KAMEHAMEHAMA HIGHWAY,

INTERSECTION IMPROVEMENTS AT KAHEKILI HIGHWAY

PROJ. NO. NH-083-1(082)

State of Hawaii,
Department of Transportation
Highways Division

TOPICS

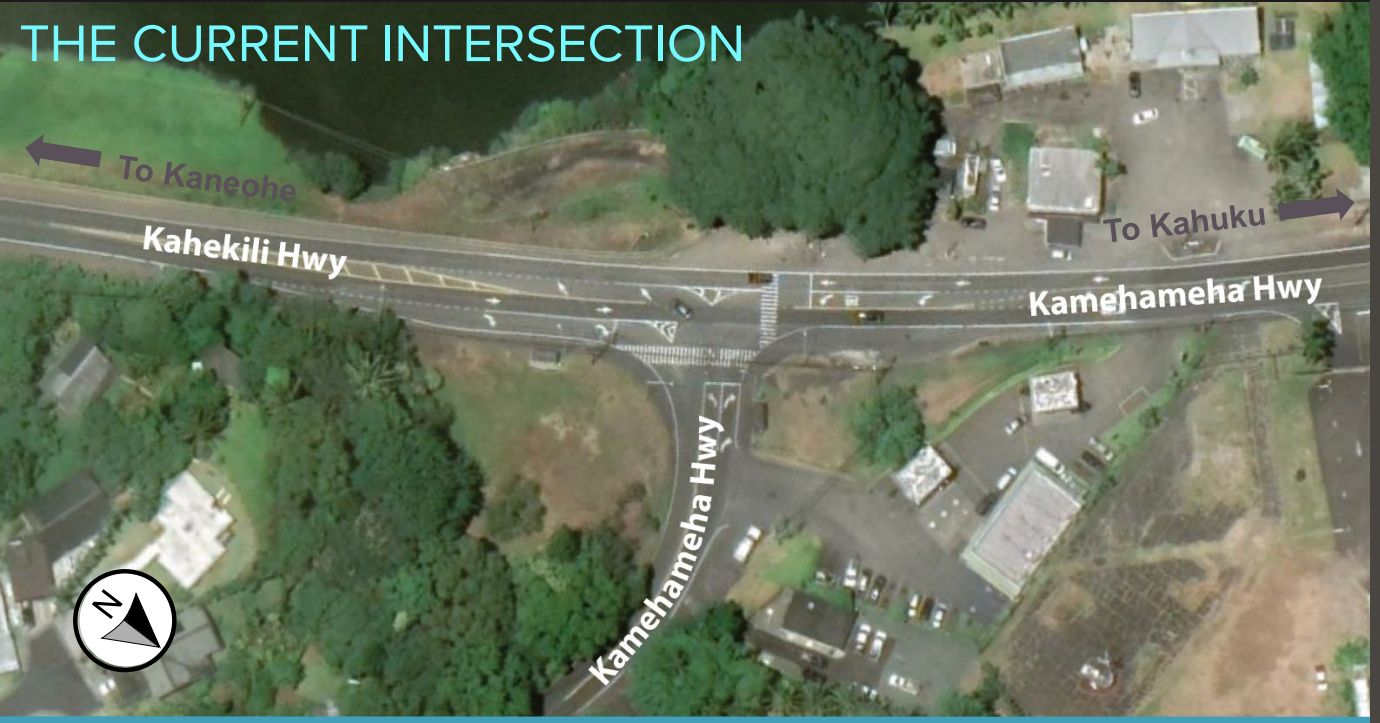
- Project Location
- Purpose and Need
- Design
- Benefits
- Construction
- Schedule and Cost

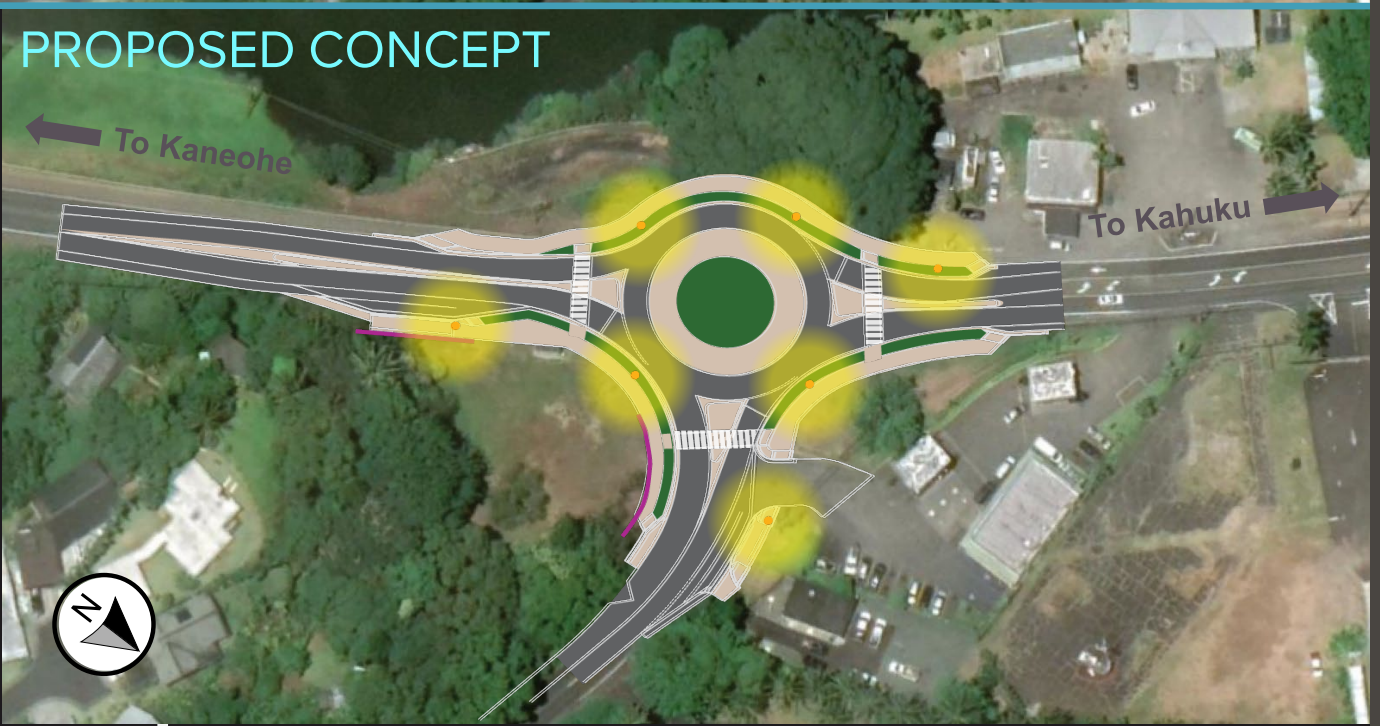
PROJECT LOCATION

The project site consists of the intersection of Kamehameha Highway and Kahekili Highway in Kahaluu. Construction and staging would occur within the current highway right-of-way.

PURPOSE OF THE PROJECT

The project is being proposed to improve safety, reduce conflicts with left turns, and provide more efficient traffic operations at the intersection and along the highway.



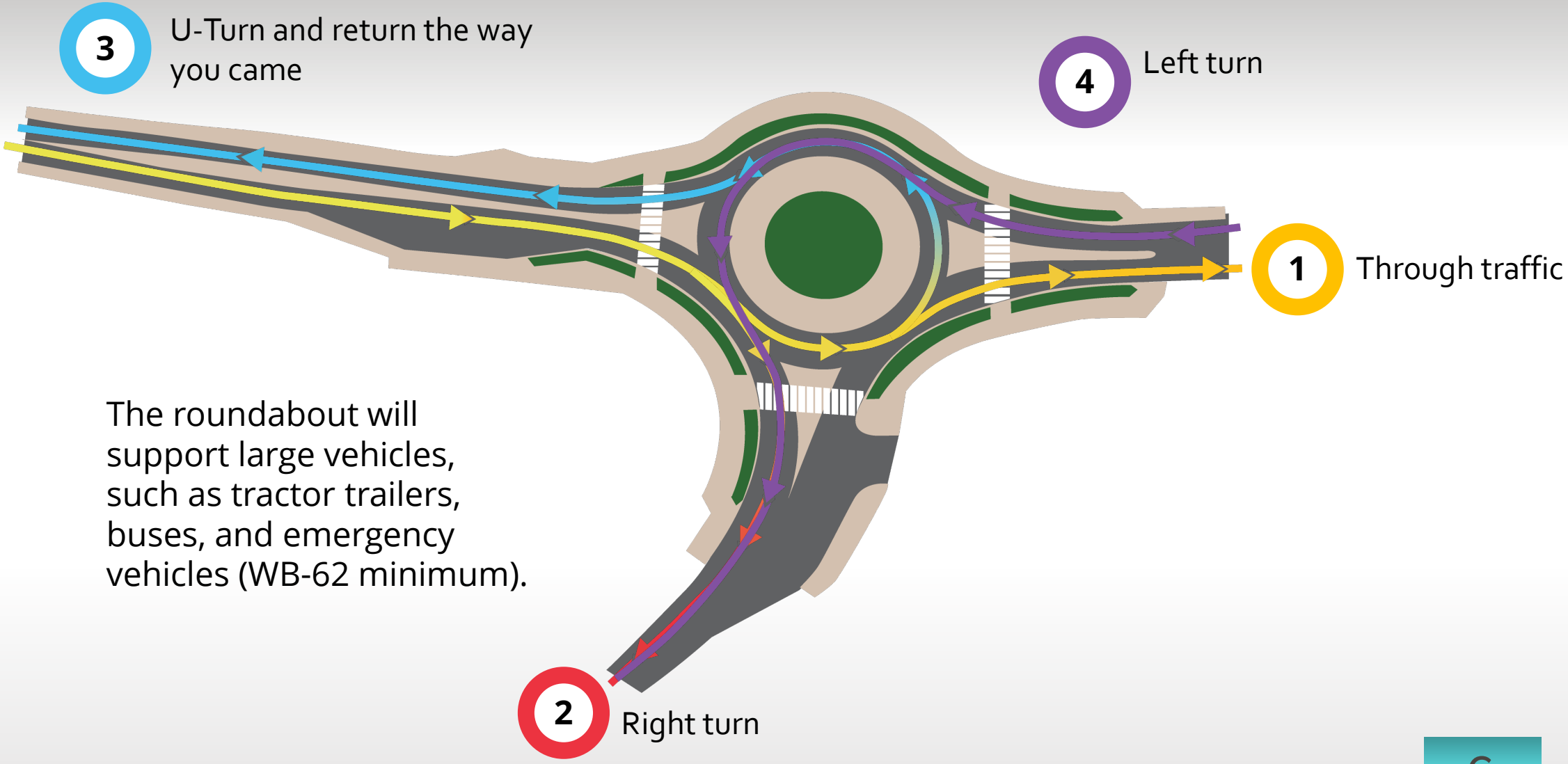


THE CONCEPT

This project proposes to reconfigure the intersection of Kamehameha Highway and Kahekili Highway from a T-intersection to a roundabout. The proposed project would include:

- Construction of a circular lane around a raised and landscaped center with pedestrian and bicycle facilities,
- Construction of low retaining walls, landscaping
- Bringing lighting up to current standards
- Relocation of utility poles
- Installation of new guard rails, and
- Roadway restriping.

USING THE ROUNDABOUT

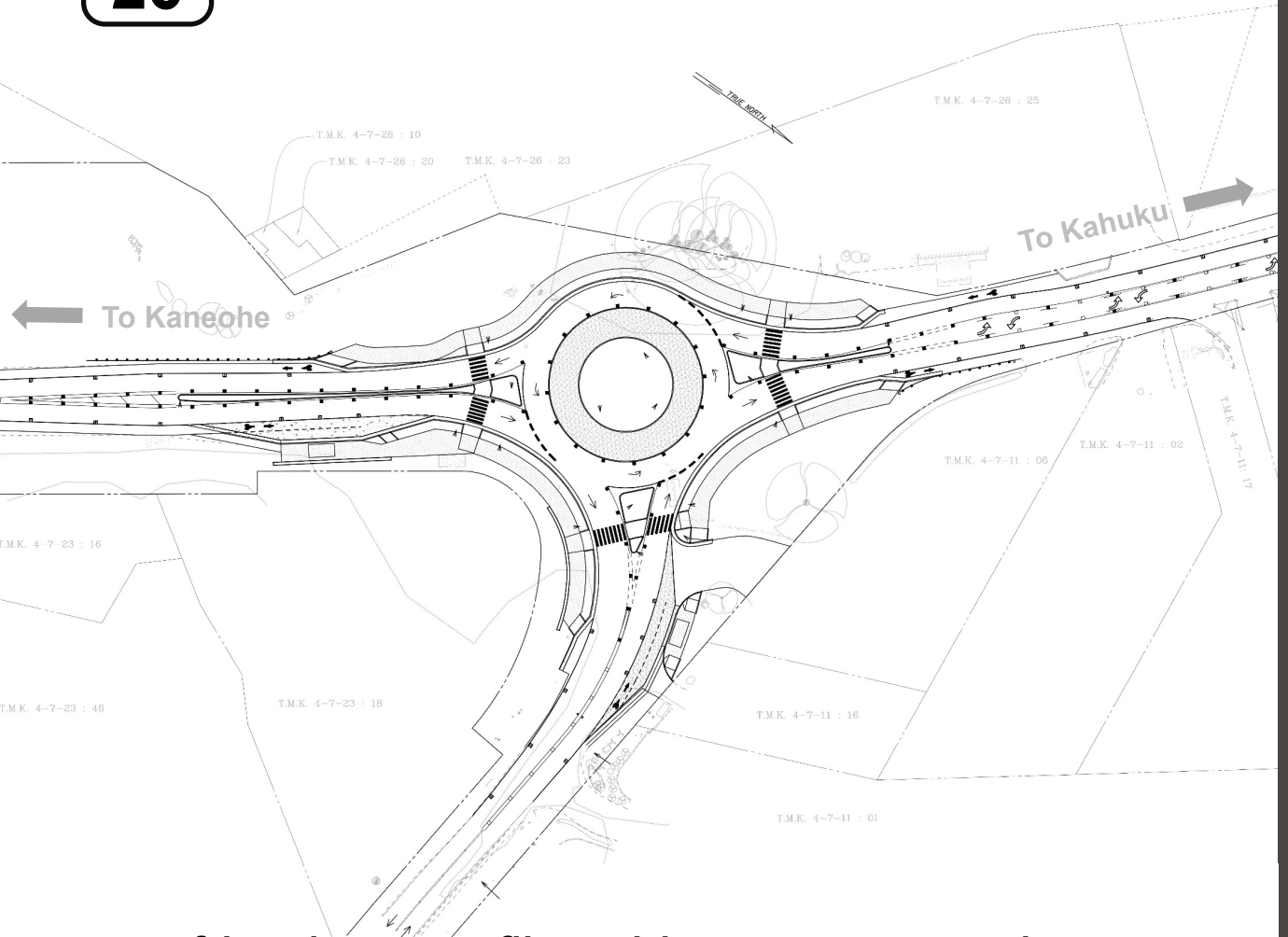


The roundabout will support large vehicles, such as tractor trailers, buses, and emergency vehicles (WB-62 minimum).

SPEED LIMIT 25

Average Daily Traffic (ADT)

- Kahekili Hwy – 15,000 vehicles per day
- Kamehameha Hwy – 5,300 vehicles per day



Lefthand Turn Conflicts with Current Intersection

- Kahekili Hwy – 1,200 vehicles per day
- Kamehameha Hwy – 1,500 vehicles per day

DESIGN ELEMENTS

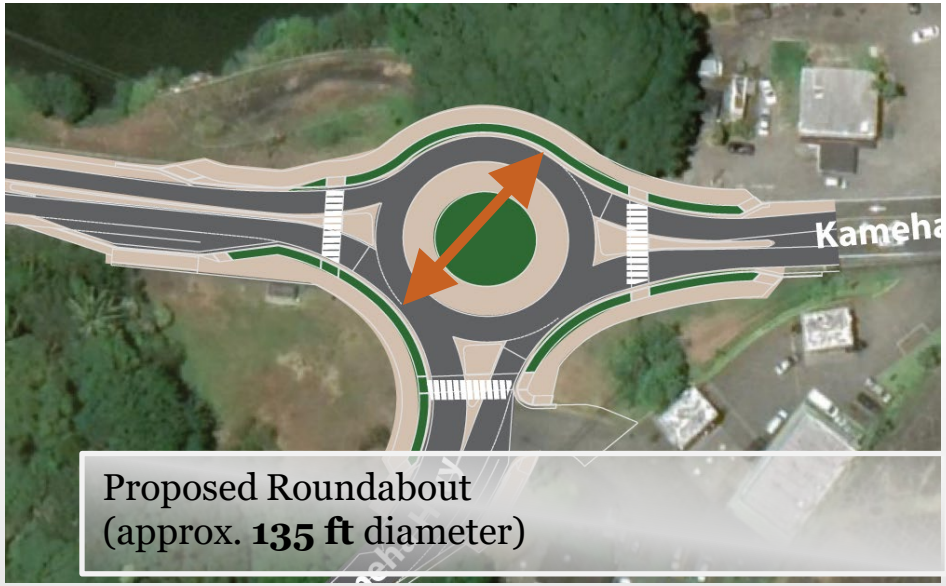
- Speed limits will remain the same on approach but naturally slower through the roundabout
- Bus stops will be repositioned
- Additional signage & lighting
- Designated crosswalks
- ADA accessible
- Accommodates large vehicles
- Allows bicyclists options to traverse the intersection

OTHER ROUNDABOUTS AND TRAFFIC CIRCLES

Ulupuni St & Uluhala St in Kailua (approx. 60 ft diameter)

Luluku Rd & Apapane St in Kaneohe (approx. 70 ft diameter)

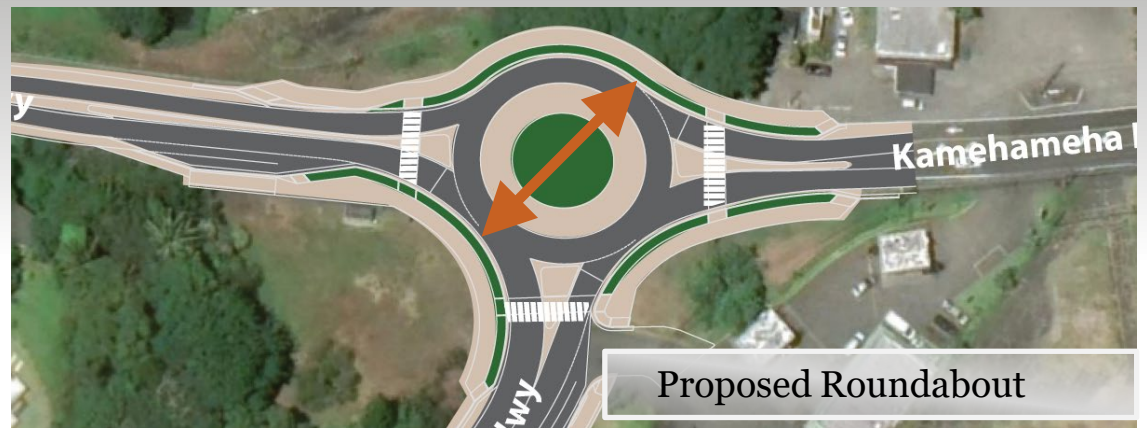
Ala Ilima & Likini St in Salt Lake (approx. 90 ft diameter)



Proposed Roundabout (approx. **135 ft** diameter)

OTHER SIMILAR ROUNDABOUTS

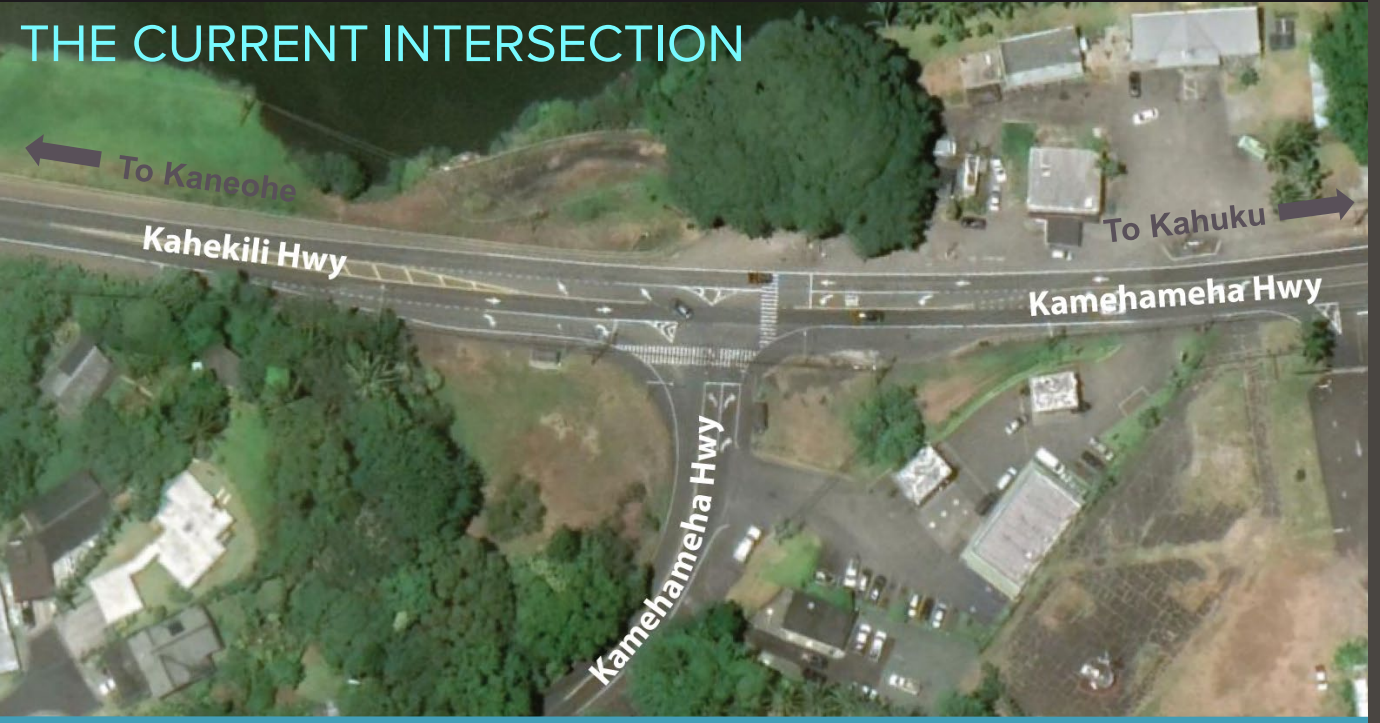
Diameter	120 Feet
Mainline Traffic Volume (Kuhio Hwy)	14,500 Vehicles
Side Street Traffic Volume (Mailihuna Road)	4,500 Vehicles

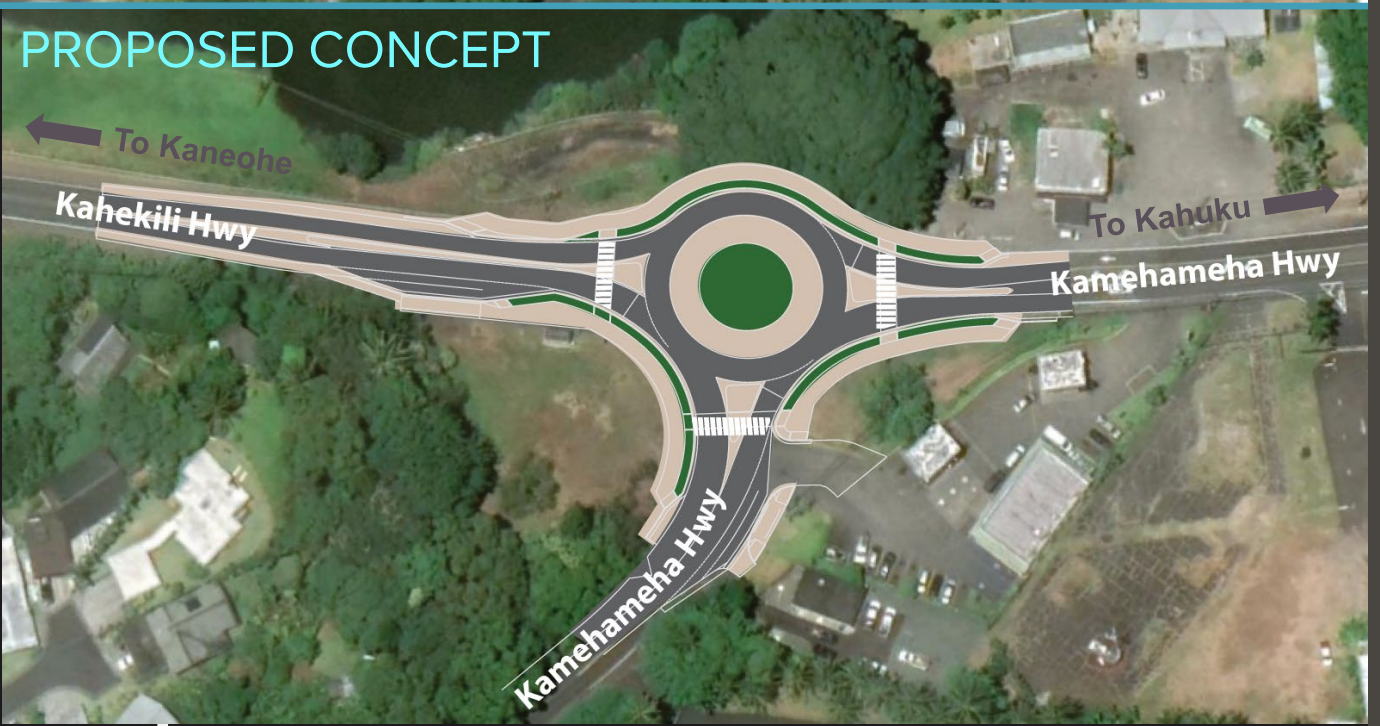


Diameter	135 Feet
Mainline Traffic Volume (Kahekili Hwy)	15,000 Vehicles
Side Street Traffic Volume (Kamehameha Hwy)	5,300 Vehicles

Diameter	138 Feet
Mainline Traffic Volume (Pahoa Bypass)	16,900 Vehicles

To date HDOT has observed 100% reduction in crashes resulting in fatalities or serious injuries where roundabouts were constructed.





BENEFITS OF A ROUNDABOUT

According to the Federal Highway Administration (FHWA), roundabouts help with:

- Traffic Safety – reduced crossing operations and fewer conflict points
- Operational Efficiency – lower overall delay and 30% improved throughput as compared to signalized and all-way stop intersections.
- Pedestrian Safety – A reduction in through traffic speeds improves pedestrian safety. Raised median refuge areas will allow pedestrians and cyclists to focus on one traffic stream at a time while crossing.

U.S. Department of Transportation, Federal Highway Administration, Technical Summary: Roundabouts, 2010. Accessed from: https://rosap.ntl.bts.gov/view/dot/42603, 7/23/2021.

ROUNDABOUT

PROS

- Reduces total number of crashes by 35-47% since there are fewer conflict points[1]
- Reduces injury crashes by 72-80% (T-bone accidents are far less likely) [1]
- No idle time waiting for traffic lights
- Lower wait times for turns to and from side roads
- Lower maintenance cost

CONS

- Requires more land
- Less familiar to many of the public

SIGNALIZED INTERSECTION

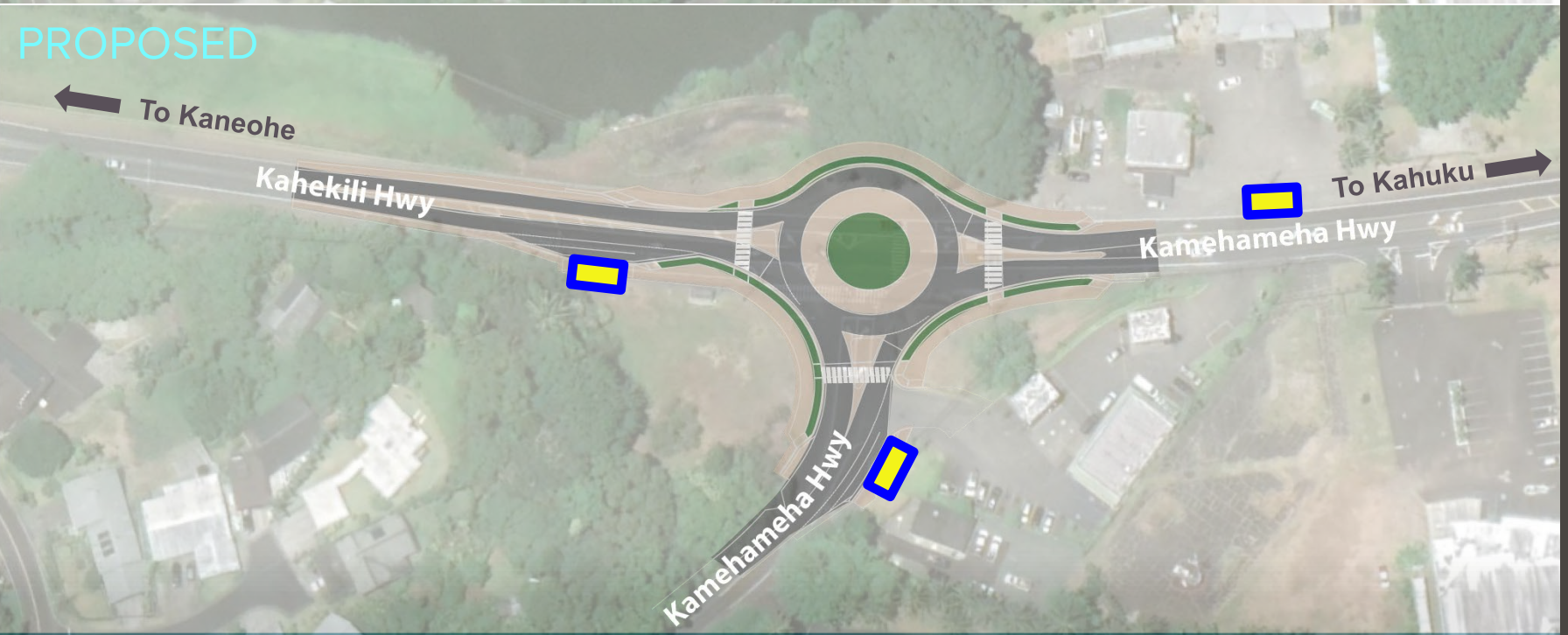
PROS

- More familiar to more people
- Timing of lights can be adjusted

CONS

- Higher risk of crashes
- Head-on crashes are more likely
- Higher maintenance costs ~12-15k annually, full signal replacement every 20-25 years ($1m+)

[1] Insurance Institute for Highway Safety and Highway Loss Data Institute website: https://www.iihs.org/topics/roundabouts



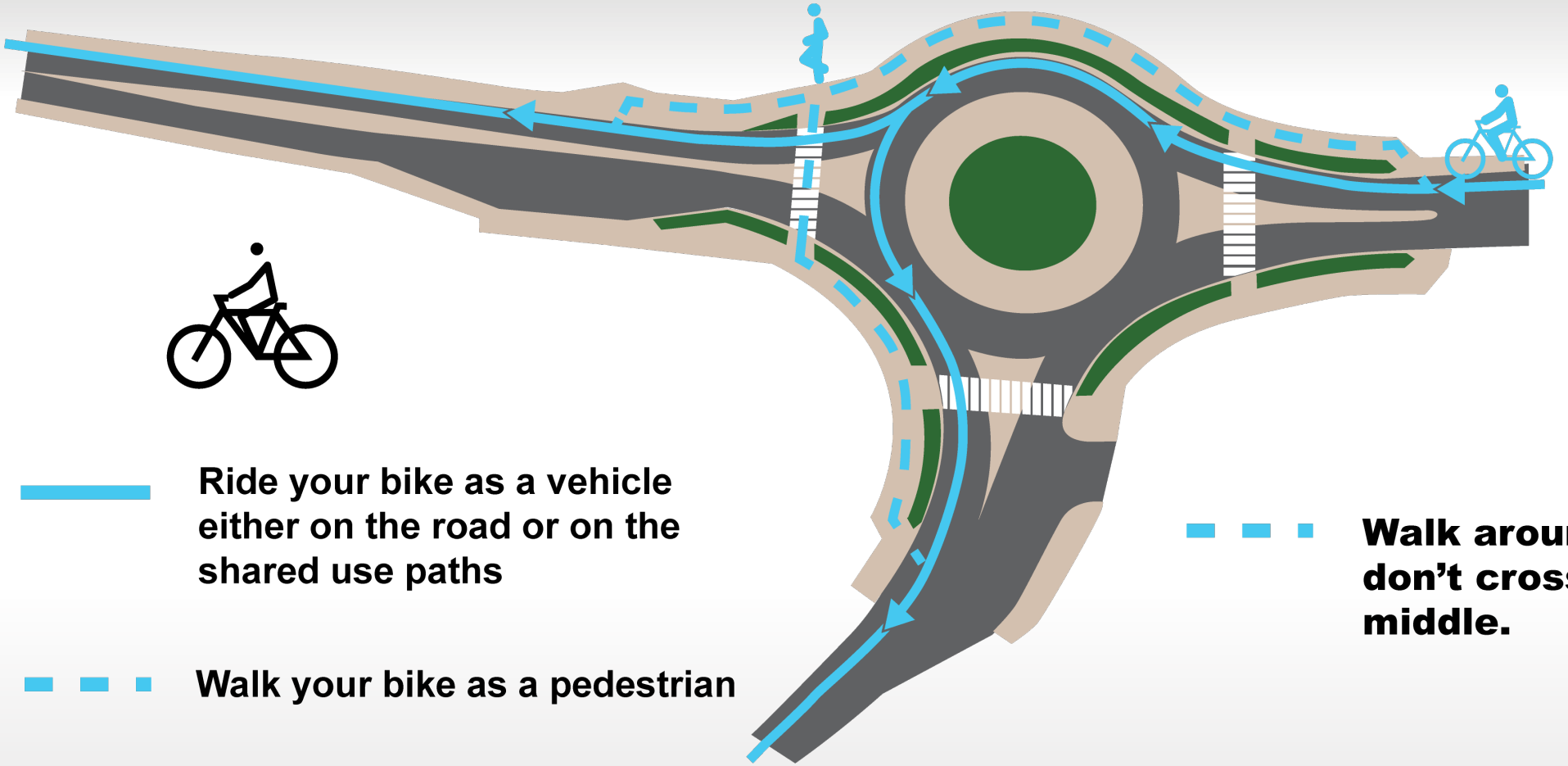
BUS STOPS

Bus stops will be repositioned. HDOT is working with the City to provide shelters at all three bus stops.

Existing Bus Stop

Proposed Bus Stop

ACCESS ALTERNATIVES FOR BIKING AND WALKING



Ride your bike as a vehicle either on the road or on the shared use paths

Walk your bike as a pedestrian

Walk around the outside; don't cross through the middle.

CONSTRUCTION CONSIDERATIONS

- Traffic delays may occur during construction. Temporary traffic controls will be implemented in phases to maintain traffic flow throughout construction.
- There will be construction noise.
- Night work will be utilized during construction.
- Storm Water BMP measures will be implemented.
- Access to surrounding businesses will be maintained.
- Bus stops will be temporarily repositioned.

CONSTRUCTION COST

- Both State and Federal funding will be utilized to complete the construction
- The project is anticipated to cost $5.4 million

Improvement	Roundabout	Traffic Signal
Pavement Construction/Reconstruction	$ 1,900,000	$ 700,000
Sidewalks and Bicycle Facilities	$ 900,000	$ 900,000
Utility Adjustments and Drainage Improvements	$ 500,000	$ 500,000
Miscellaneous Construction Activities	$ 1,400,000	$ 1,500,000
Grade Adjustment Walls Guardrail Relocations	$ 700,000	
Traffic Signal System with Interconnectivity		$ 1,000,000
Total	**$ 5,400,000**	**$ 4,600,000**

CONSTRUCTION SCHEDULE

- The project will be advertised for construction in August 2022
- The anticipated start date for construction is January 2023, with an 18-month construction period, ending June 2024.

Estimate Timeframe	Project Phase / Activities
January – February 2023	Project Initiation
March – May 2023	Street Light Relocation
June – September 2023	Northern side construction, Waterline Relocation, Drainage, Sidewalks, Bus stop
January – February 2024	Southwest side construction, Sidewalk, Guardrail
March – April 2024	Median work
May – June 2024	Final Paving, Striping and Landscaping

QUESTION & ANSWERS

State Project Manager: Andy Hirano, andrew.j.hirano@hawaii.gov

Design Consultant: WSP USA Inc., Joe Salvador