When Models Aren't Enough: Developing Ways to Answer Questions our Models Can't

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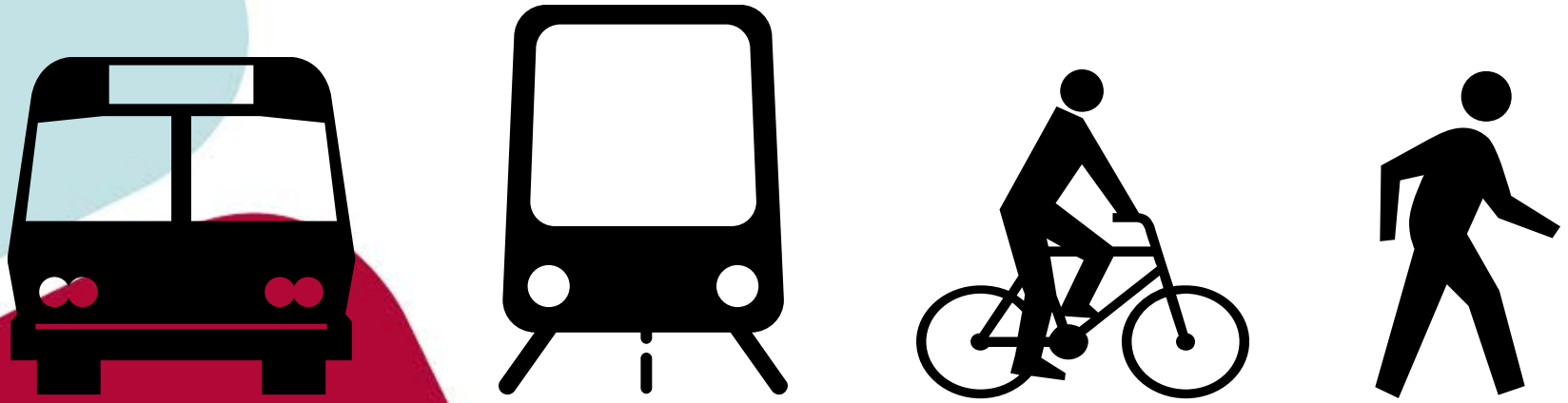
Mode Share

District of Columbia
Multimodal Long Range
Transportation Plan

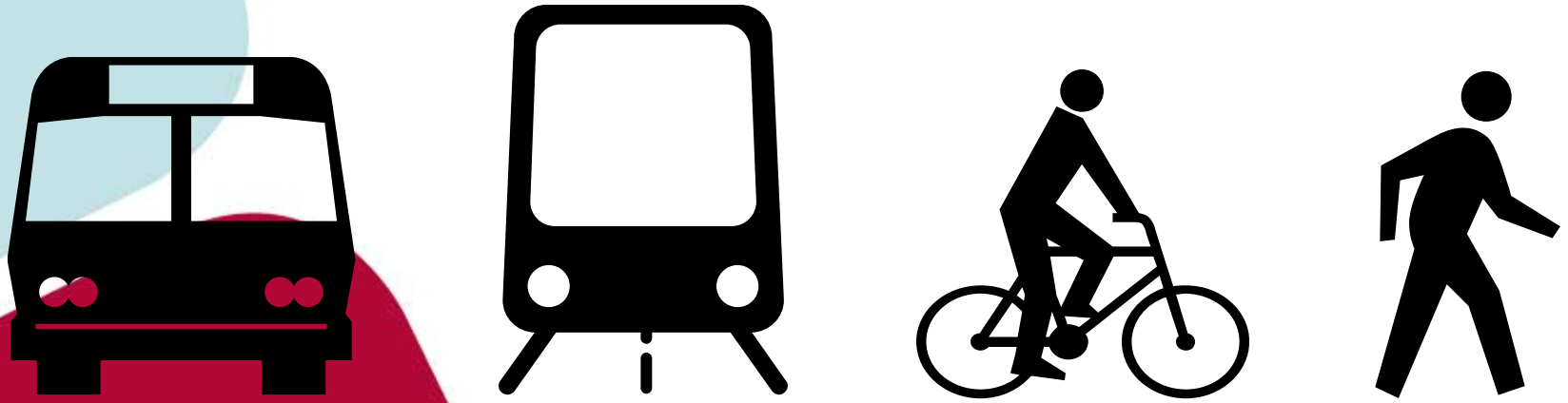
Mode Share

- What is it?
  - District of Columbia Multimodal Long Range Transportation Plan
- What was the question?
  - How much can we increase non-auto mode share by expanding transportation choices and improving the reliability of all transportation modes
  - Three Scenarios



Mode Share

- How did we answer the question?
  - Adapted elasticities from the Victoria Transport Policy Institute to account for introduction of new service and expansion of existing service
  - Used spatial analysis to determine influence areas and applied factors based on scoring to existing model trip tables to shift trips between modes



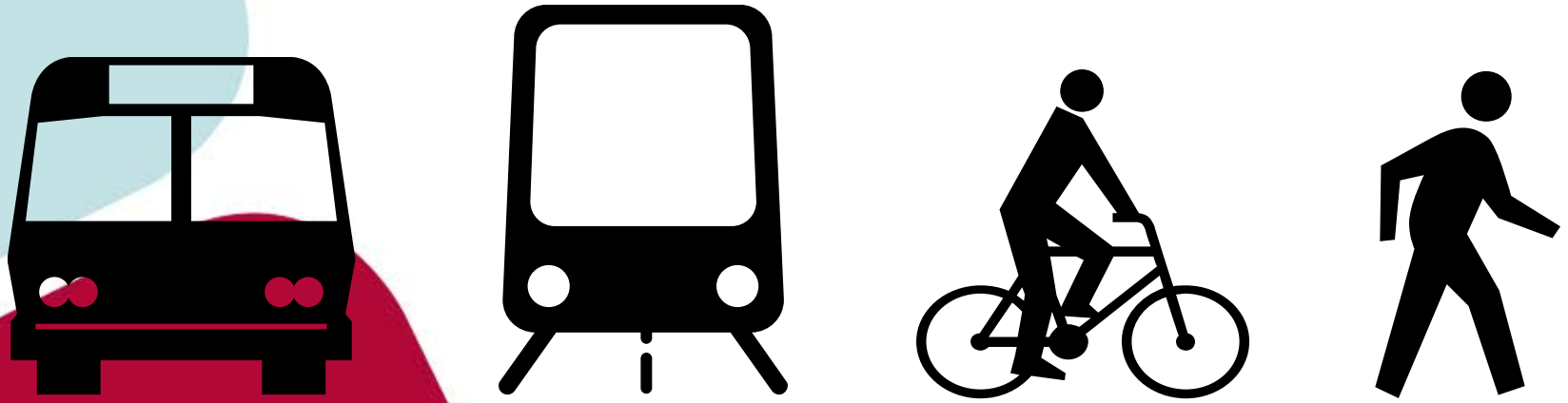
Mode Share

Mode	#	5D Attribute	Scoring	Adjustment	Trip Table	Balance/ Change
Transit	1	5D1_MR_WK	10	1.0833	Increase	Balance
			5	1.0417	WK_MR	
			4	1.0333	WK_Bus_MR	
			3	1.0250		
			2	1.0167		
			1	1.0083	Decrease	
			0	1.0000	All Others except MR and CR	
	2	5D1_MR_PNR	10	1.0833	Increase	Balance
			5	1.0417	PNR_MR	
			4	1.0333	PNR_Bus_MR	
			3	1.0250		
			2	1.0167		
			1	1.0083	Decrease	
			0	1.0000	All Others except MR and CR	
	3	5D1_MR_KNR	10	1.0833	Increase	Balance
			5	1.0417	KNR_MR	
			4	1.0333	KNR_Bus_MR	
			3	1.0250		
			2	1.0167		
			1	1.0083	Decrease	
			0	1.0000	All Others except MR and CR	
	4	5D1_HCT	10	1.4091	Increase	Balance
			5	1.2045	HCT	
			4	1.1636		
			3	1.1227		
			2	1.0818		
			1	1.0409	Decrease	
			0	1.0000	All Others except for CR	

Mode	DDOT Trip Tables
Motorized	SOV
	HOV2
	HOV3
	APV
	TRK
	COM
Transit	WK_Bus
	PNR_Bus
	KNR_Bus
	WK_CR
	PNR_KNR_CR
	WK_MR
	PNR_MR
	KNR_MR
	WK_Bus_MR
	PNR_Bus_MR
	KNR_Bus_MR
	HCT
	Water
Walk/ Bike	Walk
	Bike

Mode Share

- Results and conclusions
  - Innovation doesn’t always have to be complicated
  - Don’t be afraid to look at things from a different perspective
  - Showed that investment alone wasn’t enough to get to their goal of 75% non-auto mode share



Transit Suitability

Wake County Transit

Transit Suitability

- What is it?
  - Wake County Transit Investment Strategy, designed to help voters think through their transit options and to assemble a plan that might be worthy of voter support
- What was the question?
  - Where are the areas in the county most suitable for transit investment




Transit Suitability

- How did we answer the question?
  - Developed transit suitability map using GIS to help populate the zone information spatially
  - Provided a ranking of existing and future planned routes based on the suitability scoring




Transit Suitability

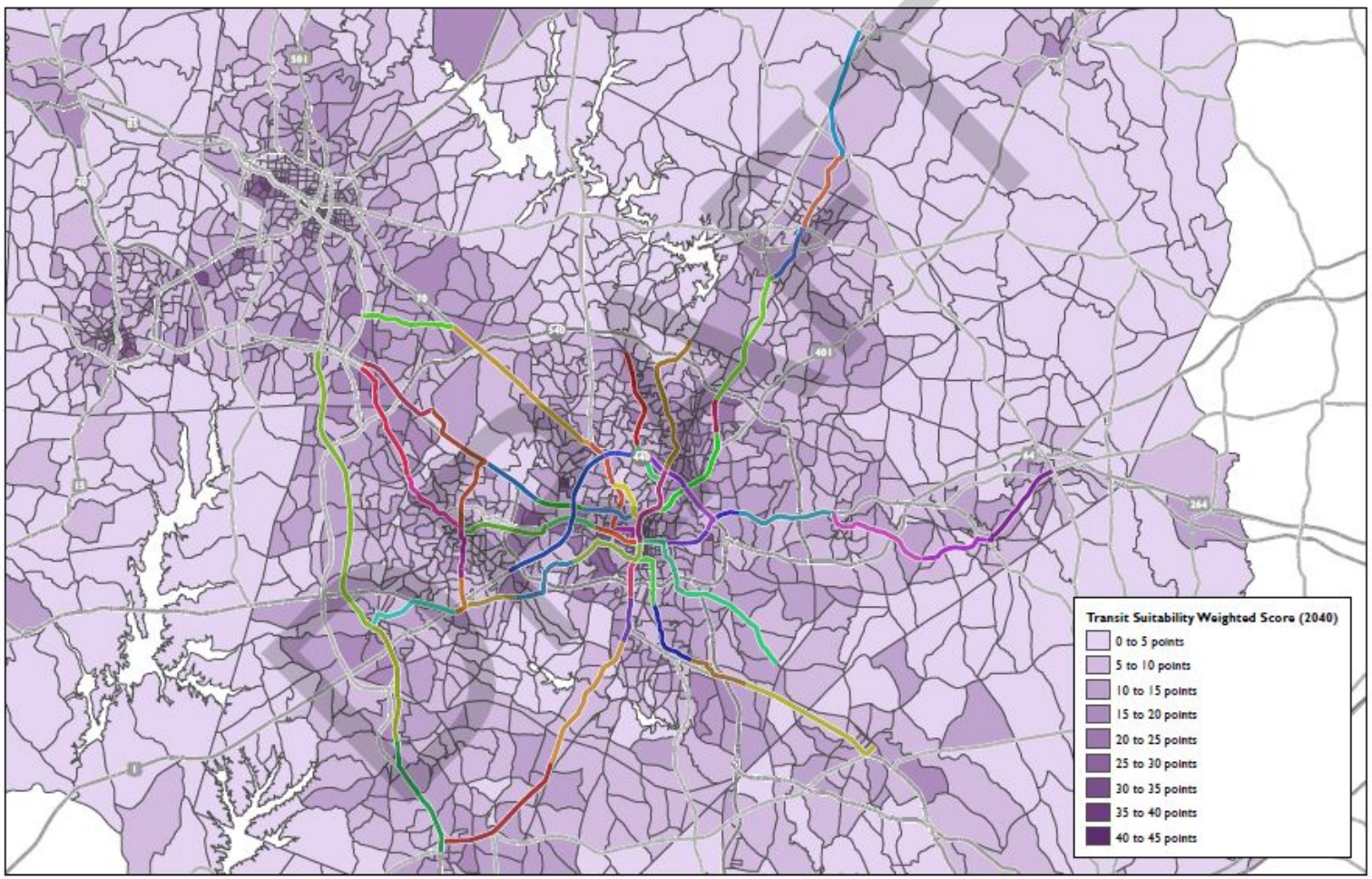


Figure 70: Transit Suitability Weighted Score (2040)

Transit Suitability

Wake TRANSIT

Wake Transit
Premium Corridor Analysis Results - 2040 Conditions

Segment ID	Route	Length (miles)	Area (acres)	Pop.	Emp.	Trips	Pop. Density	Emp. Density	Trip Density	Pop. per Mile	Emp. per Mile	Internal Trips	Internal Trip Density	Percent Zero-Car Households	Income	Congestion	Land Use Activity Percentage	Activity Centers Score
1.1	Fuquay-Varina to Holly Springs	5.44	3,981	67,956	26,635	388,514	17.07	6.67	97.59	12,482	4,874	7,482	1.88	4.81%	$72,311	0.84	0.62%	0
1.2	Holly Springs to Apex	5.46	3,995	61,837	44,656	471,282	15.48	11.18	117.96	11,326	8,179	10,143	2.54	5.03%	$69,342	0.77	0.89%	0
1.3	Fuquay-Varina to Apex	10.90	7,461	107,797	62,793	737,267	14.45	8.42	98.81	9,886	5,759	23,195	3.11	4.96%	$70,519	0.80	0.76%	0
1.4	Apex to RTP	12.96	9,097	113,563	82,530	858,399	12.48	9.07	94.36	8,764	6,369	35,246	3.87	5.29%	$73,068	0.70	0.85%	11
1.5	Holly Springs to RTP	18.42	12,601	166,655	116,095	1,196,851	12.43	9.13	94.90	8,505	6,247	50,545	4.01	5.18%	$72,312	0.73	0.68%	11
1.6	Fuquay-Varina to RTP	23.86	16,067	202,615	133,202	1,461,836	12.61	8.29	90.98	8,491	5,582	64,886	4.04	5.12%	$72,218	0.75	0.66%	11
2.1	Raleigh to Garner Station	4.56	3,421	55,506	88,646	566,872	16.23	25.91	165.71	12,186	19,430	19,294	5.64	9.40%	$44,228	0.85	0.55%	7
2.2	Raleigh to Wake Tech	10.90	7,471	80,614	93,195	676,628	10.79	12.47	90.56	7,397	8,551	25,140	3.36	7.90%	$52,840	0.83	0.68%	10
2.3	Raleigh to Fuquay-Varina	17.73	11,833	127,837	113,749	971,346	10.80	9.61	82.09	7,211	6,416	36,146	3.05	6.90%	$58,922	0.82	0.76%	10
3.1	Raleigh to Crossroads	7.85	5,422	108,693	103,056	803,538	20.05	19.01	148.20	13,845	13,127	29,000	5.35	12.82%	$48,977	0.82	1.74%	39
3.2	Apex to Crossroads	7.25	5,088	54,119	44,982	482,333	10.64	8.84	94.80	7,469	6,208	10,310	2.03	3.63%	$98,614	0.71	1.40%	5
3.3	Raleigh to Apex	15.10	10,005	153,730	142,791	1,214,773	15.36	14.27	121.41	10,183	9,459	45,734	4.57	8.43%	$73,564	0.78	1.57%	42
4.1	Cary to Regency	3.93	2,947	26,755	24,617	253,113	9.08	8.32	85.88	6,805	6,236	5,209	1.77	3.91%	$87,174	0.75	1.21%	3
4.2	Cary to I-40	3.48	2,727	26,009	16,893	197,400	9.54	6.19	72.38	7,465	4,848	3,573	1.35	4.60%	$79,878	0.79	0.69%	0
4.3	Harrison to RDU	3.62	2,736	9,173	24,069	172,548	3.35	8.80	63.09	2,602	6,828	2,124	0.78	4.74%	$71,721	1.03	7.59%	4
4.4	Regency to U-40	7.42	5,172	42,261	35,663	375,786	8.17	6.90	72.66	5,699	4,809	10,856	2.10	4.18%	$84,649	0.78	1.04%	3
4.5	Cary to RDU	7.01	4,870	33,906	33,660	327,007	6.96	6.91	67.14	4,837	4,802	7,710	1.58	4.76%	$74,419	0.86	1.14%	4
4.6	Regency to RDU	10.94	7,315	50,158	52,430	505,393	6.86	7.17	69.09	4,584	4,792	15,637	2.14	4.41%	$79,615	0.83	1.26%	7
5.1	Raleigh to NCSU	2.14	1,874	63,870	83,122	545,423	34.07	44.34	290.98	29,784	38,752	17,922	9.56	16.89%	$53,949	0.86	2.93%	25
5.2	NCSU to State Fairgrounds	2.29	1,956	44,780	33,666	313,982	22.77	17.07	159.68	19,569	14,668	4,439	2.26	16.08%	$59,415	0.85	5.07%	30
5.3	Cary to State Fairgrounds	4.18	3,154	51,029	33,223	360,866	16.18	10.53	114.40	12,211	7,950	6,794	2.15	7.58%	$55,807	0.74	0.98%	2
5.4	Morrisville to RTP	5.34	3,909	32,286	54,048	429,525	8.26	13.83	109.89	6,051	10,130	8,333	2.13	8.88%	$48,770	0.82	1.20%	12
5.5	Raleigh to State Fairgrounds	4.43	3,338	86,622	104,994	737,396	25.95	31.46	220.92	19,541	23,685	28,309	8.48	16.16%	$55,536	0.84	3.15%	32
5.6	Raleigh to Cary	8.61	5,989	121,292	123,484	965,196	20.25	20.62	161.17	14,085	14,339	43,747	7.30	11.80%	$55,875	0.81	2.19%	32
5.7	Raleigh to Morrisville	12.40	8,325	150,952	139,998	1,189,074	18.13	16.82	142.83	12,173	11,290	55,749	6.70	9.75%	$66,403	0.80	1.88%	32
5.8	Raleigh to RTP	17.74	11,730	166,404	189,111	1,523,958	14.19	16.12	129.92	9,382	10,662	73,883	6.30	9.53%	$60,742	0.81	1.74%	44
5.9	Cary to RTP	9.12	6,292	56,679	71,816	639,631	9.01	11.41	101.65	6,212	7,871	18,658	2.97	6.97%	$66,377	0.78	0.89%	12
6.1	Raleigh to Meredith College	3.92	2,946	64,179	84,814	585,249	21.79	28.79	198.66	16,378	21,644	19,097	6.48	7.33%	$96,315	0.87	0.73%	14
6.2	Meredith College to Edwards Mill	2.07	1,825	12,564	23,191	168,336	6.89	12.71	92.25	6,080	11,223	982	0.54	14.90%	$53,729	0.90	6.51%	11
6.3	Edwards Mill to RDU	6.38	4,560	14,849	31,567	235,514	3.26	6.92	51.64	2,329	4,952	3,469	0.76	5.73%	$70,735	1.02	6.15%	7
6.4	RDU to RTP	4.11	3,121	13,141	64,646	413,749	4.21	20.71	132.58	3,195	15,717	3,171	1.02	8.16%	$47,988	0.97	8.42%	16
6.5	Raleigh to Edwards Mill	5.99	4,267	70,264	102,995	700,413	16.47	24.14	164.15	11,740	17,209	22,720	5.32	9.64%	$78,597	0.87	1.21%	19
6.6	Raleigh to RDU	12.36	8,321	82,963	128,528	895,188	9.97	15.45	107.58	6,712	10,399	30,046	3.61	7.07%	$77,374	0.92	1.42%	23
6.7	Raleigh to RTP	16.47	10,909	96,077	179,557	1,227,010	8.81	16.46	112.47	5,832	10,900	37,860	3.47	7.67%	$68,996	0.94	1.67%	35
7.1	Raleigh to Cameron Village	1.78	1,571	55,924	81,821	512,893	35.60	52.09	326.52	31,339	45,851	14,174	9.02	11.16%	$59,745	0.86	1.79%	12
7.2	Cameron Village to Crabtree	4.34	3,273	47,167	34,930	383,457	14.41	10.67	117.15	10,867	8,048	8,504	2.60	5.31%	$138,466	0.94	1.18%	13
7.3	Crabtree to Brier Creek	7.97	5,600	67,899	44,446	584,429	12.12	7.94	104.35	8,523	5,579	18,552	3.31	5.25%	$73,554	0.81	0.37%	11
7.4	RTP to Brier Creek	4.12	3,135	40,368	53,287	470,269	12.88	17.00	150.02	9,804	12,942	7,629	2.43	5.64%	$64,100	0.88	0.36%	4
7.5	Raleigh to Crabtree	6.12	4,296	82,899	102,469	757,829	19.30	23.86	176.46	13,535	16,730	31,984	7.45	6.06%	$118,963	0.90	1.12%	15
7.6	Raleigh to Brier Creek	14.09	9,390	139,348	133,826	1,203,410	14.84	14.25	128.15	9,889	9,497	57,423	6.12	5.62%	$94,048	0.86	0.78%	23
7.7	Raleigh to RTP	18.21	12,017	155,812	177,830	1,500,468	12.97	14.80	124.87	8,557	9,766	71,708	5.97	5.61%	$87,221	0.87	0.74%	23

Transit Suitability

- Results and conclusions
  - Answers would not have come from the travel demand model alone
  - Provided information to larger group to help make decisions




Questions?

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