

# Scenarios for Connect2045

*"Prediction is very difficult, especially if it's about the future."*

--Nils Bohr, Nobel laureate in Physics



*"Are these the shadows of the things that Will be, or are they shadows of things that May be, only?"*

--Ebenezer Scrooge, during the visitation of the Ghost of Christmas Yet to Come

A scenario describes a way that the future *might* be, but it is not a forecast, which predicts the way the future *will* be, nor a plan, which defines what the future *should* be. Since it is very difficult to know what the future will actually be like -- even for Nobel laureates -- **all** scenario characteristics are asserted, but are done so based on research and judgement. Making these assertions both explicit and transparent, and why they were selected from a range of possibilities, is a key to good scenario creation and analysis.



Scenarios are most helpful in understanding how changes to current trends or adopted plans might influence travel behavior. What can vary in a scenario? Just about anything, from amounts and types of growth to household income to the price of a gallon of gas. But since the purpose of Connect2045 is to make the best decisions about mobility investments – what roads to build, what transit services to provide, etc. – we early on settle on a most likely set of growth-related guide totals: population and housing by type, along with the numbers and types of jobs in the region – so that we can focus on the land use and transportation decisions that influence travel. Scenarios have two foundations: a development foundation – which describes a regional pattern of land use, and a mobility investment foundation – which defines the roadway and transit networks and transportation services that can best serve the development pattern and connect key centers. These two foundations are combined in different ways to form a matrix of scenarios, as shown in the table below.

## Connect 2045 Scenario Matrix

							
			Mobility Investment Foundation				
			Existing	Constrained	Moderate	Aspirational	CTP
	Development Foundation	Existing or Underway					
		By Right		✓			
		Community Plans		✓	✓	✓	
		AIM-High			✓	✓	
		Build-Out					

## The Development Foundation: Anchor Institutions & Mainstays (AIM)

Connect 2045’s development foundation is built around two key elements that we represent with nautical terms: anchors and mainstays. The table below provides some context and examples.

Foundation	Description	Examples
 <b>Anchor Institutions</b>	Large, “place-based” institutions with fixed locations that serve as major employment hubs and travel destinations	<ul style="list-style-type: none"> <li>• Universities</li> <li>• Medical Centers</li> <li>• Research Triangle Park</li> <li>• Raleigh-Durham International Airport</li> <li>• State Government Campuses</li> </ul>
 <b>Mainstays</b>	Key activity centers in the region with the potential for significantly influencing mobility within regional transportation corridors	<ul style="list-style-type: none"> <li>• City cores</li> <li>• Other existing or planned major activity centers</li> <li>• Potential additional centers along major transit lines or roadways.</li> </ul>



### Scenario Development Foundations (Framework)

#### a. By Right

- i. Based on zoning or the equivalent
- ii. If someone walked into the planning office today seeking a site plan approval or building permit with no additional policy board action, what would likely get built?
- iii. Initial parcel-level place types generated automatically based on zoning-to-place type equivalency table provided by local planning staff

#### b. Community Plans

- i. Based on adopted or “most likely” plans
- ii. If we fully implemented our adopted or “most likely” plans, what would get built?
- iii. Includes pre-populated “default 2045” place types from 2040 MTP CV run

#### c. Anchor Institutions & Mainstays (AIM) – High Aspirations

- i. Based on development decisions of Anchor institutions (universities, medical centers, RTP, RDU, state government and at specific Mainstays (key opportunity sites, generally along major roadway and transit corridors, including the downtowns of larger cities and towns)
- ii. If we paid special attention at both “infill” and “greenfield” sites with high market potential along major travel corridors and significant parcels under the control of local, state or federal agencies, what could be achieved that aligns most closely with our goals.?
- iii. This is a “what if” scenario that need not be based on existing planning efforts
- iv. “High Aspirations” means development proposals push the envelope, but although aspirational, are still “market possible” over the time scale of a generation.

## The Mobility Investment Foundation: Transportation Networks & Services

Mobility investment consists of both networks and services. Separate but related networks include roads, transit and pedestrian/bicycle facilities. Services include activities and investments designed to make the use of the networks most effective. Examples include the use of advanced technologies, transportation demand management, and pricing of parking and transit.

Connect 2045 develops these mobility foundations using two principal sources:

1. Fiscal constraint sources that start with current state and federal transportation funding legislation and local government historical investment patterns, then supplements them in some scenarios with potential changes and additions, usually in the out years of a scenario.
2. Plan and program sources that are bracketed by a floor of our current Transportation Improvement Programs (TIPs) and a ceiling of our Comprehensive Transportation Plans (CTPs). The mix of roadway and transit investments can be varied in scenarios by selecting sets of transit and roadway projects closer to the floor (constrained) or closer to the ceiling (aspirational).



### Scenario Mobility Investment Foundations (Framework)

- a. Constrained
  - i. Modest state and federal transit funding; current STI rail constraints remain
  - ii. No increase in state or federal gas tax (declining revenues as efficiencies outpace growth)
  - iii. Wake County local option sales tax and funds per plan – additional projects beyond 10 years
  - iv. STI-limited division tier road projects with no increase in historical local effort
  - v. STI-limited ped-bike funding with no increase in historical local effort
- b. Moderate
  - i. Restoration of original STI conditions with removal of rail constraints
  - ii. No major change to state or federal gas tax or alternative, but assume FAST revenue trend
  - iii. Wake County local option sales tax and funds per plan – additional projects beyond 10 years
  - iv. Modest increase in local funding compared to historical trend
- c. Aspirational
  - i. More state/federal project success than local plans currently assume
  - ii. Modest increase in federal or state revenues (e.g. based on higher investment states)
  - iii. STI refined to redefine statewide and regional projects for transit and remove constraints, while allowing more dollars for division tier roadways
  - iv. Greater increase in local funding compared to historical record

## Building the AIM High Development Foundation

The By Right and Community Plans development foundations are built on existing conditions, and so do not require developing new sets of assumptions. The Anchor Institutions and Mainstays – High Effort (AIM-High) scenario, however, is a “what-if” scenario, going beyond current plans to explore what the impact of changes in key locations might mean for development and mobility in major travel corridors. In order to create a scenario that is consistent in its creation and application, a set of principles will guide the foundation, using the following method:

1. Start with a few key, measurable goals from the broader set of goals and objectives that the scenario should focus on:
  - a. Job access
  - b. Affordable living
  - c. Congestion relief or avoidance
  - d. Economic development opportunity
2. Use bold but market-realistic land use and pricing assumptions to maximize achievement of the goals, since land use and pricing tend to be the most influential factors in changing travel behavior; applying the greatest change at:
  - a. Anchor institution controlled sites (universities, RTP, RDU, state government), and
  - b. Mainstay sites in closest proximity to major transportation investments.
3. Create the scenario at the “regional table” to ensure consistency, but provide opportunities for both local input and local review:
  - a. Anchor institution controlled sites (universities, RTP, RDU, state government), and
  - b. Mainstay sites in closest proximity to major transportation investments.