

# STATE TOD PLANNING & IMPLEMENTATION PROJECT, O'AHU

## Summary of Assessment of Infrastructure Needs & Costs, Financing Tools & Analysis

Project report prepared for the Office of Planning by the project team of



- Presentation will provide high-level summary of work performed for the State TOD Planning & Implementation Project, Island of Oahu, completed in 2020:
- Summarizing study components of:
  - Infrastructure requirements and costs for the three State TOD priority areas on Oahu; and
  - Potential financing tools and financial analysis of how the selected tools would perform in addressing infrastructure funding gaps
- Project team led by PBR HAWAII, financial analysis performed by David Taussig & Associates (DTA); other team members:
  - RM Towill, Infrastructure needs assessment and cost studies
  - Ron Ho & Associates, Electric and telecommunications infrastructure needs
  - Fehr & Peers, Transportation and mobility evaluation
  - ARUP, Sustainability and resilient infrastructure review
  - CallisonRTKL, Urban design and design charrettes

# Project Study Objectives



**TOD  
INFRASTRUCTURE  
NEEDS & COST**



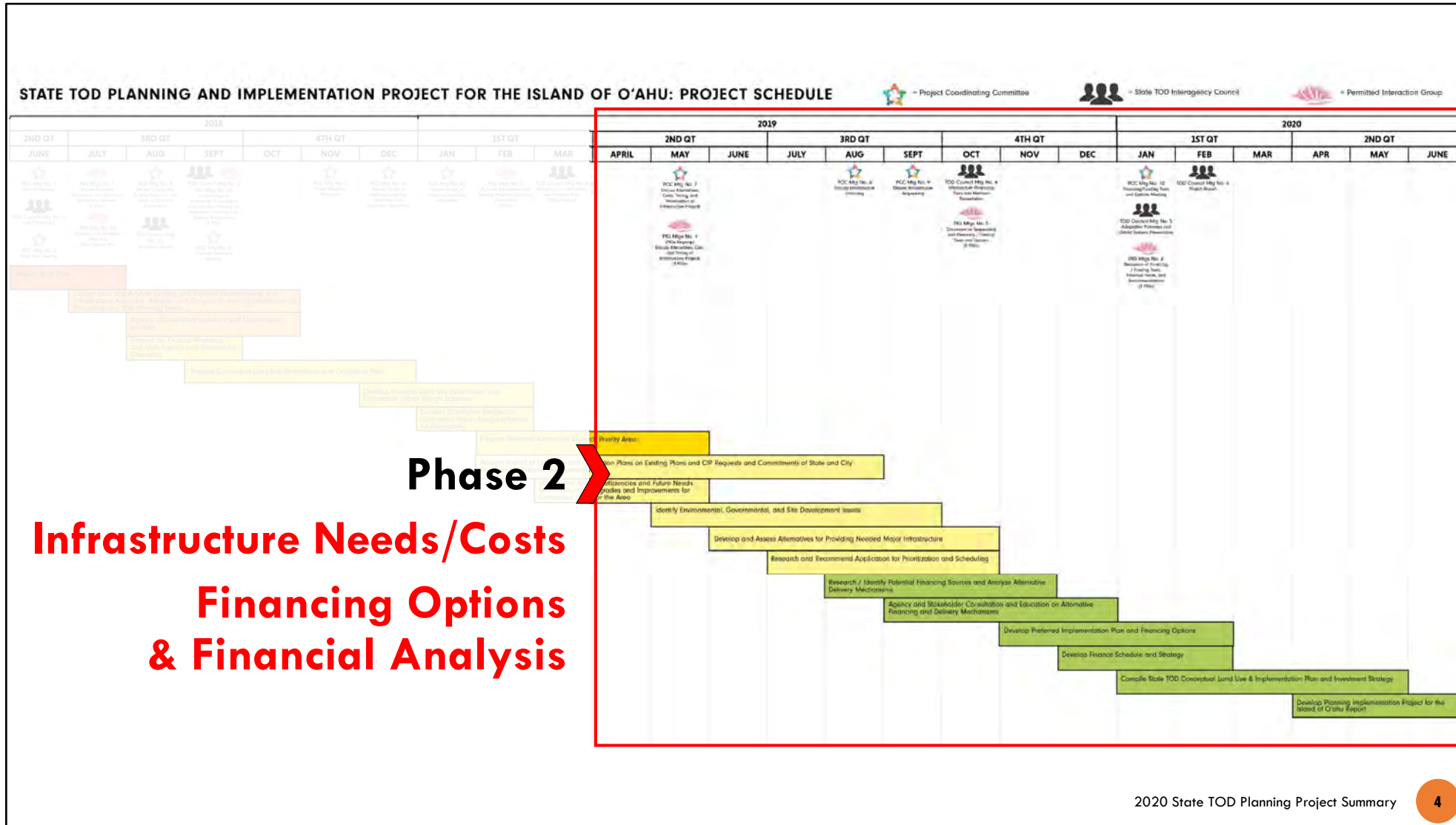
**INFRASTRUCTURE  
FINANCING TOOLS  
& OPTIONS**



**INFRASTRUCTURE  
INVESTMENT  
PLAN / STRATEGY**

- Purpose/objectives of the study:
  - Examine infrastructure barriers that hinder State TOD implementation in three State TOD priority areas on Oahu—in planned station areas where State has significant landholdings: East Kapolei, Halawa-Stadium, and Iwilei-Kapalama
  - Determine regional off-site and onsite infrastructure needed and associated rough-order-of-magnitude costs for infrastructure needed to support anticipated TOD over the next 30-40 years in these areas
  - Identify funding available and funding gaps for infrastructure needed and potential financing tools that could be considered to pay for infrastructure, and do financial analysis of how these tools would address financing gaps
  - These components were viewed as necessary for future development of infrastructure investment strategies to guide public TOD CIP investments





- Phase 2, 2019-2020, focus on:
  - Infrastructure needs, rough order of magnitude infrastructure costs, and timing of delivery
  - Identification of existing infrastructure project funding and funding gaps
  - Selection of potential financing tools and analysis of cash flow for Phase 1 infrastructure development
  - DTA role and report—focus on potential tools, funding gaps, and cash flow analysis using different financing tools being recommended

## STATE TOD PROJECT, O'AHU PRODUCTS

State and major project buildout estimates for three TOD priority areas over next 30 years, including affordable housing

Regional infrastructure projects to support State and other TOD projects in priority areas over next 30 years

Estimated costs for regional infrastructure improvements and funding gaps for Phase 1 infrastructure projects

Preliminary ideas and analysis of financing options to address funding gap for 2020-2029 regional infrastructure needs

- State TOD Implementation Project resulted in four main products:
  1. Development program for the three TOD areas in terms of planned uses, density/intensity of anticipated development, and general timing of project development over three 10-year development phases
  2. Compilation of infrastructure needs associated with TOD buildout in terms of
    - Regional-serving offsite and onsite infrastructure
    - Onsite, project-specific infrastructure
  3. Estimated costs and funding gaps for Phase 1 (2020-2029) infrastructure projects
  4. Options for financing and analysis of financing options for Phase 1 infrastructure projects
- Financial analysis, investment strategy focus on regional-serving infrastructure improvements that are:
  - beyond reach of any one agency to provide if infrastructure improvements relied on a project providing its share as built
  - Have potential for sharing the cost of infrastructure delivery among multiple agencies/parties benefiting from the infrastructure investments



## Anticipated development in TOD priority areas



Anticipated Total (Gross) Development	Phase 1: 2020 2029	Phase 2: 2030 2039	Phase 3: 2040 2049	TOTAL
Residential (units)	19,300	18,400	10,300	<b>48,000</b>
Commercial/institutional/mixed-use space (square feet)	4,900,000	5,200,000	5,100,000	<b>15,200,000</b>
Hotel rooms	410	Info NA	0	<b>~600</b>
Industrial space (square feet)	1,800,000	1,600,000	500,000	<b>3,900,000</b>
Stadium (seats)	35,000	0	0	<b>35,000</b>

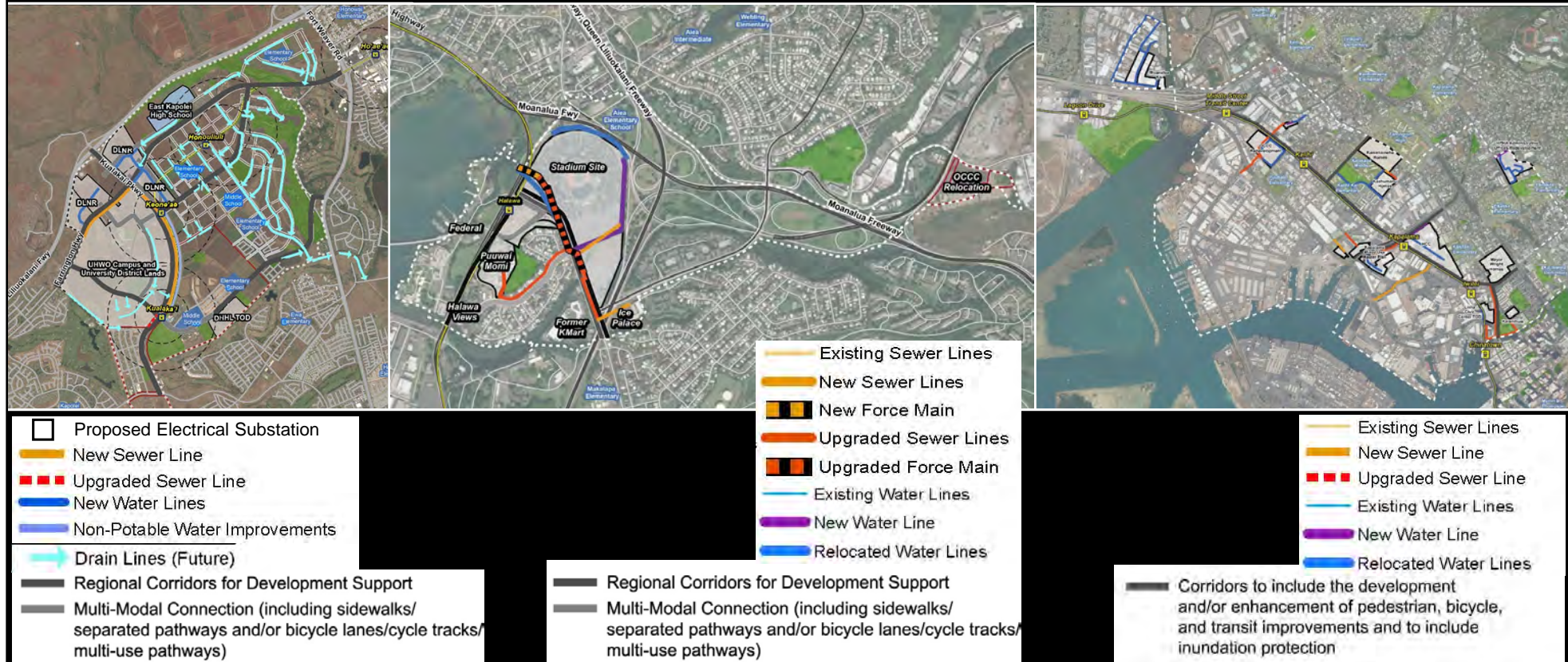
- Preferred land use scenarios resulted in estimates of additional growth in residential units, commercial/office/retail space, industrial space, hotel rooms, specialized public facilities, as well as school facility needs for each priority area
- Each priority area has very different development conditions—greenfield, grayfield, urban infill/redevelopment—and the anticipated land use development varied for each based on landowner plans and mission objectives
- This table summarizes anticipated development for each phase of development, and in total, for all three areas over the 30-40 year buildout period:
  - **RESIDENTIAL : 48,000 units**
  - **COMM/INSTIT/MIXED-USE : 15.2M SF**
  - **HOTEL ROOMS : ~600**
  - **INDUSTRIAL : 3.9M SF**
- Breakdown of anticipated land use for each priority area can be found in the project report posted at the TOD Council webpage. (Link provided later)

source: State TOD Planning & Implementation Project for Oahu, PBR HAWAII

2020 State TOD Planning Project Summary



# Regional infrastructure needs for TOD priority areas



source: State TOD Planning & Implementation Project for Oahu, PBR HAWAII

2020 State TOD Planning Project Summary

- The maps shown here were developed for interim project use and are merely illustrative of the types of infrastructure that would be needed in each area. Maps of needed improvements to individual infrastructure systems for each priority area are included in the final report
- The infrastructure assessment identified infrastructure investments needed for each area by type:
  - Hard Infrastructure – horizontal, including
    - Sewer
    - Water
    - Roads, multi-modal transportation elements
    - Drainage
    - Electric/Telecom
  - And
  - “Soft” or social Infrastructure – in particular, DOE school capacity needs due to anticipated residential growth in each area
- While the infrastructure assessment identified project-specific on- and offsite infrastructure needs, the financial analysis was focused on those infrastructure project needs that were regional serving, serving multiple properties or larger service area
- The study report discusses the methodology and assumptions used in estimating infrastructure needs and costs; please consult report for more information
- Each priority area has unique challenges for infrastructure financing and delivery

# Estimated costs for regional infrastructure improvements & funding gaps

OP TOD East Kapolei Conceptual Cost Estimate Summary Table		Phase 1 (2020-2029)	Existing Funding 2-year CIP	Existing Funding 6-Year CIP	E
Updated: January 13, 2020; cleaned March 3, 2020 Costs rounded to Billions of Dollars					
Items					
Sewer (Regional/Project Improvements)					
Sewer (Regional/Project Improvements) - Needed unless UH Mauka reduces MP demand					
Roadway/Traffic Improvements (Regional Improvements)					
Roadway/Traffic Improvements - Ho'opuli (Regional/Project Improvements)					
Water (Regional Improvements)					
Water (Regional Improvements) - Needed unless UH Mauka reduces MP demand					
Electrical (Regional Improvements)					
OP TOD Hālawā-Stadium Conceptual Cost Estimate Summary Table					
Updated: January 13, 2020; cleaned March 3, 2020 Costs rounded to Billions of Dollars					
Items					
Sewer (Regional Improvements)					
Sewer (Regional/Project Improvements)					
Subtotal - Sewer (with New School in					
OP TOD Iwilei-Kapālama Conceptual Cost Estimate Summary Table					
Updated: January 13, 2020; cleaned March 3, 2020 Costs rounded to Billions of Dollars					
Items		Phase 1 (2020-2029)	Existing Funding 2-year CIP	Funding	E
Sewer (Regional Improvements)		\$ 0.221	\$ (0.145)	\$	
Sewer (Regional/Project Improvements)		\$ 0.005	\$ -	\$	
Subtotal - Sewer		\$ 0.226	\$ (0.145)	\$	
Roadway/Traffic Improvements (Regional Improvements)		\$ 0.059	\$ -	\$	
Subtotal - Roadway		\$ 0.059	\$ -	\$	
Drainage (Regional Improvements)		\$ 0.011	\$ -	\$	
Subtotal - Drainage		\$ 0.011	\$ -	\$	

- Infrastructure requirements by type, phase, cost
- Timing for infrastructure based on anticipated timing of development
- Region-serving infrastructure warranting cost-sharing
- Compiles funds committed or in 2- & 6-yr CIP programs, anticipated impact fees & revenue bond yields
- Financial analysis focused on Phase 1 (2020-2029) requirements

- Here you get an idea of the fairly exhaustive list of project information compiled for the region-serving and project-specific infrastructure improvement projects required in each priority area, in terms of:
  - Type
  - Cost estimate
  - Timing or phase of development, and
  - Identified funding
- For the financial analysis that followed:
  - Only regional-serving infrastructure cost estimates were included
  - Funding gaps identified—if funding was identified in 2- & 6-yr CIP program, it was assumed to be funded; anticipated yields from sewer & water revenue bonds and impact fees (school, Ewa Highway Impact Fee) were considered as funding
  - Infrastructure project cost estimates were rolled up by phase
  - Only infrastructure improvements needed for Phase 1 (2020-2029) were used in analysis, since development schedule is less certain beyond ten years

source: State TOD Planning & Implementation Project for Oahu, PBR HAWAII

2020 State TOD Planning Project Summary



# Regional infrastructure costs for TOD priority areas



- This table summarizes the estimated infrastructure cost estimates for each priority area by phase and incorporates information obtained in 2019-2020 on what is considered funded and unfunded...
- Be advised that the numbers in the table were subsequently adjusted for the final report. The adjustments do not significantly alter the general allocation of costs across phases or areas. However, users should consult the report for final numbers for this dataset
- Again, the maps are merely illustrative of some of the infrastructure needs considered in the course of the study. Please consult the final report for maps of the individual infrastructure system improvement needs for each priority area

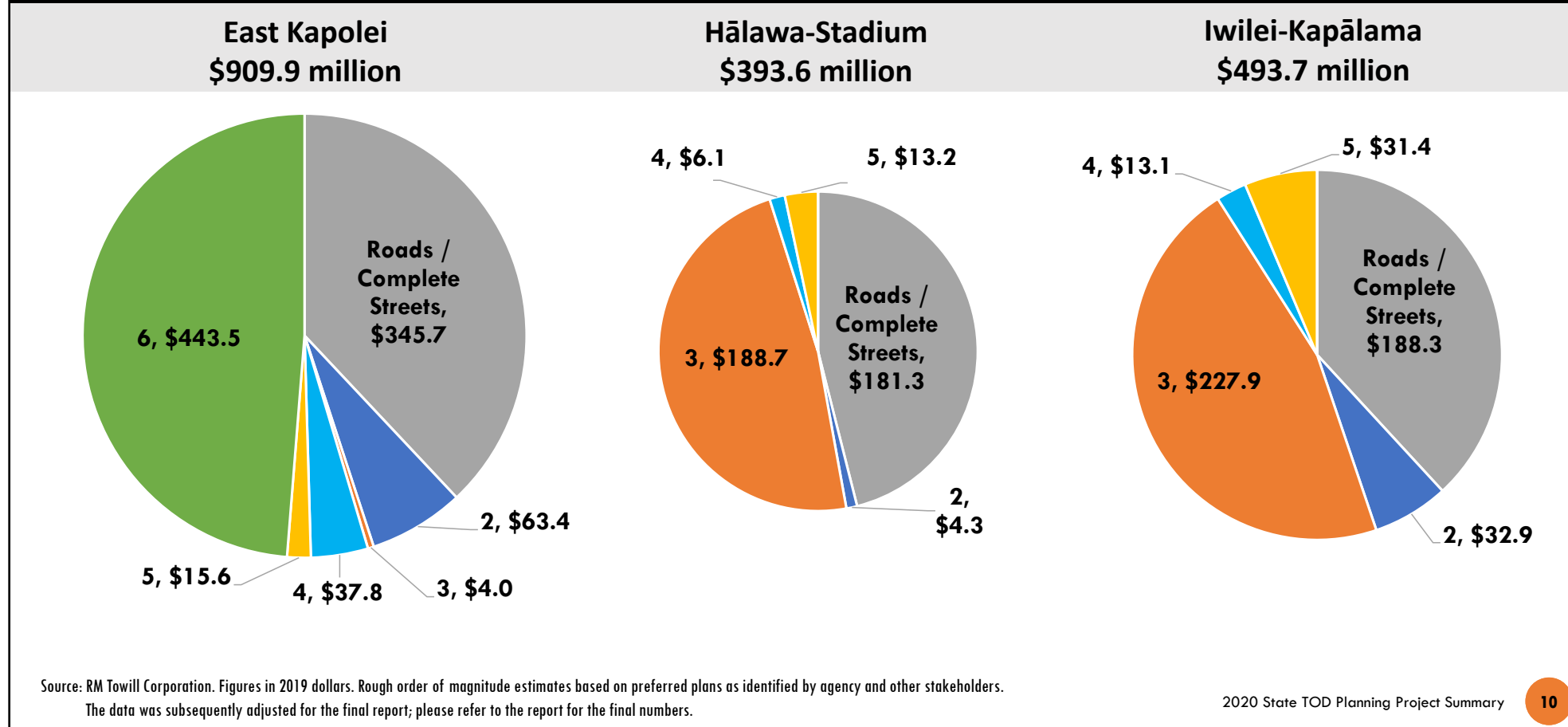
TOD Priority Area	Phase 1 (2020 2029) Total Costs	Phase 1 Existing Funding	Phase 1 Unfunded	Phase 2 (2030 2039) Unfunded	Phase 3 (2040 2049) Unfunded	Total Unfunded Costs	Total Costs
East Kapolei	0.900	0.595	0.305	0.610	0.715	1.629	2.224
Hālawā-Stadium	0.394	0.271	0.122	0.524	0.033	0.679	0.950
Iwilei-Kapālama	0.494	0.240	0.254	0.292	0.970	1.515	1.755
<b>TOTAL</b>	<b>1.787</b>	<b>1.106</b>	<b>0.681</b>	<b>1.425</b>	<b>1.717</b>	<b>3.823</b>	<b>4.929</b>

2019 dollars, in billions

Note: This table provides data that was subsequently adjusted for the final report; please refer to the report for the final numbers.

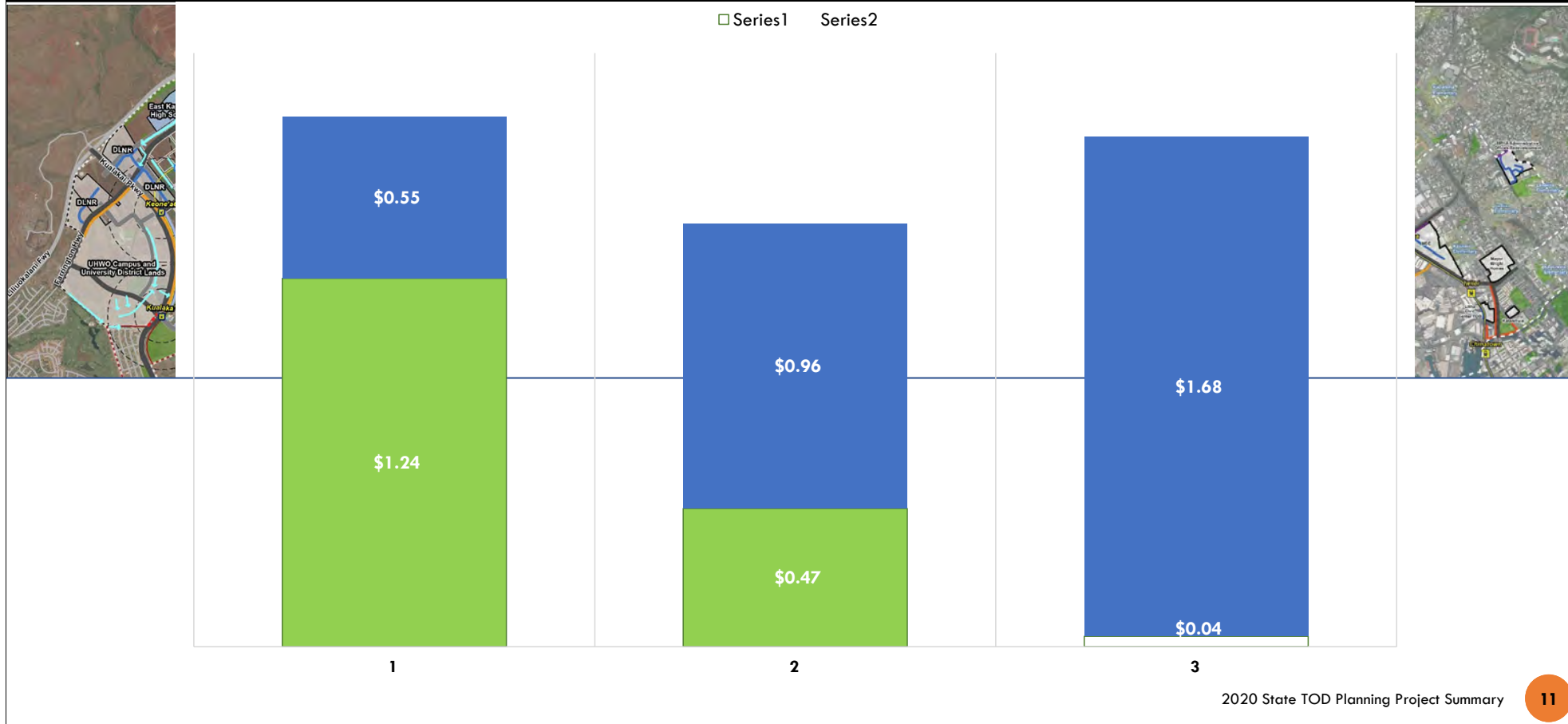
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# Phase 1 Costs by Type and TOD Area: Estimated \$1.8 billion (2019 dollars, in millions)



- These pie charts illustrate what type of infrastructure accounts for costs for Phase 1 infrastructure needs for each priority area
- Pies are proportional to costs
- Infrastructure needs reflect the existing development character of each area
- As noted on the slide, these numbers were subsequently adjusted for the final report. Please consult the report for the final numbers for this dataset.

# Regional infrastructure costs for TOD priority areas



- This chart summarizes the rough-order-of-magnitude costs for regional-serving infrastructure improvements required to support desired TOD for each phase
- The green represents infrastructure improvements that were identified as being funded
- The blue is the amount for which funding has yet to be identified—the funding gap
- The financial analysis focused on what could be done to address the unfunded project costs across the three priority areas
- As you can see:
  - around **\$1.79 B** would be required for infrastructure for **Phase 1** development
  - **\$1.42 B** for **Phase 2** development
  - **\$1.72 B** for **Phase 3** buildout
  - With total infrastructure cost estimate of **\$4.9B** for full TOD buildout over the next 30-40 years

# Upfront Infrastructure Costs— Who Pays?

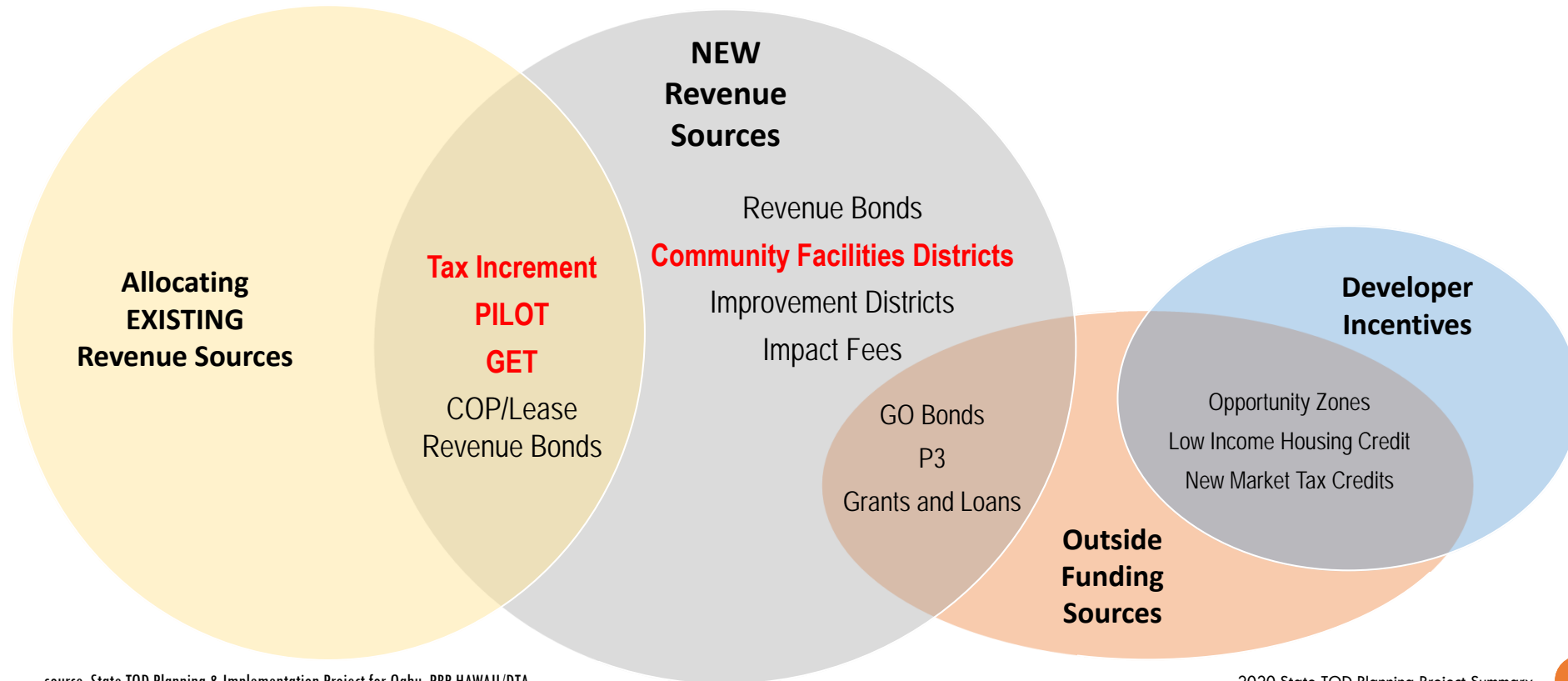
For a project to be financeable now,  
it needs a clear revenue stream in the  
future

- **Financing** is the raising of upfront capital for project delivery
- **Funding** is the revenue stream used to pay for project or repay financing

- Regional infrastructure investments are typically needed far in advance of TOD project construction and the availability of revenues that can flow from that TOD development
- At the heart of the financial analysis, is the question of who pays for the significant upfront costs of TOD infrastructure that needs to precede TOD project development
  - Current or future taxpayers and users?
  - Users that benefit from this public investment or the general public?
- If there is a lack of funds available at the time infrastructure investments need to be made, then the infrastructure projects need to be:
  - financed or
  - Delayed—which could stall TOD project development
- And financing depends on a number of factors, foremost being the identification of a reliable revenue stream that will be used to pay off debt

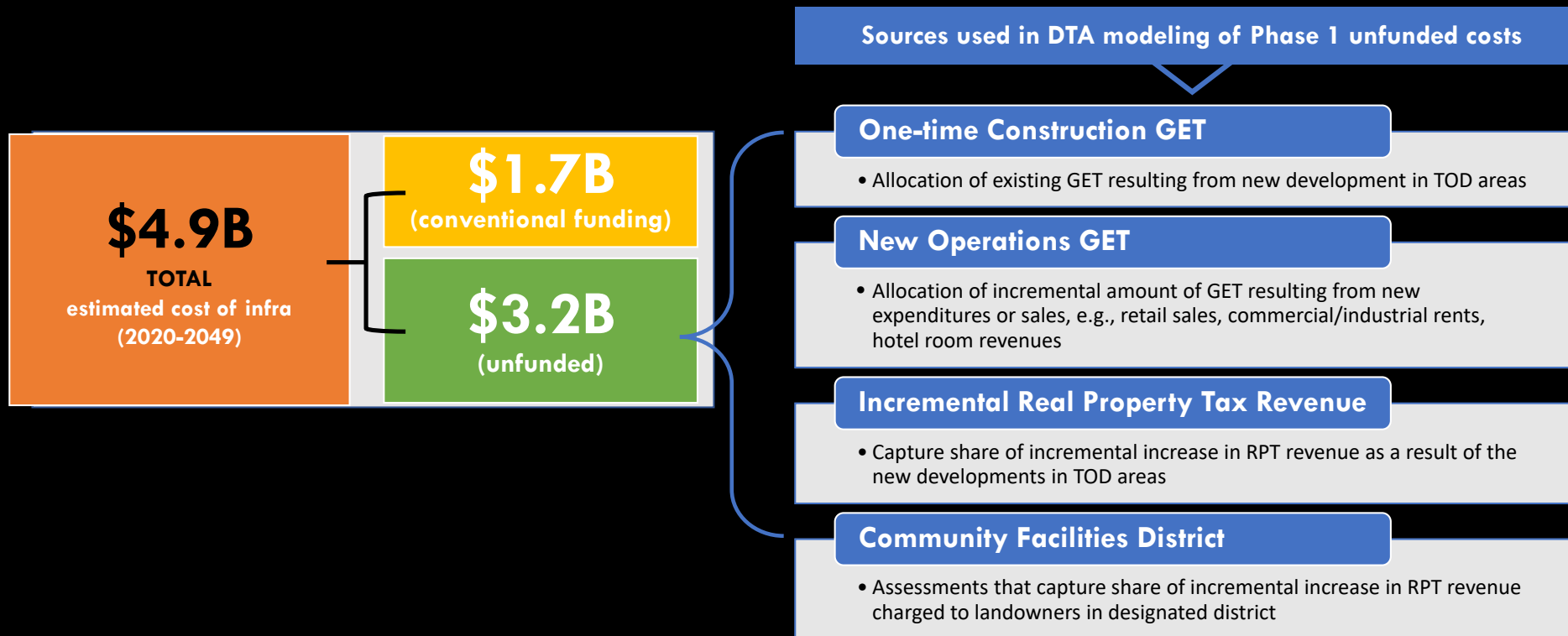


# Public Finance Alternatives: Potential Funding Sources



- DTA, in consultation with PBR Hawaii, examined a range of funding sources in use in Hawaii & elsewhere as to their potential for paying for TOD infrastructure
- As you can see from the slide, they range from the conventional tools of GO and revenue bonds to developer incentives
- The study focused primarily on those revenue sources over which the State and counties have control, looking at options for:
  - Allocating a portion of existing revenue streams—such as real property tax and GET--to TOD infrastructure; and
  - Use of new revenue streams using authorities or other tools currently underutilized, such as CFDs
- The items in red are those revenue sources that were examined in the study—
  - in this instance, “Tax increment” refers to the increase in real property revenues dues to development
  - PILOT or Payment-in-lieu-of-taxes is a tool that can help tap new revenue from increased property values due to development
- Other relevant funding sources were also accounted for, such as use of revenue and GO bonds for TOD funding/financing
- While Certificate of Participation (COP)/lease revenue financing is an option for State lands, it was not pursued in the study because in most cases the land asset is currently earmarked for agency purposes (e.g., DLNR, UHWO, DHHL, etc.)
- The study assumed that outside funding—both federal and private--and developer incentives would still be pursued for special uses and vertical development

## Financial modeling of selected alternative financing options



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- Key considerations for the selection of potential revenue sources to fill funding gap for infrastructure included...
  - Easiest to deploy (not necessarily politically palatable) as they are already in place
  - Revenue neutral—to extent that diversion would not diminish current revenues derived from these sources
- Important to also note: analysis performed on funding needs for 3 priority areas combined. This approach offered at least 3 advantages:
  - Would result in a reasonable assessment of impact these options would have on funding/financing
  - Didn't require picking winners and losers among priority areas and landowners and second-guess which projects would move when and where
  - Allowed for consideration of pooling revenues generated to allow funding to respond nimbly to needs across the three areas
- This is an over-simplified picture of the financial analysis performed by DTA. **As a reminder, the actual scenario modelling only focused on Phase 1 infrastructure costs, not the total of \$3.2B shown as unfunded that is anticipated as needed for complete TOD buildout across the priority areas**
- DTA's financial analysis focused on the following revenue streams:
  - Use of the GET on construction of new development in the priority areas
  - Use of a portion or increment of the "point-of-sale" GET from new expenditures/sales from retail, businesses, industrial rents, hotel revenues from new development in priority area
  - Portion/increment of increased real property tax revenue from new development in area
  - Additional real property assessments charged to

landowners under a CFD

## Financial modeling of selected alternative financing options

Revenue Sources	% of New Revenue Allocated to Fund Infrastructure	New Revenue Allocated to Fund Infrastructure (in Millions)
Construction GET	100%	\$227.6
Ongoing GET	50%	\$486.2
Property Taxes	30%	\$80.9
Community Facilities District (CFD) Special Tax	0%	\$0.0
GET Surcharge	Additional 0.1% GET for 10 Years (island-wide)	\$500.0
<b>Total</b>	NA	<b>\$1,294.7</b>

Source: DTA, 2020

source: State TOD Planning & Implementation Project for Oahu, PBR HAWAII

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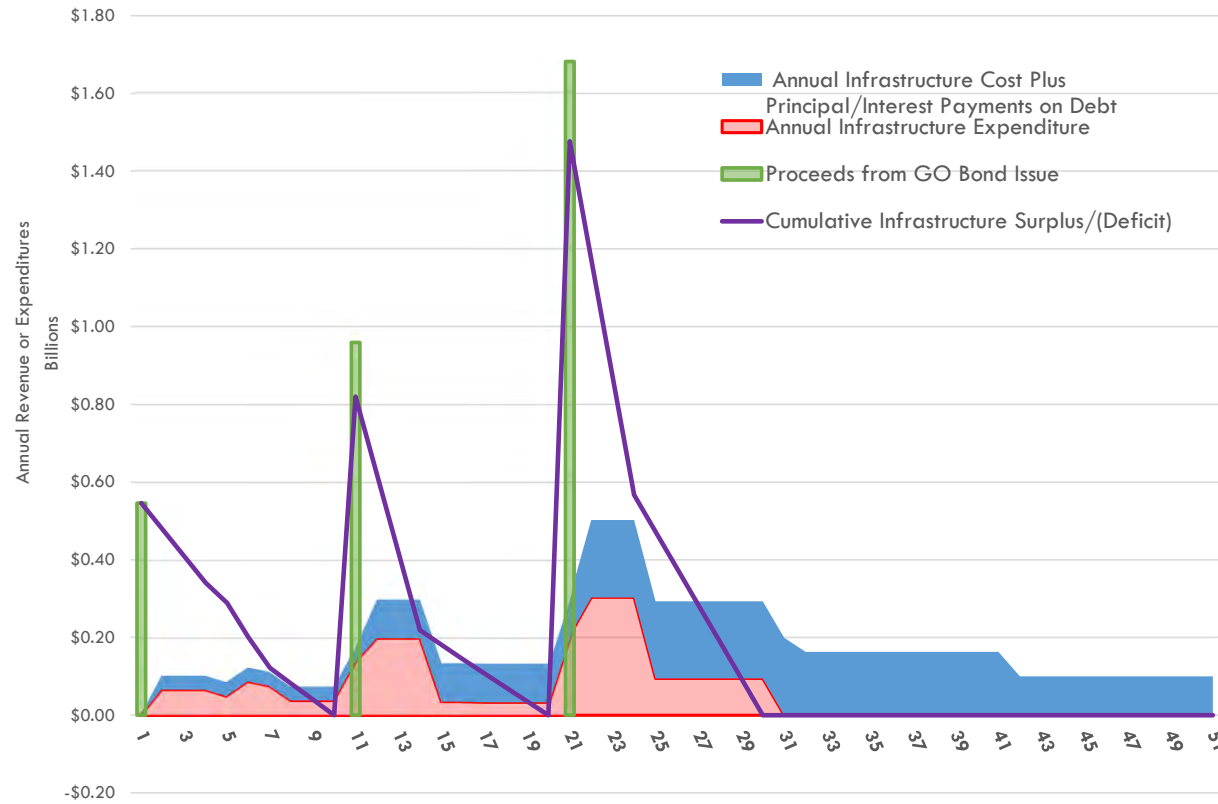
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- The middle column in this chart shows the basic assumptions plugged into the model about how much of the new “point-of-sale” GET and real property tax (RPT) would be allocated or ‘diverted’ from deposit to general funds for infrastructure investments
- Note that in this table, the amount from community facilities districts was zeroed out, based on consultant concerns over use of CFDs in this content, and that assessments made a small contribution toward overall cost of infrastructure in these areas
- Note also the introduction of an additional revenue source that was modeled at the recommendation of study participants—an additional, time-limited surcharge on GET for Oahu—to be used to fund infrastructure development in the three TOD areas
- The potential “point-of-sale” revenue (construction GET, operational/ongoing GET, and real property taxes) that could be generated by uses planned in Phase 1 development is shown in the last column, as is the potential revenue from the Oahu GET surcharge
- Recall that the UNFUNDED infrastructure costs for Phase 1 was estimated at \$1.24B
- DTA’s financial model estimated that approx. \$794.7M could be raised by “point-of-sale” GET and real property tax, leaving a shortfall that could be met by use of the time-limited GET surcharge
- You will see in the following slides, three financial scenarios that DTA modeled to show how use of conventional bond financing, the “point-of-sale” GET/RPT, and the addition of the GET surcharge would impact the ability to finance infrastructure for Phase 1 and subsequent phases in the context of other demands on general funds and GO bonds



# Scenario 1: G.O. Bond Funding

(2019 dollars, in billions)



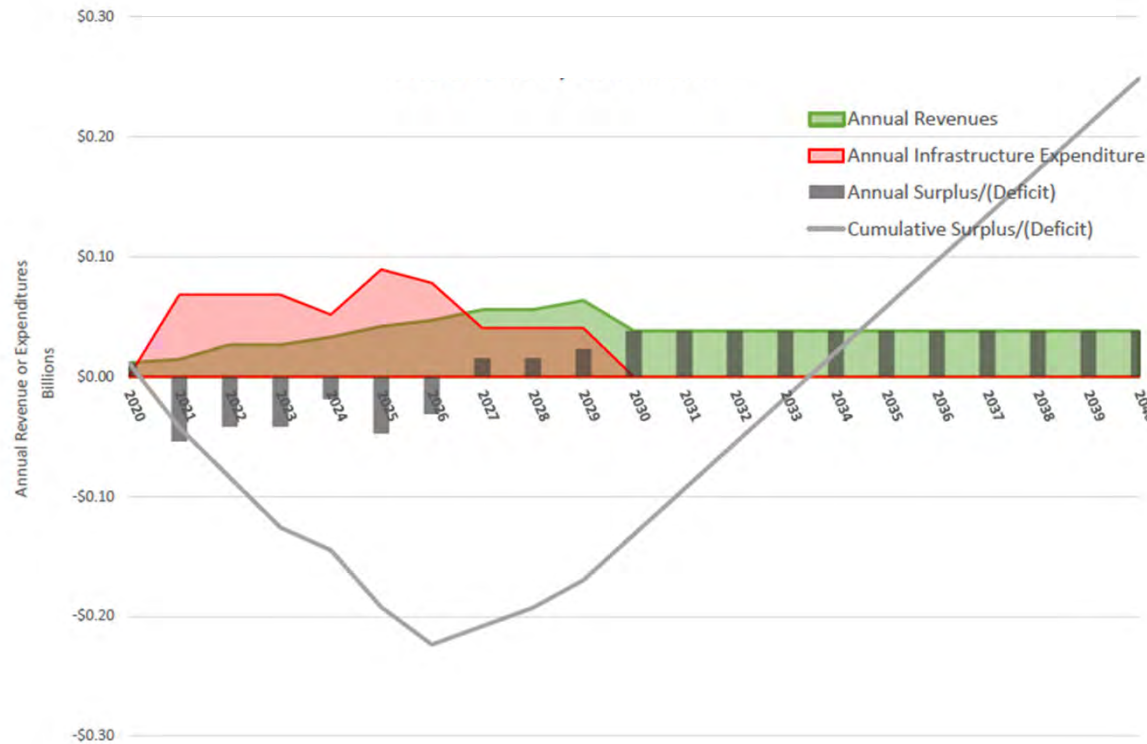
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- This is essentially the baseline scenario if the unfunded infrastructure costs are paid entirely with the issuance of GO bonds—the most common form of CIP funding
- Assumptions about bond rates and issuance costs can be found in the DTA report of the Project report posted at the TOD Council webpage
- Essentially, funding would come through with three bond issuances (proceeds seen in green)
- Infrastructure expenditures occur with project execution (shown in purple and red)
- Debt service on bonds means that the cost of financing adds to the cost of infrastructure itself (seen in blue)
- Note that under this scenario, all Hawaii taxpayers will pay for the cost of this infrastructure
- This scenario assumes that use of GO bonds and long-term debt service can be accommodated with other demands on use of this funding source

# Scenario 2: Incremental Tax Revenue Sources

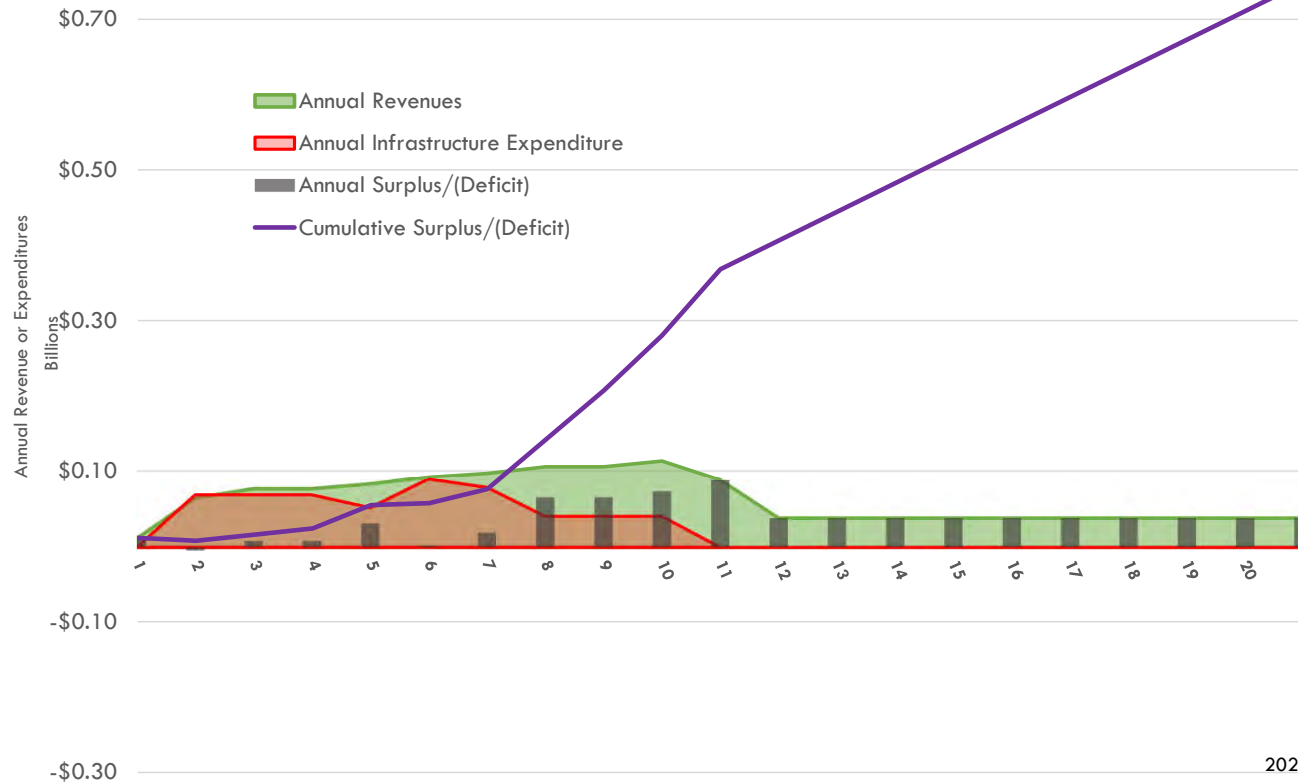
Phase 1, 2020-2029 (2019 dollars, in billions)



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- Scenario 2 models the use of the combination of construction GET, incremental point-of-sale GET of new activity in area, and portion of increase in RPT revenues to pay for infrastructure
- Note that infrastructure costs are incurred before revenues from these sources really start to accumulate
- Phase 1 infrastructure costs (\$0.56B) occur throughout Phase 1, seen in red
- The gap between infrastructure costs/expenditures and revenues to pay for infrastructure is shown in gray—with deficits growing initially
- Then as revenue sources (shown in green) build over time—hitting a stable situation after buildout (after 2030)
- Revenues continue after buildout of Phase 1, eventually leading to a surplus of revenues
- Primary issue is the shortfalls in first years: Peak deficit about \$250 million, mid-decade – 6 years of subsidy needed, around \$25-60 million/year to avoid
- Opportunities: infrastructure costs would be paid off in 11-12 years, could terminate value-capture allocations then or apply \$200M surplus to next phase of development
- In this scenario, costs for infrastructure would be paid by revenues generated by development on the lands within each priority area
- Scenario works in the long-run... but need to find ways to fund the \$250M deficit before revenues accumulate, and face same issue when investment for infrastructure for Phase 2 and 3 kicks in at 2030 and 2040

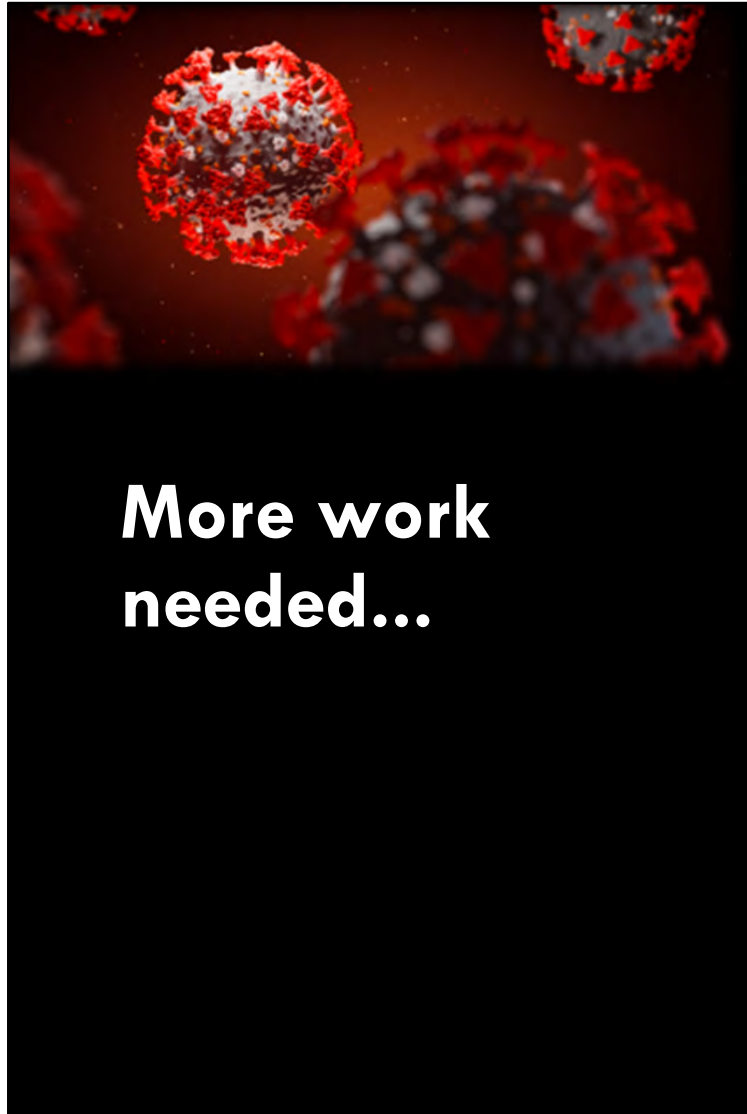
# Scenario 3: Incremental Tax Revenue Sources w/GET Surcharge (Phase 1, 2020-2029) 2019 dollars, in billions



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- In this scenario, the ten-year, island-wide GET surcharge is used in addition to the Scenario 2 combo (GET/RPT) of revenue generated by development within the priority areas for the cash flow analysis
- \$0.5 B investment over first 10 years generates \$0.7B surplus in 20 years
  - \$320 mil in 2030,
  - Another \$380 mil by 2040
- These surpluses can fund similar “funding gaps” for Phases 2 and 3, even if the GET surcharge is ended in 2030
- This scenario demonstrates the value of the additional surcharge in closing the funding gap caused by the temporal lag between infrastructure investment and revenues for cost recovery
- The DTA analysis was conducted in mid-2019, and their analysis was folded into the project report in early 2020, before COVID



**More work  
needed...**

- **Corridor perspective / menu options**
  - > Priority areas are very different—  
greenfield, grayfield, urban  
infill/redevelopment
  - > Which tools? where?
- **Value capture tools**
  - > Revenue streams for project financing
  - > Mechanisms for cost recovery

- And then, in the course of finalizing the project report, the impacts of COVID really hit Hawaii...
- And the subsequent precipitous fall in GET revenues
- Even still, the DTA analysis and recommendations are very useful in understanding the role that these revenue sources and variants thereof can have in meeting infrastructure investment needs, particularly over the long-haul
- These infrastructure investments are investments in a vision for communities over the long-term, and brings other benefits from:
  - Counter-cyclical public spending
  - Contribution to economic recovery through establishment of new businesses and economic opportunities from TOD that will follow
  - Addressing affordable housing needs, etc.
- This pause allows us to regroup and:
  - drill down on how various tools and mechanisms could be tapped, and how best to implement and administer
  - Examine in much more depth how to use value capture to tap the value created by added development and economic activity in these areas to help offset the cost of public investment in infrastructure



# Estimated Direct Construction Value by Phase (in billions, 2019 dollars)

TOD Priority Area	Phase 1: 2020-2029	Phase 2: 2030-2039	Phase 3: 2040-2049	Total
East Kapolei	\$5.88	\$4.02	\$1.51	\$11.41
Hālawā-Stadium	\$1.07	\$0.60	\$1.27	\$2.94
Iwilei-Kapālama	\$3.88	\$4.84	\$3.10	\$11.82
Total	\$10.82	\$9.46	\$5.88	\$26.17

- If we don't do this, we will leave potentially billions of dollars of untapped value on the table
- DTA estimated the potential value of direct construction costs alone of anticipated buildout for the three areas at as much as \$26B
- This estimate does not include the construction value of investments in public facilities, such as the new stadium, UHWO, etc.
- So the takeaway here is that value capture tools can potentially be a significant contributor in addressing the TOD infrastructure funding gap
- And more work is needed to understand how to capitalize and administer use of value capture tools for this purpose...

**How to tap value created to recover cost of upfront infrastructure investment?**

**How to structure & administer value capture methods?**

## needed: coordinated strategy to guide implementation

financing & cost-sharing of regional infrastructure

infrastructure/facility need: **Road A**

timing

infrastructure/facility need: **Wastewater B**

timing

infrastructure/facility need: **Electrical C**

timing

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- You will next hear about a legislative proposal—HB 1130—to undertake a study of potential financing tools for TOD infrastructure in each county
- If passed, and with funding, that study would undertake the work needed to outline a coordinated strategy for financing infrastructure investments needed for planned TOD
- It would be able to drill down on:
  - What tools to use
  - How cost-recovery would occur
  - Who would be responsible for infrastructure delivery and cost-recovery
  - Critical path for timing of infrastructure investments to facilitate TOD

## Report Available Online

# State TOD Planning & Implementation Project, Island of O'ahu

Report & appendices, including DTA report,  
are posted at the  
TOD Council Webpage,

[https://files.hawaii.gov/dbedt/op/lud/20200811\\_StateTODProjectReport/State-TOD-PIP-Proj\\_WebReport-w-Appendices\\_202007.pdf](https://files.hawaii.gov/dbedt/op/lud/20200811_StateTODProjectReport/State-TOD-PIP-Proj_WebReport-w-Appendices_202007.pdf)

- Thank you for your time
- Project report with infrastructure needs, associated costs, financing tools and financial modelling is posted to the TOD Council webpage, at the URL on the slide
- **DTA Report and financial analysis tables are included in Project Report as Appendix G**
- You can contact the Office of Planning for more information on the project or the report
- Mahalo!