

2603

## Regional Model Supporting Complete Streets (Context Sensitive Design)

Kevin Kokes | Surface Transportation Technical Committee 10.28.2022



**Multimodal Complete Street** 

### **Complete Streets**

Standards or policies that ensure the safe and adequate accommodation of all users of the transportation system, including pedestrians, bicyclists, personal conveyance and micromobility users, public transportation users, children, older individuals, individuals with disabilities, motorists, and freight vehicles.



Regional Model Supporting Complete Streets/Context Sensitive Design Source: FHWA's "Moving to a Complete Streets Design Model: A Report to Congress on Opportunities and Challenges", March 2022

## **Context Sensitive Design**

A design process that not only considers physical aspects or standard specifications of a transportation facility, but also the economic, social, and environmental resources in the community being served by the facility.

> Source: FHWA, What is Context Sensitive Design https://www.fhwa.dot.gov/planning/css/what\_is\_css/



Regional Model Supporting Complete Streets/Context Sensitive Design

#### **Urbanized Context** (Urban Core / Urban / Suburban / Small Town)

**Rural Context** 





Regional Model Supporting Complete Streets/Context Sensitive Design

## Federal and State Guidance

## FHWA and FTA Guidance

#### Planning Emphasis Areas (PEAs) for MPO and State Planning and Research

Develop tasks in work programs

- Transition to a Clean Energy, Resilient Future
- Equity and Justice in Transportation Planning
- Complete Streets
- Public Involvement
- Strategic Highway Network/ Dept of Defense Coordination
- Federal Land Management Agency Coordination
- Planning and Environmental Linkages (PEL)
- Data in Transportation Planning



## FHWA and FTA Guidance

#### **Complete Streets**

#### **GOAL**:

To provide an equitable and safe transportation network for travelers of all ages and abilities, including those from marginalized communities facing historic disinvestment.

"FHWA and FTA seek to help Federal aid recipients plan, develop, and operate streets and networks that prioritize safety, comfort, and access to destinations **for people who use the street network, including pedestrians, bicyclists, transit riders, micromobility users, freight delivery services, and motorists. This vison is not achieved through a one-size-fits-all solution – each complete street is unique and developed to best serve its community context and its primary role in the network.**"



Source: USDOT, December 30, 2021

Federal Guidance: Bipartisan Infrastructure Law Infrastructure Investment and Jobs Act (IIJA) Section 11206 Safe and Accessible Transportation Options:

MPOs must spend at least 2.5 percent of funds made available to them under Federal Highway Aid to activities that increase safe and accessible options for multiple travel modes for people of all ages and abilities, which may include:

- Adoption of Complete Streets standards or policies
- Development of Complete Streets prioritization plan
- Development of transportation plans to create active transportation facilities
- Development of transportation plans and policies that support transit-oriented development



# TxDOT Guidance

#### Roadway Design Manual (RDM) Update, May 2022

- The updated Ch 6., Sect. 4 Bikeway Facilities emphasizes "context" considerations and Bikeway Planning Principles: safety, comfort, connectivity, and cohesiveness
- TxDOT Districts now using the updated bicycle facility guidance for new projects
- The Federal Highway Administration approved the RDM updates last summer



## Regional Model

## The purpose of a Complete Streets (Context Sensitive Design) policies and resolutions

 Provides strategic direction for transportation planning
 Encourages collaboration regarding transportation functions
 Incorporates local and regional priorities for mobility (not a one-size-fits-all solution)

#### A Policy/Resolution does <u>NOT</u>:

Prescribe solutions for specific streets
 Mandate immediate retrofits
 Treat rural areas the same as urban areas





#### Resolution objectives:

- Policy: Support the adoption and implementation of local government policies/resolutions related to "Complete Street/Context Sensitive Design" with local transportation projects
- Guide: Checklist and/or Guide for projects with complete street/context sensitive design elements
- Evaluate: Review complete street/context sensitive elements in project development and performance measures



### **Potential Elements of the Regional Model**





Regional Model Supporting Complete Streets/Context Sensitive Design

## **Regional Model Resolution**

1. The RTC directs staff to collaborate with local governments and transportation providers to develop a Complete Streets (Context Sensitive Design) checklist and/or guide to be used for regional transportation planning and project implementation.

2. The RTC encourages local governments to adopt Complete Streets (Context Sensitive Design) Policies.

3.The RTC encourages local governments to consider Complete Streets (Context Sensitive Design) elements when developing, modifying, or updating local comprehensive plans, thoroughfare plans, local roadway design manuals, zoning and subdivision ordinances, development codes, and other associated rules and/or regulations.

4. The RTC encourages local governments and TxDOT to collaborate closely and implement transportation projects in their jurisdictions that apply context sensitive solutions in a manner consistent with local community characteristics.

5. The RTC directs staff to provide technical support to local governments for development of local Complete Streets policies, resolutions, and methodologies/applications for performance management.



### **Next Steps**

RTC Resolution Supporting a Regional Model for Complete Streets (Context Sensitive Design)

Collaboratively develop a *draft* Checklist/Guide, and Performance Measures

## Updates to STTC and RTC

Finalize Checklist/Guide and Performance Measures



## Schedule

Date	Milestone
August 2021	BPAC Briefing
August 17, 2022	BPAC Briefing
October 28, 2022	STTC Action
November 7, 2022	Public Input Meeting
November 10, 2022	RTC Action
2023	Develop Guide/Checklist and Performance Measures



### **Requested Action**

Recommend Regional Transportation Council Approve the Resolution supporting a regional model for complete streets (context sensitive design) and directing staff to develop a complete street checklist/guide and performance measures, to be returned at a future date for approval.



### **Staff Contacts:**

## Karla Windsor, AICP

Senior Program Manager kwindsor@nctcog.org



### Kevin Kokes, AICP

Program Manager kkokes@nctcog.org

### **Julie Anderson**

Sr. Transportation Planner janderson@nctcog.org





#### NCTCOG PRESENTATION

Advancing Transportation Technologies and Innovative Program

Surface Transportation Technical Committee 10.28.2022

Natalie Bettger Senior Program Manager Advanced Transportation Technology and Innovation (ATTAIN) Program

Continuation of Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) program \$60M/yr.

5-10 awards up to \$12M apiece 20 percent local match required NOFO issued 9/19/22 Applications due: 11/18/22



## ATTAIN Model Deployments

**Reduced fatalities and injuries** Reduced traffic congestion/improved travel time reliability **Reduced** emissions **Optimized multimodal system performance** Improved access to transportation alternatives Integration of payment systems Integrated multimodal transportation information **Transportation-related cost savings** 



## **USDOT ATTAIN Priorities**

Climate Resiliency Environmental justice Equity Removing barriers to opportunity Job creation



### TSMO Data Engine: Foundation for Success

**Description:** A data broker that will consume standard data inputs from applications, enable sharing of data, deploy best-of breed applications and allow each agency the freedom to procure systems that best meet their needs.

- Location: Regionwide
- Amount: \$10M
- Local match: \$2M

**Benefits:** Cost savings, enhanced data sharing, common interfaces, future-proof design, extensibility and high-quality software



TSMO Data Engine: Foundation for Success

**Two Primary Initiatives** 

- Data Initiative to create the digital infrastructure to support advanced smart community technologies and systems within the NCTCOG region
- Mobility Initiatives to focus on improving air quality, improve safety, reduce congestion in the region





9/23/22: STTC Briefing / Information
10/13/22: RTC Briefing / Information
10/28/22: STTC Action
11/10/22: RTC Action
11/17/22: NCTCOG Executive Board Action

NCTCOG letters of support requests due: 11/4/22 Contact: <u>Nicholas Allen</u>



### **REQUESTED STTC ACTION**

Request STTC approval of:

Submittal of **TSMO Data Engine** for funding consideration through the FY22 Advanced Transportation Technology and Innovation (ATTAIN) Program (\$8M) and Regional Toll Revenue (RTR) (\$2M) for a total of (\$10M)

Administratively amend NCTCOG and State Transportation Improvement Programs (TIP / STIP), as well as other planning and administrative documents, to include the proposed project if selected for an FY22 ATTAIN Grant total award (\$10M)



## Contacts



#### Natalie Bettger [Lead]

Senior Program Manager Congestion Management, Innovative Project Delivery and Outreach Program Email: <a href="mailto:nbettger@nctcog.org">nbettger@nctcog.org</a>



#### **Thomas Bamonte**

Senior Program Manager Transportation Technology & Innovation Email: <u>TBamonte@nctcog.org</u>



#### <u>Arash Mirzaei</u>

Senior Program Manager Model and Data Development Program Email: <u>AMirzaei@nctcog.org</u>





#### NCTCOG PRESENTATION

## TRANSPORTATION

SMART Grant Program: Applications

SURFACE TRANSPORTATION TECHNICAL COMMITTEE Thomas J. Bamonte 10.28.2022

transdev

## SMART Program & Purpose

**Program:** Strengthening Mobility and Revolutionizing Transportation (<u>SMART</u>) Grant Program

**Purpose:** Demonstration projects using technology interventions to solve real-world challenges and build data and technology capacity and expertise in the public sector

Funding: \$100M/yr.

**First year:** 30-50 planning grants/\$2M maximum grant

Local match: None for planning grants

Later years: Implementation grants up to \$15M

**Application Deadline:** 11/18/22



## Eligible Projects

- **Coordinated Automation**
- **Connected Vehicles**
- Intelligent Sensor-Based Infrastructure
- Smart Technology Traffic Signals
- **Systems Integration**
- **Commerce Delivery and Logistics**
- Innovative Aviation Technology
- Smart Grid for EVs



### SMART: Staff Outreach Efforts

6/21/22: NCTCOG staff briefing 6/28/22: Briefing for STTC members and other regional partners 8/2/22: Distributed notice of USDOT webinar on SMART program 9/20/22: Distributed Notice of Funding Opportunity and schedule 9/23/22: STTC briefing

Various: Multiple brainstorming sessions

NCTCOG letters of support requests due: 11/4/22 Contact: <u>Nicholas Allen</u>



### Project 1: North Texas Micro-Weather Infrastructure for Advanced Air Mobility

**Description:** Feasibility study to determine viability of regional solution for low altitude weather detection and reporting to support safe deployment of advanced aerial vehicles such as last mile drone delivery services and Electric Vertical Take-off and Landing (eVTOL) vehicles

- Location: Regionwide
- Amount: \$2 million

Local match: None

**Key Partners:** NASA North Texas Cohort, Hillwood, CASA WX Executive Council, Google Wing, DroneUp, Wisk Aero, Supernal, Overair, City of Arlington, DFWIA

**Benefits:** Will allow regional stakeholders on equitable basis to scale up Advanced Aerial Mobility operations safely



## Project 2: Flooded Roads Information System

**Description:** Use advanced sensors and big data tools to improve prediction, identification, and reporting of flooded roadways.

**Location:** TSI Study Area (portions of Dallas, Denton, Ellis, Hood, Johnson, Parker, and Tarrant Counties, and all of Wise County)

Amount: \$2 million

Local match: None

Key Partners: See list at right

**Benefits:** Optimizing emergency response routes/procedures, use of critical facilities, and improving safety at vulnerable areas













Project 3: Traffic Signal Technology and Deploying AI based ATMS Platforms

**Description:** Leverage NCTCOG's recent survey of traffic signal equipment to identify, test, and evaluate detection and other technologies. Pilot and evaluate multiple platforms to optimize traffic signals

- Location: Regionwide, US 77, US 67, and FM 1382
- Amount: \$2 million
- Local match: None

**Key Partners:** TxDOT, City of Cedar Hill, City of Waxahachie, NCTCOG **Benefits:** Safety, air quality, congestion, and reliability



## Action Requested

Recommendation for RTC approval (i) of the submission of the three SMART grant applications described above and (ii) for staff to take all necessary steps to submit the applications and administer any grant that is awarded based on the applications.



## Contact

#### **Thomas Bamonte** [SMART Program]

Senior Program Manager Transportation Technology & Innovation Program Email: <u>tbamonte@nctcog.org</u> Twitter: <u>@TomBamonte</u>




### NCTCOG PRESENTATION UPDATED RULES FOR PUBLIC COMMENT AT REGIONAL TRANSPORTATION COUNCIL MEETINGS

KEN KIRKPATRICK SURFACE TRANSPORTATION TECHNICAL COMMITTEE 10.28.2022

ransdev

## OVERVIEW OF HB 2840\*

Members of the public must be allowed to make comments to a governmental body before or during the body's consideration of an item

A governmental body may adopt reasonable rules regarding public comments, including rules that limit the amount of time for each public comment

If no simultaneous translation equipment is used, a member of the public using a translator must be given double the amount of time to comment

A governmental body may not prohibit public criticism of the body Bill took effect on September 1, 2019

\*Texas Government Code Section 551.007



## RULES FOR PUBLIC COMMENTS AT RTC MEETINGS

### **Current Rules**

- Comments at RTC meetings began in September 2019
- Initial rules adopted March 2020
- Rules are included in the Public Participation Plan as an appendix
- Four public comments have been received to date
- Comments documented in RTC minutes and Public Comments Report

### **Updated Rules**

- Add decorum standard for audience members and public commenters with clear enforcement rules
- Overall time period limit for public comments, which may be extended
- Clarify when public comments will be in-person or virtual
- Public comment and decorum requirements referenced in RTC Bylaws (proposed)





### August RTC Information

### October

RTC Information STTC Action

## TIMELINE

Comments from the public on the updated rules were welcomed for a 45-day period per the Public Participation Plan.



## ACTION REQUESTED

Recommend Regional Transportation Council approval of the Updated Rules for Public Comments at RTC Meetings (Electronic Item 6.1).

Amend the Public Participation Plan to include the updated rules as an appendix.



## CONTACT US

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Carli Baylor Communications Supervisor <u>cbaylor@nctcog.org</u> | 817-608-2365



### Scenario Planning Outside of Transportation

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NATIONAL Sciences ACADEMIES Medicine

New DUCINESS	BANK		PROFESSIONAL SPORTS			
PLANS	SOLVENCY TES	ST .				
MILITARY Exercises		APPROVAL OF NEW MEDICINES				
EQUITY AND	FINANCIAL INVESTMENTS		NASA SPACE EXPLORATION			
Indication	20	d Conference on				
	S	cenario Planning	in Transportation			

TRANSPORTATION RESEARCH BOARD

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# CONNECTING NORTH TEXAS COMMUNITIES with EMERGING TRANSPORTATION TECHNOLOGIES

# PROJECT SUMMARY

Clint Hail, Transportation Planner Transportation Technology & Innovation Program Surface Transportation Technical Committee October 2022





## AGENDA



# Project Overview



# 2 Report Summaries





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# WHAT IS THIS PROJECT?

## What is the need?

Transportation technology is evolving

Our planning process must evolve to keep up

## What is the purpose?

Understand the region's mobility challenges

Identify ways transportation automation and related technologies can address those challenges

Recommend policies and best practices to achieve positive results for the region

Automated<br/>alternative-fuel ride-hailing<br/>alternationsJale<br/>alternationsJale<br/>analyticsAnalytics



## WHAT IS NCTCOG's VISION FOR AUTOMATION IN THE **REGION?**

- Lead automated vehicle (AV) deployment
- Use automation to achieve region's mobility goals
- Provide communities with AV planning and deployment resources
- Build effective partnerships with AV developers
- Strategically invest in use cases and communities overlooked by AV developers

## Goals



Improve Safety & Efficiency





Improve economy



Prioritize quality of life

## WHAT IS THE AV2.0 **PROGRAM?**

**Objectives** 



Make future mobility planning resources available to stakeholders in the region



Provide resources for stakeholders to prepare for and support future mobility



Look beyond tech available today to plan for future scenarios, impacts

Planning Horizon

2045

2023-

2025

AV2.1 Support for planning

AV2.2 / 2.3

Support for deployment costs

Implement regionalstrategic investments



## WHAT QUESTIONS DID AV2.1 ANSWER?

How will transformational technologies affect regional <u>decision making</u>?

What are the potential <u>future scenarios</u> for automation in the region? How can agencies predict and monitor the <u>impacts</u> of transformational technologies?

What are <u>best-practices and funding</u> opportunities for AV deployments?



# AV2.1 STUDY TEAM

## STAKEHOLDER & PUBLIC ENGAGEMENT

Leigh Hornsby, PhD Stakeholder

messaging



**Royalyn Reid** Focus groups



**Denise Smith, PhD** Virtual community engagement

Hummingbird

## LOCAL & NATIONAL RESEARCH EXPERTS









Janille Smith-Colin, PhD Future Mobility Needs & Impacts

## SMU<sub>®</sub>

John Hicks, AICP AV Policy & Impacts

**KITTELSON** & ASSOCIATES

Darcy Bullock, PhD AV Hosting Best Practices

> **PURDUE** UNIVERSITY<sub>®</sub>

## LOCAL PLANNING EXPERTS

### Khaled Abdelghany, PhD

AV Scenario Development and Evaluation

SMU<sub>®</sub>

**Mike Chaney** NCTCOG Travel Demand Modeling

**Behruz Paschai, PhD, PE** NCTCOG Travel Demand Modeling





# PROJECT REPORTS

# Available on Project Website: www.ConnectNTxFutures.org/Learn



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# **PUBLIC MEETINGS & STUDENT LESSON PLAN**

## www.ConnectNTxFutures.org/Get-Involved



## Public Meeting #1



### **Preparing for Emerging Transportation Technologies**

A Panel Discussion on Education and Workforce Development



**Connecting North Texas Communities with Emerging Transportation Technologies** 

### **Meet the Panel**

Ernest Huffman viation Planning and Education Program Manager North Central Texas Council of Governments



LaKesha Raynor Director, Workforce Development and Apprenticeships Relationship Management Dallas College, Cedar Valley Campus

Kentrel Phillips, Ed.D. Chief Academic Officer Everman ISD



Janille Smith-Colin, Ph.D. Assistant Professor Southern Methodist University

### **Co-hosts**





Denise Smith, Ph.D. Director of Community Engagement Hummingbird Firm



Hummingbird 🖊





## **AV2.1 EMERGING** TRANSPORTATION **TECHNOLOGIES**

### K-12 Lesson Plans\*

Preparing for Emerging Transportation Technologies
English - Same Message, Different Audience
Social Studies - A Review of Transportation Policy
Math - Avoid the Crash!
Science - Pavement Markings and the Science of Retrorefle
First Lego League (WeDo 2.0 Software) - Blind Spot Monitor
Other Transportation-Related Lesson Plans

### www.connectNTxFutures.org

\*These lesson plans are primarily designed for high school students

## Public Meeting #2

## Lesson Plans



# **ONLINE PUBLIC SURVEY**

## Purpose

Learn public needs and interests around automated transportation

Key takeaways:

- 483 responses (most from Tarrant and Dallas counties)
- Mixed willingness to use automation technologies for travel around DFW area
- Differences in willingness by race and age
- Older generations less willing to use the technologies





**Connecting North Texas Communities** with Emerging Transportation Technologies

## AV2.1 **Engagement Phase 1 Summary Report**

The North Central Council of Governments (NCTCOG) October 2021













# FOCUS GROUPS

## Purpose

Gain deeper awareness of public's perspectives on current and emerging transportation technologies

## Key takeaways:

- 83 participants from 12 focus groups
- Focus group findings align with survey
- Map apps are most used tech (smartphone cost is concern for one minority group)
- Rural residents want more transportation options (transit, ridehail), faster internet, fewer freight train backups
- Minorities most excited about new tech, but doubt fair/equitable access



**Connecting North Texas Communities** with Emerging Transportation Technologies

## AV2.1 **Focus Groups Report**

The North Central Council of Governments (NCTCOG) February 2022





# **STAKEHOLDER &** PUBLIC ENGAGEMENT SUMMARY

## PAC Meeting Slides & Notes: www.connectntxfutures.org/Get-Involved

### **Project Advisory Committee Meetings & Workshops**

The Project Advisory Committee (PAC) is a diverse group of stakeholders and subject matter experts, from NCTCOG, local cities and counties, transportation agencies, educational institutions, and transportation-related businesses.

Members of the PAC:

- Serve as liaison between COG, project team, and broader communities
- Represent subset of region's decision makers and technology users
- Mentor next generation of participating agencies
- Envision multi-generational planning horizon

While PAC meetings are not open to the public, representatives of local governments are welcome to attend PAC workshops! We also encourage those interested to view the meeting minutes and presentations.

**PAC Meeting 1 - March 12, 2021** 

Meeting Minutes

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PAC Meeting 2 (Workshop 1) - May 26, 2021

Meeting Minutes (morning | afternoon)

**Presentation Slides** 

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PAC Meeting 3 (Workshop 2) - July 13, 2021

Meeting Minutes

PAC Meeting 4 (Workshop 3) - Sept 8, 2021

Meeting Minutes

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PAC Meeting 5 - October 27, 2021

**Meeting Minutes** 



**Connecting North Texas Communities** with Emerging Transportation Technologies

## **AV2.1 Project Engagement** Report

The North Central Council of Governments (NCTCOG) June 2022





# **EXISTING NEEDS**

## Purpose

- Detail current state of transportation in North Central Texas
- Identify local needs and deployments

Five categories:

- Personal mobility
- Freight movement
- Equity
- Safety
- Infrastructure readiness + resilience









### AV2.1 EXISTING CONDITIONS REPORT

AV2.1: Conduct a Planning Process to help the North Texas Region Prepare for Automated Vehicles and Related Technologies



September 13, 2021



# MARKET ANALYSIS

## Purpose

Understand possible impacts from automated transportation and related technologies in communities.

This understanding and readiness will help the region apply for federal, state, or local deployment funding to deploy or support new technologies.





August 2, 2022



# FINANCIAL REPORT

## Purpose

High-level assessment of how automated transportation may affect local entity finances.

**Considers Scenario Development and** Evaluation to understand potential impacts of automated transportation on existing funding mechanisms available to:

- Counties
- **Municipalities**
- Public transit agencies
- Airports







### **AV2.1 FINANCIAL REPORT**

AV2.1: Conduct a Planning Process to help the North Texas Region Prepare for Automated Vehicles and Related Technologies



August 2, 2022



# **SCENARIO DEVELOPMENT**

## Purpose

Identify potential future transportation automation scenarios for the North Central Texas region

Developed seven potential scenarios

Selected three scenarios for modeling evaluation:

- Connected Autonomous Vehicle (CAV) Impact on **Roadway Network Capacity**
- CAV Impact on Intersection Performance
- CAV Impact on Population & Employment Distributions



### **AV2.1 SCENARIO** DEVELOPMENT FINAL REPORT

AV2.1: Conduct a Planning Process to help the North Texas Region Prepare for Automated Vehicles and Related Technologies



February 2022



# MODEL TOOL SELECTION

## Purpose

Select the tool(s) to evaluate the three selected scenarios

## **Tools Considered:**

- Microscopic traffic simulation models
- Mesoscopic simulation-based dynamic traffic assignment models
- Regional travel demand model ("<u>TAFT</u>") developed and maintained by NCTCOG

Research Team coordinated throughout process with NCTCOG Modeling Team

\* The AV-TAFT model was developed by The University of Texas at Austin Center for Transportation Research under the NCTCOG project Travel Modeling in an Era of Connected and Automated Transportation Systems: An Investigation in the Dallas-Fort Worth Area (2017-2021).

## **Tool Selected:**

AV-TAFT: Regional travel demand model upgraded by UT Austin to enable AV traffic modeling\*

## Modifications:

CMAV-TAFT: Slightly modified to further upgrade AV-TAFT's ability to model the three scenarios selected



# SCENARIO EVALUATION

## **Purpose:**

Predict potential impacts of three future automation scenarios using travel demand model

## **Modeling Summary:**

- Studied 29 different scenario runs
- Tested 0, 25, 50, and 100% penetration rates
- First application of new CAV Capacity Adjustment Factors in Highway Capacity Manual 7<sup>th</sup> Edition



Vehicles are both connected and automated. They follow closely at high speeds. They move through intersections more effectively.

## **Key Findings:**

- Vehicle Miles Traveled (VMT) generally increases
- Vehicle Hours Traveled (VHT) generally decreases
- Average Daily Speed generally increases
- Daily Delay generally decreases
- CAVs alone will not solve the region's future congestion problems.



# **AV HOSTING HANDBOOK**

## **Key Guidance:**



What do cities need to know about AVs?

How can cities prepare for AVs?

Traveler-Focused

Performance measures are available to help

with \* require data from an AV provider. Measures marked with \*\* can be obtained from

evaluate a traveler's experience before, during

and immediately after a trip. Measures marked

user surveys. Surveys can also ask about riders'

demographics, origins and/or destinations, and

trip purposes to allow more detailed analyses of

Measures

survey results.10

### **SELECTING** PERFORMANCE MEASURES

Not all of these measures listed in this section need or should be included in an evaluation. Some neasures may not relate to a project's goals and obiectives, data may not be available to measure others, and staff time and resources will constrain how many measures can realistically be included. One possible approach to identifying performance neasures is as follows

- Identify potential performance measures that can help evaluate each project objective, using the performance measure lists and references in this section as starting points.
- Consider the data collection needs for each



- If data are not available, the measure will need to be dropped.
- If data will need to be obtained from the AV operator, the measure is a candidate, but also identify whether alternative measures are available as backups if the data cannot be obtained.
- If data are readily available, the measure is a candidate.
- Select one or more measures for each objective, balancing data availability and collection needs with how well the measure addresses the objective
- For measures that require data from AV operators, build these data requests into the agency's AV regulations (where permitted by state law) or make them priorities when negotiating with AV operators.

Performance measures are useless when the data required by them are not readily available or are too difficult to collect. Too much data can also be an issue if it takes too much time to collect and analyze the data. It may be better to start smaller and expand the number of measures as the ency gains experience with AV pilots.<sup>7</sup>





- Reservation convenience for on-demand trips
- Wait time\* (time between when a trip is requested and when the vehicle is
- scheduled to arrive) (e.g., by trip, time, or geography)
- Excess wait time\*
- Trip planning and booking experience\*\*

### **EVALUATING AV EFFECTS ON THE** COMMUNITY AND REGION

his subsection provides potential performance measures for use in a longer-term monitoring program to evaluate how AVs may be affecting community and region. For these mea to be useful in decision-making, they need to be regularly measured and monitored (ideally annually), which may be a more frequent data-collection and -analysis schedule than an agency may be used to for transportation planning.<sup>1</sup>

The measures are derived primarily from NCHRP Report 924: Foreseeing the Impact of Transformational Technologies on Land Use and Transportation<sup>12</sup> and FTA's Mobility Performance Metrics for Integrated Mobility and Beyond,13 supplemented with additional measures lentified through agency and expert interviews conducted during the development of this handbook. These references also describe potential data sources for these measures

A challenge with applying these measures is identifying how much of the change in a given measure is attributable to AVs and how much is attributable to other causes. Trend analysis and comparing areas with AV services to similar areas without AV services can help in this regard.

- Job acces
- Number of jobs and/or other destinations accessible in "X"/ "Y"/ "Z" minutes of specified geographies (e.g., census tract, TAZ)
- Service coverage area Median travel time (generally, for persons with disabilities, by geography)
- Monthly cost of transportation as a share of census tract median monthly income

90 Automated Vehicle Hosting Best Practices Handbook



### Policy Timeframes

AV-related policies need to consider short-, medium-, and ng-term conditions.

Medium Term

Lond

Term

Short

Term

### POLICIES FOR THE SHORT TERM In the short term, AV te

### POLICIES FOR THE MEDIUM TERM

rom 30 years after AV

r years after

### POLICIES FOR THE LONG TERM

In the long term, AVs have replaced the vast majority of human-driv vehicle on the road is as uncommon as seeing an anti





### Federal Powers

- conomic goals, ing safety

Ite Powers

- - istency across the state.<sup>10</sup> In Texas, the state regulate aspects of AVs:

- Jobs (total, by geography) Employed persons (total, by geography)
  - Tax receipts (sales, property, transient occupancy, other;

Population (total, by geography)

- Permits pulled
- Early indicators of code and plan problem
- Complaints
- Code enforcement request
- Conditional use permits
- Zoning variance requests
- - Curb/lot/loading zone parking
  - utilization

  - Travel demand
- Safety
- mode

### Licenses and permit

### Land use

- Comprehensive plan amendmen
- Parking

  - Median price
  - Average parking duration

  - Average daily ridership by travel mode
  - Average daily passenger-miles traveled

- (VMT) by travel mode
- by travel mode
- Crash rate per million VMT by travel

### **02 AV APPLICATIONS**

This section defines "automated vehicles" and related terms, introduces different types of AVs and the technologies that make AVs possible, and describes potential use cases for AVs.



When envisioning the AV2 program, NCTCOG used the following terminology:

### "Automated Vehicle" or "AV

refers to both connected and autonomous vehicles. The ter is inclusive of technologies that are precursors to the introductio of AVs, such as emerging modes of micromobility and rideshare, and related to AVs, such as vehicle-to-infrastructure technology.

Automated Vehicle Hosting Best Practices Handbool

DEFINITIONS AUTOMATION

Automation is the "use of electronic or mechanical devices to operate one or more functions of a vehicle without direct human

Virtually any type of vehicle—for example personal vehicles, trucks, buses, mobility scooters, or aerial drones—has the potentia to incorporate automation functions. Howeve the adoption of automation will likely occur faster for some vehicle types and use cases due to greater potential for cost efficiencies fewer technological, legal, or liability challenges; or other reasons.

Automation can provide a driver-support role, where it assists a person in driving the vehicle, but the person must supervise the automated feature and perform other driving functions. For example, an adaptive cruise control system uses on-board sensors, suc as radar, to detect the distance to the vehicle ahead. The system then makes decisions to slow the vehicle down if needed to keep a safe following distance, or to accelerate an

Senate Bill 2205 (201

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# FINAL REPORT

## Purpose

- Summarize key findings from each project task
- Recommend next steps for municipalities and NCTCOG

## **Key Recommendations:**

- Self-assess gaps (staffing, planning, infrastructure, policy)
- Pursue funding opportunities
- Disseminate key findings
- Continue to monitor trends (technology and impacts)
- Develop financial revenue assessment toolkit
- Develop tools to evaluate pilots and prioritize new projects or investments





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## FISCAL YEAR 2022 & 2023 PROJECT TRACKING

Surface Transportation Technical Committee

October 28, 2022



## BACKGROUND

- Due to significant implementation delays on projects across the region and a need to draw down the region's carryover balances the TIP team performs a robust project tracking effort in order to highlight potential problems and prevent delays.
- At the beginning of the fiscal year, staff provided the Surface Transportation Technical Committee (STTC) and the Regional Transportation Council (RTC) with a list of projects (by phase) scheduled to advance during the coming year.
- Agencies are being asked to report project status on a more frequent basis.
- The status of projects scheduled for the year will continue to be presented at STTC and RTC on a regular basis.
- This will provide opportunities for sponsors to raise issues that may be hindering project progress and help ensure funds are being obligated in a more timely manner.

## SUMMARY OF TIP FY2022 PROJECT FUNDING - CMAQ

	OCTOBER 2021		SEPTEMBER 2022		
Total Federal Funding Programmed <sup>1</sup>	\$70,669,684		\$83,993,96		59
Federal Funding Obligated (2022) <sup>2, 3</sup>	\$O		\$83,402,443		13
FY2022 Project Phases <sup>4</sup>	44		14		
Project Phases Obligated to Date	0		14		
Project Phases Past Their Original Estimated Start Date <sup>5</sup>	4		36		
<ol> <li>Programmed funding is comprised of what is included in the TIP as well as transactions that have not formally been made in the TIP (e.g., early obligations/advancing projects or delaying projects to future years)</li> <li>Obligations based on the federal fiscal year, which runs from October to September</li> <li>Obligation amounts as of 09/30/2022</li> <li>36 project phases have been or will be delayed to future years through TIP actions or were canceled and 6 phases were advanced to 2022</li> </ol>			n ob as p ng of n Tx[ nd do gati	oligated more fu programmed at t f the fiscal year DOT project be espite 36 projec ng as expected.	nding the as a ing let cts not

## SUMMARY OF TIP FY2022 PROJECT FUNDING - STBG

	OCTC 202	DBER 21		SEPTEMB 2022	ER
Total Federal Funding Programmed <sup>1</sup>	\$178,455,967		\$155,518,8		01
Federal Funding Obligated (2022) <sup>2, 3</sup>	\$O		\$155,518,801		01
FY2022 Project Phases <sup>4</sup>	77			28	
Project Phases Obligated to Date	0			28	
Project Phases Past Their Original Estimated Start Date <sup>5</sup>	3			52	
<ol> <li>Programmed funding is comprised of what is included in the TIP as well a transactions that have not formally been made in the TIP (e.g., early obligations/advancing projects or delaying projects to future years)</li> <li>Obligations based on the federal fiscal year, which runs from October to 3. Obligation amounts as of 09/30/2022</li> <li>52 project phases have been or will be delayed to future years through T or were canceled and 3 phases were advanced to 2022</li> <li>Includes projects that were initially in FY2022 and have been delayed to</li> </ol>	s September IP actions a later year	Despite obligating a was obliga 2/STB	52 s e> ted G fı	project phases i xpected, 87% of I due to the Cate unding exchange	not STBG egory e.

### SUMMARY OF TIP FY2022 PROJECT FUNDING -**TRANSPORTATION ALTERNATIVES SET ASIDE**

	OCTOBER 2021		SEPTEMBER 2022		
Total Federal Funding Programmed <sup>1</sup>	\$17,356,430		\$8,661,010		)
Federal Funding Obligated (2022) <sup>2, 3</sup>	\$O			\$8,150,643	
FY2022 Project Phases <sup>4</sup>	18			8	
Project Phases Obligated to Date	0			8	
Project Phases Past Their Original Estimated Start Date <sup>5</sup>	0			11	
<ol> <li>Programmed funding is comprised of what is included in the TIP as well as transactions that have not formally been made in the TIP (e.g., early</li> <li>obligations/advancing projects or delaying to future years)</li> <li>Obligations based on the federal fiscal year, which runs from October to September</li> <li>Obligation amounts as of 09/30/2022</li> <li>11 project phases have been or will be delayed to future years in the TIP and one was advanced from 2023</li> </ol>			the r enou fundi vere ole ca	region was able r ugh funding to ar ng lapse, 11 pro delayed leading arryover balance	to void ject to a e.
5. Includes projects that were initially in FY2022 and have been delayed to	a later year				

## SUMMARY OF TIP FY2023 PROJECT FUNDING - CMAQ

	OCTOBER 2022
Total Federal Funding Programmed <sup>1</sup>	\$137,223,374
Federal Funding Obligated (2023) <sup>2, 3</sup>	\$O
FY 2023 Project Phases	37
Project Phases Obligated to Date	0

 Programmed funding is comprised of what is included in the TIP as well as transactions that have not formally been made in the TIP (e.g., early obligations or delaying projects to future years)
 Obligations based on the federal fiscal year, which runs from October to September
 Obligation amounts as of 10/18/2022

## SUMMARY OF TIP FY2023 PROJECT FUNDING - STBG

	OCTOBER 2022
Total Federal Funding Programmed <sup>1</sup>	\$178,908,388
Federal Funding Obligated (2023) <sup>2, 3</sup>	<b>\$</b> 0
FY 2023 Project Phases	75
Project Phases Obligated to Date	0

 Programmed funding is comprised of what is included in the TIP as well as transactions that have not formally been made in the TIP (e.g., early obligations or delaying projects to future years)
 Obligations based on the federal fiscal year, which runs from October to September
 Obligation amounts as of 10/18/2022
## SUMMARY OF TIP FY2023 PROJECT FUNDING – TRANSPORTATION ALTERNATIVES SET ASIDE

	OCTOBER 2022
Total Federal Funding Programmed <sup>1</sup>	\$19,963,595
Federal Funding Obligated (2023) <sup>2, 3</sup>	<b>\$</b> 0
FY 2023 Project Phases	20
Project Phases Obligated to Date	0

 Programmed funding is comprised of what is included in the TIP as well as transactions that have not formally been made in the TIP (e.g., early obligations or delaying projects to future years)
Obligations based on the federal fiscal year, which runs from October to September
Obligation amounts as of 10/18/2022

## **NEXT STEPS**

- Continue monitoring project progress
- Work with project sponsors and TxDOT to resolve issues that may be causing delays in project implementation
- Bring updates to the committees throughout the fiscal year

## **QUESTIONS?**

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