
Executive Summary

The US 15-501 Master Plan study examined alternative means for meeting future travel demand on US 15-501 within a study area bounded by the Franklin Street interchange in Chapel Hill, Erwin Road, Old Durham-Chapel Hill Road, and Chapel Hill Boulevard in Durham.

Study Phases

The study consisted of three phases:

1. The first phase established base conditions for the study area, including:
 - A determination of the full build-out potential in the study area.
 - Base mapping.
 - An environmental features inventory.
 - A determination of the adequacy of the existing traffic forecasting model.

The first phase also included the development of a highway-only alternative for meeting forecast travel demand generated by anticipated development both inside the study area and in the greater Durham-Chapel Hill-Carrboro urbanized area.

2. In the second phase, an options charrette was used to investigate various means for reducing the scale and cost of the highway-only solution. These included consideration of
 - Different patterns of land development.
 - More extensive use of transit.
 - Networks for greater bicycle and pedestrian usage.
 - A broad spectrum of Transportation Demand Management (TDM) strategies.

The charrette was attended by the steering committee, elected officials, planners, private citizens and neighborhood and environmental groups.

3. The final phase involved:
 - A final analysis by the study team of the preferences expressed by charrette participants.
 - Development of the Master Plan.
 - Adoption of the plan by the Steering Committee.

Findings of the Study

Under all growth scenarios examined by the study, with the exception of a no-growth scenario, traffic volumes on US 15-501, will grow to levels that warrant conversion of what is currently a four-lane expressway to either:

- A combination of an expressway (west of Blue Cross/Blue Shield) and an urban freeway (east of Blue Cross/Blue Shield) or
- An urban freeway for the entire length of US 15-501 in the study area.

An urban freeway is a multilane roadway designed to carry significant volumes of traffic at moderate speeds. The roadway provides for continuous flow of traffic through full control of access and provision of interchanges or grade separations.

The long-term character of US 15-501 will largely be determined by the choice and the success (or failure) of a broad spectrum of public policies, including a commitment to a higher level of transit service and Transportation Demand Management (TDM) strategies directed at reducing P.M. peak-hour single-occupant vehicle (SOV) use.

Traffic volumes at US 15-501 intersections may, in time, warrant their conversion to a grade-separated design depending on the effectiveness of TDM measures. Such conversion should take place on an intersection-by-intersection basis, as congestion warrants. Garrett Road may need to be considered for conversion now.

Traffic volumes on US 15-501 under all growth scenarios examined, reach their highest levels at points immediately east and west of I-40. Further development of the I-40/US 15-501 quadrants will add turning and crossing movements to these movements, which will then warrant:

- The construction of grade-separated crossings across US 15-501 and
- Roads for internal circulation across I-40 and paralleling US 15-501.

These improvements will allow quadrant-to-quadrant movements (bus, pedestrian, bicycle and auto) to occur without using the most congested section of US 15-501 immediately adjacent to I-40.

Additional roadway capacity will eventually be required on Old Durham-Chapel Hill Road. It will need to be widened to four lanes or new streets will need to be built parallel to US 15-501. These improvements should come after improvements to US 15-501.

Even without the trips generated by current new development proposals, projected traffic would likely justify widening US 15-501 to a six-lane expressway by 1995.

Policies directed at reducing peak-hour, single-occupant vehicle use can significantly delay or lessen the need to add road capacity. The Durham-Chapel Hill-Carrboro area is already obligated to produce a congestion management plan by 1995 to improve air quality. Transit/pedestrian/bicycle and TDM strategies directed at reducing US 15-501 volumes should be coordinated with this more general requirement.

Recommendations of the Study

1. A transportation corridor overlay zone should be defined and a Transportation Management Association (TMA) established (or a body serving this purpose identified) whose mission would be to spearhead TDM efforts, monitor progress of TDM toward trip reduction, and monitor and augment the US 15-501 Corridor Transportation Master Plan.

2. TDM strategies, aimed at peak-hour, work-related, single-occupant automobile trip reduction should be implemented.
3. A transit-oriented pattern of land development should be promoted in the corridor; types or patterns of development that are less amenable to traffic reduction strategies should be discouraged.
4. Additional transit service in the corridor should be promoted.
5. US 15-501 should be designated as an urban freeway.
6. The rights-of-way for the physical elements of the Master Plan should be preserved, including
 - The freeway and associated interchanges.
 - Possible high-occupancy vehicle (HOV) lanes and/or fixed guideway transit (subject to future studies).
 - Bicycle and pedestrian networks on non-freeway facilities.
 - An internal circulation system that would allow direct movement between all quadrants of the I-40/US 15-501 interchange.
7. A detailed study should be prepared of the impact of TDM programs and public transit (both local bus and fixed guideway) on reducing auto use in the corridor. It should include an estimate of the capital and operating costs associated with providing an adequate level of transit service within the corridor. The study should also address possible changes in the orientation, mix, density and design of future land uses in the corridor and the affect of these changes on trip making.
8. Federal environmental impact documentation and associated engineering plans for needed roadway improvements should be prepared. Planning and design costs would be funded in the State's Transportation Improvement Plan (TIP).
9. Construction of these roadway improvements, including the conversion of specific intersections to grade-separated interchanges, should occur only in phases, reacting to actual or short-term (7-year) forecast traffic volumes that reflect the effectiveness of traffic reduction strategies.

Acceptance and Adoption of TDM Strategies

The Master Plan also makes recommendations as to the path that should be followed in adopting TDM strategies.

1. TDM policies should be defined and endorsed by the Durham-Chapel Hill-Carrboro Transportation Advisory Committee (TAC), the City of Durham, the Town of Chapel Hill, and the NCDOT.
2. A Transportation Overlay Zone should be established by joint council (Durham and Chapel Hill) action that covers an area generally represented by the study area.
3. The TAC should coordinate TDM actions that require regional implementation with NCDOT, the Capital Area Metropolitan Planning Organization (CAMPO), and the Triangle Transit Authority (TTA).