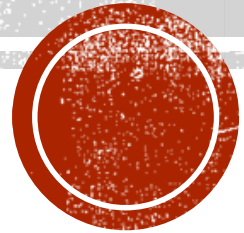
WELCOME TO THE TRM USER FORUM

NOVEMBER 1, 2023

AGENDA:

- WELCOME
- TRMSB UPDATES
- TRMG2 TIPS, TRICKS & TRAPS
- RUNNING THE MODEL AROUND THE BLOCK
- TRMG2 & GITHUB
- NEW TRMG2 REPORTING TOOLS
- MIX & MINGLE



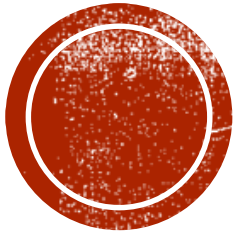
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CAMPO NC Capital Area Metropolitan Planning Organization

DCHC Metropolitan Planning Organization Planning Tomorrow Today

GO Triangle

ITRE



TRM UPDATES

TRMG2V1.3 OFFICIAL RELEASE

- Now available on GitHub
- The official model for the Region
- Online development documentation
- Wiki user guide

CURRENT ACTIVITIES

TRMG2v2

- Model boundary expanded
- TAZ and network modifications
- New data development
- Initial application looks favorable
- Next steps

Model Maintenance & Application

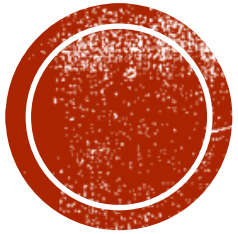
- Review of premium transit
- Improvements to transit coding

Updating Travel Trends

Ongoing Development of User Tools

TEAM MEMBER UPDATES

Congratulations to Nita Bhave on her new adventure



TRMG2 TIPS, TRICKS & TRAPS

Nita Bhave and Si Shi, ITRE

TRAPS

How do I get the official model and which TransCAD do I use?

- Model files are available on TRM's GitHub site. Use the correct TransCAD version and build number (listed in GitHub Releases).

Where should I run the model from?

- Run the model directly from your computer's local hard drive. Do not run from the Desktop or a shared drive.

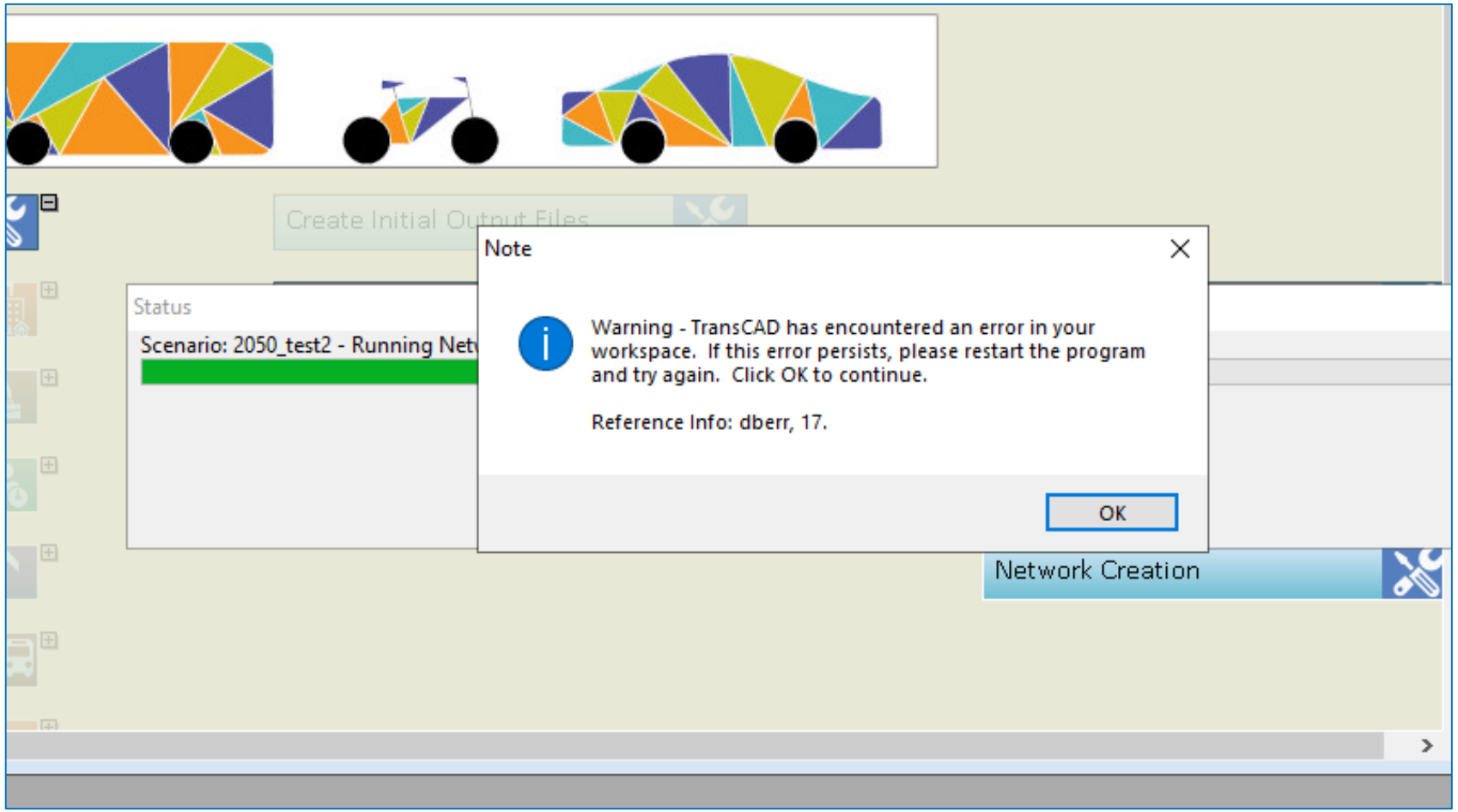
Oh my, the model output takes up substantial disk space!?

- Ensure there is enough disk space (100+ GB) before running the model. Use the Matrix Delete Tool to delete 50GB of model output files that generally aren't used.

I got an error message. After fixing, can I restart from that step?

- After an error pops up (including workspace errors) first fix the errors. Utilize the TRMG2 documentation and wiki plus TransCAD help as resources.
- Upon fixing errors (1) delete the entire scenario Input and Output folders (2) restart from Create Scenario as the error may impact files generated prior to the error, thus the need to restart from the beginning.

TRAPS



An example of a model error ---- when in doubt, delete both Input and Output folders and files from the scenario folder, and then restart from *Create Scenario*.

Visit the Resources page within the GitHub Wiki for more tips & tricks!

TIPS & TRICKS

Population & Network Data

- Interesting and potentially helpful information on POPULATION is located in the Population synthesis files output\resident\population_synthesis and scenario se data bin file output\sedata\scenario_se.bin

Model Output Summaries

- Get familiar with the numerous helpful summary outputs located in scenario\output_summaries.

Model Tools

- Get familiar with the numerous helpful tools to utilize on a scenario after the model has completely run. Go to the TRMG2 menu / Tools.

Users Guide / Wiki

- Get familiar with the wiki which contains LOTS of helpful information.

RUNNING THE MODEL AROUND THE BLOCK

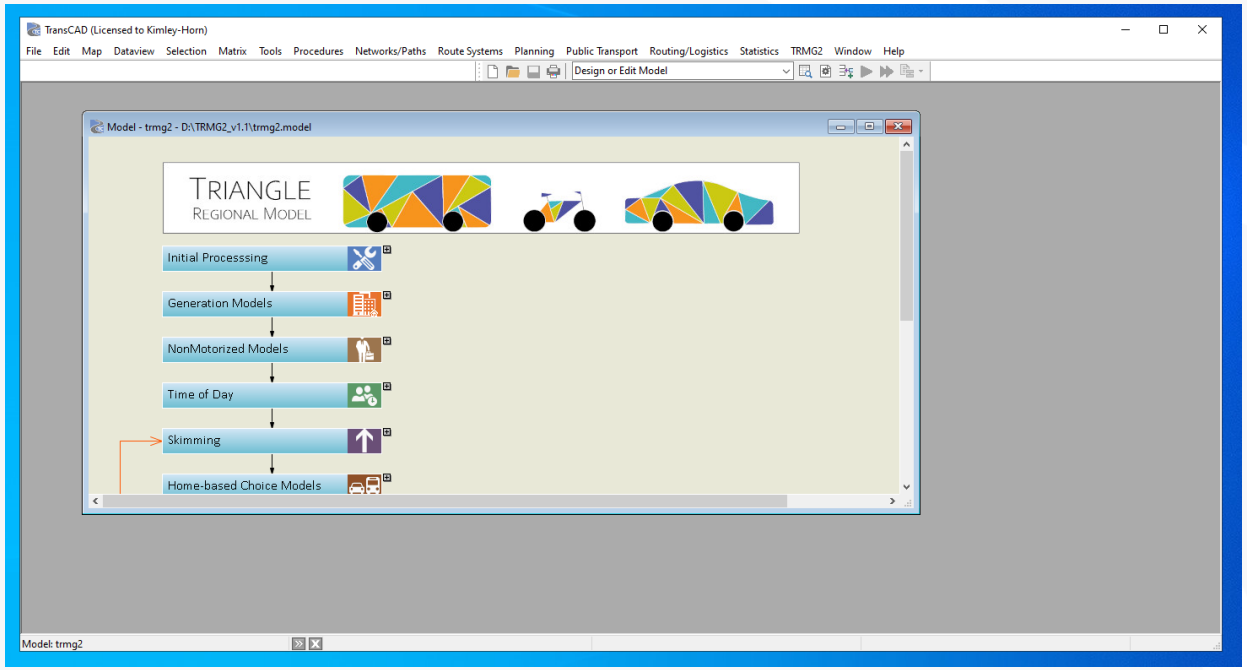
Tim Padgett, Kimley Horn

TRM Users Forum

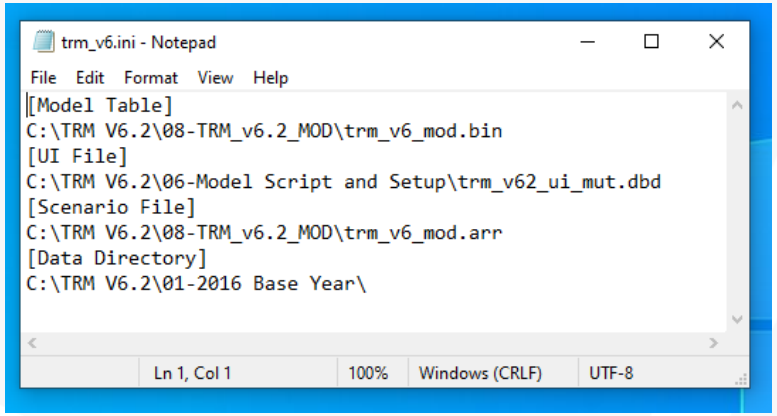
Running the Model Around the Block

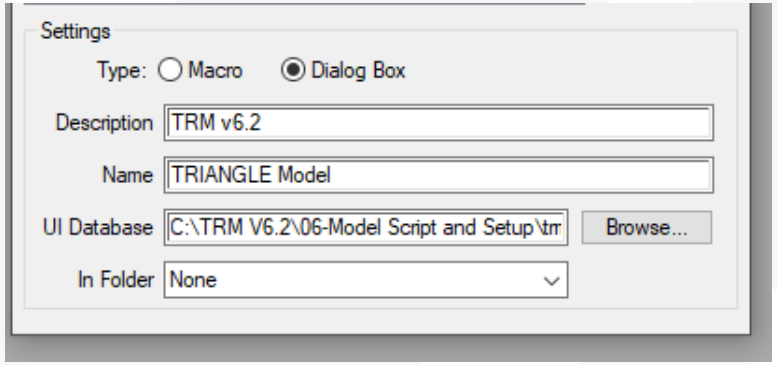
Kimley»Horn

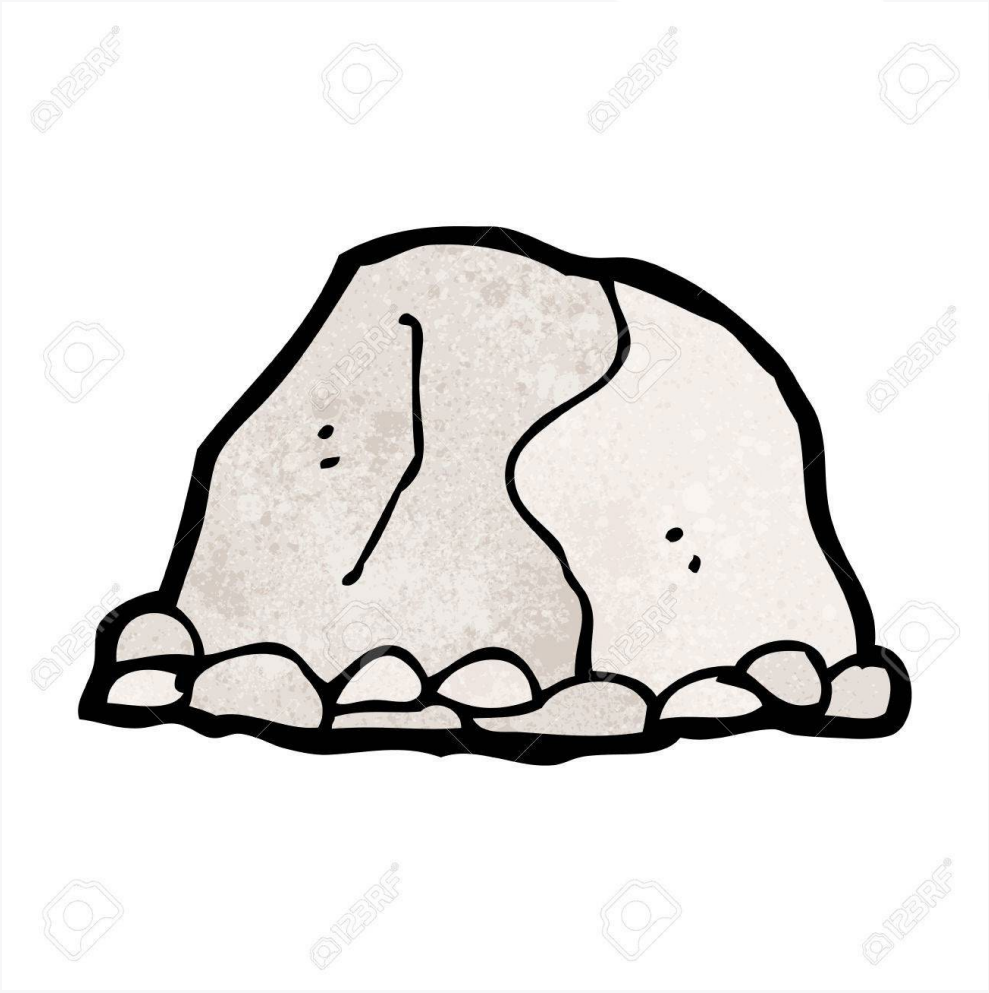
The Model

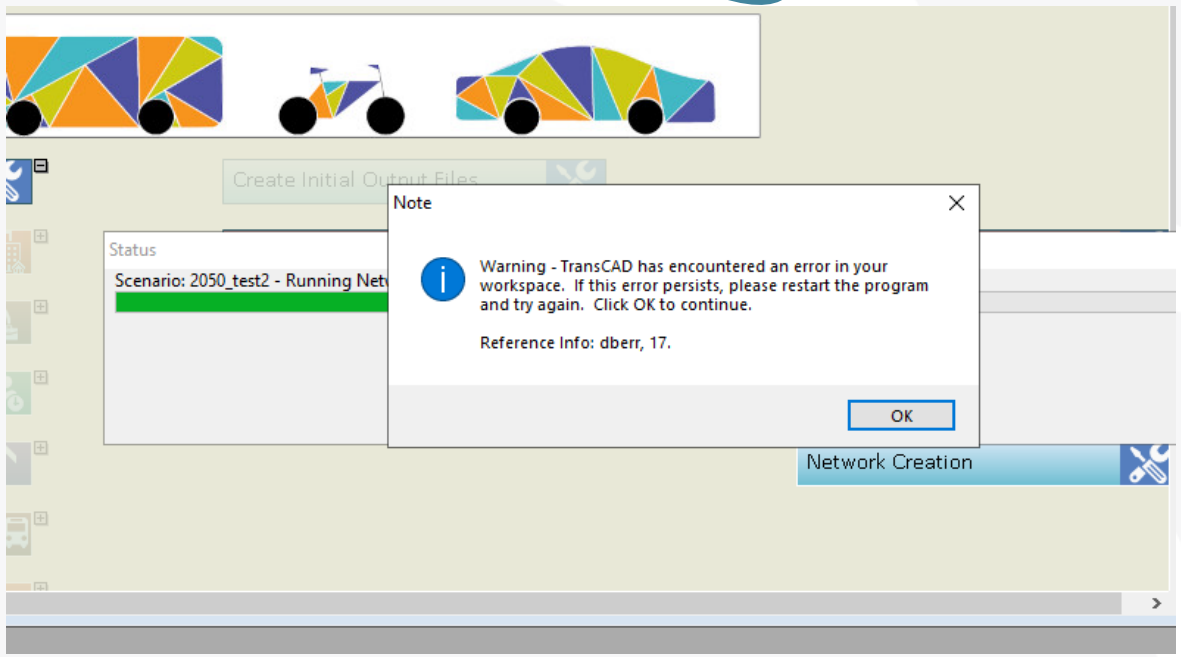

TransCAD (Licensed to Kimley-Horn)
File Edit Map Dataview Selection Matrix Tools Procedures Networks/Paths Route Systems Planning Public Transport Routing/Logistics Statistics TRMG2 Window Help
Design or Edit Model
Model - trmg2 - D:\TRMG2_v1.1\trmg2.model
TRIANGLE
REGIONAL MODEL
Initial Processsing
Generation Models
NonMotorized Models
Time of Day
Skimming
Home-based Choice Models
Model: trmg2

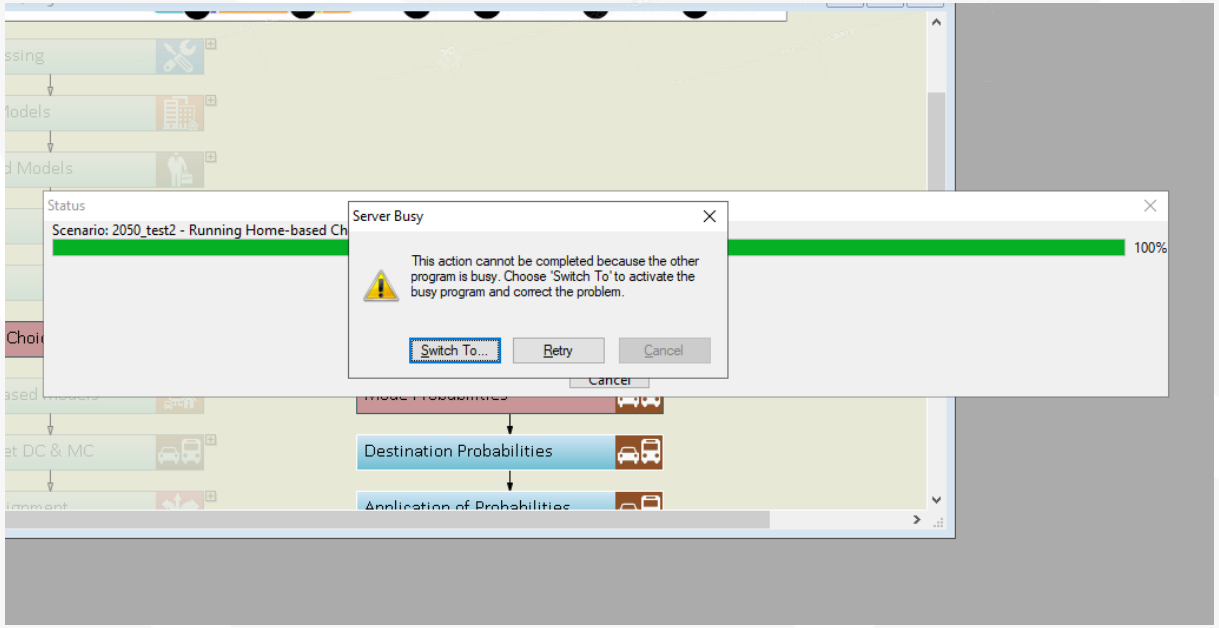
Vs.


trm_v6.ini - Notepad
File Edit Format View Help
[Model Table]
C:\TRM V6.2\08-TRM_v6.2_MOD\trm_v6_mod.bin
[UI File]
C:\TRM V6.2\06-Model Script and Setup\trm_v62_ui_mut.dbd
[Scenario File]
C:\TRM V6.2\08-TRM_v6.2_MOD\trm_v6_mod.arr
[Data Directory]
C:\TRM V6.2\01-2016 Base Year\
Ln 1, Col 1
100%
Windows (CRLF)
UTF-8

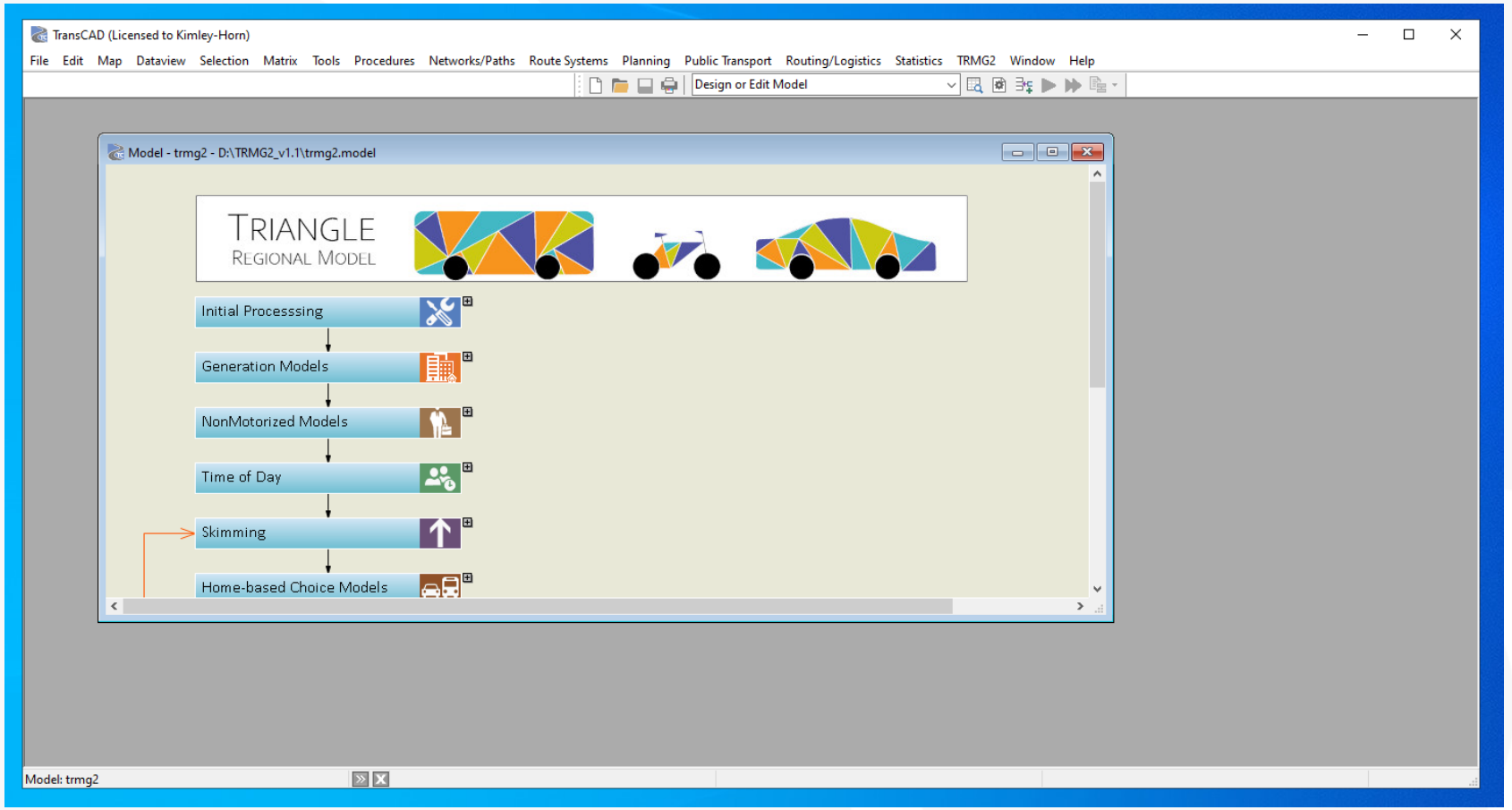

Settings
Type: Macro Dialog Box
Description TRM v6.2
Name TRIANGLE Model
UI Database C:\TRM V6.2\06-Model Script and Setup\trm
Browse...
In Folder None



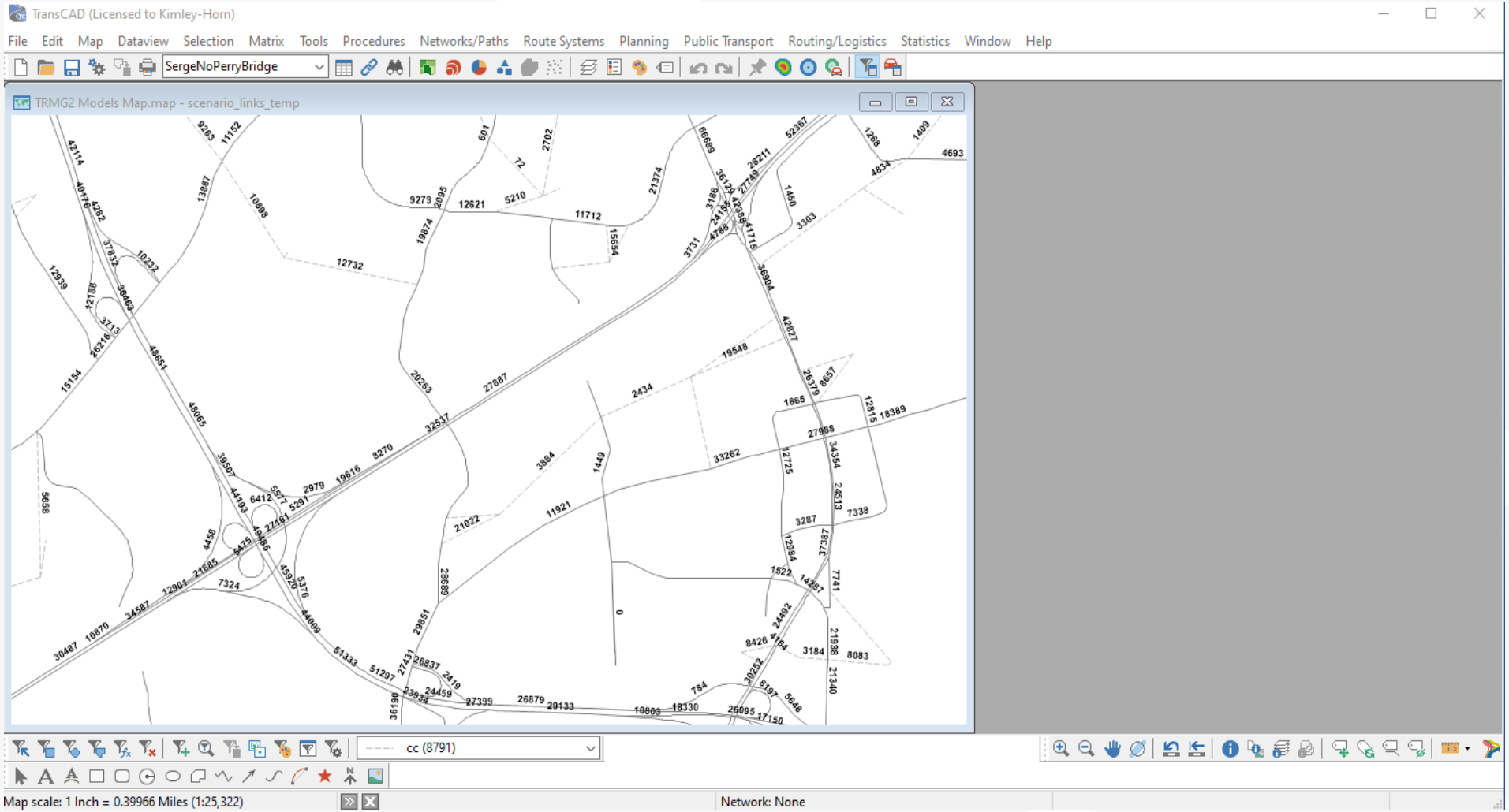

Create Initial Output Files
Status
Scenario: 2050_test2 - Running Net
Note
Warning - TransCAD has encountered an error in your workspace. If this error persists, please restart the program and try again. Click OK to continue.
Reference Info: dberr, 17.
OK
Network Creation


Status
Scenario: 2050_test2 - Running Home-based Ch
100%
Server Busy
This action cannot be completed because the other program is busy. Choose 'Switch To' to activate the busy program and correct the problem.
Switch To...
Retry
Cancel
Destination Probabilities

The Model (v1.3)



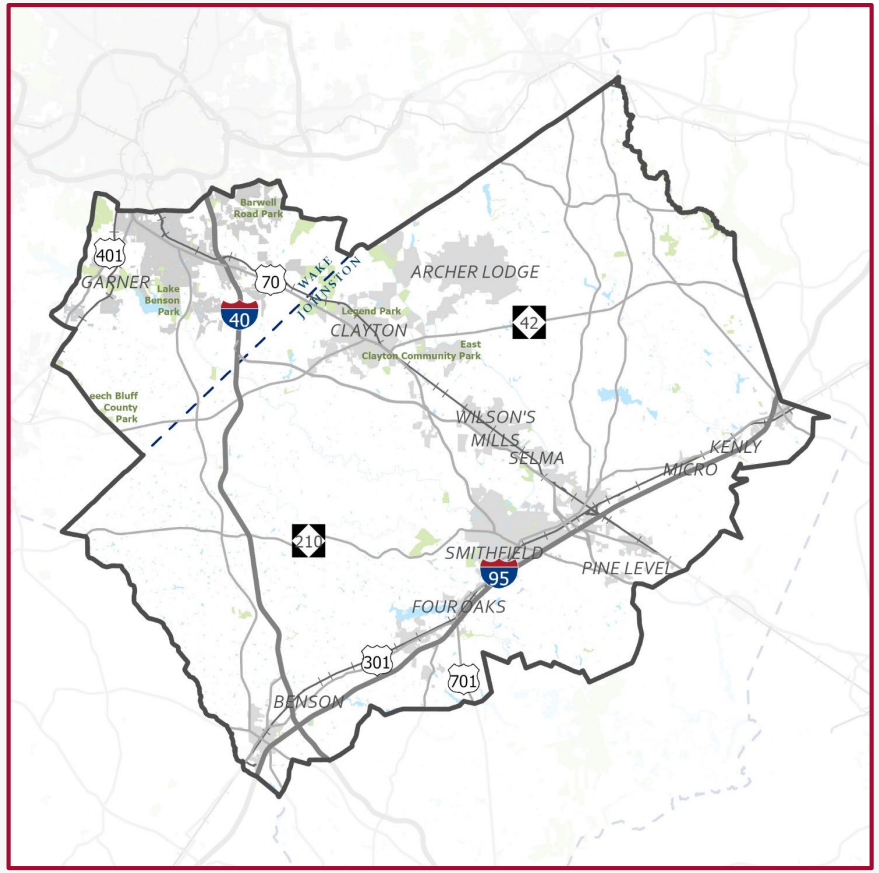
Model Bread and Butter



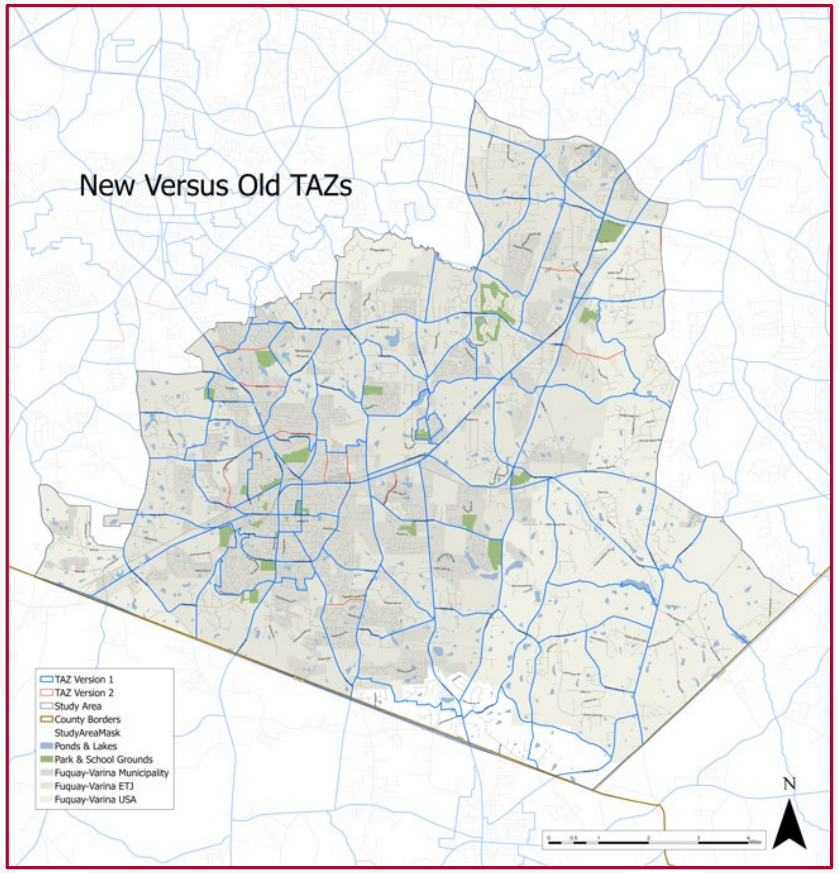
- Forecasts
- What If’s
- Data

Studies

SEAS



Fuquay-Varina



VMT Analysis

pa_per_trips_N_HB_OD_Long_PM.mtx	8/16/2022 9:02 AM	TransCAD Matrix	324,971 KB
pa_per_trips_N_HB_OD_Short_AM.mtx	8/16/2022 9:06 AM	TransCAD Matrix	325,053 KB
pa_per_trips_N_HB_OD_Short_MD.mtx	8/16/2022 9:08 AM	TransCAD Matrix	313,683 KB
pa_per_trips_N_HB_OD_Short_NT.mtx	8/16/2022 9:12 AM	TransCAD Matrix	313,815 KB
pa_per_trips_N_HB_OD_Short_PM.mtx	8/16/2022 9:10 AM	TransCAD Matrix	325,330 KB
pa_per_trips_N_HB_OME_All_AM.mtx	8/16/2022 9:14 AM	TransCAD Matrix	333,093 KB
pa_per_trips_N_HB_OME_All_MD.mtx	8/16/2022 9:16 AM	TransCAD Matrix	326,703 KB
pa_per_trips_N_HB_OME_All_NT.mtx	8/16/2022 9:19 AM	TransCAD Matrix	325,206 KB
pa_per_trips_N_HB_OME_All_PM.mtx	8/16/2022 9:17 AM	TransCAD Matrix	332,742 KB
pa_per_trips_N_HB_OMED_All_AM.mtx	8/16/2022 9:21 AM	TransCAD Matrix	327,397 KB
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pa_per_trips_W_HB_EK12_All_AM.mtx	8/16/2022 9:28 AM	TransCAD Matrix	164,106 KB
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pa_per_trips_W_HB_O_All_AM.mtx	8/16/2022 9:34 AM	TransCAD Matrix	318,222 KB
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pa_per_trips_W_HB_O_All_NT.mtx	8/16/2022 9:40 AM	TransCAD Matrix	309,388 KB
pa_per_trips_W_HB_O_All_PM.mtx	8/16/2022 9:38 AM	TransCAD Matrix	318,413 KB
pa_per_trips_W_HB_W_All_AM.mtx	8/16/2022 9:43 AM	TransCAD Matrix	415,597 KB
pa_per_trips_W_HB_W_All_MD.mtx	8/16/2022 9:47 AM	TransCAD Matrix	390,509 KB
pa_per_trips_W_HB_W_All_NT.mtx	8/16/2022 9:53 AM	TransCAD Matrix	386,754 KB
pa_per_trips_W_HB_W_All_PM.mtx	8/16/2022 9:50 AM	TransCAD Matrix	420,184 KB

```
File  Edit  Format  View  Help
Dbox "TRMG Matrix Tools" right NoKeyboard Toolbox

    Button "Sum matrix" 2, 1.5, 30, 1.5 do
            RunDbox("Sum_Matrix")
        EndItem

    text "" same, after, 1, 2
        button "Clear" same,after,15,1.5  do
                runmacro("G30 File Close All")
            on error do goto __done end
            on notfound do goto __done end
            while (True) do DestroyProgressBar() end
            __done:
        enditem

    Button "Done"  after, same, 15,1.5 cancel do
        Return()
    endItem
    Close do
            Return()
        endItem
endDbox

Dbox "Sum_Matrix" Title:"Sum matrix"
        init do
            shared out_folder
        endItem

    Frame 1,0.5,97,3 Prompt:"Scenario Folder:"
    Text" " 23,2,52,1 prompt:"Scenario Folder:" Variable:RunMacro("TCU trim filename", out_folder, 50) Framed
    Button "..." 77,same, 4, 1 Help:out_folder do out_folder = RunMacro("zg_get_folder_path", out_folder, "C:

        button "Run" 10, 22, 20 do
        HideDbox()
            RunMacro("G30 File Close All")
            ret_val = RunMacro("Sum_MTX_Scneario", out_folder + "\\")
```

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
							SE DATA														VMT SHARE by EMPLOYMENT TYPE					
TAZ	VMT_Work_Prod	VMT_Work_Attr		VMT_Res_Prod	VMT_Res_Attr		HH	POP	IND	OFF	Serv_low	Serv_High	Retail	TotEmp		VMT/Capi	VMT/EMP		HBW		IND Share	OFF Share	SERVLo Sh	SERVHi Sh	RET Share	IND VMT
1	8036.437988	1887.502686		15516.18555	4349.67627		352	834	37	33	66	0	13	149		18.60454	12.6678		150.1		0.352498	0.191272	0.386942	0	0.069287	665.3416
2	8440.87793	1690.861694		14747.4082	9571.460938		391	954	8	119	10	0	0	137		15.4585	12.34206		123.77		0.09243	0.836471	0.0711	0	0	156.2855
3	10390.88867	1627.081299		19199.03711	4164.209961		502	1235	9	52	75	2	18	156		15.54578	10.43001		139.49		0.092265	0.324324	0.473152	0.007026	0.103233	150.1221
4	10394.05957	1327.103027		18950.20117	3489.487305		616	1474	17	37	60	0	22	136		12.85631	9.75811		126.9		0.191568	0.253664	0.416076	0	0.138692	254.2307
5	2771.519043	1111.039062		5272.291992	3633.048584		177	354	0	8	89	19	11	127		14.89348	8.748339		103.39		0	0.067318	0.75752	0.090047	0.085115	0
6	23917.51953	2322.864258		44175.95313	13742.54981		1253	2850	0	192	35	0	0	227		15.50033	10.23288		197.84		0	0.844319	0.155681	0	0	0
7	3064.39502	697.595764		5991.587402	2795.770264		178	362	4	19	24	0	13	60		16.55135	11.6266		53.77		0.106379	0.30742	0.392784	0	0.193416	74.20955
8	2860.577393	300.144196		4819.970215	1293.817383		121	319	7	4	9	0	0	20		15.10962	15.00721		21.41		0.467539	0.162541	0.369921	0	0	140.329
9	4693.867676	1385.030273		8103.130859	3851.893555		235	592	44	25	21	0	14	104		13.68772	13.3176		114.35		0.55024	0.190206	0.161609	0	0.097945	762.0997
10	2906.076416	550.136963		5042.102051	2600.399414		128	319	0	13	27	12	0	52		15.80596	10.57956		40.95		0	0.27619	0.58022	0.14359	0	0
11	1629.438232	537.083923		4544.663574	1594.643799		99	257	2	4	34	0	0	40		17.68352	13.4271		36.26		0.078875	0.095974	0.825152	0	0	42.36238
12	7915.274902	892.367126		16471.56641	2969.258057		357	927	14	32	6	11	3	66		17.76868	13.52071		60.93		0.328574	0.456918	0.086657	0.088462	0.039389	293.2084
13	7685.117676	1464.333252		19576.78906	3623.574463		465	1312	4	18	100	0	0	122		14.92133	12.00273		109.38		0.052295	0.143171	0.804535	0	0	76.57694
14	15492.27637	5077.391602		40922.89063	18049.76563		1485	2546	6	31	159	109	204	509		16.07341	9.975229		392.08		0.021883	0.068787	0.356866	0.136222	0.416242	111.11
15	230.368011	103.844116		808.269653	978.411011		37	84	0	3	4	2	0	9		9.622258	11.53824		7.11		0	0.367089	0.495077	0.137834	0	0
16	2615.611328	1193.981567		6104.84082	8395.124023		169	394	0	88	3	0	0	91		15.49452	13.12068		79.2		0	0.966667	0.033333	0	0	0
17	1465.515259	2015.095337		3077.933594	7330.842773		104	246	1	13	76	4	89	183		12.51193	11.01145		152.78		0.00936	0.074028	0.437754	0.012829	0.46603	18.86102
18	18768.69336	4340.176758		41293.44531	9250.25		1271	3227	89	119	180	0	5	393		12.79623	11.04371		393.2		0.323678	0.263301	0.402848	0	0.010173	1404.818
19	5539.64209	15906.2168		12772.56738	16861.58398		410	996	288	67	163	45	367	930		12.82386	17.10346		929.22		0.44321	0.06273	0.154366	0.02373	0.315964	7049.801
20	3716.043457	603.130859		6633.213379	1608.243408		144	355	3	21	12	0	2	38		18.68511	15.87186		34.72		0.12356	0.52621	0.304147	0	0.046083	74.52279
21	14663.61133	1681.230347		24728.46875	4416.572266		500	1272	9	56	40	0	0	105		19.44062	16.01172		96.79		0.132968	0.503358	0.363674	0	0	223.5503
22	5343.690918	1714.521606		8742.970703	2899.428711		189	443	64	6	15	4	1	90		19.73583	19.05024		112.7		0.812067	0.046318	0.117125	0.017391	0.007098	1392.307

VMT Analysis

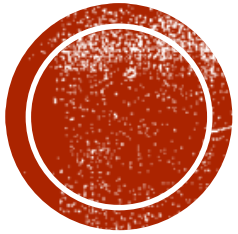
Example Threshold Performance

Analysis Scenario	Residential VMT/Cap	Threshold Performance	Office-Based VMT/Emp	Threshold Performance
Regional Average	12.17		13.43	
Existing				
Project TAZ	10.76	-11.6%	12.10	-9.9%
Region	12.17	0.0%	13.43	0.0%
Project Scenario (Adds 800 residential units and 2.4 million Sq Ft of office development)				
Project TAZ	**8.29**	-31.9%	**10.72**	-20.2%
Region	**12.08**	-0.7%	**13.19**	-1.8%
Project VMT Difference				
Project TAZ	-2.47	-20.3%	-1.38	-10.3%
Region	-0.09	**-0.7%**	-0.24	**-1.8%**

Kimley»Horn

Expect More. Experience Better.

Questions?



TRMG2 & GITHUB

Kyle Ward, Caliper

MAKING THE MOST OF GITHUB

November 1st 2023

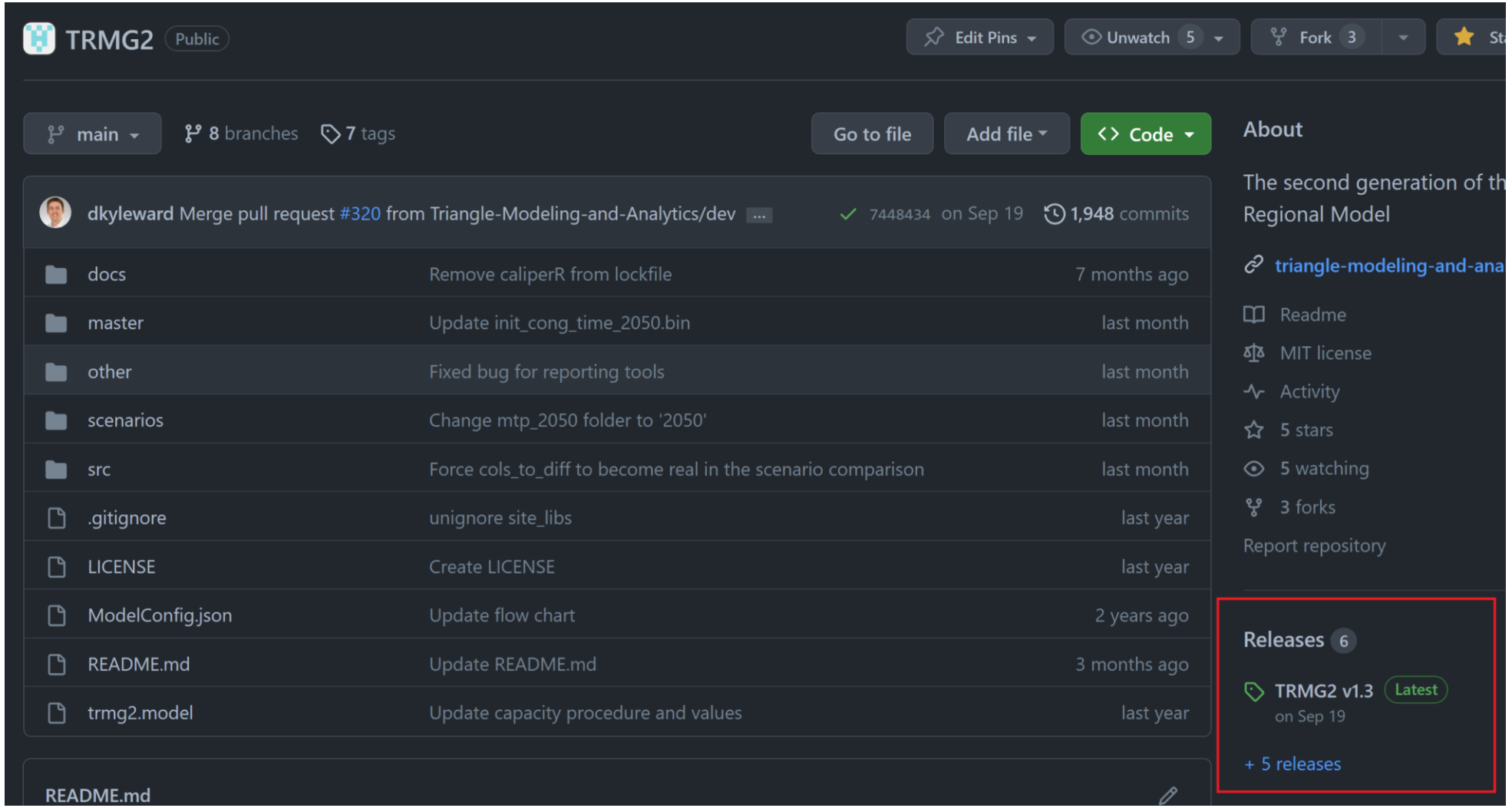
OUTLINE

- What is GitHub?
- Getting the most out of it
  - Getting the model (and the right version)
  - Finding the wiki for guidance on using the model
  - Issues: giving feedback to the model team
- Q&A / Poking Around

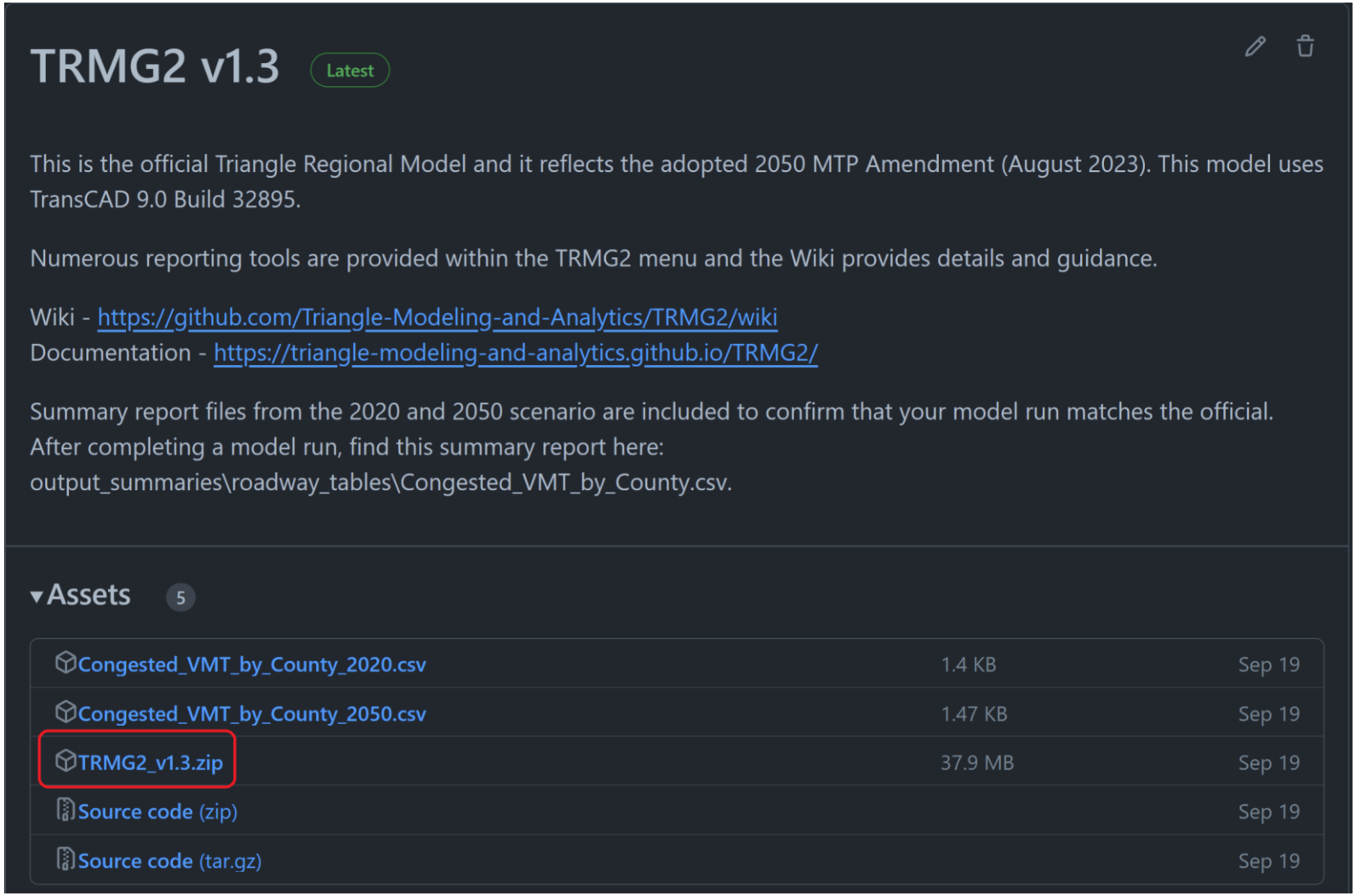
WHAT IS GITHUB?

- The most-popular version control system
- Allows development teams to:
  - Manage work tasks
  - Track changes
  - Push official updates to the community
- Allows the community to:
  - Easily download the latest version (or any past version)
  - Provide feedback (issues or suggestions)
  - Get notified when the repo is updated

GETTING THE LATEST MODEL



GETTING THE LATEST MODEL



TRMG2 v1.3 Latest

This is the official Triangle Regional Model and it reflects the adopted 2050 MTP Amendment (August 2023). This model uses TransCAD 9.0 Build 32895.

Numerous reporting tools are provided within the TRMG2 menu and the Wiki provides details and guidance.

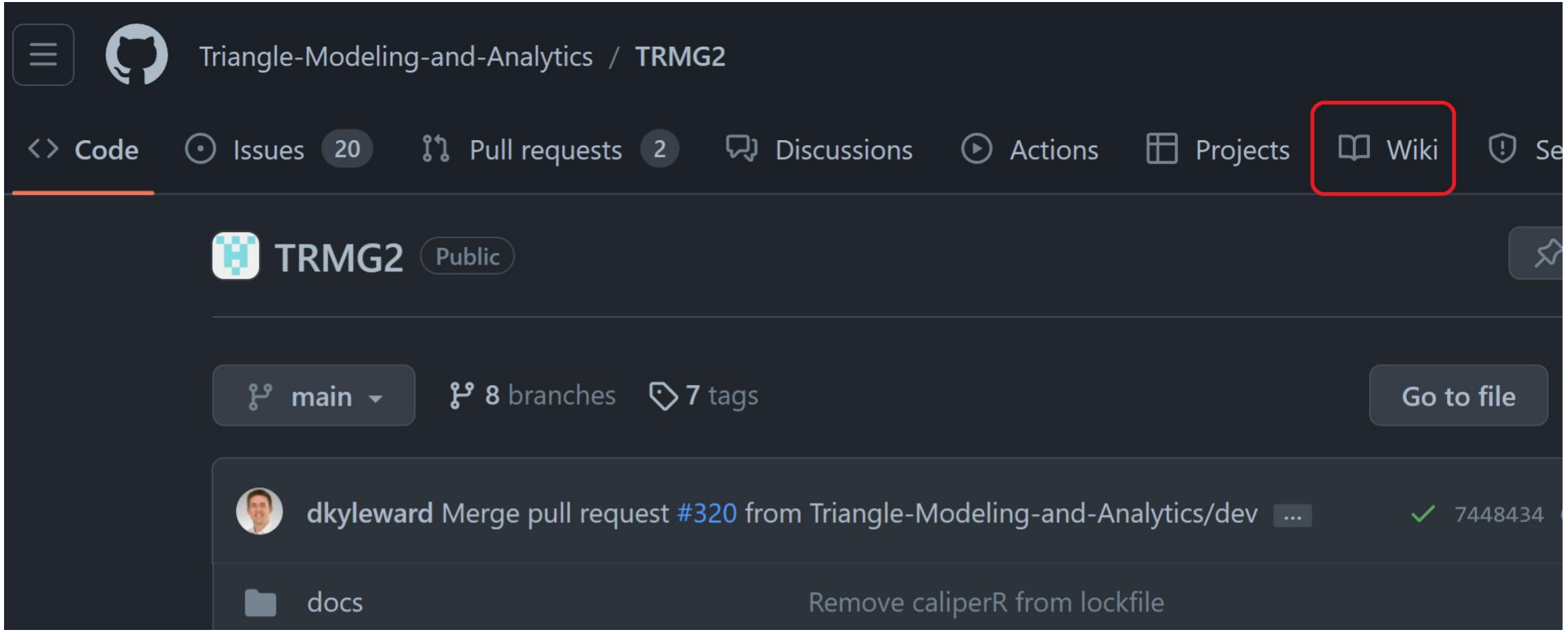
Wiki - https://github.com/Triangle-Modeling-and-Analytics/TRMG2/wiki
Documentation - https://triangle-modeling-and-analytics.github.io/TRMG2/

Summary report files from the 2020 and 2050 scenario are included to confirm that your model run matches the official. After completing a model run, find this summary report here: output_summaries\roadway_tables\Congested_VMT_by_County.csv.

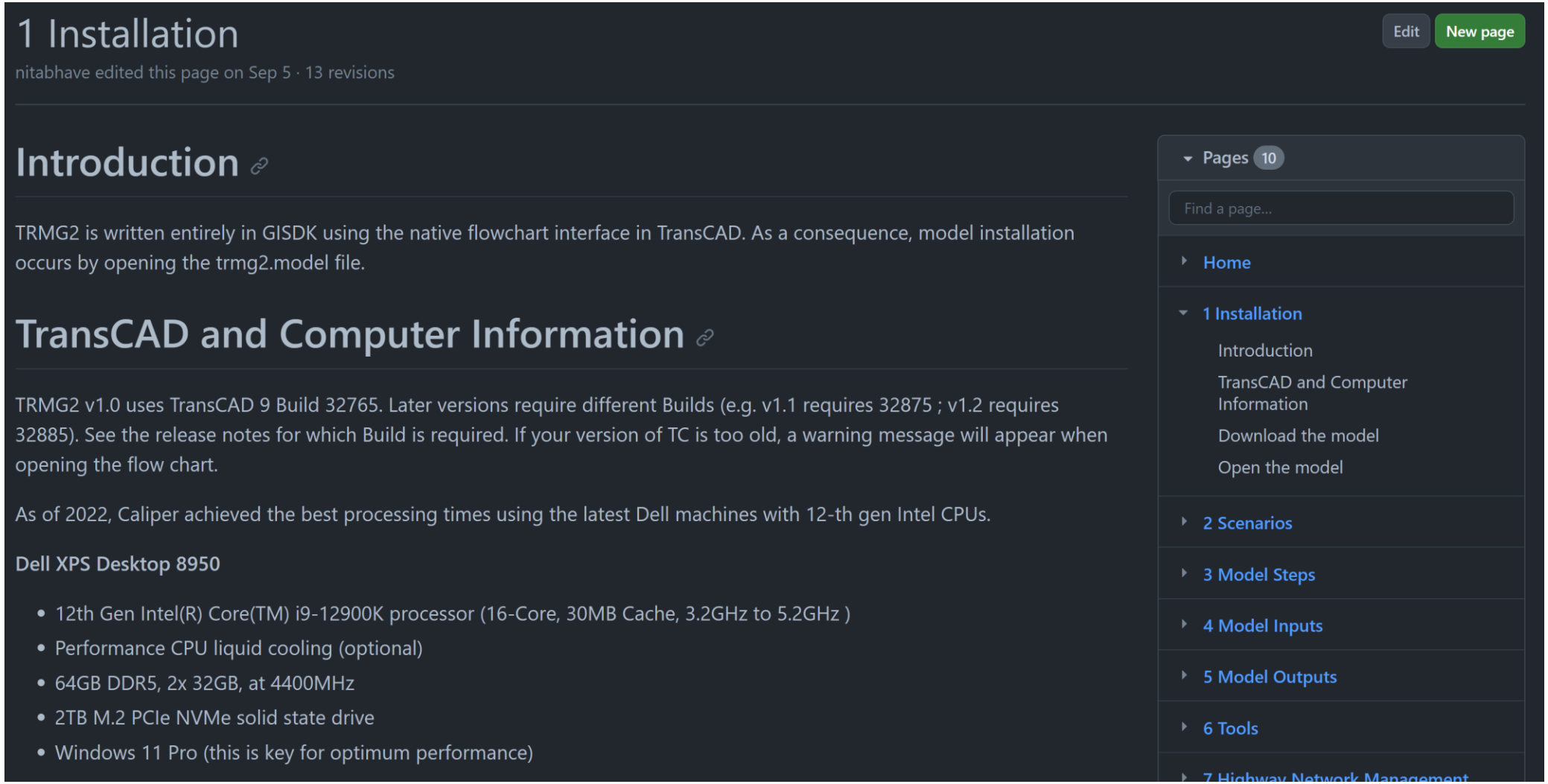
▾Assets 5

Congested_VMT_by_County_2020.csv	1.4 KB	Sep 19
Congested_VMT_by_County_2050.csv	1.47 KB	Sep 19
TRMG2_v1.3.zip	37.9 MB	Sep 19
Source code (zip)		Sep 19
Source code (tar.gz)		Sep 19

THE WIKI


Triangle-Modeling-and-Analytics / TRMG2
Code
Issues 20
Pull requests 2
Discussions
Actions
Projects
Wiki
TRMG2
Public
main
8 branches
7 tags
Go to file
dkyleward Merge pull request #320 from Triangle-Modeling-and-Analytics/dev
7448434
docs
Remove caliperR from lockfile

THE WIKI



1 Installation

Edit | New page

nitabhave edited this page on Sep 5 · 13 revisions

Introduction

TRMG2 is written entirely in GISDK using the native flowchart interface in TransCAD. As a consequence, model installation occurs by opening the trmg2.model file.

TransCAD and Computer Information

TRMG2 v1.0 uses TransCAD 9 Build 32765. Later versions require different Builds (e.g. v1.1 requires 32875 ; v1.2 requires 32885). See the release notes for which Build is required. If your version of TC is too old, a warning message will appear when opening the flow chart.

As of 2022, Caliper achieved the best processing times using the latest Dell machines with 12-th gen Intel CPUs.

Dell XPS Desktop 8950

- 12th Gen Intel(R) Core(TM) i9-12900K processor (16-Core, 30MB Cache, 3.2GHz to 5.2GHz)
- Performance CPU liquid cooling (optional)
- 64GB DDR5, 2x 32GB, at 4400MHz
- 2TB M.2 PCIe NVMe solid state drive
- Windows 11 Pro (this is key for optimum performance)

Pages 10

Find a page...

- Home
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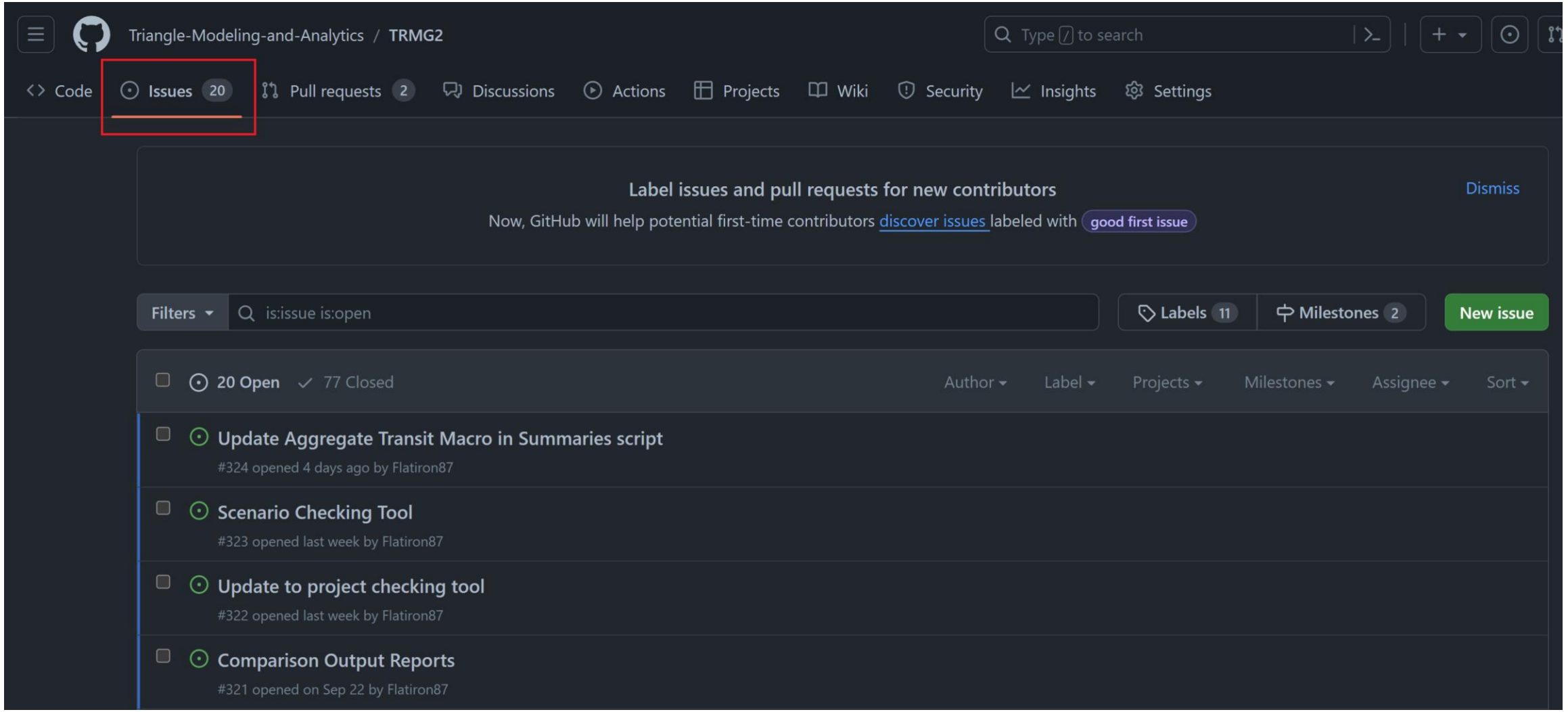
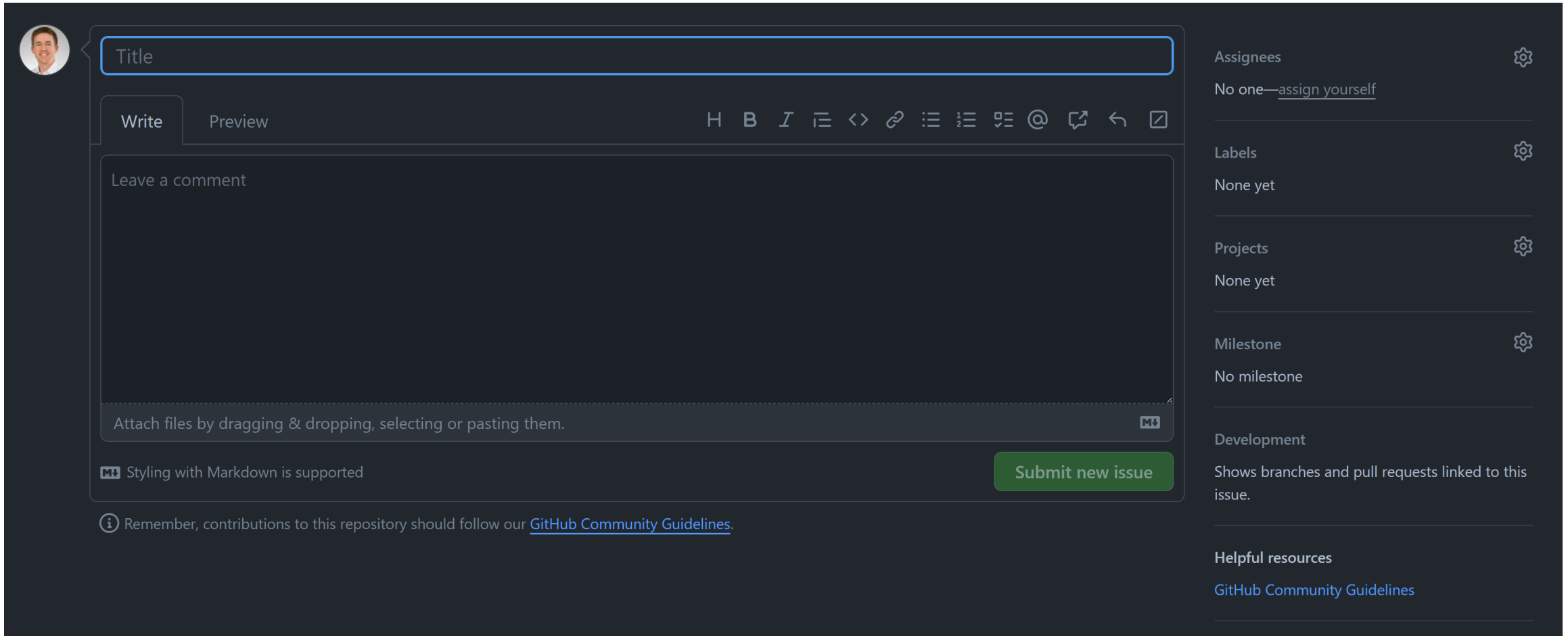
  - Introduction
  - TransCAD and Computer Information
  - Download the model
  - Open the model
- 2 Scenarios
- 3 Model Steps
- 4 Model Inputs
- 5 Model Outputs
- 6 Tools
- 7 Highway Network Management

ISSUES


Triangle-Modeling-and-Analytics / TRMG2
Type / to search
Code
Issues 20
Pull requests 2
Discussions
Actions
Projects
Wiki
Security
Insights
Settings
Label issues and pull requests for new contributors
Dismiss
Now, GitHub will help potential first-time contributors discover issues labeled with good first issue
Filters
is:issue is:open
Labels 11
Milestones 2
New issue
20 Open
77 Closed
Author
Label
Projects
Milestones
Assignee
Sort
Update Aggregate Transit Macro in Summaries script
#324 opened 4 days ago by Flatiron87
Scenario Checking Tool
#323 opened last week by Flatiron87
Update to project checking tool
#322 opened last week by Flatiron87
Comparison Output Reports
#321 opened on Sep 22 by Flatiron87

ISSUES


Title
Write
Preview
Leave a comment
Attach files by dragging & dropping, selecting or pasting them.
Styling with Markdown is supported
Submit new issue
Remember, contributions to this repository should follow our GitHub Community Guidelines.
Assignees
No one—assign yourself
Labels
None yet
Projects
None yet
Milestone
No milestone
Development
Shows branches and pull requests linked to this issue.
Helpful resources
GitHub Community Guidelines

Q&A

NEW TRMG2 REPORTING TOOLS AND SUMMARIES

Si Shi and Leta Huntsinger, ITRE

Scenario Comparison Tool

- Tool that allows you to quickly draw comparisons between two different model scenarios.
- Comparison metrics include maps, output csv files, and output bin files.
  - Maps
    - Input land use variables
    - Highway demand metrics
  - CSV files
    - HH strata
    - Home based trip statistics
      - Mode share by trip purpose and time of day
      - Trip length and duration by trip purpose
    - Non home based trip statistics
      - Same as above
  - BIN files
    - Input land use by TAZ and regional summary
    - Highway demand on link level and regional summary
    - Overall mode share by county and TAZ
- Supports a subarea polygon (user defined)
- User guide in the wiki!

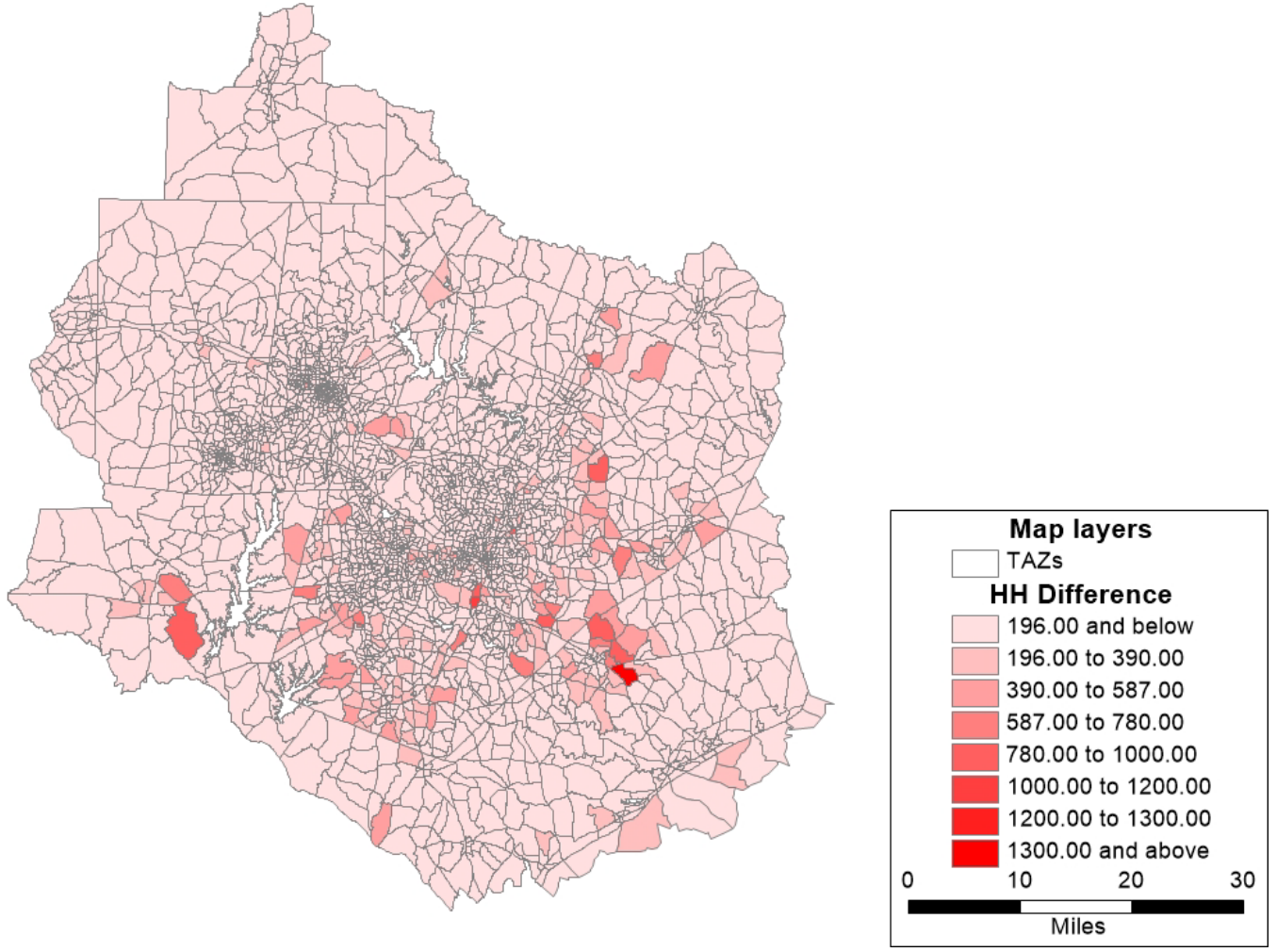
Input land use information

Delay, VHT, and VMT

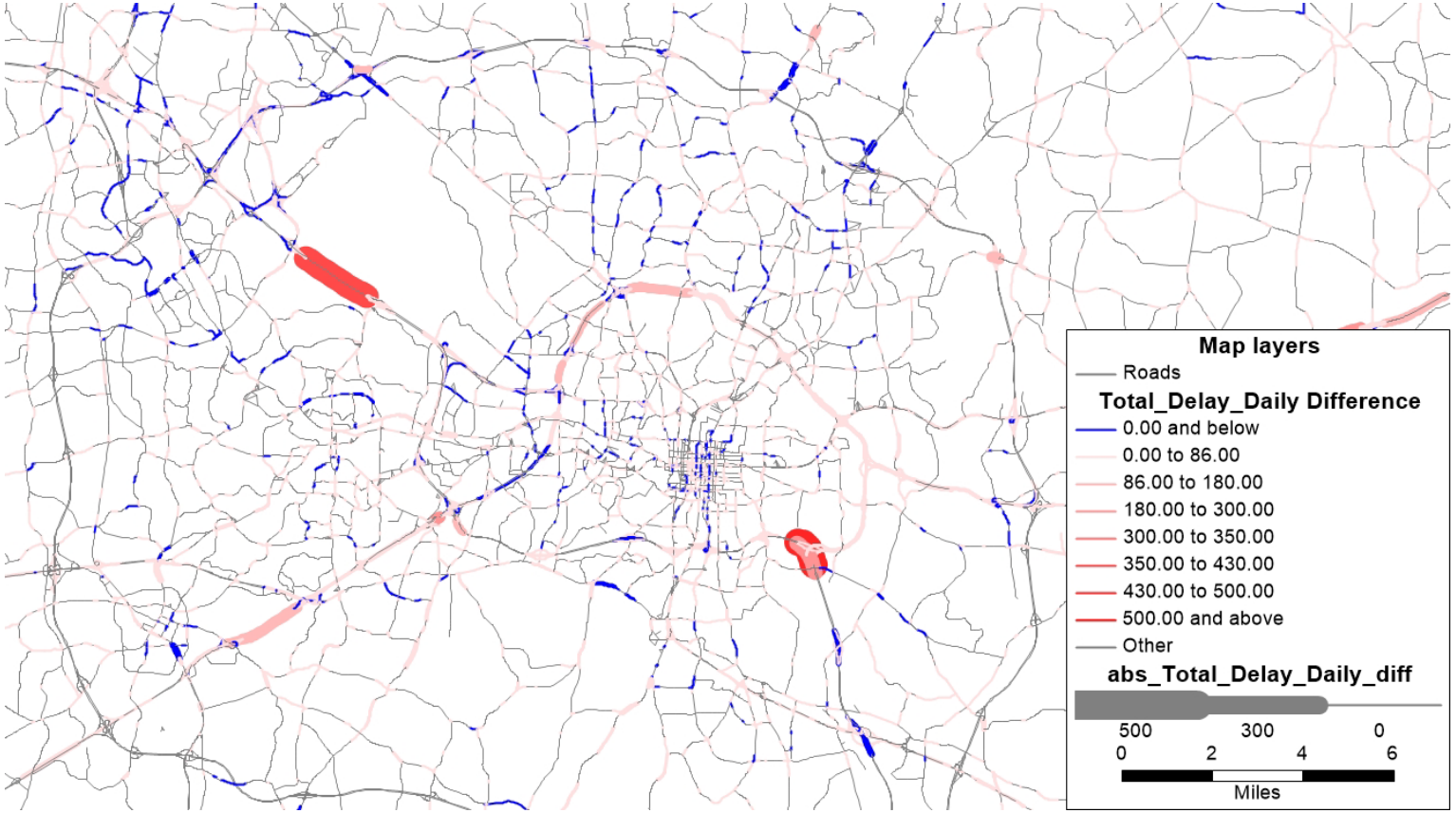
Mode shares

Trip length

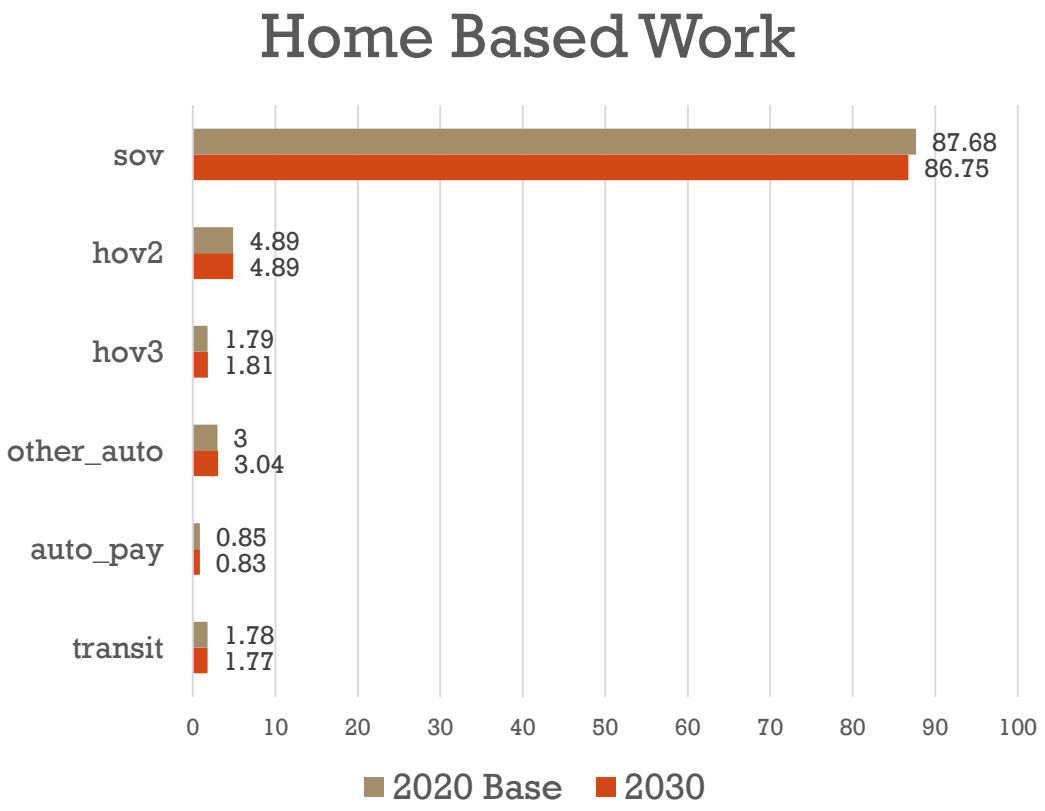
2020 VS. 2030 HOUSEHOLD DIFFERENCE

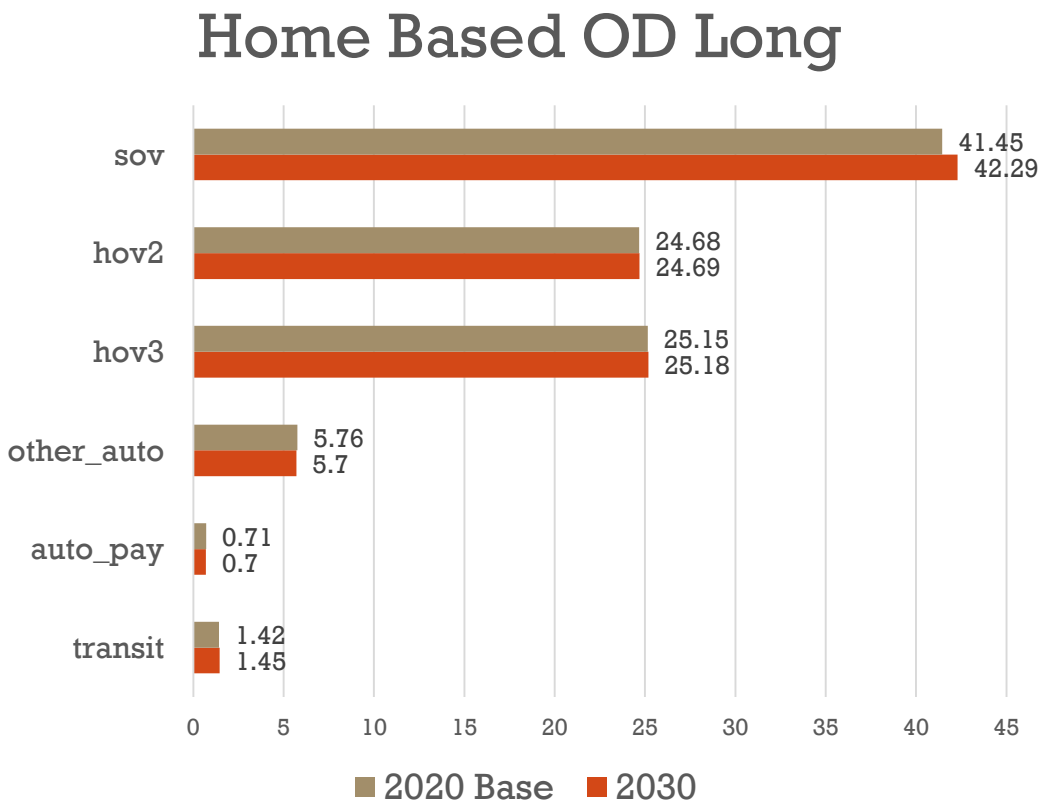


2020 VS. 2030 DELAY COMPARISON MAP



2020 VS. 2030 MODE SHARE COMPARISON





INTERESTED IN SOMETHING ELSE?

We can add as many summary tables as you like – just request it via GitHub Issue!

Zero car: Calculate the percent of zero car households per zone for all zones. Use the zonal percentages to determine the 75th percentile threshold for the region. Any zone above the threshold is identified as a zero car disadvantaged community.

Poverty: Calculate the number of households that are within 150% of the poverty threshold defined by Census. Calculate the percent of poverty households per zone for all zones. Use the zonal percentages to determine the 75th percentile threshold for the region. Any zone above the threshold is identified as a poverty disadvantaged community.

Senior: Calculate the percent of seniors per zone for all zones. Use the zonal percentages to determine the 75th percentile threshold for the region. Any zone above the threshold is identified as a senior disadvantaged community.

EQUITY TOOL

Transit and Walk Accessibility

Jobs within 30 minutes (auto, transit, walk or non-auto)

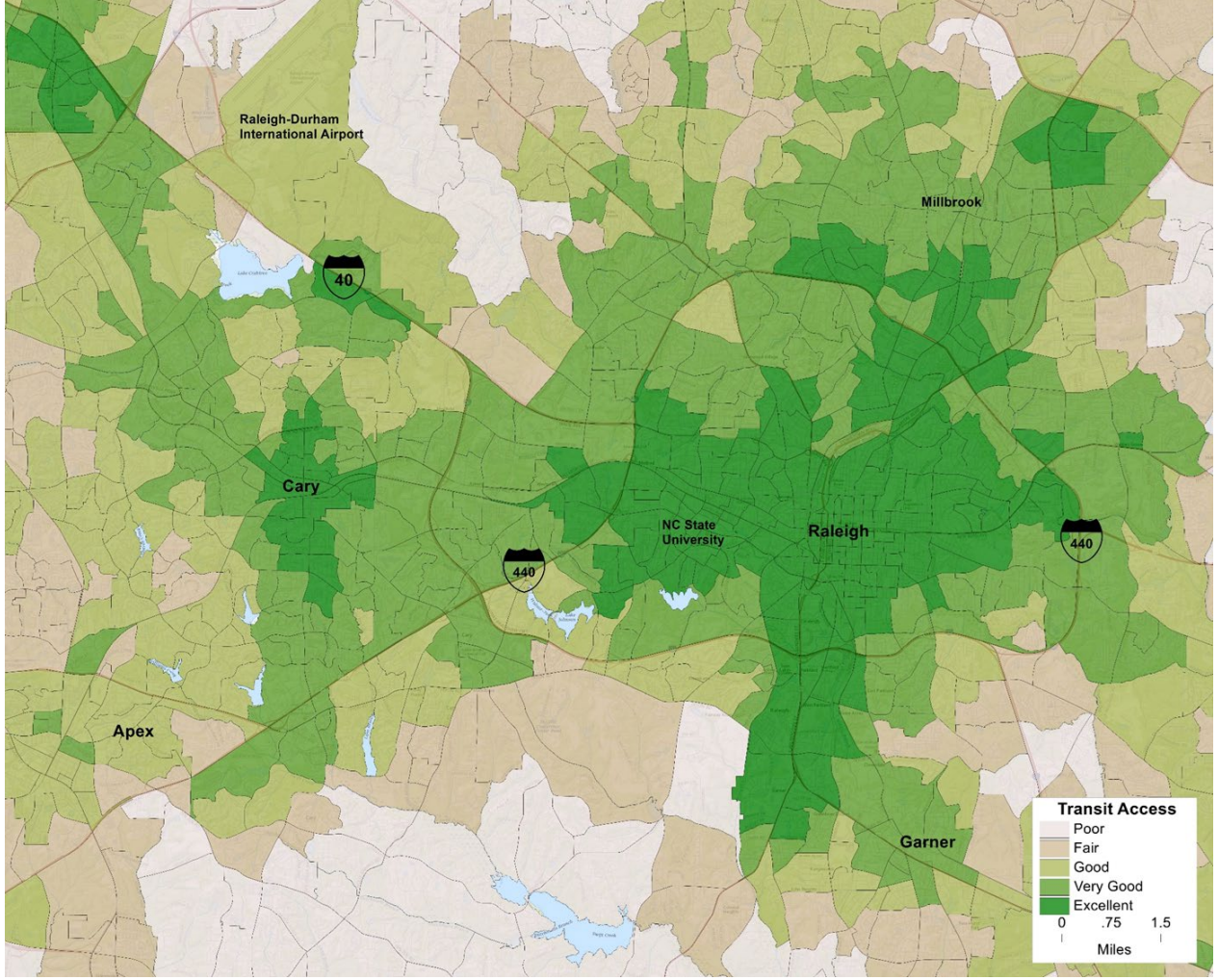
Non-motorized trip share

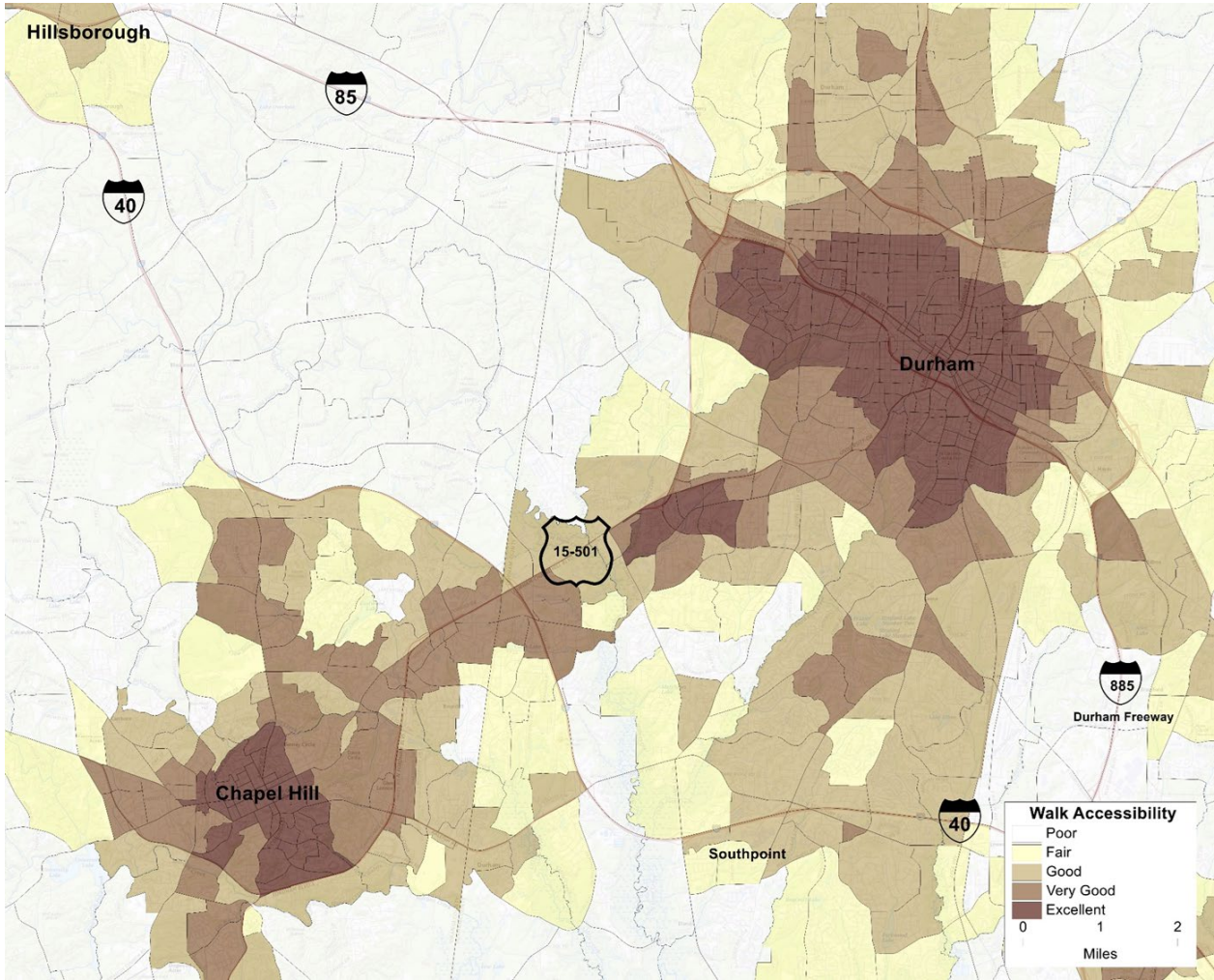
Transit trip share

Average commute time for auto and transit

Vehicle-hours of delay

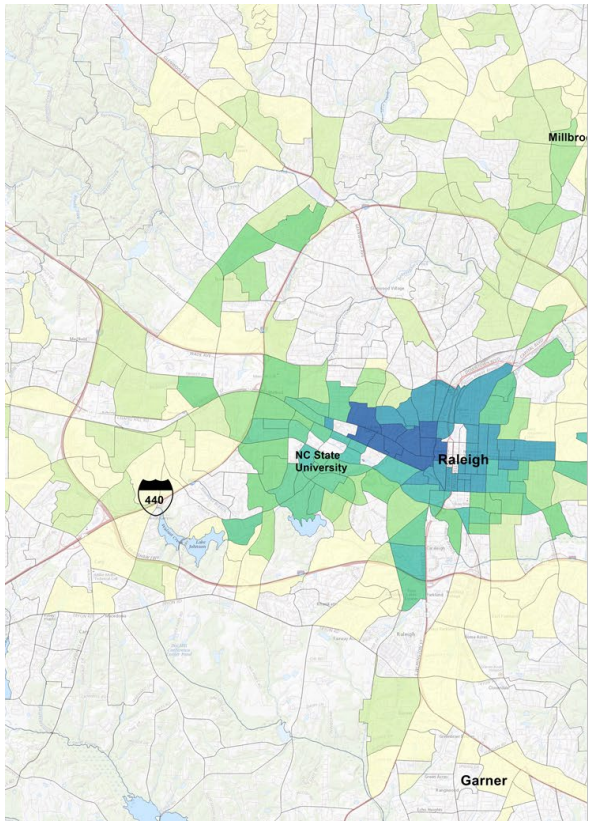
Congested VMT

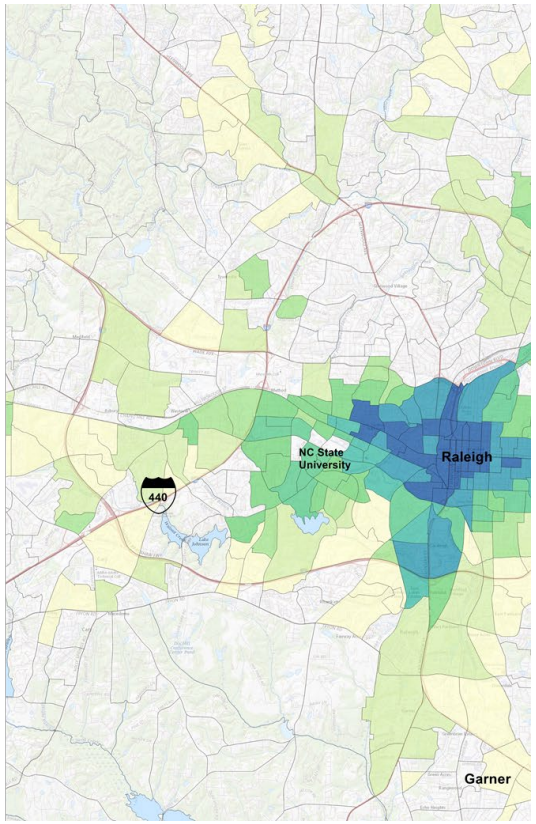

Raleigh-Durham
International Airport
Millbrook
40
Cary
NC State
University
Raleigh
440
440
Apex
Garner
Transit Access
Poor
Fair
Good
Very Good
Excellent
0
.75
1.5
Miles

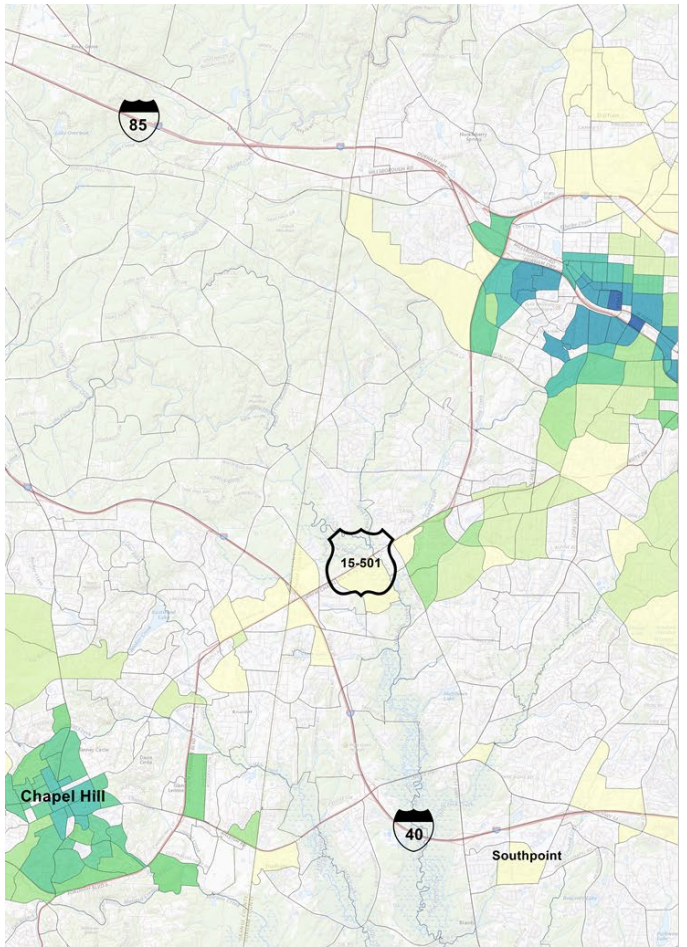

Hillsborough
85
40
Durham
15-501
885
Durham Freeway
Chapel Hill
40
Southpoint
Walk Accessibility
Poor
Fair
Good
Very Good
Excellent
0
1
2
Miles

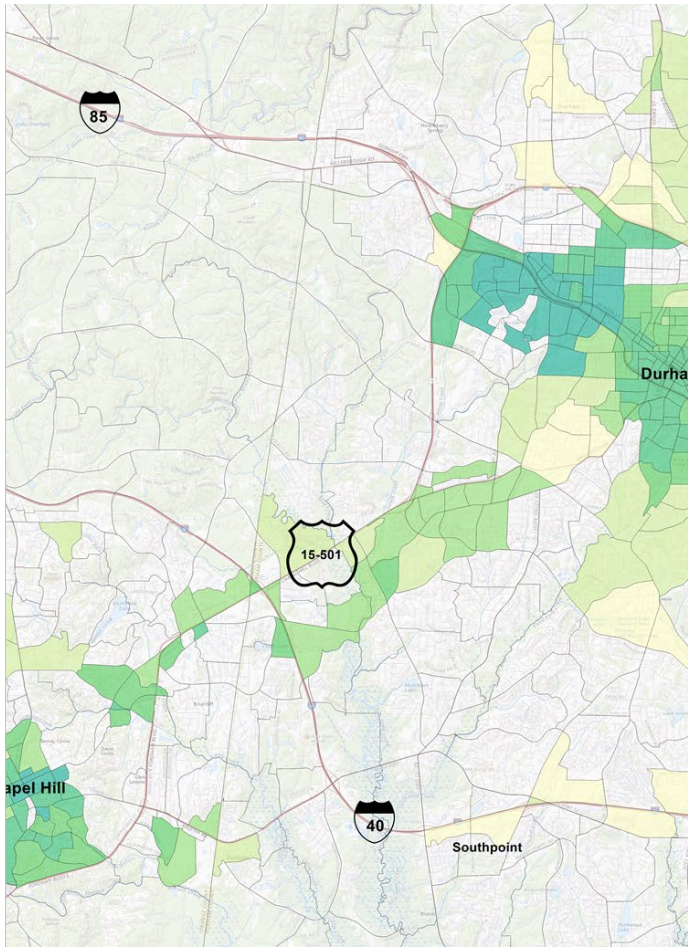
JOBS WITHIN 30 MIN BY TRANSIT

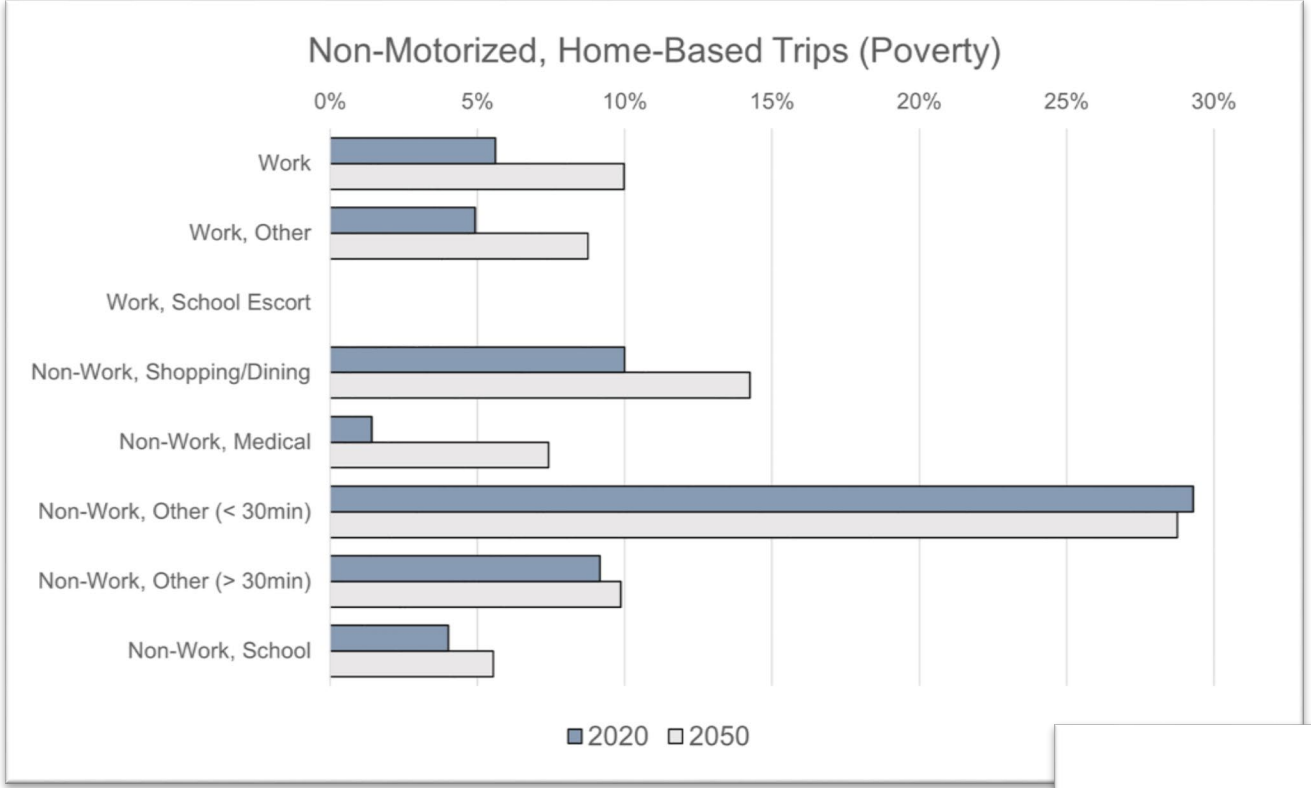
ZERO CAR COMMUNITIES

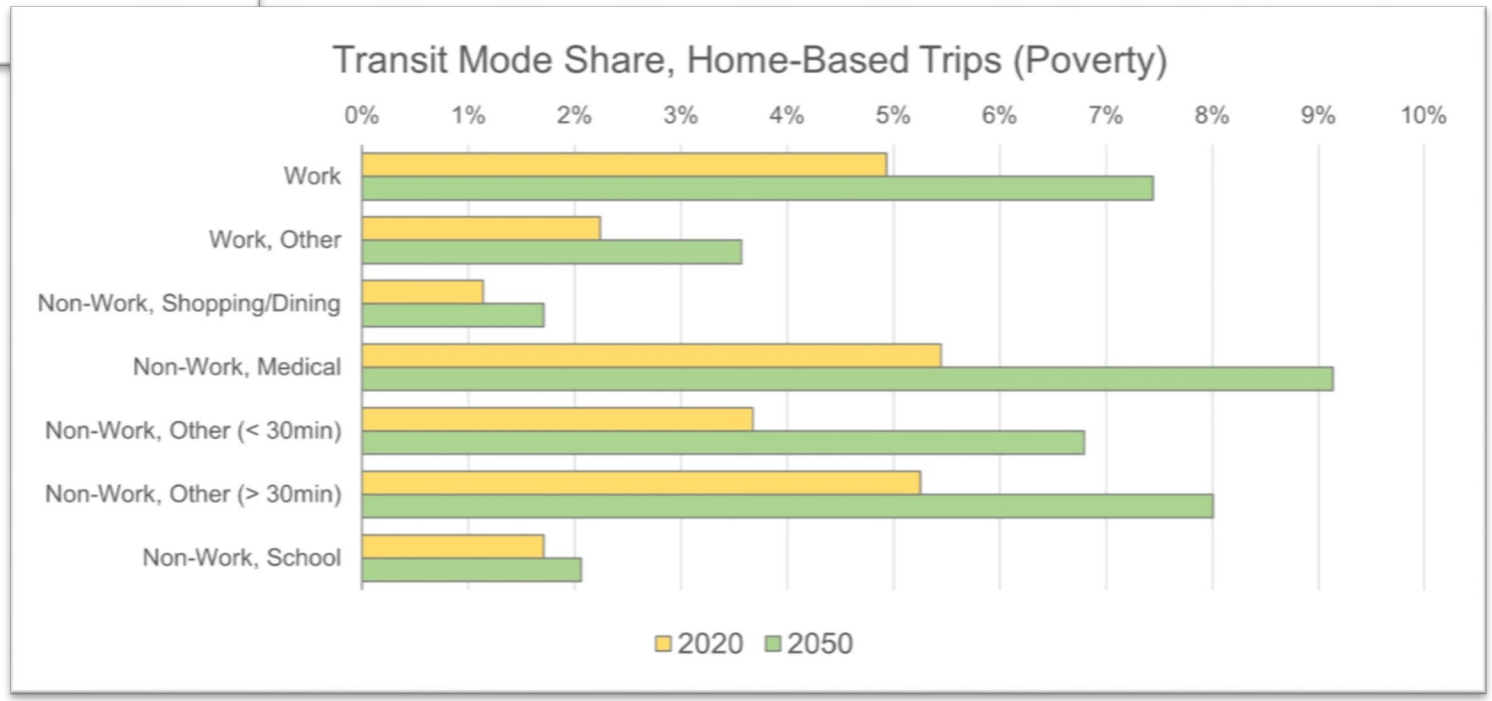


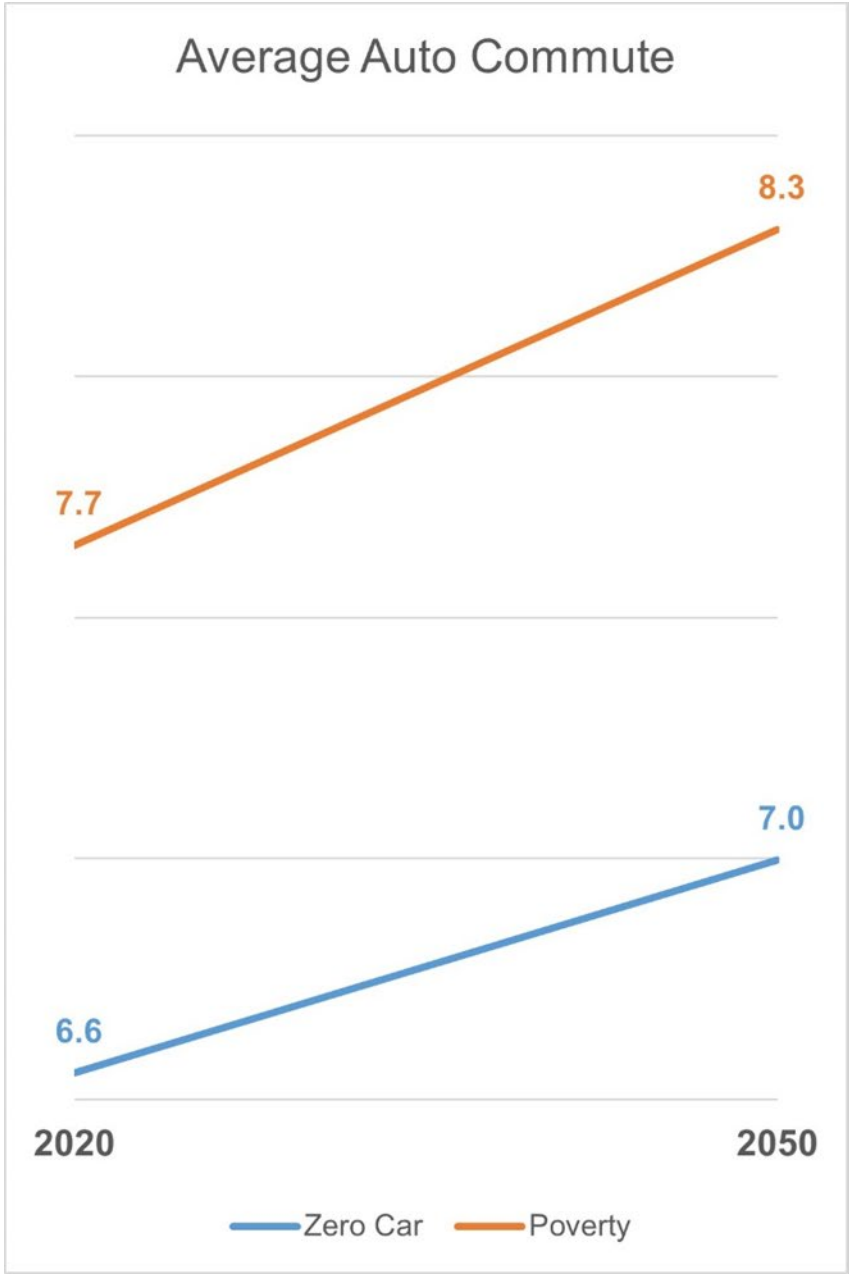


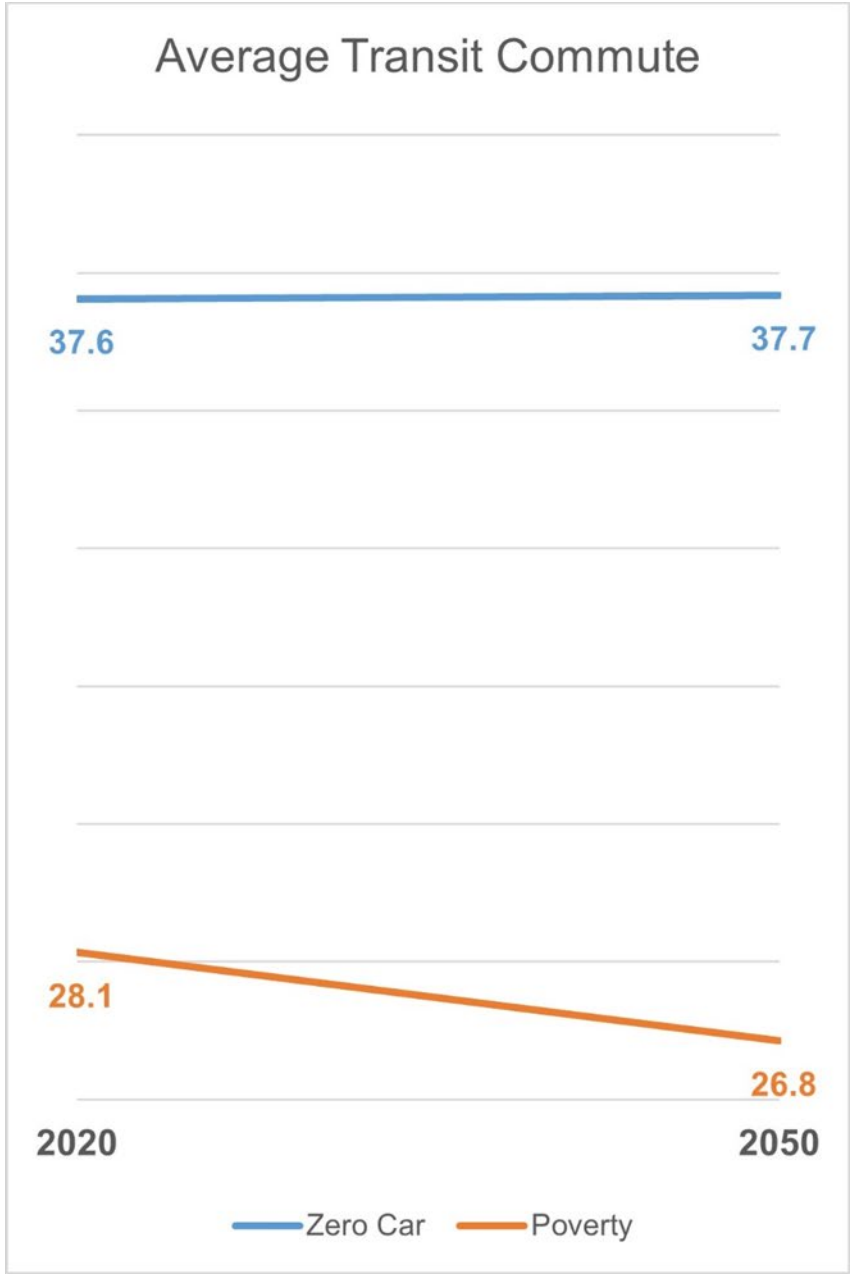




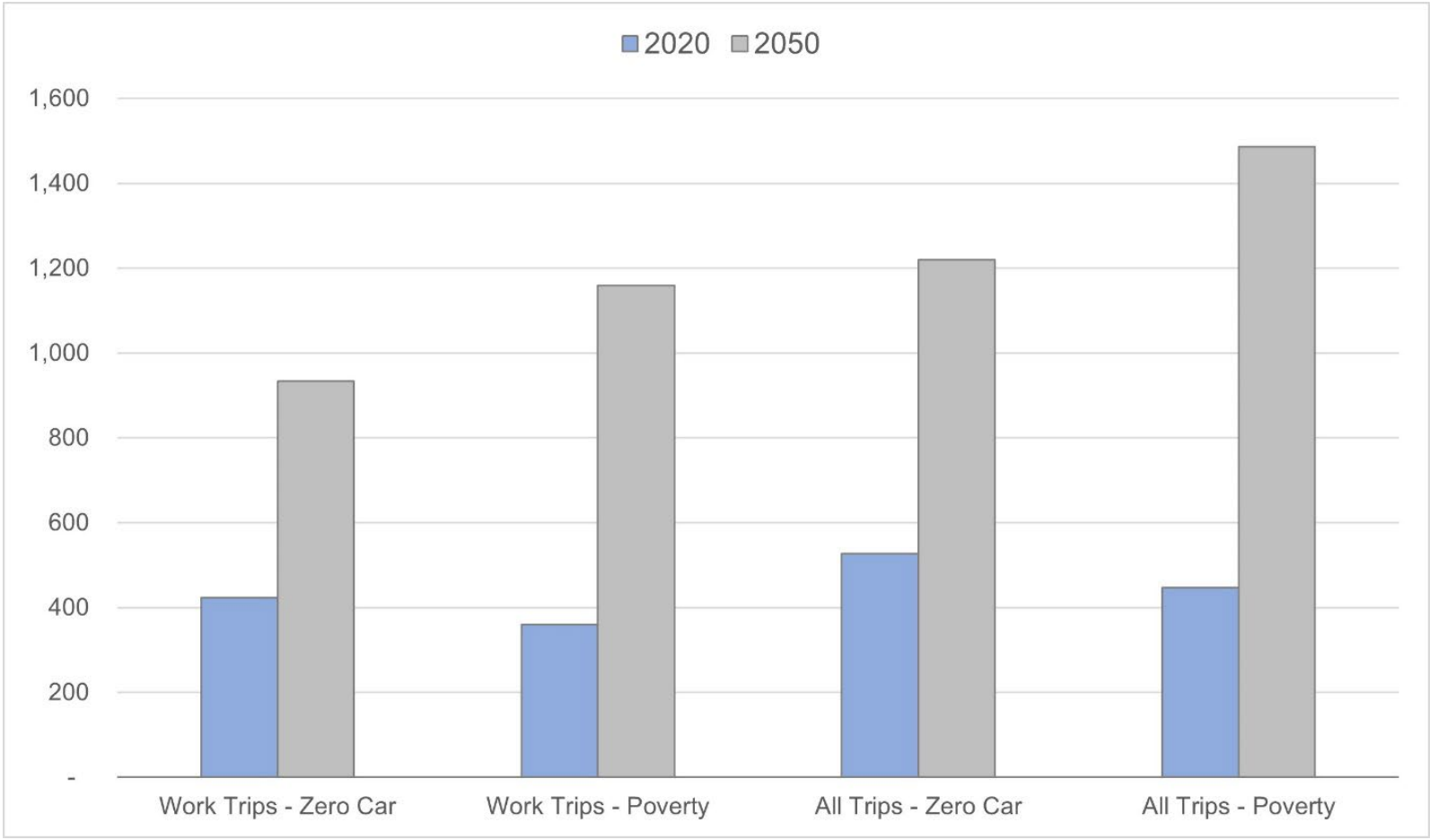

Non-Motorized, Home-Based Trips (Poverty)
0%
5%
10%
15%
20%
25%
30%
Work
Work, Other
Work, School Escort
Non-Work, Shopping/Dining
Non-Work, Medical
Non-Work, Other (< 30min)
Non-Work, Other (> 30min)
Non-Work, School
2020
2050


Transit Mode Share, Home-Based Trips (Poverty)
0%
1%
2%
3%
4%
5%
6%
7%
8%
9%
10%
Work
Work, Other
Non-Work, Shopping/Dining
Non-Work, Medical
Non-Work, Other (< 30min)
Non-Work, Other (> 30min)
Non-Work, School
2020
2050


Average Auto Commute
8.3
7.7
7.0
6.6
2020
2050
Zero Car
Poverty


Average Transit Commute
37.6
37.7
28.1
26.8
2020
2050
Zero Car
Poverty

HOURS OF DELAY



Networking!