



Mooreville

Comprehensive Transportation Plan

Chapter 6 – Implementation Plan

Introduction

Planning, design, and implementation are all critical components of a successful plan. The citizens of Mooreville have expressed a desire to implement a comprehensive transportation plan that will add to the quality of life and unique character of the Town. However, with limited funding, implementation can be challenging and time-consuming. With this in mind, policy recommendations and an action plan have been developed to help local staff focus their efforts and seek strategic opportunities to expedite the implementation of this plan.

Completion of the Town's Comprehensive Transportation Plan represents an important step toward implementing multimodal improvements that affect travel safety, mobility, development patterns, and the aesthetics of Mooreville. Some of the recommended improvements will be implemented through the development review process. Major infrastructure improvements most likely will be a product of state and federal funding; however, transportation improvement funds are limited and competition for them is great.

This chapter provides general policy recommendations, reviews funding opportunities, and presents an action plan to assist local decision-makers and planning staff in the implementation of the *Mooreville Comprehensive Transportation Plan*.

Responsible Agencies

To successfully implement this plan, responsible agencies have been identified that can influence and authorize recommendations. Policy and program initiatives will, for the most part, occur at the local level. Some improvements will occur as a result of development and redevelopment opportunities. The majority of responsibility for implementing these recommendations, will be a coordinated effort between NCDOT, the Lake Norman Rural Planning Organization, and the Town of Mooreville.



Funding Opportunities

The construction of a comprehensive and connected transportation network can occur through adoption of local policies and programs and state programs, as well as through the receipt of private contributions. With this in mind, it will be important for the Town of Mooresville to identify funding sources to implement the recommendations of this plan. While some projects and programs will be funded by the Town, alternatives are available to provide financial support for improving the local transportation network.

Local Programs

Local funds should be used for strategic projects identified by the community as being necessary to improve the transportation network in Mooresville. Usually these projects are most successful when additional funding can be secured to help lessen the burden to the Town. Local funding sources tend to be flexible and include general revenue expenditures, and in some communities local bond programs as well as proceeds from bond programs. An exception to this policy may include high priority connections along roads unlikely to be developed.

Powell Bill

Powell Bill funds are collected by the state in the form of a gasoline tax. The amount of these funds distributed to a municipality is based on the number of street miles to be maintained and the Town's population.

Transportation Bonds

Transportation bonds have been instrumental in the strategic implementation of local roadways, transit, and non-motorized travel throughout North Carolina. Voters in communities both large and small regularly approve the use of bonds in order to improve their transportation system. Some improvements identified in this plan could be candidates funding for a future transportation bond program.

Lake Norman Rural Planning Organization (RPO)

Mooresville is a member of the Lake Norman RPO, which is one of 20 RPOs designated by NCDOT. The RPO aids local planning efforts and provides services and guidance in coordinating with NCDOT.



State and Federal Programs

In comparison with local funds, state and federal funds are not as flexible in terms of their use. Projects funded by these programs usually focus on the needs required by vehicles, either in terms of capacity or safety — for example, widening projects. It can be difficult to secure these funds for alternative transportation projects.

The 1998 Transportation Equity Act for the Twenty-First Century (TEA-21) required NCDOT to set aside federal funds from eligible categories for the construction of bicycle and pedestrian transportation facilities. On August 10, 2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). With guaranteed funding for highways, highway safety, and public transportation totaling \$244.1 billion, SAFETEA-LU represents the largest surface transportation investment in our nation's history. Provisions address specific safety issues, including pedestrian and bicycle safety.

Funds for pedestrian and bicycle projects come from several different sources that are described in this section; however, allocation of those funds depends on the type of project or program and other criteria. The information provided in this section presents a basic overview of the process.

Transportation Improvement Program (TIP)

The state's Transportation Improvement Program (TIP) supports communities through an array of funding resources including Federal Aid Construction Funds and State Construction Funds. As part of the application process, strict criteria must be met before project selection. Criteria include providing right-of-way information, meeting a set of design standards, showing a need for a project, local support of the project, and the inclusion of the project in the community's planning processes. Chapter 5 discussed Mooresville's current TIP projects in detail. See www.ncdot.org/transit/bicycle/funding/funding_TIP.html for more information.

Hazard Elimination and Railway-Highway Crossing Programs

These funds are a subset of the State Transportation Improvement Program (STIP) funding, constituting 10% of a state's funds. This program is intended to inventory and correct the safety concerns of all travel modes.



NCDOT Division Funds

NCDOT separates the state into 14 divisions. Iredell County is in Division 12. Division funds are another resource that provides allocations or discretionary funding for special projects within each division.

North Carolina's Clean Water Management Trust Fund (CWMTF)

At the end of each fiscal year, 6.5% (or a minimum of \$30 million) of the unreserved credit balance in North Carolina's General Fund is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies, and conservation non-profits to help finance projects that specifically address water pollution problems. CWMTF funds may be used to establish a network of riparian buffers and greenways for environmental, educational, and recreational benefits.

Governor's Highway Safety Program (GHSP)

The Governor's Highway Safety Program is committed to enhancing the safety of North Carolina roadways. To achieve this, GHSP funding is provided through an annual program, upon approval of specific project requests, to undertake a variety of safety initiatives. Communities may apply for a GHSP grant to be used as seed money to start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis and evidence of reductions in crashes, injuries, and fatalities is required. More information about the program can be found at www.ncdot.org/secretary/GHSP.

Public/Private Initiatives

Developer Contributions

Through diligent planning and early project identification, regulations, policies, and procedures could be developed to protect future transportation corridors and require contributions from developers when property is subdivided and/or developed. To accomplish this goal, it will take a cooperative effort between local planning staff, NCDOT planning staff, and the development community.

Impact Fees

Developer impact fees and system development charges are another funding option for communities looking for ways to pay for transportation



infrastructure. They are used most commonly for water and wastewater system connections or police and fire protection services, but they have been used recently to fund school systems and pay for the impacts of increased traffic on existing roads. Impact fees place the costs of new development directly on developers and indirectly on those who buy property in the new developments. Impact fees free other taxpayers from the obligation to fund costly new public services that do not directly benefit them. Although other states in the country use impact fees, they have been controversial in North Carolina and only a handful of communities have approved the use of impact fees. The use of impact fees requires special authorization by the North Carolina General Assembly.

Active Living by Design (ALbD)

Active Living by Design is a program sponsored by the Robert Wood Johnson Foundation. ALbD seeks to bring together the health care and transportation communities to create an environment that encourages residents to pursue active forms of transportation such as walking and bicycling. Grants are awarded each year to a selected number of communities that are then required to produce a local match. These grants can be used to create plans, change land use policies, institute education policies, and develop pilot projects. For more information, visit www.activelivingbydesign.org.

Fit Together

Fit Together is a partnership of the North Carolina Health and Wellness Trust Fund and Blue Cross and Blue Shield of North Carolina. The grant initiative “recognizes and rewards North Carolina communities’ efforts to support physical activity and healthy eating initiatives in the community, schools, and workplaces, as well as tobacco-free school environments.” This program awards as many as nine partnerships with up to \$30,000 annually for a two-year period. For more information on the Fit Together grant initiative, visit www.healthwellNC.com.

The Trust for Public Land (TPL)

Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land to enhance the health and quality of life in American communities. TPL works with landowners, government agencies, and community groups to create urban parks and greenways,



as well as to conserve land for watershed protection. For more information on the Trust for Public Land, visit www.tpl.org.

Action Plan

This section discusses the appropriate steps for local leaders to implement the recommendations of this plan and key agencies that should be involved with the task. It is not expected that all of the listed items would be completed over the next several years; however, the process should be initiated to best take advantage of the momentum gained with the development of this plan. Table 6.1 identifies a summary of the short and long-term action items that should be considered to implement this plan.

Beyond the tasks listed below, it is vital to the success of this plan that the Town continue to work with and educate local citizens and businesses. While public support can encourage implementation, opposition can significantly delay a project.

Safety

The Town and NCDOT should secure funding to implement safety countermeasures at the high-crash locations in the study area. Chapter 2 describes crash analysis that was performed for the heaviest traveled segments and for the 10 worst intersections over the three-year period from January 1, 2003 to December 31, 2005.

Comprehensive Transportation Plan

The Highway Element of this Comprehensive Transportation Plan, as shown in **Figure 5.1** replaces the 1997 Thoroughfare Plan. As proposals are implemented, the Town should note the changes in this CTP in terms of alignments and cross-section recommendations. The *Mooresville Comprehensive Transportation Plan* reflects several changes to the 1997 Thoroughfare Plan for one of the following reasons: either the connection/alignment is no longer feasible due to new development and no other alternative exists, the project has been downgraded from a thoroughfare to collector street status, or a lack of clearly defined transportation benefits has resulted in reduced support for the project. Most of the changes result from informal environmental review, feasibility study and phase one environmental scans, and new development that has occurred since the last update to the plan. As projects continue to be



constructed after the adoption of this plan, the CTP Highway Element should be updated to reflect current conditions.

Policy Measures

The Town should work with the RPO and the County to ensure that roadway corridors are preserved as development applications are considered. During the last 10 years, a number of projects were impacted by development that was not responsive to the adopted Plan. The Town should work cooperatively with the RPO and County by providing review and comment on proposed development applications. Where corridor preservation isn't feasible, reasonable alternatives should be sought. In an effort to improve corridor protection, copies of the adopted plan also should be forwarded to the RPO, County, Board of Realtors, Chamber of Commerce, and Economic Development Departments. Additional copies should be made available for public review in the Town of Mooresville Planning Department, local library, and on the RPO and County web pages.

Highway Improvements

The Town and NCDOT should conduct necessary studies and secure funding to implement the recommended Highway Map for the Mooresville area shown in **Figure 5.1**. The plan shows new roadway facilities, roadway widenings, roadway realignments, intersection improvements, and corridor enhancements. Future corridors shown on the map do not represent specific alignments, but rather a series of connections. See Chapter 5 for detailed roadway recommendations.

Collector Streets

The collector street plan discussed in Chapter 5 should be used by local staff and developers to ensure adequate connectivity as development and redevelopment occurs. By expanding Mooresville's transportation system through increasing the number of collector streets, traveling between local streets and arterials is enhanced. Key outcome goals of the plan include improved accessibility to higher intensity residential areas and activity centers while avoiding or minimizing impacts to sensitive areas for the preservation of the natural environment.

It is recommended to use the guidelines in Chapter 5 when requiring collector street network improvements. Research indicates that a 3,000-foot grid is typically the most appropriate for the mixed suburban and rural



development pattern that prevails throughout most of Iredell County. For more intense development, a 750-foot grid proves optimal, but this is independent of the costs that would be incurred to build a network of such intensity. The draft collector street plan is shown in **Figure 5.18**.

Collector Street Implementation Policies

- Seek to incorporate the *Collector Street Plan* and associated roadway design standards and policy requirements within development ordinances of the County and the Town
- Use the plan as a tool to communicate desired roadway connectivity as development projects are proposed
- Review all development proposals for consistency with the approved collector street plan and place an emphasis on connections rather than alignments
- Require that new developments reserve right-of-way for and construct future collector streets
- Integrate future bikeway, greenway, and trail networks with the *Collector Street Plan* to improve access and enhance connectivity between systems
- Amend the *Collector Street Plan* as necessary to include new streets as they are identified during the development review process

Sidewalks, Bikeways and Greenways

The adopted *Mooresville Comprehensive Pedestrian Plan* as shown in **Figure 5.20** should be implemented. Likewise, this plan should be updated, following the completion of the *Comprehensive Bicycle Plan*, to include the policy and network recommendations. Non-vehicular facilities can be constructed as stand-alone enhancement projects; however, they often are implemented more effectively when incorporated into public and private infrastructure projects such as roadway widenings, regular street maintenance, utility line replacements, and new road construction. The networks represented in each of these plans should not be implemented alone, but in conjunction so as to realize the maximum benefit of the network that currently exists, will exist in interim periods, and will ultimately result.



In general, sidewalks in the Mooresville area are recommended to have the following characteristics:

- **Width** — 5 feet minimum in suburban locations and sized to complement/support the streetscape in urban areas.
- **Set-back** — In areas where curb and gutter exists, sidewalks should be set back from the street by a minimum of 5 feet (planted or hardscaped). In areas where there is not curb and gutter, sidewalks should be located with the open drainage channel between the traveled way and the sidewalk.
- **Material** — Generally, sidewalks should be concrete; however, other decorative materials (if level and smooth) should be permitted in areas where streetscape designs designate other materials.
- **Location** — Sidewalks should be located in accordance with Mooresville ordinances and generally on both sides of all collector streets, minor thoroughfares, and major thoroughfares. In the case that a greenway is shown for a corridor, the greenway takes the place of a sidewalk on one side of the street and a sidewalk may or may not be required on the opposite side of the street (at the Town's discretion).

Transit

The existing transit services in the Mooresville area include taxicab, rideshare, and limited fixed-route through the Charlotte Area Transit System (CATS).

The existing fixed route service provides transportation to people traveling to uptown Charlotte, but is not extensive enough to serve the greater community. Several studies conducted by CATS and City of Charlotte suggest that a commuter rail line between uptown Charlotte and Mooresville may be in place as early as 2012. This proposed commuter rail corridor will provide excellent service to the Town of Mooresville.

CATS riders in the Mooresville area currently are served by a single park-and-ride lot. With the rapid growth in Mooresville and the introduction of a commuter rail service, the need for additional park-and-ride lots might arise. Telecommuting is a promising arrangement that could affect congestion levels along major corridors in the area.



Freight

With the completion of the industrial area on the northeast side of Mooresville near Mazeppa Road, truck traffic is likely to increase. Prior to this type of traffic becoming a source of citizen concern, Mooresville should work with NCDOT to designate local and through truck routes. During this process, the following recommendations should be considered.

- **Truck Definition** — Currently, trucks are defined as vehicles with a manufacturer's gross vehicle weight of 33,000 pounds or more. This definition excludes most single-unit trucks, panel trucks, and delivery trucks, as well as public service vehicles like garbage collection trucks. It includes larger trucks — trucks with more than two axles — such as tractor-trailers and tandem axle dump trucks. The town should review its truck definition to determine if changes might restrict more heavy vehicles, thereby protecting and maintaining the integrity of its streets.
- **Signage** — Designated routes should be marked clearly at and within (as appropriate) town limits, major highway intersections, interchanges, and other appropriate locations directing truck drivers to permitted routes. This may include limiting travel to US and NC routes and other designated routes through the town. Within the town limits, consideration could be given to amending the local ordinance to specifically prohibit through trucks on local streets. Prohibition of trucks on any segment of state maintained roadways requires approval from NCDOT.
- **Routes** — Truck route designations should be sought for major routes and industrial streets. The Cornelius Road/Mazeppa Road corridor between the future industrial park and Interstate I-77, US Highway 21, NC Highway 150, and NC Highway 152 could be examined for truck route designation eligibility.
- **Industrial Use Areas** — In the industrial use areas along Mazeppa Road, efficient truck access should be planned and provided to allow unimpeded movement of freight without creating unwanted cut-through traffic.

Additional tasks associated with the establishment of truck routes through the urban area include:

- Working with NCDOT to prioritize resurfacing on designated routes in an effort to reduce noise and vibration from trucks.
- Adjusting signal timing (coordination) along high priority routes to reduce vehicle delay and maintain vehicle speeds within an



acceptable range of the posted speed limit. Impacts of the adjusted timing could include travel time (and reliability), reduced noise (from accelerating and braking vehicles), and air pollution.

- Publishing and distributing educational materials to businesses and industries concerning truck routes.
- Working with NCDOT to make improvements to critical intersections on truck routes to more easily facilitate large vehicle movements and encourage their use by truckers. Improvements include providing adequate curb radii, lane width, and exclusive turn lanes.

Truck Route Design Standards

The design of all roadways should be consistent with their intended function and be responsive to the environment through which they pass. Streets serving as truck routes are not an exception. Common high priority design elements include adequate lane width, turning radii, horizontal and vertical transitions, and adequate space between the edge of the traveled way and adjacent pedestrian facilities.

Environmental Issues

When considering new roadway alignments and extensions, planners and engineers should use a guiding set of principles to make sure the following environmental considerations are adhered to:

- Avoid steep slopes and otherwise unsuitable topography
- Minimize impacts to the built environment
- Stay away from FEMA designated floodplains
- Minimize the number of wetland (NWI) impacts
- Minimize the amount of each wetland impact (e.g., don't cross a wide wetland when a narrower one can be crossed)
- Minimize the number of stream crossings
- Minimize the length of stream crossings
- Minimize impacts to school sites
- Minimize the number and size of impacts to historic features and districts
- Minimize the number and size of impacts to threatened and endangered species
- Minimize the number and size of impacts to hazardous waste sites
- Minimize the number and size of impacts to superfund sites
- Minimize/avoid impacts to neighborhoods
- Avoid unnecessary or disproportionate impacts to minority communities



- Do not impact parks and designated open spaces
- Minimize gameland impacts
- Minimize the number of new facilities in critical watershed areas
- Be aware of existing development patterns
- Look for existing stub streets

Congestion Management

Consider each of the strategies described in *Chapter 5* to manage traffic congestion in the Mooresville area. These strategies should be used as a guide while considering roadway improvements and development.

Projects for Further Study

The following projects should be considered for further study to assess the feasibility and reasonability of each project. For detailed descriptions, see Chapter 5.

- Fairview/Alcove Road Connection and interchange study
- NC Highway 3/Coddle Creek Road Corridor Study
- East-West Connector Corridor
- Mezeppa Road Extension
- Interchange Justification Study for Cornelius Road
- Oats Road/Midnight Lane Overpass Connection
- Doolie Road/Happy Oaks Road Bridge Connection
- Downtown Mooresville Signal Removal/Traffic Progression Study
- CATS Extension
- Park-and-Ride Stations

Action Plan Matrix

The action plan was developed in an effort to consolidate recommendations and provide direction and focus to key stakeholders. By implementing this action plan, the established vision and goals for the *Mooresville Comprehensive Transportation Plan* will in-turn be accomplished.

The action plan matrix shown in **Table 6.1** clearly defines action items to be accomplished and identifies key stakeholders as well as the lead party for each action item. The Town of Mooresville should use this action plan matrix as a guide in implementing the *Mooresville Comprehensive Transportation Plan*.



Mooresville
Comprehensive Transportation Plan

Table 6.1 — Action Plan Matrix

| Priority | Action Items | Town | County | NCDOT | RPO | CATS | Developers |
|------------|---|------|--------|-------|-----|------|------------|
| Short-Term | Adopt the <i>Mooresville Comprehensive Transportation Plan</i> | ★ | | ★ | | | |
| Short-Term | Coordinate to secure spot safety funding to implement safety countermeasures | ★ | | ★ | | | |
| Short-Term | Develop revised street design standards to adequately accommodate the surrounding land use context | ★ | | | | | |
| Short-Term | Coordinate to ensure roadway corridors are preserved as development applications are considered | ★ | ★ | | | | |
| Mid-Term | Implement Cornelius Road recommendations | ★ | | ★ | | | |
| Short-Term | Implement Brawley School Road recommendations | | | ★ | | | |
| Short-Term | Implement Langtree Road / Mt. Mourne transportation recommendations | | | ★ | | | |
| Mid-Term | Implement Mazeppa Road / Mazeppa Road Extension recommendations | ★ | | ★ | | | |
| Short-Term | Implement NC 3 / Coddle Creek Highway recommendations | ★ | | ★ | | | |
| Short-Term | Implement NC 115 / Mecklenburg Highway recommendations | ★ | | ★ | | | |
| Short-Term | Implement NC 150 / River Road recommendations | ★ | | ★ | | | |
| Short-Term | Implement NC 150 / Oakridge Farm Highway recommendations | ★ | | ★ | | | |
| Mid-Term | Implement Perth Road recommendations | | | ★ | | | |
| Mid-Term | Implement Statesville Highway / NC 115 recommendations | ★ | | ★ | | | |
| Short-Term | Implement Williamson Road recommendations | ★ | | ★ | | | |
| Short-Term | Conduct Fairview / Alcove Road study | ★ | | | | | |
| Mid-Term | Construct East - West Connector | ★ | | | | | |
| Long-Term | Implement the long-term projects identified in Figure 5.1 as opportunities arise | ★ | | | | | |
| Mid-Term | Increase transportation connectivity by implementing the recommended collector street network incrementally as development occurs | | | | | | ★ |
| Short-Term | Coordinate multi-modal planning between NCDOT, Iredell County, RPO, CATS and nearby communities | ★ | | | | | |
| Mid-Term | Enhance existing sidewalk policy to ensure consistent implementation of pedestrian facilities | ★ | | | | | |
| Short-Term | Update this plan to reflect recommendations provided from the upcoming Comprehensive Bicycle Plan | ★ | | | | | |
| Short-Term | Coordinate with CATS to extend existing fixed-route service to downtown Mooresville and South of Mooresville | | | | | ★ | |
| Long-Term | Coordinate with CATS to extend fixed-route service to Troutman from downtown Mooresville | | | | | ★ | |
| Short-Term | Coordinate with CATS to provide additional park-and-ride facilities | | | | | ★ | |
| Mid-Term | Coordinate with NCDOT to designate Mazeppa Road and Cornelius Road as a truck route | ★ | | | | | |
| Short-Term | Initiate those projects identified for further study | ★ | | | | | |

| | |
|------------------|---|
| Lead | ★ |
| Joint Lead | |
| Affected parties | |