



NorthEast Area Study

Policy Guidebook | May 2021



A technical report to provide short-term recommendations to improve substandard intersections and roadway locations in southern Franklin County and eastern Wake County.
Capital Area Metropolitan Planning Organization

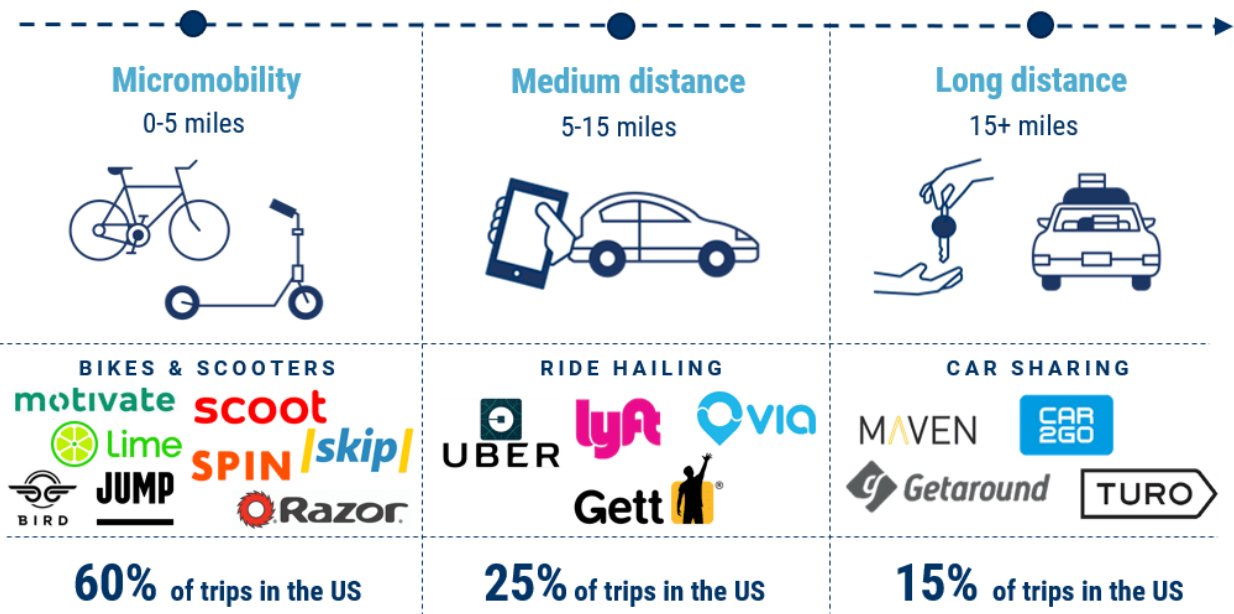
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BEST PRACTICE **POLICY GUIDEBOOK**01

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Best Practices Guidebook & Organization



Various Carsharing Technologies and Companies, by Length. Few of these were in existence when the original NEAS documentation was published. (source: CBInsights Research Briefs)

The Story of NEAS

The Capital Area Metropolitan Planning Area (CAMPO) is the Metropolitan Planning Organization for the urban area encompassing all or parts of Franklin, Granville, Harnett, Johnston, and Wake Counties. CAMPO serves as the coordinating agency between local governments, NCDOT, the Federal Transit Administration (FTA), and the Federal Highways Administration (FHWA) for all transportation planning activities. CAMPO commissioned the 2014 Northeast Area Study (NEAS) in order to identify sustainable transportation strategies for the Northeast Area of the MPO service area.

Established in partnership with its constituent communities, listed at right, the 2014 NEAS provided information and material, including proposed projects, to the federally required long-range transportation plan prepared by CAMPO at least every five years. As NEAS has continued to grow and change, so does the policy framework and needs of its communities.

- Bunn
- Franklinton
- Knightdale
- Raleigh
- Rolesville
- Wake Forest
- Wendell
- Youngsville
- Zebulon
- Franklin County
- Wake County

Guidebook Organization

The steering committee, or Core Technical Team, for the NEAS Project represented the local municipal and county governments in the study area provided feedback on the content for this update to the NEAS Best Practice Policy Guidebook (or Policy Guide). Additionally, a detailed survey of all partnering governments in the Northeast Area of the Capital Area MPO was conducted to ascertain the state of current

practice. Nine out of ten respondents were not in their current role during the original NEAS, contributing to the need and opportunity for substantial changes.

The information below is repeated on each of the best practice “cheat sheets” contained in the remainder of the Best Practice Guidebook. Each practice supports one or more of the six guiding principles of NEAS.

THE POLICY CONTEXT IMPACTS EVERY GUIDING PRINCIPLE (at right) IN THE NORTHEAST AREA STUDY (NEAS).

Policies have the biggest long-term impact on transportation of any action that a community undertakes. A town with a strong policy specifying connectivity standards, access management strategies, and preservation requirements will look and function very differently from one that doesn’t have a strong and integrated policy context. Creating a livable and balanced community that is accessible and filled with choices and opportunities doesn’t happen by accident. From ancient Rome to 21st-century America, successful cities, towns, and rural communities do the necessary hard work on their own and with outside partners to achieve their maximum potential.

- MOBILITY CHOICE:** All citizens must have adequate transportation service, options, and safe infrastructure for travel to work, learn, and maintain their health.
- ACCESS = OPPORTUNITY:** Convenient and efficient access and transportation to destinations of health and recreation enhances individual opportunities for growth.
- REINVESTING IN OUR INFRASTRUCTURE:** With continued funding limitations, we must be strategic in how we preserve key corridors and enhance mobility through improving and repurposing existing infrastructure.
- CONNECTIVITY:** We must work with our leadership and the development community to support continued efforts for enhanced connectivity for streets and trail network that relies less on our major corridors for our mobility needs.
- PRESERVING & ENHANCING OUR OPEN SPACE:** Protecting sensitive areas and the beautiful lands that are critical to our community and enhancing active and passive investment in our parks is essential to creating a healthy environment.
- BALANCED COMMUNITIES:** We strive to build our communities to create a balance of live, work, and play. Placemaking and urban design enhance opportunities for balance.



I Get Around

Of the ten staff persons that responded to the NEAS 2021 Best Practices survey, nine of them were not in their current role/agency in 2014 when the original NEAS was conducted. Six out of 10 (60%) said that they had referenced the 2014 Best Practice Guide.



Survey of NEAS Policy

In September 2020, a survey of NEAS planning staff was conducted to understand the current policy environment in each community. This page shows a set of high-level results from the 11 respondents; more details are found in the appendix.

RESPONDENTS SAID....



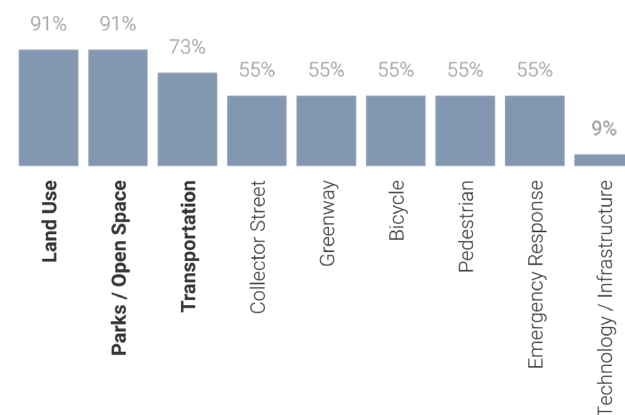
64%

used the NEAS 2014 Practice Guide (86% accessed digitally)

four years or less in current position

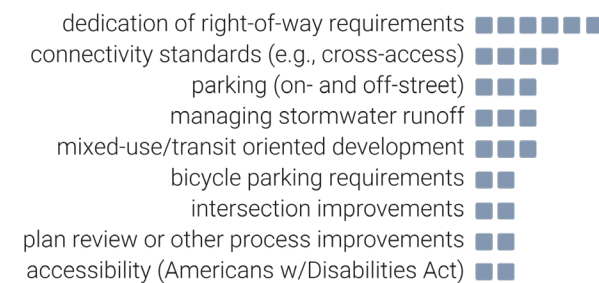
82%

ADOPTED PLANS



CHANGES SINCE 2014

The policy changes or updates made by NEAS communities since the completion of the 2014 NEAS Best Practice Guidebook are shown below. For example, right-of-way requirements were updated by six local governments.

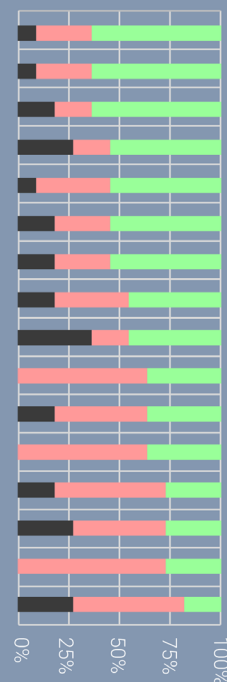


TOP GOALS



IT'S STILL THE ECONOMY...

When asked how important each goal was to his / her community, the economic health of the town or county was cited as being slightly more valued than safety/security, physical health, or mobility.



Sidewalk Policy
Bicycle Parking Requirements
Minimum Parking Requirement for Retail
Sidewalk Design Requirements
Right-of-Way Preservation Policy
Maximum Cul-de-Sac Length
Maximum Block Length
Connectivity Ordinance
Traffic Impact Analysis (TIA) Requirement
Transportation Impact Fee
Gateway Regulations or Transportation Overlay Districts
Parking Maximums (caps)
Access Management Policy
Bicycle Facility Requirements
Planned Bus Routes
Complete Street Policy (Adopted)

YES
NO
YES, BUT NEEDS IMPROVEMENT

ADOPTED POLICY

The policy context of NEAS communities has advanced since the first Best Practice Guide was published in 2014. While the need for parking maximums remains distant, trends towards less reliance on single-owner transportation may make more communities consider that option. Transportation impact fees remain the purview of state enabling authority, and are unlikely to change. Integrating bus stop requirements along routes, and furthering the promulgation of walkability measures like maximum block lengths are potential areas for improvement, as are complete street and bicycle facility requirements.

Fundamentals

SINCE NEAS 2014 THE WORLD CHANGED

As the 2020 - 2021 Northeast Area Study Update was being prepared, the state, country, and the world were going through unprecedented changes. The transportation context had already been changing since 2014, both locally and nationally. More personal mobility options were becoming the norm, while an influx of transit funding from a 2017 transit sales tax provided new resources for achieving long-standing transit priorities. As the population battled the worst viral outbreak in the past century, people across the U.S. and the world were taking to the streets to

protest abuses of police authority and long-standing inequalities exacerbated by low-wage job loss and widespread unemployment and under-employment.

For the Northeast study area, comprised mainly of small but fast-growing towns, integrating fundamental transportation planning with other objectives is still relevant. Prior best practice recommendations were reexamined in the light of a new contextual environment, and several new practices were included in this version of the Guidebook that respect the changes our communities are experiencing.

Keep Moving

A survey of ten NEAS communities (see opposite page) indicated that many had adopted changed practices, and that there is widespread adoption of sidewalk, biking, connectivity, and other policies. Key recommendations on basic planning principles follow.

- **Coordination and partnerships are increasingly necessary to meet transportation needs.** Coordinate with adjacent jurisdictions, NCDOT, and the Capital Area MPO during development of comprehensive and transportation plans. These partners are important in obvious and subtle ways. For example, the Raleigh metropolitan area is estimated at having 50%-60% of the car recharging infrastructure it could need by 2025 (International Council on Clean Transportation, [link](#)); state and federal agencies will need to help fill the gap.
- **Keep local plans up-to-date.** Local plans should be updated every 5-7 years, and comply with updated procedural and documentation standards modified in 2019. The following is a link to a checklist of these requirements: [Section 160D Checklist](#).
- **Be proactive in acquiring and preserving road and transportation facility rights of way to avoid incurring future costs and public opposition to projects requiring property acquisition.** This advice translates into appropriate and coordinated designations of future cross-sections and right-of-way widths in planning documents and standards.
- **Protect roadway capacity aggressively.** Roadway capacity is increasingly expensive to expand physically and will be harder to do with less funding in the near-term from financial disruptions at the local, state, and federal levels. Therefore, it is critical that governments enforce aggressive access management standards and create clear, concise requirements for an inter-connected transportation network.
- **Expand the definition of transit.** Personal technology isn't new, but is becoming more widespread and capable of resolving "first-mile/last-mile" gaps, support carpooling, increase teleworking, and enhancing traditional transit forms - every plan needs to have a technology element going forward. Ensuring that every citizen has access to these tools or a suitable alternative is crucial.
- **Increase the breadth and depth of "complete streets."** Encourage the adoption of integrated Complete Street and Vision Zero (zero transportation fatalities) policies and stay-at-home solutions going forward. Complete Streets can now be complemented with "Smart Streets" ([link](#)) that are technology-ready for the next generation of cars and communication.

Taking the Long View: Benefits and Costs from Transportation Investments

When NEAS 2014 was prepared, many communities were still recovering from the Recession of 2008-2009. The Triangle Region of North Carolina was not hit as hard as less-robust economies across the country, but there were some lasting changes that have persisted through the current era. Additionally, long-standing concerns about the continued viability and stability of federal transportation revenue sources have been exacerbated by the economic hit created by the COVID-19 pandemic, likely to have fiscal impacts to tax revenues - including the Highway Trust Fund, which has had to have one-time injections of general fund transfer to remain solvent in recent years.

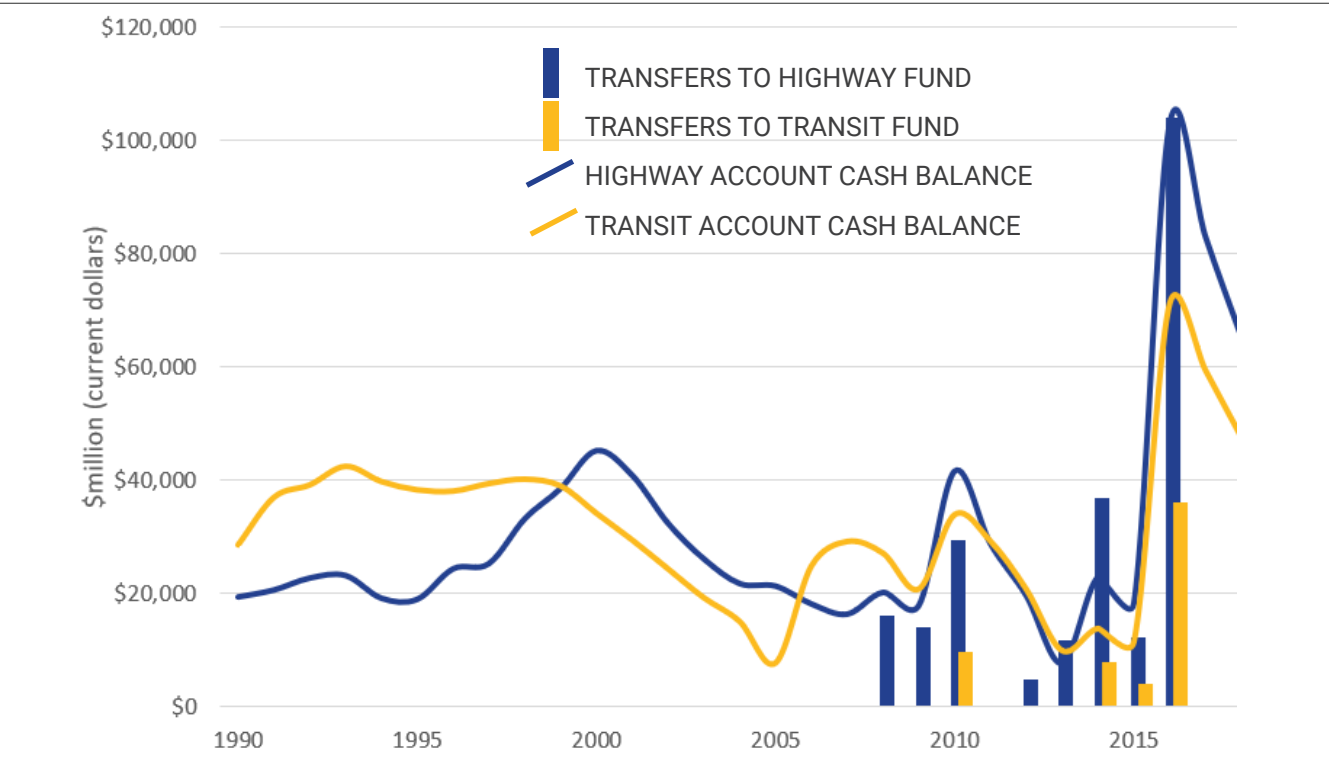


Figure 1.2. Transportation Trust Funds, 1990-2018 (2018 dollars, source: USDOT, Bureau of Transportation Statistics)

From a transportation perspective this context means limited transportation funds need to be directed toward the types of projects that will have the most value. In land use decisions, tax revenue estimates need to be balanced by analyzing expected expenditures in new infrastructure and services. There is growing evidence that communities need to measure the long-term impacts of transportation projects and land use decisions in new and different ways than traditional highway capacity deficiencies. In some cases investing in existing infrastructure upgrades can be more cost effective than building new facilities. These options are explored in the “Land Use, Economy, and Environment” section of this report, but fundamental questions need to be asked of every transportation project from its earliest stages (with refinements to the answers happening as more information is gathered):

- How is success defined, how long will that success last, and do the benefits transfer to everyone equally?
- Can the project be designed to have a better opportunity to leverage public and private funding?
- Can the project be planned in phases, or replaced by a series of smaller improvements?
- Looking ahead, could improvements be avoided in the future by planning our communities differently?

Supporting and Evaluating Policy

An important update in the NEAS 2021 project was that the Capital Area MPO would annually conduct an evaluation with NEAS communities to consider the progress that each community has made towards achieving better practices for policy and implementation in their own town or county. Such an evaluation would have three important parts, described in the graphic summary below (Figure 1.3).



Percent of CTT members responding “Yes” or “Almost Certainly Yes” when asked, “Do you support CAMPO working with your jurisdiction to annually evaluate progress on mutually shared policy goals?”

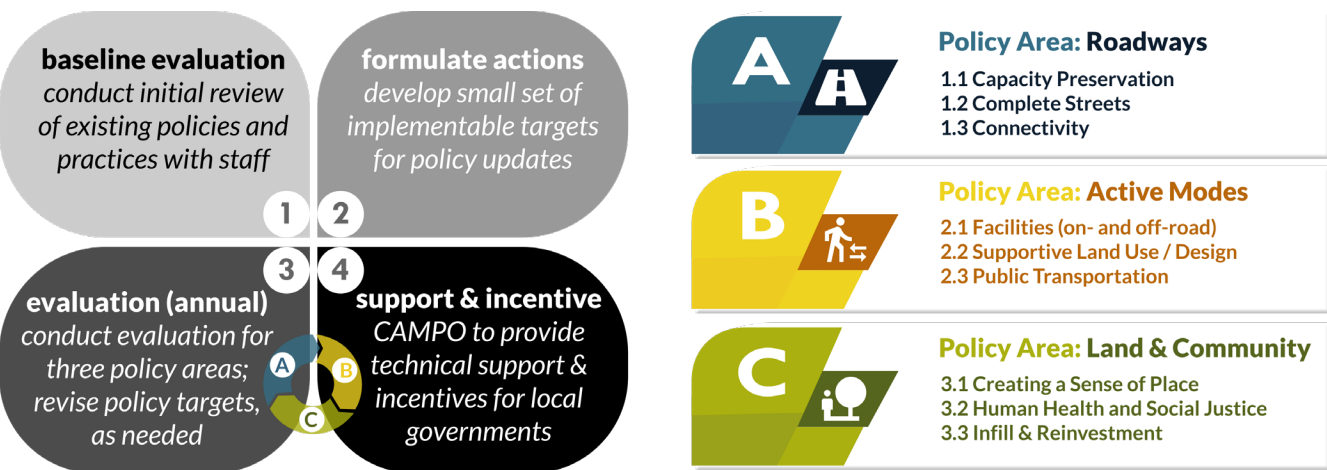


Figure 1.3. Policy Evaluation Process and Subject Areas

After conducting an initial baseline evaluation (which starts from the most recent NEAS policy survey), CAMPO staff will work directly with local government staff to identify policy priorities for their community, reasonable targets to accomplish in the coming year, and resources that may be needed to achieve the common policy goals of CAMPO and local governments. Support could be technical, sample contracting / scoping language, research, incentives for project development / funding, or in-person appearances at technical or elected official meetings to discuss paths forward. It is expected that every step of this process would evolve and improve over time as more experience is gained in the policy development cycle described here.

INTO PRACTICE: POLICY EVALUATION

It’s interesting that project evaluation is standardized and comprehensive (National Environmental Policy Act, or NEPA, as well state equivalents) but policies do not have a similar status in the U.S. While time and information are constraints to the evaluation of local policy alternatives, there are some resources and common concepts that are easy to impart.

Understand Both Rational and Value Arguments of a Policy. Technical, economic, legal, and social arguments can be demonstrated empirically through experience and data, but intuitively it is understood that community values need to be expressed that are often harder to evaluate.

Know the Limits of Technical Evaluation and Alternatives. Cost-Benefit Analysis (CBA) attempts to monetize many different impacts from a proposed action, and is useful for various types of evaluations, with limitations. Other approaches, like peer assessment, path diagrams, and using structured discussions (e.g., “Delphi”) can help bridge the rational / value divide to better understand policy implications.

Be Aware of Policy Alternative Constraints. The most robust policy evaluation is rendered ineffective if just one factor is perceived as a hard constraint -- often this hard line is cost. The price per trip (a result of a Cost-Effectiveness Analysis, or CEA) may be lower for micromobility options, but the total cost for the service may be perceived as too high in spite of other advantages. Also, the effects of policies on specific populations that may be hard-pressed to avoid or offset negative consequences should be considered openly in a good policy evaluation.

The Details. Public Policy Evaluation, 6th ed., William Dunn (deep and thorough) and A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving, 6th ed., Eugene Bardach (formulaic but easy to grasp) were used here and often referenced by practitioners.

Traffic Impact Assessment



ADDING VALUE TO THE TIA

Every private development is expected to produce or attract traffic. A Traffic Impact Assessment (TIA, or sometimes TIS/"Study") that measures these values is where the proverbial rubber hits the road in terms of land use-transportation connections. But the final numbers reported to decision-makers can be skewed by tinkering with the paths that cars use to enter or leave the proposed development (the "distribution" of trips); how many cars can be expected to use the proposed development in a peak hour or peak 15-minute period; how many trips never leave the site ("internal capture"); and how many cars can be expected to already pass by the proposed development - although only until the project that is the cause for the study is fully operational.

Most of the attention given to the development of

TIA ordinances and guidelines has therefore been dedicated to standardizing the analytic process to ensure a reasonable and consistent result. As a result, reporting these development impacts has become a standardized process in order to reduce or eliminate adjustments to produce a more desirable result for the entity conducting the study. However, the practice is still very much focused on single-use developments, single modes of travel (always cars), and a reliance on well-worn past practice that may or may not fit the context of the rural, small town, and urbanizing areas that we find within the Northeast Area. By better fitting traffic impact assessments (TIAs) to their surroundings and all users of the transportation system, we can improve the way our built environment functions with respect to transportation objectives.

MAIN STRATEGIES

- Make the TIA methods respect small developers or where site conditions make compliance infeasible or even undesirable (i.e., forcing large setbacks or a large quantity of off-street parking in downtown areas).
- Make the TIA a multi-modal review by showing transit services/stops and sidewalks/multi-use paths (planned and existing) in site mapping extending out to at least one quarter-mile in all directions.
- Make the TIA easier and simpler to understand by including simple checklists and document formats for the developer; always have an opening meeting to discuss the TIA study boundaries, intersections, and parameters for the study.
- Use current (within the last three years, maximum) traffic data for counts and turning movements, and ensure that when these counts are taken that they are (1) all-day and weekend counts commensurate with NCDOT counting methods; and (2) retained by the local government for use in other projects.
- The ITE (Institute of Transportation Engineers) *Trip Generation Handbook* is one of the most commonly used tools to estimate trips generated by a proposed development. This guide considers downtown proposals differently than the same development proposal occurring in a different area, since downtowns often have historic, space, or design restrictions / objectives that are quite different than in other parts of town. Encouraging downtown investment has a lot of benefit to NEAS communities, and should be encouraged in the TIA process and requirements.
- Include Travel Demand Management (TDM) requirements or incentives in the TIA evaluation process.

IMPORTANCE IN ONE SENTENCE

Traffic Impact Assessments help the public and decisionmakers understand a full range of impacts, and can be enhanced to contemplate multimodal opportunities and provide a resource for making small-scale transportation improvements that add up over time to have major impact to transportation capacity, safety, and mobility.

RESOURCES AND EXAMPLES

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



Since most public roadways in the Northeast Area are the property of the NC Department of Transportation (NCDOT), their guidelines and standards for roadway impacts from private and public development actions are important. While local communities can adopt additional, reasonable standards above and beyond the state standards, the NCDOT guidance documentation supports innovative practices like alternative intersection treatment evaluations; requirements for demonstrating the need for crossovers or new traffic signals; and including queuing, and volume-to-capacity; and individual turning movement analyses as measures of performance (not just intersection level-of-service). The following are links to key NCDOT resources.

- [TIA Checklist](#) and [TIA Checklist Instructions](#) provide the detailed overview of the NCDOT requirements for development assessments on NCDOT roadways.
- The impact of crossovers (or median "breaks") are significant and sometimes contentious when private developers feel like they must have such a break to support traffic reaching their business. Although dating to 2003, the NCDOT provides guidance on [street driveway and access](#) that address emergency vehicle, traditional neighborhood, and school access policies.
- The NCDOT also has recommended [guidelines for traffic generation](#) that supplement the ITE Trip Generation Manual.

WISCONSIN DEPARTMENT OF TRANSPORTATION



The [Wisconsin guidance](#) was updated recently (2019) and provides a good mixture of depth and breadth of content in a single document. While the NCDOT guidelines obviously have precedence, the Wisconsin product is a good overview of TIA procedures.

CHARLOTTE DEPARTMENT OF TRANSPORTATION



Closer to home, the [Charlotte Department of Transportation Land Development Rezoning and Traffic Impact Study Review Process](#) (2007) proves that TIA / TIS guidelines don't have to be lengthy or overly complicated to be inclusive of community goals -- the process is described in seven pages. The guidance is notable for explaining what the city wants to see in new development, describes volume-to-capacity before-and-after measures that trigger mitigation, and outlines what areas of comments developers can expect to see that include walking, bicycling, transit, and connectivity.

Every TIA and report should have several common elements: a description of the levels of traffic congestion with and without the proposed development, current traffic conditions around the site, and the traffic conditions that are recommended based on the impact from the proposed development (pre-existing traffic deficiencies should not be the responsibility of the developer of the current, proposed action to correct). However, there are a number of strategies to make the TIA a more robust document and process.

1. Generally, TIAs are strictly about the levels of service of a set of intersections and roadways focusing on automobile traffic only. To make the TIA a multi-modal document, include the following:
 - Require that the project area map include greenway, sidewalk, bicycle, crossing facilities, and transit access points (stops and routes), both on the proposed site and within a ¼-mile of the proposed development.
 - Similarly, important pedestrian and bicycle destinations need to be shown on the project vicinity map, destinations like schools, parks, shopping centers, higher-density or large single-family residential developments and office complexes should be considered for connections to and through the proposed development.
 - Counts and summaries of impacts should include cyclists and pedestrians, as well as automobiles.
2. Connectivity is crucial for every mode of travel, including emergency access. The Town of Knightdale requires that adjacent properties must be connected unless infeasible due to topographic constraints. Going further, various zoning districts have requirements for maximum block lengths to create connectivity and encourage shorter trips to stay off of arterial streets or be done outside of a car. Knightdale has adopted a prior NEAS recommendation for a connectivity index that requires connections via public streets meet a threshold measured by the number of street links (roadway segments) and nodes (at-grade intersections).
3. Hardship cases are difficult to deal with on an individual basis, and smaller developers will be hard-pressed to make improvements that larger development projects could absorb into their profit margin or product pricing. The Knightdale ordinances allow for staff to make a determination of hardship based on topography or other issues. Setting a reasonable standard of hardship that is specific – such as crossing a stream – and may be eligible for participation from the local or state government is a useful addition to TIA guidelines (or ordinance). Another example is the allowance of a reduction in the connectivity index described above in the case where more than 60% of any side of a development faces one or more insurmountable barriers (e.g., railroads or controlled-access roadways).
4. Adherence to adopted local, regional (MPO), and state plans should be referenced clearly in TIA guidance and / or ordinance language.
5. TIAs too-often don't include a safety assessment, but could do so fairly easily. Gap and queue analyses on commercial corridors should also be requirements, in part due to safety concerns.
6. The implementation and explanation ordinance changes can be frustrating and potentially expensive to private developers operating under the previous rules. Creating a checklist or "fact sheet" that outlines the contents and even the figures required can be a useful complement to significant changes in the TIA procedures. Conducting an in-house "lunch-and-learn" with members of the development community are other ways of promulgating new regulations and policy.

GETTING IT RIGHT: KNIGHTDALE

The Town of Knightdale Unified Development Ordinance (UDO) has an entire chapter devoted to Connectivity and Circulation (Chapter 9). Among the notable examples of best practice are the following, some of which were cited in this section:

- 9.2. Defining collector street standards and requirements, as well as street stub-out requirements (cross-access)
- 9.3 Conformity with adopted plans
- 9.4 Traffic Impact Analysis thresholds
- 9.5 Vehicular connectivity, including requirements for larger developments to be planned to allow through movements; Connectivity standards (maximum block lengths, residential collector street connections, cul-de-sac limitations, cross-access/easements, and connectivity thresholds)
- 9.5 Bicycle accommodations, including bicycle lanes and bike parking (referenced in greater detail in Chapter 10)

Some other sections of the Knightdale UDO are noted in other areas of this document, particularly access management.

"The street pattern should not force short trips of one (1) or two (2) miles onto arterials; it should be possible to make trips of this sort by using collector or other secondary streets. With a highly connected street network, cross-town trips should be possible using fairly direct secondary roads."

—Knightdale UDO, Chapter 9.5 "Vehicular Connectivity"

Preserving Road Capacity



MAKING EVERY TAX DOLLAR GO FARTHER

While there are few topics that get full consensus from the public and decisionmakers, extending the investments made in the past to the maximum extent will get broad agreement. Transportation relies on public infrastructure investments made decades ago in some cases, and with future allocations of dollars becoming

more scarce and more competitive, it is important to understand how local governments can leverage current and future resources to realize the fullest possible return on investment. This section therefore focuses on “value-added” actions taken during planning and design work.

MAIN STRATEGIES

Our communities have become intimately familiar with the cycle of building construction and roadway capacity increases necessary to accommodate the resulting traffic, and the disjoint between these two things. Local governments work hard to prepare for development opportunities so that tax revenues, job opportunities (both during construction and afterwards), and a variety of housing choices are available. In North Carolina, the responsibility for addressing the impacts of successful areas often falls largely to an entirely different organization, the state department of transportation that controls 75% of all roads. Our roadway and transportation services usually lag behind demands placed on them, with only the most urgent needs getting addressed...and even then only after years of negotiating lengthy planning, design, and property acquisition challenges. The following are key strategies for preserving and enhancing transportation capacity.

- Connectivity between parcels, neighborhoods, and towns is probably the most-overlooked yet most-important facet of transportation planning and design. It is commonplace to focus on a single large road and what is need to improve it in the narrow context of widening or adding more lanes to accommodate traffic. But creating multiple connections opens up more land for economic development, creates resiliency in the event of a road closure, and facilitates the movement of large volumes of traffic.
- Managing access points on a roadway is vitally important, since each full intersection creates 32 points of conflict and 32 opportunities for automobiles to collide - more so, if pedestrian crossings are included. Limiting the number of median crossovers (and using medians generally to limit left-turn movements) and driveways are the main strategies for managing access. Larger developments are ideally provided with multiple access points to distribute traffic onto different roadways abutting the site.
- Improving safety by reducing the number and severity of crashes is an underappreciated contributor to roadway capacity, since each crash takes hours to identify, address, remove, and restore to the original traffic flow. Obviously, reducing crashes also reduces injuries and fatalities, another goal even more important than mobility - balancing the need for roadway throughput for cars and safety is important to assess early in roadway planning and design processes.
- The most obvious option for local governments is managing the number of subdivisions (lots) that will produce more driveways, especially important when the subdividing is being done in a commercially zoned area along a major arterial with a major emphasis on mobility. Enforcing and maintaining good sight distance seems like a small thing, but cumulatively can be very important in sensitive locations.

IMPORTANCE IN ONE SENTENCE

As dollars for major transportation investments become harder to come by, it becomes increasingly important to honor and optimize the value added by transportation projects.

RESOURCES AND EXAMPLES

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



The NCDOT issues driveway permits on its streets, and works with local governments during site plan reviews to assess potential issues during development reviews, among other actions. The most recognized guidance document, “Policy On Street And Driveway Access to North Carolina Highways” (2003) describes how NCDOT views both TIAs, driveway permitting, and basic design parameters.

FHWA ACCESS MANAGEMENT WEBSITE



The Transportation Research Board (TRB) AHB70 Access Management Committee has overseen a number of resources, which are available at a dedicated [portal](#) operated by the Committee. This website provides a great one-stop resource to help get a broad overview of best practice - including a link to a dedicated YouTube channel on the subject of access management. The site also links to the most recent edition of the [TRB Access Management Guidelines](#) (2014, as of this writing).

NJDOT REPORT ON LOCAL ACCESS MANAGEMENT REGULATIONS

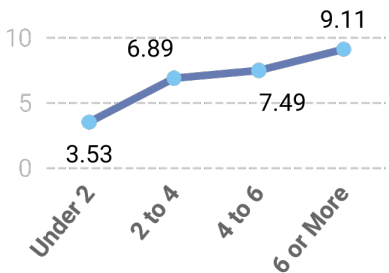


Completed in 2018, the research conducted by the New Jersey Department of Transportation reflects a familiar situation: New Jersey has a state policy for management access on state streets, but not one for local streets. In such a situation many communities default to the state standards, but a number of governments reported having their own guidelines for driveway spacing, corner clearances, and sight triangles (visibility).

CAPITAL AREA MPO US 1 COUNCIL OF PLANNING

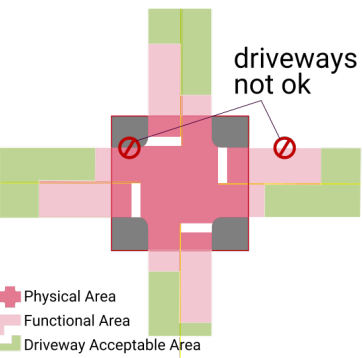


For key corridors, or “Strategic Highway Corridors” as designated by NCDOT, additional measures are required to coordinate actions among different government jurisdictional boundaries that these long roadways pass through. Springing from a corridor study conducted in 2004-2006, the US 1 Council of Planning comprises representatives of the communities in northern Wake and southern Franklin counties that review - and agree to abide by the recommendations of - various site plans that access or impact US Highway 1. The Council is relatively formal, with an underlying MOU (Memorandum of Understanding) and bylaws, meeting on an as-needed basis. US 401 is a potential candidate for a similar treatment.



Crashes per Million Vehicles Miles of Travel for Signals per Mile (source: FHWA)

The functional areas of an intersection are much larger than the intersection itself; driveways that overlap in the functional area create confusing conditions for motorists, pedestrians, or cyclists confronted with multiple threats. (source: FHWA)



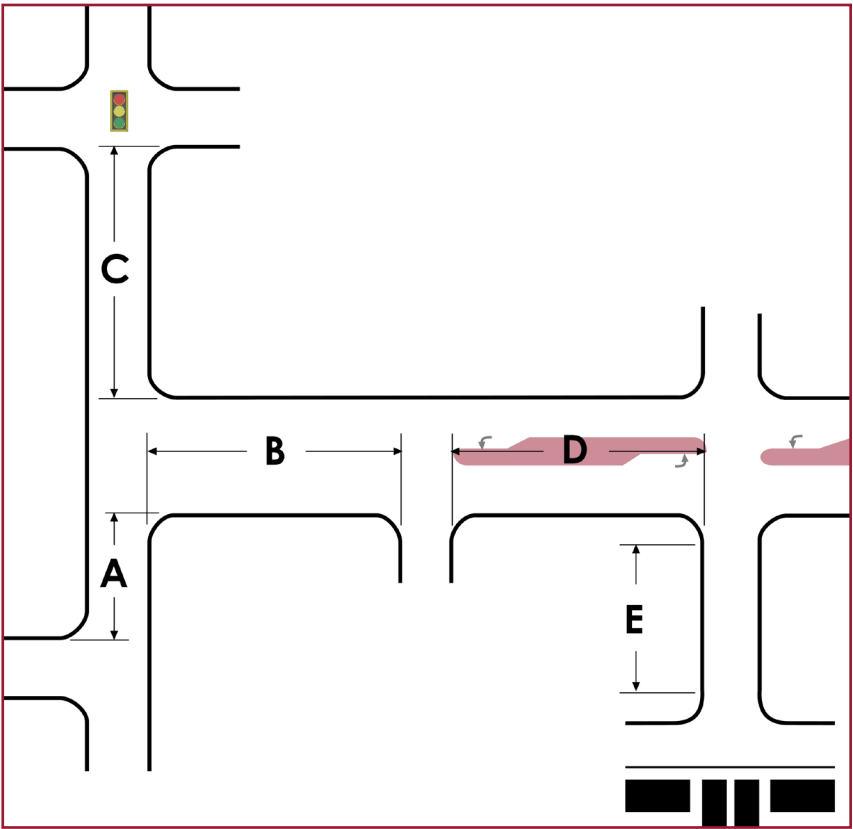
MANAGING PROPERTY ACCESS

An ordinance that specifies minimum spacing requirements for signals, driveways and median openings is one way to reduce accidents and increase/preserve capacity. Below are example requirements that could be incorporated into local policy documents. Spacing

is measured along the right-of-way line between the tangent projection of the inside edges of adjacent driveways, opposite street driveways, or median openings as shown in the figure on this page.

Letter ID (see graphic below)	Measurement	Less than 26mph	26mph to 44mph	Greater than 44mph
A	Intersection to Opposite Side of Street	100'	200'	500'
B	Intersection to Same Side of Street	100'	200'	500'
C	Intersection to Signalized Intersection	200'	300'	500'
D	Between Full Median Openings	100'	200'	500'
E	Driveway Length to Regional Mall / Office Park	120'	200'	250'
E	Driveway Length to Community Shopping Center	100'	120'	200'
E	Driveway Length to Single Commercial Site	30'	50'	50'

All connections shall meet or exceed the minimum connection spacing requirements, adjustable based on localized conditions as described in the list of conditions on the next page.



- The Town Engineer may reduce the connection spacing requirements for situations where they prove impractical, but in no case shall the permitted spacing be less than 85% of the standard. Spacing below 85% of the standard will require the issuance of a variance.
- For sites with insufficient road frontage to meet minimum spacing requirements, consideration shall be given to providing access via connection to a side street; utilization of a shared driveway with an adjacent property that meets the spacing requirement, or development of a service road to serve multiple properties.
- The Town Engineer, in coordination with the North Carolina DOT, may grant access approval for a permanent use not meeting the spacing requirements of these guidelines on an interim basis if an access plan is submitted. The plan must demonstrate how spacing requirements will ultimately be set and appropriate assurances in the form of a recordable and enforceable easement of access agreement will be provided insuring future provision of a conforming access.
- Deviation from these spacing standards may be permitted by the Town Engineer in cooperation with NCDOT where the effect would enhance the safety and operation of the roadway. Examples might include a pair of one-way driveways in lieu of a two-way driveway, or alignment of median openings with existing access connections. Approval of a deviation from the minimum spacing standards in this guideline may require the applicant to submit a study prepared by a engineer registered in the State of North Carolina that evaluates whether the proposed change would exceed roadway safety or operational benefits of the guideline standards.
- All road and driveway connections to a single parcel shall be brought into compliance with the minimum connection spacing requirements set forth in the guidelines when the land use(s) on the single parcel is / are modified or expanded.
- The North Carolina DOT may additionally prohibit, restrict, or modify the placement of any connection, at any time, to a single property in the interest of public safety and mobility on state-maintained streets.

Corner Clearances

Corner clearance is the distance between an intersection and the first point of ingress or egress to a corner property's driveway. The purpose of corner clearance is to remove conflicting movements from the functional area of intersections and provide sufficient stacking space for queued vehicles at intersections so that the driveways are not blocked. No driveway will be permitted to enter directly into an intersection. Driveways must turn traffic into the traffic stream of the highway and/or intersecting road or street before it is permitted to pass through the intersection. Unless an exception is granted, the minimum corner clearance for entrances will be established by a queuing analysis or 100 feet for unsignalized intersections and 125 feet for signalized intersections, whichever is larger. If an exception is requested and approved at an intersection where no provision has been made for sight distance or clear vision areas (flared right-of-way), no part of a driveway entrance or exit may be permitted to connect with either the highway or crossroad or street within 50 feet from the outside shoulder line of the adjacent street and the access will be a right-in/right-out. Exceptions may be approved if, as a result of the Municipality or the North Carolina DOT action, the property would become landlocked. No part of a driveway entrance or exit may be permitted within a corner radius.

Near a signalized intersection, the location for a full movement driveway connection may be required to exceed the minimum spacing requirements set forth in the guidelines to avoid interference with the operations of the traffic signal and resulting traffic queues. The radius of a full movement driveway connection shall not encroach on the minimum corner clearance.

The minimum lot size for any new corner lot created through the subdivision process shall be of adequate size to provide for the minimum corner spacing, as specified in these guidelines.

Joint and Cross-Access

Non-residential & Mixed-Use Projects
Adjacent land uses classified as major traffic generators shall provide a cross access drive and pedestrian access to allow circulation between sites. A system of joint use driveways and cross-access easements shall

be established if deemed feasible by the Town Engineer and shall incorporate the following:

- A continuous service drive or cross-access corridor extending the entire length of the property frontage and to provide driveway separation in order to provide the minimum spacing requirements.
- A design speed of ten miles per hour accommodating two-way travel aisles designed to accommodate automobiles, service, and loading vehicles.
- Stub-out connections and other design features that make it visually obvious that the abutting properties may be tied-in to provide cross-access via a service drive.
- A unified access and circulation system plan that includes coordinated or shared-use parking areas.
- The property owner shall record an easement with the deed for the property that allows cross access to and from other properties served by a joint-use driveway, cross-access, or service drive.
- The property owner shall record a joint maintenance agreement with the deed for the property defining maintenance responsibilities of the adjacent property owners.
- Out-Parcel Access: All access to an out-parcel shall be internalized using the shared circulation system of the principle development. Access to out-parcels shall be designed to avoid excessive movement across parking aisles and queuing across surrounding parking and driving aisles.
- Offset Access Connections: On undivided roadway segments, access connections on opposing sides of the highway shall be offset at an adequate distance to minimize overlapping left turns and other maneuvers that may result in safety hazards or operational problems.

Residential Projects

Residential subdivisions with lots fronting along the Town Thoroughfare System shall be designed with joint access points to the highway. Normally a maximum of two access points shall be allowed regardless of the number of lots served.

The property owner shall enter into a written agreement

with The Town, recorded with the deed for the property, that pre-existing connections along the frontage will be closed and eliminated after construction of joint use driveways. The Town Engineer may modify or waive the requirements of this section where the characteristics or layout of abutting properties would make implementation of joint use driveways or development of a shared access circulation system infeasible, provided that all the following requirements are met:

- Joint access driveways and cross access easements are provided wherever feasible.
- The site plan incorporates a unified access and circulation system.

Median Openings

- No new median openings shall be allowed along roadways with an existing center median unless it is in conformance with the latest edition of "Median Crossover Guidelines for North Carolina Streets and Highways" published by the North Carolina DOT. In all circumstances, new median openings shall not encroach on the functional area of an existing median opening or intersection. Approval of any new opening lies ultimately with the North Carolina DOT.
- Minimum criteria for evaluating a new median opening are not limited to the following.
 - Median openings shall not be located where intersection sight distance (both vertical and horizontal) cannot meet current design criteria required by the North Carolina DOT.
 - Median openings shall not be placed in areas where the grade of the crossover will exceed five percent. Special consideration should be given to the vertical profile of any proposed new median opening that has the potential for future signalization.
 - A median opening shall not be provided where the median width is less than sixteen feet.
 - Median openings that require a traffic signal, or where one may be expected in the future, should be avoided.
 - It is the responsibility of the property owner to provide justification for new median openings.

Sight Distance Requirements

Driveways shall not be permitted to connect with any highway, road, street or frontage road at a location if it does not meet the minimum stopping sight distance criteria, based on vertical or horizontal alignment or other reasons which will cause an undue hazard to the traveling public. Any driveway application that does not provide adequate sight distance as outlined in the above-listed design manual shall be denied. In order to provide adequate sight distance in both directions when entering the highway, driveway entrances and exits should be at a 90-degree angle. Angles less than 90 degrees should not be constructed unless justified by an engineering analysis, and in no case shall be less than 60 degrees with the highway. Auxiliary lanes (left- or right-turn lanes) shall be required for new driveways where they meet NCDOT or ITE warrants.

Minimum On-Site Vehicle Storage Area

Adequate storage must be provided within the internal circulation system for properties that include either a drop-off loop or drive-through facility so that vehicles do not queue onto the highway system. Specific storage areas will be determined by the Town Engineer in cooperation with the North Carolina DOT on a case-by-case basis during the development review process. However, the following minimum storage lengths are required for specific development types, as described in 1-6 as follows.

1. For single-lane drive-in banks, storage to accommodate a minimum queue of six vehicles will be provided. Banks having several drive-in service windows will have storage to accommodate a minimum of four vehicles per service lane.
2. For single-lane drive-through full service car washes, storage to accommodate a minimum of twelve vehicles will be provided. Automatic or self-service car washes having a multi-bay design will have a minimum vehicle storage length of three vehicles per bay.
3. For fast-food restaurants with drive-in window service, storage within the site to accommodate

a minimum of eight vehicles per service lane from the menu board/ ordering station will be provided.

4. For service stations where the pump islands are parallel to the pavement edge, a minimum setback of 35 feet between the pump islands and the public right-of-way will be provided. For service stations where the pump islands are not parallel to the pavement edge, minimum vehicle storage of 50 feet in length between the pump islands and the public right-of-way will be provided.
5. For land uses that require an entry transaction or have service attendants, gates or other entry control devices, the vehicle storage will have an adequate length so that entering vehicles do not queue back on the adjacent right-of-way. No portion of a parking area, attendant booth, gates, signing or parking activity shall encroach on the public right-of-way.
6. For schools, adequate storage for parental drop-off and pick-up areas should be provided entirely on the school site; and provisions made for walking and cycling, including secure bike parking; high-visibility crosswalks at major street crossings and school entrances; and access to nearby trails and sidewalk connections.

Crossroad Access Spacing at Interchanges

Minimum access spacing on crossroads for freeway interchange areas is critical for avoiding traffic backups and providing safe maneuvering distances for turning and weaving vehicles to enter the appropriate lanes. No driveway, intersection, or median opening will be allowed less than 500 feet from the end of the taper of the ramp furthest from the interchange. If the proposed distances are less than the minimum spacing, then a written justification demonstrating why the recommended distances cannot be met shall be submitted to the Town and NCDOT for review as an exception.

Corridor Preservation



SPEND NOW TO SAVE LATER

Adopting right-of-way (ROW) preservation policies recognize that, in a growing area like the North East Study area, land costs tend to rise considerably over time. Implementation of clear policy directives is a valuable tool that provides sound and cost-effective approach for avoiding and minimizing impacts associat-

ed with transportation projects. Corridor management programs should be tied to valid, legal public purposes and appropriate cross-sections to promote orderly growth that support planned multi-modal transportation needs.

MAIN STRATEGIES

A search of for-sale-by-owner land in NEAS revealed a wide range in prices per acre; historical sales data obtained for the NEAS study area confirms this observation. Prices per acre ranged from \$7,500 to \$150,000. A common trait was that the closer the land was to more-densely populated areas (e.g., Raleigh), the higher the price-per acre, generally. As NEAS continues to populate, land prices will continue to rise. With the discontinuance of the Transportation Corridor Official Map Act, the number of tools available to local and state government have been reduced to a narrow assortment of fee simple purchases and dedications identified in adopted plans. Advance acquisition prior to the adoption of NEPA documentation / findings is more limited, although streamlining efforts taking place at national and state levels may help expedite matters going forward.

A broader, even statewide, discussion of appropriate and legal techniques for corridor preservation is long overdue in North Carolina. The following are basic considerations and concepts for the current practice.

- **Adopt the Street in a Local Plan** – Enforce ordinances that require all new development and/or redevelopment preserve or reserve the appropriate ROW setback per the adopted cross-section dimensions if the parcel or development is located on a roadway that is designated on a CTP or MTP.
- **Setback requirements** – Every road of a collector designation and higher should have an attached cross-section stipulating the required offset from the centerline of the ultimate roadway cross-section.
- **Density Transfers and (more commonly) Density Bonuses** – Allow transfers of density off-site (in-place program is required) or allowances for more density for portions of developable property dedicated to roadway, pedestrian, and transit stop facilities. Similarly, if a future corridor traverses wetlands, then consider purchasing wetland areas nearby to act as potential offsets for mitigation purposes.
- **Transit Stop ROW** – Require ROW dedication for transit stops for major commercial developments, and as determined for future or current needs by staff, existing routes, and adopted future plans.
- **Strategic Acquisition** – Establish a fund to acquire properties and driveway access points as they become available to save money and prepare a corridor for future widening/improvements.
- **Easements** - Requiring an easement dedication during development review is used often by N.C. communities, particularly for multi-use and pedestrian paths.
- **Overlay Districts** - While North Carolina statutes are not as generous in the allowances made for localities to engage in right-of-way preservation, Overlay Districts applied to corridors can supplement the underlying zoning code in a number of ways, including streetscaping and right-of-way reservation.

IMPORTANCE IN ONE SENTENCE

As Mark Twain once said, “Buy land - they aren’t making it any more.” In a growing region like NEAS, advance acquisition of right-of-way for street improvements through direct purchase or indirect set-asides significantly reduce transportation project costs and future opposition from affected property owners.

RESOURCES AND EXAMPLES

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



While dated (2004) and therefore still possessing language on the NC Transportation Corridor Official Map Act (revoked), this guide prepared by Land Design, is still a good North Carolina-specific resource. The title of the guide is, “Corridor Preservation Methods” and is available at this [link](#). A second NCDOT resource is the Right of Way Manual. Although not providing direct guidance to local governments, this manual is good to have “on the shelf” as it describes acquisition procedures and positions that NCDOT has taken on a number of ROW-related procedures, including condemnation and compensation.

FLORIDA GUIDANCE ON CORRIDOR PRESERVATION PRACTICES



Another venerable (2004) but still useful resource is this compilation of preservation techniques by the Center for Urban Transportation Research (CUTR). Being housed on the campus of the University of South Florida, it’s not surprising that Kristine Williams’ and Robert Frey’s work tends to focus more on that state, but this research-into-practice paper has good information for North Carolina communities, from basic considerations of proportionality for right-of-way dedications to cluster development (same-site density transfers) to interim use agreements and tax relief. Some recommendations may run afoul of other regulations or requirements, such as the potential for land banking to skew the NEPA process. One downside: the paper currently costs \$37.50 to download from its proprietary source ([Sage Publications](#)). A free and more-recent (2017) CUTR publication is *Model Access Management Policies and Regulations for Florida Cities and Counties* ([link](#)). A separator for this document is its discussion of land use measures, like corridor overlays, lot dimensioning, form-based codes, and transit-oriented development; treatments are organized by transect for different land use place types..

OHIO DOT: ACCESS MANAGEMENT PROGRAM AND GUIDE



Another state with great guidance on access management and related practices is Ohio ([link](#)). ODOT has both an access management guide and a programmatic approach to helping their own people and consultants ensure that it is followed consistently. The guide integrates both the access management, permit issuances, and traffic impact analysis elements into one package, which is more likely to introduce cross-walks between the practices. ODOT also has a training curriculum to get consultants credentialed in various areas, although none yet for access management.



Model Access Management Policies and Regulations for Florida Cities and Counties (Table 2). A key feature of this guidance is that it organizes strategies for preserving roadway corridor access by land use type, along a familiar transect scheme. It also provides sample ordinance language, the great majority of which would work just as well in North Carolina with minimal or no modifications.

“Effective local access management requires planning as well as regulatory solutions. Local governments should establish a policy framework that supports access management in their local comprehensive plan, adopt access management plans for high priority routes or specific problem areas such as interchanges, and encourage good site planning techniques. Local governments are also strongly encouraged to prepare thoroughfare plans to guide development of the overall transportation network.”

—Kristine Williams / Joshua Barber, 2017

Connectivity



MORE PATHS, BETTER TRIPS

A connected transportation network emphasizes accessibility by accommodating more direct travel with traffic dispersed over more roads and increasing access and marketability of more parcels of land. Key benefits of connected streets include:

- Distribute neighborhood traffic across streets,
- Minimize concentrations of traffic on one street,
- Lower taxpayer costs since collector streets are public streets often built with private funds,
- Improve mobility by reducing the distance and travel time for emergency service providers, pedestrians, buses, parcel delivery, refuse and recycling collections,
- Improve bicycling and walking options, as well as connections to public transportation, and
- Interconnect public water systems under the street to create more efficient public water systems.

MAIN STRATEGIES

The 2004 Wake County Collector Street Plan is an important cornerstone document but needs to be updated with the cooperation of municipalities - which, in turn, would benefit from a fine-grained collector network. Fifty percent (50%) of the respondents to the Best Practice Survey said that their communities have an adopted connectivity ordinance. The Capital Area MPO and North East Area Study also need to step in to ensure that secondary roadway connections are planned out. Additionally, the following measures enable NEAS communities to implement a balanced transportation system that collects traffic from neighborhoods and distributes it to the network of arterials.

- Develop and approve a Collector Street plan with design standards, and street spacing and access requirements.
- Actively look for opportunities to re-purpose right-of-way to enhance connectivity for all modes of travel, including during updates of Unified Development Ordinance (UDO) exercises.
- Focus on connectivity to schools, parks, civic uses, regional connections and commercial uses.
- Coordinate with other local policies to integrate connectivity of roadways, multiuse paths, and pedestrian paths (sidewalks).
- It is important to note that best practices and design standards for collector streets be reviewed prior to their implementation if they will be maintained by the NCDOT.
- Connectivity Standards: All new and infill developments during the design review (private development) and planning (public projects) phases must be approved and held to the local connectivity metric and design/spacing standards. (Refer to the next page for an application of a connectivity index metric.) Block length averages or maximums can also help accomplish this goal.
- Require connectivity between adjacent parcels with compatible uses.
- Stub-out Street Connectivity: Include language within the subdivision code or Unified Development Ordinance that explains the need for stub-out streets to connect to adjacent communities. Create guidelines for how these stub-out streets should be effectively signed in the field and shown on plats so that residents and potential residents are aware that this street will be connected in the future.

IMPORTANCE IN ONE SENTENCE

An interconnected street network in towns and cities create opportunities: for economic development, reducing the length and number of automobile trips, providing resiliency in the transportation network to ensure that emergency personnel and parents picking up kids from daycare get there on time.

RESOURCES AND EXAMPLES

Fairmont Connectivity Plan Rapid Health Impact Assessment



The research conducted by West Virginia University focused on a community that faces higher-than-average rates of economic disparity, health issues pertaining to obesity, and an elderly population with limited access to health care. The study reported on the survey-driven attempt to successfully integrate health measures into a slate of proposed projects in the Fairmont, WV bicycle and pedestrian plan. It is cited by FHWA as best practice. The report can be found at: www.astho.org/Health-Impact-Assessments/City-of-Fairmont-West-Virginia-2014-HIA-Report.

Victoria Transport Policy Institute



The venerable VTPI research site managed by Todd Litman houses a dedicated Network Connectivity page (www.vtpi.org/tdm/tdm116.htm) that provides a reasonable starting place for those looking to justify connectivity measures and incorporate metrics into their government practices.

Virginia Department of Transportation



In some cases, state departments of transportation have supported connectivity requirements, understanding that more connections means fewer trips - and turns - on major roads. VDOT requires a greater number of external connections as the number of proposed housing units increases (more information is here: www.virginiadot.org/info/secondary_street_acceptance_requirements.asp).

GETTING IT RIGHT: KNIGHTDALE

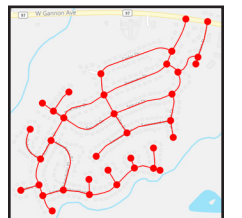
Again turning to the Town of Knightdale, there is a substantial portion of the Town's UDO (Chapter 9) that pertains to connectivity requirements.

Each street type has a consistent description of width and spacing requirements. Cul-de-sacs are actively discouraged in the UDO, as they interrupt connected networks.

Connectivity between parcels is required and, even when site constraints make cross-access for cars infeasible, it is still required for biking and walking facilities.

An important asset in the Knightdale UDO is a section dedicated to pedestrian access measures. Connectivity within the site and to the perimeter street system are requirements, as is the minimization of conflict points with bicycle and automobile networks.

Additionally, the Town has a roadway functional classification map in the UDO showing laneage and ROW.



Links divided by nodes (target: 1.4). The older, downtown development (Zebulon, NC) at left has a connectivity index of 1.47 (lines, or streets, divided by dots, or intersections) compared to the neighborhood just down the street with a connectivity index of 1.08. Other examples of connectivity measures include the following.

Connections for a number of units or square footage (target: 2 for first 2,000 units or 2,000 vpd and 1 more for every 200 / 2,000 increment afterwards): VDOT requires more connections to the edge of a proposed development as the number of proposed units increases.

Block Length (target in town: 600 feet or less; major thoroughfares: 1,200'). Pearland, Texas sets a maximum block length of 600 feet on minor streets unless it is infeasible to do so. Some flexibility is required so that undesirable outcomes can be avoided by forcing additional connections where they would be detrimental. Half of NEAS communities reference a maximum block length in their adopted policies.

Off-Road Pathways



PATHWAYS TO PROSPERITY

Pedestrian-friendly communities and corridors begin with good planning, so active mode plans are recommended to identify specific pedestrian issues within the broader transportation system and come up with policy, programmatic, and infrastructure solutions to improve the pedestrian environment. Planning also provides a means for local stakeholders to get involved and become aware of a mode of travel that is often taken for granted. Regionalism is also important: the Neuse River Greenway, which crosses through several NEAS communities, has become popular and a true destination for many people since it was completed.

Town-based greenway, biking, and walking plans establish the appropriate tools for each individual community. Once adopted, they also provide the basis for other recommended policies. Greenways proposed

through undeveloped areas are more likely to be built with resources from private development if they are shown in an adopted plan.

Local bicycle and pedestrian plans that result in improvements to the sidewalk and greenway system add many benefits to a community, including the following:

- Improved physical, mental and social well-being from being outdoors more often;
- Increasingly, transit, walking, and biking are associated with equity concerns, creating opportunities for those that can't afford a car;
- Economic benefits from increased property values, increased tourism, and support for local businesses through increased foot traffic; and
- Creating alternatives to driving, thereby reducing the number of cars on the road and crashes.

MAIN STRATEGIES

The design of greenways (or multi-use paths) starts with decisions about typical widths, alignments, and materials. Asphalt is the most common surface for greenways, but requires proper compaction (AASHTO standards apply) for the asphalt hot mix and sub-grade to reduce deformation long-term maintenance costs. Greenways in areas susceptible to flooding should consider the use of concrete for durability and ability to withstand storm events. Sixty percent (60%) of NEAS communities have a greenway plan, and many of them require private development to construct greenway connections for the benefit of customers and residents.

- Complete or update pedestrian and greenway plans for each municipality in the region and for the region as a whole, update them every five years, and develop the plans using an inclusive, community-led planning process that engages diverse stakeholders across the town.
- Accessibility is a major concern with the design of off-road facilities. Ensuring that new or redesigned off-road facilities comply with the Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) is highly recommended practice. See the "Resources" section for links to guidance.
- Consider greenways as green ways: corridors that provide for the movement of animals, mitigate stormwater damage, provide buffers between incompatible uses, and retain a sense of nature that is mentally and economically valuable to residents. A MUP can start off as a "soft" trail before it evolves into an impermeable multi-use path - if it even needs to change to accommodate its users and purposes.
- Initiate a yearly appropriation for greenway / MUP development in the capital improvements program to at least supplement requirements for a dedicated greenway easement for all zoning renewals, mixed-use developments, and public open space projects where there is a proposed greenway / MUP.

IMPORTANCE IN ONE SENTENCE

Walking and biking connections, as well as improved transit service, are often cited as top priorities for governments to tackle for many of the reasons stated here: health, alternatives to car travel, and simply as an acknowledgment of a connected and cohesive community.

RESOURCES AND EXAMPLES

NCDOT



NCDOT offers a number of resources to local communities hoping to improve the safety and viability of walking and biking in their communities, from bicycle helmets to safety / encouragement programs (Let's Go NC!) and planning guides. If you're in North Carolina and want to make biking and walking better / safer for your town or county, begin here: www.ncdot.gov/divisions/bike-ped/Pages/default.aspx. NCDOT also offers links to the ADA, ABA, and other facility standards that help ensure accessibility of off-road facilities for people of varying physical abilities. This page provides links to NACTO, AASHTO, FHWA, and MUTCD design guidance: <https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>.

YOUNGSVILLE, NORTH CAROLINA



The Town of Youngsville completed a combination Bicycle and Pedestrian Plan through the long-standing grant program administered by NCDOT's Bicycle and Pedestrian Division (becoming part of the Integrated Mobility Division). Combining the two modes makes for some efficiencies in planning, inventories, and outreach, but the two types of travel are unique. The Youngsville Plan exemplifies some of the later (2015) thinking about combining the planning processes, including a streamlined design section that focuses on the issues potentially and currently facing the specific community in which the plan is conducted.

RALEIGH, NORTH CAROLINA



Raleigh's *Capital Area Greenway Planning & Design Guide* (2015) describes both a process and design guidance for the implementation of greenways (often called multiuse paths). From public participation to intersection crossing treatments, this guide is a good place to find answers: <https://cityofraleigh0drupal.blob.core.usgovcloudapi.net/drupal-prod/COR24/capital-area-greenway-planning-and-design-guide.pdf>.

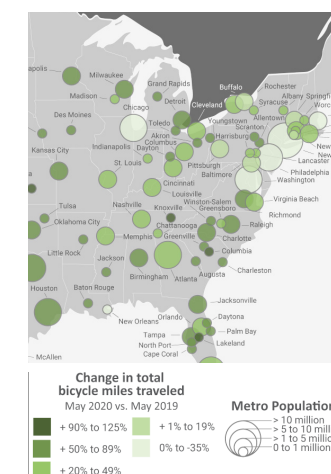
FOR THE SHELF



A lot goes into greenway planning, acquisition, design, and maintenance, so finding good resources can help get practitioners asking the right questions and perhaps even answer a few. Charles Flink's *Greenways: A Guide To Planning Design And Development* (1993) stands out long after its publication, going into more detail than the later *Trails for the 21st-Century* (2001). As noted, it is a valuable practice to remember that many multi-use paths can be thought of as literal "green" ways, providing ecological benefits in places that are rapidly suburbanizing, and therefore becoming part of the park system. *Ecology of Greenways* (1993) and *Designing Greenways* (2006), both by Paul Hellmund and Daniel Smith, are important resources to help identify and realize the potential of greenways in this respect.

Bicycling increased the most in year-over-year measurements in smaller urban areas, sometimes doubling in areas not known for high usage of bicycles as a travel mode. Maintaining physical and mental health were cited as typical reasons for the increase in several reports. Some larger urban areas actually saw declines in bicycling due to lower rates of commuting in general.

source: StreetLight Data



"...greenways are a focal point of interactions between people and nature.... People also have a deep psychological and spiritual need for nature as they try to balance often frenetic, stressful lives... by searching for serenity, beauty, and relaxation in the natural world.... By creating opportunities for direct contact with nature...greenways can be an important means of fostering an environmental ethic."

—Smith / Hellmund, *Ecology of Greenways*, 1993

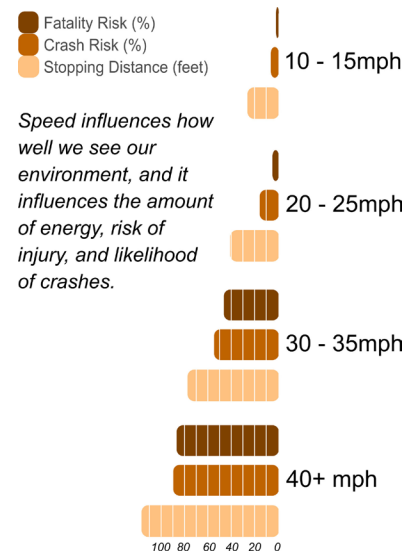
On-Road Pathways



SAFER ROADWAYS...FOR ALL USERS

Striking a balance in how communities consider the needs of bicyclists is critical to consider in the context of other non-motorized transportation and how highway-based investments are made. The health impacts of bicycling have been amply cited, but bicycling is also capable of serving many more short (under two miles) trips than is currently the case. This mode would be chosen more often if it was safer to use it.

When speaking of safety, it is worthwhile to mention the role that vehicular speed has on the severity of injuries to bicyclists and pedestrians. The amount of force at the point of impact increases geometrically with the speed of a motorized vehicle, and survivability above 25mph is sharply reduced (refer to chart at right).



MAIN STRATEGIES

The promulgation of bicycle design standards has matured considerably since the 2014 NEAS Best Practice Guide was written, with the NACTO urban design guidance (see “Resources” on the opposite page) emerging as an important resource even in places that may not consider themselves to be very urban.

- Major new development projects should construct shoulders along their frontage, not only to provide space for bicyclists but to increase motorist safety and a place for people to walk if there are no sidewalks. The long stretches of rural roadways in NEAS could be improved for everyone by providing wider shoulders (five-foot width preferred, four-foot minimum) to reduce run-off risks for motorists and safer havens for cyclists and farm equipment operators that sometimes use these roads.
- Coordinate with NCDOT on modernization, capacity, and maintenance projects, preferably at not less than six-month intervals to ensure that upcoming projects, including bridge accommodations and edge treatments, are incorporated into pending NCDOT roadway projects.
- Towns and counties should set aside a small safety fund to be used as a contingency resource applied to renovation/reconstruction of roadways in their jurisdiction.
- Standalone shoulder/bike lane projects can be pursued by Wake and Franklin counties and towns through CAMPO's Locally Administered Projects Program (LAPP) and the state/federal Transportation Alternatives Program. Constraints on the use of state funds for independent projects encourage a “complete street” mindset by incorporating on-road bicycle facilities into the design of roadway and bridge improvements.
- No other facet of transportation benefits from education more than on-road bicycling. Working with NCDOT and non-profit groups to educate children and adults alike - drivers and cyclists - on the responsibilities that come with safe cycling is a strong recommendation.

IMPORTANCE IN ONE SENTENCE

Rural roads often have a reputation of having substandard design and lighting that make them more hazardous than comparable urban facilities, and increasing traffic loads suggest that the wider pavement widths that support bicyclists will also support motorists and the broader goal of reducing crashes.

RESOURCES AND EXAMPLES

MINNESOTA DOT BICYCLE FACILITY DESIGN MANUAL



A number of state departments of transportation (e.g., Wisconsin) have good bicycle design guides, but the one in Minnesota stands out for its clarity and consistency, not to mention that it doesn't ignore rural areas in the state. It doesn't delve into advanced crossing treatments that have become more fashionable to discuss than to implement, but it does cover the main roadway treatments very well and address specific user (i.e., level of skill) needs in design considerations. It can be found here: www.dot.state.mn.us/bike/bicycle-facility-design-manual.html.

FOR THE SHELF

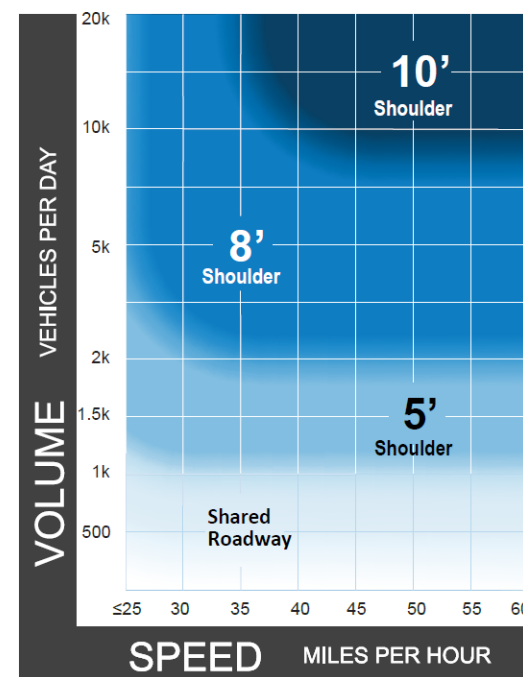


Without a doubt, the various NACTO design guides that have been published and sometimes updated in recent years have emerged as go-to resources for designing bikeways in the street. Especially notable are the Urban Bikeway Design Guide and Urban Street Design Guide. Each guide has a strong (and free) presence on-line, but can also be purchased individually for approximately \$50 each. The link to all of the NACTO guidance is here: <https://nacto.org/publications>. Both are cited on the NCDOT bicycle/pedestrian design guidance page. The [AASHTO Bicycle Design Guide](#) was updated in 2017 to its fourth edition and contains valuable insights on every aspect of bicycle design, but its cost may deter some people.

SMALL TOWN AND RURAL DESIGN GUIDE



While the NACTO materials have become nearly ubiquitous touchpoints for bicycle planning and design considerations in town, the word “urban” in the titles may turn off some users. The website here describes some considerations for biking and walking in rural contexts, but goes all the way out to advisory bicycle lanes, a rather advanced treatment for narrow roads without much precedent yet in the U.S.: <https://ruralsdesignguide.com>.



“If the preferred facility type is not feasible, despite employing design flexibility in all roadway cross-section elements (narrowing lanes, road diet, etc.), consider the next best facility type. For example, if a separated bike lane is preferred to serve the Interested but Concerned bicyclist, but is not feasible, consider a buffered bike lane, which still provides some level of separation. Always consider the impacts on ridership, comfort, safety and overall network connectivity when evaluating bicycle facility alternatives....”

The Minnesota DOT Bicycle Facility Design Manual offers practical advice on facility selection and investigations into design opportunities and constraints.

source: Exhibit 3-4. Preferred Bikeable Shoulder Widths for Rural Roadways

Sidewalk Design



MOST OFTEN, TRANSPORTATION IS DONE BY WALKING

Nearly every trip begins or ends on two feet (or with a cane or a wheelchair). During the COVID-19 outbreak, walking as a social activity enjoyed a resurgence on well-designed sidewalks that encouraged walking for transportation and recreation.

Sidewalks are the most fundamental element of the pedestrian network. Sidewalks are typically constructed out of concrete and separated from the roadway by curb-and-gutter, and landscaped planting strip area. Pedestrians generally find sidewalks with a buffer more attractive and comfortable than sidewalks built right next to moving traffic. Buffer options include bioretention swales, rain gardens, tree box filters, plant

materials, and pervious pavements (pervious concrete, asphalt and pavers). Bioswales provide multiple benefits by offering natural landscape elements that also manage water runoff from a paved surface.

The width and design of sidewalks will vary depending on street context, roadway function, and pedestrian demand. Standardizing sidewalk guidelines for different areas ensures a minimum level of quality and highlights special places. Adequate width along a sidewalk corridor allows two people to walk side-by-side and pass a third comfortably. In areas of high demand, sidewalks should be wider to accommodate the high volumes and different walking speeds of pedestrians.

MAIN STRATEGIES

Many of the major commercial corridors in the region with high traffic volume would both feel more comfortable and be safer for pedestrians with improved planting strips and consistent sidewalks. Examples include segments of Knightdale Boulevard, Wendell Boulevard, and US 401 through Rolesville, now undergoing redesign. Improvements could take place during new development along corridors or as sidewalks are replaced.

- Sidewalks should be required on both sides of the roadway depending on density and use of the corridor. In rural areas, a sidepath with a green buffer may be more appropriate, and in low-density suburbs, one side with sidewalk may be sufficient.
- Sidewalks along thoroughfares, collector streets, or streets fronting commercial or multi-family uses should have a minimum width of six feet. Along some collector streets and minor arterials, five-foot sidewalks may suffice, depending on land use and intensity of expected pedestrian use.
- A sidewalk at least 10- to 12-foot wide is recommended in mixed-use commercial areas.
- Sidewalks should include a planted buffer as part of a buffer (from car traffic) or enhancement zone. In addition to the aesthetic and stormwater remediation values of a buffer zone, planting strips can slow traffic and improve safety and comfort for pedestrians. Where right-of-way allows on existing streets, provide a 6-foot minimum-planting strip with native landscaping and mature trees.
- On newly constructed streets, require developers to provide eight-foot minimum planting strips with native landscaping and mature trees in the buffer zone.
- The Americans with Disabilities Act (ADA) requires a minimum four-foot width of sidewalk plus five-foot-wide passing areas every 200 feet. Most sidewalks take a 1.5-meter or five-foot width as the standard.
- All sidewalks should be paved with broom-finished concrete, paving brick, or durable concrete pavers. Similar materials may be permitted on a case-by-case basis, in compliance with ADA standards.

IMPORTANCE IN ONE SENTENCE

While most communities require sidewalks for new development, ensuring that maintenance and design standards are still important considerations that will provide lasting social capital and value to neighborhoods.

RESOURCES AND EXAMPLES

NACTO (National Association of City Transportation Officials)



The NACTO street and transit design guidance, much of which are available at no cost on the Internet, have become fairly standard resources since the completion of the first NEAS in 2014. The sidewalk design guide (see also figure below) provides a good understanding of how to start comparing municipal and county ordinances and standards with best practice in design. Note that these guides tend to focus on downtown or at least central city suburb types of locations, but the practices shown can be considered any place in a municipality ([link](#)).

City of Salisbury Sidewalk Ordinance



While every jurisdiction has an ordinance speaking to sidewalk design and allowances, the Salisbury's ordinance has a lot of attention paid to sidewalk activities, particularly sidewalk dining (Sec. 22-46). This section is worth a bookmark since more retail is looking to become "experiential" in nature, drawing people to shop by mixing complementary activities that are in near proximity by walking. The relevant ordinance language can be found at this [link](#).

City of Charlotte Transportation Design Standards



If converting goals to practice is the objective, then the Queen City has standards and details presented in a convenient and intuitive fashion, covering everything from ADA ramps to tree plantings to, yes, sidewalk details. Even better, all the drawings can be downloaded in PDF or CADD formats ([link](#)).



The National Association of City Transportation Officials (NACTO) recognizes sidewalk areas in towns to consist of several zones:

- 1. Frontage Zone:** next to buildings, these areas may contain tables or message boards;
- 2. Pedestrian Through Zone:** where pedestrians make their way;
- 3. Street Furniture Zone:** often containing lighting or bicycle parking; and
- 4. Enhancement / Buffer Zone:** with bicycle lanes, curbing / curb extensions, and vehicular parking.

source: NACTO

Land Use Connections



WALKING AS TRANSPORTATION IS AN INVESTMENT

The encouragement of pedestrian activity across towns and counties requires coordinated land use and transportation planning. Successful pedestrian-oriented business districts, or nodes, as opposed to “commercial strips,” depend upon making pedestrian circulation more convenient and attractive than motor vehicular circulation, because the retail strategy for commercial districts is to encourage the customer to visit often and for more than one purpose at a time. Walkability requires origins and destinations within walking distance of each other, which is influenced by roadway connectivity, distribution of land uses, and streetscape design. This last element affects perceived distances between destinations, which influence the decision to walk as much as actual distances.

The NEAS planning boundary is still growing outward

from its towns, as well as experiencing more infill development. Private developer requirements for connected roadway networks and pedestrian-scale streetscape design will ensure that new development encourages and enables more walking.

Pedestrian-scale environments encourage residents to walk to destinations, sustain appealing retail and business districts, and enable residents without alternatives to access destinations safely on foot. There are low-income communities in the Northeast Area where pedestrians are currently cut off from grocery stores, jobs, and other destinations by disconnected networks and high-traffic roadway corridors. New developments planned with the pedestrian scale in mind, and retrofits to existing developments, will serve these residents.

MAIN STRATEGIES

Many of the major commercial corridors in the region with high traffic volume would both feel more comfortable and be safer for pedestrians with improved planting strips and consistent sidewalks. Examples include segments of Knightdale Boulevard, Wendell Boulevard, and US 401 through Rolesville. Improvements could take place during new development along corridors or as sidewalks are replaced.

- The connectivity ordinance and examples cited earlier, including maximum block lengths, are central to creating walkable districts.
- Build safe pedestrian connections to transit stops, and include this element in TIA reviews.
- Include human scale elements such as site furniture, lighting, and other furnishings, and provide pedestrian and bicycle parking weather protection.
- Include “pedestrian-friendly” building fronts or other building facade elements that improve pedestrian conditions along the sidewalk.
- Mitigate blank walls and screen service areas, provide rich textures and transparent façade elements, and provide a sense of enclosure using street trees or awnings.
- Personal safety keeps people from walking in areas where poor lighting, bad definition of public/private space, and inadequate maintenance of landscaping and fixtures exists - consider developing a Crime Prevention through Environmental Design (CPTED) program in site plan and construction review.
- In addition to infrastructure recommendations, provide programmatic elements such as wayfinding, kiosks, public art, and events on open streets and along sidewalks such as walking tours, street festivals, and markets. These activities reinforce pedestrian ownership of streets and help with traffic (speed) calming objectives.

IMPORTANCE IN ONE SENTENCE

While people will walk between places if it’s convenient, encouraging more walking requires planning, defining a clear vision and targets, and investing in infrastructure and program elements to get maximum results.

RESOURCES AND EXAMPLES

AARP Walk Audit Toolkit

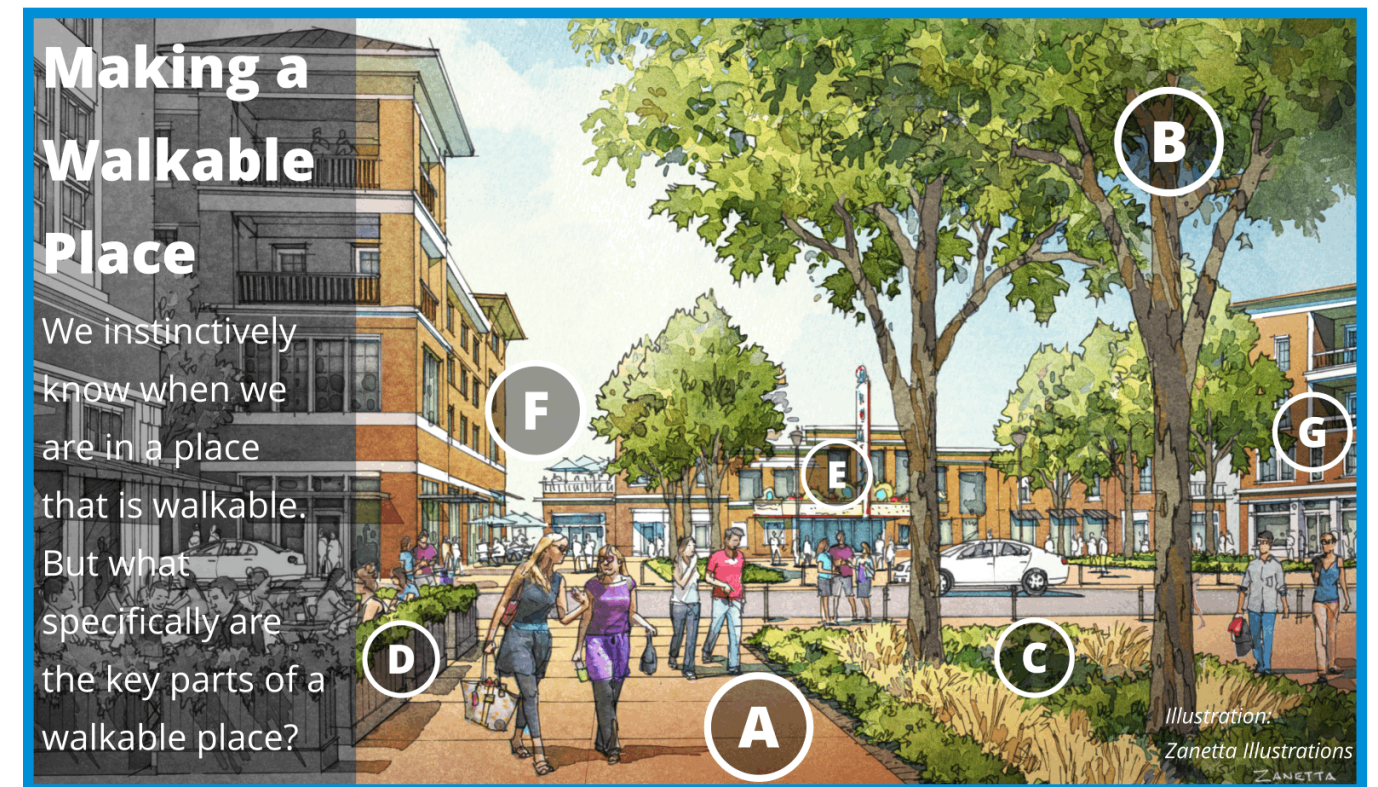


It shouldn’t be a surprise that the American Association of Retired Persons (AARP) has taken a keen interest in making places more walkable as seniors, like young adults, increasingly prefer walking to driving - although perhaps for different reasons. A walk audit allows the public to work with staff to understand the walking strengths and weaknesses of a corridor or neighborhood: www.aarp.org/livable-communities/getting-around/info-2014/aarp-walk-audit-tool-kit.html.

NCDOT Safe Routes to School (SRTS) Program



The national SRTS program and its North Carolina counterpart are very informative resources for creating a cost-effective way of getting children more active and, by extension, exposing the parents to walking conditions and potentially being vocal supporters of improvements. The link is: www.ncdot.gov/initiatives-policies/safety/safe-routes-school/Pages/default.aspx.



Making a Walkable Place

We instinctively know when we are in a place that is walkable. But what specifically are the key parts of a walkable place?

What do people actually mean when they use the term “walkability?” The definition of a walkable place may not be that different for the majority of people, and many people can accurately assign the characteristic to places as they move through them. The rendering above is used to help break down the various elements of walkability.

The first ingredient that many people will mention is sidewalks (A) but not all sidewalks are created equal: there are many sidewalks placed immediately behind the curb-and-gutter and a scant two feet from high volumes fast-moving car traffic. These sidewalks are wide and textured. Street trees (B) are key ingredient to shield us from sun and rain, and, along with vegetative groundcover (C) go a long way to prevent flooding and create clearly defined public space (as opposed to private or

semi-private spaces). The design of ground-level retail (D), especially eating places, is crucial and contributes to the most-important and most-overlooked element: walkable places need to strongly exhibit other people walking (or eating, shopping, etc.). Low-level lighting (E) contribute to security at dusk and night-times, while ground-level windows (F) and variable surfaces (building “setbacks”) create visual interest and invite passers-by to linger in the space. At the end of the day, it is the mix of complementary land uses near to each other (G) that generates traffic and impels that traffic to be on foot or by biking - retail, offices, and residences on the same or nearby (and connected) sites are the strands that are woven together to make a memorable and walkable place.

Transit



THE BIGGEST CHANGES HAPPENED HERE

The emphasis on and attention to public transportation have increased dramatically since the original 2014 NEAS project. The most important change came in 2017 as Wake County residents passed a half-cent sales tax to finance transit initiatives. Access to this funding is in the form of a 50-50 financial split with one or more sponsors. It isn't only traditional, fixed-route bus service that have been funded and studied, but also micromobility and "first-mile, last-mile" solutions.

Although mostly rural, higher-density, vertical mixed-use development around interchanges serviced by fixed-route bus transit, may be warranted in parts of the study area along rail or express bus lines. More importantly, land use and transportation policy should encourage development that is more walkable and

therefore more likely to make public transit more cost effective. Encouraging Transit Supportive Development or People Oriented Development (POD) is one way to do this. POD means encouraging vertical and horizontal mix of uses, at medium densities, near nodes of activity. This pattern of development can result in improved mobility options regardless if there is transit available.

Actual transit ridership has held steady or risen in recent years (pre-COVID-19), although not as rapidly as population increases in the Triangle Region. The argument for efficient and effective public transit remains compelling in light of increasing economic disparities that make single-person car ownership more difficult for more families.

MAIN STRATEGIES

There are numerous innovative solutions that should be considered to ensure that sustainable transportation, such as transit, is considered to access key services such as employment, educational institutions and medical services. The following strategies assist in the planning and funding of transit:

- Develop public-private partnerships more aggressively with major employers, including offering incentive / vouchers for transit riders and coordinating shuttle services for community employers and commercial centers and using Community funding (Wake County) to finance TDM positions and programs;
- Plan transit services targeted to grocery stores and medical services to help address food insecurity and health care issues in rural areas;
- Improve connectivity to transit hubs and major transfers at Triangle Town Center and New Hope Road;
- While it once seemed like an exotic option, ridehailing acceptance has made the potential for car-sharing services more likely, offering another option for transportation among people that can't or don't want to spend money on a personal car;
- Work closely with worker assistance programs including Wake County Human Services to collaborate on solutions for transportation, often the biggest challenge to these agencies;
- Peer-to-Peer or ridehailing companies like Uber and Lyft are becoming increasingly involved with governments to help supplement traditional transit, and should be carefully considered by individual or collaborations of NEAS governments (see "Resources" on next page); and
- Develop transit-oriented land use planning guidelines that ensure biking and walking access in near proximity to major agglomerations of residential and employment uses.

IMPORTANCE IN ONE SENTENCE

Public transportation has undergone a revolution induced by dedicated funding, and is undergoing a second one created by technology advancements; NEAS communities need to collaborate on and stay abreast of innovations to ensure that they realize the potential of a new age in public transportation.

RESOURCES AND EXAMPLES

RIDEHAILING PARTNERSHIPS



Collaborations between ridehailing companies and public agencies are on the rise, in part due to stresses on traditional transportation services induced by COVID-19 but also because of the rapidly morphing nature of the entire genre of services offered. The low-density nature of much of NEAS makes for a compelling foundation for exploring options like discounts for trips that begin or end in town or a transit stop. The Lyft and Uber companies have dedicated resources on their websites and contacts to obtain more information; remember: they are in a business to sell you on their product.

RIDEHAILING PARTNERSHIPS



Tempting to lump in with ridehailing, carsharing is deserving of its own acknowledgment here - or it soon will. Also consider private-private partnerships as potential collaborators, like the one offered by Right at Home (www.rightathome.net) that can help people run errands or make deliveries. A different model than traditional ridehailing has emerged in carsharing, where individuals joining a membership that allows them to have on-demand access to one of a "pool" of cars.

WAKE and FRANKLIN COUNTIES NORTH CAROLINA



It's going to become increasingly important that NEAS governments and staff understand what transportation options are available to their residents, particularly senior citizens and people with low levels of personal mobility. Wake County provides a good overview of such services from concierge to Uber to food delivery options here: <https://awareseniorcare.com/wake-county-transportation-services> and in Franklin County through the KARTS program here: www.franklincountync.us/services/aging/services/transportation. Broader assistance such as employment connections is here: www.wakecsrc.org/Wake-County-Human-Services. Finally, every local government in the Wake County part of NEAS should be familiar with the [Wake Transit Community Area Funding Program](#) that provides substantial financial assistance to governments for transit initiatives.

TRANSPORTATION DEMAND MANAGEMENT

TDM supplements traditional transit but has many dimensions, so here are some ideas to get started.

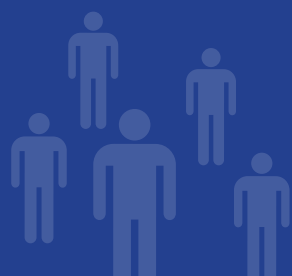


Somewhere near the intersection of economic revitalization and environmental activism is the Lloyd (Portland, OR) EcoDistrict. Connecting diverse dots from pollinator gardens to energy conservation, it's a novel attempt to integrate transportation into bigger goals while creating the most sustainable neighborhood in North America ([link](#)).

- The Association for Commuter Transportation (ACT) has a vigorous Southeast chapter, and its members communicate frequently through a list serve to exchange information and requests for support on mobility services ([link](#)).
- Commute Smart Raleigh can play an important part in marrying the diverse array of transit options coming at cities and towns now: micromobility, carpooling, carsharing, vanpooling, bike/walk, telework, and other transportation modes and models ([link](#)).
- Focused on the DC Region but also serving as an information hub, MobilityLab is a good place to start learning about the scope of TDM, but also specific elements, performance measures, and even a TDM return-on-investment calculator ([link](#)).



SUPPORTIVE LAND USE POLICIES AND PRACTICES




Human & Natural Ecology: Health & Resiliency



HEALTH AND ECOLOGY ARE LONG-TERM PARTNERS

The linkage between community health and the environment in which people live, work, and play is impossible to sever: the number two-ranked issue in the 2019 [Community Health Needs Assessment](#) conducted by Wake County was transportation and access. Increasing evidence points to causal linkages between living near roads and health conditions including reduced cognition, higher risks of dementia, diabetes, and asthma, particularly when a youth is living within a quarter-mile of a major roadway. A community's transportation network, with its degree of connectedness, multimodal features, and level of use influencing how, and how far, people travel - which in turn influence economic vitality, mobile source pollution, water quality, and traffic delays. Strengthening this chain influences has come to be known as "resiliency." By utilizing health and demographic data, decision makers responsible for improving transportation systems, land use planning, and community health can be in a better position to understand and communicate trade-offs.

17:1 
\$3.6 trillion spent in U.S. for health care in 2018 compared to \$212 billion for transportation

MAIN STRATEGIES

There is overlap between this topic and others, including encouragement of active modes of travel, land preservation, and even roadway capacity preservation. Personal Health means Community Health: While much of our national attention with regard to health is focused on provision of healthcare services, it's really individual behaviors - and access to places and facilities that encourage healthy behaviors - that offer great potential for improving health, increasing longevity, and resisting disease. The following are specific concepts that should be considered as a community is looking to improve its positions on human and natural resiliency.

- One important improvement in recent years has been the ability of practitioners to access data relevant to human health and well-being, such as the Broadstreet platform mentioned in the "Resources" section on the next page. The degree of "granularity" can still be an issue, so desktop data tools need to be supplemented with in-person outreach, goal identification / refinement, and prioritization inputs.
- Every NEAS community does comprehensive planning, but how many comp plans have a chapter devoted to health and wellness? A 2010 survey conducted by APA of 845 governments found that 31% of their comprehensive plans explicitly discussed health. Plans can also incorporate specific human and environmental health goals, objectives, and strategies in the recommendations and implementation sections; see list at right (and the APA report it originated from [here](#)).
- A full health impact assessment can be daunting, so instead ask a representative of the [Wake](#) or [Franklin](#) county health departments to serve on the next steering committee for a plan or project.

HOW TO INCORPORATE HUMAN HEALTH IN COMPREHENSIVE PLANS

ACTIVE LIVING (Active Transport, Recreation, Injury)

EMERGENCY PREPAREDNESS (Climate Change, Natural and Human-caused Disasters, Infectious Disease)

ENVIRONMENTAL HEALTH (Air Quality, Water Quality, Brownfields)

FOOD & NUTRITION (Access to Food and Healthy Food Options, Water, Land Use)

HEALTH & HUMAN SERVICES (Accessibility to Health & Human Services, Aging)

SOCIAL COHESION & MENTAL HEALTH (Housing Quality, Green & Open Space, Noise, Public Safety / Security)

BROAD ISSUES (Substantive Issues: Vision Statement, Guiding Principles, Background data; and Procedural Issues)

- Healthy Planmaking: Final Report, APA

IMPORTANCE IN ONE SENTENCE

Simply put, communities that protect and expand the places where people recreate, recharge, and provide key natural inputs like clean air and drinking water are better positioned to achieve lasting economic success and retain their individual characters.

RESOURCES AND EXAMPLES

NC DEQ STORMWATER MANAGEMENT INFORMATION



North Carolina's Department of Environmental Quality ([Water Resources Division](#)) is a great place to get started for obtaining information on stormwater management techniques and policies. Take an on-line water supply education course or develop a water supply plan (great tools [here](#)) or water shortage response plan (some NEAS communities have this simple plan, some do not).

ACCESSING HEALTH DATA ON-LINE IS (a lot) EASIER



Some of the best advancements in the planning profession specifically and technical analyses generally is how accessible large-scale data collection has become to analysts. An example of a good resource that has been evolving and adding data for several years is Broadstreet ([link](#)). Developed by a MD, Broadstreet allows for easy access to reams of data (presented on "cards") for specified geographies quickly, including comparisons of several areas. Also check out the UNC [Cecil G. Sheps Center for Health Services Research](#), with extensive resources on aging, rural health, child health, and other program areas.

GREEN SITE DESIGN INCENTIVES



Incentives for clustering new development aren't unusual, but Redmond, Washington goes several steps further. The specific ordinance ([link](#)) allows for flexibility by the developer as to how the site and construction can meet the requirements for earning points; the points can be exchanged for various building allowances (smaller lot sizes / higher density developments). Points are earned through the introduction of permeable surfaces, rainwater collection, and drought-resistant or native plantings. The LEED building and site rating system ([link](#)) is used extensively in this language, and is also a good resource even for site location (which can inform future land use plans/maps) and sustainable site design.

EXAMPLES OF LOCAL HEALTH AND WELLNESS PROGRAMS



Access to healthy food, medical clinics, and other health-related facilities and services are often easy to map (although maintaining a running resource map would be a great regional undertaking for the use of every jurisdiction without duplicating efforts) and included in assessments of transportation plans. Here are examples of some communities that have gone further to take action on health priorities.

- [Mountainwise](#) focuses its efforts on eight western North Carolina counties to improve food services, encourage healthy lifestyles, and provide resources for opioid and tobacco addiction. Notable: the Double Up Food Bucks program, adapted from Detroit, doubles SNAP expenditures up to a maximum of \$20 at participating locally sourced markets and food stores.
- In Davenport, Iowa the [Quad City Health Initiative](#) has developed workplace wellness programs and resources, including recognition of the healthiest workplaces annually. Notable: the list of wellness resources and community health impact assessment would be a good resource to emulate.
- Obesity in North Carolina is a fact of life for nearly 1 in 3 of its children (CDC, *Prevalence of Self-Reported Obesity by State and Territory*, BRFSS, 2019). A great resource for towns to take action is the [Healthy Eating Active Living](#) (HEAL) Cities & Towns Campaign. Notable: The HEAL Policies section has a lot of good, specific resources broken out by categories like general plans, complete streets, and healthy food access.
- A second resource is the [Alliance for a Healthier Generation](#). Several NEAS schools are already part of this coalition. As towns and cities wonder how they can improve their (county led) public schools, this may be a realistic avenue for positive change through collaborations. Notable: The Resources section is comprehensive, but requires a registered account to fully explore.

Creating Sense of Place



STAYING ONE STEP AHEAD OF CHANGE

One of the key characteristics of the northeast area of CAMPO is the pace of change, and how resilient that pace has been in the face of external forces. Job growth wasn't dramatically affected by the Great Recession in the NEAS area. Although manufacturing has dropped from 20% of employment to 10% between 2005 and 2018, that trend was in place before and after the Great Recession. Another notable change is that the NEAS community of workers is aging: in 2005 about 14% of workers were aged 55 and over, while in 2018 that figure had increased to 20%. Comprehensive plans and the public engagement through surveys during this time period regularly indicate that community cohesion, sense of place ("small-town atmosphere"), and the importance of green spaces are important to NEAS citizens, as are affordable living arrangements and managing the negative consequences of rapid growth. Preservation can also happen to the areas of counties between municipalities, discouraging sprawling, hard-to-service development patterns while establishing an "edge" that defines a town even though agricultural employment levels are negligible in many parts of NEAS.

MAIN STRATEGIES

North Carolina is not a home-rule state, but must abide by NC General Statutory requirements (or advocate for changing them), making some local government actions infeasible or even illegal in working to achieve offsets from the impacts of private development on local communities.

- Establish utility service agreements with Raleigh should limit the extension of public water and sewer infrastructure into conservation, watershed, and rural / agriculturally active areas.
- Work with county soil and water conservation programs ([Franklin County](#) and [Wake County](#)), Natural Resources Conservation Service, and Triangle / Tar River land conservancies for technical assistance adopting and managing preservation measures that protect farmlands and soils.
- The NC Department of Environmental Quality (NCDEQ) [Stewardship Program](#) currently stewards nearly 22,000 acres of land across North Carolina for the purposes of maintaining water quality and open space, many of which are mitigation properties that could provide mitigation measures for new / expanded transportation infrastructure.
- Although not a stand-alone preservation measure, designations of properties under North Carolina's bona fide farm regulation (§160D-903 in the NC General Statutes) are easy to certify by a property owner and exempt the property from county and municipal zoning requirements. Agritourism and some recreational applications may be certifiable.
- Wake County's density bonus transfers (see opposite page) provide incentives for property owners to recover costs of open space, mixed-use, workforce housing, and other provisions (note that Franklin County has a similar opportunity provided to property owners in municipalities that are impacted by reserving rights-of-way for future transportation projects in adopted plans).
- Community Benefit Agreements (CBAs) are formal collaborations between developers of large-scale projects and community residents; Community Development Agreements (CDAs) are formal arrangements between private property development interests and government. The latter are more restricted to legal elements in NC law; the former (CBA) can accommodate a wider array of measures.

IMPORTANCE IN ONE SENTENCE

Each NEAS community has a pride of place, and can continue to celebrate and build upon those elements that make their town, city, or county truly unique among the peers in the Triangle Region.

RESOURCES AND EXAMPLES

WAKE COUNTY DENSITY BONUS ORDINANCE



Article 6 ([link](#)) of the Wake County Unified Development Ordinance (UDO) contains language for allowance of density bonuses under several conditions: joint platting of subdivisions to encourage coordination of adjacent parcel developments, workforce housing for those making 50% or less of the Wake County median income, mixed-use design, and open space preservation. Article 5-41 makes a similar allowance for dedication of land to school sites. Bonuses must be in conformance with the adopted land use plan and may be combined up to 35% over the underlying zoning allowance; no transfers are allowed.

LAND CONSERVATION



The role of land conservancies and the participating landowners in the preservation of water supplies and natural resources would be hard to overstate. The Triangle Land Conservancy, as it has been since 1983, the best place to start when thinking about the various options for land conservation and preservation in Wake County. The TLC not only works to preserve land (over 20,000 acres now, expected to reach 25,000 acres by 2025) but also manages several preserves. They also provide a description of land conservation options ([link](#)). Along with the TLC, Wake County is also highly active in land preservation, including Sandy Pines Preserve in 2021, the third preserve to open in eastern Wake County ([link](#)).

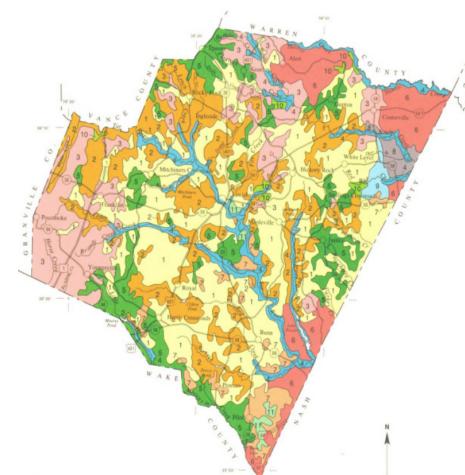
URBAN ACUPUNCTURE



Popularized by authors such as Jaime Lerner (former mayor of Curitiba, Brazil) and Mindy Thompson Fullilove (author of *Urban Alchemy*), urban acupuncture has come to be loosely defined as small, affordable actions taken in different parts of a town, city, or county that create joy and a sense of community identity. **Wendell** is a case study of how the large and small - sometimes very small - public projects can pull a place together with fanciful murals, gazebos, sidewalk art, and clever crosswalk designs.



All images taken by Scott Lane and are in Wendell except for the brass cats of Asheville's Wall Street (far right).



"The best soils tend to be in the southeast region near Bunn; however, the soils that grow the best crops also grow the best houses, and the proximity of this area to Raleigh ensures that development will continue to come to that area. Due to less competing land use pressures and lower land costs, much of the commercial agriculture will continue to occur north of the Tar River"

—Franklin County Agricultural Development and Farmland Preservation Plan, 2010

Infill & Reinvestment



REINVENTION, NOT DUPLICATION

Each town in the study area has an established downtown, acting as a recognizable center of the community. It's the place where people hold parades, protest, reconnect, and remember how a town works. The downtowns are remnants of a cross-roads, where post offices sprang up, or where the train made a stop. They are more walkable due to a mixture of uses close together, sidewalks, and a connected street network that wasn't an afterthought, but an integral part of making communities and commerce work better. They have established retail areas, churches, day care, parks, and smaller lot homes. While some main streets have been bypassed, downtowns remain critical to local culture, identity, and the economy. Now they also attract younger workers and create friendly environments for seniors. Public investment in downtowns in the form of streetscape projects, facade grants, pocket parks, and maintenance spurs private development that can lead to increased tax revenues.

MAIN STRATEGIES

Demand for new development in NEAS has generally remained strong for a decade, in spite of external economic disruptions. Many people are looking for a slower pace, more affordable residences, and walkable places that NEAS communities can provide. While expanding what is considered the downtown - or nearby areas that are accessible to downtowns - capitalizes on existing infill opportunities, others can be created, albeit over time. But these new places shouldn't try to emulate every aspect of older, core areas (even if they could overcome modern standards and code requirements); focus instead on the specific assets of their location and surrounding uses.

- Encourage flexible zoning that allows development that provides a balanced mix of commercial, residential, cultural and civic uses. Places that feature a complementary mix of uses promote walkability and ensure that there are "eyes on the street" and patrons for businesses during all hours of the day. Each community should determine the appropriate density, intensity, range of uses to ensure that new development is financially viable within the local market and compatible with, and connected to, existing developments.
- Implement streetscaping improvements and maintain them to a high quality. Improved streetscapes have a variety of environmental, economic, water quality, and social benefits including providing safer environments for bicyclists and pedestrians; increasing the property values of homes and businesses; and reducing water treatment costs by facilitating natural storm water infiltration. Focus on one corridor segment first, and practice excellent maintenance. This corridor's success will determine how competitive future endeavors will be in the future.
- Develop targeted economic development or redevelopment areas as a first step to prioritizing the places where public monies are spent to support private reinvestment. Facade improvements to existing structures, whether through outright purchase of the building, leasing the area of the facade, or providing facade grants or flexible loans to private property owners, are all viable means of improving a streetscape and attracting higher-quality infill opportunities.

IMPORTANCE IN ONE SENTENCE

NEAS communities should plan to maximize infill opportunities that allow for a greater variety of housing types, businesses that benefit from complementarity with adjacent uses, and support economic resilience while reinforcing a traditional pattern of development that is characteristic of the best of the current place.

RESOURCES AND EXAMPLES

APEX SMALL TOWN CHARACTER OVERLAY DISTRICT

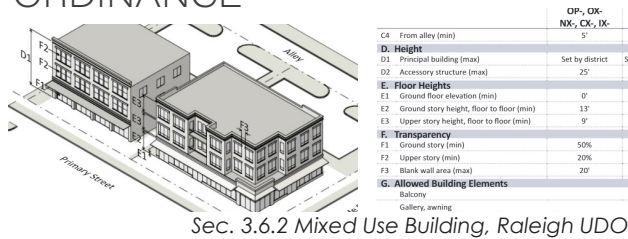


In place since 2006-2007, this overlay district (see text box at bottom as well) aspires and inspires infill to meet the spirit of the downtown area. Consisting of a map and UDO language ([link](#)), this strategy focuses on design features of surrounding structures. Rooflines, building setbacks, window design, preeminence of corner buildings, small-scale tenants (less than 30,000 square feet for one tenant), and no drive-throughs are part of the definitions developed to reinforce existing, desirable characterizations.

RALEIGH UNIFIED DEVELOPMENT ORDINANCE



Instead of an overlay district, the City of Raleigh opted for redefining its zoning language to emphasize key characteristics of building and lot relationships ([link](#)). The code features helpful graphics and a referenced index to zoning code designations.



Sec. 3.6.2 Mixed Use Building, Raleigh UDO

WAKE FOREST FACADE IMPROVEMENT GRANT PROGRAM



The Town of Wake Forest (as do other NEAS towns) has a Facade Grant Improvement Program ("FIG") that provides up to \$15,000 over three years to a property for a 50% private match on improvements to facades, masonry, or windows ([link](#)). Notably, a second purpose of the FIG program is to promote infill development, with the same monetary limitations applying to someone who wishes to build infill development or create second-floor residential space in the Renaissance (downtown) district.

RESEARCH: UNC SCHOOL OF GOVERNMENT FACADE PROGRAMS



A good first foray into the topic of grants is with this article conducted by the UNC School of Government ([link](#)). Tyler Mulligan prepared this research in 2020, reviewing four tools that local governments have to encourage private developers to make facade improvements: Code enforcement, Property tax exemptions, Acquisition of buildings or facades (and subsequent improvement of such government-owned property), and loan programs.



"The purpose and intent of the Small Town Character Overlay District is to repeat the spirit of traditional character rather than imitate style. The Overlay identifies the architectural qualities that define the downtown character and proposes design standards to maintain that character in new and infill projects. These standards emphasize existing patterns and include: building hierarchy, building site relationship, building massing and proportions, building height and roof type, facade patterns, street level facades, and window patterns."

—Apex Small Town Character Area Plan Overlay District, 2007

New Activity Centers



PEOPLE-ORIENTED DEVELOPMENT

In 2018, over 85% of the workers living in NEAS commuted each day to a place of employment outside of NEAS. Commuters in Franklin County spend over an hour each day commuting to work, nearly one-third longer than the North Carolina average of 24 minutes. These trends have worsened in the last two decades, with travel times and distances traveled to work becoming longer. There are indications that non-work trips to obtain goods and services are also being made outside of NEAS (see *table at right*). The implications for transportation are hard to overstate in terms of extra vehicle miles of travel, mobile pollution emissions, lack of reliability, and a paucity of alternative modes - much less the often-stated goal of economic diversity. Identifying appropriate locations for office, industrial and retail development, investing in infrastructure and marketing development-ready sites can increase the jobs-to-housing balance, reduce trips and increase return on investment.

LQ (2018) NAICS Industry Sector	
5.2	Mining, Quarrying, and Oil and Gas Extraction
2.4	Manufacturing
1.7	Retail Trade
1.6	Construction
1.4	Accommodation and Food Services
1.4	Wholesale Trade
1.3	Agriculture, Forestry, Fishing and Hunting
1.2	Utilities
1.2	Other Services (excluding Public Administration)
1.1	Educational Services
1.1	Real Estate and Rental and Leasing
0.9	Administration & Support, Waste Management and Remediation
0.7	Arts, Entertainment, and Recreation
0.7	Health Care and Social Assistance
0.7	Transportation and Warehousing
0.6	Information
0.6	Professional, Scientific, and Technical Services
0.5	Finance and Insurance
0.1	Public Administration
0.1	Management of Companies and Enterprises

NEAS v. Counties. Where the share of jobs in NEAS exceeds the share found in Franklin plus Wake counties location quotients are over 1.0; values under 1.0 indicate jobs less likely to be found inside the NEAS planning area compared to the two counties.

MAIN STRATEGIES

Things changed a lot since the 2014 Northeast Area Study was completed. Retail employment, once a stalwart, if low-paying, economic cornerstone has been undermined by on-line retailing. A global pandemic underscored the need for more locally sourced goods and services. NEAS communities should recognize that there are various opportunities for “new activity centers” like greenfield, suburban infill, interchange, transit-oriented, core, and core-fringe areas, each potentially requiring specialized investment and regulatory support.

- The small towns of NEAS will need to prioritize potential activity centers for the long term, and determining if attracting desirable development activity with incentives, regulatory changes, or public investments is necessary to do first to leverage private investments.
- Thus far, most transit-viable locations in NEAS (and elsewhere in the Triangle Region) are not transit-oriented development but (as Tammy Stern, UNC graduate student, 2019, [link](#)) suggested, “development-oriented transit” with services connecting to existing walkable, mixed-use, higher-density areas. Zoning codes and land use plans need to uniformly reject uses that aren’t complementary to the goal of making the activity center walkable and highly connected (no storage units on corner lots).
- Once the type of activity center has been determined, the key will be to work with the development community and nearby business owners and residents in a small-area planning process to create appropriate modifications to zoning language or a unique overlay district to support the center.

IMPORTANCE IN ONE SENTENCE

Planners and community leaders alike speak often of economic diversity, walkable communities, attracting young workers, and making places that are suitable for aging in place; new activity centers, if properly planned, prioritized, and supported can help accomplish all of these objectives.

RESOURCES AND EXAMPLES

CHARLOTTE TRANSIT-ORIENTED DEVELOPMENT DISTRICTS



Adopted in 2019, Charlotte’s guidance is notable for both detail that includes transit transition zones as well as specificity on tying the development type or zone back to proximity of a transit station. The code is also thorough, perhaps more than a smaller NEAS community wants to incorporated into a zoning code but could also provide definition to an overlay district. Topics include walking/biking access, valet parking standards, landscaping, and, as suggested on the previous page, a list of non-conforming uses.

TRANSIT-ORIENTED DEVELOPMENT DATABASE



To research existing TOD areas, the Center for Transit-Oriented Development has a website that serves as a good starting point ([link](#)). At the time of writing, the National TOD Database contained data on nearly 6,000 existing and proposed stations in 54 metropolitan areas in the U.S. Characterizations with data at the station area, line (half-mile buffer on all stations), and transit commuter shed are available. Also consider the APA Zoning Practice for Context-Sensitive Guide to TOD ([link](#)); see the excerpt below.

CITY OF TUCSON TRANSIT-ORIENTED DEVELOPMENT HANDBOOK



Rather than a generic guide to TOD measures, Tucson’s handbook ([link](#)) is targeted specifically on a downtown streetcar line connecting districts that are described in the handbook. The guidance that follows this introduction covers most or all of the relevant aspects of mixed-use, walkable design principles that are just as appropriate for TOD: parking, “barrier-free” (mobility-challenged) accessibility, and building / site design are also addressed, as is xeriscaping (critical in Tucson). The guide also talks about the process and tasks used to develop the streetcar, from market analysis to workshops to placetypes to peers.

GOTRIANGLE TOD GUIDEBOOK



The GoTriangle TOD Guidebook is a comprehensive examination of passenger rail service including station area studies and supportive policies to implement TOD. One issue of mounting concern in the NEAS planning boundary is rising housing prices; this TOD Guidebook ([link](#)) explains how TOD can help address that issue.



Tucson Sun Link Streetcar

“At a minimum, TOD districts should specify maximum building setbacks (or build-to lines) and minimum building heights for each subdistrict, and require sidewalk connections and street-facing building entrances for all development.... Given that transit-oriented development exists on a spectrum, it makes sense that TOD zoning standards should reflect the diversity of station-area types. Simply put, TOD districts should encourage projects that are both pedestrian friendly and transit supportive.”

—APA Zoning Practice for Context-Sensitive Guide to TOD, 2015

Environmental Justice and Social Equity



PEOPLE-ORIENTED...PEOPLE

Social equity, environmental justice, and equal opportunity for low-income, minority, and other at-risk populations were highly visible in the news media during 2020. Consideration of equitable treatment of our communities' diverse populations - the NEAS planning area is diverse, with a quarter of the population being African-American and over 10% Hispanic - is important for several reasons.

Mental / Physical Health. The American Psychological Association (APA) reports that socioeconomic status (SES) has measurable impacts on rates of low birth weight newborns and adult depression ([link](#)). Inequalities in access to health care for poor people and people of color have been reported in the U.S., as have disproportionate impacts from the COVID-19 coronavirus - perhaps nine times higher (AMA, [link](#)).

Economic Vitality. The same APA research notes that African-American men earn 72% of the income of their Caucasian counterparts; African-Americans (53 percent) and Latinos (43 percent) are also more likely to receive high-cost mortgages than Caucasians (18 percent) (from Logan, 2008).

Opportunity Shortage. The Stanford Center on Poverty and Inequality ([link](#)) Pathways 2019 publication focuses on an under-recognized at-risk population: Millennials. Impacted by both student debt coupled with rising tuition costs and the Great Recession's impacts on job quantity and quality, research indicates that some in this group, especially those without college degrees, may never fully recover financially.

Transportation Connections. Transportation options and access are intertwined with economic outcomes: *"The higher the income, the higher the mobility, which may give rise to substantial mobility gaps between different population groups. There are mismatches between the location of people with low income and the areas where employment and services are available. The more significant these mismatches in terms of accessibility, the higher the gaps."* (Rodrigue, Jean-Paul, *The geography of transport systems*)

MAIN STRATEGIES

Approaches to meshing social equity into transportation planning and policy differ, but contain a few key steps and good practices. Types of equity impacts are more diverse; some are listed below.

- Steps for evaluating equity impacts: (1) Identify locations of vulnerable populations, including mobility-challenged, aging, low-income (150% of federal poverty rate is suggested); minority, and low levels of access to basic goods and services; (2) Assess scenarios for current, future with, and future without the proposed action using share analysis, surveys, and focus groups; (3) identify avoidance and mitigation strategies for the proposed effects, in part by talking with the affected communities.
- Inequities can take many forms: environmental degradation, reduction in accessibility, reduced mobility choice, auto-dependent land use patterns that disfavor non-car owners, disproportionate matching funds for auto / non-auto projects, biased lending practices, and evaluations that don't include secondary, cumulative, and indirect effects on vulnerable populations.
- Plans and procedures need to contemplate social equity metrics - think about a new proposal appearing to decisionmaking boards: how are they going to hear about the potential impacts of the proposal on vulnerable populations or how it supports / detracts from equity goals?

IMPORTANCE IN ONE SENTENCE

If places and transportation systems are planned and designed for the most vulnerable populations, they work better for everyone by creating a more diverse, interesting, and active local economy.

RESOURCES AND EXAMPLES

SANDAG 2050 REGIONAL TRANSPORTATION PLAN



It's large and unique in structure in the U.S., but there isn't any reason that metropolitan planning organizations, cities, towns, or counties can't emulate Chapter 4 (Social Equity: Title VI and Environmental Justice, [link](#)) into their own plans. Providing resources for partners knowledgeable of disadvantaged groups; Table 4.4 with specific thresholds identifying communities of concern; and Table 4.8 showing how performance metrics were applied to these populations under different scenarios are especially noteworthy.

ADVOCACY ADVANCE ACTIVE PLAN EQUITY SCAN

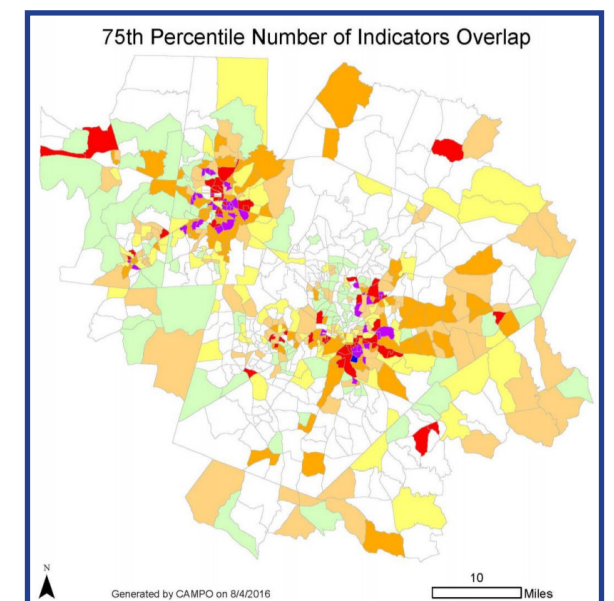


It's tempting to focus on the impacts of car-oriented projects, but social equity has a special place in transit, biking, and walking since these are modes of travel that are used more often by low-income and other groups that don't have a car handy. The Alliance for Biking and Walking, and the League of American Bicyclists published this summary ([link](#)) of 38 active mode plans, often with specific examples of measurable outcomes and metrics.

CONNECT 2045: Environmental Justice



Here in the Triangle Region, the Connect 2045 Regional Transportation Plan ([link](#)), which included both the Capital Area and Durham-Chapel Hill-Carrboro metropolitan planning organizations study areas, developed thresholds for six different types of affected populations (e.g., age, income, minority status, linguistic isolation, and zero-car households) and assessed the impacts of the future transportation plan investments against those affected populations (chapter 9.2). Each type of vulnerable population was mapped at the 75th percentile level by block group and "overlaid" to produce a heat map of impacts (see map at right). Levels of proposed transportation investments from the plan in these Communities of Concern were evaluated, with an extensive list of impact types and mitigation strategies included.



Identification of Communities of Concern, Connect 2045

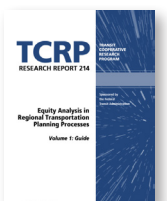
"Historically, the benefits and costs of transportation investments have often been distributed inequitably, with underserved persons bearing a higher share of the burdens of the transportation system and a lower share of the benefits."

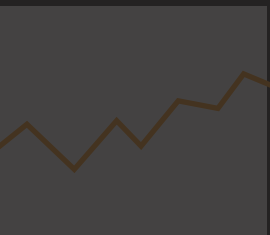
(National Academies of Sciences, Engineering, and Medicine 2020. *Equity Analysis in Regional Transportation Planning Processes, Volume 1: Guide*. Washington, DC: The National Academies Press. Page 3. <https://doi.org/10.17226/25860>.)

One recently published guidance document, available at no cost, is TCRP Report 214 *Equity Analysis in Regional Transportation Planning Processes, Volume 1: Guide* (2020, [link](#)). This guide is extraordinarily comprehensive in its treatment of the justifications (including legal requirements) and methods for assessing social equity impacts in transportation planning.

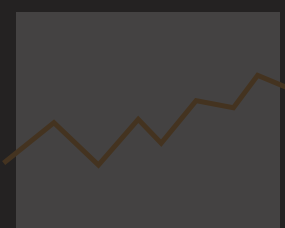
Key parts of this report include the following, but these elements and more are presented in robust detail.

- Definitions of Impacted Populations (thresholds)
- Metrics and Specific Methodologies for their Measurement
- The Role of Stakeholder Engagement in both Framing and Validating the Social Equity Evaluation
- Goal-Setting in Transportation Planning Frameworks





REVIEW OF PLANS AND POLICIES

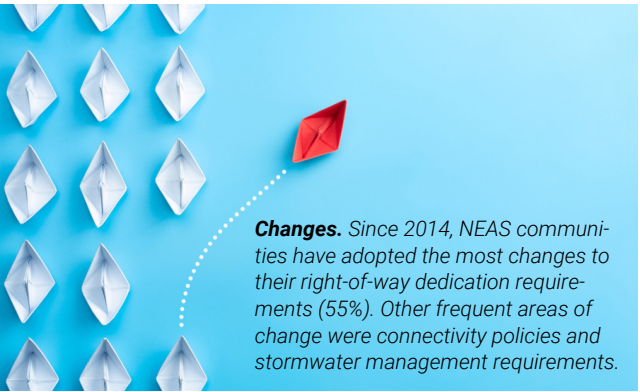


Review of Plans and Policies

Overview

Each jurisdiction in NEAS, including two counties and nine municipalities, has locally adopted plans and ordinances that govern land use and transportation policy. Both the original (2014) NEAS and the 2021 update employed a Plan and Policy Review Matrix outlining areas where local governments have adopted plans and policies that influence how well the transportation system operates in the long term. In NEAS 2021, more information was asked about which areas had changed / updated as well as the importance of the NEAS 2021 goals. This information was gathered through the use of a survey instrument and final review by the CTT steering body for accuracy. Closed circles represent adopted plans that do not need improvements at this time; open (no plan or policy) and partial circles (plan/policy needs improvement) complete the symbolism used in the table below.

The next page summarizes the results by community and any additional notes provided during the course of NEAS 2021.



JURISDICTION	Bunn	Franklinton	Franklin County	Knightdale	Raleigh	Rolesville	Wake County	Wake Forest	Wendell	Youngsville	Zebulon
ADOPTED PLAN											
Land Use											
Transportation											
Bicycle											
Pedestrian											
Parks and / or Open Space											
Greenway (may be part of a parks)											
Collector Street (may be an element in a larger)											
Emergency Response											
Technology Strategy / Infrastructure											
ADOPTED POLICY											
Sidewalk Policy											
Bicycle Parking Requirements											
Sidewalk Design Requirements											
Connectivity Ordinance											
Right-of-Way Preservation Policy											
Traffic Impact Analysis (TIA) Requirement											
Transportation Impact Fee											
Access Management Policy											
Bicycle Facility Requirements											
Complete Street Policy (Adopted)											
Planned Bus Routes											
Gateway Regulations or Transportation Overlay Districts											
Minimum Parking Requirement for Retail											
Parking Maximums (caps)											
Maximum Cul-de-Sac Length											
Maximum Block Length											

Summary of Adopted Plans and Policies for NEAS (source: NEAS 2020 Policy Survey)

No	Yes; needs work	Yes

Jurisdiction	Plan or Policy	Explanation
Bunn	Various	Bunn reports not having land use, transportation and several other plans and policies with the exception of a Parks and Recreation Plan and sidewalk policy / requirements.
Franklinton	Various	Franklinton doesn't report any adopted policies, and would also benefit from a sidewalk and bicycle planning effort.
Franklin Co.	Active mode plans (bicycle, pedestrian); polices for sidewalks and bicycle facilities	Franklin County would benefit from a comprehensive multimodal transportation plan that addresses deficiencies in bicycle, pedestrian, and greenway plans. Similarly, sidewalk and bicycle requirements of new development should be updated, as well as TIA guidelines.
Knightdale	Comprehensive Transportation Plan; Bicycling requirements	Knightdale has a very active and robust planning paradigm, citing only a transportation plan (currently underway) and bicycle requirements as needs. Injecting technology into the CTP would be a good objective for the current update happening as of this writing.
Raleigh	Pedestrian Plan (update); ROW and Parking policies	Raleigh has an existing Pedestrian Plan (2012) but may need it to be updated. The city also expressed a need to update parking and bike facility requirements and to focus on infill and transit services.
Rolesville	Collector Street and Greenway Plans; Access Management and Bus Routes	Rolesville has noted upcoming bicycle and pedestrian plan updates pending, and has cited a need for regional connectivity (e.g., US 1). Access management and gateway planning are gaps now.
Wake Co.	Bicycle and Pedestrian plans; complete streets and access management policies	Review of the current density bonus program to make it utilized more often was noted during the NEAS development. Bicycle and pedestrian plannign to expand on the updated greenway plan is needed, as is a comprehensive access management and complete street policy.
Wake Forest	Technology; Fees; Parking policies	Wake Forest has nearly all of the plans and policies suggested by the survey, but noted that technology strategies, impact fees, connectivity, and parking requirements could be improved.
Wendell	Bicycle Plan; Technology; Fees, Access Management policies	Wendell is undergoing a comprehensive plan update, and recently completed a parks plan. Parking requirements, access management requirements, and a bicycle plan (and possibly a concurrent update to the Pedestrian Plan) would be important actions to take.
Youngsville	Parks / Greenways; Collector Street; Technology Plans; Connectivity and Access Management policies	Youngsville cites an absence of a transportation, collector street, and Greenway/Parks/Open Space plan(s). Access management requirements could be created concurrent with a new collector street plan, as could additional connectivity requirements.
Zebulon	Emergency Response and Technology Plans; Updates to biking and walking policies	Zebulon is undergoing updates to the comprehensive plan and CTP as of this writing. Ideally, technology and emergency response considerations would happen in the CTP update. Biking and sidewalk infrastructure requirements are also noted as in need of updating.

Areas for Potential Improvement (source: NEAS 2020 Policy Survey)



NorthEast Area Study

