

Funding and Impact of the Wake County Transit Plan

Version 8/24/2016

Purpose of this Document

The scenarios in this document have been developed by Wake County Staff to provide context to three questions about the Wake County Transit Plan that have been asked multiple times:

- 1) How will the funding from non-Wake County tax dollar sources (federal, state, fare box, other outside the county sources) impact the plan and our ability to implement the plan?
- 2) How will ridership respond to the proposed service increases and how will this impact our ability to implement the plan?
- 3) How will the transit investment impact the number of vehicles on our roadways?

Although there is no certainty or guarantee on future events, the Wake County community has deliberately considered a balance between a need to be careful financially with a need to aggressively and efficiently deliver useful transit service. The Wake County Transit Plan is designed to be resilient in various different funding and ridership scenarios. The Plan is also designed to work incrementally and in partnership with other efforts to achieve greater usefulness.

Each of the responses is crafted to create a range of potential answers to frame discussion and consideration. The ranges do not currently reflect specific goals or objectives but could be tied to future metrics.

Question 1 – How will the funding from non-Wake County sources impact the Plan and our ability to implement the plan?

Figure 1 – Wake County Transit Funding Scenarios (attached) examines total expected spending for a 10 year period (2017-2026) and designates the different funding sources as coming from either directly from Wake County taxes or other “non-Wake tax” sources and shows 4 potential scenarios on funding.

This analysis is based on a combined 10 year snapshot (all money over ten years). This overall number is used to retain consistency with the Transit Model reporting and avoid issues with differences in collection year to year.

Funding Sources

The analysis groups the major funding sources considered by the Wake County Transit Plan into two categories; direct Wake County taxes and Non-Wake tax sources. The Wake County tax sources include 100% of the car registration fees, 100% of the existing local spending (property tax and vehicle registration), 86% of the sales tax fee and debt service and 80% of the rental car fees. The non-Wake funding sources include Federal and State funding, Fare Box fees (user fees), 14% of the sales tax revenues and debt service and 20% of rental car revenues. The percentage of sales tax, debt service and rental car taxes considered non-Wake are generated by visitors, travelers and residents from nearby counties. The categories assume that 14% of the sales tax will be paid by non-Wake residents or businesses. Tourists and visitors account for 8%, while

commuters, residents or businesses of nearby counties who make purchases in Wake account for 6%. The tourism and visitor number is based on analysis provided by the Raleigh / Wake Chamber of Commerce. The adjacent county number is based on an analysis on commuting flow numbers. In the analysis, these numbers are assumed to stay static or consistent relative to Wake County's population over ten years. In reality, these numbers could do any number of things based on residential development trends, commercial development trends, taxation laws, or overall economic conditions. The groupings of funding sources remain constant through all scenarios. A base fare increase beyond what is proposed in 2016 (to \$1.50) is not anticipated and changes in fare recovery relate only to changes in ridership. Premium fares for express services will likely be considered.

Funding Scenarios

The scenario listed as the Adopted Scenario has been adopted as part of the Wake County Transit Plan. The scenario was designed to error on the "high side of realistic" for project costs and the "low side of potential" for revenues. This scenario is used as the base and other polarized scenarios shall be judged by the potential changes in funding or "programmed" funding. The other scenarios include two higher than programmed outside revenue scenarios and one lower than programmed scenario. The Wake County Transit Plan intends to pursue all applicable outside funds to best leverage local sources.

The Extra Outside Funding Scenario assumes several funding sources are better than programmed, including funds from the Federal Government, the State of North Carolina and fare revenue. The federal funds are increased because the bus rapid transit (BRT) projects could qualify for 80% Federal funding (rather than the 50% in the adopted model). The State funds are increased because the commuter rail project could compete for 10% in State funding through STI (the adopted model shows 0% State for this project). The farebox is increased based on the likelihood that ridership will exceed the model assumption (further details on this are detailed in the answer to question 2). The Extra Outside to Debt scenario uses the same funding changes as the Extra Outside Funding Scenario but assumes that the extra money is used to reduce borrowing and interest payments associated with borrowing. The Less Outside Funding scenario explores reductions in programmed funding comparable to the amount added in the other two scenarios.

Question 1 Observations

The calculations at the bottom of Figure 1 note how the different scenarios compare in terms of leveraging outside funding, generating enough funding to implement all planned projects and finding the right balance between user fares and direct subsidies. The potential surpluses would suggest that additional projects could be completed or debt could be paid back sooner. The potential shortfalls suggest that projects may need to be delayed or reconsidered if outside funding is not secured. Communications around the Wake County Transit Plan have been clear that outside money is not guaranteed and adjustments may be necessary. Moving forward transit decision makers will make annual decisions on how to proceed based on the best information available.

Question 2 – How will ridership respond to the proposed service increases and how will this impact our ability to implement the plan?

Table 2.1 - Ridership and Coordinated Transportation Thinking – Daily and Annual Transit Trips provides a quick way to relate (and create scenarios of) Wake County’s overall population to our potential daily and annual transit system ridership for a target year of 2027. This table also addresses the potential fare box revenue and associated general subsidy associated with the different ridership levels. As the table suggests a base fare increase beyond what is proposed in 2016 (to \$1.50) is not anticipated and changes in fare recovery relate directly to changes in ridership. Premium fares for express services will likely be considered.

All of the scenarios are calculated using the expected annual amount to be spent on all transit services (the entire transit network) in 2027. The single year in the Table 1 is used to compare annual trips in the various scenarios to annual expenditures.

Ridership Scenarios

Current Base (two population scenarios, 2015 and 2027)

Bus services in Wake currently serve about 1% of our population daily for commute trips and 2% of our population daily for other trips. We currently serve around 30,000 trips per day. In 2027 our expected population will be at least 1,246,181.

Preliminary Transportation Model Base (two population scenarios, 2015 and 2027)

Preliminary runs on the regional transportation model suggest that network could carry as many 80,000 trips per day in 2025. The current transportation model does not transfer trips to transit well and the land use nodes are not aligned with the Wake Transit Plan. The land use nodes will likely be updated this year. This scenario calls for 2% of population for commuting and 4% for other trips daily.

Service Increase Base (two population scenarios, 2015 and 2027)

Nationally there has been a one for one increase in passengers as basic service is increased. The plan calls for at least a 3x increase in service and increases to days and hours of operation. To reflect this in this scenario the projected passengers (as a percent of population) in these scenarios are 3% commute passengers and 6% other passengers (3x today).

Land use Increase Base (two population scenarios, 2015 and 2027)

There also will likely be a strong relationship between transit and development as people who want to use transit locate near services and the development community responds to build in those areas. This could result in an additional shift (from the service increase scenario) of both commute and other trips to transit. For the purposes of the analysis this means a 2% bump for commute passengers and a 4% bump for other trip passengers. This scenario shows the percentage of residents commuting by transit at 5% and the percentage using transit for other trips at 10%.

Zero Subsidy Base (two population scenarios, 2015 and 2027)

This scenario is developed by dividing the expected fare rate, \$1.50, by the amount spent on transit services. This scenario would require 6% of commute trips and 13% of other trips in 2027.

Question 2 Observations

The calculations on Table 1.2 suggest that population growth and increases in transit usefulness will likely result in higher transit ridership. Plausible increases in transit ridership will likely allow the Wake County Transit Plan to meet its network subsidy metrics (less than 83% subsidy). The calculations also show a clear pathway for building ridership and reducing subsidies if a portion of the residential and job markets continue to prefer areas with high walkability and proximity.

Question 3 - How will the transit investment impact the number of vehicles on our roadways?

Table 2.2 Ridership and Coordinated Transit Thinking – Daily Trips Transit and Automobile builds on the work in Table 2.1 to connect the impact of growing the number of transit trips to the automobile trips on our network. The scenarios considered are the same as in table 2.1.

Inputs

Automobile Trips, Trip Miles and Miles per Trip

National studies suggest on average each member of the population takes 4 trips per day. The data suggests that on average 3.5 of these are taken by automobile. In reality the number of trips taken is impacted by several factors including age, employment and location. NCDOT estimates that, in 2016, 30,499,000 miles are driven per day in Wake County (daily vehicle miles traveled or DVMT). This analysis assumes the same ratio of miles driven to population in 2027. This analysis adjusts the overall DVMT slightly for non-Wake or through highway trips to suggest that the average trip in Wake County is 6.5 miles long.

Outputs

Diverted Future Trips and Diverted Future Miles

Both calculations are done comparing the estimated ridership of each transit scenario with the listed variable. The trip calculation is based only on automobile trips by Wake residents, the miles calculation is based on all miles (for all purposes) estimated in Wake County today by NCDOT and calculated for 2027 using the same ratio.

Question 3 Observations

This analysis gives several metrics to show the impact of transit investment on the overall transportation network. Since these numbers are abstract, relative comparisons may help in making these numbers meaningful. For example, Glenwood Avenue around I-440 carries around 49,000 trips daily (2013 counts). This compares to the additional 49,274 trips that transit could divert with a 160% increase in ridership attributable to rider response or expected population growth.

Figure 1
Wake County Transit Funding Scenarios
August 2016

Adopted Transit Financial Model - (Less Outside Funding Scenario)				Adopted Transit Financial Model (Adopted Scenario)				Transit Model + (Extra Outside Funding Scenario)				Transit Model ++ (Extra Outside to Debt Scenario)			
		Funding Change	% Funding Change			Funding Change	% Funding Change			Funding Change	% Funding Change			Funding Change	% Funding Change
Federal Sources (26%) -1	655,634,000	(64,843,000)	-9%	Federal Sources (27%)	720,477,000	0	0%	Federal Sources (30%) -2	785,320,000	64,843,000	9%	Federal Sources (30%) -2	785,319,930	64,842,930	9%
State Sources (0%) -3	0	(26,892,000)	-100%	State Sources (1%)	26,892,000	0	0%	State Sources (4%) -4	94,122,000	67,230,000	250%	State Sources (4%) -4	94,122,000	67,230,000	250%
Farebox (3%) -5	67,144,000	(44,762,000)	-40%	Farebox (4%)	111,906,000	0	0%	Farebox (6%) -6	156,668,000	44,762,000	40%	Farebox (6%) -6	156,668,400	44,762,400	40%
Sales Tax	962,487,000	0	0%	Sales Tax	962,487,000	0	0%	Sales Tax	962,487,000	0	0%	Sales Tax	962,487,000	0	0%
Car Registration	94,551,000	0	0%	Car Registration	94,551,000	0	0%	Car Registration	94,551,000	0	0%	Car Registration	94,551,000	0	0%
Other/Existing Local	182,190,000	0	0%	Other/Existing Local	182,190,000	0	0%	Other/Existing Local	182,190,000	0	0%	Other/Existing Local	182,190,000	0	0%
Rental Car	41,185,000	0	0%	Rental Car	41,185,000	0	0%	Rental Car	41,185,000	0	0%	Rental Car	41,185,000	0	0%
Other / Debt	512,597,000	0	0%	Other / Debt	512,597,000	0	0%	Other / Debt	512,597,000	0	0%	Other / Debt	335,761,670	176,835,330	34%
Total	2,515,788,000	(136,497,000)	-5%	Total	2,652,285,000	0	0%	Total	2,829,120,000	176,835,000	7%	Total	2,652,285,000	0	0%
Non-Wake Sources or Tax Money	Percent Allocated			Non-Wake Sources or Tax Money	Percent Allocated			Non-Wake Sources or Tax Money	Percent Allocated			Non-Wake Sources or Tax Money	Percent Allocated		
100% of Federal	655,634,000	100%		100% of Federal	720,477,000	100%		100% of Federal	785,320,000	100%		100% of Federal	785,319,930	100%	
100% of State	0	100%		100% of State	26,892,000	100%		100% of State	94,122,000	100%		100% of State	94,122,000	100%	
100% of Farebox	67,144,000	100%		100% of Farebox	111,906,000	100%		100% of Farebox	156,668,000	100%		100% of Farebox	156,668,400	100%	
14% of Sales Tax -7	134,748,180	14%		14% of Sales Tax -7	134,748,180	14%		14% of Sales Tax -7	134,748,180	14%		14% of Sales Tax -7	134,748,180	14%	
0% of Car Registration	0	0%		0% of Car Registration	0	0%		0% of Car Registration	0	0%		0% of Car Registration	0	0%	
0% Other / Existing Local	0	0%		0% Other / Existing Local	0	0%		0% Other / Existing Local	0	0%		0% Other / Existing Local	182,190,000	0%	
20% of Rental Car -8	8,237,000	20%		20% of Rental Car -8	8,237,000	20%		20% of Rental Car -8	8,237,000	20%		20% of Rental Car -8	8,237,000	20%	
14% of Other Debt -7	71,763,580	14%		14% of Other Debt -7	71,763,580	14%		14% of Other Debt -7	71,763,580	14%		14% of Other Debt -7	47,006,634	14%	
Total Non-local, Non New Tax Money	937,526,760			Total Non-local, Non New Tax Money	1,074,023,760			Total Non-local, Non New Tax Money	1,250,858,760			Total Non-local, Non New Tax Money	1,408,292,144		
Tax Money from Wake Residents	Percent Allocated			Tax Money from Wake Residents	Percent Allocated			Tax Money from Wake Residents	Percent Allocated			Tax Money from Wake Residents	Percent Allocated		
0% of Federal	0	0%		0% of Federal	0	0%		0% of Federal	0	0%		0% of Federal	0	0%	
0% of State	0	0%		0% of State	0	0%		0% of State	0	0%		0% of State	0	0%	
0% of Farebox	0	0%		0% of Farebox	0	0%		0% of Farebox	0	0%		0% of Farebox	0	0%	
86% of Sales Tax -7	827,738,820	86%		86% of Sales Tax -7	827,738,820	86%		86% of Sales Tax -7	827,738,820	86%		86% of Sales Tax -7	827,738,820	86%	
100% of Car Registration	94,551,000	100%		100% of Car Registration	94,551,000	100%		100% of Car Registration	94,551,000	100%		100% of Car Registration	94,551,000	100%	
100% of Other /Existing Local	182,190,000	100%		100% of Other /Existing Local	182,190,000	100%		100% of Other /Existing Local	182,190,000	100%		100% of Other /Existing Local	182,190,000	100%	
80% of Rental Car -8	32,948,000	80%		80% of Rental Car -8	32,948,000	80%		80% of Rental Car -8	32,948,000	80%		80% of Rental Car -8	32,948,000	80%	
86% of Other Debt -7	440,833,420	86%		86% of Other Debt -7	440,833,420	86%		86% of Other Debt -7	440,833,420	86%		86% of Other Debt -7	288,755,036	86%	
Total Local, New Tax Money	1,578,261,240			Total Local, New Tax Money	1,578,261,240			Total Local, New Tax Money	1,578,261,240			Total Local, New Tax Money	1,426,182,856		
Outside Dollar for Every Wake County Tax Dollar	0.59			Outside Dollar for Every Wake County Tax Dollar	0.68			Outside Dollar for Every Wake County Tax Dollar	0.79			Outside Dollar for Every Wake County Tax Dollar	0.99		
Funding Shortfall/Surplus Over Adopted Scenario	(136,497,000)			Funding Shortfall/Surplus Over Adopted Scenario	0			Funding Shortfall/Surplus Over Adopted Scenario	176,835,000			Funding Shortfall/Surplus Over Adopted Scenario	176,835,000		
Average % of Fare Recovery	10.3%			Average % of Fare Recovery	17.1%			Average % of Fare Recovery	24.0%			Average % of Fare Recovery	24.0%		

1 The Adopted Transit model assumes Federal participation at 50% in 4 BRT projects and the CRT project. The less outside funding scenario assumes 50% participation in 2 BRT projects and 0% participation in 2 BRT Projects. CRT remains at 50%. The % amount references the amount shown for this item under the Adopted Transit Model.
2 The Adopted Transit model assumes Federal participation at 50% in 4 BRT projects and the CRT project. The extra outside funding scenario assumes 80% participation in 2 BRT projects and 50% participation in 2 BRT Projects. CRT remains at 50%. The % amount references the amount shown for this item over the Adopted Transit Model.
3 The Adopted Transit model assumes no State Capital Funding. The less outside funding scenario assumes no state operating support as well. The % shown references the amount shown for this item under the Adopted Transit Model.
4 The Adopted Transit model assumes no State Capital Funding. The extra outside funding scenario assumes 10% funding as allowed by NC Transportation legislation. The % shown references to the amount shown for this item over the Adopted Transit Model.
5 The Adopted Transit model assumes fare recovery at 17% similar to the existing system. The less outside funding scenario assumes a fare recovery decrease with better service. Approximately a 10% average farebox recovery is calculated for the 10 year period 2017 to 2026.
6 The Adopted Transit model assumes fare recovery at 17% similar to the existing system. The extra outside funding scenario assumes a fare recovery will increase with better service. Approximately a 24% average farebox recovery is calculated for the 10 year period 2017 to 2026.
7 14% of the sales tax is assumed to be paid by non Wake residents. 7% are tourists / visitors. 7% are non-wake residents that shop primarily (weekly) at Wake retail centers. 14% of the debt is assumed to be paid-off by these revenues.
8 20% of rental cars are assumed to be rented by non Wake residents.

Figure 2
Details on Ridership and Coordinated Transportation Thinking
July 2016

Table 2.1 - Ridership and Coordinated Transportation Thinking - Daily and Annual Transit Trip, Cost and Subsidy Scenarios

	Wake County Population	Annual Cost to Operate Transit Services in 2027 (2027 Numbers)	Transit Fare Proposed (2027 Numbers)	% Commuter Passengers	% Other Passengers	Commuter Trips	Passenger Other Trips	Annual Trips (365 Days of Operation)	Price Per Trip (2027)	Subsidy Per Trip	Fare Increase Needed for 100% Operating Cost Recovery	Total Daily Passenger Trips	Annual Days of Operation	Daily Ridership % Change from Today
Current Ridership Percentage / Current Population	1,024,198	\$ 129,337,000	\$ 1.50	1%	2%	10,242	20,484	11,215,000	\$ 11.54	87%	\$ 10.04	30,726	365	0%
Current Ridership Percentage / 2027 Population	1,246,181	\$ 129,337,000	\$ 1.50	1%	2%	12,462	24,924	13,646,000	\$ 9.48	84%	\$ 7.98	37,386	365	20%
Transportation Model Preliminary Numbers / Current Population	1,024,198	\$ 129,337,000	\$ 1.50	2%	4%	21,969	44,604	24,299,000	\$ 5.33	72%	\$ 3.83	66,573	365	120%
Transportation Model Preliminary Numbers / 2027 Population	1,246,181	\$ 129,337,000	\$ 1.50	2%	4%	26,400	53,600	29,200,000	\$ 4.43	66%	\$ 2.93	80,000	365	160%
Service Increase Percentage (3x) / Current Population	1,024,198	\$ 129,337,000	\$ 1.50	3%	6%	30,726	61,452	33,645,000	\$ 3.85	61%	\$ 2.35	92,178	365	200%
Service Increase Percentage (3x) / 2027 Population	1,246,181	\$ 129,337,000	\$ 1.50	3%	6%	37,385	74,771	40,937,000	\$ 3.16	53%	\$ 1.66	112,156	365	270%
Service and Landuse Percentage / Current Population	1,024,198	\$ 129,337,000	\$ 1.50	5%	10%	51,210	102,420	56,075,000	\$ 2.31	35%	\$ 0.81	153,630	365	400%
Service and Landuse Percentage / 2027 Population	1,246,181	\$ 129,337,000	\$ 1.50	5%	10%	62,309	124,618	68,228,000	\$ 1.90	21%	\$ 0.40	186,927	365	510%
Zero Subsidy Percentage / Current Population	1,024,198	\$ 129,337,000	\$ 1.50	8%	15%	77,957	158,275	86,224,667	\$ 1.50	0%	\$ -	236,232	365	670%
Zero Subsidy Percentage / 2027 Population	1,246,181	\$ 129,337,000	\$ 1.50	6%	13%	77,957	158,275	86,224,667	\$ 1.50	0%	\$ -	236,232	365	670%

Table 2.2 - Ridership and Coordinated Transportation Thinking - Daily Trips Transit and Automobile, % Transit Trips and Miles Diverted Scenarios

	Wake County Population	Average Trips Per Person Per Day	Average Automobile Trips Per Person Per Day (87 % of all trips)	Total Wake Automobile Trips Per Day	Estimated Transit Trips Per Day	% Transit Trips	Potential Future Trips Diverted by Transit	% Potential Future Trips Diverted by Transit	Average Distance of Trip (Miles)	Potential Miles of Travel per Day not on roadways per day	Total Automobile Miles Per Day	Potential Future Miles Diverted by Transit per day	% Potential Future Miles Diverted by Transit per day
Current Ridership Percentage / Current Population	1,024,198	4	3.5	3,584,693	30,726	0.9%	-	0.0%	6.5	199,700	30,449,000	-	0.0%
Current Ridership Percentage / 2027 Population	1,246,181	4	3.5	4,361,634	37,386	0.9%	6,660	0.2%	6.5	243,000	37,048,000	43,300	0.1%
Transportation Model Preliminary Numbers / Current Population	1,024,198	4	3.5	3,584,693	66,573	1.9%	35,847	1.0%	6.5	432,700	30,449,000	233,000	0.8%
Transportation Model Preliminary Numbers / 2027 Population	1,246,181	4	3.5	4,361,634	80,000	1.8%	49,274	1.1%	6.5	520,000	37,048,000	320,300	0.9%
Service Increase Percentage (3x) / Current Population	1,024,198	4	3.5	3,584,693	92,178	2.6%	61,452	1.7%	6.5	599,200	30,449,000	399,500	1.3%
Service Increase Percentage (3x) / 2027 Population	1,246,181	4	3.5	4,361,634	112,156	2.6%	81,430	1.9%	6.5	729,000	37,048,000	529,300	1.4%
Service and Landuse Percentage / Current Population	1,024,198	4	3.5	3,584,693	153,630	4.3%	122,904	3.4%	6.5	998,600	30,449,000	798,900	2.6%
Service and Landuse Percentage / 2027 Population	1,246,181	4	3.5	4,361,634	186,927	4.3%	156,201	3.6%	6.5	1,215,000	37,048,000	1,015,300	2.7%
Zero Subsidy Percentage / Current Population	1,024,198	4	3.5	3,584,693	236,232	6.6%	205,506	5.7%	6.5	1,535,500	30,449,000	1,335,800	4.4%
Zero Subsidy Percentage / 2027 Population	1,246,181	4	3.5	4,361,634	236,232	5.4%	205,506	4.7%	6.5	1,535,500	37,048,000	1,335,800	3.6%