# EMERGING PERFORMANCE AREAS TASK FORCE

AASHTO Committee on Performance-Based Management

September 2023 Business Meeting



- Support AASHTO strategic plan goals.
- Identify emerging performance areas and develop new performance measures that support big picture goals.
- Share best practice for integrating new measures into agency decision-making.
- Create platform for knowledge exchange.
- Develop research and synthesis proposals; volunteer to serve on research and synthesis project teams.

## Example Performance Areas of Interest

- Accessibility/Destination Access
- Equity
- Resilience
- Carbon/Greenhouse Gas Reduction
- Public Value Creation
- Health
- .... What emerging areas pique your interest?

- Destination Access/Accessibility Deanna Belden, Minnesota DOT
- Carbon Reduction Strategies/Integrating GHG Assessment into Planning – Darius Pakbaz and Chris Laplante, Colorado DOT
- Creating a New Transportation Vision: 'Moonshot' focus; overview of ALICE – Kelly Travelbee, Michigan DOT

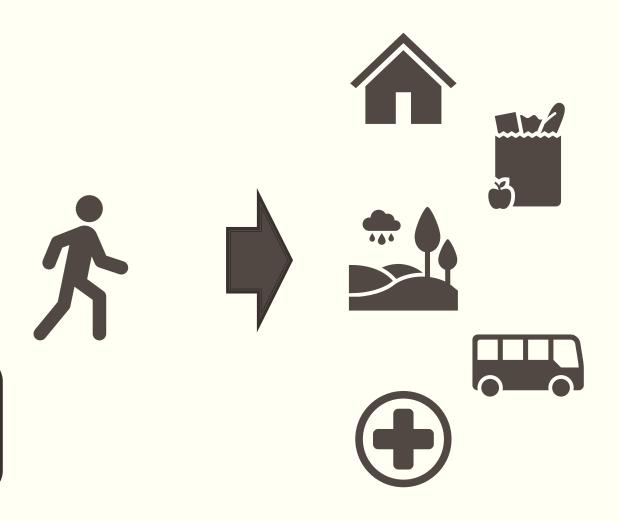
# DESTINATION ACCESS/ACCESSIBILITY

Deanna Belden, Minnesota DOT

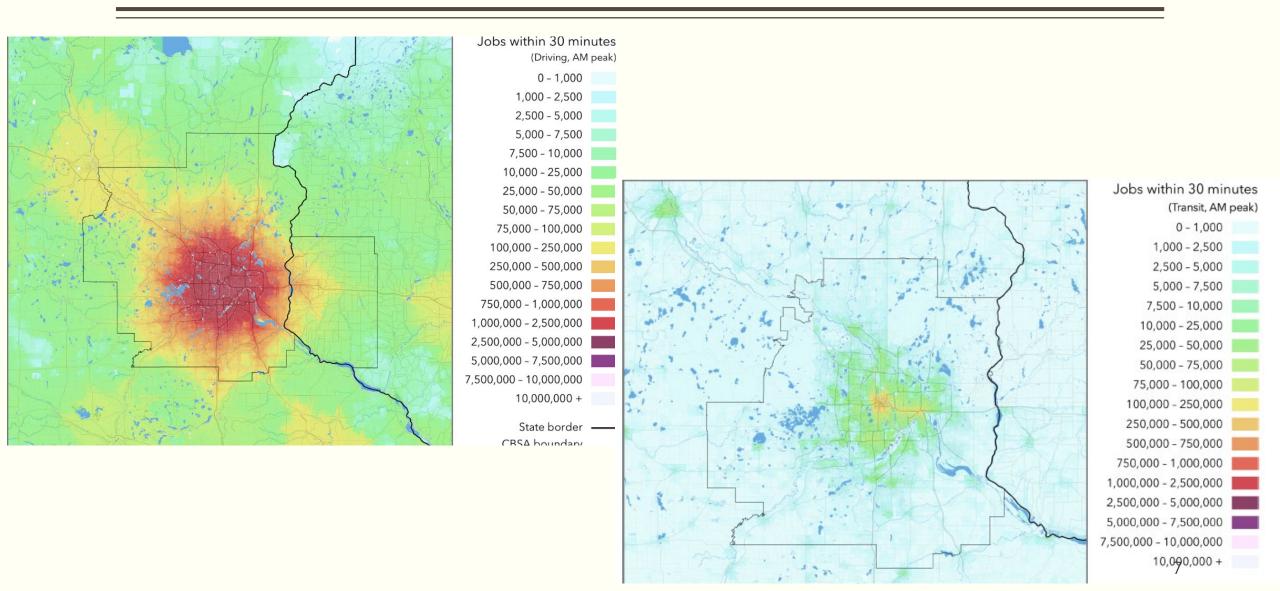
## Multimodal accessibility measures the ease of **reaching priority destinations**

(Ex. How many jobs, grocery stores, or pharmacies are reachable in 30 minutes by walking, biking, transit or vehicle?)

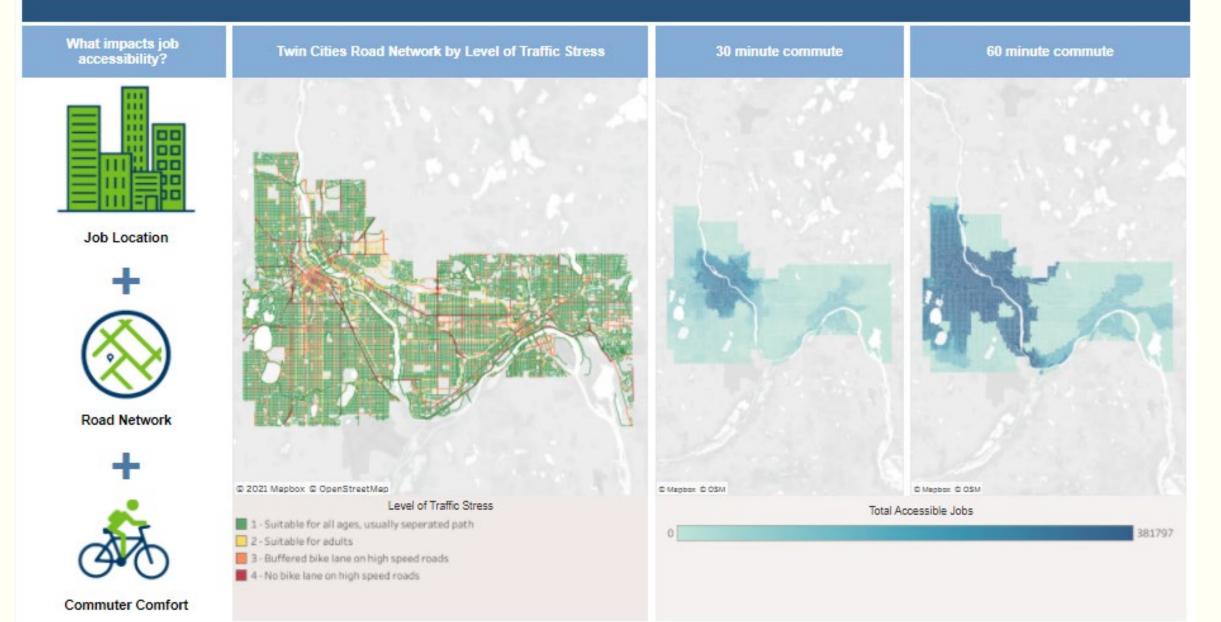
Measures either from a given point OR a defined area



# Auto and Transit Accessibility to jobs in the Twin Cities



While biking to work commuters come across streets with different levels of traffic stress. More experienced bikers may feel confident on LTS 3 or 4 while others may feel more comfortable sticking to LTS 1 or 2. The maps below show job accessibility using LTS 1 and 2 within 30 minutes and 60 minutes.



## Applications using this data

MURIEL BOWSER, MAYOR





massDOT





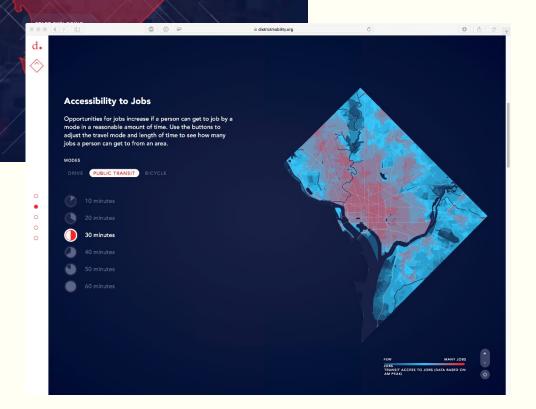




**District Mobility:** Multimodal Transportation in the District

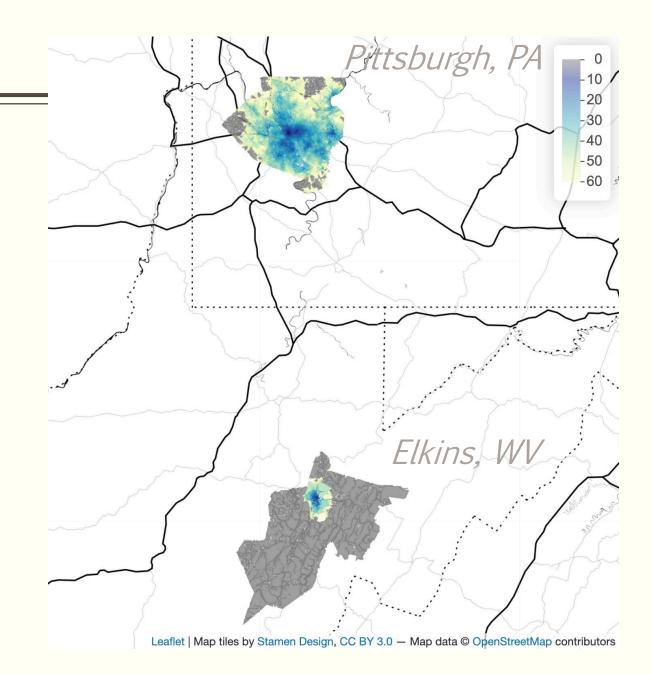
iii districtmobility.org

0 0

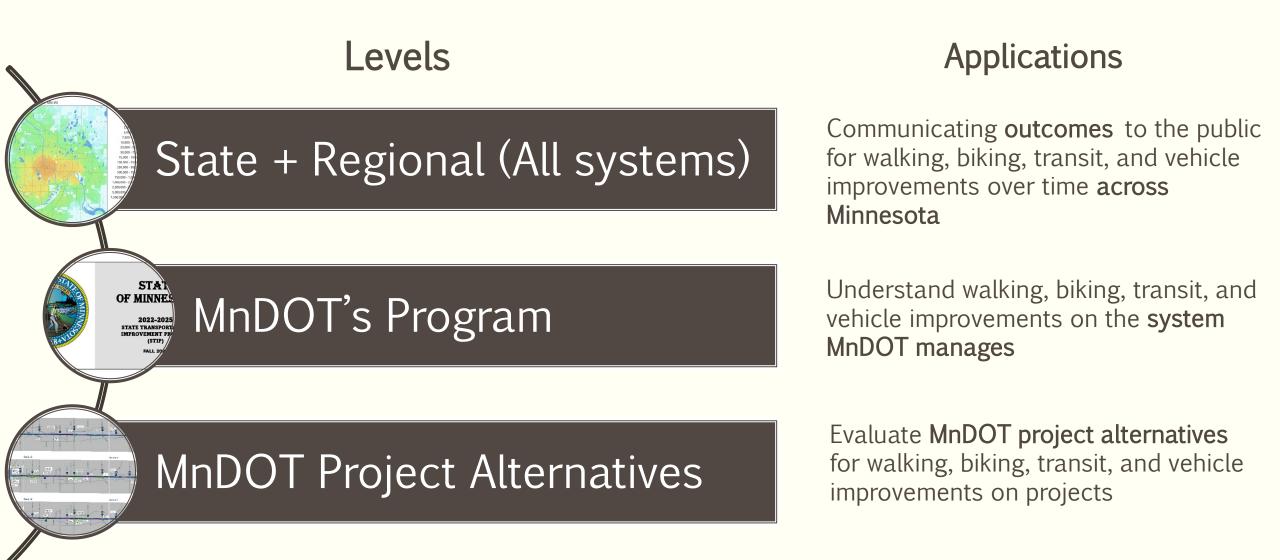


Access in Appalachia

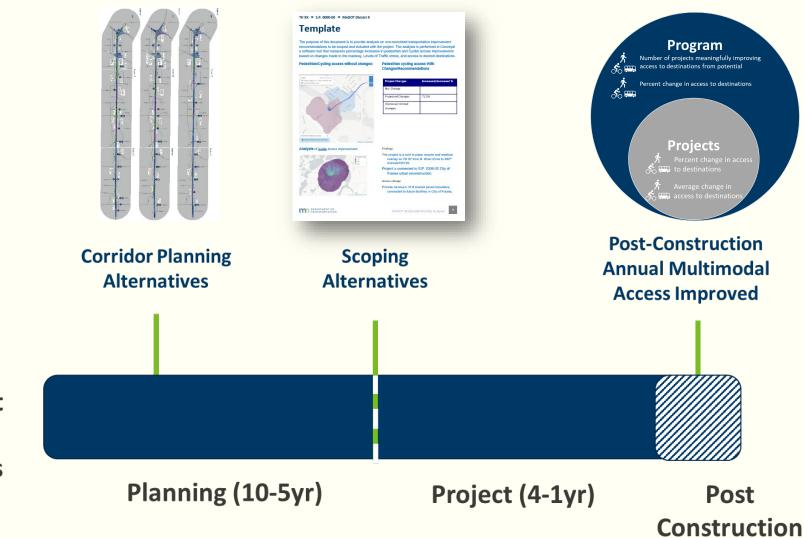
- Non-work destinations
- Travel time to choice
  E.g., biking to 3rd High school
- Access to:
  - rural health care
  - freight infrastructure
  - education
  - entertainment



## **Completing the Access Story** Multimodal access improvement at three critical levels



## Multimodal Accessibility Analysis in MnDOT's Program + Project Development Process



Stages in program + project development for Multimodal Accessibility Analysis

## Multimodal Accessibility Performance Measures Program + Projects



Number of projects meaningfully improving access to destinations from potential Percent change in access to destinations

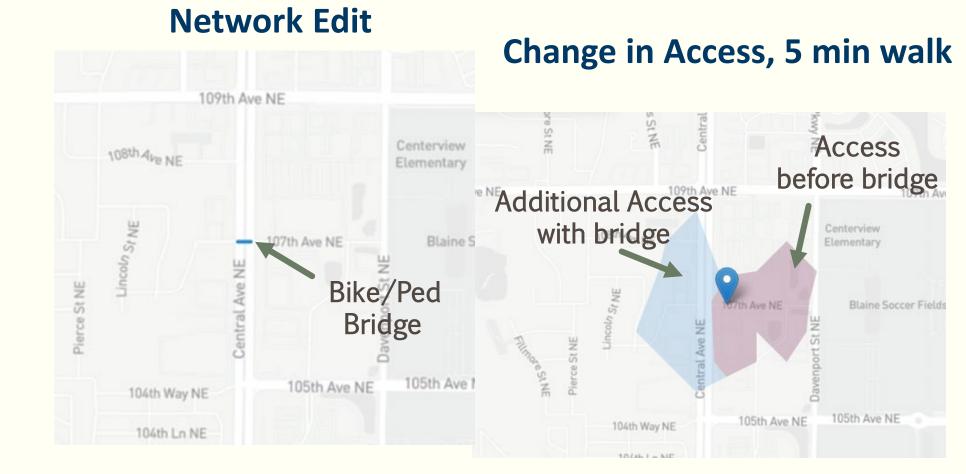
### Projects

Percent change in access to destinations
 Average change in access to destinations



## How is Multimodal Accessibility Analyzed?

- Accessibility Analysis tools
  - Quick and iterative editing,
  - Alternative and project comparison,
  - flexible origin and destination datasets





Weighted by

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SR 315: After

SR 316: Before

500

Percentile of accessibility

Hastings blocks 2010: hh

1.50k

1.00k

Accessibility

50% of hh can access at least 737 Jobs total

50% of hh can access at least 629 Jobs total

Weighted average accessibility: 803

Weighted average accessibility: 743

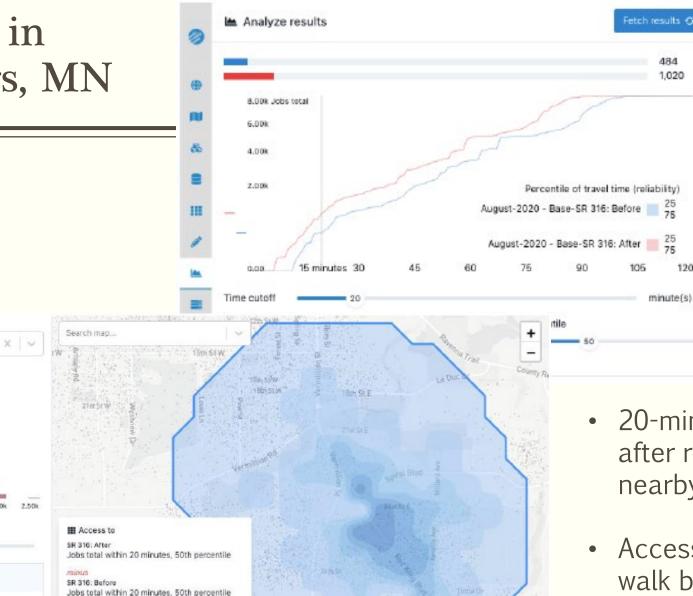
2.00k

583 to 450

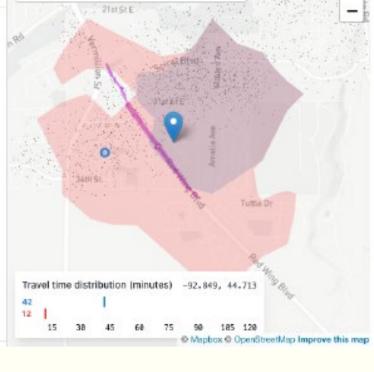
294 to 169

169 to 80 80 to 0

0 (transparent)



O Mapbox O OpenStmetMap Improve this map



+

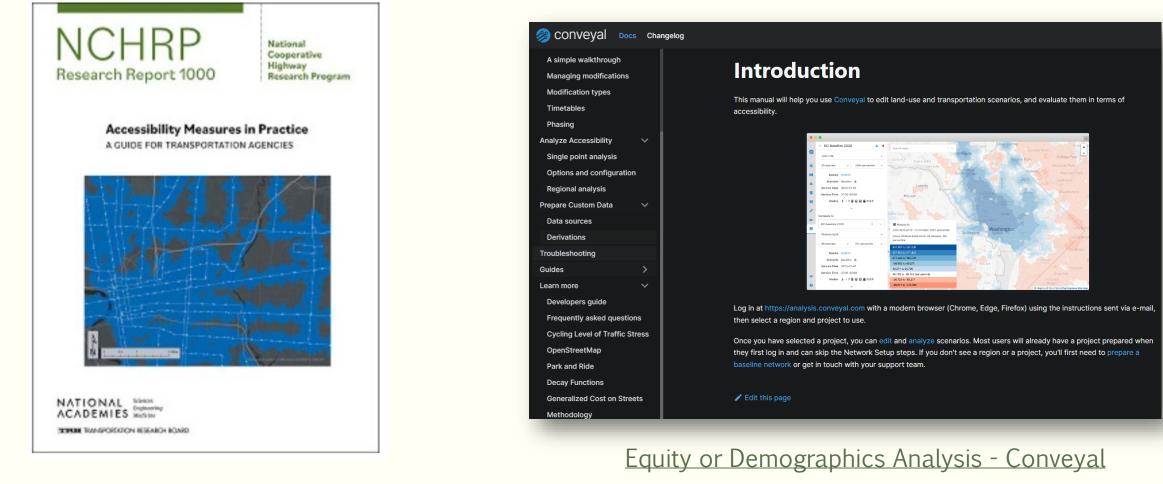
 20-minute walksheds before and after road improvements from nearby location

Search map,

120

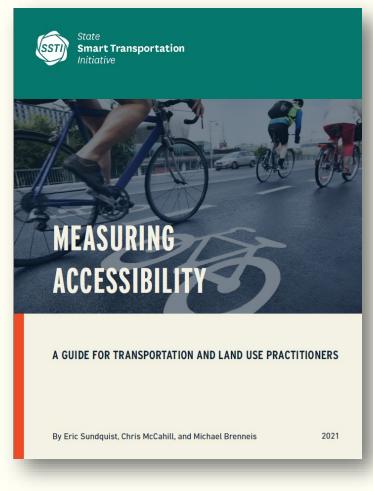
 Access to jobs within 20-minute walk before and after road improvements

### Resources



NCHRP Accessibility Measures in Practice

### Resources



SSTI Accessibility Guide

ACCESSIBILITY OBSERVATORY University of Monsteres Defree to Discover

## Measuring Accessibility National Evaluation, Local Application

Thursday, October 5 · Accessibility Observatory

Maryland DOT

Thursday October 5, 2023 11am PT, 12pm MT, 1pm CT, 2pm ET

AO + SSTI Webinar

## Measuring Access Using Crowdsourced Travel Behavior Data: The Easy Button to Real Access and Equity?

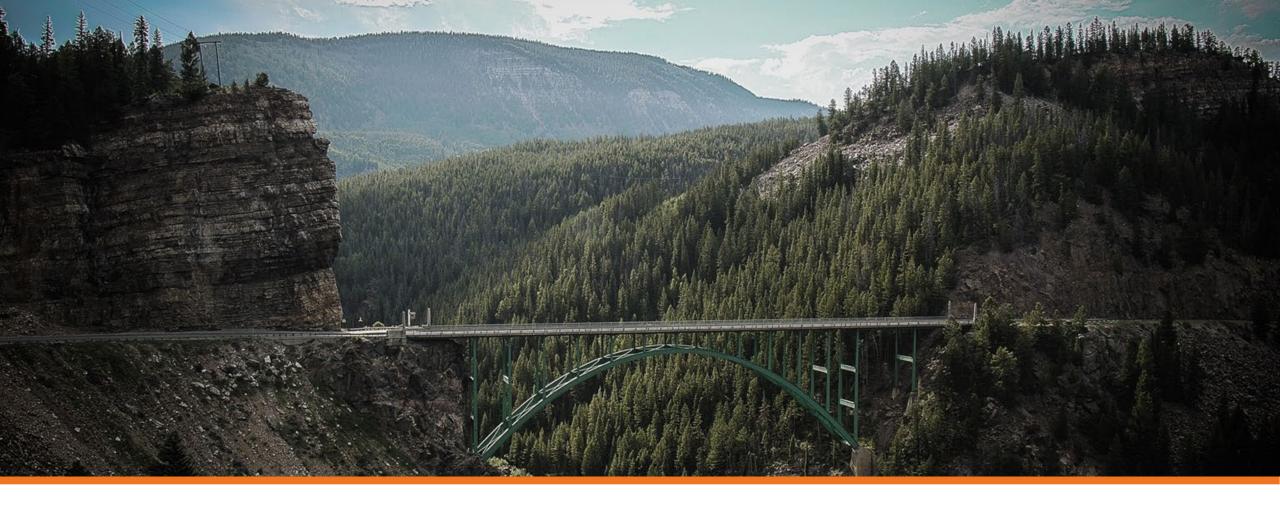
- Research team led by Phil Lasley from Texas A&M Transportation Institute
- Webinar recording from February 2023
- Describes benefits to measuring accessibility, but also issues such as measures are difficult to explain, difficult to calculate, tricky to set policy and target goals, and are hypothetical
- Research looks at developing "accessibility-like" measures that reveal access based on real travel behavior
- Awaiting release of final report



- How can we transition from mobility to accessibility performance measurement?
- How can accessibility measures be integrated into planning and decision making?
- How could/should accessibility analysis using actual data fit in?

# CARBON REDUCTION STRATEGIES/ INTEGRATING GHG ASSESSMENT INTO PLANNING

Darius Pakbaz and Chris Laplante, Colorado DOT



Colorado's Pollution Reduction Planning Standards: A Model To Account for



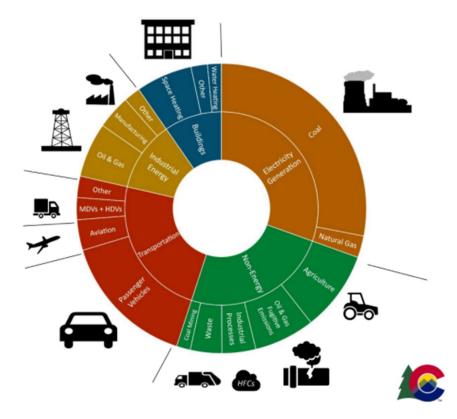
Greenhouse Gas Pollution Impacts of Planning Choices in the Built Environment COLORADO **Darius Pakbaz - Director, Division of Transportation Development** | Colorado Department of Transportation Chris Laplante - Air & Climate Section Manager | Colorado Department of Transportation

**Department of Transportation** 

#### 21

## Legislation





### House Bill 19-1261 - <u>Climate Action Plan to Reduce Pollution</u>

Reduce GHG emissions 26% by 2025, 50% by 2030, and 90% by 2050.

### Colorado Greenhouse Gas Roadmap

• A list of near-term actions the State will pursue over the next few years to make significant progress toward the Climate Action Plan goals.

### Senate Bill 21-260

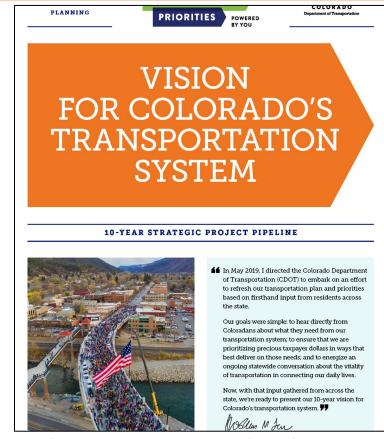
• Made the Roadmap recommendation for transportation planning a requirement.



Reduce pollution ~12.7 million tons by 2030							
6 MMT — reduction	Low & Zero Emission Vehicle rules						
	Utility and public investment in fleet turnover and infrastructure for light-duty zero emission vehicles (SB19-077, electrification investments from SB21-260)						
1.5 MMT — GHG Transportation Planning Standard reduction							
	Collectively, the other strategies will target remaining 3.2 million tons						
	Incentivize land use to increase housing near jobs and reduce VMT and pollution	HB 21-1271, HB 21-1117; CDOT stakeholder process; affordable housing committee; Strong Communities Study released October 2021 Stakeholder Engagement - Fall 2021/Winter 2022					
~3.2 MMT reduction	Clean trucking strategy - infrastructure, fleet incentives, consider regulatory tools such as advanced clean trucks and fleet rules						
	Participate in developing post 2025 vehicle standards (state and federal)	Federal and CARB processes					
	AQCC evaluation of indirect source rules	RAQC has convened committee to start developing proposals					
	Expansion of public transit, including setting the stage for Front Range Rail	In progress - SB21-238, SB 21-260, Main Streets investments, on-going multimodal emphasis					



# The GHG Planning Standard



- Adopted by the Colorado Transportation Commission on December 2021
- Requires CDOT and the State's five metropolitan planning organizations (MPOs) to create **transportation plans** that provide more travel choices, **resulting in reduced GHG emissions**
- Individual projects on their own provide a smaller opportunity than systems planning decisions when it comes to reducing GHGs

https://www.codot.gov/programs/environmental/greenhousegas/assets/2-ccr-601-22-eff-10-30-22.pdf

Planning Standard Goal: Reduce GHG emissions from the transportation sector through the development of long range transportation plans that support more travel choices.



# Process Overview: GHG Planning Standard

Develop long range planning docs

Determine GHG Impact of plans in 2025, 2030, 2040, and 2050

Compare results to GHG reduction levels

#### CDOT:

- 10-Year Plan
- Four-Year Prioritized Plan

#### MPOs:

- Regional Transportation Plans (RTPs)
- Transportation Improvement Programs

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Using a combination of transportation demand models and EPA MOVES, model the GHG impact of the existing transportation network and the projects in the applicable planning documents. Do the agencies meet the reduction levels in each year as required by the Planning Standard?

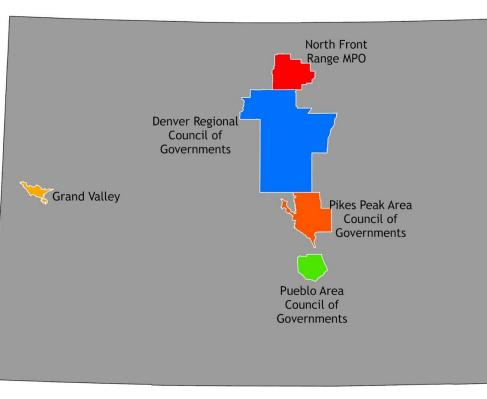
If yes - all good!

If no - can rely on <u>GHG</u> <u>Mitigation Measures</u>





## GHG Transportation Planning Reduction Levels



Regional Area	2025 Reduction Level (MMT)	2030 Reduction Level (MMT)	2040 Reduction Level (MMT)	2050 Reduction Level (MMT)	
DRCOG	0.27	0.82	0.63	0.37	
NFRMPO	0.04	0.12	0.11	0.07	
PPACG	N/A	0.15	0.12	0.07	
GVMPO	N/A	0.02	0.02	0.01	
PACOG	N/A	0.03	0.02	0.01	
CDOT/Non-MPO	0.12	0.36	0.30	0.17	
TOTAL	0.43	1.5	1.2	0.7	

\*MMT of CO2e



## **GHG** Mitigation Measures

- Transit
- Bicycle Infrastructure
- Transit-Oriented Development
- Heavy Duty Charging
- Travel Demand Management
- Walking Infrastructure
- Residential Density
- Parking Supply Reduction
- Micromobility E-Shares
- Clean Construction (coming in 2023)













Evaluation Tool	Transit	Bicycling and Walking Infrastructure	TDM and Tele-travel	Land Use	Parking	HDV Charging	Micromobility	Clean Construction
Colorado's Statewide Activity-Based Model		х	х					
MPO Travel Demand Models	х	х		х				
FHWA Energy and Environmental Policy Analysis Tool (EERPAT)	х		х	х				
Mitigation Points Matrix	х	х	х	х	х	х	х	х



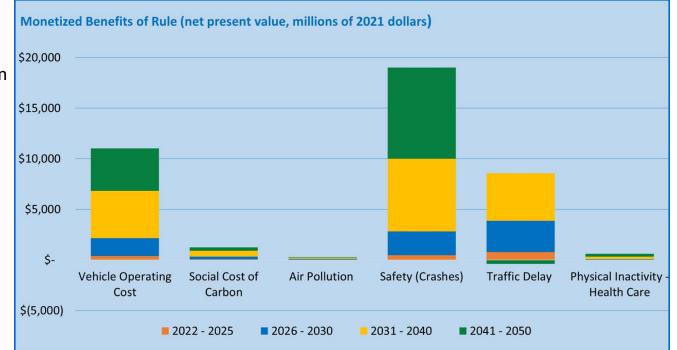
Project Type Pedestrian/Bicycle	Metric	Project Lifetime (Years)	Points/ Metric Now– 2025	Points/ Metric 2026– 2030	Points/ Metric 2031– 2040	Points/ Metric 2041– 2050	Additional Multipliers
Bike lane/facility – CORE URBAN	Miles of two-way facility built between plan year 1 and evaluation year	30	26	21	12	6	2.0 – separated/ protected
Bike lane/facility – URBAN			14	11	7	3	lane or bike boulevard
Bike lane/facility – SUBURBAN			4	4	2	1	1.5 – within mixed-use district or ½ mile of transit
Bike lane/facility – RURAL			1	1	1	1	station or school



## **Cost Benefit Analysis**

Key benefits of the rule include:

- Vehicle operating cost savings: Due to reduced need for travel and more efficient vehicles.
- Social cost of carbon (increasing from \$83 per metric ton of CO2 in 2025 to \$116 per metric ton for emissions occurring in 2050).
- Air pollution: Savings in health care costs as well as damage to structures and natural systems from reductions in particulate matter (PM) and oxides of nitrogen (NOx).
- Safety (crashes): Reduced crash costs based on reduced VMT.
- **Traffic delay:** Reduce traffic delay resulting from lower VMT, considering offsetting effects of "induced demand" from capacity expansion.
- **Physical activity:** Investments in walking and bicycling infrastructure and transit services increase physical activity and reduce health costs associated with inactivity.





### January 2021: Advisory Board Convened and Regional Stakeholder Engagement

- <u>Advisory Board met regularly as frequently as 2x a week to discuss rule concepts</u>
- CDOT held <u>11 regional public meetings</u> during this time; focused on transportation stakeholders

### August 2021: Draft rule issued for 60 day public review

- <u>Nine public hearings</u> across the State during the comment period
- Each meeting held in a hybrid (in person/virtual) format and offered Spanish interpretation

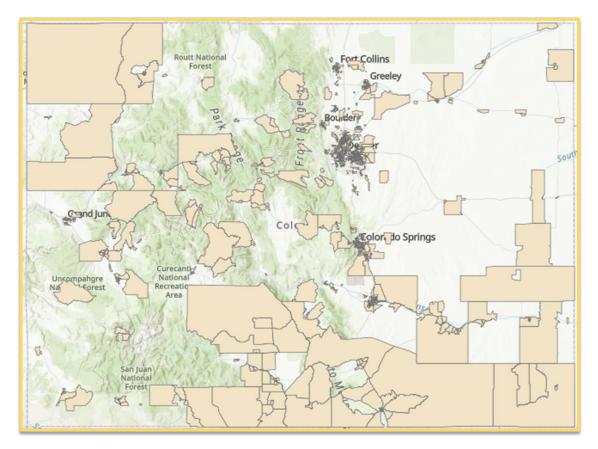
### October 2021: Comment period extended another 30+ days and updated draft rule issued

- <u>10<sup>th</sup> public hearing on</u> November 10
- In total, over 300 comments received in writing or via hearings
- Vast majority of comments strongly supported the rule

November/December 2021: Final Rule Development - Approved by the Transportation Commission on Dec 16, 2021



- Rule requires that CDOT and MPOs measure and prioritize localized benefits of GHG Mitigation Measures to Disproportionately Impacted Communities.
- CDOT hosted a series of **workshops** with members of the statewide Environmental Justice Taskforce and other stakeholders.
- Proposing to use the Transportation Equity Scorecard (University of South Florida's Center for Transportation Equity, Decisions and Dollars) to measure benefits of mitigations.
- CDOT Environmental Justice and Equity Branch's work on a more comprehensive transportation equity framework will support equity-focused prioritization.



[https://www.arcgis.com/apps/mapviewer/index.html?layers=7d0cf560b11e41f0a4d323c4e6c90e0b]



# **Real World Impacts**

### Inclusion of more multimodal project features

• CDOT initiated new micro-transit bus service as part of reconstruction of the "Floyd Hill" segment of I-70.

### Empowerment of MPOs to drive important conversations about infrastructure impacts

- Denver Regional Council of Governments has begun addressing land use in a meaningful way far exceeding past precedent.
- Staff has begun to "pressure test" proposals to widen arterials that once composed much of the region's long-range plan.
- DRCOG's planning process has moved to prioritize and accelerate significant transit investments like bus rapid transit.

### Strengthening modeling and analytical capabilities

- Rule prompts agencies to develop and adopt state-of-the-art travel demand models that take into account not just driving but also walking, biking, telework, smart development, and induced demand.
- CDOT and MPOs are working together to share best practices and technical capabilities.



## Lessons Learned

#### Government entities with direct subject matter expertise and jurisdiction over transportation dollars should take the lead

- Colorado's Transportation Commission led the rulemaking.
- Staff who have worked on the rule have primarily been officials in CDOT's planning division and can interface with MPOs.

#### When developing a new framework or policy to address GHG pollution reduction in transportation infrastructure, use familiar concepts to the extent possible

- Much of the structure is similar to ozone conformity, though the statutory basis for the rule is different.
- Concept of the approved mitigation list is derived from highway safety regulation.

#### Create a big tent for stakeholder outreach, and keep everyone at the table

- 10 public hearings held, far exceeding public outreach requirements for rulemaking via the Administrative Procedures Act.
- Informal stakeholder working group has evolved into a venue for ongoing work around implementation.
- Outreach has included both supporters and skeptics of the rule, ensuring differing perspectives are heard.

#### Balance good modeling with ongoing focus on real-world outcomes and improved options for citizens

- Colorado's Activity-Based Model has continued to gain credibility in the field and to incorporate cutting-edge techniques.
- Model must be paired with a real-world focus on how the implications of a policy will impact people.

#### Be ambitious and embrace impact

- GHG reduction policies become quickly charged and tend to evoke strong policy reactions
- "Pushback" will likely be as strong for a policy that is purely symbolic as for one that achieves meaningful change and real impact. So, go for the impact.





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**COLORADO** Department of Transportation

Chris Laplante | Air & Climate Section Manager, DTD Colorado Department of Transportation <u>christopher.laplante@state.co.us</u>

- Which carbon reduction strategies can DOTs influence through investment?
- How can these best be measured?
- How can the strategies/measures be best integrated into our broader planning process?

### NATIONAL TRANSPORTATION VISION

Kelly Travelbee, Michigan DOT

- Developed through NCHRP 20-24 (138) with input from the leadership of 52 state departments of transportation.
- The vision was adopted by AASHTO and member departments under Policy Resolution PR-1-22.
- Encourages state DOTs work toward implementing the shared vision through individual actions that are appropriate for the context of each state.

# VISION

A transportation system focused on connecting communities, moving people and goods, and meeting customer needs at all scales – from local to global – delivered as a *partnership* between state DOTs and other public, private, and civil sector partners.

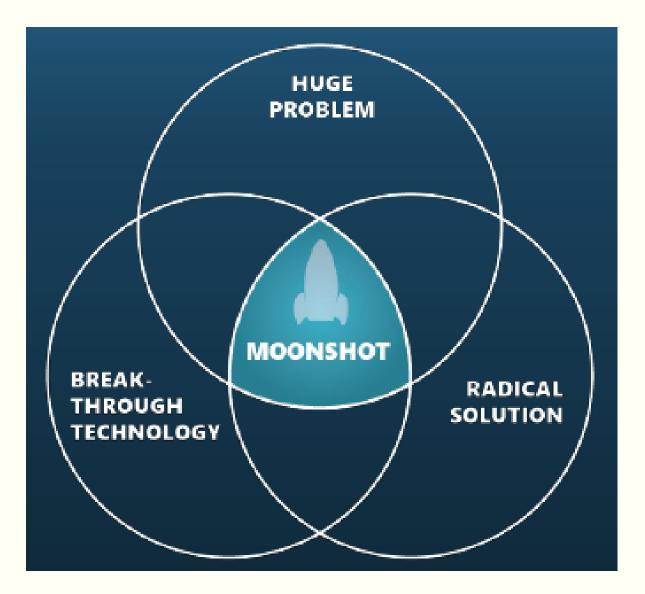
# ASPIRATIONAL GOALS

Safe & Secure Agile & Accessible & Resilient Affordable Community Centered Transportation Clean & Seamless & Sustainable Reliable Healthy & Thriving NCHRP20-24(138) Vision Framework

The six aspirational goals are intended as shared values.

ASPIRATIONAL GOAL	ουτςομε
SAFE & SECURE	No fatalities or serious injuries to people using all modes of the transportation system; the transportation system has limited vulnerability to criminal activity, terrorism, and cyberattack and is not a conduit for human trafficking, smuggling, or spread of disease
ACCESSIBLE & AFFORDABLE	Affordable and convenient transportation options to access jobs, health care, education, food, recreation, and other services for all people and families, regardless of geographic location, age, ability, or socioeconomic status
SEAMLESS & RELIABLE	Convenient, human-centered choices available on demand to move both people and goods from origin to destination, with minimal delay and quick transfers between modes and systems

NCHRP20-24(138) Vision Framework



GoogleX has adapted the "moonshot" concept for today's use, regularly charging internal teams to develop initiatives that address significant and complex problems using breakthrough technologies and radical solutions.

GoogleX's challenge to its internal teams is to develop solutions that are not 10 percent better than current approaches, but 10 TIMES BETTER.

Source: GoogleX



Make aggressive progress toward Vision Zero; reduce highway fatalities by xx percent by 2030

Work with partners to reduce the share of households who cannot afford basic survival costs by xx percent by 2030 through enhanced transportation accessibility and affordability

Create a mobility marketplace so transportation works for our customers

Change how we operate and manage the transportation system



Improve energy efficiency and reduce transportation emissions xx percent by 2030

Rethink how we connect communities and regions

Prioritize strategies and investments to strengthen communities

#### WHY THIS MOONSHOT?

#### WHAT MIGHT WE DO?

#### **GOALS SUPPORTED**

What if we...Work with partners to reduce the share of households who cannot afford basic survival costs by xx percent by 2030 through enhanced transportation accessibility and affordability

More than 2 out of every 5 households nationally earn incomes below the poverty line or at a level not sufficient to cover basic survival costs; many of these households lack affordable transportation options for connecting to jobs, education, and health care (United for ALICE)

- Build and strengthen non-traditional partnerships with health, human services, and workforce development organizations
- Close critical gaps in access to jobs, health care, education, recreation, and other services
- Provide more mobility options for households including the option to not travel
- Increase the affordability of transportation

- Accessible & affordable
- Seamless & reliable
- Healthy & thriving



### How do individual states move toward the vision?

- Each state DOT can take actions to advance the vision in ways that work for them today and in the future.
- Example **spectrum of actions** are provided.
  - External actions such as partnerships or coordination with other states or other sectors such as land use
  - Internal actions such as the decisions DOTs make about policies, plans, and investments or how they organize their operations and develop and retain their workforce.
- Each state DOT can identify additional actions that will challenge and evolve their departments and programs

### Example Levers of Change

LEVER OF CHANGE	EXAMPLE ACTIONS						
	MODEST CHANGE	SIGNIFICANT CHANGE	TRANSFORMATIVE CHANGE				
INTERNAL LEVERS							
Plans & programs	Increase emphasis on community vision/values in planning process	Enhance community engagement at all phases of planning; flag community- priority projects for incorporation into programs	Redesign the planning process with community vision at the center				
Assets & right of way	Maintain assets in state of good repair; identify potential vulnerabilities to extreme weather or other risks	Incorporate resilience considerations into asset management decisions and right of way management plans	Strategically assess function of existing right of way and assets; make decisions to renew, repurpose, decommission, or relocate				

#### PHASE 1 PRODUCTS

Vision framework and resolution adopted by AASHTO Board of Directors

- October 2022 -

#### PHASE 2 PRODUCTS

Continue collaboration among state DOTs and with key thought leaders and partners through a challenge network Initiate implementation of one or more moonshots Refine and advance a spectrum of individual and collective actions for state DOTs

- 2023 and Beyond -

Phase 2 also includes research funding for 10 state DOTs to initiate implementation of one or more moonshots

Thoughts?

How can we use performance management to drive strategic direction and achieve our Vision?

### ASSET LIMITED, INCOME CONSTRAINED, EMPLOYED (ALICE)

"ALICE households earn just above the Federal Poverty Level but less than what it costs to make ends meet.

These struggling households are forced to make impossible choices each day. While such hardship is pervasive, households of color are disproportionately ALICE."

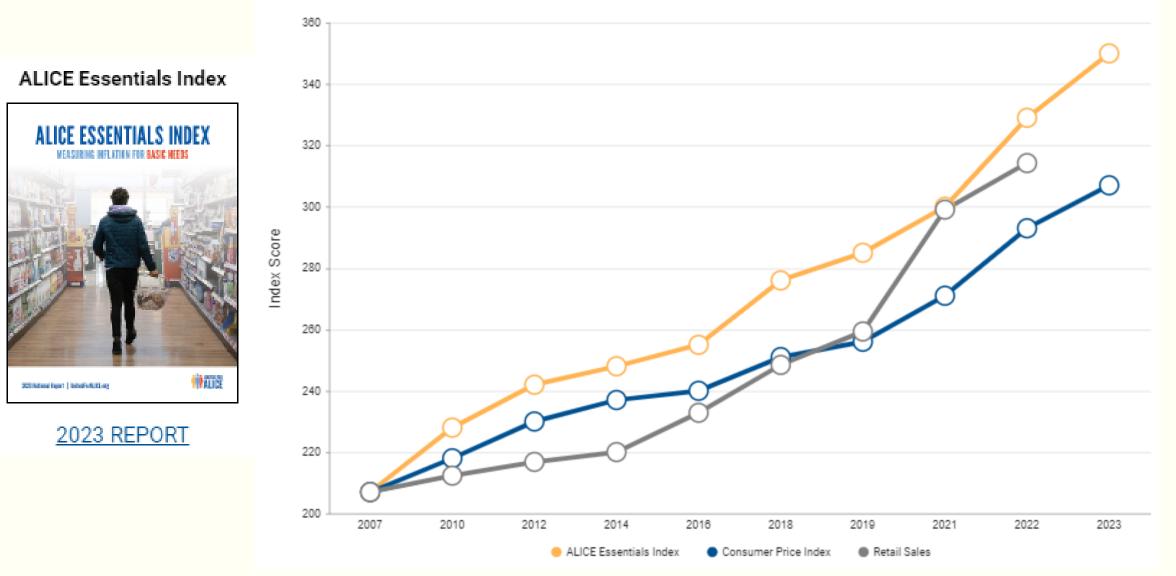
https://www.unitedforalice.org/



### ALICE HOUSEHOLDS IN THE U.S.

ALICE Essentials Index includes only essential household items: Housing, childcare, food, transportation, health care, and a smartphone plan.

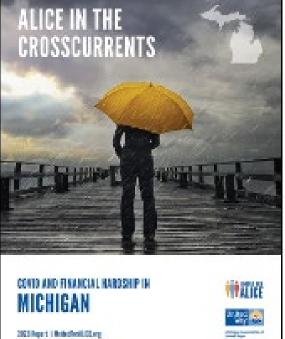
Consumer Price Index (CPI) covers a larger group of goods and services: Housing, food and beverages, transportation, medical care, apparel, recreation, education, communication services, etc. Comparison of Inflation, ALICE Essentials Index vs. CPI and Retail Sales Wage, United States, 2007–2023



https://www.unitedforalice.org/

	ALICE Household Survival Budget	Average Costs, Micl	Monthly 1igan, 2021
	Description, Update, and Sources	One Adult	Family of Four
Housing	<ul> <li>Rent: Fair Market Rent (40<sup>th</sup> percentile) for an efficiency, one-bedroom, or two-bedroom apartment (based on family size), adjusted in metro areas using the American Community Survey (ACS) – minus utilities</li> <li>Utilities: As captured by the Community Expenditure Survey (CEX)</li> <li>Update: Costs of rent and utilities are now shown separately.</li> </ul>	\$431 rent + \$154 utilities	\$532 rent + \$292 utilities
	<b>Sources:</b> ACS metro housing costs and U.S. Department of Housing and Urban Development (rent); CEX (utilities)		\$824
Child Care	Cost for registered Family Child Care Homes for infants $(0-2 \text{ years})$ , preschool-age $(3-4)$ , and school-age children $(5-12)$ <b>Source:</b> Michigan Department of Education, 2021	\$ -	\$1,110
Food	USDA Thrifty Food Plan by age with county variation from Feeding America <b>Update:</b> A <u>change in legislation</u> requires the USDA Thrifty Food Plans to reflect the cost for resource-constrained households to purchase a healthy, practical diet, starting in 2021, increasing costs from prior years. <b>Sources:</b> Feeding America; U.S. Department of Agriculture (USDA)	\$416	\$1,135
Transportation	Operating costs for a car (average daily miles by age, cost per mile, license, fees, and insurance), or public transportation where viable <b>Update:</b> The decline in public transportation use during the pandemic <u>reduced</u> <u>the average expenditure</u> , yet the cost for workers who had to use it to commute remained the same. To reflect this, the budget uses 2019 average CEX spending.	\$396	\$872
	<b>Sources:</b> AAA, Federal Highway Administration, The Zebra (car); CEX (public transportation)		\$872

#### Michigan



#### 2023 Report

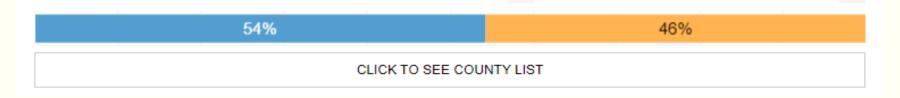
https://www.unitedforalice.org/

### ALICE Wage Tool (by State and County)



# © 2023 Mapbox © OpenStreetMap Mexico Survival Budget Supported in Survival Budget Not Supported in 54% of All Counties 46% of All Countie

#### Family of 3 on \$12 per Hour per Worker Wage Compared to Household Survival Budget, All



National Overview			_
Partner States	Arkansas	lowa	Pennsylvania
ALICE in R s	Connecticut	Louisiana	Tennessee
ALICE Essentials Index	Delaware	Maryland	Texas
Methodology Tools & Resources	District of Columbia	Michigan	Virginia
All Reports	Florida	Mississippi	Washington
	Hawai'i	New Jersey	West Virginia
	Idaho	New York	Wisconsin
	Illinois	Ohio	
	Indiana	Oregon	

## TRAVELBEEK@MICHIGAN.GOV SUBJECT: Transportation Vision Links

#### **NEXT ERA TRANSPORTATION VISION**

- <u>NCHRP-20-24(138) VISION FRAMEWORK</u>
- <u>NCHRP 20-24 (138)</u> WHITE PAPER (Phase 1): Collective and Individual Actions for State Departments of Transportation Envisioning and Realizing the Next Era of America's Transportation Infrastructure
- <u>NCHRP 20-24 (138) TRB PROJECT SITE</u>
- <u>AASHTO Policy Resolution (PR-1-22)</u>: Development of a National Vision for the Future of Transportation and Individual and Collective Actions for State Departments of Transportation to Make Progress toward the Vision

#### ALICE: Asset Limited, Income Constrained, Employed

United for Alice

### AASHTO Committee on Performance-Based Management

### **Emerging Performance Task Force**

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# Questions?