# Iwilei/Kapalama TOD Infrastructure Strategy WORKING DRAFT

City and County of Honolulu October 2017





#### Infrastructure Investments in TOD Corridor



## HONOLULU

#### TOD INFRASTUCTURE PROJECTS













#### Iwilei/Kapalama TOD Infrastructure Strategy

Public facilities and infrastructure plan to accommodate growth consistent with Kalihi and Downtown TOD Plans:

- Sewer
- Water
- Drainage
- Electrical
- Circulation

- Parks
- Schools
- Broadband
- Emergency evacuation













Iwilei/Kapalama Area Looking from the Harbor *existing* 





For illustrative purposes only



Iwilei/Kapalama Area Looking from the Harbor *hypothetical 80% build out* 





#### **Development Potential Methodology**

- Identified opportunity sites (vacant sites, surface parking lots, low intensity sites, etc.)
- Model future development potential
  - Proposed TOD land uses
  - Average assumptions for intensity and use mix
  - Stakeholders input
  - Comparison with population forecasts



#### **Development Estimates**





## **Residential Development Estimates**

#### Existing and Projected, 2017 to 2057



Source: Department of Planning and Permitting, 2017; PBR Hawaii, 2017; Strategic Economics, 2017.

#### **Commercial Development Estimates** Existing and Projected, 2017 to 2057



Source: Department of Planning and Permitting, 2017; PBR Hawaii, 2017; Strategic Economics, 2017.

## **Development Phasing**

Phases	Assumptions
Phase 1:	<ul> <li>Focuses on developers' input</li> </ul>
0-10 yrs	<ul> <li>Assumes development in areas in proximity to rail stations</li> </ul>
Phase 2:	<ul> <li>Assumes 30% of development, unless</li> </ul>
11-25 yrs	developer input was provided
	<ul> <li>Special assumptions developed for subdistricts 5 &amp; 6</li> </ul>
Phase 3:	<ul> <li>Remainder of development is</li> </ul>
26-40+ yrs	expected in Phase 3



#### Phase 1 Development Estimates





#### **Development Estimates**

		Anticipated Additional Units/Commercial Space			Anticipated
	Existing	Phase 1: 0-10 Years	Phase 2: 11- 25 Years	Phase 3: 26-40+ Years	Commercial Space*
Residential (Units)	3,030	3,490	3,990	4,870	14,510
Commercial (SF)	6,648,800	521,100	760,790	1,302,540	5,717,740

\* Anticipated total assumes some existing units/SF will be replaced while other units and/or square footage (SF) will remain.

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#### **Proposed Street Network**

Strategy designates the approximate location of future streets to:

- Support circulation and access for pedestrians, cyclists, and vehicles
- Reduce block sizes and increase intersection density
- Improve connectivity to transit
- Make connections missing in existing network
- Enhance block/parcel redevelopment potential
- Expand utility network





#### **Proposed Street Network**

New Roadways	Est. Capital Cost
Land Acquisition Roadways Drainage Sewer Water Landscaping	\$80+ M



## Street Network Priority Projects

- Proposed New Streets
  - Kaahi Street extension
  - Connection btw Alakawa Street and Iwilei Road
- Complete Streets Projects
  - Iwilei Road bicycle lanes (in construction)
  - North King Street (in planning/design)
  - Kokea and Kohou Streets = \$5.7 million (in planning/design)
  - Liliha/Dillingham/King intersection
  - Vineyard Boulevard



## Sewer System – Existing Flows





## Sewer System - Existing



- Existing infrastructure connects to two pump stations at Awa Street and Hart Street, and continues to the Sand Island Wastewater Treatment Plant
- Wastewater treatment and transmission capacity is already constrained in certain areas and is a potential hindrance to development



## Sewer System Projects



Project	Est. Capital Cost
CIP projects	
<ul> <li>Second sewage digester at the Sand Island</li> <li>Wastewater Treatment Plant (completed)</li> </ul>	
<ul> <li>Awa Street Wastewater Pump Station</li> <li>First phase, funded and to be completed in 2020</li> <li>Second phase, programmed, in planning/design</li> </ul>	\$120 M \$20 – 100 M
<ul> <li>Hart Street Wastewater Pump Station Third Phase, programmed, in planning/design</li> <li>Upsize King Street main (Liliha to College Walk)</li> <li>New Alakawa Street main</li> </ul>	\$20 M
Sewer infrastructure in new streets	\$3.7 M



## Water System – Existing Mains



## Water System

- Water availability is not yet a development constraint, but water transmission for certain flows is a concern
- Estimated net increases in water usage:

	Commercial Water Requirement (MGD)	Residential Water Requirement (MGD)	Total Water Requirement (MGD)
Existing Uses	0.31	0.71	1.02
Framework Plan (Net Increase)	0.26	4.94	5.20
Total	0.57	5.65	6.22

\*Based on BWS Water System Standards, 2002



## Planned CIP Water Projects



Drojoot	Est. Capital	Const
Project	Cost	Year
Kalihi Pump Station Low and High Service Renovation	\$10 M	2016
42-Inch Mains - Liliha To Moiliili (Phase I)	\$38 M	2024
42-Inch Mains - Liliha To Moiliili (Phase II)	\$30.1 M	2028
Nimitz Hwy and Waiakamilo Rd Area WSI	\$2.8 M	2032
Kokea St and Auld Ln WSI	\$2.7 M	2037
Dillingham Blvd at Kohou St 12 inch	\$11.0 M	2038
Aala St and N Vineyard Blvd	\$6.8 M	2039
Nimitz Highway 16-Inch Main	\$11.0 M	2041





## Additional Water System Upgrades

Project	Est. Capital Cost
<ul> <li>Water improvements in existing streets</li> <li>Upgrade to 16": Hart St</li> <li>Upgrade to 12": Kalani St, Dillingham Blvd, Waiakamilo Rd, McNeill St, Kaumualii St (east), Moonui St, Moowaa St, Kohou St</li> </ul>	\$10.3 M
Water improvements in new streets	\$2.5 M



## **Electrical System**

Project	Est. Capital Cost
<ul> <li>Underground infrastructure (HECO, City)</li> <li>Nimitz Hwy, Kalihi St, Waiakamilo Rd, N King St, Liliha St, Iwilei Rd, Kaahi St, Kuwili St, Sumner St</li> <li>Electrical system in new streets</li> </ul>	\$70 M
<ul> <li>HECO</li> <li>New/upgraded substation(s)</li> </ul>	TRD
<ul> <li>New 46 KV overhead lines (3 alternatives)</li> </ul>	\$13 - \$45 M





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#### **46KV Line: King Street Alternative** LEGEND PROJECT SITE HECO 46KV OH IECO HECO 46KV UG WAIKAMILO SUBSTATIO PROPOSED HECO 46KV UG ECO IWILEI TRANSMISSION SUBSTATION HECO INTEL

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# 46KV Line: Dillingham Blvd Alternative



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#### **Drainage System – Existing Flows**



#### Sea Level Rise & Groundwater Vulnerability Year 2100

Source: Chip Fletcher, SOEST - 2016

#### Legend

Blue:

Green:

Groundwater Rail guideway Rail station

Marine water

#### Drainage System

- Iwilei Drainage Improvements Study (in planning)
- Drainage for new streets = \$10.3 M
- New Alakawa Street drainage line
- Need for new Topography Master Plan to address sea level rise and flooding



#### **Recreation/Parks**



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#### **Recreation/Parks**

- 55 acres of additional park space required
  - Community-based facilities are recommended at a ratio of 2 acres per 1,000 resident population
- Park Dedication <u>may</u> provide 25 acres
- Need to identify property for new Iwilei Community Park (e.g., Weston lot)



## Kapalama Canal Project







#### Schools

- DOE schools servicing this area:
  - Kalihi Kai Elementary, Puuhale Elementary, Kaiulani Elementary School, Likelike Elementary School, Kauluwela Elementary School, Kalakaua Middle School, Central-Middle School, Farrington High School, and Roosevelt High School
- According to the student generation rates (SGRs) provided by DOE and the anticipated number of new units at full build out,
   1.492 additional students are expected

1,482 additional students are expected



## Implementation

<b>IMPROVEMENT</b>	COST	FUNDING SOURCE
Regional Sewer System Upgrades		
Awa Street Phase 1	\$120M	City (ENV)
Awa Street Phase 2	\$20-100M	City (ENV)
New Alakawa Street Main		
Upsize King Street Main		State
Water System Upgrades	\$120M	City (BWS), Private
Electrical System Upgrades		
Underground Infrastructure	\$70M	HECO, City, Private
New 46 KV Line	\$15M-45M	HECO, Other?
Upgrade to Substation(s)		HECO
Regional Drainage Improvement	TBD	City, State, Private
New Streets (incl. utilities)	\$80M	City, State, Private
Upgrade Existing Streets	\$20M	City, State, Private
Kapalama Canal Linear Park	\$100M	City, Private
New Iwilei Community Park	\$40M	City, Private





## Mahalo!

#### www.honolulu.gov/tod

