# *Connect2050* Appendix 11 – Financial Plan Details

## Background

Appendix 11 includes a discussion of the assumptions and methods used in the development of the 2050 MTP financial plan, which is covered in Chapter 8. This appendix focuses on how the values used in this plan may differ from other sources, and how the fiscal constraint spreadsheet developed by the Triangle J Council of Governments can be used and modified to analyze different sets of assumptions or provide revised estimates as plans are revised.

Chapter 8 shows cost and revenues in “constant 2020 dollars” for several reasons:

1. Underlying data sources treat future inflation differently, so stating all costs in a common 2020 base provides a consistent way to treat revenues and costs, regardless of what future inflation may actually be.
2. During the development of the MTP, the timing of projects is often modified throughout the plan development, review and adoption process, which would require re-calculation of (and thus changed totals for) project costs if they are stated in “current dollars” (also termed Year-of-Expenditure dollars) moved to a different future year as the draft plan is reviewed and revised due to community engagement.
3. Costs for projects are typically developed as if they were built today and in a single year, but many projects have multi-year schedules, with design and engineering, right-of-way acquisition and utility work, and construction taking place over several years.
4. People think in terms of the value of a dollar today, so putting costs and revenues in future inflated “Year of Expenditure” or the “current dollars” of some future year makes it difficult for people to understand the context of investments.
5. Pandemic-related increases in funding for transportation, along with associated supply chain economic disruptions have resulted in higher recent inflation for many products and services, including those that go into transportation projects. Although many economists expect these inflationary spikes to be temporary, their amount and duration remains unclear.
6. Major financial inputs for the plan are either underway or will be significantly revised over the next several months, further complicating the ability to estimate the exact timing of projects. Both the Durham and Orange County Transit Tax Plans are in development at the time of this MTP adoption. NCDOT is updating the Transportation Improvement Program (TIP); NCDOT staff have indicated that project costs and schedules in the current TIP will; certainly change, and many may do so dramatically, with some projects that were expected to be completed over the next several years pushed further into the future. And although the new federal Bipartisan Infrastructure Bill has been enacted, the nature of additional funding for projects in the Triangle Region is only partly understood.

For all these reasons, the foundations for both the revenues and costs in the financial plan are expressed in 2020 constant dollars, as summarized below. The Triangle J COG transportation staff maintains a fiscal constraint workbook that can translate both revenues and costs between 2020 and future years, using varying assumptions about both cost inflation and revenue growth. As an example, since local transit revenues are tied to sales taxes, cost inflation for items on which transit sales tax is collected will lead to higher revenues than would occur in the absence of the inflation. Since MTP investments take place over a 30-year time period, using a long-term average inflation rate (historically two to three percent) is generally considered advisable, even though inflation will vary during the period.

The default financial model starts with a 2% annual discount rate (and inflation rate) to translate constant 2020 dollars into any future year (current) dollars, as shown in the example on this page.

| Time Value of Money @ 2% annual inflation rate | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| Constant 2020 $ | $100 | $100 | $100 | $100 |
| Current $ for Year Shown | $100 | $102 | $104 | $106 |

This appendix also notes the two important new revenue sources that are included in the last two decades of this plan: state transportation revenues based on the NC MOVES project and additional local-option revenues being discussed in the Charlotte Region.

More detail on the NC MOVES process and outcomes can be found at:
https://www.ncdot.gov/initiatives-policies/Transportation/nc-2050-plan/Pages/default.aspx

Although this financial plan addresses revenues and costs as if they were independent of one another, in North Carolina's transportation prioritization process they are tightly linked – many revenues are *only* available if corresponding costs are associated with narrowly-defined project types. The revenues section below discusses how this inflexibility affects the financial plan.

## Revenues

Revenues fall into one of two broad categories: "traditional" revenues from long-standing state and federal sources, and "special" revenues from locally controlled sources or projected new state or local revenue streams. This section also highlights where "discretionary" or grant revenue sources are assumed, typically as federal shares of rail or bus rapid transit infrastructure projects.

For the near-term period of the plan, covering the 2021-30 ten year period, costs and revenues are based on the current 2020-29 TIP, on county-based transit tax revenue spreadsheets maintained by GoTriangle and on local government Capital Improvement Programs. Where projects from these sources begin between 2021-30 but continue to rely on revenues post-2030, the amount of revenues needed to complete the projects are deducted from the available amount in the 2031-40 period.

Traditional State and Federal Transportation Revenues

To calculate a reasonable share of traditional state and federal revenues for complete corridors and roadways, which largely flow through the NCDOT's Strategic Transportation Investment (STI) process, this Plan uses two primary sources:

1. actual 2020-2029 State Transportation Improvement Program (STIP) estimates for the 2021-30 near-term period.
2. NC Moves 2050 revenue projections for the 2031-2050 mid-term and long-term periods.

STI represents the majority of state and federal funding available for capital projects. STI revenues are divided into three categories of funding: Statewide Mobility, Regional Impact, and Division Needs. The method assumed that CAMPO and DCHC would receive a portion of the Regional Impact and Division Needs revenues commensurate with the MPOs' portion of the population within their respective regions and divisions (based on the most recent 2020 Census Data), and that CAMPO and DCHC could assume up to a portion of the Statewide Mobility revenues commensurate with the average proportion of this funding that has gone to each MPO in previous cycles under the STI policy (34% for CAMPO and 10% for DCHC). Since statewide tier revenues can only be expended on statewide tier projects, the actual amounts of statewide tier revenues in each revenue was then adjusted to match total statewide tier project costs in the adopted plan.

A similar approach was used for projecting growth of the Highway Fund, which is used for maintenance and operations projects. For the Highway Fund, each MPO was assumed to receive an amount proportional to its population within the state. Because the population of the area is projected to grow faster than the state as a whole, this results in a growing percentage of funds for the MPO areas over time—this plan used 2040 population forecasts to calculate the percentage for each MPO: CAMPO at 16.7% of the state population and DCHC MPO at 5.5% of the state population.

Congestion Mitigation and Air Quality (CMAQ) funds are exempt from STI, so they were calculated separately. The amount of funding for CMAQ is based on the amounts in the current federal transportation funding bill, the Infrastructure Investment and Jobs Act, and grow at an annual rate derived from that law.

The financial model assumes a long-term 2% annual discount rate (or inflation rate) to translate between 2020 constant dollars and future current year or Year of Expenditure (YOE) dollars, since different data sources use different reporting methods. All revenues in this chapter are reported in year 2020 constant dollars. Although revenues are generally considered either "roadway" or "transit" revenues, some funds, such as in the federal Surface Transportation Program (STP), are not restricted to highways and can be "flexed," or transferred, to programs for other transportation modes such as transit, pedestrian and bicycles.

The method used the fiscal year 2020-2029 State Transportation Improvement Program (STIP) for the years 2021 through 2030, adjusting for the one-year difference. The STIP identifies the budgeted state and federal funding source for transportation projects and therefore is the best available source for near term revenue forecasts.

The NCDOT financial model and STIP do not represent all of the available complete corridor and roadway revenues. The MPOs expect to have additional funding available from the following sources:

- Toll Revenues – A portion of revenues for managed lane and toll road projects are assumed to come from toll revenue bonds, which are paid back over time by users.
- Local Funding – Local governments often issue bonds to finance specific projects such as roadways, intersection improvements, street paving, bicycle facilities and sidewalks; the revenue to repay these bonds is typically the property or sales tax revenues received by the local government over time. These amount are often shown in a local government's Capital Improvement Program (CIP).
- Private Funding –Sections of some of the roads in the 2050 MTP, or widenings of existing roads, will be paid for by private developers as they develop adjacent property. Additionally, some of the rail crossing related projects include private funding from railroad partners.

The table below summarizes the complete corridor/roadway revenue sources and calculation assumptions.

*Complete Corridor and Roadway Revenue Assumptions*

| Item | CAMPO Assumptions | DCHC Assumptions |
|---|---|---|
| Capital - Federal / State (STI) | 2020-2029 STIP for near-term period. May 2020 NC MOVES 2050 Revenue Forecast for 2031-50. Division Needs and Regional Impact category amounts based on MPO population within Division or Region. Statewide Mobility category amount based on average performance from previous STI cycles. | 2020-2029 STIP for near-term period. May 2020 NC MOVES 2050 Revenue Forecast for 2031-50. . Division Needs and Regional Impact category amounts based on MPO population within Division/Region. Statewide Mobility category amount based on average performance from previous STI cycles. |
| Maintenance -- Federal/State/Other | Portion of anticipated NCDOT Highway Fund revenues relative to MPO population. Future revenue based on May 2020 NC MOVES 2050 revenue forecast. | Portion of anticipated NCDOT Highway Fund revenues relative to MPO population. Future revenue based on May 2020 NC MOVES 2050 revenue forecast. |
| Congestion Mitigation and Air Quality | Amount of CMAQ funding suballocated to MPO is grown at an annual rate consistent with the annual growth rate authorized in the 2021 IIJA act. | Amount of CMAQ funding suballocated to MPO is grown at an annual rate consistent with the annual growth rate authorized in the 2021 IIJA act. |
| Toll roadway | MPO Staff forecast. | MPO Staff forecast. |
| Local (Capital Improvement Program) | MPO Staff forecast. | MPO Staff forecast. |
| Private | MPO Staff forecast. | MPO Staff forecast. |
| Translation between $2020 Constant and $YOE | 2% annual discount (inflation) rate. | 2% annual discount (inflation) rate. |

Existing Transit Revenues

The transit financial models discussed in an earlier part of this section are used to forecast transit costs and revenues. In April 2009, the North Carolina House passed the Congestion Relief and Intermodal 21st Century Transportation Fund (House Bill 148). The legislation permits a local voter referendum to increase the sales tax to raise revenues for transit systems. The half-cent sales tax increase has been approved in Durham, Wake and Orange Counties. There are several major transit revenue assumptions in *Figure 8.2* that forecast the implementation of new revenue sources permitted by House Bill 148, including the ½ cent sales tax for transit services. In addition to these major assumptions, there are many detailed bus and rail transit revenue assumptions that are important enough to be identified in this report, including municipal set-asides for transit and/or "non-supplementation" amounts required as a part of the conditions for county transit taxes.

The table below summarizes the major assumptions used for calculating the bus and rail transit revenues from existing sources at existing rates.

*Major Transit Revenue Assumptions*

| Item | CAMPO Assumptions | DCHC Assumptions |
|---|---|---|
| Year ½ cent sales tax began | Wake County: 2016 | Durham County: 2013<br>Orange County: 2013 |
| Transit sales tax revenues (after 2021) | Wake County: 4% and 5% (FY23) | Durham County: 2.8-6.1% annual growth rate (see Appendix 11)<br>Orange County: 2.8-4.5% annual growth rate (see Appendix 11) |
| GoTriangle Vehicle Registration Fee | Wake County: $8, grows at 2% annual rate. | Durham County: $8, grows at 1.5% annual rate.<br>Orange County: $10, grows at 1.5% annual rate. |
| County Vehicle Registration Fee | Wake County: $7; grows at 2% annual rate. | Durham County: $7; grows at 1.5% annual rate.<br>Orange County: $7; grows at 1.5% annual rate. |
| Rental Car Tax (5%) | Wake County: 2.5% annual growth rate. | Durham County: 2.5% annual growth rate.<br>Orange County: 2.5% annual growth rate. |
| Local Property Tax for Transit | Continued "non-supplementation" required by HB148 | Continued "non-supplementation" required by HB148 |
| University-Based Systems | Continued Wolfline services at current levels, paid from university resources. | Continued Duke Transit and NCCU Eagle Shuttle services, paid from university resources; continued UNC-CH contribution to Chapel Hill Transit System. |
| Projects that include Federal Capital Investment Grant $ | All CRT and BRT projects (50% federal funding assumed) | All CRT and BRT projects (50% federal funding assumed) |

Additional/New Revenue Sources

The current transportation revenue sources will not produce enough revenue to finance the multimodal transportation projects that are considered essential in the Triangle, and that are included in this plan.

Therefore, the MPOs have assumed Additional/New Revenue Sources to address this funding gap. The MPOs have a reasonable expectation to realize these new revenue sources based on the many local and statewide commissions that have studied transportation financing and recommended new funding sources.

It is important to note the following background information on the Additional/New Revenue Sources proposed in the 2050 MTP:

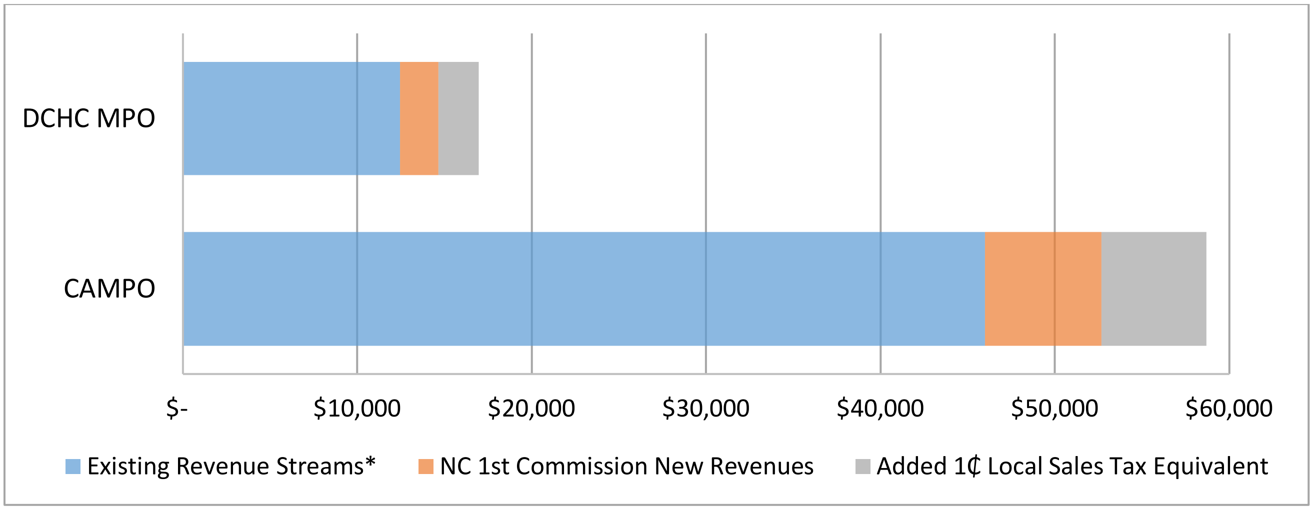
- These new revenue options would require legislation from the North Carolina General Assembly. The MPOs are not currently authorized to make these tax and revenue program changes.
- The plan assumes these new or additional revenue sources would only be available in the mid-term and long-term time periods, so would not start yielding revenue until 2031.
- The exact type and mechanism for increasing these revenues, e.g., sales tax, property tax, VMT fees, is not specified.
- New or additional revenues are assumed to be put in place without the constraints of existing revenues; i.e., the MPOs could program them to any transportation projects in this plan. The table below presents the assumptions for Additional New Revenue Sources.

*Assumptions for Additional/New Revenue Sources*

| **Item** | **Revenue Assumptions** | **CAMPO Amount** ($ millions) | **DCHC MPO Amount** ($ millions) |
|---|---|---|---|
| Sales Tax (or equivalent) in MPO Counties | Level of effort equivalent to an additional one cent sales tax increase in 2031 for transportation improvements. Revenue increases commensurate with projections for existing sales taxes. Requires NC General Assembly action. | $ 6,040 | $ 2,340 |
| NC First Commission Revenues | New funding for transportation improvements based on 2040 population-based share of NC First Commission-recommended levels of additional funding. Available for 2031-2050 time periods. Requires NC General Assembly action. | $ 6,690 | $ 2,200 |
| **Total** | | **$ 12,730** | **$ 4,540** |

The result of adding First Commission proportionate-share revenues and additional county-based sales-tax equivalent revenues would be an increase of $17 billion in revenues to the region over the 30-year horizon, an increase of 30% over the revenues that would be available without these sources.

*Revenues by Category by MPO ($millions)*




**existing revenue streams include revenues from discretionary federal grants*

Airport Revenues and Costs

The Vision 2040 Master Plan for Raleigh-Durham International Airport (RDU) projected revenues to 2040 and defined a list of projects to be constructed with those revenues. Through 2040, the Airport forecast $2.7 billion in revenue (in year of expenditure dollars), from the following sources:

- $1.57 billion from RDU funds
- $659 million from RDU debt
- $182 million from federal funds
- $281 million from customer facility charges
- $10 million from NCDOT

The Vision 2040 Master Plan showed the following expenditures through the year 2040, using the revenues identified above:

- $905 million in critical infrastructure preservation projects
- $1.8 billion in discretionary infrastructure projects

The Master Plan also identifies additional projects that could be constructed if demand warrants and additional funding can be secured:

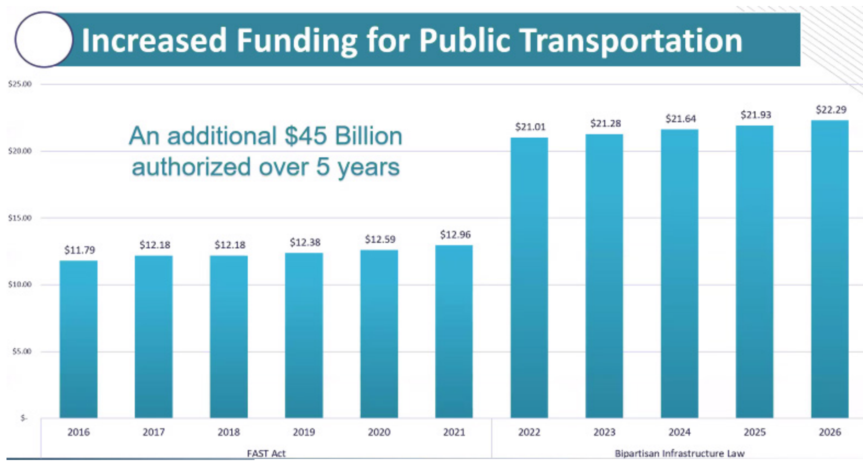
- $677 million in private equity projects
- $2.04 billion in deferred projects

2021 Federal Infrastructure Investment and Jobs Act (IIJA)

The Infrastructure Investment and Jobs Act (IIJA), also called the Bipartisan Infrastructure Law, was signed on November 15, 2021. The bill provides for substantial increases in transportation funding over five federal fiscal years, starting October 1, 2021 and running through September 30, 2026, which is within the first 10-year period of this plan. Federal transportation revenues will be provided both through increases in traditional “formula” funds (revenues that flow automatically to eligible recipients based on criteria) and through existing and new “competitive” grant programs, such as the RAISE, INFRA, Bus & Bus Facility, and Capital Investment Grant (CIG) programs; the latter program is the source for federal shares of the rail and Bus Rapid Transit investments in this plan.

A large portion of these funds are guaranteed, although some will still be subject to annual appropriation by Congress. Of the $661 billion allotted to US DOT agencies, $567 billion (85%) is in guaranteed funding.

Estimates are that North Carolina will receive about $7.7 billion over the five years in formula funding for highways and bridges, and close to a billion dollars in formula funding for transit – a 32% increase over FAST-Act formula transit funding levels.




*Federal FAST Act and IIJA Transit Funding Levels*

The increased highway and bridge funding comes at a critical time, as NCDOT has indicated that the current STIP, covering FY20-29 – and which represents the first 10 years of this MTP, can’t be achieved with the funding originally assumed, and that the next version of the STIP, covering FY24-33, will show large increases in current project costs and the delay of many currently programmed projects.

For this reason, the MPOs have decided that for the purpose of this version of the 2050 MTP, the new IIJA highway and bridge funding will be reserved to address higher costs of projects already in the current STIP and the first decade of this plan. If the cost picture improves, then these added IIJA revenues can be used to advance projects already in this plan, and will be addressed through an MTP amendment at the time the FY24-33 TIP is adopted.

The increased transit funding and any competitive grant revenues make it more likely that the ambitious transit projects in this MTP can be funded, and possibly advanced as well, and potentially lessen the need for borrowing to implement transit infrastructure projects on the schedules anticipated in this MTP.

In summary, *Connect 2050* revenues:

1. include existing revenue sources, rates and proportionate shares as reflected in the current TIP and the NC MOVES 2050 forecasts
2. reflect current local transit tax revenue calculations from county-based fiscal spreadsheets, plus additional municipal transit revenues, as available. University-operated services are assumed to be continued, but their revenues and equivalent costs are not included in summary totals.
3. include toll funding directly tied to toll road projects
4. include municipal and private roadway funding based on local CIPs and past trends
5. include airport-based revenues in RDU's Vision2040 plan plus NCDOT STI programming for airports, directly tied to airport costs
6. add a new NC First Commission-based revenue source for 2031-50, based on population shares
7. add a new county-based sales-tax equivalent revenue source for 2031-50
8. treat new federal Infrastructure Investment and Jobs Act (IIJA) revenues over and above baseline FAST-Act levels as a "reserve" for expected higher project costs in the 2024-33 STIP – neither these reserve revenues nor an estimate of higher costs are reflected in this plan's spreadsheets, but are expected to be added when this MTP is amended as part of the 2024-33 TIP process.

## Costs

The two MPOs used the same cost assumptions for the major parts of the plan, including:

- Complete Corridor and Roadway: The plan used the following hierarchy for highway costs. For example, the TIP cost was used for projects in the TIP, but if none is available (i.e., the project is not yet in the TIP), then the SPOT cost was used, and so on:
    - FY 2020-2029 Transportation Improvement Program (TIP);
    - Available feasibility studies
    - Strategic Planning Office of Transportation (NCDOT SPOT) data from the prioritization process.
    - 2015 highway cost estimate spreadsheet from NCDOT.
- Bus Transit and Rail Transit: Used GoTriangle-maintained financial models used for the Durham County, Orange County and Wake County transit plans and annual work plans. Commuter Rail costs from the Phase I Commuter Rail Study (West Durham to Clayton segments).
- Travel Demand Management (TDM): Used cost estimates from the regional plan administered by the Triangle J Council of Governments.
- Intelligent Transportation Systems (ITS): Used cost categories from the project list in the Triangle Region ITS Strategic Deployment Plan Update. (June 2020). For projects with a TIP number or where a feasibility study had been prepared, the most recent TIP or feasibility study costs were used. For other projects, the mid-point of the cost range was used as a first-pass estimate. Time periods used in the MTP may differ from the time periods in the ITS plan update.
- Airports: costs match revenues from the RDU Vision2040 Plan and STI airport projects.

Lists of projects and associated costs are shown in Appendices 2, 3 and 4, categorized by mode.

## Balancing Costs and Revenues

The figure below summarizes the sources and uses of revenues for each MPO, demonstrating that projects can be delivered based on revenues that can be reasonably expected during the time frame of this plan.

*Transportation Investment by Category by MPO ($millions)*