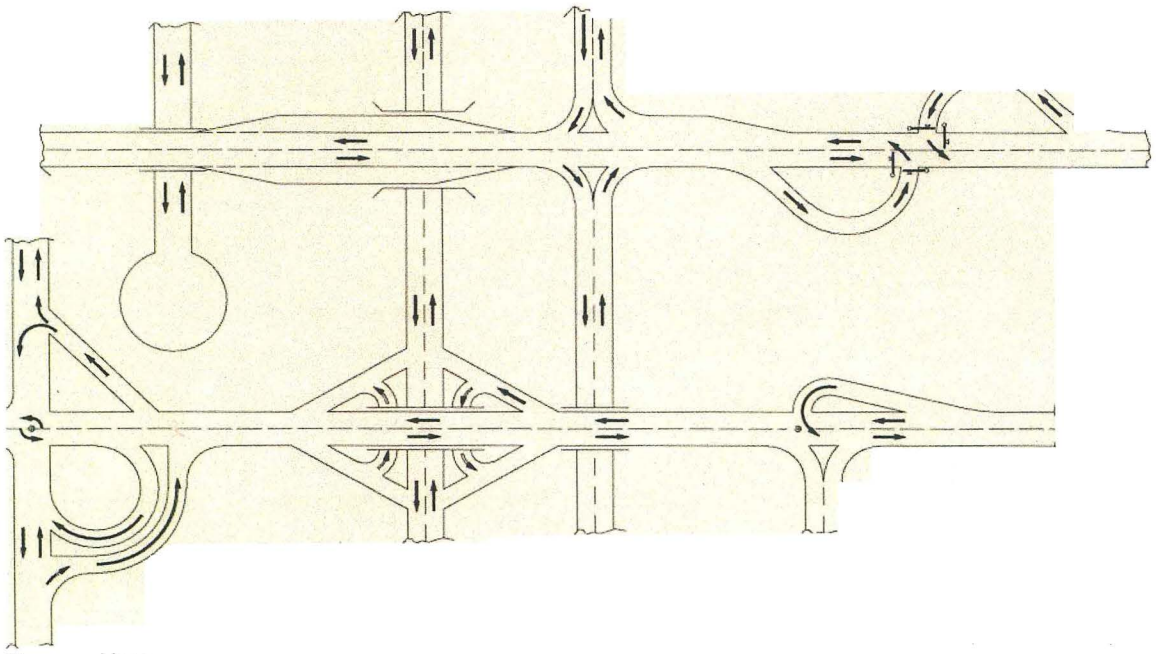
SUPERARTERIAL NETWORK STUDY

PROJECT NO. MPO-96-07

METRO-DADE

DADE COUNTY METROPOLITAN PLANNING ORGANIZATION

Executive Summary



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EXECUTIVE SUMMARY

The purpose of the Superarterial Network Study is to examine ways of alleviating congestion by focusing on the development of a network of "super streets", based on the existing Countywide arterial system. Roadways to be designated Superarterials would be adequately spaced and strategically selected to cover most of the developed and developing areas of Miami-Dade County. The Superarterial Network Study offers a global and more unified and systematic approach to alleviate congestion within the urbanized area than traditional approaches, by developing a network of facilities and approaching the congestion problem systematically across the entire County as opposed to looking at spots or segments individually.

The Superarterial Network consists of selected arterials specifically designed and/or upgraded to increase vehicle throughout and alleviate congestion, provide improved connectivity and accessibility between the regional expressway system and local collector roadways, and offer alternate intracounty travel routes to the freeway system. The preliminary Superarterial network consisted of 67 arterials, further refined to 29. This network is composed of roadways already carrying large volumes of traffic. The network would contain most of the major east-west and north-south arterials forming the foundation of the transportation network in the County.

The following are some of the modification parameters that would be used to upgrade existing facilities to a Superarterial or would be used as design parameters for future roadways:

- Partial access control
- Median barrier-separated roadways
- Left turns only at selected intersections
- Bus turnouts
- Improved signal progression
- Signalized at-grade intersections spaced at intervals of approximately one to two miles
- Favored treatment for the Superarterial traffic over cross traffic where non-grade separated intersections occur (e.g. green time allocations of 70% to the arterial and 30% to the cross street
- Exclusive lanes for high occupancy speed vehicles (HOV)
- Pedestrian treatments
- Design speeds 40-50 miles per hour
- Provisions for U-turns
- Route continuity for average trip lengths
- Grade separation at critical intersections and at all railroad crossings
- Auxiliary or collector-distributor right lane for speed change in entering and exiting traffic, or for emergency pull-offs.
- Consideration for public transit

In developing the network, the County was first divided into Transportation Corridors based on general traffic patterns within the County. These corridors were essential in identifying arterials within specific areas of the County that reflect the traffic characteristics within each corridor. These arterials were then grouped to form Transportation Areas, creating manageably sized areas for testing and implementation of the Superarterial Network concept. Evaluation criteria were then developed and applied to each of

the existing and proposed major roadways within the County. The appropriate arterials, for which the criteria applied, were then included in the Superarterial Network.

Study Goals

The main objective of the study is to evaluate a proposed system of arterials to better manage and help alleviate congestion throughout Miami-Dade County. The following goals were identified for this study:

- Identify current approaches used to develop Superarterial Networks
- Explore the development and implementation of a Superarterial Network by coordinating proposed arterial improvements for identified congested corridors or County subareas with those of adjacent and intersecting corridors or subareas, to ultimately encompass all major surface arterials in the County.
- Develop strategies for alleviating congestion and improving LOS on crowded arterials within primary transportation corridors or major Miami-Dade County subareas through application of the Superarterial Network Concept. This goal also includes developing an integrated and systematic approach of proposed corridor-wide and/or area-wide operational improvements in concert with application of Travel Demand Management (TDM) techniques and limited site specific roadway improvements.
- Identify a set of arterials to be included in Dade County's Superarterial Network
- Develop a list of potential corridors and/or subareas to be further tested as possible demonstration projects
- Perform a preliminary macroscopic, urban-area model based evaluation in a selected test area
- Develop a plan of action intended to serve as a model for implementation of the concept, to one area and eventually throughout Miami-Dade County.
- Develop recommendations regarding the applicability and acceptability of the Superarterial Network concept on a countywide basis.

The Process

An important component of the study process is the creation of a Steering Committee to provide a framework for the participation of local and state agencies with jurisdiction over the arterial facilities in the analysis and decision-making stages. This Committee was composed of representatives from the State and County's transportation and highway planning, operations, and transit departments.

Draft technical memoranda describing activities of each task were submitted to the members of the Steering Committee for their review and comments. These documents were finalized after being revised to address the concerns and ideas of the committee members.

With input from the Steering Committee members, the Superarterial Network for the County was identified and one area selected for preliminary testing. The preliminary testing was performed first based on existing data and extensive field visits. An extensive list of strategies and techniques to alleviate or manage congestion were compiled from a literature search. These strategies and techniques were grouped based on their ability to solve specific types of transportation deficiencies. The results of the data collection effort was used to identify transportation deficiencies along the arterials selected for preliminary testing. The resulting recommendations were then incorporated to the extent

feasible into the MPO's urban area travel model to assess existing and future impacts of the implementation of the combined recommendations, on both the selected arterials and the region as a whole.

The study also proposes a plan for further analysis of the arterials selected for preliminary testing. This action plan identifies items such as data needs, public involvement, identification of potential funding mechanisms, implementation of recommended improvements, and monitoring program. The plan is provided as a guide for analysis and implementation of the Superarterial concept throughout the County.

Conclusions and Recommendations

To develop a successful network of Superarterials, the location and cause of the existing and future congestion must be identified. The main congestion locations identified in this study -isolated intersections, isolated roadway segments, transportation corridors, and activity centers- serve as a point of departure toward developing appropriate solutions. Sets of solutions based on the different causes and locations of congestion problems were identified and presented in detail. These solutions range from those with low costs and short implementation periods, such as restriping, and improved signalization, to major improvements such as grade separation and new transit services. Some of these solutions are relatively easy to implement while others would require major funding, high-level technical and transportation policy decisions, and extensive community outreach to ensure acceptance and successful implementation.

The Transportation Corridors, Transportation Areas, and Superarterial Network selected, based on the criteria defined in this report, represent a basic roadway network needed to enhance mobility throughout Miami-Dade County. Superarterials are intended to provide east-west and north-south continuity to the grid system, alleviate increasing reliance on freeways, provide improved access to major activity centers and employment areas, and offer alternate routes for mid- to longer-distance intracounty travel. Transportation Areas (TA) were defined to work independently; therefore the concept may be phased so countywide implementation occurs gradually as funding becomes available. Implementation can also be further broken down, and may be applied to a single arterial that spans a number TAs, or even be a single facility which lies within one TA. Many Superarterial approaches may also be integrated with already planned improvements on previously selected roadways identified for superarterial treatment in this report.

The solutions presented in this report can be used as either preventive or corrective actions. New facilities should be carefully planned to handle both short and long term congestion problems by incorporating some of the suggested techniques. In developing areas, appropriate measures can be used to acquire enough right-of-way to accommodate optimum design standards. In mature areas where right-of-way is scarce and usually too costly, implementation of some of the techniques described in this report is harder to achieve. In these areas the potential benefit of the proposed improvements (increase in mobility, congestion reduction, increase in travel speed, ridership increase) needs to be carefully weighed against implementation costs, and economic, environmental and social impacts. A proactive approach should be stressed to anticipate and prevent high levels of congestion in "new" corridors, to make the necessary provisions for adequate right-of-way acquisitions now for future

transportation needs, and to apply Superarterial design criteria for those roadways designated for (future) Superarterial status. A strong community involvement program is recommended in developing and implementing the Superarterial Network.

The Superarterial Network concept bridges the gap between the different improvement programs currently in place at the state and county levels. By looking at arterials within a specific area, the Superarterial Network broadens the scope of the Resourceful Use of Streets and Highways (RUSH) program and the Project Development and Environmental Study (PD&E) process, which look at specific spots and single arterials respectively. The concept compliments and extends these programs, while being more focused than the Long Range Transportation Plan (LRTP).