



# OahuMPO Policy Board

## November 26, 2018



- I. Call to order by Chair
- II. Introductions/Roll Call



## III. August 31, 2018 Meeting Minutes



## IV. Reports

### A. Executive Director



## V. Old Business

### A. Revision to the Citizens Advisory Committee (CAC) Bylaws



## VI. New Business

A. Performance Measures Targets –  
Pavement and Bridge Condition (PM2) &  
System Performance (PM3)



# Performance Management

- Introduced in 2012 under MAP-21
  - Reaffirmed in 2015 FAST Act
- Strategic approach to use data to inform decision-making and evaluate outcomes





## MPOs & Target-setting

- *Transit Asset Management (last year)*
- *Safety – PM1 (last year)*
- **Pavement and Bridge Condition – PM2 (today)**
- **Freight Movement – PM3 (today)**
- **National Highway System Performance – PM3 (today)**
- Congestion Mitigation and Air Quality (CMAQ) measures – PM3 (not required)



# **Pavement Condition and Bridge Condition (PM2)**



# **Pavement Condition (PM2)**

# *Final Measures: Pavement and Bridge Condition*

Measure Area	Performance Measures
National Performance Management Measures to Assess Pavement Condition (Subpart C)	<ul style="list-style-type: none"> <li>• Percentage of pavements of the Interstate System in Good condition</li> <li>• Percentage of pavements of the Interstate System in Poor condition</li> <li>• Percentage of pavements of the non-Interstate NHS in Good condition</li> <li>• Percentage of pavements of the non-Interstate NHS in Poor condition</li> </ul>
National Performance Management Measures to Assess Bridge Condition (Subpart D)	<ul style="list-style-type: none"> <li>• Percentage of NHS bridges classified as in Good condition</li> <li>• Percentage of NHS bridges classified as in Poor condition</li> </ul>

Note: These measures contribute to assessing the National Highway Performance Program (NHPP)





Oahu MPO

# National Highway System



Source: FHWA



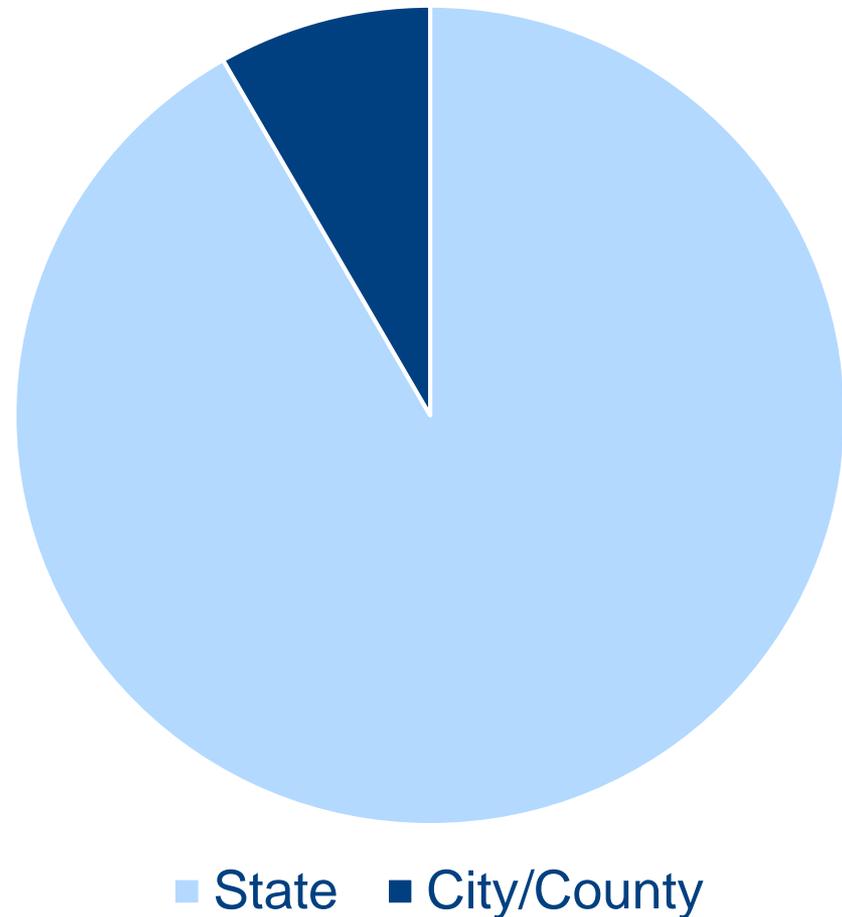
# HDOT Target Setting

- Within the context of the Transportation Asset Management Plan (TAMP)
  - Inventory of items and their condition
  - Objectives and measures
  - Gap analysis
  - Risk management analysis



## NHS Pavement by Jurisdiction

- State: 895 (92%)
- C/C Honolulu: 81 (8%)

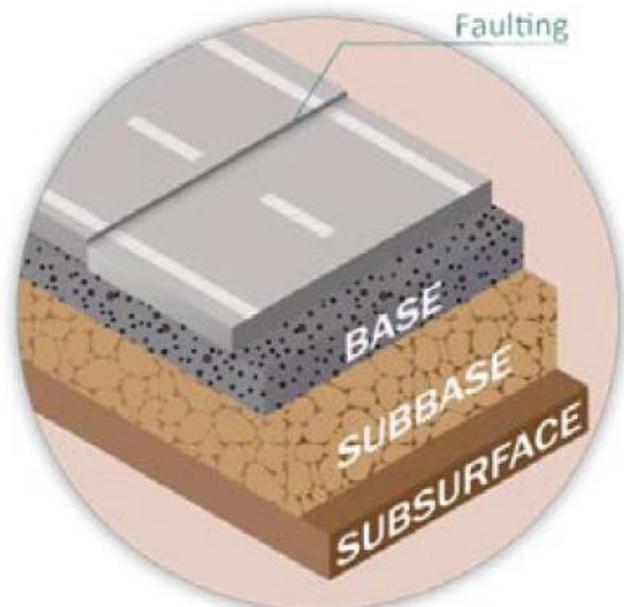
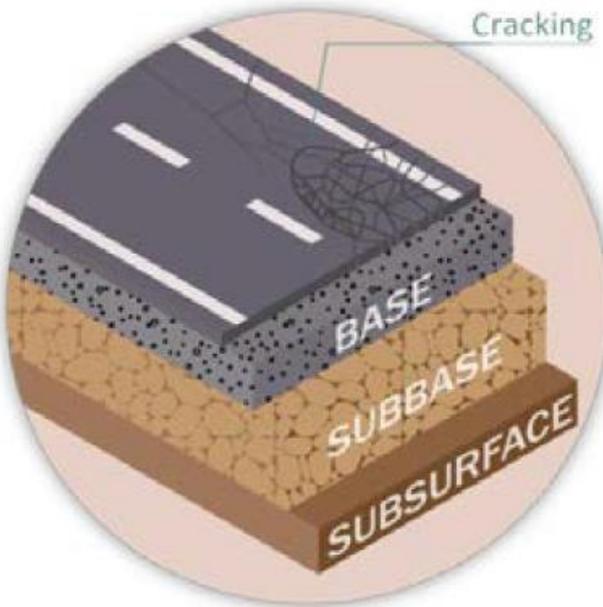
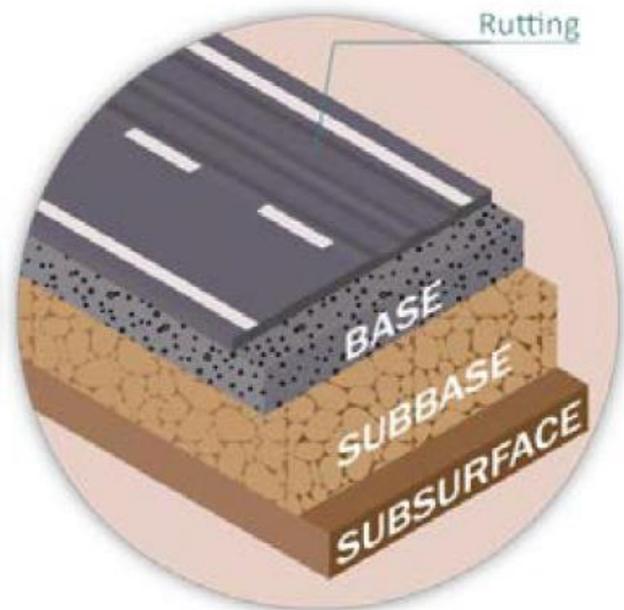
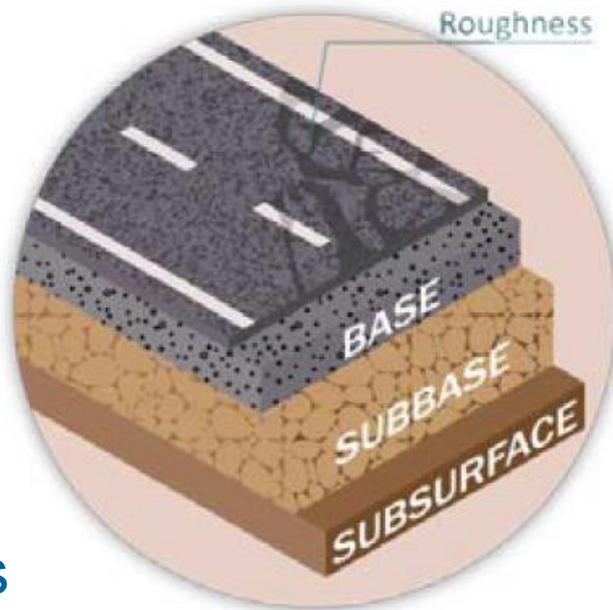




Oahu MPO

# Assessing Pavement Condition

- Roughness
- Cracking
- Rutting
- Faulting

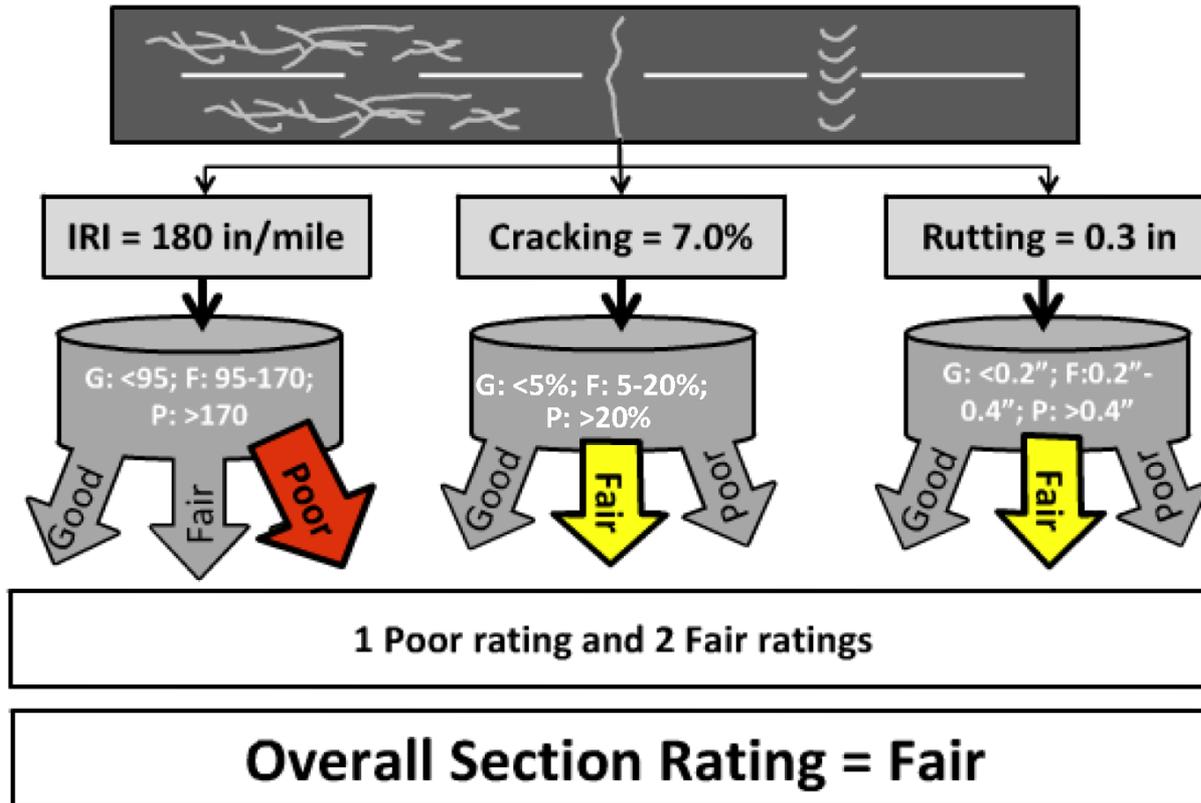


## § 490.311 Metric Thresholds in Final Rule

Rating	Good	Fair	Poor
IRI <i>(inches/mile)</i>	<95	<b>95-170</b>	<b>&gt;170</b>
PSR* <i>(0.0-5.0 value)</i>	≥4.0	2.0-4.0	≤2.0
Cracking Percent <i>(%)</i>	<5	<i>CRCP: 5-10</i> <i>Jointed: 5-15</i> <i>Asphalt: 5-20</i>	<i>&gt;10</i> <i>&gt;15</i> <i>&gt;20</i>
Rutting <i>(inches)</i>	<0.20	0.20-0.40	>0.40
Faulting <i>(inches)</i>	<b>&lt;0.10</b>	0.10-0.15	>0.15

\*PSR may be used only on routes with posted speed limit < 40mph.

# Pavement Metric Rating Example: Asphalt Surfaces, Interstate





# NHS Pavement Inventory and Condition

	Lane- Miles	Good	Fair	Poor	
<i>All NHS</i>					
Interstate	342	6%	90%	4%	
Non-Interstate NHS	1136	16%	81%	3%	
<i>By Jurisdiction</i>					
Oahu District	895	5%	93%	2%	
Hawaii District	247	34%	63%	3%	
Maui District	177	39%	61%	0%	
Kauai District	54	7%	93%	0%	
City and County of Honolulu	81	0%	87%	13%	
County of Hawaii	24	0%	100%	0%	



## HDOT Targets – Pavement Condition

Performance Measure	2016 Conditions	2-year Target	4-year Target
Percentage of pavements on the Interstate in good condition	6%	7%	7%
Percentage of pavements on the Interstate in poor condition	4%	4%	4%
Percentage of non-Interstate NHS pavements in good condition	16%	15%	15%
Percentage of non-Interstate NHS pavements in poor condition	3%	4%	4%



# Bridge Condition (PM2)

# Final Measures: Pavement and Bridge Condition

Measure Area	Performance Measures
National Performance Management Measures to Assess Pavement Condition (Subpart C)	<ul style="list-style-type: none"> <li>• Percentage of pavements of the Interstate System in Good condition</li> <li>• Percentage of pavements of the Interstate System in Poor condition</li> <li>• Percentage of pavements of the non-Interstate NHS in Good condition</li> <li>• Percentage of pavements of the non-Interstate NHS in Poor condition</li> </ul>
National Performance Management Measures to Assess Bridge Condition (Subpart D)	<ul style="list-style-type: none"> <li>• Percentage of NHS bridges classified as in Good condition</li> <li>• Percentage of NHS bridges classified as in Poor condition</li> </ul>

Note: These measures contribute to assessing the National Highway Performance Program (NHPP)



# *§ 490.407 National Performance Management Measures for Assessing Bridge*

## Bridge Condition Measures

### All NHS Bridges

Percentage of NHS bridges classified as in **Good** condition

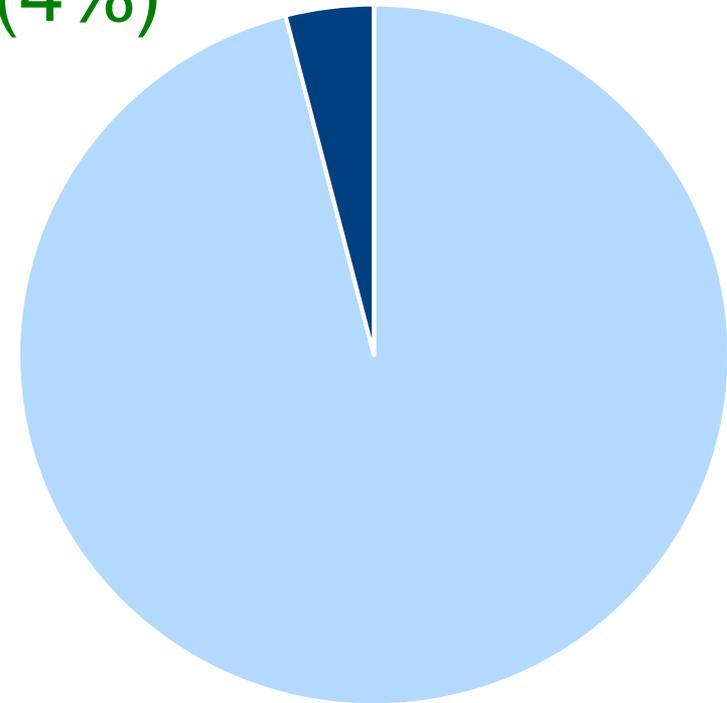
Percentage of NHS bridges classified as in **Poor** condition





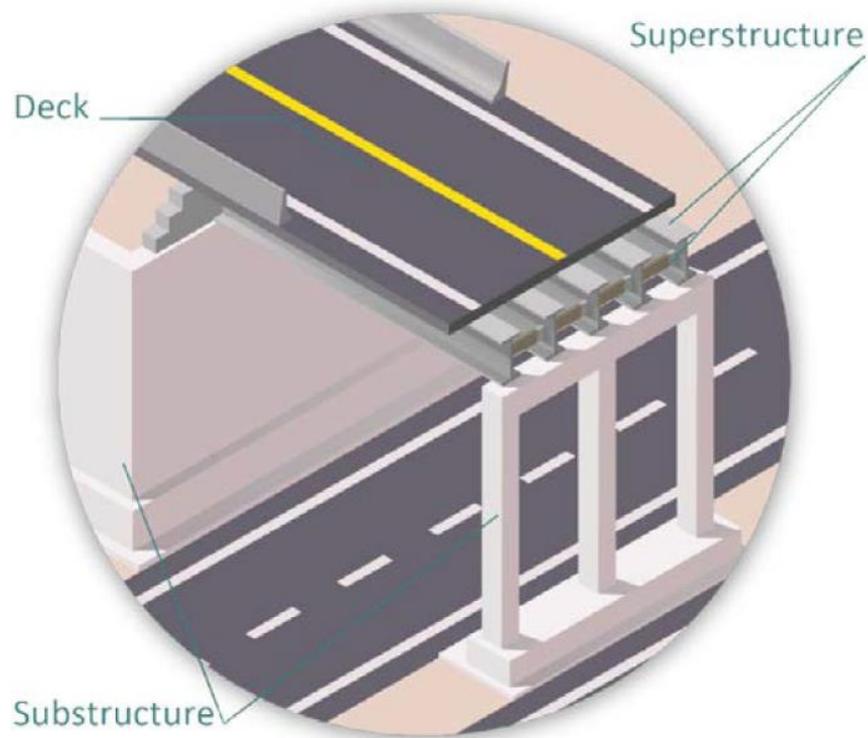
## NHS Bridges by Jurisdiction

- State: 384 (96%)
- C/C Honolulu: 16 (4%)



■ State ■ City/County

# Bridge Components



**Figure 3.6. Bridge Components**

*Source: Caltrans Draft Transportation Asset Management Plan, October 2017*

## § 490.409 Metric Thresholds

NBI Rating Scale  
*(from 0 – 9)*

9	8	7	6	5	4	3	2	1	0
Good			Fair		Poor				

Deck <i>(Item 58)</i>	$\geq 7$	5 or 6	$\leq 4$
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Superstructure <i>(Item 59)</i>	$\geq 7$	5 or 6	$\leq 4$
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Substructure <i>(Item 60)</i>	$\geq 7$	5 or 6	$\leq 4$
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Culvert <i>(Item 62)</i>	$\geq 7$	5 or 6	$\leq 4$
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## § 490.409 Measure Calculations

Percent Classified as in Good condition:

$$100 * \frac{\sum_{g=1}^{\text{GOOD}} [\text{Length} * \text{Width}]_{\text{Bridge } g}}{\sum_{s=1}^{\text{TOTAL}} [\text{Length} * \text{Width}]_{\text{Bridge } s}}$$

Percent Classified as in Poor condition:

$$100 * \frac{\sum_{p=1}^{\text{POOR}} [\text{Length} * \text{Width}]_{\text{Bridge } p}}{\sum_{s=1}^{\text{TOTAL}} [\text{Length} * \text{Width}]_{\text{Bridge } s}}$$

Calculations are taken to one tenth of a percent



# NHS Bridges by Jurisdiction & Condition

	Amount	Good	Fair	Poor	
<i>All NHS</i>					
NHS Bridges	533	23%	75%	2%	
<i>By Jurisdiction</i>					
Oahu District	384	20%	79%	1%	
Hawaii District	77	75%	19%	6%	
Maui District	41	38%	50%	12%	
Kauai District	14	38%	51%	11%	
City and County of Honolulu	16	25%	67%	8%	
County of Hawaii	1	100%	0%	0%	



# HDOT Targets – Bridge Condition

<b>Performance Measure</b>	<b>2016 Conditions</b>	<b>2-year Target</b>	<b>4-year Target</b>
Percentage of NHS bridges in good condition	23%	20%	20%
Percentage of NHS bridges in poor condition	2%	2%	2%



## Summary: Pavement & Bridge Targets (PM2)

<b>Performance Measure</b>	<b>2-year Target</b>	<b>4-year Target</b>
Percentage of pavements on the Interstate in good condition	7%	7%
Percentage of pavements on the Interstate in poor condition	4%	4%
Percentage of non-Interstate NHS pavements in good condition	15%	15%
Percentage of non-Interstate NHS pavements in poor condition	4%	4%
Percentage of NHS bridges in good condition	20%	20%
Percentage of NHS bridges in poor condition	2%	2%



# **National Highway System Performance (PM3)**



Oahu MPO

# National Highway System on O'ahu



Source: FHWA



# NHS Performance Measures

Measure	Applicability	Reporting
Percent of Person-Miles Traveled that are Reliable	Interstate	Biennially, with 4-year performance periods
	Non-Interstate National Highway System	

# *Final Measures: System Performance and Freight*

Measure Area	Performance Measures
Performance of the National Highway System (Subpart E)	<ul style="list-style-type: none"> <li>• <b>Interstate Travel Time Reliability Measure:</b> Percent of person-miles traveled on the Interstate that are reliable</li> <li>• <b>Non-Interstate Travel Time Reliability Measure:</b> Percent of person-miles traveled on the non-Interstate NHS that are reliable</li> </ul>
Freight Movement on the Interstate System (Subpart F)	<ul style="list-style-type: none"> <li>• <b>Freight Reliability Measure:</b> Truck Travel Time Reliability (TTTR) Index</li> </ul>

Note: These measures contribute to assessing the National Highway Performance Program (NHPP) and National Highway Freight Program (NHFP)

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## *Subpart E Measures*

- **Interstate Travel Time Reliability Measure:** Percent of person-miles traveled on the Interstate that are reliable
- **Non-Interstate Travel Time Reliability Measure:** Percent of person-miles traveled on the non-Interstate NHS that are reliable

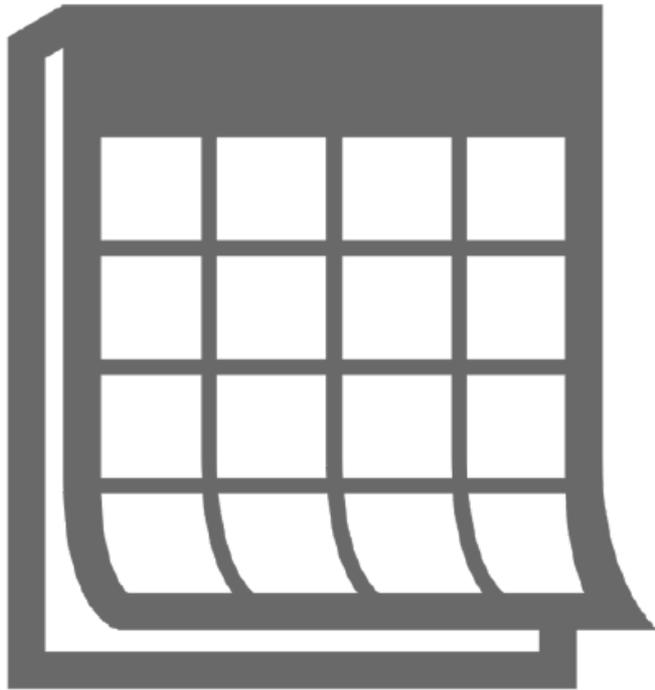


## ***§ 490.509 Data Requirements: Travel Time Reliability***

Relevant Data	Data Source(s)
<ul style="list-style-type: none"> <li>• <b>Travel times</b></li> <li>• <b>NHS travel time segments</b></li> </ul>	<ul style="list-style-type: none"> <li>• National Performance Management Research Data Set (NPMRDS) , <b>OR</b></li> <li>• Equivalent data set</li> </ul>
<ul style="list-style-type: none"> <li>• <b>AADT/volumes</b></li> <li>• <b>Annual traffic volume</b> (AADT x 365)</li> </ul>	<ul style="list-style-type: none"> <li>• Highway Performance Monitoring System (HPMS)</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Occupancy factors</b></li> </ul>	<ul style="list-style-type: none"> <li>• Provided by FHWA, likely based on national surveys, <b>OR</b></li> <li>• Other allowed data sources</li> </ul>

# ***§ 490.509 Data Requirements: Applicable Time Periods***

Full Year (Jan 1-Dec 31)



Weekdays (Mon – Fri)

6 – 10am

10am – 4pm

4 – 8pm

Weekends

6am – 8pm

Four Total Time Periods

# § 490.511 Level of Travel Time Reliability (LOTTR) Metric (Example)

$$\frac{\text{Longer Travel Time (80th)}}{\text{Normal Travel Time (50th)}} = \frac{\# \text{ seconds}}{\# \text{ seconds}} = \text{Level of Travel Time Reliability Ratio}$$

## Level of Travel Time Reliability (LOTTR)

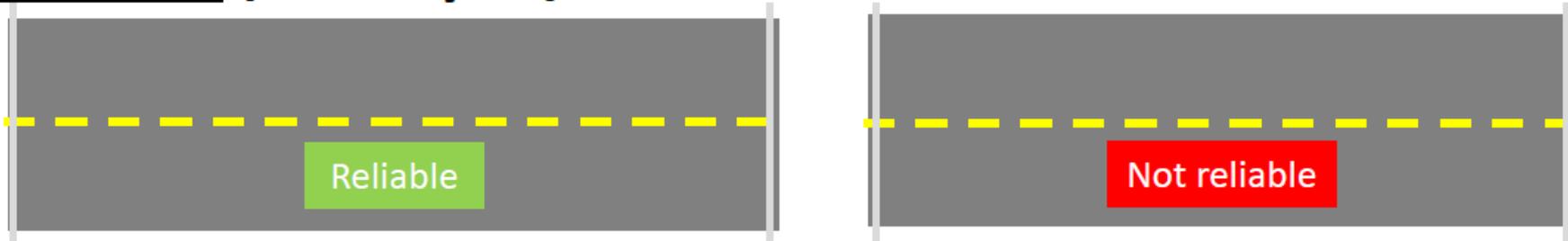
(Single Segment, Interstate Highway System)

Monday – Friday	6am – 10am	LOTTR = $\frac{44 \text{ sec}}{35 \text{ sec}} = 1.26$
	10am – 4pm	LOTTR = 1.39
	4pm – 8pm	LOTTR = <b>1.54</b>
Weekends	6am – 8pm	LOTTR = 1.31
Must exhibit LOTTR below 1.50 during <b>all</b> of the time periods		<b>Segment is not reliable</b>

**HPMS Submittal:** Starting in 2018, State DOTs report LOTTR metrics and the corresponding 80<sup>th</sup> and 50<sup>th</sup> percentile times for each time period and directional AADT for each reporting segment by June 15 of each year, for the previous year's measures



# § 490.513 Calculating Travel Time Reliability Measures (Example)



Length	1.000 mi.		0.750 mi.
	X		X
Annual Traffic Volume	2,000,000		3,500,000
	X		X
Occupancy Factor	1.3 persons/vehicle		1.7 persons/vehicle
<b>Segment Total</b>	<b>Reliable: 2,600,000 person-miles</b>		<b>Unreliable: 4,462,500 person-miles</b>
	$\frac{\Sigma (\text{Reliable person-miles})}{\Sigma (\text{Total person-miles})}$		

**Measure:** % of person-miles reliable, for full extent of the system



# NHS Performance Measures – HDOT

% of Person-Miles Traveled that are Reliable	Current Conditions (baseline)	Targets	
		2-year Target (2020)	4-year Target (2022)
Interstate	67.5	70	74
Non-Interstate National Highway System	64.2	n/a	70



# **Freight Movement (PM3)**

# *Final Measures: System Performance and Freight*

Measure Area	Performance Measures
Performance of the National Highway System (Subpart E)	<ul style="list-style-type: none"> <li>• <b>Interstate Travel Time Reliability Measure:</b> Percent of person-miles traveled on the Interstate that are reliable</li> <li>• <b>Non-Interstate Travel Time Reliability Measure:</b> Percent of person-miles traveled on the non-Interstate NHS that are reliable</li> </ul>
Freight Movement on the Interstate System (Subpart F)	<ul style="list-style-type: none"> <li>• <b>Freight Reliability Measure:</b> Truck Travel Time Reliability (TTTR) Index</li> </ul>

Note: These measures contribute to assessing the National Highway Performance Program (NHPP) and National Highway Freight Program (NHFP)

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## *Subpart F Measure*

- **Freight Reliability Measure: Truck Travel Time Reliability (TTTR) Index**
  - The sum of maximum TTTR for each reporting segment, divided by the total Interstate system miles

# ***§ 490.609 & 490.611 Data Requirements: Applicable Time Periods***

Full Year (Jan 1-Dec 31)



Weekdays (Mon – Fri)

Weekends



Five Total Time Periods

## § 490.611 Freight Reliability Metric (Example)

$$\frac{\text{Longer Truck Travel Time (95th)}}{\text{Normal Truck Travel Time (50th)}} = \frac{\# \text{ seconds}}{\# \text{ seconds}} = \text{Truck Travel Time Reliability (TTTR) Ratio}$$

### Truck Travel Time Reliability (TTTR) (Single Segment, Interstate Highway System)

Monday – Friday	6am – 10am	$\text{TTTR} = \frac{72 \text{ sec}}{50 \text{ sec}} = 1.44$
	10am – 4pm	TTTR = 1.39
	4pm – 8pm	<b>TTTR = 1.49</b>
Weekends	6am – 8pm	TTTR = 1.31
Overnight	8pm – 6am	TTTR = 1.20
Maximum TTTR		<b>1.49</b>

**HPMS Submittal:** Starting in 2018, State DOTs report TTTR metrics and the corresponding 95<sup>th</sup> and 50<sup>th</sup> percentile times for each time period and each reporting segment by June 15 of each year, for the previous year's measures



# § 490.613 Calculating Freight Reliability Measure (Example)

$$\text{TTTR Index} = \frac{\sum \text{All segment length weighted TTTR}}{\sum \text{All segment lengths}}$$

Segment length (mi.)	0.500	0.500	1.000	1.000	5.000
MaxTTTR	x 1.49	x 1.59	x 1.50	x 1.41	x 1.36
Length-weighted TTTR	= 0.75	= 0.80	= 1.50	= 1.41	= 6.80

$$\text{TTTR Index} = \frac{11.25}{8.000 \text{ mi}} = \mathbf{1.41}$$

**Measure: TTTR Index, full extent of the Interstate system**



## HDOT Target – Truck Travel Time Reliability

<b>Performance Measure</b>	<b>2017 Conditions</b>	<b>4-year Target</b>
Weekday morning peak TTTR (6am - 10am)	1.80	1.80
Weekday mid-day TTTR (10am – 4pm)	1.60	1.60
Weekday Afternoon Peak TTTR (4pm – 8pm)	1.70	1.70
Weekend TTTR (6am – 8pm)	1.40	1.40
Daily Night TTTR (8pm – 6am)	1.30	1.30



## MPO Requirements

- Respond to targets set by State DOT
- Report on progress toward meeting targets in next long-range plan (ORTP)
- Show how projects programmed in the TIP will support meeting targets



## OahuMPO Options for Coordination

1. Agree to plan and program projects that support and contribute toward the accomplishment of the State's targets;
2. Commit to its own quantifiable targets for all performance measures for the metropolitan planning area; or
3. Develop a combination of both.



## OahuMPO Recommended Response

“Agree to plan and program projects that support and contribute toward the accomplishment of the State’s Pavement Condition, Bridge Condition, Freight, and National Highway System performance targets and integrate the targets into OahuMPO’s planning process.”



## Reasons for Response

- Familiarization with targets, data, and analysis required
- Almost all of the infrastructure is HDOT facilities
- Opportunity to revisit targets in the future



## Requested action

- Direct OahuMPO staff to respond to the PM2 and PM3 targets to “Agree to plan and program projects that support and contribute toward the accomplishment of the State’s Pavement Condition, Bridge Condition, Freight, and National Highway System performance targets and integrate the targets into OahuMPO’s planning process.”



## VI. New Business

### B. O'ahu Regional Transportation Plan



# O'ahu Regional Transportation Plan

**APRIL 2021**





# O'ahu Regional Transportation Plan

*draft branding concepts*

## Concept 1

### The Path Forward / *Ke Ala I Mua*



KE ALA I MUA

O'AHU REGIONAL TRANSPORTATION PLAN 2045

# Concept 1

## The Path Forward / *Ke Ala I Mua*



KE ALA I MUA

O'AHU REGIONAL TRANSPORTATION PLAN 2045

- Image / graphic
  - Thoughts?
- Phrase “The Path Forward / Ke Ala I Mua”
  - Thoughts?



# O'ahu Regional Transportation Plan

*draft branding concepts*

## Concept 2

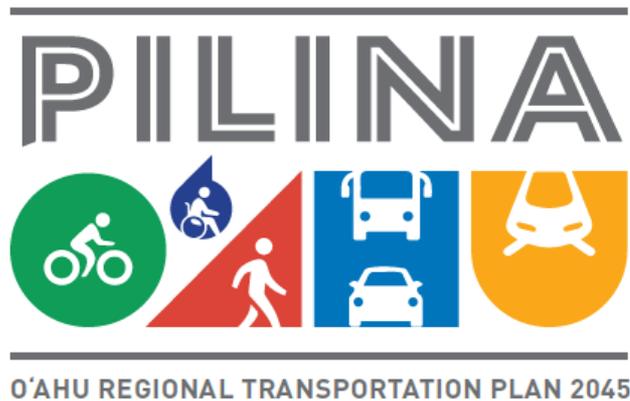
### Connecting O'ahu / *Pilina O'ahu*





# Concept 1

## Connecting O'ahu / *Pilina O'ahu*



- Image / graphic
  - Thoughts?
- Phrase “Connecting O'ahu / *Pilina O'ahu*”
  - Thoughts?



## Next Steps

- Presentation at the Citizen Advisory Committee (Nov.26, 2018)
  - ORTP 2045 Schedule & Draft Branding Concepts
- OahuMPO staff continue to work with consultants on schedule, deliverables, and public engagement for 2019 and 2020



VII. Invitation to interested members of the public to be heard on matters not included on the agenda

VIII. Announcements

IX. Adjournment