

Concept Designs for State Parcels in Pouhala TOD (Waipahu, HI)

University of Hawai'i at Mānoa

Courses: Environmental Planning & Site Planning (Fall 2017)

Proof of Concept Research, Planning, and Design Study

Graduate Student Work



Department of
Urban and Regional Planning

UNIVERSITY
of HAWAII
MĀNOA

Scope of Work

PLAN 620: Environmental Planning and Policies

Hazards assessment: past, present, future conditions of Waipahu

PLAN 678: Site Planning

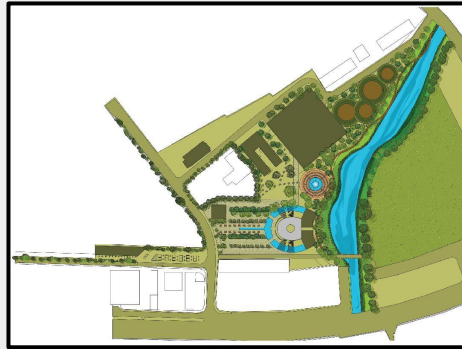
Site analysis, stakeholder interviews, conceptual plans for state owned lands

Three Conceptual Plans for 6 State owned lands in Pouhala TOD Station

PLAN A: FLOW



PLAN B: W.A.I.



PLAN C: Health & Wellbeing

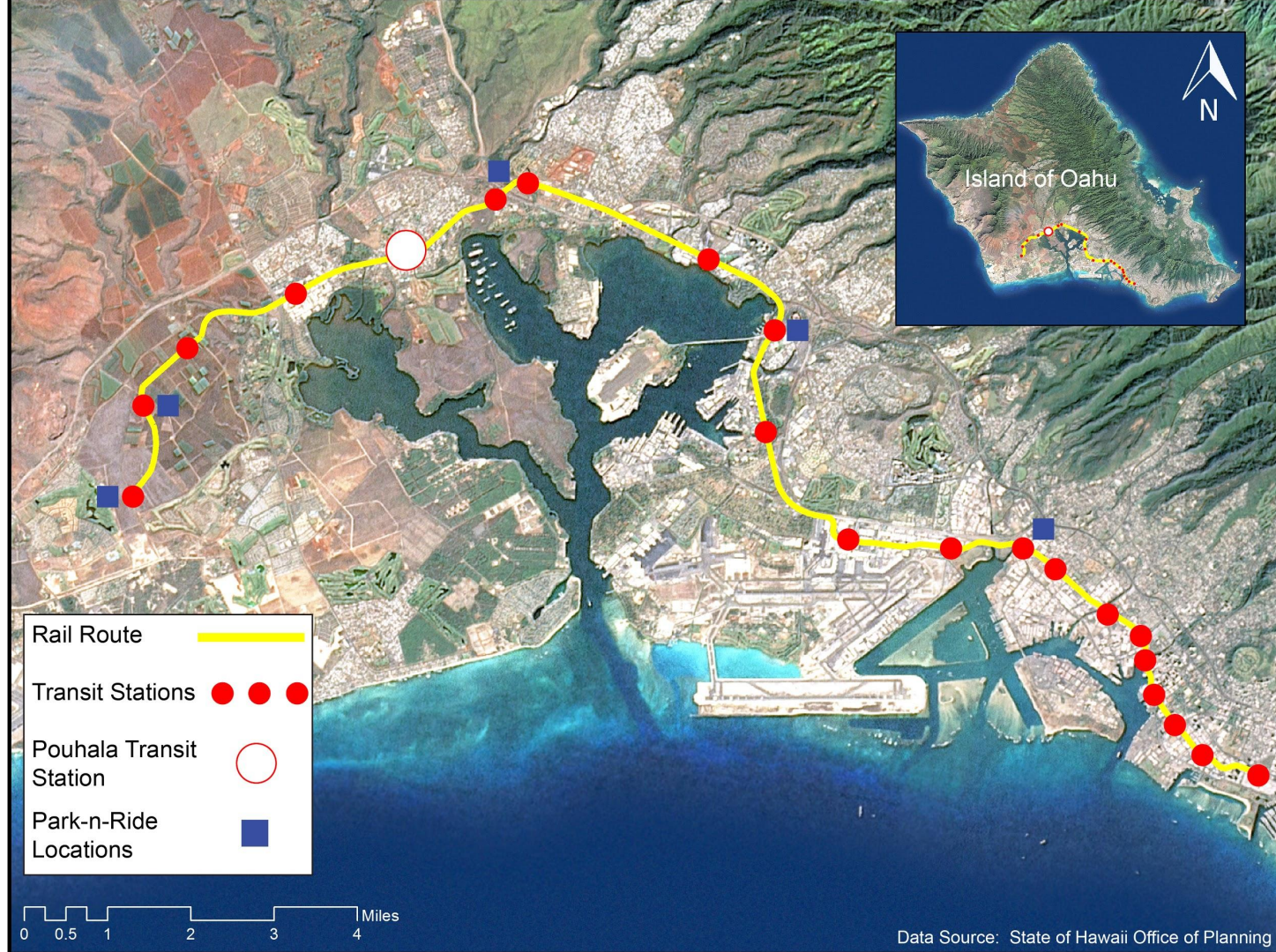


Pouhala Station & State Parcels Field Visits

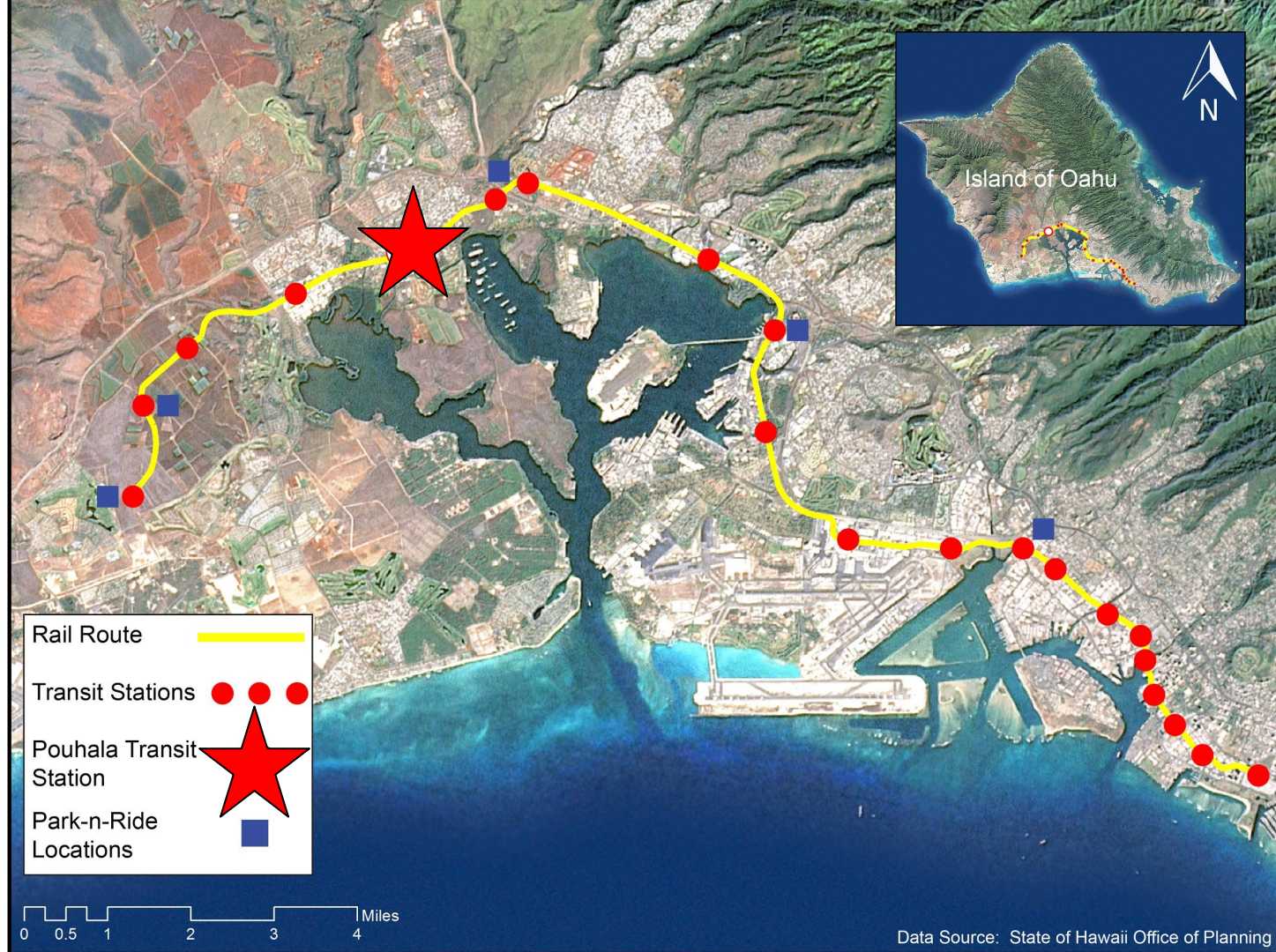




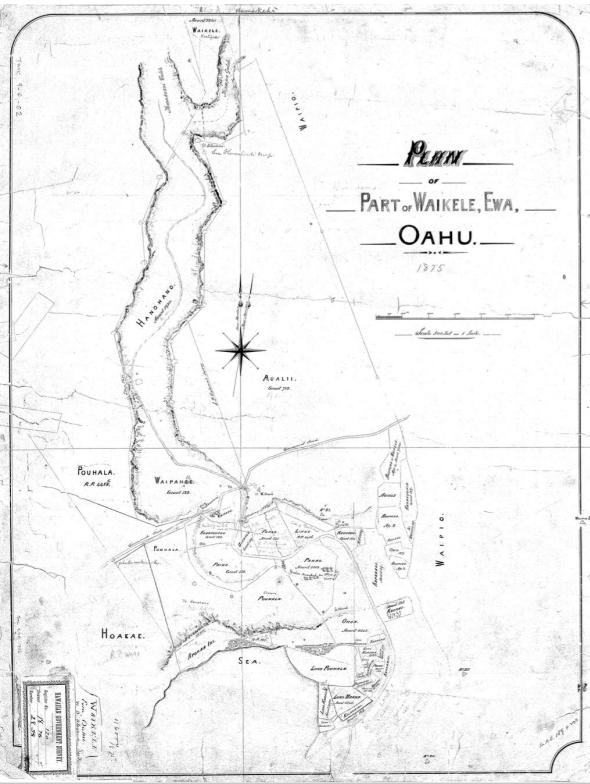
Waipahu In Context



Waipahu In Context



Analysis: Waipahu's Past 1897 - 1995



Hawaii Plantation Immigration 1850s - 1940s

400,000 immigrants
arrive in Hawaii, including

180,000 Japanese
25,000 Filipino
180,000 Chinese

Waipahu Population Timeline

977 pre-plantation
7,169 mid-plantation
51,295 at mill closure

Sources: Historic Hawaii Foundation,
Tina Quizon



Analysis: Waipahu Today



Waipahu

41,000

residents

46%

non-native English speakers

\$530,000

median property value

4

cars per home

54%

drive to work

20.9%

use public transit

Honolulu County

1,000,000

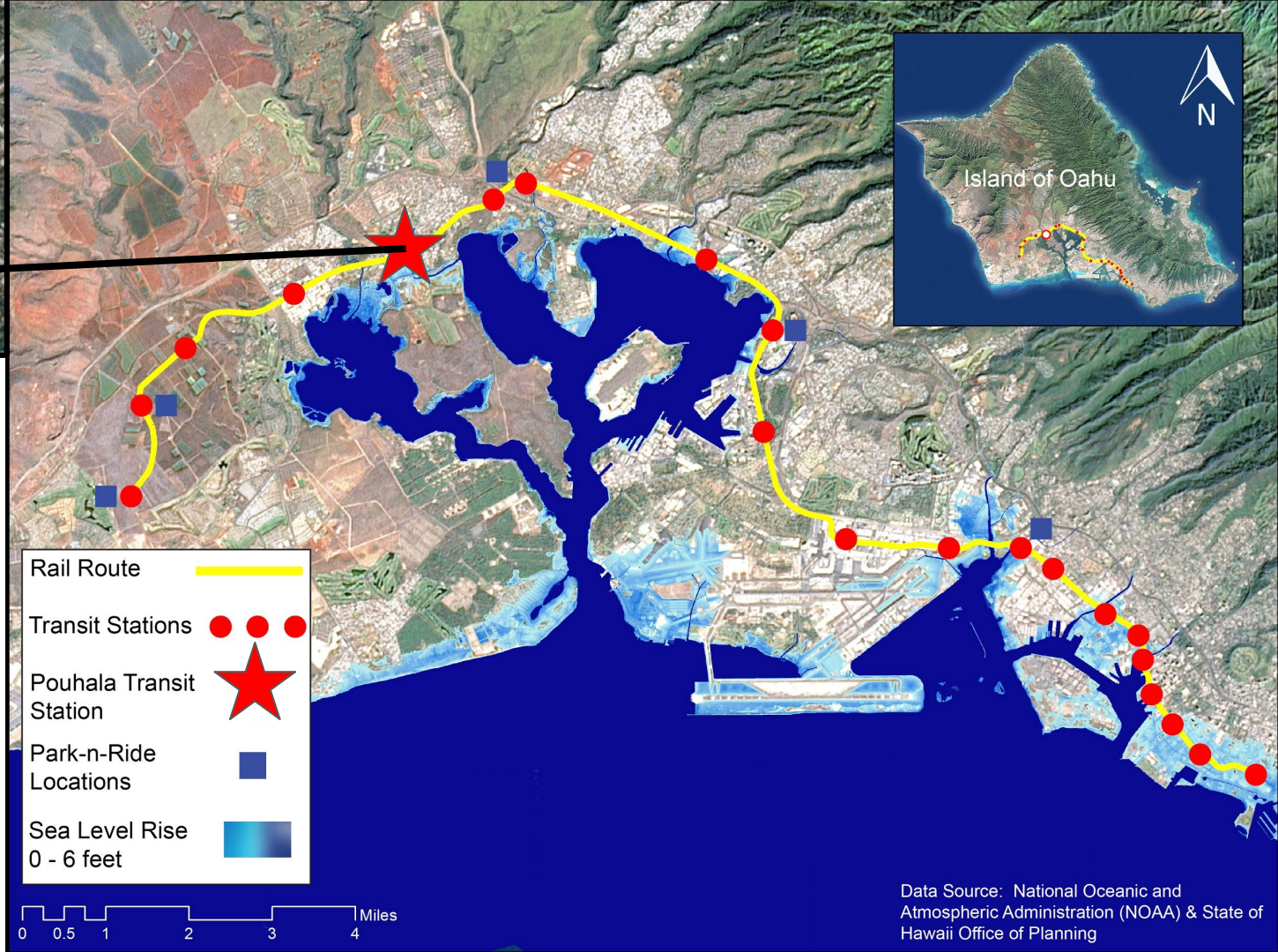
25%

\$630,000

2

64%

8.4%



Analysis: Waipahu Future

Rail Route —————

Transit Stations ● ● ● ●

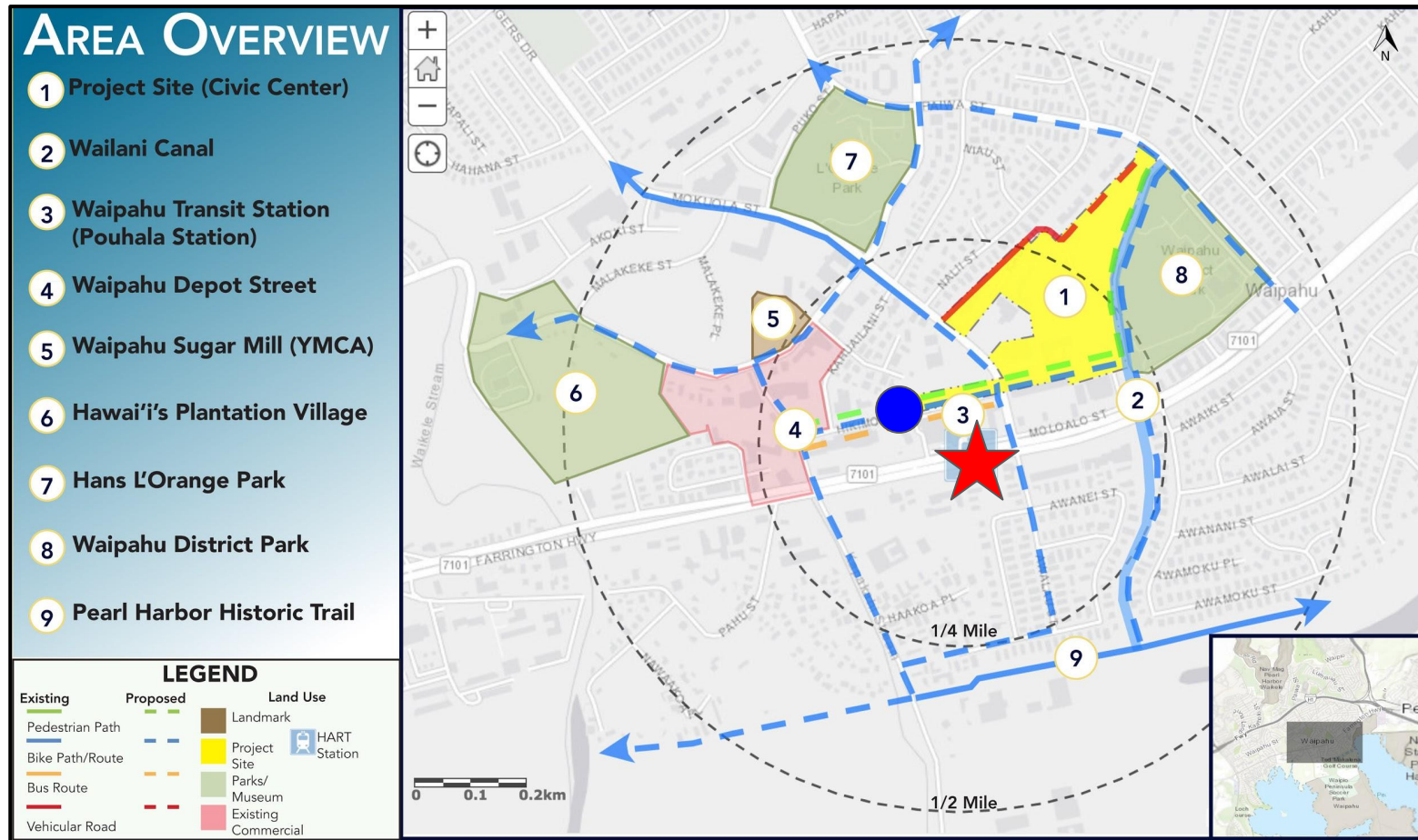
Pouhala Transit Station ★

Park-n-Ride Locations ■

Sea Level Rise 0 - 6 feet ■

Data Source: National Oceanic and Atmospheric Administration (NOAA) & State of Hawaii Office of Planning

Analysis: Pouhala Station Study Area

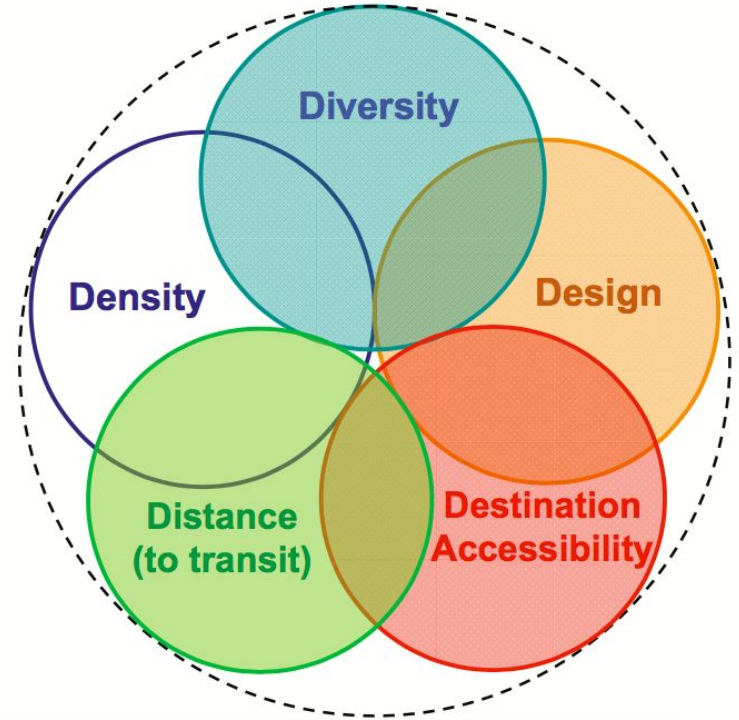


Waipahu: Planning for TOD

Site Type: Mixed-Use Village

- Village Level: lower-density mixed-use
- Transit center node: higher-intensity
- Walkable
- Neighborhood retail
- Commercial or educational core
- Historic character retained and strengthened

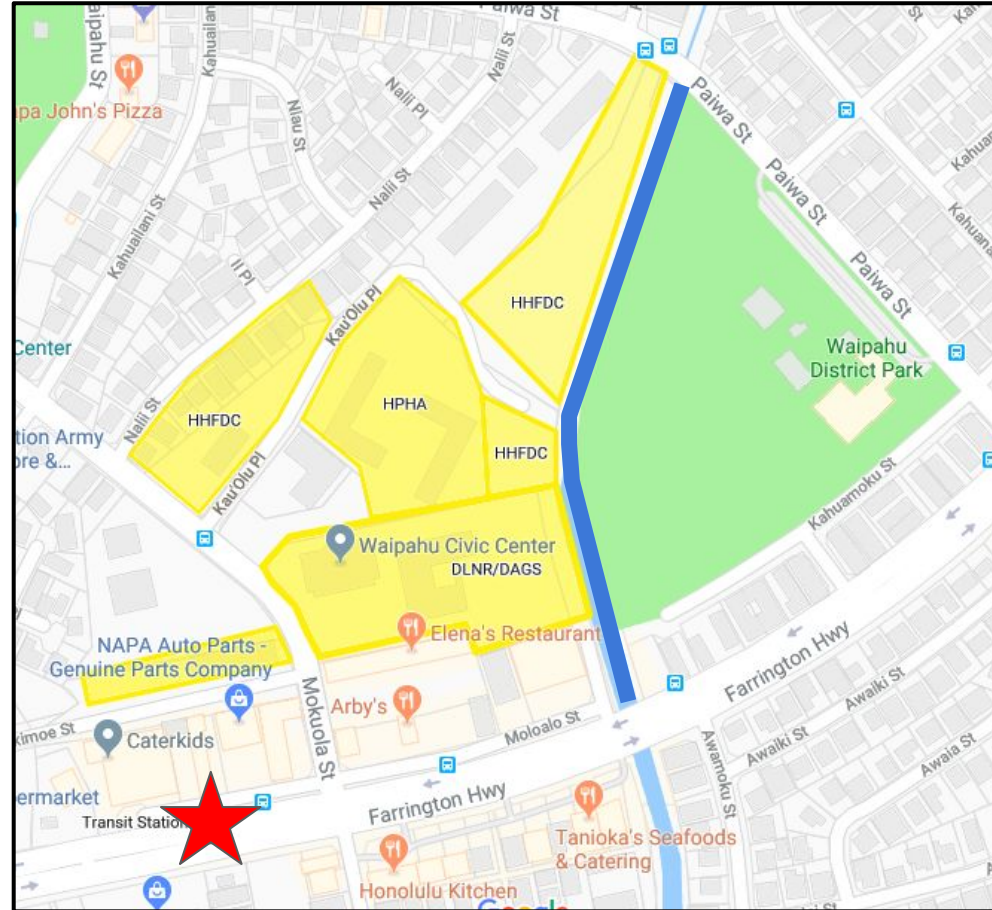
5 Ds of the Built Environment



Pouhala TOD Study Area

Core Themes

- Preservation of social services
- Increasing walkability
- Interactive community engagement
- Access to open space
- Addressing flooding
- Increasing or maintaining affordable housing



Source: Google Maps

Study Area Parcels

DLNR/DAGS



Civic Center

Waipahu Library



HHFDC



Bus Station

Parking Lot



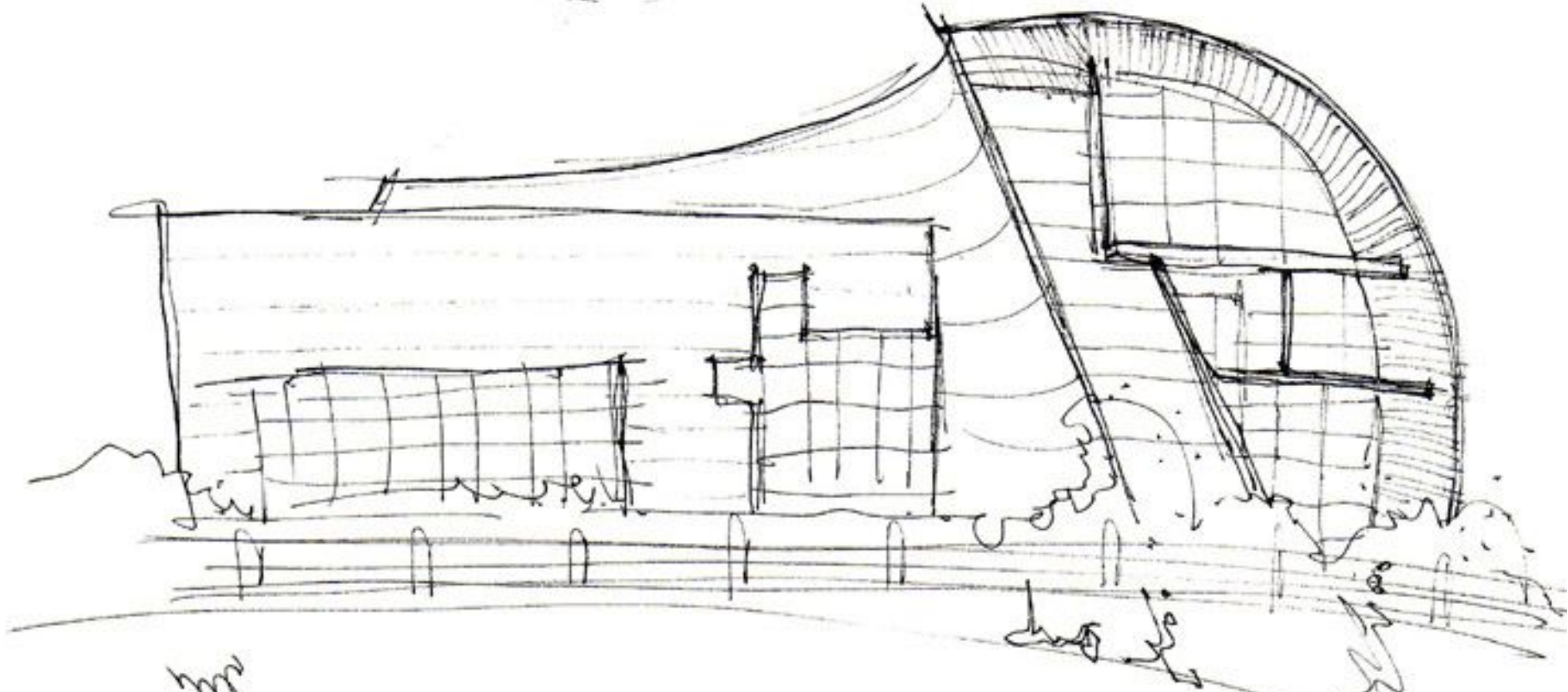
Open Space/Canal Fence

HPHA

Elderly Housing



Plan A: Flow



Source: <https://thinkinginsomniac.wordpress.com/2011/04/07/architecture-sketch-museum-of-contemporary-art-helsinki/>

Plan A: Flow

Intergenerational Interaction

- Flood Mitigation
- Preservation of Social Services
- Parking
- School Accommodation
- Density



Hawaii Exploratorium

Intergenerational Interaction

- Signature building
- Recreation venues
- Creates jobs



Source: <https://img.grouponcdn.com/deal/w3fXkRG95QGxoTjtbRSf/Yz-440x267/v1/c700x420.jpg>

School Accommodation

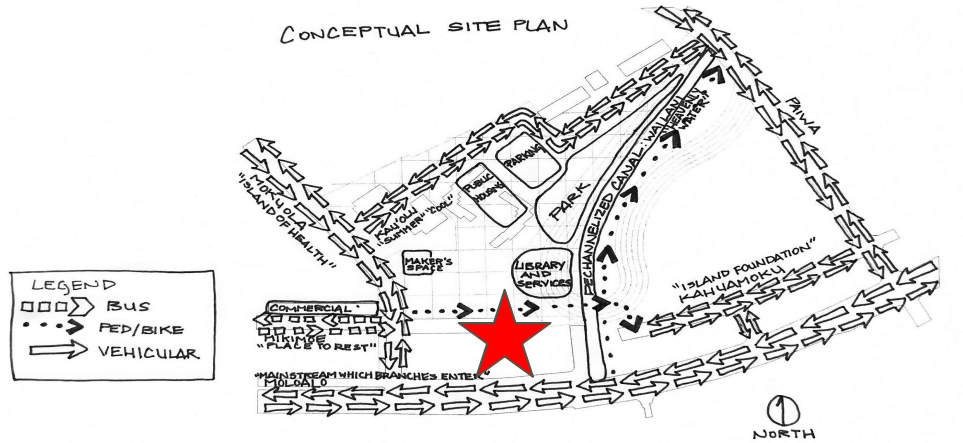
Intergenerational Interaction

- Hawaii Exploratorium is an adaptable building
- Vertical school possibility
- Built with the present in mind, but capable of handling the future



Source: <https://static.dezeen.com/uploads/2017/04/instant-city-living-air-right-conceptual.jpg>

Plan B: W.A.I.



WAILANI PLACE celebrates the intertwining of water, history, and culture by providing a free-flowing green space to connect and rejuvenate the community.

PLACEMAKING

PLACE NAMES

Waipahu : Bursting water
Waikele : Muddy water
Wailani : Heavenly water
Pouhala : Hala (pandanus) posts

STREET NAMES

Hikimoe : Place to rest
Mokuola : Island of health
Moloalo : Main stream into which branches enter
Kau : Summer
Olu : Cool, refreshing, comfortable, pleasant,
Kaihualani : Site of Heaven

WALKABLE

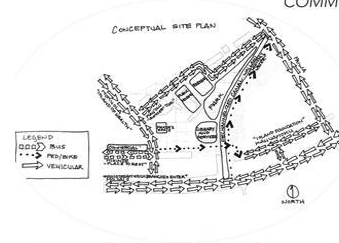
COORDINATING A SEAMLESS PEDESTRIAN EXPERIENCE CONNECTING TRANSIT AND COMMUNITY RESOURCES.

3,500 feet of Bicycle and Pedestrian Pathways

100,000 square feet of Street Level Marketspace

350 Housing Units Accessible to Transit

230 Jobs Accessible to Transit



Conceptual Site Plan - Bubble Map with site circulation

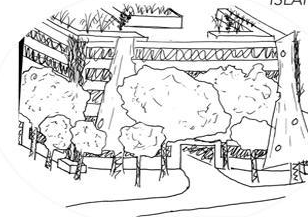
ADAPTABLE

CREATING COMMUNITY RESOURCES DESIGNED TO KEEP PACE WITH OUR RAPIDLY CHANGING ISLAND.

700 Parking Spots in Green Rooftop Parking Structure

5 Floodable Features Along Wailani Canal Walk

1,584 feet of Wailani Canal De-channelized for Flood Mitigation



Conceptual Sketch - Adaptable parking structure with green walls and rooftop gardens

INTERACTIVE

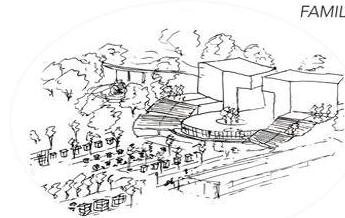
CONNECTING THE COMMUNITY TO ITS PAST THROUGH EXPERIENTIAL EDUCATION AND FAMILY RECREATION.

78% Open Space

20,000 square foot Public Library

90,000 square feet of Office Space for Service Providers

11,520 square feet of Maker's Space for Community Use



Conceptual Sketch - Library with floodable fountain & promenade plaza

SITE OVERVIEW

- 1 Hikimoe Street - Neighborhood Retail/Restaurants
- 2 Hikimoe Street - Complete Street
- 3 Pedestrian & Bicycle Pathway
- 4 Pedestrian & Bicycle Bridge
- 5 Multi-use Community Plaza
- 6 Maker's Space & Community Kitchens
- 7 Public Library
- 8 State Social Service Providers
- 9 Wailani Canal Softening & Widening
- 10 Wailani Canal Walk
- 11 Waipahu Floodable Fountain Feature
- 12 Interactive Floodable Spaces
- 13 Adaptable Parking Structure & Rooftop Gardens
- 14 Kau'olu St. Connection Between Paiwa St. & Mokuola St.
- 15 Senior Housing Consolidation & Improvement
- 16 Mokuola Vista Apartments



Square Footage: 11,520
Stories: 2
Walk time to Station: 2-3 min
Features: Farm to table initiative tied to community gardens, classes and lessons which interest the community, intergenerational activities, and trade skills.



Square Footage: 432,500
Stories: 5
Walk time to Station: 4-6 min
Features: Rooftop community garden space, adaptable garage design, park headquarters, facilities and storage for groundskeeping, maintenance, and security.



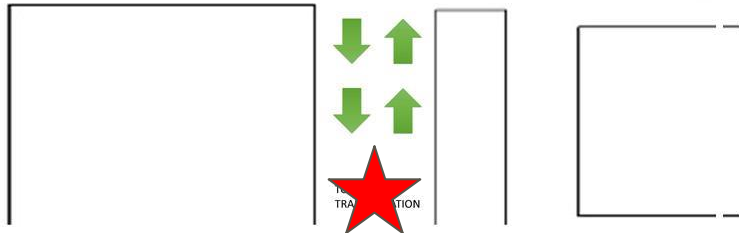
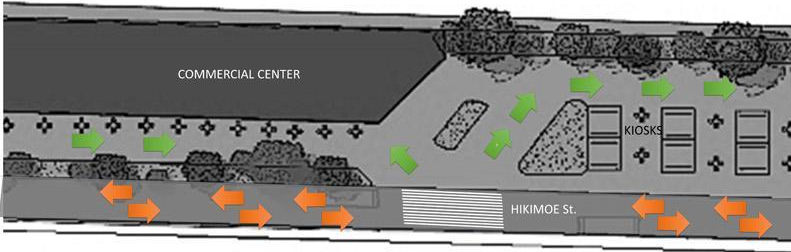
Hikimoe St.

Rail station

Square Footage: 126,000
Stories: 1 for library, 6 for services
Walk time to Station: 2-3 min
Features: High-speed Internet access, trainings that will interest the community, reading and writing space, open concept deck, multi-level public space, and increased space for social services.



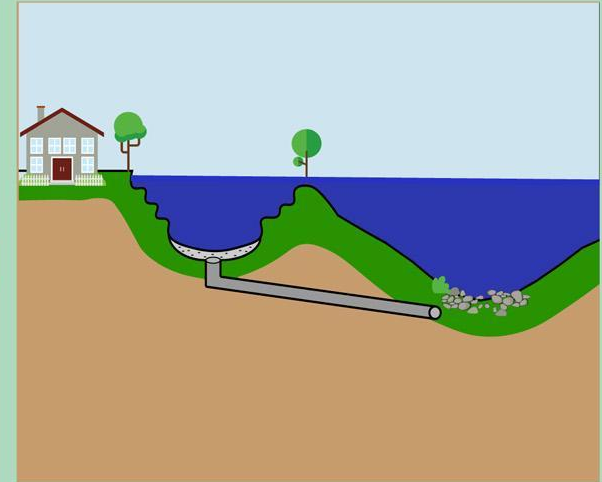
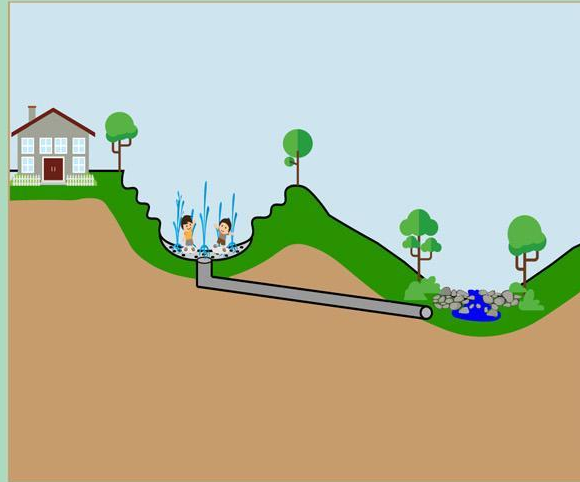
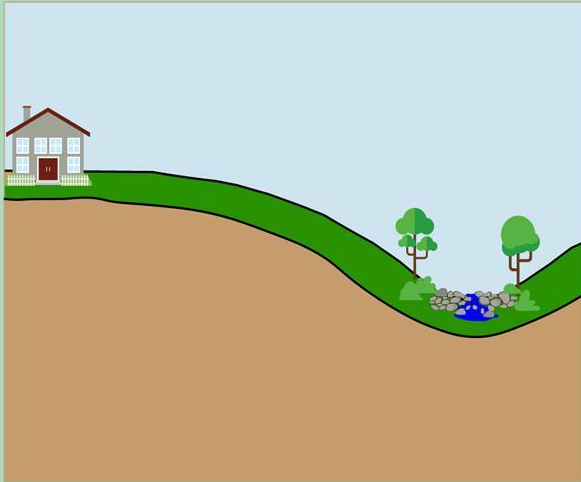
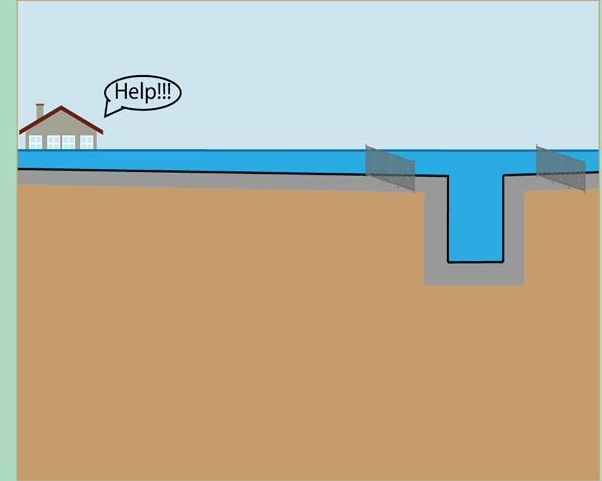
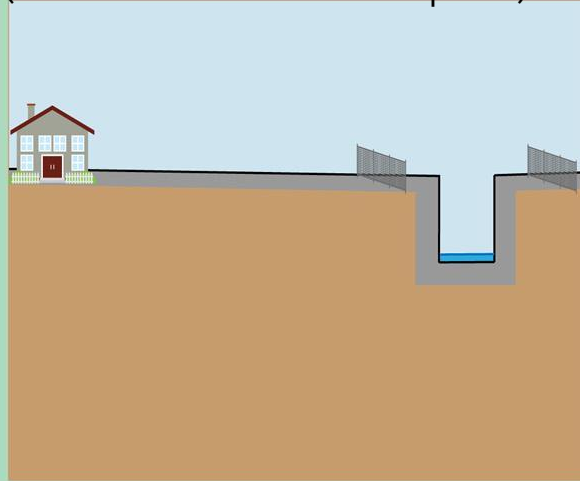
Hikimoe complete street (Bus only)



- PEDESTRIAN USE
- VEHICLE USE

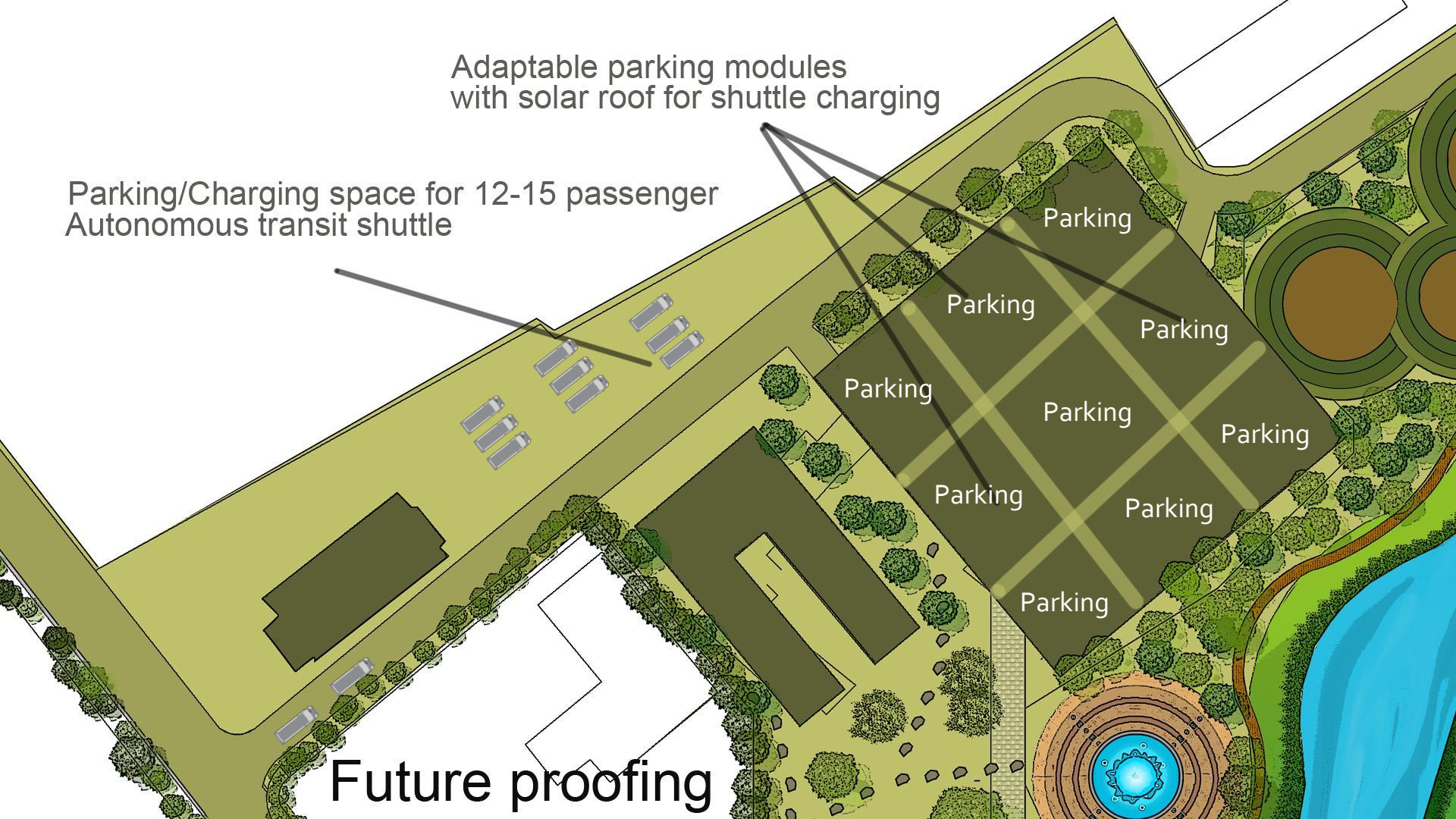
Canal Dechannelization concept (with additional floodable spaces)

1. Increased volume of flow
2. Secondary line of defence against Flooding
3. Natural walkable landscape for recreational use



Adaptable parking modules
with solar roof for shuttle charging

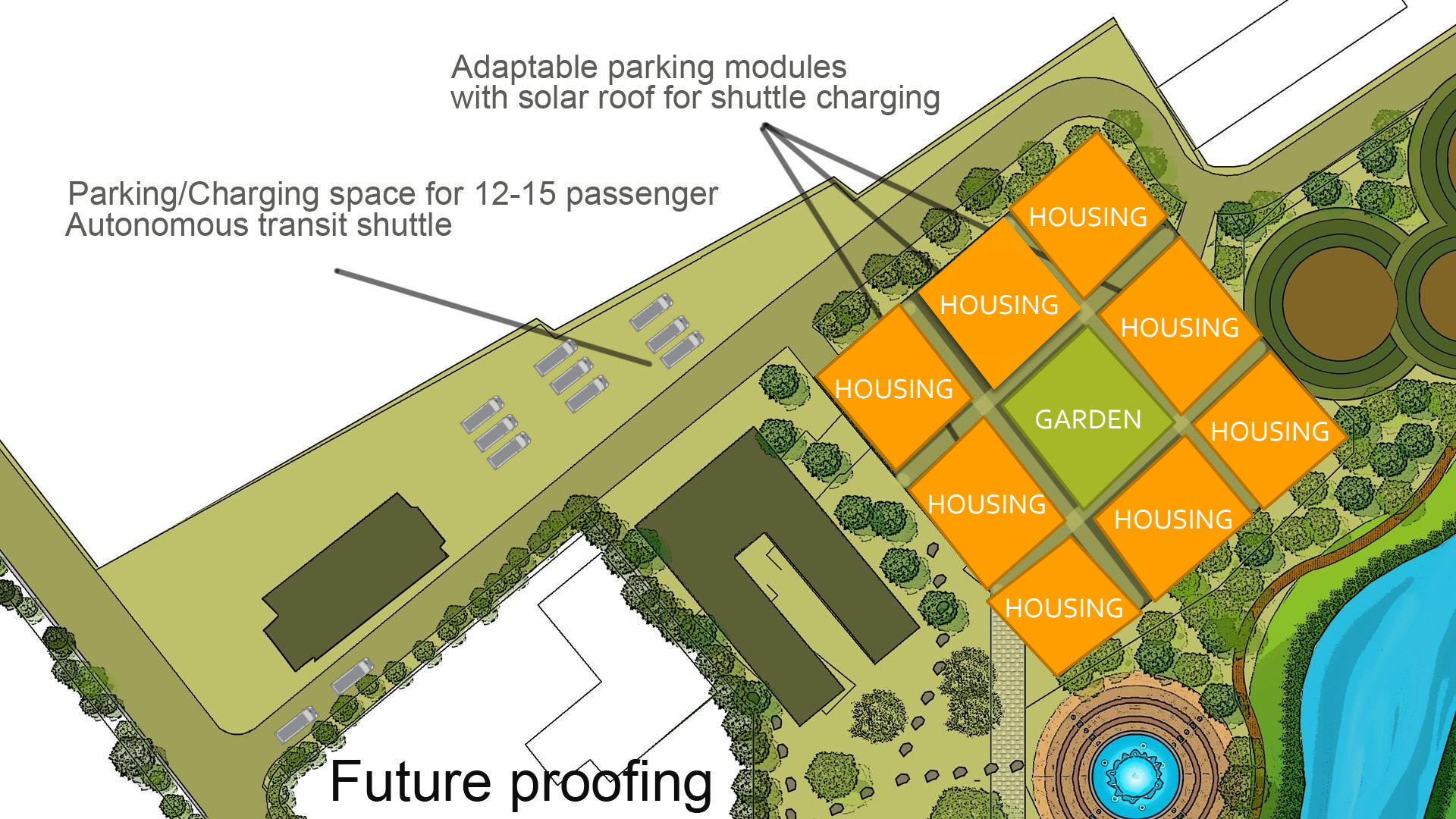
Parking/Charging space for 12-15 passenger
Autonomous transit shuttle



Future proofing

Adaptable parking modules
with solar roof for shuttle charging

Parking/Charging space for 12-15 passenger
Autonomous transit shuttle



Future proofing



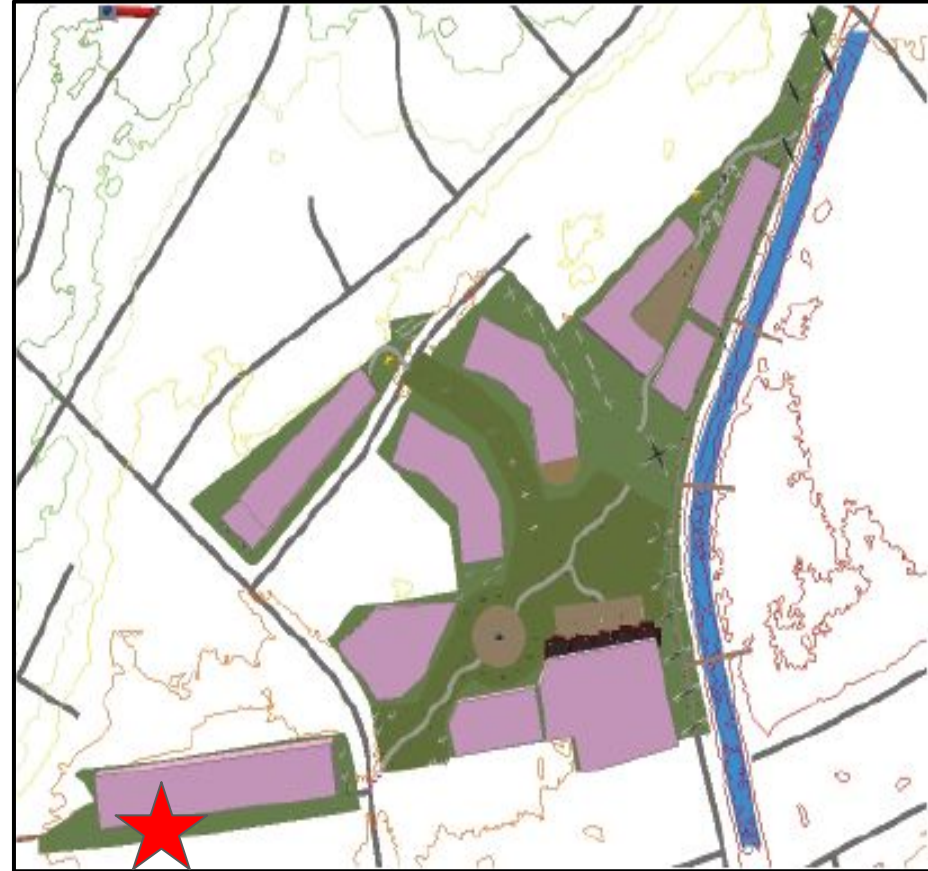
INTERACTIVE MULTI-LEVEL MULTI-USE COMMUNITY SPACE



Plan C: Health & Wellbeing

Health & Wellbeing → Meets Basic Needs, Supports Livelihoods, and Ensures Public Health Services

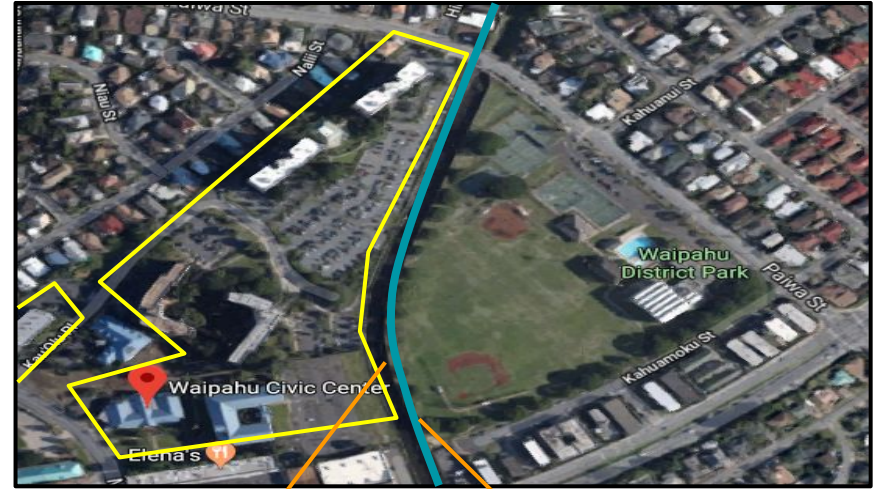
- Flood Mitigation
- Preservation of Social Services
- Parking
- School Accommodation
- Density



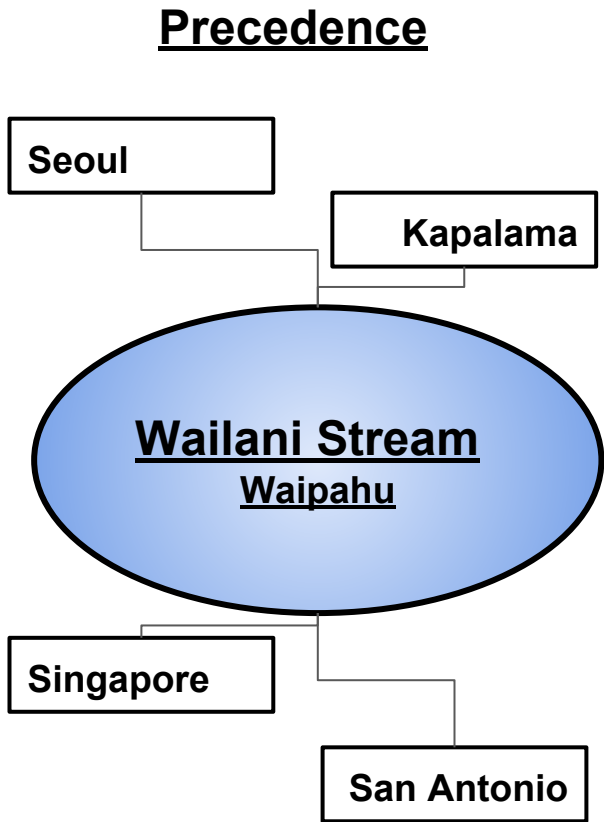
Restoring the of Health and Wellbeing of Wailani Stream

Current Conditions & Issues:

- Uninviting
- Connectivity Barrier
- Channelized
- Urban Runoff
- Poor Water Quality
- Lack of Natural Habitat
- Minimal Groundwater Recharge



Restoring the of Health and Wellbeing of Wailani Stream



Programing to Support Health and Wellbeing

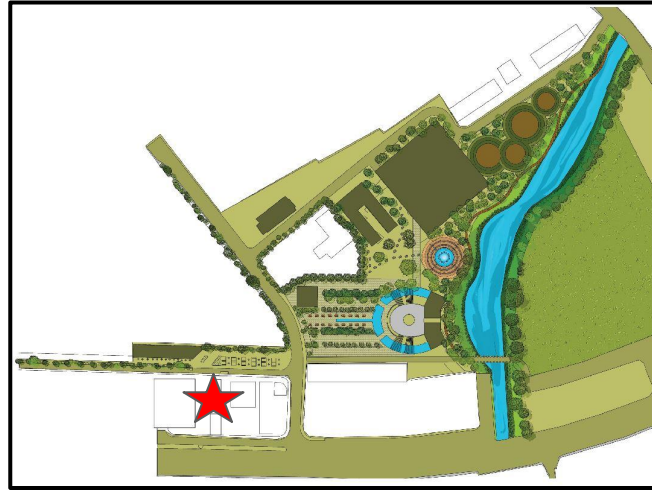
- No parking→ increase the number of housing units and lowering their costs, making it more pedestrian friendly
- Keeping Civic Center and its services but stacking it on the library while adding spaces for adult/child day care as well as after school programs
- Recreation Center (gym, dance studio, boxing/MMA space)
- Businesses → insurance offices, sporting good store, medical offices, pharmacy, urgent care
- Pedestrian/bike path along Wailani Stream
- Outdoor fitness stations along the banks

Four Takeaways - Pouhala Station Specific

PLAN A: FLOW



PLAN B: W.A.I.

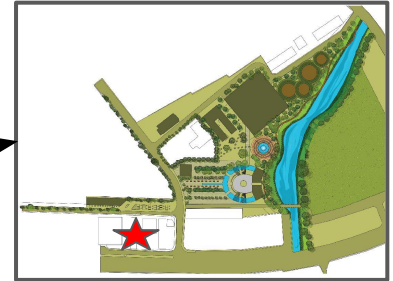
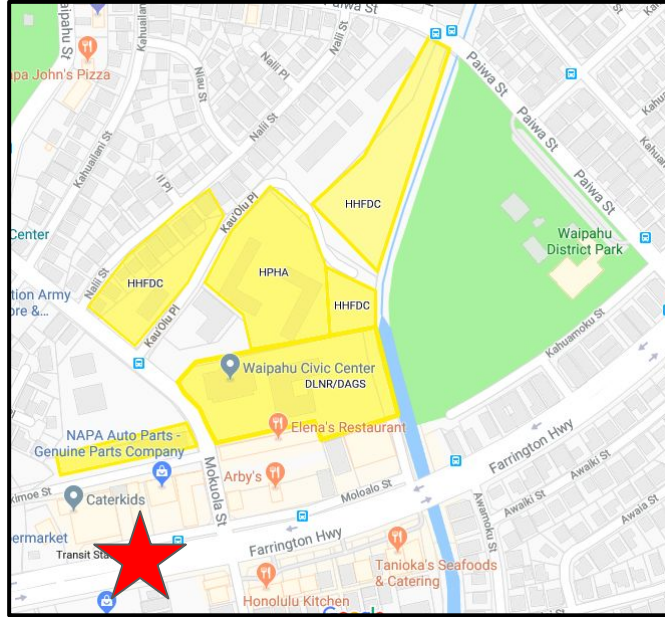


PLAN C: Health & Wellbeing



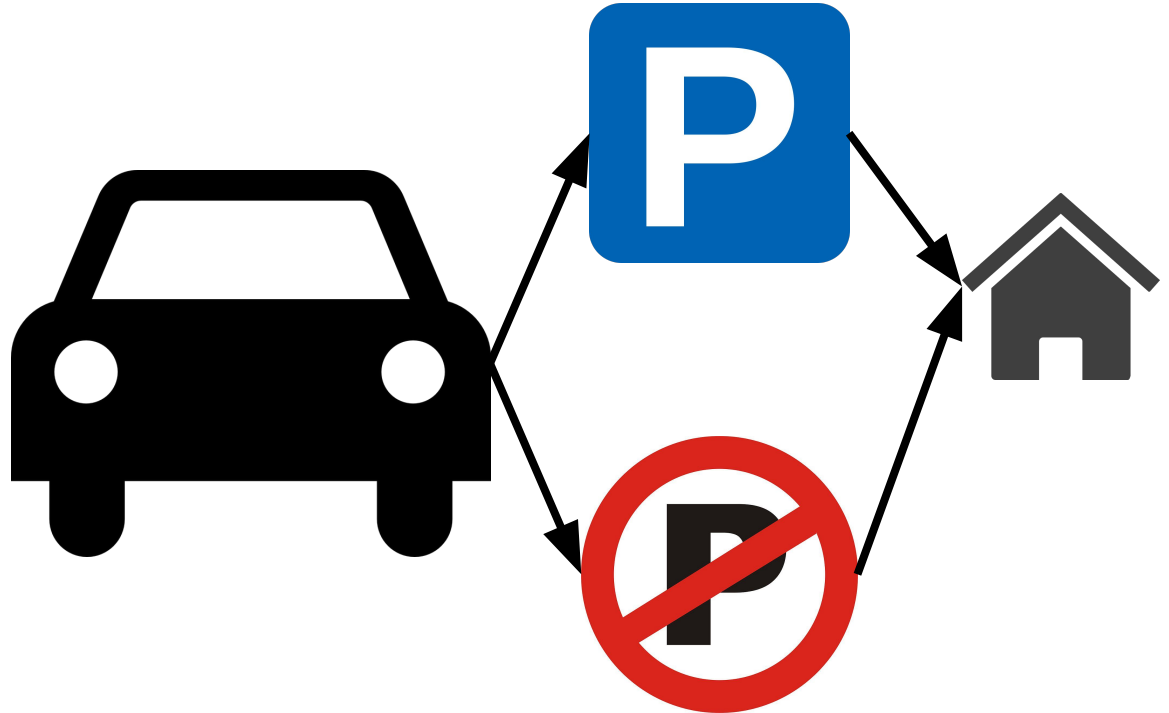
Takeaways - Concept Designs for State Parcels in Pouhala TOD

1. The Six State Held Parcels Are An Opportunity For Change.



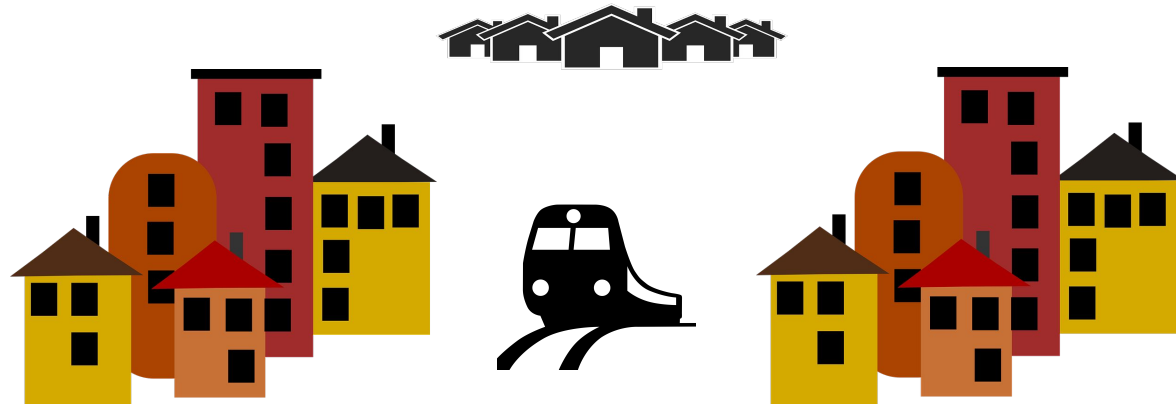
Takeaways - Concept Designs for State Parcels in Pouhala TOD

1. The Six State Held Parcels Are An Opportunity For Change.
2. **There Is An Opportunity To Present New Parking Strategies.**



Takeaways - Concept Designs for State Parcels in Pouhala TOD

1. The Six State Held Parcels Are An Opportunity For Change.
2. There Is An Opportunity To Present New Parking Strategies.
3. **Address Critical Mass In The Area By Introducing New Housing Or Sustaining Current Units.**



Takeaways - Concept Designs for State Parcels in Pouhala TOD

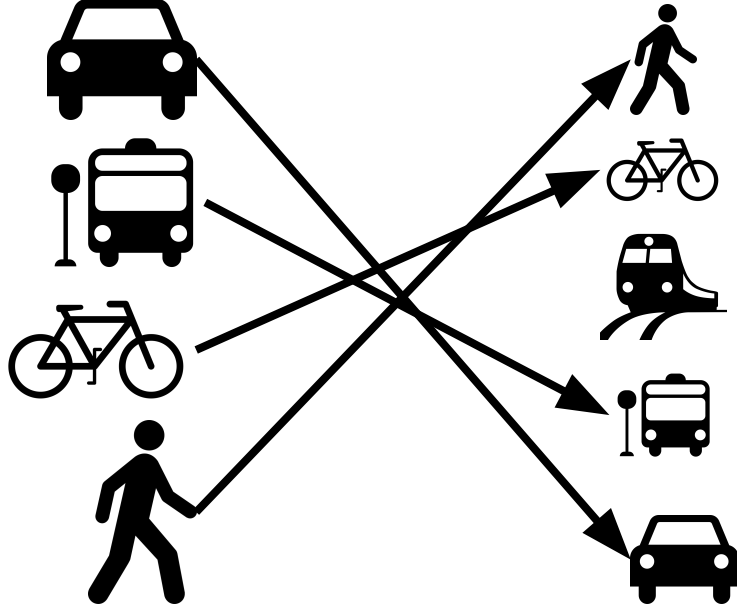
1. The Six State Held Parcels Are An Opportunity For Change.
2. There Is An Opportunity To Present New Parking Strategies.
3. Address Critical Mass In The Area By Introducing New Housing Or Sustaining Current Units.

4. Examining Transportation Priorities - How Will Rail Impact These Priorities?

Current Transportation Priorities:

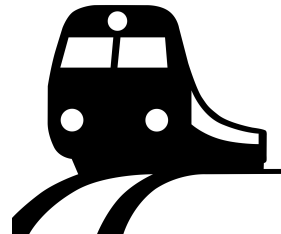
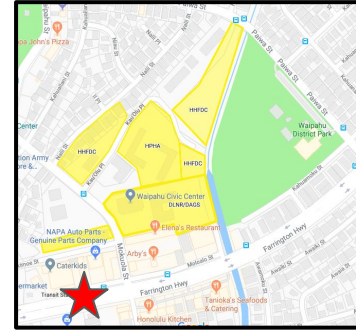


Post TOD Transportation Priorities:



Takeaways - Concept Designs for State Parcels in Pouhala TOD

1. The Six State Held Parcels Are An Opportunity For Change.
2. There Is An Opportunity To Present New Parking Strategies.
3. Address Critical Mass In The Area By Introducing New housing or sustaining current units.
4. Examining Transportation Priorities - How Will Rail Impact These Priorities?



Current and Future Activities



PLAN 750: Planning Practicum

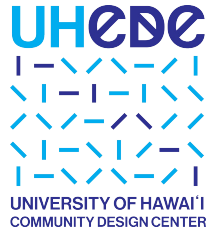
- Waipahu as a model for future TOD, mixed use urban village
- Civic engagement workshop with community to share ideas, visions (April 2018)

PLAN 642: Urban Infrastructure Planning

- Infrastructure capacity analysis
- Constraints and opportunities for multi-modal transportation and green infrastructure in Waipahu

Additional UH efforts

- Facilitated planning/analysis State CIP prioritization (UH Public Policy Center)
- Preliminary housing needs assessment (UH CDC)
- Ecological conditions assessment (UH CDC)
- Housing block criteria and prototype design concept (UH CDC)



Mahalo!

Questions?



Environmental planning students at Pouhala Marsh



Site planning students