3 Travel Patterns and Challenges

In developing strategies for providing new mobility options, it is helpful to characterize travel patterns such as trip types, mode share, and common origins and destinations. This section describes the characteristics of long-distance commutes, travel in “town centers,” social service trips, and visitor travel, identifying key challenges associated with each trip type.

2.3.1 Commuting

Solo driving is the dominant means of getting to work on the Island, though the solo driving rate is lower than that of the mainland. Carpooling takes place at nearly twice the rate of the mainland and at a greater rate than the state as a whole. Public transit, however, makes up only a small proportion of work trips.

According to stakeholders who helped inform the Roadmap, these patterns may reflect cultural attitudes about mobility and independence. Stakeholders shared that shared mobility as it is presently conceived is “not in the tradition” of the Island, and that residents are independent and used to driving their own vehicles. A number of stakeholders pointed to solo driving and vehicle preferences being part of a “strong truck culture,” especially in rural areas. This can be seen in vehicle registration figures: more than 41,000 trucks were registered in the county as of 2018—some 20% of vehicles registered on the Island—of which fewer than 60 were classified as tax-exempt farm vehicles.⁶ For the state as a whole, trucks made up 15% of total registrations.

Commute mode split (% of workers age 16+, 2018) ⁷			
Mode	Hawai'i County	State of Hawai'i	United States
Drove Alone	71.5	67.3	76.3
Carpooled	17.5	14.7	9.0
Public Transit	1.2	5.7	4.9
Walked or Biked	2.1	4.4	3.1
Worked at Home	6.6	5.4	5.3
Other (includes taxi/transportation network companies)	1.2	2.6	1.3

⁶ 2018 *State of Hawai'i Data Book*, Tables 18.08 and 18.09. <http://dbedt.hawaii.gov/economic/databook/2018-individual/18/>

⁷ American Community Survey 2018 1-year data. Figures in table may not sum to exactly 100% due to rounding.

Commute Flows

The Island experiences major commute flows from the Hilo area to Kona and the Kohala Coast. Many of these commutes are undertaken by mobility-disadvantaged and transit-dependent workers travelling to tourism-related service jobs. Other important commuter flows include Puna to Hilo, Ocean View to Kona, and Hawi/Honoka'a to Waimea. Extremely long commutes are very common. In 2015, some 2 in 5 workers (nearly 20,000 people) had commutes longer than 50 miles, as shown in Figure 2 below.

Challenges Identified

- Many residents live in low-density areas with poor street connectivity and walkability, conditions that are hard to serve productively with public transit.
- Lack of efficient alternatives & complements to support alternatives to single occupancy vehicle (SOV) commutes.
- Transit reliability, service levels impacting ridership.
- Often intertwined with/aggravated by school drop-off/pick-up.

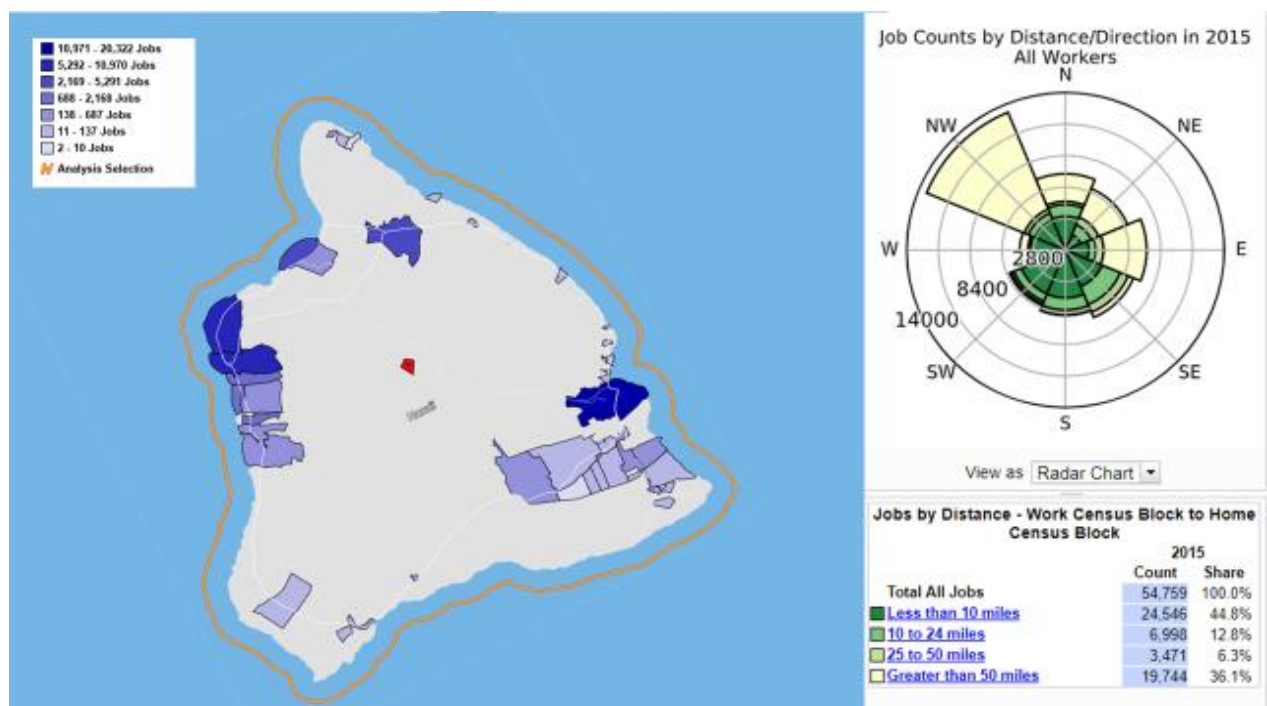


Figure 2. Job Counts by District and Direction

2.3.2 Town Centers

While much of the Island's population is dispersed in more rural areas, there are concentrations of residents in higher-density communities referred to here as town centers. Town centers include Kailua Village in the Kona area, Waimea in the north of the Island, and downtown Hilo and surrounds, as well as smaller centers such as Hawi, Honoka'a, and Volcano.

Trips within town centers tend to be shorter and more focused on errands, social activities, recreation, and other daily purposes. Because of their relatively higher density, town centers are also more disposed to a wider variety of shared mobility options, including bikesharing, carsharing, and microtransit.

Challenges Identified

- Ensuring that new mobility services reinforce and do not compete with existing transit.
- Traditional reliance on personal automobiles for even short trips.
- Barriers to extending benefits of new services to low-income town center residents.



2.3.3 Social Service Trips

Social service trips are defined specifically to consider the unique needs of vulnerable or traditionally underserved populations such as the elderly, disabled, or youth. While social service trips may also be commutes or “town center” trips as above, mobility strategies should be designed for these specific travelers and use cases, such as errands, medical appointments, and school drop-off/pick-up.

Challenges Identified

- Limited mobility options for older adults.
- Limited services with wheelchair accessible vehicles (vehicles with sufficient space and lifts/ramps for wheelchairs, also known as WAVs) and for American with Disability Acts (ADA) compliant trips.
- Many neighborhoods are not served by school buses, resulting in additional congestion from parent trips and adverse spillover impact on transit services.

2.3.4 Tourism and Visitor Trips

Tourism-related travel is a significant contributor to congestion and emissions from Island transportation, but is also an essential ingredient in the Island’s appeal to visitors. Trips to and from the airports, short trips at neighboring destinations, and day-long excursions are all common, and stakeholders have observed the following patterns:

- Most visitors arrive in Kona.
- Cruise ship visitors often stay for a day and are not really venturing beyond port neighborhoods or utilizing many mobility services.
- Visitors arriving by plane typically rent a car at the airport for the duration of their visit.
- Many visitors stay the duration of their visit on the Kona side, especially in resort communities on the Kohala Coast.
- Day trip destinations include to South Kona, Volcano Nat’l Park, Hilo.



Challenges Identified

- Visitors who are international, city-dwellers, and/or millennials expect multimodal options that are not often available on the Island.
- Renting a car is viewed as a necessity due to limited alternatives at the airports, but airport-resort trips contribute to VMT/GHG emissions, and vehicles are not always necessary at resorts.

2.4 Transportation Energy and GHG Emissions

The State of Hawai'i has established a goal to reach carbon-neutrality by 2045.⁸ In 2017, Hawai'i County Mayor Harry Kim signed a proclamation committing the County to transition to 100% renewable transportation fuels by 2045. Achieving these reductions will require aggressive efforts, as transportation is the most significant emissions source on the Island, comprising 53% of all GHG emissions in 2015.⁹ The County has jurisdictional authority and other influence to reduce transportation emissions primarily through two mechanisms, each with a shared mobility component:

- **Reducing travel demand and VMT by enabling more efficient transportation modes.** Transit and other types of shared mobility are usually more efficient than personal vehicles and produce fewer GHG emissions per passenger mile travelled. When implemented, many of the strategies identified in the Transit and Multimodal Transportation Master Plan and in this Roadmap will lead to emissions reductions.
- **Promoting a shift to cleaner fuels and vehicles such as battery electric vehicles (BEV) and fuel cell electric vehicles (FCEV).** Transportation electrification will reduce Hawai'i Island GHG emissions more rapidly than in many other regions nationally, because the share of clean, renewable generation sources on the Island's electricity grid is more significant (around 57% of generation before the 2018 Kilauea eruption). Electrification of shared mobility has already begun with plans to test two battery electric buses and a partnership with the University of Hawai'i to test hydrogen fuel cell shuttles.

County R&D is coordinating climate mitigation efforts, which will soon include development of a GHG emissions inventory that will more clearly define transportation-related emissions and development of a climate action plan with transportation emissions policies and programs.

2.5 Existing Transit and Multimodal Services

New mobility services should build upon the existing backbone of public transit, as well as other more flexible options already operating. This section describes existing mass transit services along with bikesharing, ridesharing, and carsharing services already present on the Island.

⁸ HB 2182 (2018).

⁹ Hawaii County Office of Research and Development. *Greenhouse Gas Emissions Inventory for 2015*. retrieved on February 6, 2020 from <http://records.hawaiicounty.gov/Weblink/1/edoc/102649/COH%20GHG%20Emissions%20Inventory%20for%202015%20Report.pdf://>

What are Shared Mobility Services and Where Do They Work Best?



Bikeshare: dockless or docked bikes available for short-term rental. Bikeshares succeed in moderate or high density, generally around mixed-use, recreational, or commercial areas; they are best suited for trips in the 1-3-mile range.



Carpool: shared rides between auto-dependent areas and activity centers. New technologies are making on-demand one-off carpooling possible, as opposed to traditional pre-arranged formats. Carpools require concerted marketing and outreach.



Carshare: cars available for short-term rentals (<1 day) used in moderate to higher density neighborhoods and job centers. Vehicles must be in walking distance of many users to be well utilized.



Microtransit: demand-responsive flexible transit service in mid-sized vehicles (12-20 passengers). Microtransit is a first/last mile service to higher-capacity bus routes and to moderate density areas with poor connectivity or walkability that are difficult to serve with fixed route transit.



Scootershare: docked or dockless rentable scooters in moderate or higher density, generally centered in mixed-use, recreational, or commercial areas. Useful for very short trips, often <1 mile.



Shared taxis and pooled ridesourcing: Shared for-hire rides that pool riders with common destinations and offer a lower price point than exclusive rides. They increase mobility and lower VMT; they work best in areas with higher density. TNCs are generally available only in the most active markets, but may be offered through public agency partnerships.



Taxis and ridesourcing: Hailed or pre-arranged rides that work in all but the lowest density areas, since they require passenger density at both ends of the trip to be worthwhile for drivers. Generally, more focused on airport and recreational trips than commutes.



Transit Bus: usually express service buses that run between nodes of activities. They require moderate and higher density corridors for frequent service.



Vanpool: Subscription-based, commute-focused mode for lower to moderate density areas with concentrations of people traveling daily to similar destinations. Along with carpooling, this is a highly effective way to reduce VMT.



Volunteer Transportation Organizations (VTO): Mobility service for people without vehicle access in highly auto-dependent areas or corridors where transit and commercial services (including taxis/TNCs) are not present or productive.

2.5.1 County Transit

While the vast majority of trips on the island take place in private cars (either solo or shared), public transit remains an important option for many residents of the Island—especially those who live in the 7% of households without personal vehicles, or the nearly one-third of households with only one car available.¹⁰ In recent surveys of transit riders, 24 percent of respondents indicated they would not have been able to make their trip without transit.

Despite the high number of transit-dependent households, bus ridership has seen significant declines recently, dropping more than a third between 2012 and 2018. Declines in ridership have been attributed primarily to issues with reliability, as the aging MTA bus fleet saw frequent breakdowns and decommissioning. The fully functioning fleet at its height in 2012 included 55 buses operating on the agency's 33 routes (serving more than 1.2 million trips that year), but by 2017 this number had fallen to just 12 County-owned buses. Boardings declined in line with the fleet's size and reliability, with MTA providing 742,000 trips in 2018.¹¹ To fill the gap, MTA contracts with private sector operators Polynesian Adventure Tours and Roberts at very high daily rates while it negotiates a long-term operating contract and endeavors to rebuild the fleet.



Hele-On Bus Service, the Island's primary form of transit

Despite these discouraging trends, a number of promising developments have emerged since 2018:

- The County adopted the Transit and Multimodal Transportation Master Plan, with specific steps and financial plan for reconstituting bus services.
- The County enacted a 0.50% surcharge on top of the State General Excise Tax (GET), expected to generate \$50M annually to fund transportation as described in greater detail in Section 2.6.1.
- MTA brought on new leadership from the private sector to manage the rebuilding process.
- MTA has procured one hydrogen fuel cell bus and two zero emission buses and received federal funding for an additional four buses, with a goal of adding 10 buses over the next two years.

In addition to Hele-on bus services, MTA also operates the following specialty services:

- **Paratransit:** Wheelchair accessible shuttle in Hilo and Kona urbanized areas. Rides are \$4.00 and reservations must be made 24 hours in advance, with 30-minute pickup window.
- **Shared Ride Taxi Program:** Taxi ride subsidies targeted towards the elderly or disabled as well as mitigating drunk driving. Participants may receive up to 15 discounted coupons per week, purchased with cash in person at the Hilo bus terminal, Hilo transit yard, or by mail. Taxi operators determine when and whether to consolidate rides. The program has been popular, logging approximately 156,000 rides in 2016, but abuse of the system has led to a pause in implementation as providers are audited.
- **Other Social Service Rides:** Curb-to-curb rides for low-income, elderly, or disabled for employment, nutrition, and medical visits. Delivered under contract with the Hawai'i County Economic Opportunity Council (HCEOC), which provided approximately 40,000 rides in 2019.

¹⁰ ACS 2018 1-yr, Table B080201, [Household Size by Vehicles Available](#).

¹¹ National Transit Database 2018 Annual Agency Profile.

https://www.transit.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2018/9R03-91080.pdf

2.5.2 Other Private Sector Services

There are multiple micro mobility options that may be implemented throughout the County. Some private sector carsharing and ridesharing services include the following:

- **Turo peer-to-peer (P2P) carsharing.** Web platform where residents rent out their personal vehicles on a daily or weekly basis when not in use. Currently there are more than 750 vehicles across the Island on the Turo platform, which have been used more than 38,000 rental-days over the past 12 months.
- **Transportation Network Companies (TNCs, e.g. Uber/Lyft).** TNCs have been operating in Hilo and Kona since March 2017 and are now permitted to serve the Kona and Hilo airports.
- **Enterprise Vanpools.** Approximately 22 vanpools serving employment destinations, including MacFarms, Royal Kona Resort, and federal facilities. Vanpools are operated by Enterprise at market rates.
- **Historic Kailua Village Shuttle.** Fixed route shuttle operated by the Kailua Village Business Improvement District.
- **Airport shuttles.** Roberts, SpeediShuttle, Polynesian Adventure Tours, and others serving Kona airport and surrounding destinations.
- **Rental car companies.** Conventional rental cars available primarily at Kona and Hilo airports. Alamo, Hertz, and National also have rental facilities at resorts in Kohala and South Kona.
- **Multiple taxi operators.**

2.5.3 Bikesharing

Public bikesharing on the island was launched in 2016 as a partnership between the County Department of Research and Development, the Mayor's Active Living Advisory Council, and PATH. Bikeshare Hawai'i Island (BHI) operates as a 501(c)(3) nonprofit. Originally located only in Kona, the dock-based system was expanded in 2019 to a total of 10 stations, six in Kona and four in Hilo, with about 90 bikes total across the two areas. Operations are supported by a combination of grant and public monies as well as user fees.

2.6 Policy Context

The County of Hawai'i has a number of plans, policies, and implementation measures that may be leveraged to encourage the adoption of new integrated and shared mobility options, described in greater detail in this section.

2.6.1 County General Excise Tax Surcharge

In March 2019, the County enacted ordinance No. 19-29 that imposed a 0.5% surcharge on the GET applicable to business activity in the County. Ordinance 19-29 increased the 2018 Ordinance (No. 18-74) of a 0.25% surcharge by an additional 0.25% and extended the surcharge sunset date from December 2020 by an additional 10 years. The GET is expected to generate \$50 million in County revenue in the next fiscal year.¹²

The surcharge is enabled by State Act 247, which allows Hawai'i's counties to use surcharge monies for operations or capital costs of public transportation systems, including buses, trains, ferries, pedestrian paths, sidewalks, bicycle paths, public roads or highways, and expenses complying with ADA. The 2018 Transit

¹² Cook Lauer, N. "Council Passes General Excise Tax Hike." Hawaii Tribune Herald. Retrieved on February 6, 2020 from <https://www.hawaiitribune-herald.com/2019/03/14/hawaii-news/council-passes-general-excise-tax-hike/>

and Multimodal Transportation Master Plan identified a variety of capital and operating costs that could be supported with revenue from the original 0.25% surcharge; additional revenue from the expanded surcharge has not been planned for in the same manner.

2.6.2 Transit and Multimodal Transportation Master Plan

The County of Hawai'i Transit and Multimodal Transportation Master Plan (Master Plan) was adopted in August 2018 after extensive analysis, survey administration, and public input. The Master Plan is a comprehensive plan for enhancing transit and other modes in pursuit of the following vision:

“Create a high quality multi-modal transportation system that provides safe, reliable, convenient mobility choices that meet the commuting, social service, and other needs of our residents and visitors. The multi-modal system should be environmentally responsible and cost effective.”

The Plan is organized around five overarching goals illustrated here, reinforced by 35 strategies and detailed implementation recommendations addressing service planning, capital programming, and financial/budget projections.

The Shared Mobility Roadmap and the Master Plan are mutually reinforcing; for example, the Master Plan includes the following recommendations, with corresponding Roadmap strategies shown in bold:



Goal One:
Make riding transit easier, reliable, and more desirable than other options.



Goal Two:
Create a transit system to serve the employment and social needs of all people



Goal Three:
Implement technology to provide real time transportation information



Goal Four:
Create transportation hubs and bus stops with amenities that provide rider comfort and safety and that help support community and village gathering places



Goal Five:
Phase system implementation in a fiscally sustainable manner

- Master Plan - Immediate Priority (before 2020): Create a multi-modal transportation system on the Island. Embrace multiple vendors for providing bicycle, vanpool, transit and other multi modal services.

Roadmap - FS2: Create a Mobility Innovation Partnership (MIP) program to identify, test, and evaluate mobility pilot projects.

Roadmap - FS3: Create opportunities for transit riders to conveniently connect with shared mobility services through multi-modal integration platforms.

- Master Plan - Strategy: Add bikeshare in Waimea and Hilo, and contract for this service with PATH or another non-profit.

Roadmap – TS1: Continue bikeshare expansion with an emphasis on populations who are currently unserved or unable to use the system

- Master Plan - Strategy: Subsidize a vanpool program.

Roadmap – TS3: Build on early successes in carpooling and vanpooling to expand the availability of shared rides for longer trips.

- Master Plan - Strategy: Continue the Shared Taxi Program and expand it to other parts of the Island. Ensure a percentage of taxis are accessible by offering an incentive.

Roadmap - TS7: Pursue innovative partnerships to expand and improve mobility for seniors and people with disabilities.

- Master Plan - Strategy: Help achieve clean energy goals through alternative fuel bus and infrastructure purchases, doing so in a fiscally responsible manner.

Roadmap - FS8: Incorporate ZEVs into existing shared mobility services, and ensure new County-supported services are zero-emission.

2.6.3 Downtown Hilo Multimodal Master Plan

The Downtown Hilo Multimodal Master Plan was adopted by the County in April 2018 to re-envision the transportation environment of downtown Hilo. The Plan focuses on policies and actions for advancing “complete streets” that accommodate a variety of transportation modes, with specific recommendations on design infrastructure and streetscapes for pedestrians, bicyclists, transit vehicles, and vehicle parking. The Roadmap reinforces the Downtown Hilo Multimodal Master Plan in Targeted Strategy 9: **Develop “quick-build” infrastructure and right-of-way improvements that improve safety and efficiency for shared mobility.**

2.6.4 Federal-Aid Highways 2035 Transportation Plan

Hawai'i County is not part of a Metropolitan Planning Organization (MPO), the traditional regional agency format for developing regional transportation plans and distributing federal transportation funding to local jurisdictions. Instead, the State of Hawai'i develops a statewide plan (the Federal-Aid Highways 2035 Transportation Plan) and acts as a pass-through for federal transit funds to the County. The Highways 2035 plan is focused exclusively on state highways, and largely does not address strategies that can contribute to building out a multimodal system with shared mobility options.

3. Mobility Goals and Strategies

This section of the Shared Mobility Roadmap presents a set of strategies intended to move Hawai'i Island toward the following overarching goals:

- Enhance access to affordable and reliable mobility options for County residents and visitors.
- Reduce transportation-related GHG emissions by shifting travel to more efficient modes and cleaner vehicles.
- Build capacity and create stakeholder buy-in around new mobility approaches.

Strategies are organized into nine “foundational strategies” and nine “targeted strategies.” Foundational strategies are cross-cutting approaches that are essential conditions for the success of any shared mobility initiative. Targeted strategies are more specific to the types of trips described in Section 2 (commute, visitor, town center, and social service) or to types of shared mobility (e.g. carsharing, vanpooling, or bikesharing).

Taken together, implementation of the strategies presented here would yield significant benefits in terms of travel demand and associated GHG emissions. With aggressive action over the next 5-7 years, it is estimated that these strategies can reduce annual VMT on the Island by more than 100 million miles and cut annual GHG emissions by approximately 39,000 metric tons, similar to taking around 8,300 vehicles off the road.¹³

Foundational Strategies

FS1. Mobility Management Framework

Build internal capacity to guide mobility policy and implementation through a Mobility Management Framework and dedicated staff.

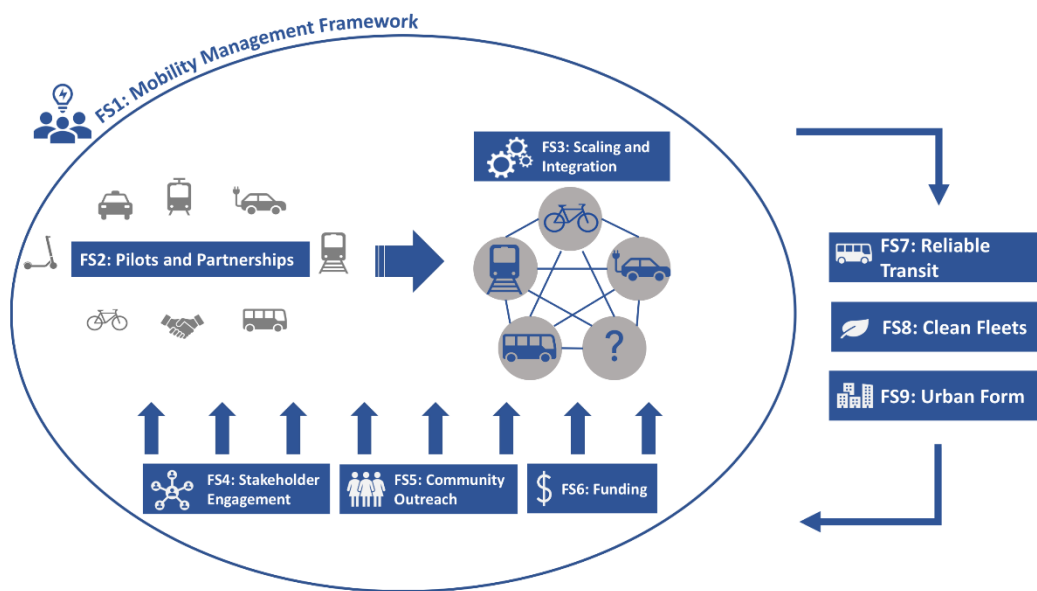
County administrative structures should reflect the dynamic, multi-faceted nature of the transportation system that is envisioned for the Island. To realize a future in which many clean mobility options are provided with many public, private, and community-based partners, the County should build upon its role as a convener and facilitator. Existing functions will always be necessary—the Planning Department sets policy and undertakes transportation planning, Public Works builds and maintains assets, and MTA operates services—but an additional function of “mobility management” is needed, in which a County office catalyzes and coordinates activities across many new services and stakeholders. The County should establish a mobility manager position (or section) to satisfy this need, supported at least in part by cost savings associated with both administrative efficiencies and more efficient, cleaner fleets.

Key Approaches:

- **Mobility Management Framework.** A new mobility manager role would be responsible for advancing a collaborative framework for implementing Roadmap strategies through piloting, scaling, and integrating transportation solutions. Elements of a mobility management framework, detailed in the Foundational Strategies below, would include:
 - **Pilots and Partnerships (FS2)**
 - **Scaling and Integration (FS3)**
 - **Stakeholder Engagement (FS4)**

¹³ Based on the High Penetration scenario detailed in Appendix A.

- **Community Outreach (FS5)**
- **Funding (FS6)**
- **Inter-Departmental Coordination.** The mobility manager would be responsible for advancing the mobility management framework and pursuing many of the strategies contained in this Roadmap. In addition, the role would be responsible for coordinating shared mobility activities with inter-related efforts around land use, housing, infrastructure, transit services, clean energy, and climate planning. Key efforts underpinning shared mobility, detailed in additional Foundational Strategies below, include:
 - **Reliable Transit (FS7)**
 - **Clean Fleets (FS8)**
 - **Urban Form (FS9)**



FS2. Pilots and Partnerships

Create a Mobility Innovation Partnership (MIP) program to identify, test, and evaluate mobility pilot projects.

The County is well positioned to facilitate partnerships with private sector mobility providers to test innovative models of shared and zero emission mobility on the Island. The County can serve as a convener and facilitator of projects by:

- Identifying interested mobility operators and other vendors for potential shared use of mobility devices/equipment, fueling, and charging infrastructure.
- Engaging additional partners such as philanthropic foundations, startup incubators, and research institutions.
- Identifying internal and external resources to contribute.
- Utilize HRS 36-42 to enter into transportation service performance savings contract to finance procurement of vehicles, vehicle fleets (including mass transit), fueling, and charging infrastructure.

Public-private partnerships can harness the capabilities and flexibility of emerging companies while mitigating risks associated with traditional County contracts. By piloting promising solutions, the County can

experiment on a limited-term basis and distill lessons learned that can inform larger investments over the long-term.

Key Approaches:

- **Advance Mobility** through innovative financing and procurement approaches, including transportation services performance savings contracts. The MIP program could deploy a structured procurement approach utilizing HRS103d Request for Proposal to identify potential partners for further discussion, or a less structured mechanism such as allowing for unsolicited proposals that may offer alternatives that advance the quality and economics of mobility.
- **County Incentives.** To minimize outside funding requirements while sharing risk with partners, the program could offer incentives to mobility operators, such as streamlined applications for operating certificates; expedited, reduced-cost permitting for infrastructure; or free parking at metered spots.
- **Pilot Evaluation.** The program should include an evaluation component to understand how pilots have performed. This evaluation may include metrics around community transportation access, changes in travel behavior, and/or cost-benefit analysis to understand return on investment in both financial and GHG terms. Evaluation efforts may be aided by partnerships with universities or other research institutions.
- **Event-based Approaches.** The County should test mobility management and shared mobility approaches during large events like the Merrie Monarch Festival. For example, event-goers could try out an on-demand shuttle service powered by neighborhood electric vehicles, or test drive shared fuel cell electric vehicles. Special bikeshare promotions could be tied in with the annual Ironman World Championship. Other tactics and demonstration opportunities include Car Free Days or events where sections of roadway are closed down to automobiles and reserved for pedestrians and cyclists.



The Merrie Monarch Festival Parade

FS3. Scaling and Integration

Create opportunities for transit riders to conveniently connect with shared mobility services through multi-modal integration platforms.

As new mobility services are tested and evaluated, some will demonstrate potential for long-term sustainability and scaling. These services can reinforce one another as an integrated network and yield mobility outcomes greater than the sum of its parts. Integrating various elements of the transportation system (such as payment, reservations, and trip planning) across multiple modes can make the network more convenient and reliable for riders, encouraging changes in behavior towards a less auto-centric and more multi-modal lifestyle.

Key Approaches:

- **Payment Platforms.** Payment processes can be a barrier to navigating trips across multiple modes. Currently, residents must carry cash to access transit and maintain multiple accounts and apps to access different mobility services. Shared Taxi Program coupons can only be purchased in-person in Hilo or ordered with a check by mail, and employer bus pass programs for Kohala resort workers were discontinued due to issues with cash handling. An advanced payment system that supports transactions across transit, bikeshare, and the shared taxi program would facilitate usage of all three services. Such a system would rely on smart card technology such as the Holo card developed in Honolulu, which MTA may be able to leverage.¹⁴ Short of this, MTA should develop online payment systems and stored value cards that would allow employers and residents around the Island to pay for transit services without the risks associated with cash handling or the inconveniences of in-person payment.
- **Trip Planning.** The Transportation Master Plan recommends the development of a mobile application that would provide real-time transit service information to riders. This transit-focused app should be developed in a way that can accommodate further development of multi-modal trip planning features, allowing riders to identify the best options for completing trips involving other shared modes. Such an app would be especially useful for connecting to first/last-mile options in the Island's town centers, including shared bikes, cars, and TNC rides.

FS4. Stakeholder Engagement

Engage diverse stakeholders in shared mobility planning and implementation.

The County has taken a stakeholder-driven approach to recent planning efforts associated with transportation master plans, the new General Plan, and the Shared Mobility Roadmap. This approach should be augmented with ongoing stakeholder engagement around implementation of the Roadmap.

Key Approaches:

- **County Inter-Departmental Mobility Team.** Staff from multiple County departments—including R&D, Planning, Mass Transit, and the Mayor's Office--guided development of the Roadmap as a "Core Planning Team." Such a team should continue to meet regularly to coordinate on Roadmap implementation.
- **Transportation Hui.** The Transportation Hui process convened by County R&D has been creating alignment among a broader set of public, private, and non-profit stakeholders around the Island's transportation goals. This format provides a venue for input on Roadmap implementation and could continue to meet on a quarterly basis to review progress and discuss emerging issues. In this case,

¹⁴ Transportation Master Plan, p.92.

the Hui should be expanded to include stakeholders who participated in the Roadmap workshop, including representatives from the tourism industry, social services providers, and other major employers.

- **Working Groups.** While quarterly Hui meetings provide an outlet for high-level discussion, focused stakeholder conversations on specific Roadmap strategies will be needed to achieve results. Working Groups should be formed (or leveraged where there are existing forums such as the Mayor's Active Living Council) as needed, to tackle specific sets of strategies such as transportation electrification, employer programs, and tourism/visitor transportation.

FS5. Community Outreach

Develop a sustained community outreach campaign that builds understanding and support for transportation options.

Community involvement in transportation decision-making is a critical component of social equity, particularly in places where transportation access is unevenly distributed between groups such as Hawai'i County. Effective outreach also helps to ensure that communities need, are aware of, and ultimately use new services. While dialogue on transportation has been active among key organizations and stakeholders, community residents and neighborhoods have sometimes been less engaged. A comprehensive community outreach effort could support the County's goals by:

- Generating insights about community mobility needs and preferences to better inform programs and investments.
- Building understanding in communities about mobility options, and how they can contribute to both household goals and big-picture goals like climate action.
- Creating channels for promoting new mobility services and programs as they arise, including to populations who are traditionally harder to reach.

Key Approaches:

- **Outreach Partnerships.** Support community organizations that have the relationships and influence to convene and lead outreach.
- **Informal Networks.** With a highly dispersed and hard-working population, there is only a limited set of formal community-based organizations that represent and connect to neighborhood residents. To engage hard-to-reach populations, outreach efforts may engage informal groups and networks, including churches or other faith-based groups or school-related associations.
- **Hawai'i Island Framing.** Tailoring messaging to the concerns and goals of local residents will be important in getting people engaged. Framing should address prevalent attitudes identified by stakeholders, including strong support for climate action; some resistance to change and aversion to risk; and vehicles as a symbol of independence and capability among residents. Shared mobility services should be framed as additional "clean transportation options" that support independence and access to family/social networks, jobs, and other opportunities.

FS6. Funding

Optimize existing County revenue allocations and pursue additional new sources of funding.

Substantial resources will be required to transition the Island's current transportation system—largely based on personally owned, internal combustion cars and trucks—to a clean, multimodal network of transportation

options. The County has taken steps to ensuring a significant source of long-term revenue from the GET surcharge, and can leverage this resource base to attract additional sources of funding to implementation of the Roadmap and related transportation plans.

Key Approaches:

- **GET Surcharge.** Upon increasing the County GET surcharge from 0.25% to 0.5%, revenue projections from the surcharge increased from \$25M annually to around \$50M. The 2018 Transit and Multimodal Transportation Master Plan offered recommendations on capital investments and operational improvements relying on the smaller figure, and plans should be updated to incorporate new revenue assumptions, with an additional focus on mobility management and multimodal strategies beyond the bus fleet and roadway network. In addition, GET surcharge funds can be used to reduce a traditional barrier to accessing federal funds, which has been a lack of local matching resources; GET surcharge monies can provide match for the Federal Transit Administration (FTA) programs described below, for example.
- **FTA Complete Trip Deployment.** This forthcoming solicitation will make up to \$40 million available to enable communities to showcase innovative business partnerships, technologies, and practices that promote independent mobility for all. “Complete Trip” means that a user can get from point A to point B seamlessly, regardless of the number of modes, transfers, and connections.
- **FTA Mobility for All.** This program seeks to improve mobility options and access to community services for older adults, individuals with disabilities, and people with low incomes. The \$3.5 million initiative will fund projects that enhance transportation connections to jobs, education, and health services.
- **ZEV Fleet Performance Contracting.** The State of Hawai‘i passed HRS 36-42 in early 2019 with active engagement from the County. HRS 36-42 expands the definition of “energy performance contract” to enable inclusion of transportation fleets. Energy performance contracts can now allow fleet managers to finance upfront capital costs—including purchase of ZEV, charging and fueling infrastructure, and associated renewable energy generation for powering chargers—using projected energy cost savings as collateral for the lender.
- **Bus Fleet - Volkswagen (VW) Settlement Funds and the Diesel Emissions Reduction Act (DERA).** In January 2019, the State of Hawai‘i submitted a Beneficiary Mitigation Plan to the U.S. Environmental Protection Agency (EPA) to claim its share of funding under the VW settlement agreement. The Plan allocates \$6.9M to zero emission bus purchases, part of which will help to meet non-federal match requirements for accessing federal DERA funding. The County should work with the State Department of Business, Economic Development, and Tourism’s (DBEDT) Hawai‘i State Energy Office (HSEO) to direct VW settlement and DERA funding to MTA zero emission bus procurement.
- **Bus Fleet - FTA.** FTA’s Grants for Buses and Bus Facilities program (49 U.S.C. 5339) provides funding for bus procurement. The program has three components, including one discretionary fund for clean bus purchases, the Low or No Emissions Bus Discretionary Program or Low-No program.
- **Philanthropic Foundations.** Philanthropy is increasingly recognizing the importance of transportation access to long-held goals around sustainability and social equity. Continued partnerships around Ulupono Initiative priorities such as transportation demand management (TDM) could reinforce Roadmap implementation, and the County should continue to scan for grant programs like the AARP Community Challenge, which supports mobility programs for aging populations.

FS7. Reliable Transit

Restore and expand reliable mainline bus service.

Reliable public transit service is the backbone of an efficient transportation system. Shared mobility services work to extend and supplement public transit, particularly in the times and places when fixed-route transit is harder to run productively, but they cannot replace it. Restoring the reliability and building the frequency of the County's public bus service is a core step toward making the other transportation investments outlined in the Roadmap. Despite the recent advancements in inexpensive GPS, routing, and payment that have helped shared mobility take off, the fundamentals driving productive public transit have not changed: frequency and reliability remain the key drivers of ridership and must remain central to the County's mobility approach.

The following approaches are described in detail in the County's Transportation Master Plan.

Key Approaches:

- Rebuild the transit bus fleet.
- Improve customer information including public schedules and route identification.
- Expand services and routes using a hub and spoke model paired with flex and zone-based models in rural areas.
- Develop transit hubs and improve park-and-ride facilities and bus stops.

FS8. Clean Fleets

Incorporate ZEVs into existing shared mobility services, and ensure new County-supported services are zero-emission.

Moving transportation away from reliance on fossil fuels and into a zero emission vehicle future is critical to reaching climate mitigation goals. Electrification of shared mobility services can contribute to more rapid uptake of ZEVs, more miles travelled in shared ZEVs compared with personal vehicles, and increased consumer acceptance and personal ZEV purchases after experiencing ZEVs in a shared mobility setting. In addition, this strategy supports the County's goal to transition the County fleet to ZEVs by 2035.

Key Approaches:

- **ZEV Fleets.** The County's light-duty and MTA bus fleets are prime candidates for ZEV replacement. Battery-electric vehicles are reaching a tipping point in range and affordability and are poised to become the industry standard over the next ten years. As long as range for light-duty vehicles is a concern, plug-in hybrid vehicles such as those already being incorporated into the County fleet offer a bridge. New, high-quality electric buses properly calibrated to the Island's topography should be capable of serving many MTA routes, despite past challenges with older electric buses delivered to the County. As vehicle manufacturers and policymakers embrace battery-electric vehicles, it is important that the County invest in the services and infrastructure necessary to seize the opportunity. At the same time, hydrogen fuel cell electric vehicles offer promising benefits in terms of additional range and flexibility. Resources permitting, the County may wish to pursue pilots around both battery electric and fuel cell vehicles to compare performance, cost-benefit, and user experience.
- **EV Charging Infrastructure.** With the increasing availability of affordable, longer-range battery electric vehicles, charging infrastructure is primed for greater utilization. The County should work with HELCO to advocate for DC fast charge infrastructure investments that would enable mid-trip charging around the Island by long-distance commuters, touring visitors, and TNC drivers. In addition, DC fast charge equipment and associated service upgrades (480 volt, three-phase power) will be

needed at the MTA bus yard if the agency continues to pursue electric bus acquisitions. In addition to DC fast charge stations, slower Level 2 equipment may be helpful where shared vehicles are charged overnight and travel shorter distances, such as carshare vehicles.

- **Hydrogen Fuel.** Hydrogen for fuel cell electric vehicles can be produced in a variety of ways, with varying degrees of carbon-intensity and other environmental impacts. If the County is interested in producing hydrogen fuel locally, pilot projects should be focused on local and clean production techniques. These may include hydrogen production from the methane-rich gas captured at West Hawai'i Sanitary Landfill, or isolating hydrogen from water through electrolysis, an energy-intensive process that would ideally be powered by renewable energy. If the County cannot develop a local, clean source for hydrogen, fuel cell vehicle fleets should be avoided as they would likely require regular deliveries of dirtier imported gas.

FS9. Urban Form

Pursue housing, land use, and urban design approaches that increase mobility options for residents.

Land use patterns are entrenched and slow to change, especially with the cost and limited pace of new construction. However, as new construction and redevelopment does take place, it should create housing for families at all income levels, and make environments that let residents take care of their daily needs largely by walking, biking, riding transit, or otherwise getting around without having to get into a car.

Key Approaches:

- **Context-sensitive density and design.** Evaluate opportunities to zone for higher densities in appropriate neighborhood centers. Evaluate opportunities to remove other regulatory barriers to developing housing, such as parking minimums or setback requirements. Build complete streets like those outlined in the Downtown Hilo Multimodal Master Plan.
- **Mixed-income housing.** Encourage incorporation of a variety of affordable home choices like duplexes and triplexes into new developments through inclusionary zoning.
- **New affordable housing projects.** Partner with local builders and contractors, community development organizations, and other institutions to develop housing for lower-income renters on underutilized County land.

Targeted Strategies

TS1. Bikesharing in Town Centers

Continue bikeshare expansion with an emphasis on populations who are currently unserved or unable to use the system.

Bikesharing can be a valuable asset in denser areas of the Island such as Kailua Kona, Hilo, and Waimea. Opportunities for expanding the existing dock-based system remain, especially where electric assist bicycles (e-bikes) can be deployed to enable riders to navigate longer trips or more challenging terrain. Centrally-located, high-traffic bus stops in the town centers remain an attractive option for siting new bikeshare docking stations to facilitate first/last-mile connections to the Hele-On bus system.

While the primary goal should be to continue building out the bikeshare system in order to reinforce its value as a component of the public transportation system, bikeshare should be made available to the broadest user base possible. At its most basic, this means creating more corridors for safe biking through the construction of protected bike infrastructure. The program should also offer solutions for people who need mobility but cannot afford the full priced program. Cities across the US have piloted bikeshare equity programs that serve as models for a program on the island. While the county has thus far invested in a dock-based system, it might explore dockless bikes as a way to move toward a more flexible hybrid system that may offer lower capital costs.

To further broaden bikeshare's appeal and utility for different populations, the county should explore devices beyond standard bicycle designs, including electric or pedal-assist bikes and trikes and adaptive models for people who can't use upright pedal bikes because of a disability.

TS2. Carsharing Partnerships

Develop creative partnerships to deploy carsharing services in select locations.

Carsharing services make vehicles available for short-term rental (in intervals as short as an hour), enabling members to borrow vehicles for long enough to make trips that require a vehicle without having to pay the full cost of owning and operating. Commercially operated, station-based carsharing works well in higher-density neighborhoods where many potential users can access the vehicles, but is often not financially sustainable in lower-density areas with less utilization. However, peer-to-peer models, in which members access the vehicles of other members (rather than commercially maintained fleet vehicles), don't have the same utilization requirements and can be a good option in lower-demand areas. Another way to drive utilization of commercial fleet-based models is for public agencies to use carsharing to fill some motorpool needs, since demand for traditional carsharing is generally lower during work hours when motorpool demand is greatest.

While residents would benefit from having vehicles available as needed, even the more urban areas of Kailua-Kona and Hilo may not contain enough potential users to support traditional commercial carsharing. To drive higher utilization and financial sustainability, the County could pursue creative partnerships with either peer-to-peer or fleet providers for shared motorpool, creating a level of utilization that could supplement the demand from individual carshare members while lowering costs for public entities that also use the vehicles.

Key Approaches:

- **Explore shared fleet carsharing.** Continue to explore opportunities to repurpose the County light-duty vehicle fleet into carsharing service at times of low County utilization, such as weekends and

evenings. With County support, the carshare fleet could also be transitioned to zero-emission vehicles consistent with County climate goals.

- **Look for other institutional partners to expand the user base.** Explore partnerships with other institutions such as University of Hawai'i at Hilo, where carshare vehicles could be used by University operations or by students living on campus.

TS3. Pooled Rides for Long Trips

Build on early successes in carpooling and vanpooling to expand the availability of shared rides for longer trips.

The County of Hawai'i already has a fairly high rate of carpooling, with some 17% of commuters sharing rides¹⁵, slightly more than the State of Hawai'i and almost double the rate of the US as a whole. This number appears to be growing. In addition to informal carpools, more than 20 commuter vanpools, provided through Enterprise, already serve commutes to a number of large employers on the island. The County should build on this thriving usage of shared commutes and work with employers to encourage even greater uptake. While the difficulty of discovery and matching between riders and drivers has traditionally been a challenge with both modes, technology-driven platforms offer new ways to match rides on the fly, enabling the creation of casual, ad-hoc carpools that may be more appealing than traditional arrangements.

Key Approaches:

- **App-based carpooling.** Using many of the same technologies that underlie TNCs, some platforms have begun offering dynamic carpool services, available on demand, that match riders with drivers who are going in the same direction. These services are distinct from TNCs in that they're actually matching rides, not offering a commercial vehicle-for-hire service. The new wave of apps offers more flexible and appealing versions of carpooling that users can decide day by day whether to participate or not, rather than being locked into a daily ride with the same group of people. The platforms may offer additional features like geofencing, linking to specific company email domains, and guaranteed ride home that make them useful for application by employers that want to provide services for their employees or limit driving to their facilities.
- **Commuter vanpools.** For workers with fairly predictable work schedules and locations, vanpooling can be a cost-effective way to combine resources for work trips. Vanpools are one of the single most effective ways to reduce commute-related VMT compared to solo driving, as they combine as many as 12 passenger trips in a single vehicle trip every day. Vanpool programs should be part of the menu of commute options offered in a county-wide TDM approach.

TS4. Employer-led Initiatives

Launch a County-led TDM program and collaborate with employer-led programs.

The County should position itself as the lead implementer and provide the initial participant pool for an Island-wide employer TDM program. The County should also consider the formation of a transportation management association (TMA) to formalize these efforts and give them a permanent home.

Employer TDM programs are employer-sponsored efforts to reduce SOV trips to and from the workplace. Programs generally contain some combination of three main approaches to reduce the number of car trips and related demand for parking and road capacity, all of which are addressed elsewhere in the Roadmap:

¹⁵ [ACS 2018 1-year estimates](#), Table B08006.

1. Encouraging employees to shift travel to modes other than solo driving.
2. Increasing vehicle occupancy rates through carpooling, vanpooling, and other ridesharing approaches.
3. Reducing the number of work trips altogether or shifting them to non-peak times through telecommuting or flexible schedules.

Programs are often supported and administered through a TMA, a non-profit organization dedicated to providing TDM solutions over a district or region. While this is not essential, it does provide the mechanism for larger TDM efforts that span a number of employers in a geographic area, and the TMA is a common mechanism for focusing this work. TMAs may be supported by a variety of revenue sources, including business improvement districts, federal Congestion Mitigation and Air Quality Improvement Program funds, or other monies, and are most effective when bolstered by state or local trip reduction ordinances, which are often directed at large employers or property developers.

While the organizational framework and common practices for TDM have been in place for decades, the US EPA has maintained a set of standards under the Commuter Choice Leadership Initiative since 2001. According to the program, fundamental elements of employer plans include:¹⁶

- Emergency ride home services.
- Transit pass and vanpool/carpool subsidies.
- Parking cash-out programs.
- Telecommuting options.

Complementary TDM strategies can also include:

- Rideshare matching services for carpools and/or vanpools.
- Preferential parking for carpools and/or vanpools.
- First-/last-mile shuttle service.
- Provision of bike lockers, showers, or changing facilities to support bicycle commuters.
- Rewards, incentives, and recognition programs that encourage shared trips.
- Flexible/compressed work schedules.

Key Approaches:

- **Establish the viability of TDM programs through the participation of County staff.** Center program recruitment activities on County employees first, and build out from there to other organizations. Similarly, the County could be the charter member and initial organizational home of a transportation management association.
- **Outreach, coordination, and TDM services for employers.** Make sure HR managers and new employees have access to resources for easing commutes. Beyond outreach and informational resources, the County could offer smaller organizations, who have access to fewer resources and a smaller network of users, with access to broader-based ride-matching services based on employee commute origins.
- **Consider a commute trip reduction platform to centralize TDM functions.** Enterprise commute trip reduction (ECTR) software platforms have emerged in recent years as a way to support TDM efforts. Most ECTR platforms operate on a subscription basis, hosted in the cloud by the vendor, and accessed by both users and administrators via web interface. ECTRs improve on sporadic transportation surveys and disconnected payroll-based commute benefit programs by providing a unified system that allows employers to manage resources, benefits, and incentives, and employees to plan and log multimodal commutes. The tools offer real-time analytics to both employees and transportation coordinators, tracking commute features such as the mode of transportation, parking

¹⁶ <https://www.vtpi.org/tdm/tdm9.htm>

usage, and miles traveled, and translating these into emissions, dollar, or caloric savings from mode shifts, while providing employers with an organization-wide picture of utilization and progress.

- **Encourage telecommuting for companies and employees whose work allows it.** A growing number of large public agencies, including many federal agencies, have established policies to allow and encourage remote work, while reducing possible downsides. In Hawai'i County, public agencies and other large employers could follow suit, including the establishment of shared satellite offices to provide needed infrastructure for telecommuters while reducing cross-island trips.

TS5. Mobility Options for Tourism

Develop mobility options to provide more flexibility to visitors in meeting different types of travel needs.

Presently, visitor mobility needs are satisfied in large part through the use of rental cars, even though many trips don't require personal vehicles. This is a highly inefficient system that spends fuel, VMT, and road space on the least efficient mode of passenger transportation, requires excessive land for the storage of idle vehicles around resorts and transportation hubs, and contributes to congestion experienced by visitors and residents alike.

By providing shuttles and other pooled mobility options between airports/ports and resort areas and hotels, and building out or enhancing shared mobility options like micromobility, carsharing and car rental, and TNCs/taxis at these destinations, more trips could take place on the most appropriate (and least energy-intensive and congesting) modes for their length or distance, while still allowing visitors to access vehicles for longer trips that will continue to require a car.



Kohala Coast resorts are a common destination for both commuting employees and visitors

Key Approaches:

- **Expand shuttles to resorts.** The same fleet of vehicles could both support visitor trips from ports/airports to resort areas and employee trips from park-and-ride areas or transit connections. While the cost of running and maintaining shuttles may be a challenge for an individual property, this could be addressed through more communication among resorts and other tourism industry stakeholders on the benefits of shared shuttles, along with partnership with an entity that could provide the mechanism and opportunity for cost sharing, such as the Kohala Coast Resort Association. This could follow the example of many business improvement districts, campuses, or other commercial consortiums elsewhere in the country which collaborate to provide mobility for employees and customers.
- **Improve shared mobility near passenger terminals.** Concentrate and improve shared mobility infrastructure around ports, including access to tour shuttles, rental cars, bikeshare, safe streets/sidewalks, and clear and consistent signage and wayfinding.
- **Reduce VMT and parking demand by placing carsharing and rental services at resorts.** Build car rental or carshare opportunities at hotels and resorts for day trips, rather than visitors renting cars at the airport for stretches of several days in which the vehicle will largely sit idle. Through policy

supports, parking policy, and fee structures, encourage providers to offer more competitive rates at resorts relative to the airport sites.

- **Create micromobility options.** For the shortest trips within or around resorts, the most space- and energy-efficient option is to make available fleets of shared scooters, bikes, and e-bikes (including adaptive models for people with mobility limitations). Depending on the business model, this could be largely supported through user fees, without public cost beyond the administration of a permit program. For dockless bikes and scooters, the County should coordinate parking and location preferences with the resorts and other local stakeholders, to ensure safety, maximize availability and utilization, and minimize obstruction of the public way. Building the share of trips on these modes would require a commitment to creating safe paths and biking infrastructure in resort areas.
- **Explore outside-the-box solutions.** Explore possibilities to fund island mobility projects and capitalize on tourism dollars by showcasing alternative & innovative mobility options, even if not everyday practice. Examples include “bicycle bars” oriented towards bicycle traffic; zip line routes between visitor hot spots; or a tourist-only hitchhiker phone app.

TS6. Visitor Education

Communicate the availability of multimodal transportation options to visitors by way of the hospitality industry, and work with the industry to help educate.

Even as more multimodal mobility services are made available to visitors, potential users need to be made aware of the options through a concerted education and communications campaign on the part of the hospitality industry, as well as signage, wayfinding, and orientation materials to support discovery and utilization.

Key Approaches:

- **Communicate with visitors on their way to the island through cruise ship operators and airlines.**
- **Place wayfinding signage and information kiosks at the ports and airports.** Shuttles and shared options should be as easy to find and access as rental cars and TNCs/taxis.
- **Coordinate with the Hawai'i Visitors and Convention Bureau.** The HVCB communicates directly with tour operators and others who make travel decisions for larger groups of visitors. They can place communications materials and direct those overseeing large groups of visitors to the best ways to get around Hawai'i Island.

TS7. Services for Vulnerable Populations

Pursue innovative partnerships to expand and improve mobility for seniors and people with disabilities.

Funding responsibility for mobility services for older adults, people with disabilities, and other groups of riders requiring services beyond mainline transit are shared between MTA and the Hawai'i County Economic Opportunity Council (HCEOC).

Around the country, public agencies and private mobility providers have collaborated on improving paratransit and social services transportation using new technologies and emerging business models. These range from subsidized TNC-based programs for ambulatory riders that resemble traditional taxi-scrip reimbursement programs, to contracted provision of wheelchair-accessible rides in larger vehicles for curb-to-curb trips dispatched on demand (often under a broader microtransit service). Many of these approaches

aim to reduce costs by making excess capacity on the services available to the general public at a full fare, although thus far, few appear to have reduced costs in practice. The outcomes are generally more about improving convenience and what users experience at roughly the same total cost to public agencies. A number of these programs could help increase mobility and improve the rider experience of social service transportation users on Hawai‘i Island.

Key Approaches:

- **Expand Shared Ride Taxi Program through TNC Partnerships.** The MTA Shared Ride Taxi Program has been a popular resource for elderly and disabled populations who have limited mobility but who don’t require a wheelchair lift. Pending the results of an audit investigating abuse of the program by non-target populations, the program should be expanded with new controls in place to discourage abuse of the system. Expansion of the program could be aided by partnerships with TNCs, who may be more capable of ensuring that subsidies are only used by qualified riders through app-based account management. The major TNCs also have “concierge” dashboard available that allow third-party booking, tracking, and payment of rides, enabling caregivers or social service providers to book trips on behalf of clients who don’t use a mobile phone.
- **Incentivize the acquisition of WAVs and fold existing WAV providers into new programs.** As the prior approach noted, the lack of availability of WAVs through basic TNC platforms limit their usefulness for riders who need a ramp- or lift-equipped vehicle. To ensure the availability of services for all riders, regardless of ability, some jurisdictions have experimented with incentivizing TNCs to make WAVs available directly on their platforms.¹⁷ More commonly, agencies bring existing WAV providers under the umbrella of a program and use them to fulfill rides requiring a WAV, with customers paying the same fare regardless of vehicle.
- **Ensure that any new microtransit service uses WAVs.** As the County considers new flexible, on-demand services for the general public, they should be scoped from the beginning to use WAV. Agencies that have deployed microtransit services often find that a disproportionate part of their ridership comes from wheelchair users, who previously would have used ADA paratransit (or not made a trip at all). By making general public flex services available to all users from the start, agencies can divert trips from costlier, and less convenient, traditional ADA paratransit services.
- **Consider volunteer transportation services for some social service rides.** Especially in an area as large as Hawai‘i Island, TNCs and taxis are not going to be a viable solution for all trips, as these market-oriented services tend to stay close to population centers where they are likely to find the greatest density of riders. As areas without taxi/TNC service also tend to be those without frequent transit, volunteer transportation services can provide a safety net that can supplement publicly provided services. Typically, volunteer drivers are reimbursed at the prevailing IRS mileage rate, with those costs coming directly from users or from transportation funds under a program such as Medicaid. A VTO is generally administered through a social services or mobility management agency, which qualifies riders, recruit drivers, handles trip matching and dispatch (often through an online interface) and handles reimbursement and other administrative tasks.

¹⁷ <https://learn.sharedusemobilitycenter.org/overview/massdot-and-mbta-partner-with-uber-and-lyft-for-accessible-rides-boston-ma-2019/>

TS8. Improve Student Mobility

Address student mobility challenges and school trips' ripple effect throughout Hawai'i Island's transportation system.

Many students receive rides from parents or relatives in SOV to get to campus, increasing congestion on roads as many school start times coincide with regular commute hours. Unfortunately, school buses only service students that live within 1.5 mile of each respective campus and their service hours are limited to the beginning and end of school hours. Similarly, public transportation is infrequent and services a very limited geographic region, making transit inaccessible to much of the student population. Safety concerns for students and transit vehicles have also risen. Because of lack of monitoring personnel, some students opt to damage transit property, posing a threat to the vehicles and themselves. The lack of safety on transit, inaccessible buses, and infrequent services causes many students to regrettably depend on private vehicles to commute to campuses.

To lessen congestion and support student outcomes, the County should consider expanding dependable student mobility options. The County may face initial difficulties providing these alternatives given they lack of system for monitoring student transportation data. However, emphasizing empirically-based approaches to solutions may teach lessons that may improve student mobility and the transportation network as a whole.

Key Approaches:

- **Track student travel data separately from general transit** to better understand transportation costs and travel behavior to make the best decisions accordingly. The County could administer surveys and questionnaires to inquire on how students get to campus and then make decisions on how to best support student travels.
- **Leverage technology to improve safety and the rider experience.** Combine student identification cards with ridership passes to better monitor who boards transit vehicles and improve the safety of students and vehicles. Cameras could also be installed on transit vehicles to remotely monitor the activity and well-being of students on transit property. App-based platforms or frequent text services that notify students about their ride may also be implemented to avoid unnecessary student waiting and improve transportation safety and the rider experience.
- **Create multiple designated pick-up and drop-off zones along the school route** to incentivize students to use school bus services. Rather than having geographical service areas with designated stops, school buses should develop pickup zones—similar to park-and-rides—with multiple buses to diminish the dependency on private vehicles. These designated pick-up zones decrease wait times because each bus needs not travel to furthest pick-up zone.
- **Offer discounted bus passes for students.** Discounted transit passes encourage students and their families to use transit rather than driving to get to campus.
- **Offer bikeshare systems that connect to pick-up and drop-off zones and the campus.** Bikeshare systems could be leveraged by the County to provide students opportunities to get to designated pick-up zones or campus. In this manner, students need not rely on private vehicles to get to-and-from campuses during instances when they stay extended hours.

TS9. Infrastructure for Shared Mobility

Develop “quick-build” infrastructure and right-of-way improvements that improve safety and efficiency for shared mobility.

Relatively inexpensive improvements to public land and reconfigurations of the right-of-way can help organize transit and shared mobility services and concentrate them where demand is greatest, make them easier for users (especially visitors) to find and access, and market them to the public as a constellation of known, reliable, and safe ways to make trips. As the County and others consider adding shuttles to the visitor mobility mix, these more efficient modes, along with public transit, should receive priority at locations and times when there’s competition for scarce right of way or curb space. As a general rule, the greater the public benefit of a transportation service (in terms, for instance, of passenger capacity, shared status, EV usage, whether it’s public or private, and who it is moving), the greater priority it should receive—that is, the easier it should be for users to access--while services whose benefits are available to relatively fewer people should be lower priority.

Key Approaches:

- **Designate and prioritize pickup zones/curb space.** This should take place especially at ports and airports, hotels and resorts, and in town centers. Since much of the demand for many mobility services, particularly TNCs and taxis, is tied to spikes in demand from arrivals and departures at the ports and airports, designating clear locations for pick-up/drop-off is essential, as is communicating them to operators so they can direct customers and drivers to the right location.
- **Prioritize curb access according to services’ level of public benefit.** Public transit and multi-passenger shuttles should enjoy pride of place.
- **Expand the number of convenient park and ride locations.** As long-distance and cross-island bus services are expanded, or if a shuttle system is established for resort workers as suggested elsewhere in the Roadmap, more park and ride locations will be needed, particularly in areas or times without good feeder bus service. In addition to the eight transit hub facilities identified for improvements in the Multi-Modal Transportation Plan¹⁸, stakeholders and members of the Transportation Hui identified several pieces of publicly owned land that could provide locations for new or expanded park and ride facilities, highlighting improvements for the Ocean View park and ride as well as a University-owned site near the mouth of Saddle Road. Key challenges to be addressed in the expansion of park and ride locations are the security of cars parked for long periods of time, the availability of bathrooms or other facilities for riders arriving very early or late at night, and the costs of land acquisition or improvement for locations without existing parking.
- **Establish a chain of mobility hubs to concentrate and organize connecting shared mobility services.** The connection points between transit routes in town centers, as well as new and existing park and rides, are logical locations for establishing a series of mobility hubs, where carshare vehicles and EV charging, bikeshare docks, micromobility parking, and shuttle/TNC/taxi pickup zones should be located. Beyond mobility assets, these locations can also include package delivery lockers, small vendors, information kiosks, seating, and other placemaking elements.

¹⁸ The Plan identifies new or upgraded facilities in Pahoa, Waimea, Mo’oheau Bus Terminal, the Ocean View lot, Honoka’a, Prince Kūhiō Plaza, Kona, and Kea’au.

4. Conclusion and Next Steps

The Hawai'i Island Shared Mobility Roadmap introduced foundational and targeted strategies useful to implement shared mobility services by the County of Hawai'i. Whether strategies be policy-based approaches or solutions that target specific populations, the County has an opportunity to take actionable steps in order to reduce congestion, improve the economic well-being of the area, and increase overall sustainability.

While a comprehensive set of action items and timetables is beyond the scope of this Roadmap, the following next steps are offered as a “2020 Game Plan” that can serve as a starting point for the County of Hawai'i to move forward with policy implementation:

1. Share the Roadmap with the Transportation Hui members and other stakeholders, and present the Roadmap strategies at an upcoming Hui meeting, soliciting input on prioritization of strategies and interest in forming Working Groups around the strategies.
2. Continue to convene the Core Planning Team to build a shared understanding of roles and responsibilities around the strategies.
3. Establish the Mobility Manager position(s) and build out a workplan around the mobility management framework / foundational strategies.
4. Issue a Request for Information to solicit private sector interest in pilot projects consistent with the Roadmap's targeted strategies.
5. Complete the feasibility assessment for carsharing using County fleet vehicles currently underway.
6. Budget for a pilot project subsidizing additional vanpools in underserved communities in partnership with vanpool operators such as Enterprise.
7. Partner with PATH to pursue grant funding for additional bikesharing services in Waimea and inclusion of adaptive bicycles and e-bikes.
8. Prioritize implementation of the Transportation Master Plan to make necessary investments in transit capital and operations that form the backbone of the Island's multi-modal system.

Appendix 1: Shared Mode Penetration Levels and Potential Outcomes

The table below provides broad estimates of the levels of VMT and GHG impact and public cost that could be expected with various shared mobility modes and levels of penetration. These figures should be taken as coarse estimates that provide a sense of the magnitude of benefit and cost of various interventions. This section is intended as a reference to inform consideration of the Mobility Goals and Strategies in the main body of this document. These benefits, as well as the division of responsibility for the cost and effort of implementation, should be expected to be refined and updated as specific strategies are pursued.

Potential Outcomes by Mode and Penetration Level

Mode / Penetration Level	Description	Marginal Difference in Annual VMT vs Current	Marginal Difference in Annual GHG vs Current (mtCO ₂ e)	Marginal cost vs Current
Transit				
Low	Return to 2016 ridership	524,467	201	\$1,077,000
Medium	10% increase over 2016 ridership	871,440	334	\$1,790,000
High	25% increase over 2016 ridership	1,391,898	533	\$2,859,000
Bikeshare				
Low	10 stations/110 bikes	51,406	20	\$242,000
Medium	15 stations/165 bikes	87,654	34	\$412,000
High	20 stations/220 bikes	123,901	47	\$583,000
Private Carshare				
Low	10 cars	282,450	108	\$440,000
Medium	20 cars	564,900	216	\$880,000

High	30 cars	847,350	324	\$1,320,000
Vanpool				
Low	25 new 15-person vanpools	1,813,766	694	\$300,000
Medium	30 new 15-person vanpools	2,720,649	1,042	\$360,000
High	40 new 15-person vanpools	4,534,414	1,736	\$480,000
County Fleet / Carshare Program				
Low	25% of light-duty fleet (7 vehicles)	317,756	122	\$297,000
Medium	50% of light-duty fleet (14 Vehicles)	635,513	243	\$594,000
High	100% of light-duty fleet (27 Vehicles)	1,271,025	487	\$1,188,000
Scootershare				
Low	100 scooters (350 rides/day)	65,905	25	\$50,000
Medium	200 scooters (700 rides/day)	131,810	50	\$100,000
High	300 scooters (1,050 rides/day)	197,715	76	\$150,000
Airport Shuttles				
Low	Shuttles serving 10% of visitors to ride RT from airport vs. renting	7,200,000	2,757	\$1,027,000
Medium	Shuttles serving 20% of visitors to ride RT from airport vs. renting	14,400,000	5,513	\$2,055,000
High	Shuttles serving 30% of visitors to ride RT from airport vs. renting	21,600,000	8,270	\$3,082,000

Appendix 2: Image Sources

All photographs contained in this document are either property of Shared Use Mobility Center or used under a Creative Commons license, as noted below.

Section 1.2 – Stakeholder Engagement: Brian Holland, Shared Use Mobility Center

Section 2.3.2 – Town Centers: Wikimedia Commons User Thomas Tunsch

Section 2.3.4 – Tourism and Visitor Trips: Flickr User Dronepicr

Section 2.5.1 – County Transit: Flickr User Ian Fisher

Foundational Strategy 2 – Pilots and Partnerships: Vimeo User Oiwi TV

Targeted Strategy 5 – Mobility Options for Tourism: Wikimedia Commons User MBZ1