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Technical Analysis Findings

Category	Variable	Comments	Sub Model Status	201	.8	20	25
				Final Category Score	Final Weighting	Final Category Score	Final Weighting
Travel	Traffic Volume		✓	✓	✓	✓	✓
Demand	Transit Ridership		<mark>✓</mark>				
Transit	Service Frequency		✓	✓		✓	
Performance	Bus Speed		-				
Traffic	Traffic Delay		✓	✓		✓	
Performance	Volume Capacity		<mark>✓</mark>			✓	
Context	Landuse Density		✓	✓		✓	
	Intersection Density		<mark>✓</mark>			<mark>✓</mark>	
Access Equity	Change in Jobs		✓	n/a	n/a	✓	n/a

Fast Score Model: Data Requirements:

Travel Demand:

Variable:		Traffic Volume			
Data	a	2018 AADT data (use only as	a reference)		
sour	rce:	2018 TRM Highway data			
		2025 TRM Highway data			
		2035 TRM Highway data			
		FCGroup - 1 – freeway FCGroup <> 1 – nonfreeway Add AB_Vol_Daily and BA_Vo	ol_Daily to get vo	lume (daily)	
Year	rs	2018, 2025 and 2035			
inclu	uded:				
Scor	res	Freeway Volume Range	FAST Score	Non-Freeway Volume Range	

		0 – 30,000	1	0 – 10,0	00	
		30,000 – 50,000	2	10,000 -	- 20,000	
		50,000 – 70,000	3	20,000 -	- 30,000	
		70,000 - 100,000	4	30,000 -	- 50,000	
		> 100,000	5	> 50,000)	
	Notes/ Comments	 FCGroup contained Freeway Volume Fase a. Included low b. There are not a score of 5 	values other th st Scores v value up to bu o freeway segm	an 1 and 2. I re ut not including eents that get a	classed everything othe thigh value (0 \leq vol \leq fast score of 5 (there are	r than a 1 as nonfreeway. 30000) e Non Freeway segments that get
	Team	If DIR is anything but 0, Dou	ble the volume			
	Responses:					
		ef reclass (a): if 0.90 <= a < 1.00: a = 1 elif 0.80 <= a < 0.90: a = 2 elif 0.70 <= a < 0.80: a = 3 elif 0.50 <= a < 0.70: a = 4 elif 0.50 >= a: a = 5 return a				
Variable:		Transit Ridership				
	Data source:	Transit Ridership.xlsx, use To	otals field, join	to TRM segmer	nts using Link ID in xls and	d ID in GIS
	Years included:	2018 only, not modelling for	future			
	Scores:	Transit Corridor Ridership	Range	FAST Score		

	0 - 1,000	1
	1,000 - 5,000	2
	5,000 - 10,000	3
	10,000 - 20,000	4
	> 20,000	5
Notes:	def reclass (a): if $0 \le a \le 1000$: a = 1 elif $1000 \le a \le 5000$: a = 2 elif $5000 \le a \le 10000$: a = 3 elif $10000 \le a \le 2000$: a = 4 elif $a \ge 20000$: a = 5 return a	

Transit Performance:

Variable:		Service Frequenc	У	
	Data	Agency Routes w	ith XLS	
	source:			
	Years	2018		
	included:			
	Scores:	Buses / Hour	FAST Score	New Fast Scores
		0	0	0 - 1
		1-2	1	1 -2

	2 – 4	2	2-3		
	4-8	3	3-4		
	8 - 12	4	4-6		
	> 12	5	6+		
Notes:	60 / round(float(Con(IsNull("bph (r"%Input Worksp Need fast score of	<pre>!Peak_AM_Hea n_x"),0, "bph_x" ace%"\BPH_1") + f 0 to be assigned</pre>	dway!), 2)) Raster(r"BPH_2") to the TRM featur	+ Raster(r"BPH_3") + es in the end	Raster(r"BPH_5"

Traffic Performance:

Variable:		Traffic Delay		
	Data	Have HERE 2018 (can use this as a	cross reference	e)
	source:	TRM		
		Congested_speed: [Length_daily]	/ ([MAX_TIME]	/ 60)
		MAXFFTIME (the larger value of A	BFFTIME or BA	FFTIME)
		Freeflow speed: MAXFFTIME		
		Traffic Delay: [Length] / ([MAX_TI	ME] / 60) / MA	XFFtime
		Use posted speed in model: UST_	SPD (speed)	
	Years	2018, 2025, 2035		
	included:			
	Scores:	Congested / Free-flow Speed	FAST Score	
		1.00 - 0.90	1	
		0.90 - 0.80	2	
		0.80 - 0.70	3	
		0.70 – 0.50	4	

		< 0.50	5	
	Notes	 A few unrounded Delay S and FF Times and in thes Bins include low value of 	peed values we e cases the MAX range, but exclu	re > 1 (like 1.000056, which rounds to 1). I looked at the MAX time (time was a tiny bit higher than FFTime (like .000056 higher) ude high value of range.
Variable		Volume Capacity		
	Data	TRM: AB_VOC, BA_VOC (for both	AM and PM), N	IAX_VOC, MAX_VOC_PM
	source:			
	Years	2018, 2025, 2035		
	included:			
	Scores:	Volume / Capacity	FAST Score	
		< 0.75	1	
		0.75 – 0.85	2	
		0.85 – 0.90	3	
		0.90 – 0.95	4	
		> 0.95	5	
	Notes:	Bins include low value of	range, exclude	high value of range

Context (Non freeway only, polygon):

Variab	ole:	Landuse Density (Activity Density)
	Data	Landuse layer: Connect_2045_Adopted_MTP_Output_Grid_Allocation_Only file from TJCOG
	source:	
	Calculation:	(Population + Employment) / Acres
	Years	 only 1 set of data, represents change between 2013 & 2045
	included:	TRM estimates for years in question
	Scores:	Score Pop + Emp / Acres
		1 < 1
		2 1 - 5
		3 5 - 20

		4 20 - 50
		5 > 50
	Notes:	 Base year: TAZ with SE population and employment information. Proportion LU DNS by area inside ½ mile buffer of Freeways.
		a. Do I dissolve buffers by transit ID, so we can get total density of entire transit or
		b. Do I dissolve buffers into a single feature that cuts TAZ?
		c. To calc adjusted LU_DNS: (sum pop and emp) * new area / old area / new area (yes, new area cancels itself out)
		2. Future Year: get additions from grid level that falls in buffer. Proportion accordingly. Sum by taz and add to taz,
		then rerun model on new layer.
Variable	1	Intersection Density
	Data	Data
	source:	Metadata: <u>https://www.epa.gov/smartgrowth/smart-location-mapping</u>
	Years included:	
	Scores:	Score Intersections/SQMI
		1 0 - 50
		2 50 - 100
		3 100 - 150
		4 150 - 200
		5 > 200

Access Equity (polygon):

Variable	2:	Change in jobs
	Data	Landuse layer
	source:	

	\\vhb\gbl\proj\Raleigh\39	9165.00	
	RTAFastNetwork\Corresp	ondence\TJCOG\	Connect_2045_A
Years	only 1 set of data, represe	ents change betw	een 2013 & 2045
included:			
Scores:	% Change in Accessed	Jobs	FAST Score
	+/-	1%	0
	+/-	1% - 10%	+/- 1
	+/-	10% – 25%	+/- 2
	+/-	25% – 50%	+/- 3
	+/-	50% – 100%	+/- 4
	+/-	> 100%	+/- 5
Notes:	Some TAZ are notIf assuming linear	represented in la growth, need to	anduse grid (north trim off years 201



FAST Network

Scoring FAST Potential

Weighting

Travel Demand	
Traffic Volume:	60%
• Transit Ridership:	40%
Transit Performance	
 Service Frequency: 	70%
Bus Speed:	30%
On-Time Performance:	
Traffic Performance	
 Traffic Delay: 	60 %
 Volume/Capacity: 	40%
Context	
 Land Use Density: 	60 %
 Intersection Density: 	40%

Composite

 Travel Demand: 	30%
 Transit Performance: 	20%
 Traffic Performance: 	30%
Context:	20%







Overview of Routes by Headway for the Region





2018 Regional Congestion (Volume over Capacity)





2025 Regional Congestion (Volume over Capacity)





2035 Regional Congestion (Volume over Capacity)





2018 Traffic Delay Scores for the Region





2025 Traffic Delay Scores for the Region





2035 Traffic Delay Scores for the Region





2018 Intersection Density Scores for the Region





2025 Intersection Density Scores for the Region





2035 Intersection Density Scores for the Region





2018 Land Use Density Scores for the Region





2025 Land Use Density Scores for the Region





2035 Land Use Density Scores for the Region





2018 Ridership Scores for the Region