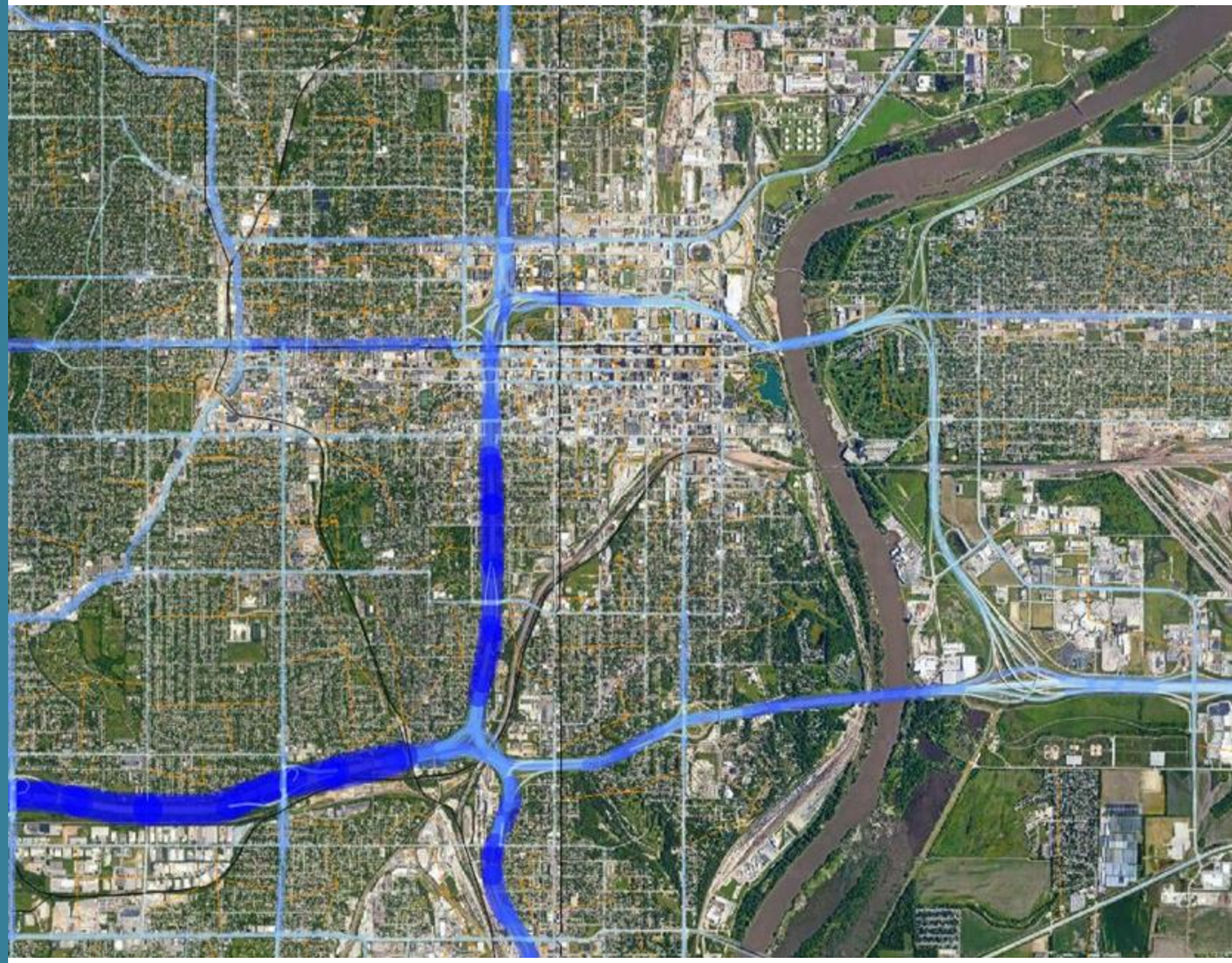
Streamlined Travel Model Structure (STMS)

for Small- and Medium-Sized Metropolitan Areas



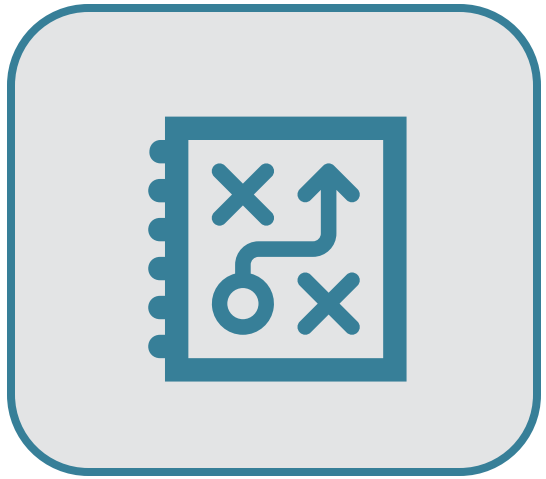
Benefits of Keeping a TDM Simple

- ✓ More user-friendly
- ✓ Less errors
- ✓ More efficient
- ✓ Faster model updates
- ✓ More scalable
- ✓ Less dependency on the developer
- ✓ Less expensive

Who is This For?

Small & Medium-Sized Communities

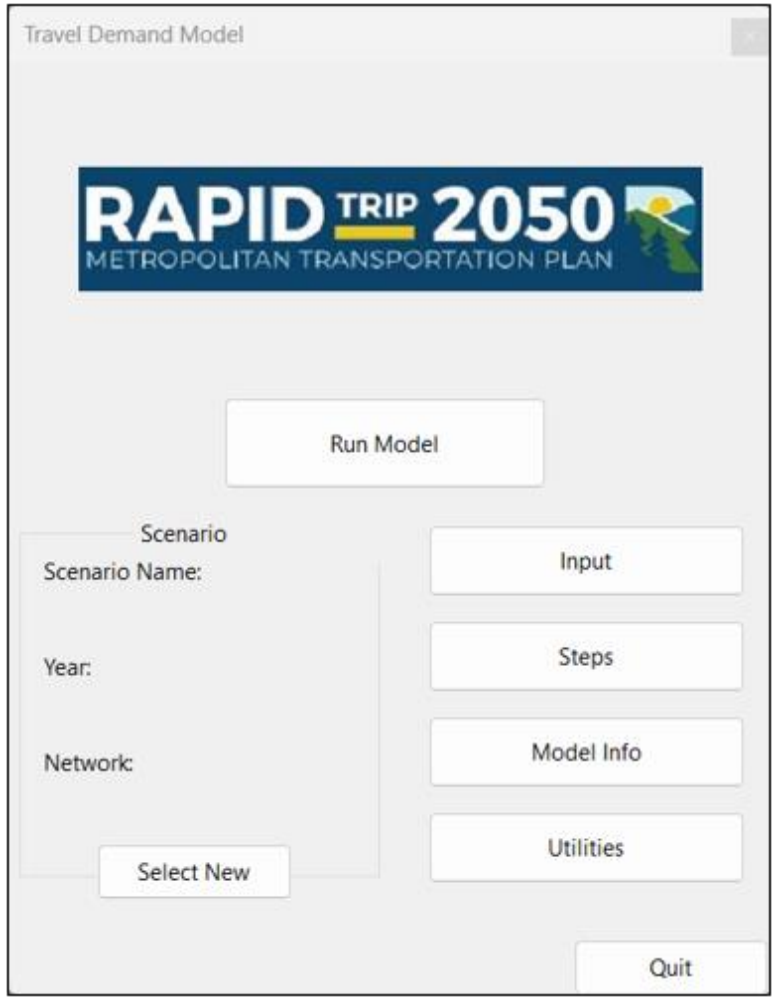
MPOs & Non-Metro Cities



Communities Needing Basic Planning Analyses

STMS KISS Items

- ✓ Relative filepaths
- ✓ Customizable inputs (trip purposes, time periods, years, etc.)
- ✓ Streamlined scenarios
- ✓ Project master list
- ✓ Streamlined TAZ splitting
- ✓ Straightforward data attributes
- ✓ Quick maps & output summary
- ✓ Versioning info table



Model Details

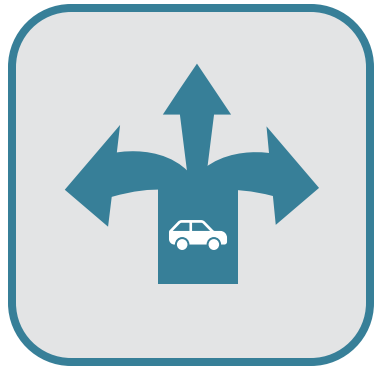
Trip-Based Model

Socioeconomic Data: Households, Employment, School Enrollment

Cross-Classification

Gravity Model

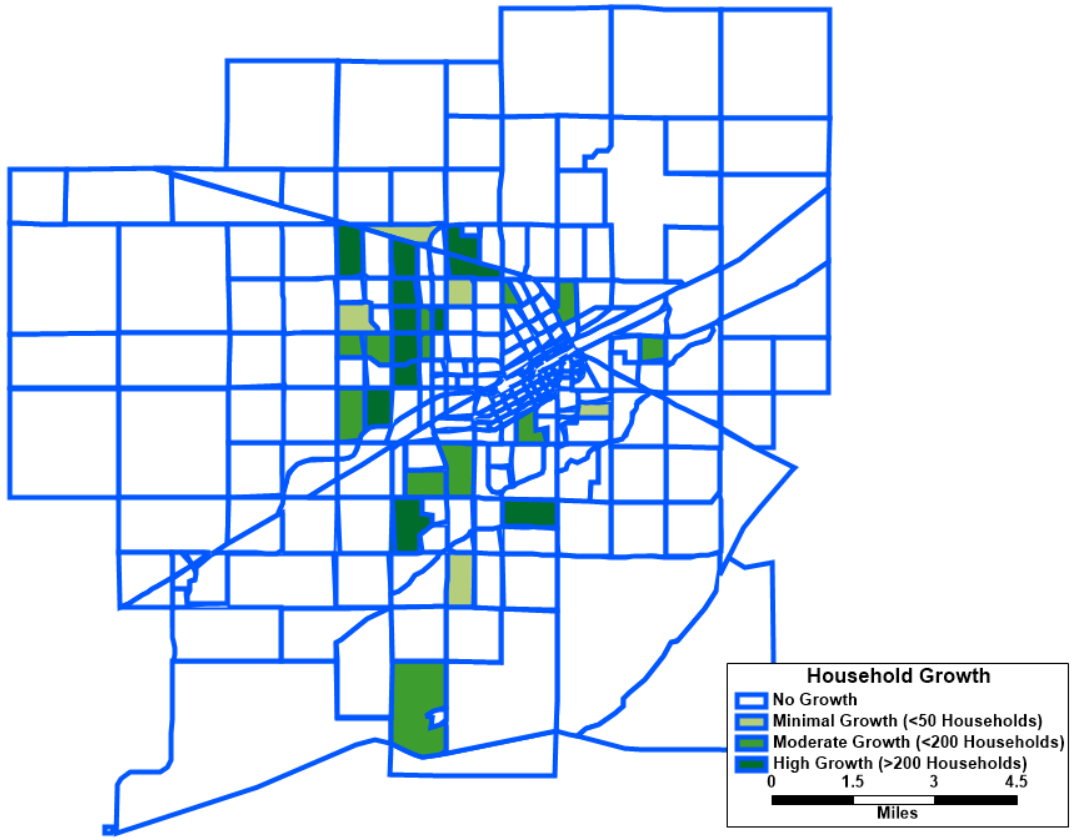
(No Mode Choice... yet!)



User Equilibrium Assignment / BPR

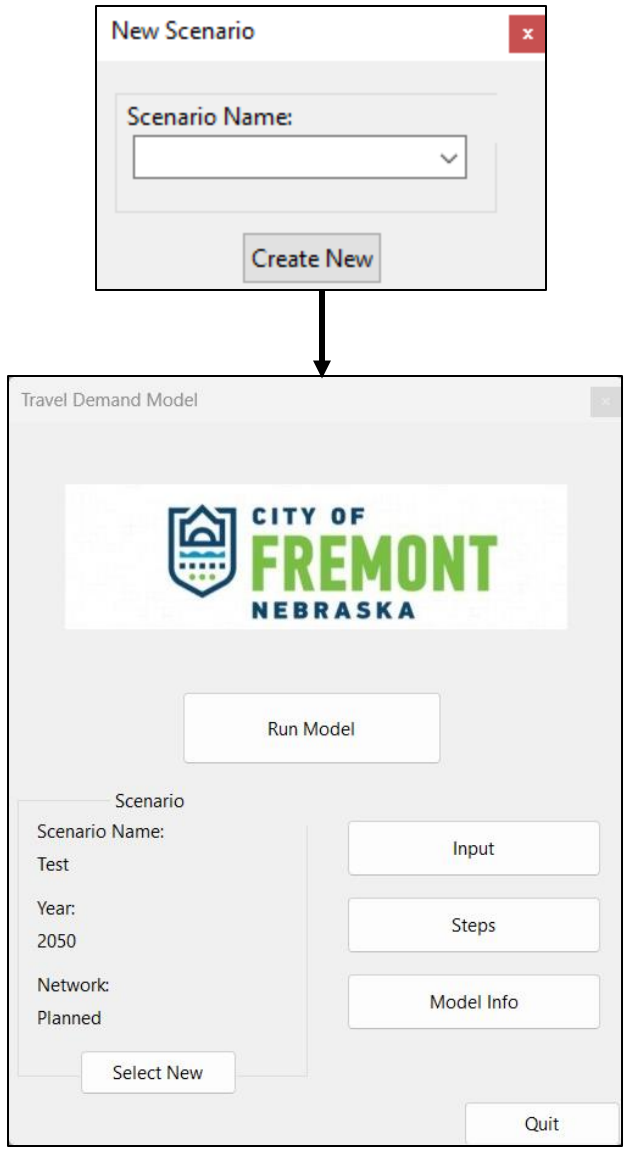
Input Files

- Files are Organized into Two Basic Types of Folders
- Customizable Inputs
- Streamlined Data fields
- Simpler Model Updates



Testing Different Scenarios

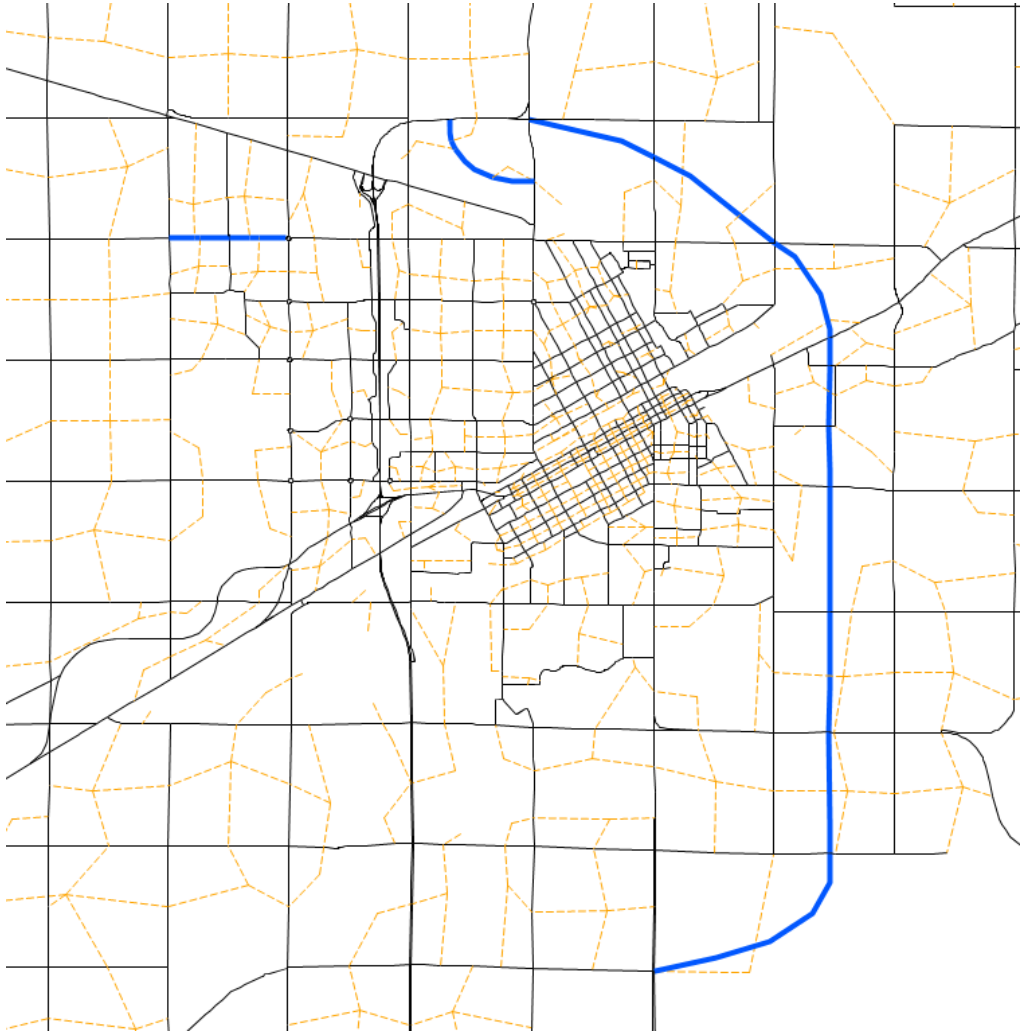
- ✓ One-click scenario input changes
- ✓ Editable outside script
- ✓ No impact on defaults
- ✓ Inputs and outputs stored together
- ✓ Quick, foolproof testing



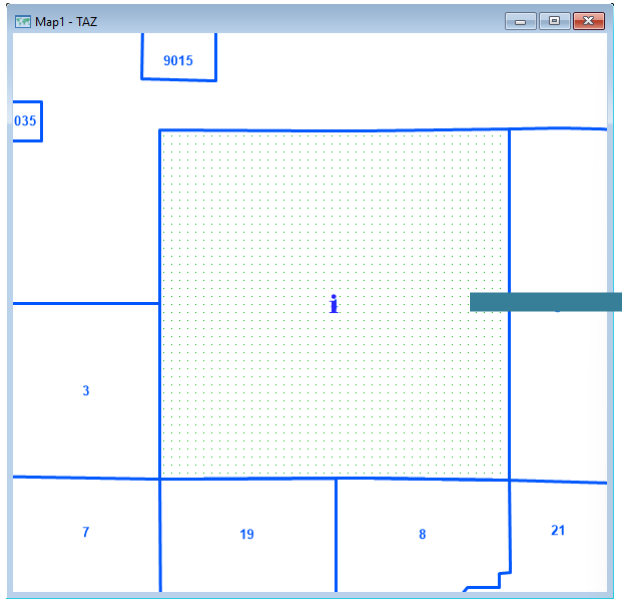
Project Table

Dataview1 - Projects

ProjNum	Description	Committed	Planned	Illustrative
1	Southeast Bypass	2023	--	--
2	New Road Alignment	--	--	2045
3	Road Capacity Expansion	--	2035	--



Simple Network & TAZ Structure

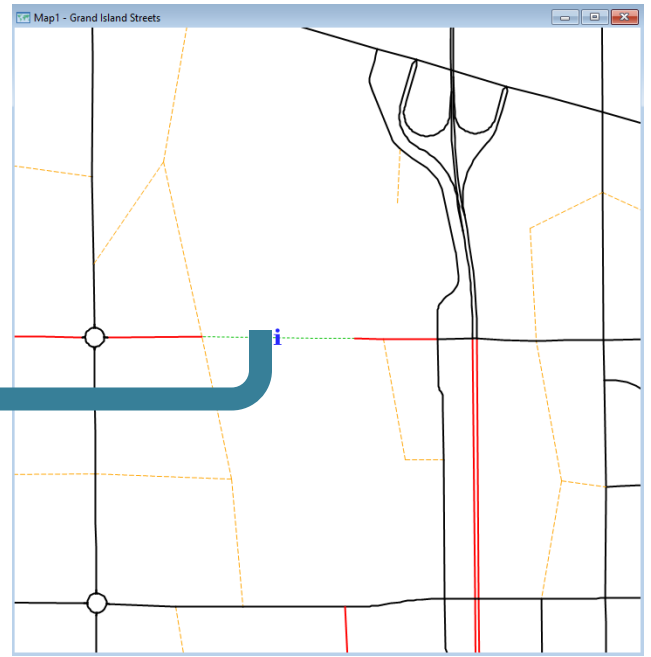


Dataview1 - TAZ Info

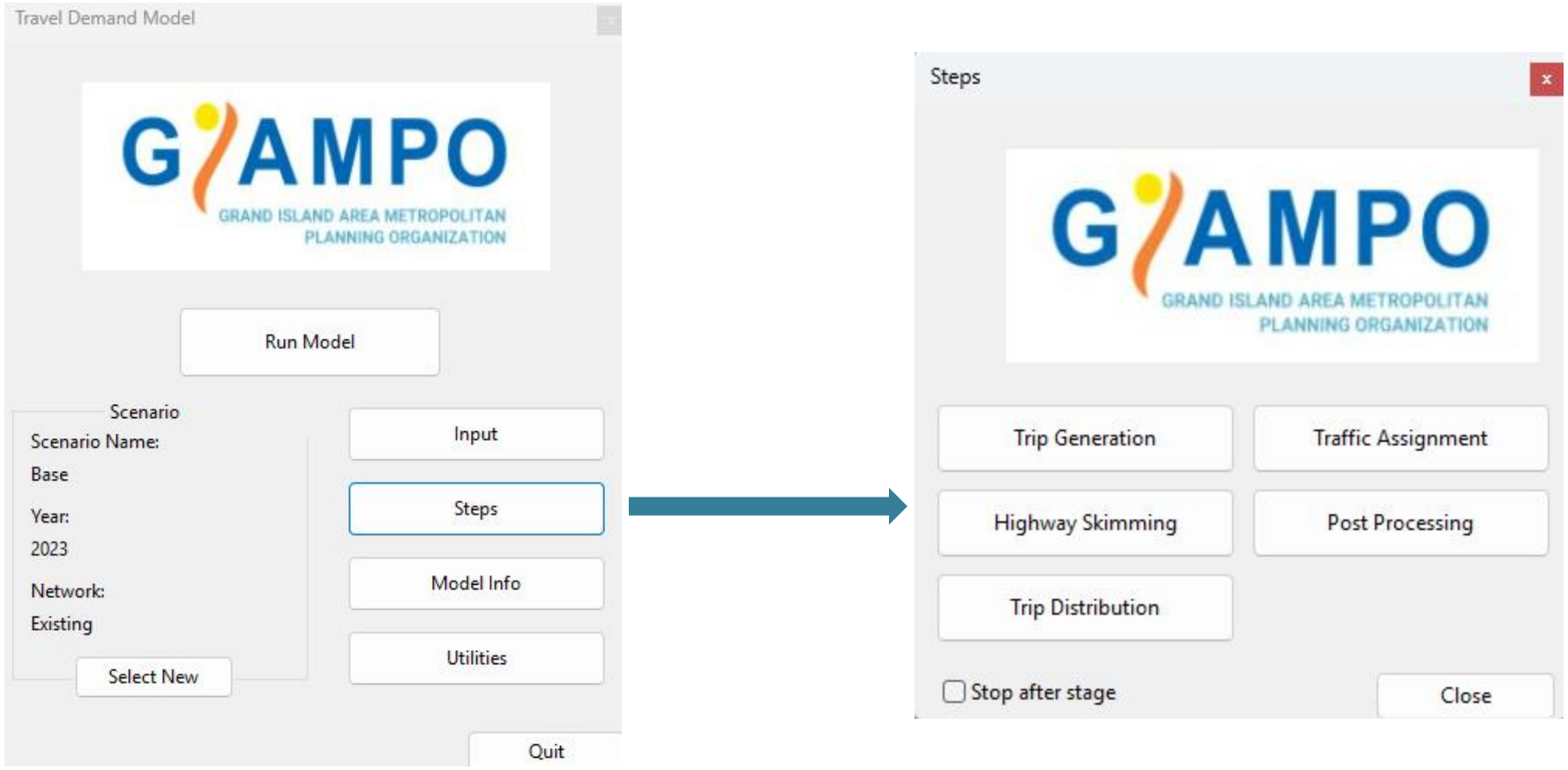
ID	274
Area	2.01
HH_base	28
RET_base	11
BAS_base	15
SER_base	10
GOV_base	0
SCH_base	0
AT_base	4
EXTERNAL	0
[———]	
HH_fcst	28
RET_fcst	11
BAS_fcst	15
SER_fcst	10
GOV_fcst	0
SCH_fcst	0
AT_fcst	4
[———]	
TAZ	19
District	4
AIRSAGE_ID	–
BLKGRP	310790001002
CTPP	3107900000358
HH_Growth	–
EMP_Growth	–

Dataview1 - Streets Info

Field	Value
ID	4656
Dir	0
Length	0.30
Speed	40
Spd_Adj	–
AB_Lane	1
BA_Lane	1
LT_Lane	1
RT_Lane	–
FacType	4
func_cls	–
Year	2023
RRDelay	–
[———]	
ProjNum1	1003
Dir1	–
Speed1	–
Spd_Adj1	–
AB_Lane1	–
BA_Lane1	–
LT_Lane1	1
RT_Lane1	–
FacType1	–
Year1	–
RRDelay1	–
[———]	
ProjNum2	–
Dir2	–
Speed2	–
Spd_Adj2	–
AB_Lane2	–
BA_Lane2	–
LT_Lane2	–
RT_Lane2	–
FacType2	–
Year2	–
RRDelay2	–
[———]	
Street	CAPITAL AVE W
Count_2023	6474

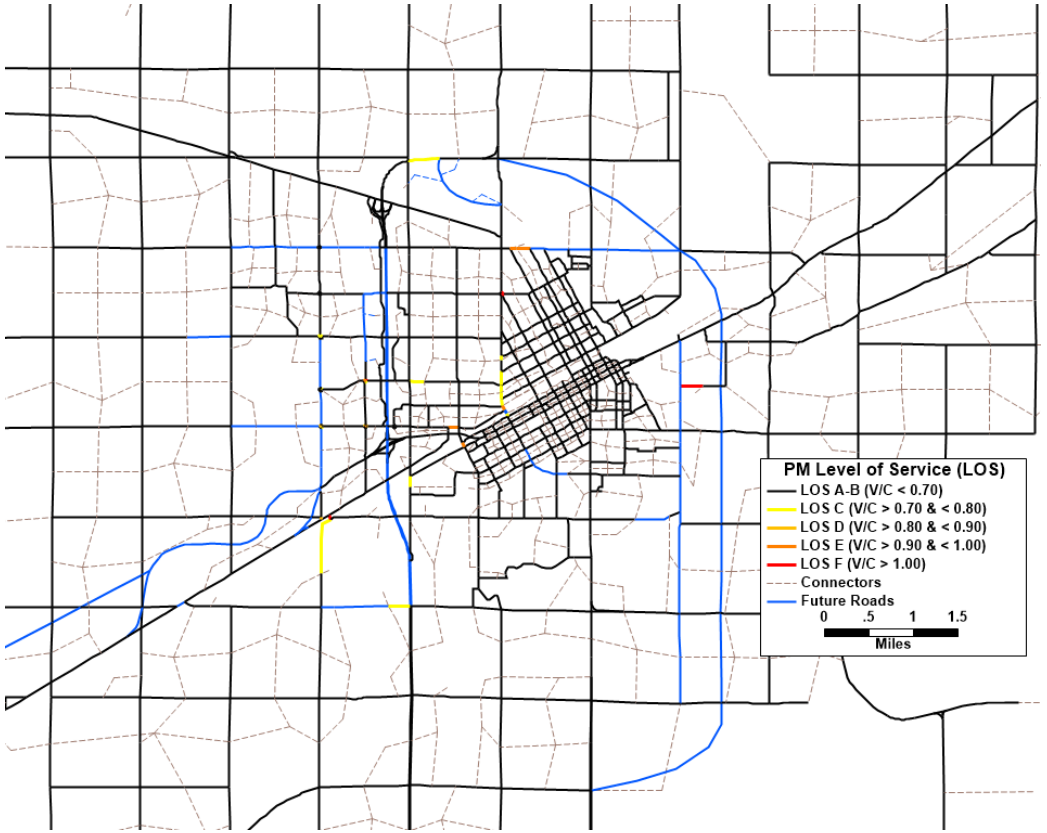


Model Run Steps

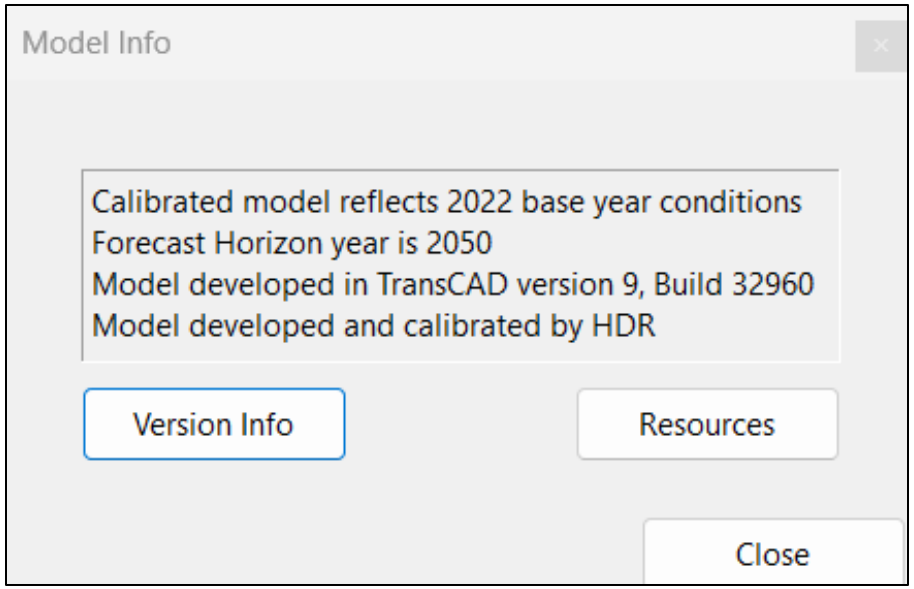


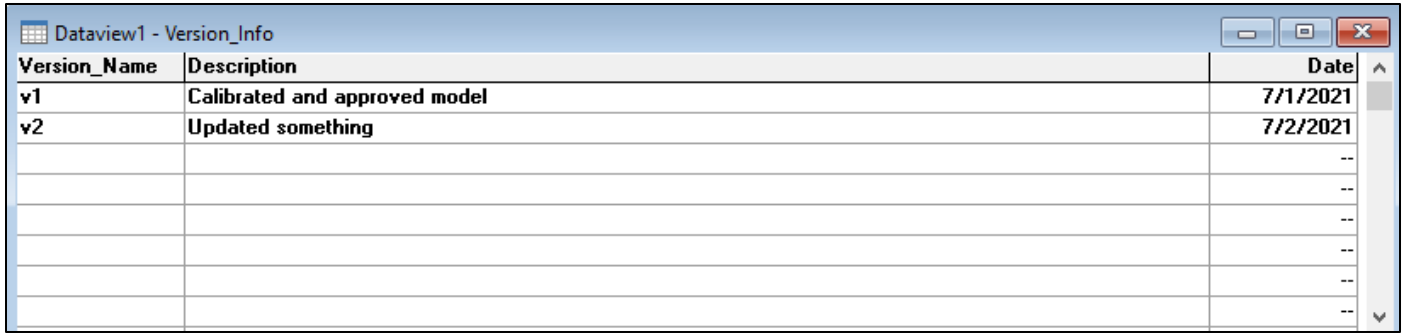
Output Files

- All Outputs in One Folder
- Simplifies Calibration
- One-Click Maps



Model Version History





Version_Name	Description	Date
v1	Calibrated and approved model	7/1/2021
v2	Updated something	7/2/2021
		--
		--
		--
		--
		--
		--

Conclusion

- ✓ Many models: complex, costly, hard to use
- ✓ STMS:
  - User-friendly interface
  - Quick to customize & transfer
  - Cuts time & cost
- ✓ For MPOs: more accessible to non-experts
- ✓ Developed & Evolving: deployed across multiple smaller regions

Questions?