Model Users Group
TDM23.2.0 Release

April 2025

April 30th 2025

Technical difficulties?
Call Sabiheh Faghih at 857.702.3674 or email model.support@ctps.org

Welcome & Opening

April 30th 2025

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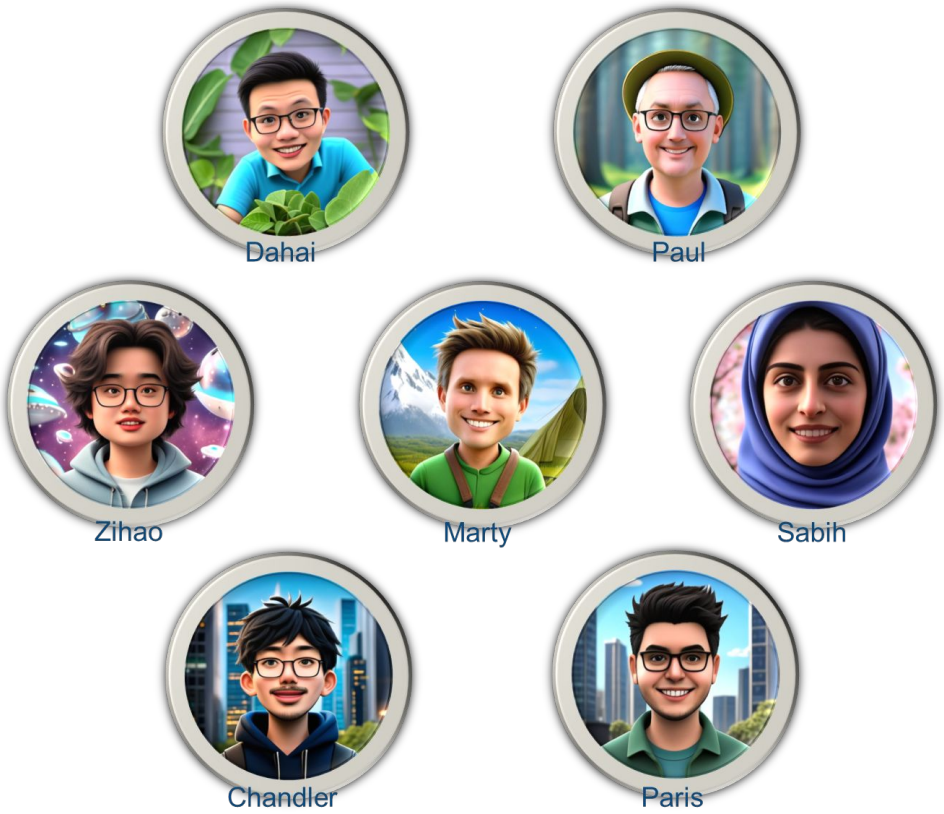
Model Development Team



Community Announcements

- Job Postings
  - Manager of Model Development - CTPS
- Conferences
  - Modeling Mobility - September 14-17 Minneapolis, MN

April 30th 2025

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Agenda

- TDM23 2.0 (will be recorded)
- User Guide (will be recorded)
- Utility Platform (will be recorded)
- Questions We Received (will be recorded)
- User Experience
- Future Meetings

April 30th 2025

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TDM23.2.0

- TDM23 Versions
- 2.0 Review
  - Socio-Economic Inputs
  - 2.0 Calibration
  - 2.0 vs. 1.0 Outputs

TDM23 Versions

- 0.1: LRTP Production (June 2023)
- 1.0: First Public Release (February 2024)
  - User Interface Improvements
  - Functionality
  - Documentation
- 2.0: Second Public Release (April 2025)
  - Utility Platform
  - Recalibration

Future Version Plan
- 6-month cycle through Fall 2026

2.0 Review

Structures & Performance Report

What's Changed

- Input Data
  - BRMPO Socio-Economic
  - Harvard Enrollment
  - Intersection Densities
  - Networks: Highway, Transit, Non-Motorized
- Model Response
  - Vehicle Availability Parameters
  - Trip Rates
  - Distribution Parameters
  - Mode Choice Parameters
- Outputs
  - Emissions Report
  - Calibrated Values
- Software
  - Python Environment

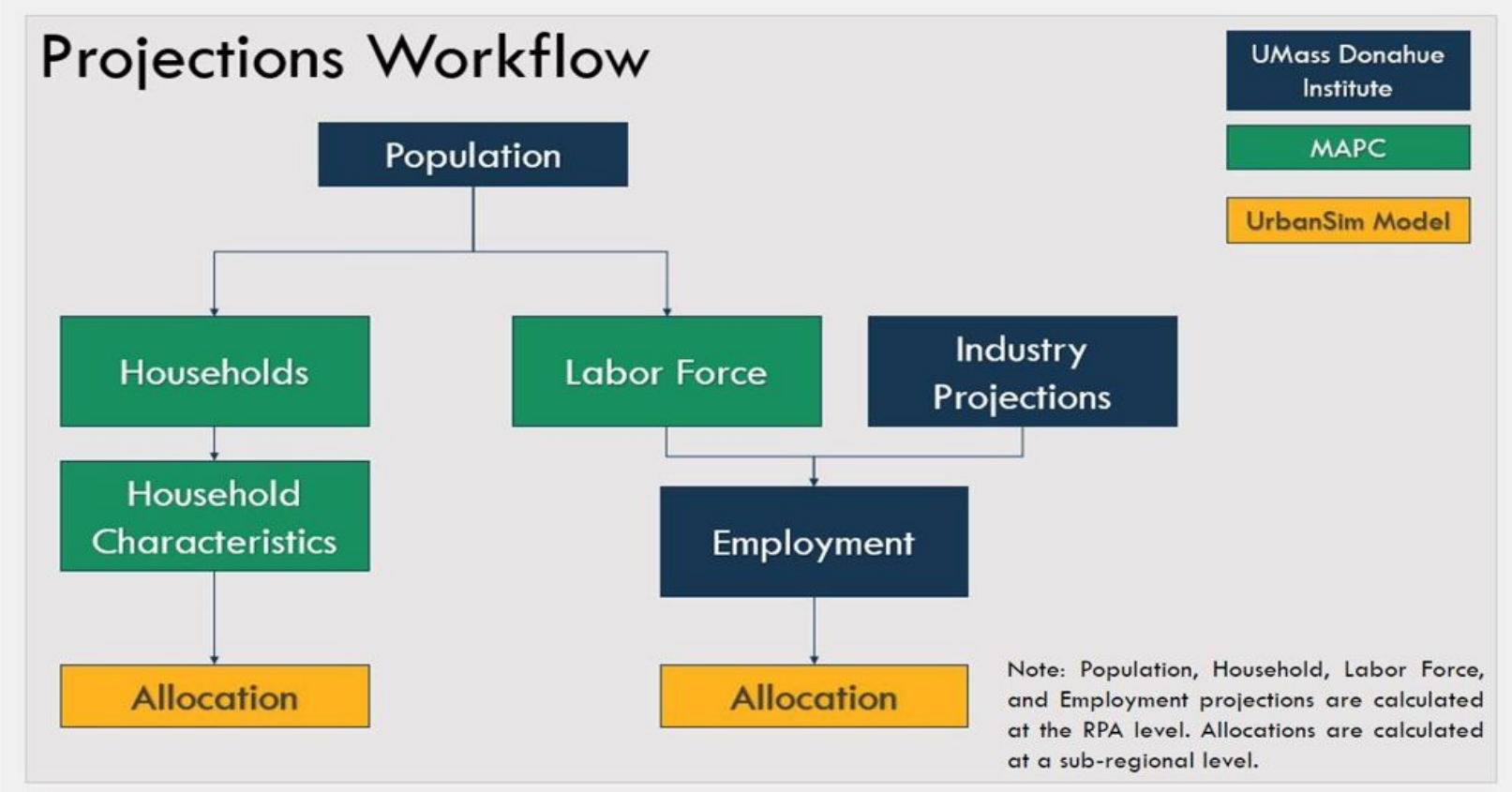
Still the Same

- Input Data Structures
- Intermediate File Location, Name, Structures
- Output File Location, Name, Structures
  - Except emissions summary

What's New?

- Utility Platform
- TMIP-EMAT Capabilities
- Transit Emissions Estimates
- Directional Volumes in Shapefile Output

Socio-economic Data



Socio-economic Data
Updates to Land Use from TDM23.1.0

- Improved calibrations of population by age and household size

- Zoning layer updates
  - Fixed overestimates of employment in several towns due to incorrect zoning constraints
  - Previous version overestimated employment in Boston, Cambridge, Somerville, Revere, Chelsea, Everett, and Quincy

- UrbanSim land use model now incorporates accessibility scores derived from TDM23 model skims (previous land use relied on skims from TDM19)
  - Travel times and accessibility to jobs influence household and employment location choice models in UrbanSim.

Calibration Updates

Driving Factor	Components Changed	Impact
Corrected Shared Ride Mode (S2, S3) Share	Trip Generation Trip Distribution Mode Choice	Increased SR mode share reduced highway volumes requiring calibration of trip generation rates to match observed volumes
Corrected Transit Access Density	Vehicle Availability Mode Choice	Higher density for employment areas
Capped Intersection Density	Vehicle Availability Mode Choice	Leveling of highest intersection densities
Improve Mode Shift Response	Trip Distribution	Vary mode utility impact on zone attractiveness by trip purpose

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TDM23 User Guide

- TDM23 User Guide

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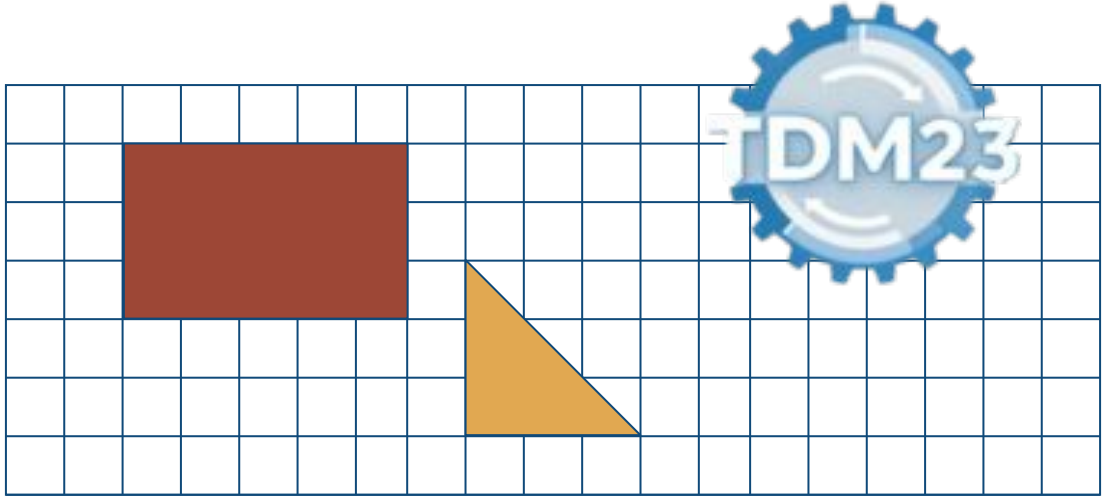
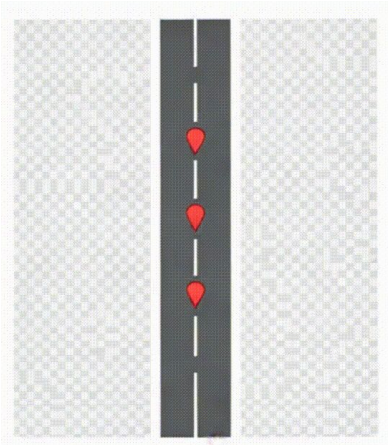
Utility Platform





Utility Platform

- Free-to-deploy service infrastructure
- Enhances modeling workflows
- Simplifies setup and automates tasks
- Assists with data and troubleshooting
- Operates independently of TDM23/TransCAD

The Need

- All-or-nothing data retrieval
- Lack of standardized input/output pipeline
- Setup and runtime complexity
- Inefficiency in maintaining the disconnected tools
- Not all users held TransCAD Licenses

Our Response

- Reusable procedures
- Standard and user-friendly interface
- All-in-one installer
- Standardized user support practices
- TransCAD independent tools

Layered Delight Cake
Indulge in our exquisite Layered Delight Cake, a masterpiece of culinary art. This visually stunning dessert features a harmonious blend of textures and flavors, carefully crafted into a cylindrical shape.

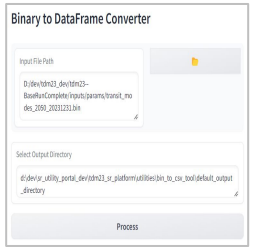
Pairing Suggestions:
Enjoy with a cup of our specialty coffee or tea for a delightful contrast.
Pair with a glass of chilled white wine for a sophisticated dining experience.

Description:
The cake is composed of five distinct layers, each showcasing a unique ingredient:
* A base layer of finely chopped green vegetables or herbs, adding a fresh and vibrant touch.
* A creamy white layer, providing a smooth contrast.
* A layer of rich, dark red ingredients, possibly meat or fruit, adding depth and complexity.
* An orange layer, made from carrots or sweet potatoes, contributing a pop of color and sweetness.
* The top layer is a vibrant green, likely an avocado or guacamole-based mixture, garnished with small, pale pink garnishes and thin green strips, adding a delicate and refreshing finish.

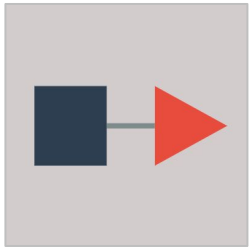
Toppings:
The cake is elegantly topped with a decorative piece of wood or bamboo, accompanied by a metal skewer or utensil, adding an artistic sense

Utilities

Launch

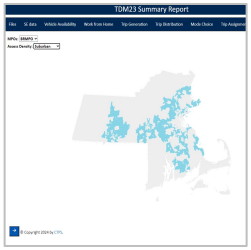


Binary to DataFrame Converter

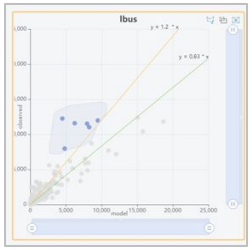


Block-To-TAZ

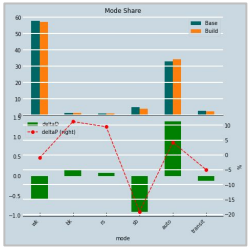
Parking Demand Estimation



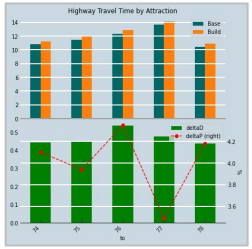
Summary Report



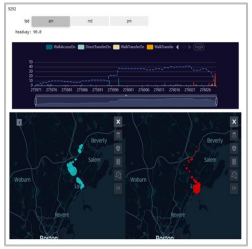
Transit Validation Report



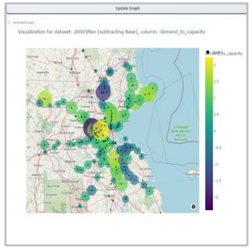
Focus Demand Comparison



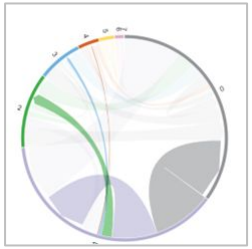
Focus Supply Comparison



Map Ridership by Route



Park and Ride Visualization



OD to chord

Platform Utilities:
Live Demo

Break

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Questions We Received

- Bus lane capability and functionality
- Subarea analysis and capability in TDM23
- Editing population and employment
- Editing the network
- Year Dollars in the model

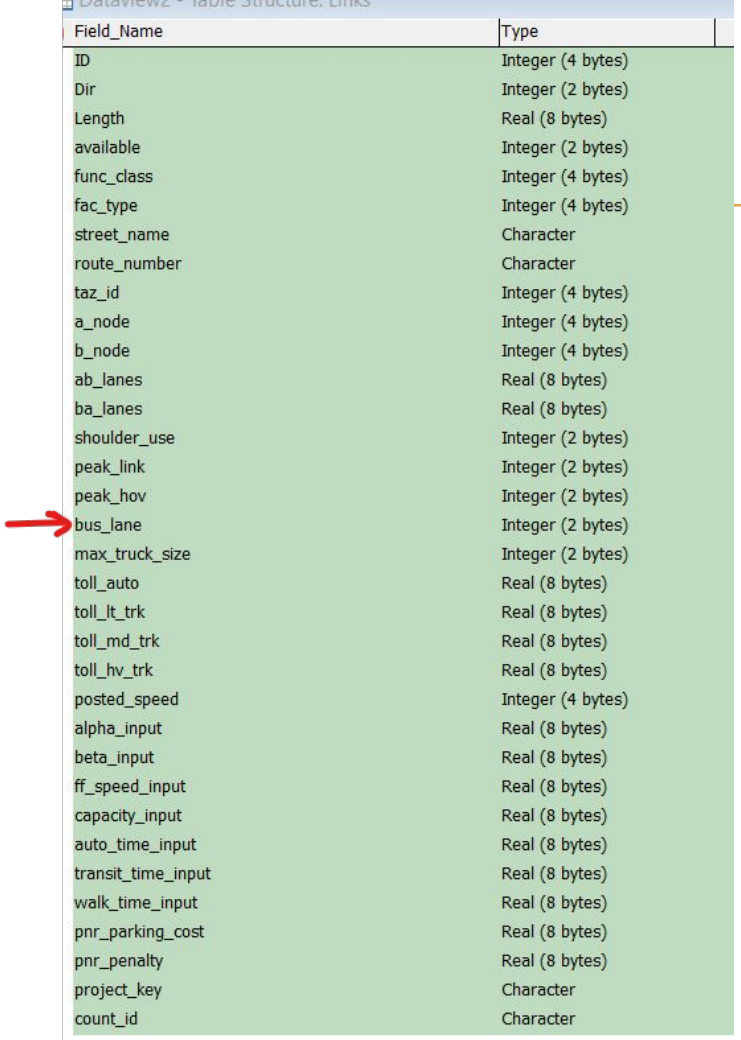
Bus Lane

TOD (Time of Day)	DIR (Direction)	Lane
1. All Day	1. Both Dir	1. General Purpose
2. AM Only	2. AB Only	2. Parking
3. PM Only	3. BA Only	
4. PK Only	4. PK1 (AM/AB & PM/BA)	
	5. PK2 (AM/BA & PM/AB)	

Data Dictionary

Examples:

1. A Bus lane which is proposed for
   - **all day**,
   - in both directions,
   - in **general purpose lane**
   - has a bus lane code of **111**
2. A Bus lane which s proposed for
   - **AM only**,
   - in BA direction,
   - in **parking lane**
   - has code of **232**



Field_Name	Type
ID	Integer (4 bytes)
Dir	Integer (2 bytes)
Length	Real (8 bytes)
available	Integer (2 bytes)
func_class	Integer (4 bytes)
fac_type	Integer (4 bytes)
street_name	Character
route_number	Character
taz_id	Integer (4 bytes)
a_node	Integer (4 bytes)
b_node	Integer (4 bytes)
ab_lanes	Real (8 bytes)
ba_lanes	Real (8 bytes)
shoulder_use	Integer (2 bytes)
peak_link	Integer (2 bytes)
peak_hov	Integer (2 bytes)
bus_lane	Integer (2 bytes)
max_truck_size	Integer (2 bytes)
toll_auto	Real (8 bytes)
toll_lt_trk	Real (8 bytes)
toll_md_trk	Real (8 bytes)
toll_hv_trk	Real (8 bytes)
posted_speed	Integer (4 bytes)
alpha_input	Real (8 bytes)
beta_input	Real (8 bytes)
ff_speed_input	Real (8 bytes)
capacity_input	Real (8 bytes)
auto_time_input	Real (8 bytes)
transit_time_input	Real (8 bytes)
walk_time_input	Real (8 bytes)
pnr_parking_cost	Real (8 bytes)
pnr_penalty	Real (8 bytes)
project_key	Character
count_id	Character

Bus Lane

Sub-area capability in tdm23

Editing population and employment

- How do you go from households in UrbanSim to population?
- If we want to make edits to population and employment for the future year, can we just edit household file and have the model run the population and employment simulation, if they run within the model?
- Or, if you run it before the model as an input, then do we have to replicate that process?

Editing the network

- How do you modify the network? In other words, is there anything we need to know or pay attention to in order to add new links / nodes / other network elements?

Data dictionary (Roadway Network tab)

Year Dollars in the model

Are all cost-related elements in the model in 2010 dollars (e.g., parking rates)?

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Application Examples

- Julie Murphy, VHB
  - Newton Corner
  - Tobin Bridge
- Sudhir Murthy, TraflInfo
  - Morrissey Boulevard
  - South Boston
- Sabiheh Faghih, CTPS
  - Allston Multimodal Project

Application Examples 1,2

1. Newton Corner
2. Tobin Bridge

Application Examples 3,4

3. Morrissey Blvd project,
4. BPDA project in South Boston

Application Example 5

Allston Multimodal Project

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Future Meetings

July 23 Workshop Preview

- Team Roadmap
  - Roadmap with schedule
  - Upcoming releases
  - New tools
  - TDM27
- FTA STOPS
  - Preview
- ActivitySim
  - updates
- TDM27
  - TAZ redrawing
  - Model structure & base year
- Post-Pandemic Updates (2022 base)
  - White paper
  - Scenario development
- Sensitivity, uncertainties, and EMAT

Thank You