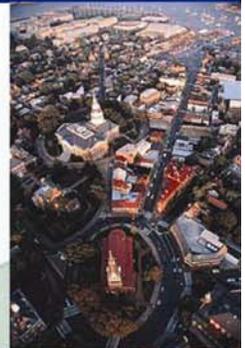




Annapolis Regional Transportation Vision and Master Plan

Plan Overview Volume I



Prepared for:
City of Annapolis
Anne Arundel County
Maryland Department of Transportation
Annapolis Regional Transportation Management Agency (ARTMA)

Prepared by:
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ACKNOWLEDGEMENTS

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1.0 INTRODUCTION

The *Annapolis Regional Transportation Vision and Master Plan* consists of three separate documents:

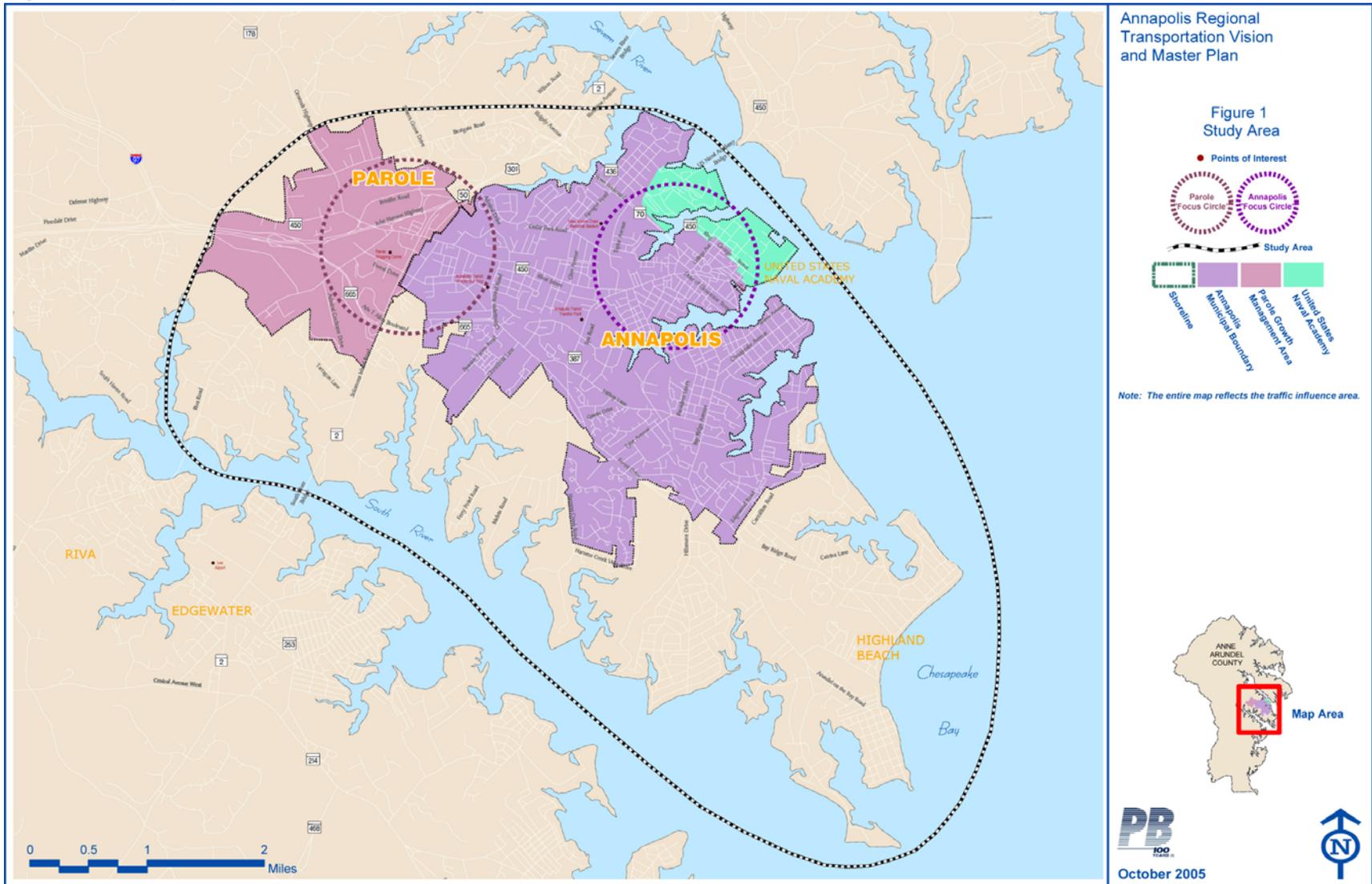
- **Volume I – Plan Overview** (this document), which provides a summary of the planning process and the Plan recommendations;
- **Volume II – Plan Background and Recommendations**, which provides additional recommendations, a more detailed presentation of the material presented in Volume; and
- **Volume III – Appendices**, which provides background information and analysis related to the project.

Volume I contains frequent cross references to pages in Volume II where concepts, processes and recommendations may be discussed more fully.

The study area for the Plan includes the City of Annapolis, Parole, and the surrounding land area on the Annapolis Neck. Figure 1 illustrates the extent of the study area.

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Figure 1 – Study Area



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1.1 PURPOSE

The *Annapolis Regional Transportation Vision and Master Plan* (the Plan) is a guide to providing safe and convenient mobility throughout the Annapolis area while protecting and enhancing the area's outstanding quality of life.

1.2 VISION AND THEMES

In developing the Plan, the public, a Citizens Advisory Committee, and agency staff created an overall vision and a list of themes to guide the planning effort. It was recognized that mobility should be the focus of this transportation plan but, at the same time, transportation strategies should not be implemented without considering their relationship and potential impact upon the area's quality of life. The following vision statement and mobility and quality of life themes are the major products of extensive public outreach.

VISION STATEMENT

To provide **mobility** that is safe and convenient throughout the Annapolis area for all transportation system users, including area residents, businesses, institutions, maritime community, and visitors. Provision of viable travel options to the automobile will enhance mobility for all. While mobility is the focus of the Plan, the second key element of the vision is to maintain a balance between mobility and the **quality of life** offered in the Annapolis area.

The Plan is organized around the following sets of themes that serve both as goals to be achieved and as criteria for screening and evaluating recommended actions.

MOBILITY THEMES

Specific Themes

- **Maximize the connectivity and ease of access for user groups via all modes of travel (e.g., pedestrian, bicycle, auto, and transit) between downtown Annapolis and Parole.**
- **Improve the operational efficiency of transportation circulation patterns in downtown and Parole.**
- **Realize maximum effectiveness of all existing and future public and private parking facilities for all user groups.**

General Themes

- **Provide appropriate access and mobility for user groups at appropriate times.**
- **Increase the overall safety, comfort, and convenience of transportation facilities for all user groups.**
- **Provide recommended actions with realistic opportunities for implementation.**

QUALITY OF LIFE THEMES

- **Protect and enhance the cultural and historic integrity of the Annapolis area.**
- **Reflect and integrate unique community geographic and seasonal conditions.**
- **Improve air quality through integrated land use and transportation decisions.**
- **Minimize impacts to the natural environment (e.g., woodlands, wetlands, and waterways).**
- **Maintain an appropriate sense of scale for Annapolis area neighborhoods.**
- **Promote economic vitality and community development.**

1.3 USER GROUPS

The Plan focuses on the mobility needs of the people who use the area's transportation facilities and services. Traditional transportation plans tend to look at transportation system performance in more mathematical and abstract terms, using such measures as Level of Service (LOS) and volume-to-capacity ratio. While these methods are accepted and appropriate for transportation planning, they often do not provide a clear picture of the actual experience for the traveling public. The Plan was developed from the perspective of the transportation system users to ultimately develop recommendations that are tailored to fit their needs.

Transportation system users are assigned to the following nine groups, reflecting the major ways people use the transportation system or are affected by it. Many of the Plan's recommended actions will benefit more than one user group.

- **Daytime Workers** – users who work in the area during normal daytime business hours.
- **Shift Workers** – users who work in the area on a shift basis, such as restaurant employees.
- **Outbound Commuters** – users who live in the area, but travel outside of it to work.
- **Short-term Patrons** – users who travel to retail, office, and government centers for quick stops.
- **Long-term Patrons** – users who visit retail, office, and government centers for longer periods of time.
- **Day Tripper Tourists** – users who come to the area for the day.
- **Overnight Visitors** – users who stay over at least one night.
- **Residents** – users impacted by the activity in and around their neighborhoods.
- **Deliveries** – users who make deliveries to both residential and commercial customers.

2.0 HOW THIS PLAN WAS DEVELOPED

The Plan builds upon past planning efforts to provide a coordinated intergovernmental strategy for addressing the transportation needs of the study area. It is the product of a joint effort by the City of Annapolis, Anne Arundel County, State of Maryland, U.S. Naval Academy, and Annapolis Regional Transportation Management Association (ARTMA). Representatives from each of these entities comprised the Project Management Team that has directed development of the Plan.

PLANNING PROCESS

The process used in developing the Plan is unique because it focuses on meeting the needs of the users of the transportation system, rather than just developing a list of improvement projects in response to traffic studies and similar information.

After creating the vision and themes, work began to distill these broad directives into policies, programs, and projects to be implemented to satisfy identified user needs. Transportation system users all travel by one or more basic modes and, therefore, many of the recommendations pertain to modal improvements that will be beneficial to one or more user groups. The character of the trip experience for each user group, their needs, existing conditions, and system “gaps” or deficiencies were identified leading to a list of potential options for overcoming the gaps and meeting user needs. Evaluating potential options according to how well they satisfy user needs and the project themes yielded a prioritized list of policies, programs, and projects for implementation. Figure 2 illustrates the planning process used in this study.

The planning process is described in Volume II, pages 11-16. Two outstanding features of this process are its extensive public outreach to identify issues and its incorporation of planned actions from seven past plans and studies.

Figure 2 – The Planning Process Diagram

PUBLIC OUTREACH

A major, ongoing effort has been made to understand current attitudes about transportation and to involve the community in development of the master plan. This public outreach program includes the following elements:

- ***The MyAnnapolis website*** (<http://www.ci.annapolis.md.us/citizens/myannapolis/>) is an E-mail-based custom news service that lets citizens select areas of interest for which to receive information. *The MyAnnapolis website* maintained current project information including meeting announcements, study progress, and interim results. It also listed opportunities for involvement during the Public Outreach Program, explained the planning process, and identified project contacts for additional information.
- ***Thirty-six leadership/stakeholder interviews*** were conducted to identify issues and concerns and to inform community leaders about the project. See Volume III, Appendix B for interview summaries.
- ***Six focus group meetings***: residents, tourism providers, downtown Annapolis office workers, Anne Arundel County office workers, employers of shift workers, bicyclists and pedestrians. (See Volume II, Appendix B for summaries of each focus group.)
- ***Telephone and written surveys*** were conducted in 2003 to identify the transportation needs/requirements, issues and characteristics of study area residents (telephone survey) and downtown employees (written survey). See Volume III, Appendix B for summaries of results.
- ***A visioning workshop*** was held in April 2003.
- ***Citizens Advisory Committee*** has been formed to review draft products and provide advice at critical project stages.
- ***Public information meeting*** was held in May 2004 to elicit comments on work completed to date and recommendations for other issues and solutions to consider.
- ***City and county council presentations***. Members of the Project Management Team will present study findings and the consultant will be available to answer detailed questions from council members.
- ***Briefings of the State Commission on the Capital City***. Members of the Project Management Team and the consultant have twice briefed the Commission on the Capital City on the project's status and will do so again to present the draft plan.

PAST PLANS AND STUDIES

Of the plans and studies reviewed, the following five adopted plans and two studies stand out as particularly relevant and important to the Annapolis Regional Transportation Vision and Master Plan:

- *Annapolis Comprehensive Plan*
- *Annapolis Neck Small Area Plan*
- *Parole Urban Design Concept Plan*
- *Anne Arundel County Pedestrian and Bicycle Master Plan*

- *City of Annapolis and Anne Arundel County Transit Development Plan*
- *Annapolis Ward One Sector Study*
- *Parking and Transportation Problem Solving Action Team Report*

Actions recommended in these documents are incorporated into the Plan's recommendations. More important, the Plan builds upon these past planning efforts by offering complementary transportation strategies to enhance mobility while reducing auto-dependence and protecting the Annapolis area's quality of life.

3.0 TRANSPORTATION ISSUES

The Annapolis Area is defined as the City of Annapolis and adjacent areas on the Annapolis Neck Peninsula (see Figure 1). The Plan gives especially intense consideration to this area's two main activity centers, Parole and downtown Annapolis.

Downtown Annapolis is a heavily built environment with a street system and urban design dating back to the Seventeenth Century. Its present form evolved long before the automobile became the dominant means of transportation that it is today. Parole, on the other hand, has recently emerged as a late Twentieth Century edge city, the existence of which, in its present form, could never have happened without the ascendancy and dominance of automobile travel.

Today, these two centers, different from one another in fundamental respects, are bound together as inter-dependent parts of a single urbanized area, the primary responsibility for which is shared by two separate political jurisdictions, the City of Annapolis and Anne Arundel County.

Each center faces its share of separate challenges. Parking, for instance, is scarce in downtown Annapolis, more available in Parole. Transit is well established in the city, less so in the county.

However, as is true of the entire study area, both Parole and downtown Annapolis also face many common fundamental challenges. The geography of the Annapolis region is characterized by a pattern of creeks, rivers, and peninsulas that constrict movements from one section to another and limit routes for ingress and egress on each peninsula. U.S. 50/U.S. 301 bifurcates the study area. Congestion on this interstate thoroughfare from any cause – the afternoon rush hour, beach traffic, or accidents which can occur at any hour of the day – causes ripple effects. As drivers bail out from U.S. 50/U.S. 301 in search of alternative routes, they clog major roadways throughout the Annapolis area.

In part, the pressures on the Annapolis area reflect its intrinsic attractions – state capital, county seat, U.S. Naval Academy, St. John's College, historic district, scenic waterfront, maritime community, regional retail and office center. Also significant are the effects on Annapolis of its absorption into the expanding Baltimore-Washington metropolitan area, which now numbers 7.8 million residents and is projected to grow to 8.3 million in five years. Annapolis is no longer beyond the metropolitan limits, or even on their periphery. The metropolitan region's eastern frontier is now found in Queen Anne's County, Caroline County, and Talbot County on the Eastern Shore, across the Chesapeake Bay bridges.

Metropolitan dynamics are driving many pressures challenging the Annapolis area. Annapolis has emerged as a regional tourist destination that currently draws four million visitors a year. It attracts more and more office, residential, and retail development due to its access to and from Washington, Baltimore, and the Baltimore-Washington Thurgood Marshall International Airport.

Collectively, these factors – the Annapolis area's intrinsic attractions, its geography, its absorption into the expanding Baltimore-Washington metropolitan area, and its location on major interstates carrying traffic to and from the Chesapeake Bay bridges – have

generated, and will continue to generate, increasing pressures on the local transportation system. The Plan addresses the following transportation issues arising from these pressures.

- **Traffic congestion.** Major routes in the study area are subject to heavy traffic and congestion at least during portions of the day, including West Street, Forest Drive, Rowe Boulevard, Riva Road, and most key intersections in Parole. Proposals for new development and areas targeted for new development by city and county land use plans often focus this development on streets and intersections that are already experiencing significant congestion. The prospects of worsening local congestion take place against a backdrop of increasing regional congestion.
- **Limited transportation choices – automobile dependence.** Ninety-five percent of trips made in the Annapolis area are by car. Annapolis Transit has made important strides in expanding and improving bus and shuttle service and increasing ridership. However, transit continues to play a minor transportation role compared to the automobile – about three percent of trips in the area. Walking and bicycling are also of minute importance due to uneven provision of facilities (sidewalks, bicycle lanes, and pathways) and relatively dispersed, low density land uses.
- **Competition for limited parking.** Parking in downtown Annapolis will never be able to meet all demands placed upon it by employees, patrons, visitors, and residents. The challenge is to determine how to best meet the often competing needs of these user groups. Special event parking has become a significant issue for affected neighborhoods, as the size and frequency of special events has grown.
- **Need for greater inter-governmental coordination.** Transportation and land use planning have often been addressed by individual agencies, without sufficient coordination to address common transportation issues. With transportation issues mounting and financial resources dwindling, close intergovernmental cooperation is essential.
- **Need to address issues from a user and system perspective.** Transportation needs, and acceptable solutions, differ by trip purpose (user group). Consequently, successful solutions must reflect a deep understanding of each user group. Also, any solution must consider the entire trip for the user groups affected. Simply “fixing” one piece of the system at a time will often deteriorate mobility elsewhere.

4.0 WHAT THIS PLAN DOES AND DOES NOT DO

Many plans and studies related to transportation in the Annapolis area have been completed over the past 15 years. These past efforts create a fragmented mosaic. They are spread out over time, with some being recent, others obsolete. Many deal with geographic pieces of the study area – such as the Parole Growth Management Area in the county, or Ward One or Outer-West Street in the city – but not the entire study area. Others deal with specific modes, such as transit, walking, bicycling, or parking, but do not address integration of all transportation modes.

The Plan is intended to integrate elements from past plans and studies with new concepts to create a current transportation plan that covers the entire study area and integrates all transportation modes. It is intended to focus and coordinate transportation programs, policies, and projects throughout the Annapolis area for the next 20 years.

At the outset it is important to acknowledge two truths about the planning process. First, no comprehensive, 20-year master plan is complete in the sense that it obviates the need for follow-up studies. Follow-up studies are often necessary both to provide the in-depth analysis needed to support specific complex actions and to provide appropriate opportunities for meaningful public involvement in defining the ultimate shape that specific recommended actions will take.

Second, no plan is self-adopting or self-implementing. Although formal responsibility for adopting and implementing the Plan belongs to the City of Annapolis and Anne Arundel County, at a deeper level these responsibilities are diffused throughout the community. Government officials can only go so far without active support from their constituents. Stakeholders, civic groups, community leaders, and the press and media also have a responsibility for organizing support for change. Without a concerted, sustained effort that draws support from throughout the Annapolis community it is unlikely that prevailing trends towards auto dependence, worsening congestion, and deteriorating quality of life can be reversed.

In addition to what the Plan will do, it is important to recognize two major factors that it does not address – land use and U.S. 50/U.S. 301.

With respect to land use, the Plan does not attempt to influence directly either land use policy or land use decisions. Current and projected land use and development are taken as givens. The Plan is intended to respond to and to accommodate pressure generated on the local transportation system from planned and future development to the extent it is feasible to do so. The Plan does, however, include recommendations that will inform decision-makers and the public about the potential effects of future land use decisions on operation of the transportation network. It also includes recommendations that will support and strengthen existing city and county policies to promote development of mixed-use communities.

The Plan acknowledges the importance that U.S. 50/U.S. 301 plays regarding transportation in the study area. Along with providing access into and out of the study area for the benefit of residents, employees, and visitors, significant traffic is simply moving through the study area between regional destinations. This regional traffic, and its growth, is outside of the scope of the Plan. At the same time, management of this

traffic on a regional and statewide basis is critical to the proper performance of the transportation system in the study area.

The Maryland Transportation Authority is taking the lead on addressing U.S. 50/U.S. 301 congestion associated with the Bay Bridge. In October 2005, it contracted to extend the EZPass-only lane approaching the Bay Bridge toll plaza an additional half mile, with work to be completed prior to Memorial Day weekend 2006, and it is currently investigating the feasibility of extending the EZPass only lane further to create a 2.5-mile-long EZPass-only lane all the way to the St. Margaret Road interchange. Nevertheless, traffic information recently presented to the Task Force on Traffic Capacity Across the Chesapeake Bay showed that even with a new crossing in a location other than the existing one, U.S. 50/U.S. 301 through Annapolis will continue to experience severe congestion.

In summary, the Plan is not written on a clean slate. It starts with a built environment, long-term trends of increasing auto-dependency, and a recent legacy of planning studies that commit most public funds for transportation in the study area to an automobile-centered strategy for coping with accelerating and intensifying land development throughout the study area.

Given the inertial momentum implicit in these realities, change is not going to be sudden. It is likely to take the form of a battleship describing a wide arc as it changes direction, rather than a speedboat executing a crisp right angle turn.

Nevertheless, the Plan offers the opportunity for the City of Annapolis and Anne Arundel County to take a stand on behalf of the greater Annapolis community. Implementation of its recommendations will point the Annapolis area in the right direction, make significant progress towards enhancing mobility while protecting the Annapolis area's quality of life, and create the conditions for continuing to make progress in the future.

As the Plan's recommendations are implemented, more and more user groups will become comfortable with trip profiles that mix, or blend, automobile travel with transit, shuttles, bicycling, and walking in addition to living and working in well designed mixed-use communities. Resistance to moving further in this direction will diminish, and support for the next generation of positive actions will be created.

5.0 RECOMMENDED POLICIES, PROGRAMS, AND PROJECTS

Current and planned actions of the state, city, and county – drawn from the seven plans and studies identified above – focus primarily on street improvements and transit service expansion. Most of these are intended to enhance automobile travel either by expanding lane capacity or improving operational efficiency. These 60 actions are summarized in Volume II, Table 1, pages 24-28 and Appendix A in this volume.

Some of these planned actions are underway or at least partially funded, but most have not yet received any funding commitment. These carryover planned actions are included in this Plan for completeness. Some carryover projects are reiterated and reinforced by recommendations from this Plan, for example, the multi-modal transportation hub in Parole. The Plan also includes new transportation projects and program proposals which must be fully considered along with carry-over projects for near and long-term funding commitments.

To successfully support the Vision and Themes, the Plan recommendations must also focus on reducing automobile use, while providing enhanced mobility with a wider array of practical travel alternatives. It is clear that continued reliance upon the automobile to meet the area's mobility needs will ultimately fail due to several factors, including limited ability to expand street system capacity, insufficient public funding to expand and maintain the system, rising fuel prices, declining air quality, and an aging population that will have an increasing percentage of non-drivers. Perhaps most important, the ever-increasing traffic volumes and congestion diminish the quality of life for residents and visitors alike.

Accordingly, the Plan recommends additional actions to encourage use of transit, walking and bicycling and to reduce demand for automobile trips. The unifying thrust of these recommended actions is to launch an incremental process for mainstreaming alternatives to the car and changing travel behavior. No silver bullets are proposed that would radically enhance mobility by themselves. All, or most, of the recommended actions will have to be implemented in order to provide meaningful results.

All of the planned and recommended actions are sorted into the four categories derived from the Plan's vision and themes.

MAXIMIZE CONNECTIVITY TO AND FROM DOWNTOWN AND PAROLE

Traffic continues to increase because of population growth and increased miles driven per individual, while the cost of improving the street and road system cannot keep pace with the increased pressure on the street system. As a result, mobility by car between downtown and Parole continues to become worse.

Many of the same routes that connect Parole and downtown Annapolis also provide access to U.S. 50/U.S. 301. Congestion on the major routes connecting Annapolis and Parole impedes travel into, out of, and through the Annapolis area.

Existing city, county, and state plans call for significant improvements to the street and highway system. The Plan supports these projects and offers a wider range of new ideas to improve connectivity between activity centers.

These planned actions are described in Volume II, pages 76-77. They represent the primary efforts by the local and state agencies to address the congestion problems facing the area. The recommended actions in Volume II, pages 78-86, are designed to complement the planned actions by generally focusing on increasing the effectiveness and efficiency of the existing facilities and services rather than more facilities or expansions thereof.

IMPROVE CIRCULATION PATTERNS WITHIN DOWNTOWN AND PAROLE

In addition to mobility between major destinations, circulation within downtown and Parole represents the second key focus area for the Plan.

Circulation within these two activity centers is not as convenient as it should be, especially for pedestrians, transit riders, and bicyclists. The result is that cars are used for short trips even though the distances involved could easily be covered by walking, transit, or bicycling.

The planned actions for enhancing circulation patterns within activity centers are focused on a variety of transit improvements. The City of Annapolis and Anne Arundel County Transit Development Plan Update provides a coherent short-term strategy for improving transit services that will enable people to make short trips via bus. The focus of recommended actions in this section is to further enhance the quality of transit service in activity centers and to upgrade bicycle and pedestrian facilities (Volume II, pages 90-96).

MAXIMIZE EFFECTIVENESS OF PARKING FACILITIES

Generally, the downtown parking problem has been addressed by building more parking spaces. Over 2,000 new downtown spaces are now in the pipeline, in addition to 270 in the recently opened Knighton Garage. However, there are limits on how many additional spaces can, or should, be built. Parking facilities take up valuable real estate that may have more appropriate uses. They attract more cars into the downtown area. A further problem is the unequal access to existing parking among different user groups, with office workers absorbing most of the available spaces during work days and shift workers and office workers filling many on-street spaces.

The recommendations provide a holistic parking management strategy for the nine user groups in the study area. The objective is to provide appropriate parking access, convenience, and safety for all user groups (Volume II, pages 101-117).

IMPROVE OVERALL MOBILITY, SAFETY, COMFORT, AND CONVENIENCE FOR ALL USER GROUPS

The preceding three groups of planned actions and recommendations primarily focus on increasing the capacity or level of service for each transportation mode. While these policies, programs, and projects are critical for the region's transportation system to function appropriately, the modification of travel behaviors is the final key element for a successful transportation strategy in the study area.

Reducing the amount of automobile use in the study area will take more than simply providing other travel alternatives. It will require a concerted effort to work with area residents and businesses to shift travel behaviors from the automobile to walking, bicycling, and transit. This does not mean that automobile use would cease or that people's mobility would be compromised. The residents would be asked to evaluate all of their weekly travel needs for work, errands, appointments, and entertainment and see which ones could be accomplished using another mode. The transportation system user groups could determine the best ways to meet their respective travel needs as daytime or shift workers, outbound commuters, patrons, visitors, etc. (Volume II, pages 120-126).

Recommended actions are evaluated from two perspectives, their impact on the mobility of the nine user groups and their consistency with the Plan's mobility and quality of life themes. These evaluations are reported in the main text of Volume II at the conclusion of the discussion of recommended actions for each category.

6.0 KEY RECOMMENDED ACTIONS

The 13 sets of recommendations summarized below are the key actions that provide the greatest leverage for the program. Cumulatively, they support the multiple transportation and quality of life themes. In addition the Plan recommends additional actions that can be found in Volume II.

A. IMPLEMENT A DOWNTOWN PARKING STRATEGY

Purpose

- Implement a comprehensive management strategy for providing appropriate parking access, convenience, and safety for all user groups.

Objectives

- Create, and revise as necessary, parking policies for the downtown to guide parking management.
- Employ pricing and incentive programs to encourage parking as prescribed by the parking policy.
- Take maximum advantage of existing parking facilities as recommended by the parking action team by using parking information signs, attendant parking, and closer coordination with parking service contractors.
- Provide coordinated security improvements for the benefit and safety of users parking downtown, especially in the late evening.
- Continuously monitor parking usage and make adjustments to the other programs recommended in the section to achieve the desired results.
- Encourage bicycling by providing secure and convenient bicycle parking facilities.

Recommendations

Although parking is generally plentiful throughout the study area, it is deficient in specific locations, most notably downtown Annapolis, and for certain user groups. The objective of the parking strategy and related recommendations is to provide sufficient parking to equitably meet the needs of all user groups.

Even though the number of downtown parking spaces is dramatically increasing due to new garages (Knighton, Bladen Street, and Park Place), the demand for parking spaces will continue to far exceed supply. The effects of this shortage are aggravated by the inequitable distribution of existing parking spaces among user groups.

At present, the limited parking available in downtown Annapolis is largely absorbed by daytime workers who arrive early in the morning and park all day, forcing other user groups – including short-term patrons, shift workers, and tourists – to look elsewhere.

This Plan proposes a general strategy for addressing downtown parking problems (Vol. II, pages 102-103). It also proposes establishment of an area-wide parking coordinating body to refine the strategy and to coordinate its implementation (Vol. II, page 103).

General Strategy

The general strategy for the downtown is to encourage daytime workers to use the Navy Marine Corps Memorial Stadium (NMCMS) parking lot, transit, walking, or bicycling to provide more visitor and shift worker parking in downtown garages and to reduce the pressure for nonresidents to park in nearby neighborhoods. The strategy takes advantage of the 720 additional parking spaces that will be made available with the completion of the Bladen Street Garage. State workers (mostly daytime users) will switch from the NMCM Stadium lot to Bladen Street. Through pricing and other incentives noted in Volume II, daytime workers using Hillman, Whitmore, and Gotts Court garages will be encouraged to use the NMCMS lot and enhanced shuttle service to meet their parking needs. This Plan proposes a goal of shifting approximately 150 daytime workers from each of the three garages to make 400-500 spaces available in the downtown for other users.

NMCM Stadium

The NMCMS lot is proposed as the most desirable site to fulfill many of the parking needs for the downtown and special events for the following reasons:

- Location at the primary entryway into the downtown
- Close proximity to downtown
- An existing parking facility, which represents a significant investment that cannot be easily moved (unless the stadium is relocated)
- Alternative sites of comparable size with reasonable proximity to major transportation routes and/or the downtown are not available
- Excellent access to transit provided by Annapolis Transit and Maryland Transit Administration (Vol. II, pages 107-109)

Pricing incentives, enhanced shuttle service between the NMCM stadium and downtown and security are critical to the success of this strategy.

Pricing Incentives

The present pricing structure for both downtown garages and the NMCM stadium is counter-productive because it provides incentives for all-day office workers to park in downtown garages. For example, by driving past the NMCMS lot and parking in the downtown, a daytime worker typically pays an additional \$4.50 (\$10 per day maximum in a parking garage compared to \$4 NMCMS parking plus two \$0.75 rides on the shuttle). On-street parking costs \$1.00 per hour or \$8 to \$10 dollars per day if one is willing to feed the meter and/or move the car during the day. In addition, the survey results indicate that the employers for over 65% of the respondents cover the daily parking expense.

An incentive-based approach is recommended as a first step to encourage desired parking behaviors from user groups (Vol. II, pages 102-105). Pricing should be amended to support the desired travel and parking behaviors by:

- Consolidating and reducing the total parking and shuttle fees for persons using the NMCMS lot and shuttle.
- Working with downtown employers (including government) to implement a parking “allowance” as an employee benefit that would cover parking cost for using the NMCMS lot, but not the total cost of downtown parking. The employees could choose “free” NMCMS lot parking or pay the difference to park downtown. Carpoolers could continue to park downtown without paying the additional charge, and transit riders, walkers, and bicyclists could have the “allowance” added to their paychecks.
- Implementing a garage pricing structure with low rates, such as the current \$1.00/ hour, for the first 4 hours and a significantly higher rate beyond 4 hours (e.g., \$2.00/hour). Continue to lower the rates after 4 p.m. to a flat rate of \$2.00 for the benefit of shift workers and evening patrons. The total daytime rate for 8 hours should be set to be significantly higher than the NMCMS lot and shuttle rate.
- Adjusting parking meter rates and parking fines to discourage parkers leaving the garages for less expensive on-street parking.

Shift Workers

Shift workers have special parking needs tied to the hours they work. Daytime workers generally arrive after the morning rush hour when garages are already full. Many evening shift workers arrive when most garage spaces are still occupied by all-day office workers and get off work late at night, when shuttles no longer run and streets are dark and empty. At these late hours, it is not considered safe to walk to many parking areas, especially for someone carrying an evening’s worth of tips.

The city should work with downtown employers of shift workers to develop a strategy that will work for shift workers, giving consideration to the following recommendations:

Because of the prohibitive cost of providing transit during the evening (and late evening) hours, expanded evening transit service is not proposed.

A possible method to provide sufficient parking for shift workers would be to reserve some of the downtown parking for this group. The parking lots or garages could have attendant parking to use the available space more efficiently. When employees arrive, they would either walk or take the bus or shuttle to work. On-call transportation perhaps a form of jitney service recommended on page I-26, below) -- would be available to take evening shift workers back to their cars or they could walk.

It is recommended that three facilities be designated to serve shift workers at different downtown locations:

- The Gotts Court parking garage currently serves shift employees. Parking for shift workers should be increased as necessary to make this the primary facility serving shift workers in the Inner West Street/northern downtown area.
- The Compromise Street (commonly known as the Board of Education) Lot is proposed to be used to provide attendant parking for shift workers. Operating as an attendant type of service, the 52-space parking lot can be used at approximately 40% greater efficiency (70± total) to help meet the needs of employees working in the southern portion of the downtown.
- The Hillman Garage serves the central portion of the downtown (Vol. II, page 105).

Public Safety

It is recommended that a security firm(s), licensed by the State of Maryland, be contracted to provide security for the downtown garages and the NMCMS lot (Vol. II, page 115).

One of the important security issues relates to shift workers returning to their cars in the late evening. A potential advantage of having relatively few parking facilities in the downtown for shift workers is the option of providing enhanced security for walking routes between businesses and parking. Enhanced lighting and foot patrols could provide the requisite security without needing to provide employee transportation to their cars.

Real-time Parking Information

It is recommended that real-time, or dynamic, parking information be provided at key gateways to downtown so that drivers are informed about the availability or unavailability of parking spaces before they drive downtown (Vol. II, page 90).

For motorists entering the city, real-time information sign or signs would be placed along Rowe Boulevard indicating the parking status of the five main city garages – Gotts Court, Hillman, Whitman, Park Place, and Knighton. Once it is completed, the Bladen Garage may be included when it is available to the general public during the evening and weekend. Incoming motorists would be able to see which lots, if any, have capacity and approximately how much. The signs would guide motorists to the five garages.

Motorists would also be advised that parking and free shuttle services are available from the NMCMS lot. If the garages are full, the sign would advise that the NMCMS and shuttle are the only major option available. This would allow motorists to efficiently find parking and help reduce downtown congestion caused by motorists circulating to find parking.

Interdependence of Recommendations

It is important to emphasize the degree to which these individual recommendations are dependent upon and support each other. None of the recommendations will be particularly effective, or politically popular, as separate proposals. In addition, the success of the parking strategy is linked to the shuttle service improvements that are planned or recommended in pages I-24 and I-25, below.

B. ESTABLISH A PARKING COORDINATION BODY FOR THE ANNAPOLIS AREA

Purpose

- Coordinate implementation of a comprehensive parking management strategy.

Objective

- Provide a venue to continuously involve government agencies and stakeholders in managing downtown parking in a way that reduces traffic impacts and provides suitable parking for all user groups.

Recommendation

The Plan recommends creation of a coordinating body that would include representatives from the City of Annapolis, Anne Arundel County, Governor's Office, Naval Academy Athletic Association (NAAA), Annapolis Regional Transportation Management Association (ARTMA), business community, and residential community (Vol. II pages 102-103). This coordinating body would provide the following functions:

- Establish a parking policy regarding the total amount and distribution of parking that is desirable for the downtown, considering its historic character, street system capacity, and user group needs (Vol. II, page 103).
- Work with the NAAA to develop a master plan for the NMCM Stadium lot, which addresses parking and transit needs in a balanced approach with surrounding neighborhood concerns (Vol. II, Pages 107-109).
- Determine the long-term role of the Truman lot for outbound commuter parking, visitor/special event parking, or sale and redevelopment.
- Identify the parking and transit role for a multi-modal center in Parole (Vol. II, pages 82-83).
- Develop more rigorous bicycle parking standards for new development and parking facilities (Vol. II, page 116).
- Establish parking garage and meter fees to ensure equitable provision and distribution of parking for different user groups (Vol. II, pages 103-105).
- Establish parking fines for meters and residential restriction violations.
- Oversee parking enforcement activities.
- Review new development proposals to ensure that parking is provided consistent with the parking policy noted above (Vol. 2, page 79).

- Monitor parking activity and implement adjustments as necessary to achieve consistency with the parking policy (Vol. II, page 115).

C. DEVELOP A MASTER PLAN FOR PARKING AT NMCM STADIUM

Purpose

- Utilize the NMCM Stadium lot more effectively for downtown parking while avoiding adverse impacts to the surrounding neighborhoods and streets.

Objective

- Engage surrounding communities, stakeholders, and government agencies in developing a master plan for the NMCM stadium.

Recommendation

The Plan recommends that the NAAA, City of Annapolis, Anne Arundel County, Maryland Transit Authority, Annapolis Transit, State of Maryland, and the surrounding neighborhood organizations should be actively involved in developing a master plan for use of the NMCM stadium site (Vol. II, pages 107-109)). The key issues to be addressed by the master plan should include:

- **Neighborhood compatibility.** Decisions regarding the future use and operation of the site should consider neighborhood compatibility and the cumulative impact of different parking uses (e.g., daytime, visitor, special event) on surrounding residents.
- **Overall parking policy.** The overall level of activity should be determined. This could include a description of the various parking activities, including the number of special events that use the entire site.
- **Access.** An access plan for various parking functions, special events, and transit/tour bus access should be developed. This should include consideration of direct access to and from Rowe Boulevard across the state property to the NMCM Stadium lot. Both right in/right out and left turn exit during special events should be considered. For the left turn exit, median treatment to prevent inappropriate turning movements during normal operation should be evaluated. The significance of this issue cannot be understated. Preliminary discussions with State Highway Administration (SHA) staff indicates that establishing any type of direct access to Rowe Boulevard will face a number of legal and traffic engineering hurdles.
- **Transit.** Parking for downtown shuttle and bus service as well as Maryland Transit Administration commuter service should be considered. To minimize overall automobile parking and access issues, it is recommended that walking and bicycling to the commuter bus should be encouraged by providing safe and convenient walking and bicycling facilities in the surrounding neighborhoods as

well as improved security, shelters, and secure long-term bicycle parking, such as bike lockers.

- **Security.** Parking lot security for users should be addressed.
- **Potential visitor center.** A visitor center could potentially be located on the site, especially on the northwestern portion of the state property near Farragut and Rowe. Coupled with direct access from Rowe Boulevard, visitor and tour bus access could be accomplished without using local surrounding streets. Any additional parking could also be located a significant distance from any residential uses.
- **Management of special events.** Specific plans should be either revisited or developed with participation of the neighbors and appropriate city, county, and state departments. This Plan could be expanded to include other parking facilities to help reduce the level of impact on the immediate area.

D. CONDUCT A MULTI-MODAL CENTER FEASIBILITY STUDY

Purpose

- Identify and ultimately develop a transit hub to enhance efficiency, comfort and safety for transit providers and patrons.

Objectives

- Determine the program for a multi-modal center
- Propose a location for a multi-modal center.
- Determine whether and how a multi-modal center could be financed, constructed, and operated.

Recommendation

The 1994 *Parole Urban Design Concept Plan* as well as subsequent planning efforts recommended developing a multi-modal transit center in Parole. This much needed facility could potentially serve as a major transit hub for Annapolis Transit (AT), Maryland Transit Administration (MTA), commercial carriers (Greyhound and Trailways), and tour buses and it could provide parking for outbound commuters.

Specifically, the 1994 *Parole Urban Design Concept Plan* recommended Parole Plaza shopping mall as the site for the regional multi-modal center, and for years this concept was carried forward in subsequent plans and discussions. However, this possibility has been foreclosed by recent plans to occupy the 34-acre Parole Plaza site with a town center development.

Although the initial site has been preempted, the need for a multi-modal center remains unchanged. It is imperative that the city, county, and state reach agreement on the location, scope, and program for a multi-modal center to serve the Annapolis Area.

This Plan proposes a feasibility study (Vol. II, pages 82-83) to determine the program for a multi-modal center, whether and how such a multi-purpose center could be constructed, operated, and financed and to address a broad range of transportation issues, including:

- All-day parking demand for outbound commuters (primarily MTA riders) and the ability of a Parole transit center/mixed-use site to accommodate it;
- Moving the outbound commuter parking from the Truman Lot or retaining it and providing additional outbound commuter parking in a Parole multi-modal center;
- Ability to successfully accommodate a multi-modal center as part of a mixed-use retail, office, and residential development and, if it is not located at Parole Plaza, an alternative site in Parole;
- Access and potential delays for buses and other vehicles in and around the center;
- The potential for a visitor center to serve London Town and other regional tourist attractions and to accommodate tour buses;
- Alternative sites for all or some of these functions if a multi-modal center in Parole cannot accommodate them all.
- The complementary functions and relationship between the multi-modal center in Parole and use of the NMCM stadium parking facilities in downtown Annapolis (A strong majority of stakeholders interviewed supported both development of a multi-modal center in Parole and enhanced parking and shuttle service at the NMCM stadium parking lot.)
- Financial strategies to fund and operate such a facility.

E. IDENTIFY A SITE FOR A VISITOR CENTER ON ROWE BOULEVARD

Purpose

- Provide a venue to support tourist access to downtown Annapolis.

Objective

- Identify a site or sites for visitors that would reduce traffic and parking impacts in the downtown, while providing comfortable and convenient access to tourist attractions.

Recommendation

A visitor center and related parking facilities have long been recognized as a need in the study area. The visitor center should provide an attractive place for visitors, bus parking outside the city center and convenient access to downtown shuttles (Vol. II, pages 106-107). Downtown Annapolis is currently served by a visitor center on inner-West Street near Church Circle. Although this site is centrally located and is within walking distance of Historic District and Naval Academy attractions, it provides limited services, insufficient parking for cars, and no bus parking.

A visitor center could serve the following specific functions:

- Parking for automobiles and tour buses;
- Visitor building with tourist information and perhaps historical exhibits;
- Staff to assist visitors and oversee tour bus operation on the site (e.g., disallow engine idling);
- Restrooms;
- Retail and food services; and
- Shuttle service (Annapolis Shuttle Express) to the downtown along with encouragement or requirement for tour buses to stay at the visitor center.

The creation of a visitor center and parking requires evaluation of a range of factors, including:

- Potential tourist market for Annapolis and/or other historic or recreation destinations in the vicinity;
- Ease of access for motorists and tour buses to reach the visitor center;
- Potential traffic impacts;
- Availability of sufficient parking for cars and tour buses;
- Ability to serve the visitor center with local and/or regional transit; and
- Potential impact on surrounding properties.

In consideration of these criteria, Rowe Boulevard is recommended as the best available area for locating a visitor center serving downtown Annapolis. It potentially offers the following attributes:

- Location along the primary entry to the downtown
- Closer proximity to downtown
- Good visibility

F. ENHANCE TRANSIT IN AND BETWEEN DOWNTOWN AND PAROLE

Purpose

- Encourage transit as a travel option both within and between downtown and Parole by making transit and shuttle service more convenient comfortable and safe.

Objectives

- Provide shorter waiting times between buses.
- Improve transit efficiency and service along major streets.
- Replace the Spa Road Transfer Point with a suitable location with sufficient capacity and amenities.

- Provide transit service to areas that cannot be efficiently served by regular fixed-route transit.

Recommendations

Planned actions already include a shuttle route in Parole and two shuttle routes in downtown Annapolis – Parole Circulator, Shuttle – Inner West Street, and Annapolis Triangle (Vol. II, pages 89-90). Both of the downtown shuttles start at the NMCM stadium and cover partially over-lapping but otherwise different routes through downtown Annapolis. The Inner-West Street shuttle will provide service along Inner West Street from Westgate Circle to Church Circle and on Duke of Gloucester, Green Street, and Main Street. The Annapolis Triangle shuttle will serve Taylor Street, Inner West Street, Church Circle, Duke of Gloucester, Green Street, Randall Street, King George Street, College Avenue, and Rowe Boulevard.

Additionally, planned actions also call for installation of transit shelters both at the stadium and along transit routes (Vol. II, pages 119-120) and real-time information that will inform riders of arrival times for the next shuttle or bus (Vol. II, page 90).

The City of Annapolis/Annapolis Transit has programmed funds for implementation of an Intelligent Transportation System using a Global Positioning System with 2-way communication, on board displays/enunciators and real-time on-site information for all bus services, including shuttles, at bus stops/shelters. All new bus shelters will be wired for real-time information systems.

The **following** recommended actions will enhance the quality of service provided by these transit services:

Reduce headways between shuttles (Vol. II, page 92)

Annapolis Transit projects the following headways for the three shuttle routes planned for downtown Annapolis:

- The Parole Circulator – one hour from 11 a.m. to 2 p.m.;
- The Inner-West Street Shuttle – five minutes on weekdays from 11 a.m. to 2 p.m., 15 minutes for weekday evenings from 7 p.m. to 10 p.m. and 15 minutes for weekend service for the same mid-day and evening hours; and
- The Annapolis Triangle Shuttle – 15 minutes on weekdays from 7 a.m. to 7 p.m. and 30 minutes on weekends from 9 a.m. to 6 p.m.

Annapolis Transit is clearly interested in reducing headway times as much as financial resources will allow. In particular, the city, county, and Annapolis Transit should evaluate further reductions in headways where transit plays a key role in the success of the planned actions and recommendations described in this document. The success of parking management recommendations will be dependent upon complementary transit facilities and service.

Institute Transit Signal Priority Vol. II, page 81)

Transit signal priority for buses and shuttles will give them a slight advantage in circumventing congestion. Transit signal priority uses a combination of vehicle and roadside technology to provide preference or priority to vehicles, in this case buses, as they move through signalized intersections. The objective of transit signal priority is to make minor adjustments to transit vehicles passing through signalized intersections while minimizing additional delay to automobile traffic.

Establish a new Annapolis Area Transfer Point (Vol. II, page 92)

The Spa Road Transfer Point is inadequate to meet operational and transit use needs. It is a high priority for Annapolis Transit to find an alternate location. A new Transfer Point with shelters would significantly improve both the comfort and safety of transit riders.

Institute a Pilot Jitney Service Program (Vol. II, pages 91-92)

It is recommended that jitney service be provided as a pilot project in conjunction with a promotional program, such as the TravelSmart® program described in Vol. II, pages 120-122. Jitney service involves small buses, vans, or automobiles, which provide transportation services. They typically operate on a schedule with a flexible route that allows convenient pick-up and drop-off of passengers. This type of service can be relatively expensive to provide, especially if ridership is low.

G. CONDUCT A FEASIBILITY STUDY FOR DEDICATED LANES FOR CIRCULATORS IN DOWNTOWN ANNAPOLIS

Purpose

- Provide a congestion-free non-automobile travel option to improve mobility and reduce automobile-trips into the Annapolis core area.

Objectives

- Conduct a study to determine the impacts, costs and benefits associated with routes for a dedicated lane with bypasses or two dedicated lanes, where possible to allow circulators moving in opposite directions to pass and improve the network's efficiency.

Recommendation

The shuttle service identified above assumed that shuttles would share lanes with automobiles, subjecting them to the same congestion and delays as surrounding automobile traffic. Providing dedicated lanes for shuttles, that is, lanes for their exclusive use from which automobiles would be excluded, would free them from congestion and reduce their travel time in both absolute and relative terms. Freed from

congestion, they would take less time to cover the distance between Point A and Point B. In relative terms, shuttles would be able to keep moving even when cars are slowed by congestion.

Reducing travel times for transit relative to cars is the critical element in a strategy to encourage people to change their mode of travel. Just as reducing the number of automobile trips is fundamental to a strategy for reducing congestion and promoting mobility. Other recommended actions have the potential to enhance the attractiveness of using shuttles, including price incentives, reduced headways, covered shelters at stops, transit signal priority and real-time information about shuttle arrivals. However, without the inducement of shorter travel times it is anticipated that most people who are driving today will continue to rely on cars for most of their trips due to the comfort and autonomy of driving and the absence of sufficiently compelling alternatives. Also, without dedicated lanes the benefits of some of the incentives for using shuttles will be compromised. The advantage of reduced headways between each shuttle, for instance, dissolves when all shuttles are stuck in traffic.

A fundamental objective of instituting a system using dedicated lanes is to create a travel option that has broad appeal to all user groups, including, but not limited to, the transit-dependent. It will be important for the public to perceive that the dedicated-lane system provides an exceptional level of service and distinct “feel.” In order to highlight this distinctiveness at the outset the term “circulator” is used to refer to vehicles, of any technology, using dedicated lanes.

The essential elements of a system that uses dedicated lanes include the following:

- Dedicated lane(s) to improve travel time for the circulator operation
- Very short headways
- Frequent stops (a stop every one to two blocks)
- Two travel directions, including the ability to return to a starting point along the route
- Connection to major attractors and trip generators
- Close, convenient, and safe access to public and private parking garages
- Promotion of a park-only-once strategy, and
- Price incentives.

An underlying concept is to make it easy and attractive for pedestrians, from any user group, to use the circulator at any point along its route. To this end, features that promote hassle-free boarding and disembarking are encouraged, including multiple doors, standing room in addition to perimeter seats and, if there is no charge to the user, there would be no cueing-up at the fare box or fumbling for correct change.

A principal objective of a dedicated-lane system is to expand commercial opportunities along its entire route by extending the distance traveled by pedestrians. From the merchant's view point, the catchment basin for potential customers is expanded. From the pedestrian's point of view, opportunities for shopping, dining and cultural activities are increased.

The advantages conferred on circulators by dedicated lanes will be the critical element in making a "park only once" strategy work. This system will reduce the need for members of most user groups driving into downtown Annapolis to move their cars once they have parked. It will become more convenient for them to walk or use frequent, comfortable, and safe circulators to move around within downtown Annapolis than go to the trouble and expense of moving their cars.

For purposes of the feasibility study, it is recommended that consideration be focused on the following sub-area:

- Downtown from City Dock to Westgate Circle. The existing and proposed shuttle routes provide a point of departure for the analysis. A system of dedicated lanes for circulators might cover part of one of the two downtown routes. The 1998 "SMRTram™" study commissioned by The Jerome J. Parks Companies could serve to provide some of the initial analysis. It is important to evaluate the area in which the best potential exists. This area has many parking opportunities, many attractions, sidewalks, residential and commercial density and a transit history. Should this area prove to be successful, extension of the study area potentially linking attractions and productions outside of the downtown should be investigated.

Elements of study

The Plan recommends convening a dedicated lane/circulator task force that would include representatives from City of Annapolis, Anne Arundel County, Maryland Department of Transportation (including the State Highway Administration and the Maryland Transit Administration), Naval Academy Athletic Association and the business community, residential communities and civic organizations. This task force would undertake a study for public review and for approval and adoption by the appropriate local and state authorities that would accomplish the following tasks:

- Analyze the impact of a system of dedicated lanes and circulators on congestion and mobility in downtown Annapolis.
- Analyze the impact of a circulator/dedicated lane system on the vitality of local retail markets, areas targeted for economic development and mixed-use communities.
- Determine the feasibility and specifications for a dedicated lane system, including the type of vehicle and number of vehicles, lane width and proposed routes for a single dedicated lane with bypasses or two dedicated lanes to allow circulators moving in opposite directions to pass.

- Develop a plan for integrating dedicated lanes and circulators with other elements of the transportation system in downtown Annapolis including parking, transit (including headways, pulse service, number of vehicles needed to support the circulator service, etc.), vehicular turning movements, bicycling and design guidelines for mixed-use communities.
- Evaluate the impact of loss of travel and/or auxiliary lanes on automobile travel outside the corridor for which dedicated lanes are proposed. Identify what improvements if any could be made to signalization, turn lanes, etc so that automobile travel outside of this corridor is not adversely impacted by implementation of the proposal.
- Identify impacts to utilities, right-of-way, drainage, sidewalks, as well as the natural and built environment, at least through review of secondary resources.
- Develop a business plan for funding and operating the circulator/dedicated lane system.
- Develop a marketing plan. Determine the features of a circulator/dedicated lane system that will encourage its use by all user groups and develop a plan for promoting its use by short term patrons, residents, office workers, shift workers and short-term, all-day and overnight tourists.

In the past the concept of dedicated lanes for circulators has been dismissed after only cursory consideration on grounds of infeasibility. In fact the challenges confronting implementation of this concept are formidable. Just as downtown Annapolis offers little opportunity to expand lane capacity for cars, it offers little opportunity to do so for dedicated transit lanes. To some extent the limited lane capacity throughout the study area creates a zero-sum game in which conversion of any space to a dedicated lane for circulators will displace other uses such as on-street parking or traffic lanes or turning lanes for automobiles.

Institution of a dedicated lane/circulator system will require reconsideration of past assumptions about the limits of feasibility in the Annapolis Area. Two factors create a window-of-opportunity for doing so. First is the accelerated pace of development throughout the Annapolis area and the mounting pressures it is placing on the transportation system. Second is the increasing cost of operating automobiles. These factors are expected to create public receptivity to viable options to the use of cars for many trips.

H. ENHANCE CIRCULATION WITHIN AND BETWEEN DOWNTOWN AND PAROLE

Purpose

- Improve circulation for both automobiles and transit

Objectives

- Improve the coordination of traffic signals in the study area to maximize the efficiency and reduce transit and driver delay.
- Improve traffic flow and turning movements on Outer-West Street.
- Reduce traffic congestion on Forest Drive by providing an alternative(s) to Forest Drive for local neighborhood vehicle, pedestrian, and bicycle circulation.

Recommendations

As noted previously, most of the planned actions drawn from the seven source plans and studies focus on enhancing automobile travel either by expanding lane capacity or improving operational efficiency. The following three recommended actions will further reduce congestion for both automobiles and transit.

Coordinate Traffic Signals, incorporating intelligent transportation system technologies. (Vol. II, pages 78-79)

Four agencies – the county, city, state, and the U.S. Naval Academy – share jurisdiction over traffic signals in the study area. It is recommended that representatives from these four agencies meet to discuss and implement traffic signal coordination modifications. This would enhance street capacity and further support a city proposal to develop a coordinated traffic control system for all of city traffic signals (22 total) to optimize traffic flows by real-time cycle adjustment as detected by a monitoring system.

Coordinating traffic signals can increase the traffic throughput of arterials in the Annapolis area. Incorporating intelligent transportation system technologies and strategies to enhance traffic signal system operation will improve the level of service of the transportation system. Intelligent Transportation is a broad term that applies to a wide range of technologies designed to obtain higher performance and efficiency from transportation facilities and services. In this recommendation, Intelligent Transportation Systems technology focuses on a coordinated, systematic approach to increase the efficiency of traffic flow. These technologies have proven to be successful in reducing congestion, increasing safety, reducing fuel consumption, and improving air quality.

Realign Chinquapin Round Road and Admiral Drive (Vol. II, page 83)

These two major north-south routes do not align where they intersect West Street. Aligning these streets would improve traffic flow on West Street by allowing north-south traffic to cross West Street without having to jog a block on West Street. The *Outer West Street – Chinquapin Round Road Corridor Land Use Analysis* suggests modifying the street system so that Admiral Drive would extend south past West Street to connect to Virginia Avenue. This would simplify turning movements related to Admiral Drive and Chinquapin Round Road and enhance pedestrian and bicycle access across West Street in this location. It would provide an important improvement for automobiles and buses on West Street.

Evaluate Forest Drive – Neighborhood Circulation Opportunities (Vol. II, page 80)

Forest Drive is identified as having significant congestion problems during peak travel periods. Through traffic in and out of the peninsula to Aris T. Allen Boulevard is a major contributor to the traffic volumes on this street. The planned additional lanes between Chinquapin Round Road and Hilltop Lane will help ease this congestion. Further increases in traffic volume and the need for more turning movements at intersections are caused by the adjacent collector and local street system, which offers few interconnected routes that parallel Forest Drive, forcing traffic onto Forest Drive at key intersections. As a result, any trip, no matter how short, typically requires going to Forest Drive, turning onto the street and turning off again. This reliance on Forest Drive for local circulation causes additional automobile trips on this street, thereby increasing congestion.

A comprehensive evaluation is recommended to identify opportunities for providing local connections that would alleviate the need to use Forest Drive for local trips. This is not necessarily intended to establish a continuous parallel or alternate route for Forest Drive, but a program to look for ways to connect neighborhoods and reduce traffic on Forest Drive. Neighborhood connections for pedestrians and bicyclists should also be considered and evaluated in addition to vehicular routes. Improvements to Forest Drive for all modes of travel should also be evaluated with this study. The study should include the following elements:

- Existing conditions analysis of the street system including neighborhood access/circulation, traffic analysis, pedestrian and bicycle facilities, and transit routes and stops.
- Identification of opportunities/constraints using the analysis and public open house and agency input.
- Recommended neighborhood connections to reduce traffic impact on Forest including local street connections, pedestrian/bike circulation, and improved access to transit, more efficient transit routes, and improved emergency access.
- Cost estimates and phasing plan for any recommended improvements.

I. MAINSTREAM BICYCLING

Purpose

- Encourage bicycling as a safe and convenient travel option throughout the study area.

Objectives

- Enable bicyclists to take full advantage of the existing street and pathway network by informing them of the location and condition of the available routes in the study area.
- Develop a plan and priorities for filling gaps in the existing bicycle network of streets and pathways.

- Create a methodical system and implementation plan to mitigate street hazards for bicyclists.
- Install or construct bicycle facility improvements consistent with existing plans and/or the Bicycle Network Plan.
- Provide secure and convenient bicycling parking facilities.

Recommendations

The Plan presents a systematic approach to diffusing bicycling throughout the study area, in appropriate areas for different levels of skill, in addition to providing separate bike or multiple use trails. It proposes several mutually reinforcing programs and projects:

- A bicycle route map would be superimposed on the existing city street map that would show color-coded streets for bicycle suitability and safety, multi-use paths, bike lanes, low, moderate and high traffic through streets and caution areas, such as difficult intersections. This type of map would provide a useful guide for bicyclists to discover suitable routes that would be consistent with their abilities and preferences (Vol. II, pages 83-84).
- A Bicycle Network Plan for the Study Area that would be a comprehensive, multifaceted approach to upgrading bicycle infrastructure throughout the area. It would supplement The Anne Arundel County *Pedestrian and Bicycle Master Plan* with several additions:
 - Add routes to complete a useful bicycle and pedestrian network for residents and visitors.
 - Set specific design analysis and funding priorities regarding projects that would yield the most benefit to the existing bicycle system of bike lanes, pathways, and streets.
 - Adopt a city policy, consistent with the state and county, to integrate bicycle facilities and planning into new development and transportation projects (Vol. II, pages 85-86).
- Interim Bicycle Safety Improvements Program to address two basic needs: removal of roadway surface hazards such as potholes, irregular pavement, and storm drain grates and improvement of inadequate facilities (Vol. II, pages 93-94).
- Bicycle Route Enhancements. The city and county should consider making some of the improvements suggested by trail designations or adopted plans. Examples include providing bicycle lanes for the on-street portions of the Annapolis Maritime Trail and constructing the Forest Drive hike/bike trail. Because of the limited pedestrian and bicycling improvement options along West Street, the Popular Trail should be evaluated for improvement as a major pedestrian and bicycling corridor with possible extensions to both the east and west (Vol. II, page 83).

- **Bicycle Parking Facilities.** The city and county should amend their zoning ordinances to require bicycle parking as a condition of development approval. The appendix of the county plan includes some sample ordinances, which provide good examples with which to start. Important bicycle parking elements include:
 - Required numbers of parking spaces consistent with expected use.
 - Requirements for on-site bicycle racks with new development and significant redevelopment.
 - Convenient and visible parking facilities near building entrances.
 - Secure bicycle parking in garages and lots (including park-and-ride) by utilizing bicycle lockers and/or racks located near the parking attendant.
 - Rack design and installation standards that offer suitable access, support, and ability to use common bike locks.
 - Proper installation to ensure access and usefulness of the racks.
 - Long-term parking in secure and preferably weather-protected facilities, especially for Truman, NMCM Stadium, and other commuter lots (Vol. II, page 116).

J. PROMOTE MIXED-USE COMMUNITIES AND ADOPT STREET TYPOLOGY POLICIES

Purpose

- Reduce the number of automobile trips by building successful mixed-use communities and pedestrian and bicycle friendly street environments.

Objectives

- Provide design guidelines for streets that allow a better balance between vehicle movement and the pedestrian environment.
- Where appropriate, design streets and sidewalks as public spaces that can accommodate multiple uses.
- Encourage public acceptance of mixed-use communities as attractive places to live, work, and visit.

Recommendation

Both existing city and county plans encourage development of mixed-use communities (Vol. II, page 119) that have the potential to reduce the number of automobile trips made in the area. Location of commercial retail, office, and residential uses in close proximity to one another makes it feasible for short-term patrons (whether office workers, residents, or tourists) to accomplish many trips on foot or by bicycle.

An important element for any program to encourage walking relates to the design of the street and built environment that abut the sidewalk. It is not sufficient to simply provide a

sidewalk. The walking experience must be pleasurable in order to promote this mode of travel. For example, sidewalks located with auto traffic on one side and expansive parking on the other, will only attract pedestrians who have to be there and not people who want to be there.

Street typology guidelines are proposed as a way to set policy direction for city, county, and state decisions regarding street and sidewalk standards, design decisions for specific street improvements, and urban design treatments for new development. The Street Typology Guidelines in Appendix C offer a preliminary framework and design principles for the city, county, and state to consider. The guidelines describe the important design elements for the:

- **Roadway** including travel lanes, bike lanes, medians, and parking
- **Sidewalk** including the sidewalk, street trees, landscaping, and amenities
- **Building edge** including the building fronts and landscaping

Although these design standards may be most useful in city “mixed-use centers” and county “activity centers,” they will also help create more livable, pedestrian-oriented streets throughout the study area.

The significance of the street typology design guidelines cuts across many elements of the Plan, including most especially, pedestrian safety and convenience, bicycling safety and convenience, the impact of transportation improvements on surrounding residential and commercial neighborhoods, the quality of experience provided by the street environment and the types of uses it will support, the speed and safety of auto traffic, and the success and viability of mixed use communities.

The design concepts embedded in the street typology also provide critical support for several of the fundamental quality of life themes related to protecting and enhancing the cultural and historic integrity of the Annapolis area, maintaining an appropriate sense of scale for Annapolis area neighborhoods, and promoting economic vitality and community development.

Streets are often the most significant public spaces in an urban environment and, especially in mixed-use centers, they are expected to provide a setting for diverse activities – successful street level retail, including window shopping and cafes, ample room for walking and wheel chairs, appropriate facilities for bicycles, deliveries, etc. As the public realm shrinks, the importance of streets as public spaces increases.

Without the design element being successfully addressed, transportation and quality of life objectives will be compromised. Moreover, public acceptance of transportation facilities can be strongly influenced by the quality of attention given to design and the opportunities provided for diverse stakeholders to participate in the design review process.

Public acceptance of the Knighton Garage illustrates the importance of design. The support of residents and other stakeholders turned significantly on the decision not to raze a row of residences fronting West Street, but to keep them as a screen and promote their adaptive re-use for commercial retail and entertainment. This built on an Annapolis tradition to screen downtown parking garages, as seen in both the Hillman and Gotts Court garages.

K. MONITOR INTEGRATION OF LAND USE AND TRANSPORTATION PLANNING

Purpose

- Reduce the risk that land use decisions overwhelm the capacity of the transportation network.

Objective

- Inform the land use decision-making process and enhance political transparency.

Recommendation

As stated previously, the Plan accepts as givens current land use policies and land use decisions. Accordingly, the Plan makes no recommendations related to either. Anne Arundel County and the City of Annapolis continue to exercise exclusive control over adoption of land use policies and land use decisions in the study area.

There are a significant number of development and redevelopment projects underway or on the horizon, and they will obviously have an impact on future transportation conditions. If the city and county allow new development that exceeds the capacities created by implementation of the Plan, it may be necessary to revise the Plan before expiration of its projected 20-year life and/or reconsider land use policies and decisions.

The Plan proposes two actions that will help integrate land use and transportation planning in the future – comprehensive traffic studies (Vol. II, page 79) and transportation demand modeling (Vol. II, page 81). Both of these recommended actions should help inform the decision-making process governing both transportation and land use policy and decisions.

Comprehensive traffic studies for specific development proposals will:

- Consider cumulative impacts of existing and proposed development in the study area.
- Include long-term impact (20-year) of the development in the context of the projected traffic environment.
- Consider circulation and safety needs for pedestrians, bicyclists, and transit in addition to motor vehicles.
- Extend the analysis coverage of the street system until the additional traffic caused by the development during the p.m. peak hour will be less than 5% of the current traffic volume.

Transportation demand modeling also has the potential to support the public's ability to monitor Plan implementation. Anne Arundel County, in coordination with other agencies, is developing a transportation demand model. This model should be used to evaluate long-term (20-year) growth trends and prioritize transportation policies, programs, and

projects. This model will be useful to evaluate changes in travel demand within the study area as a result of measurable changes in demographics such as population and employment or noticeable changes in the transportation network such as new corridors, increases in the number of lanes on major roadways or major investments in transit infrastructure, such as dedicated transit lanes or heavy or light rail trains.

L. IMPLEMENT A TRANSPORTATION DEMAND MANAGEMENT PLAN

Purpose

- Reduce automobile traffic during peak travel periods.

Objective

- Engage government agencies and private businesses in development and implementation of a Transportation Demand Management program.

Recommendation

The vast majority of the work force in the study area arrives and departs on similar schedules. This creates tremendous pressure on the existing street system to accommodate the morning and afternoon peak travel periods. Because the feasibility of simply building more travel lanes and other capacity improvements is extremely limited, the city, county, state, U.S. Naval Academy, and the Annapolis Regional Transportation Management Association must look at ways to reduce the demands placed on the street system.

Transportation demand management (TDM) is policy and management rather than concrete and asphalt. It provides a means to remove vehicle trips from the roadway network during peak travel demand periods. TDM measures applied on a regional basis can be an effective tool in reducing vehicle miles traveled.

Since its inception in 1992, ARTMA has been an effective advocate and promoter of transportation demand management strategies. It is recommended that the city and county form a TDM Task Force comprised of public and private sector representatives to develop a comprehensive TDM plan, using ARTMA's existing programs as a point of departure (Vol. II, pages 122-123). The TDM plan needs to continue to serve existing users and enlist new program participants. The following are types of TDM measures to consider for the TDM plan:

1. **Transit TDMs** – typically managed by public agencies or private groups. Service fees usually charged and applied to offset operational expenses. Examples of Transit TDMs are: ride-sharing, guaranteed ride home program, car-sharing, high occupancy vehicle priority, taxi service improvements, additional shuttle services, and improvements to mass transit services. The TDM plan should incorporate federal and state tax credits offered through a state program called “Commuter Choice.”
2. **Peak Spreading TDMs** – typically requires employer participation. Examples are staggered work shifts and flexible work hours.

3. **Trip Reduction TDMs** – Examples are telecommuting, bicycle and pedestrian improvements, and zoning/land use controls that promote mixed-use communities.

The TDM plan should coordinate the work of the five agencies identified above to establish a program that would stagger work hours, which would help diminish the rush hour demands on the system. A coordinated effort among the government agencies to stage work hours would substantially reduce traffic spikes in the morning and afternoon.

Consistent with existing land use plans, the TDM plan should encourage development that effectively mixes land uses to reduce vehicle trip generation and to be consistent with the Maryland Priority Places program. These plans may include development of linkages (particularly non-auto) that support greater use of alternative modes.

With respect to linkages, the TDM plan should encourage the county and city to develop consistent conditions for land use approval that require all future employment related to land use developments and redevelopments to agree to reduce peak hour trip making through individual or collective TDM efforts. For example, measures which are appropriate for site planning such as close-in parking for carpools, bicycle parking, shower facilities, and convenient transit stops should be considered in the design review process. Further, reduction in on-site parking requirements for new office space could be conditioned on execution of a development agreement that would commit the developer and its successors in interest to provide financial support for remote parking and shuttle service.

M. INSTITUTE A MARKETING CAMPAIGN TO PROMOTE CHANGE IN TRAVEL BEHAVIOR

Purpose

- Promote change in travel behavior.

Objective

- Determine applicability of TravelSmart®, a proven program for identifying and educating receptive individuals.

Recommendation

The success of the Plan's recommendations to reduce the number automobile dependence and to bolster transit, walking, and bicycling depends on how many people end up using these services. Several stakeholders emphasized the importance of marketing to encourage change in travel behavior and to use new services recommended in the Plan.

TravelSmart® is a social marketing program that appears well suited to seeding the process of changing travel behavior in the Annapolis area. It is designed to encourage "environmentally friendly" modes of transportation, including walking, bicycling, transit, and car/van pooling. The program originated in Australia, and it is now being applied in

other cities throughout the world. It utilizes an individualized marketing approach, which is focused on individuals and households indicating an interest or willingness to consider transportation options to the automobile for some of their weekly trips. This technique has demonstrated its effectiveness accomplishing sustainable change in travel behavior.

TravelSmart® is applied to:

- Inform, motivate, and empower individuals in a way that achieves sustained change in travel behavior.
- Look at the transportation system from the user's perspective, rather than a transportation systems/planning/logistics view.
- Focus on behavioral change rather than simply raising community awareness.

Portland, Oregon recently contracted with a consultant, Socialdata, to conduct a pilot program in two neighborhoods.

This pilot project involved four steps:

1. An initial survey to a sample of over 700 households to determine current travel habits and to identify the level of interest to consider using alternative modes to the automobile.
2. An individualized marketing campaign focusing on those who expressed an interest in getting information and assistance about traveling using alternative modes. Those who are not interested are not contacted. The individualized marketing includes home visits by a person offering information and assistance about options that are specifically relevant for each individual.
3. A mail-back survey of travel behavior following the marketing effort.
4. A second mail-back survey of travel behavior to determine if the changes in travel behavior are being sustained.

The key ingredient is focusing the marketing effort on individuals who are most receptive to change, rather than blanket marketing campaigns, which often do not have significant impacts.

The Portland pilot project resulted in 9% less car travel and an 8% increase in walking, bicycling, and public transit. This represented a 12% reduction in vehicle miles traveled, over 600,000 miles annually. Because of this success, Portland will initiate a second program in another neighborhood this summer, as well as planning for additional projects in metropolitan area.

It is recommended that the city, county, state, U. S. Naval Academy and ARTMA consider the potential of the program and identify how it might be used to the greatest advantage in the study area. The experience of Portland and other cities could be evaluated to determine the best way to proceed. ARTMA would potentially be the most logical lead agency in this effort (Vol. II, pages 120-122).

7.0 OVERALL BENEFITS TO USER GROUPS

Most planned and recommended actions will benefit multiple, and in some instances, all user groups, as seen in most recommendations to enhance connectivity between downtown Annapolis and Parole, to improve circulation in each activity center and to improve operational efficiency of the transportation network. Enhancement of alternatives to automobile travel – including several forms of transit, bicycle access throughout the study area, and safe and attractive pedestrian access – will expand options available to all user groups. Similarly, real-time parking information will inform the parking decisions of office and shift workers, short and long terms patrons and day-tripper tourists.

In addition to these across-the-board benefits, many recommended actions are designed to affect the travel experience of discreet user groups in specific ways. Set out below is a summery of ways in which implementation of specific recommendations is likely to affect the travel behavior and travel experience of individual user groups.

DAYTIME WORKERS

For those driving to work, parking all day in the downtown will become more expensive relative to other alternatives, thereby encouraging some daytime workers to utilize outlying parking in the NMCM Stadium lot (or switch to transit, walking, or bicycling).

Daytime workers in downtown will be able to take advantage of an incentive program to utilize outlying daytime parking at the NMCM Stadium lot. If downtown employers cover employees parking cost, it will generally cover parking and transit/shuttle in the NMCM Stadium lot, leaving the employee to opt for the “free” outlying parking or continuing to park downtown and paying the difference. This should reduce the traffic in downtown during the morning and evening peaks and leave more parking available in downtown garages and metered street spaces for other user groups.

The transit and shuttle service between the NMCM Stadium lot and downtown will be improved with security personnel in the lot, improved lighting, new shelters, and real-time shuttle and bus information. The short headways during the peak morning and evening hours will make this a less expensive alternative to downtown parking with similar commute times to driving into downtown.

A program to stagger daytime work hours for government employees, especially those working in downtown Annapolis and Parole will allow employees to arrive and depart during off-peak times, thereby reducing commute times.

The option of using transit for getting to work will become increasingly convenient and comfortable because Annapolis Transit will complete installation of bus shelters along its routes and the city and county will continue to implement a coordinated program to address sidewalk deficiencies along major streets, with special attention being paid to bus stop access.

After daytime workers arrive at their offices in either downtown Annapolis, they will be able to use the circulator with dedicated lanes to move around either area without having

to move their cars. This will extend the areas they can reach during lunch breaks or after work.

The development of a multi-modal center in Parole for Annapolis Transit, MTA, and regional bus companies will greatly enhance transit access in this portion of the study area.

The mixed-use centers proposed in city and county plans will also place more residents within an easy walk to a transit stop. Attention will be given to creating pleasant pedestrian areas that encourage people to leave the car behind. Residents who work locally will have a greatly simplified commute without a car.

The city/county bicycle route map will encourage more bicycling by aiding trip planning to work and other destinations, which suit their abilities and preferences. When arriving at the workplace, secure long-term bicycle parking will be available as well facilities to change and/or freshen up before work.

SHIFT WORKERS

For those driving to work in the study area, the commutes will typically be about the same because traffic congestion and delay are not significant concerns to this group, which travels during off-peak hours.

Parking all day in the downtown will be managed and priced to make more parking available for shift workers when they arrive later in the morning or afternoon. Many of the shift workers employed in the downtown will have four parking facilities, which are managed to accommodate them. The Green Street (Board of Education) Lot will be reserved for downtown employees with attendant parking. It is within a short walk of many of the establishments, which are open in the afternoon and evening hours. The Hillman Garage will have reserved spaces for shift-workers on central and upper Main Street and Gotts and Whitmore garages will have a section devoted for the same purpose for the employees in the Inner West Street area.

Not only will parking be available, but measures will be taken to enhance security through lighting and security personnel in and near the parking facilities during the evening. This will make parking easier to find for shift workers. Shift workers will no longer need to go into adjoining neighborhoods or use on-street metered parking.

OUTBOUND COMMUTERS

For those driving out of the area to work, the commutes will be aided by a number of enhancements and management actions, such as capacity and intersection improvements focusing on the identified trouble spots associated with Forest Drive/Aris T. Allen, West Street, Riva Road, Jennifer, Rowe Boulevard, and interchanges with U.S. 50/U.S. 301. Commuters leaving or returning to the study area during peak morning and evening travel times will benefit not only from the above-mentioned improvements, but from the staggered work hours program implemented by many of the area employers to reduce peak hour traffic volumes.

Outbound commuters driving to a transit stop or park-and-ride will see this portion of their trip change as noted above. Those driving to a park-and-ride will have three primary choices with the Parole multi-modal center, Harry Truman Lot, and the NMCMS Lot. The first two will be much more appealing because parking will be free, whereas the NMCMS lot, as well as other garages along West Street, will have a daily charge.

The opportunity for outbound commuters to take local transit to connect to commuter buses at the multi-modal center will become increasingly convenient and comfortable because Annapolis Transit will have completed installation of bus shelters along its routes and the city and county will be implementing a coordinated program to address sidewalk deficiencies along major streets, with special attention being paid to bus stop access.

The NMCMS lot will be designed to encourage walking or bicycling to the site to catch a MTA or AT bus. The sidewalk system on the site and surrounding neighborhood will be completed to encourage walking.

SHORT-TERM PATRONS

Short-term patrons is an expansive category that includes people who drive into town for specific appointments or events, office workers who shop or go out for meals on their breaks and local residents and overnight tourists who do the same.

Parking in the downtown will be managed and priced to make more short-term parking available for these patrons in city garages and on the street when they arrive later in the morning through the evening. Parking will be priced at a variable rate to encourage short-term use (generally 4 hours or less) and to discourage all-day parking by daytime downtown employees. This will make it easier for short-term patrons to find suitable parking located near their destinations.

Parking will be provided on-site for businesses, agencies, and other destinations in the rest of the study area. This parking will continue to be available for short-term patrons when they arrive.

Circulators using dedicated lanes in downtown Annapolis will allow people to move around these areas conveniently without having to use their cars.

Use of transit will become increasingly convenient and comfortable because Annapolis Transit will complete installation of bus shelters along its routes and the city and county will implement a coordinated program to address sidewalk deficiencies along major streets, with special attention being paid to bus stop access.

This improved pedestrian access to the bus stop and the development of the planned mixed-use centers, combined with improved comfort provided by the shelters will make this trip type a more viable and popular option, especially for short-term patrons heading for downtown, Parole, and destinations along major streets where transit service is the most prevalent.

Walking in the downtown will continue to be relatively easy with the existing sidewalk system. The most noticeable improvement to the walking environment to and from transit will be along major streets outside of the downtown, within Parole and other activity/mixed-use centers. This will enable short-term patrons to efficiently complete some of their trips using transit.

The city/county bicycle route map will encourage more bicycling because short-term patrons will be aided in planning routes to reach destinations by bicycle in a manner, which suits their abilities and preferences. Secure short-term bicycle parking will be available near building entrances.

LONG-TERM PATRONS

Parking in the downtown will be easier to find, especially in parking garages, because of management and pricing to make more parking available for these patrons in city garages. Parking will be priced so that the first four hours are significantly lower rate than parking beyond four hours. This will make it easier for long-term patrons to find suitable parking located near their destinations. However, the slightly higher parking cost in the downtown will encourage some long-term patrons to use an alternative to an automobile for these trips.

Parking will be provided on-site for businesses, agencies, and other destinations in the rest of the study area. This parking will continue to be available for long-term patrons when they arrive.

Circulators using dedicated lanes in both downtown and Parole will allow people to move around these areas conveniently without having to use their cars.

DAY-TRIPPER TOURISTS

Day tripper tourists arriving by car and parking all day in the downtown will find this method to be more expensive relative to other alternatives, thereby encouraging some day tripper tourists to utilize outlying parking in the NMCMS lot.

The transit and shuttle service between the NMCMS lot and downtown will be improved with security personnel in the lot, improved lighting, a new shelter, and real-time shuttle and bus information. The short headways during the peak morning and evening hours will make this a less expensive alternative to downtown parking with similar travel times to driving into downtown.

Circulators using dedicated lanes in downtown Annapolis will allow people to move around these areas conveniently without having to use their cars.

OVERNIGHT VISITORS

For those driving to the study area for a visit of one or more days typically head to the hotel or bed and breakfast where they will be staying. From there they may be able to

take hotel shuttles or Annapolis Transit to travel to and from destinations in Parole and downtown Annapolis. Once they have arrived in downtown Annapolis , they can use the circulator with dedicated lanes to move around these areas conveniently without having to use their cars.

RESIDENTS

The residential user group category is unique because the purpose of defining it is to mitigate the impacts on residential neighborhoods caused by use of the transportation system by others. Other transportation system users affect residents primarily by parking in residential neighborhoods and by driving through their neighborhoods on the way to someplace else. The Plan recommendations, along with currently planned actions, are designed to minimize these impacts by:

- Alleviating a number of traffic bottlenecks to reduce the likelihood of cut-through traffic on local streets.
- Guiding motorists to appropriate and available parking to reduce parking by nonresidents in neighborhoods.
- Promoting transit, walking, and bicycling to reduce vehicular traffic and its related impacts.
- Implementing a more aggressive parking enforcement programs to discourage inappropriate parking in neighborhoods.

As a result, neighborhoods will generally be quieter with slightly reduced traffic, and residents will be more likely to have parking available in their neighborhoods.

APPENDIX A

Table 1 – Planned Improvement Projects

Table 1 - Planned Improvement Projects

Project Name	Description and Purpose	Status
State Projects		
MD70 (Rowe Boulevard)	Replacement of bridge number 2042 over Weems Creek and rehabilitation of bridge number 2043 over College Creek, including the enhancement of the area between the two bridge structures by Fall 2006.	Under construction
Annapolis Gateway Feasibility Study	Streetscape study for West Street (MD 450) from Old Solomons Islands Road (MD 393) to Chinquapin Round Road. The city is interested in pursuing a roundabout concept at MD 450 and Old Solomon's Island Road.	Under study
County Projects		
Arundel on the Bay Road	Realign a portion of Arundel on the Bay Road near the Bay Highlands Road and Thomas Point Road intersection.	Funded for construction
Forest Drive Widening	Continuous westbound right turn lane on Forest Drive starting at Hilltop Lane and terminating at Chinquapin Round Road (Westbridge Village Traffic Study). This will add two lanes to create a six-lane divided street on this section of Forest Drive.	
Forest Drive Relief Road Alignment Study	Potential new alignment from Aris T. Allen Boulevard (MD 665) to Spa Road (MD 387). The city has been acquiring right-of-way along the south of Forest Drive.	Study complete
Parole Town Center Community Legacy Grant	Prepared predevelopment design for Community Legacy Area of Parole. An Action Plan and 30% Design Package were completed to complement the anticipated redevelopment of the Parole area.	Completed
multi-modal Center Feasibility Study	Study to determine the feasibility and location of a transit center in the Parole area.	Not funded
City Projects		
Inner West Street Congestion Mitigation	A series of projects to revitalize Inner West Street and its commercial corridor and to minimize the impact of traffic and parking from redevelopment plans.	
Knighton Garage	An Inner West Street Congestion Mitigation element to reduce cut-through traffic, Colonial Avenue was changed to a one-way street exiting the community. Traffic monitoring will determine if a signal is required at West Street and Colonial Avenue.	Garage is completed
Capital Site Development	An Inner West Street Congestion Mitigation element to create an alley connection between Monticello and Southgate for bi-directional circulation and improved access to West Street.	Completed
Enhanced Shuttle Service	An Inner West Street Congestion Mitigation element where the Annapolis Department of Public Transportation is providing enhanced shuttle	Implemented

Project Name	Description and Purpose	Status
	service for downtown and the NMCMS lot. The city will also encourage businesses to take advantage of available tax credits for employee participation.	
Bladen Street Streetscape Project	Streetscape improvements are planned along Bladen Street from College Park to College Avenue (Bloomsbury Square) including a potential circle at Bladen and Calvert.	
Chinquapin Round Road /West Street improvements	Street improvements related to the redevelopment of Johnson's Lumber Company site. This development is a 350-unit residential development with a retail component located near this intersection.	
Outer West Street	A variety of safety and congestion actions include requiring wider buffer yards to allow future expansion, intersection upgrade at MD 2 in anticipation of Parole area redevelopment, and access controls.	Underway
Right-of-way Acquisition	The city requires major development projects to dedicate additional street right-of-way where necessary to support current or future street improvements.	Underway
Taylor Avenue Traffic Analysis	An Inner West Street Congestion Mitigation element to conduct a traffic analysis that showed that Taylor Avenue would not need to be widened between Cedar Park and the DNR Building.	Completed
Outer West Street – Chinquapin Round Road Land Use Study	Consideration of improvements include a roundabout at Old Solomon's Road with connections to Hudson Street and Gibraltar Avenue; an extension of Admiral Drive to Virginia Avenue; and installation of a traffic signal at Virginia Avenue and Chinquapin Round Road. Additional improvements include a connection between Georgetown Road and Edgewood Road southwest of Bay Ridge Road in the Bay Village site.	Underway
City Annapolis Comprehensive Plan		
Evaluate modifications to key entry corridors	Enhance access to and from the city, with primary emphasis on Aris T. Allen Boulevard/Forest Drive, Route 450, Rowe Boulevard, and Outer West Street.	
Evaluate realignments to key roadway corridors within the city	Enhance neighborhood access, traffic circulation and vehicular/pedestrian safety including Chinquapin Round Rd/West St/Admiral Drive, Spa Road/West Street/Taylor Avenue, Taylor Avenue between Rowe Boulevard and MD 450, and Taylor Avenue between West Street and Rowe Boulevard.	
Traffic Management Plan for U.S. 50/U.S. 301 corridor	Develop a Traffic Management Plan for U.S. 50/U.S. 301 corridor. Coordination with Maryland SHA.	
Neighborhood-to-neighborhood access	Identify opportunities to enhance without promoting through vehicular traffic.	

Project Name	Description and Purpose	Status
Parking management strategy	Develop a strategy that can be implemented over the next ten years to support the continued economic health of the downtown while maintaining the quality of residential life.	
West Street parking	Develop a parking management strategy to support revitalization of Inner West Street.	
Eastport parking	Monitor the need for a parking management strategy for Eastport.	
Annapolis Neck SAP		
Holly Avenue	A new road is proposed between Forest Drive and West Street, however, it is not indicated on the preliminary plans for the Annapolis Towne Centre.	Under consideration
MD 2/MD 450/Jennifer Road Ramp	Extend MD 2 to Jennifer Road including a hiker/biker trail. Provide north to east and south to west ramps by Fall 2005.	Under construction
Arundel on the Bay Road	Road realignment and safety improvements near Bay Highlands Road and Thomas Point Road intersection.	Design is funded
Forest Drive	Increase capacity by reconstructing Forest Drive to a six-lane, divided roadway with a sidewalk and multi-use trail including crosswalks for pedestrians between Hilltop Road and Chinquapin Round Road.	Under construction
MD 2 at Forest Drive	Construct a second left turn lane from northbound MD 2 to Forest Drive. Design is funded.	Funded for construction
U.S. 50/U.S. 301 Sound Barriers	New noise barriers along U.S. 50/U.S. 301 from Ridgely Avenue to the Severn River Bridge.	Completed
MD 70 (Rowe Boulevard) Bridge	Replacement of bridge number 2042 over Weems Creek and rehabilitation of bridge number 2043 over College Creek, including the enhancement of the area between the two bridge structures.	Under construction
Bestgate Road to Riva Road	Part of MD 178/MD 450 improvements to provide a north to east exclusive right turn land at MD 178 and Bestgate Road.	Completed
US 50/301 and MD 450 Intersection	Part of MD 178/MD 450 improvements by considering a proposal by the Annapolis Town Centre at Parole at Riva Road/US 50/US 301/MD 450.	Under review
Extension of Housley Road to US 50/301	Street extension to improve circulation.	No activity
Extension of MD 2 to Jennifer Road and improvement of the MD 2/U.S. 50/U.S. 301 interchange	Provide ramp connection from Jennifer Road to U.S. 50/U.S. 301. Provide bikeways along the connection by Fall 2005.	Under construction
Parole	Construct internal streets for the urban core of and extend Holly Avenue to the Annapolis Mall, if feasible.	Under consideration
Park-and-ride areas	Increase the number and improve the effectiveness of transportation centers, for	Under consideration

Project Name	Description and Purpose	Status
	residents, commuters, visitors, and tourists.	
Parking Authority for the PGMA	Investigate the value and feasibility of establishing a parking authority to: develop parking structures serving multiple users to help release surface lots for redevelopment or landscaping, develop park and ride facilities to support both regional transit and transportation management program, and develop a parking management strategy that would support revitalization of Inner West Street and economic viability of outer West Street businesses.	No activity
Gateway Village Drive	New connector road through Sam's Club and the SHA Maintenance facility from MD 178 to Housely Road.	Under design. No const. funding.
Harry S. Truman Parkway	Truman Parkway extension from east of Riva Road north to Admiral Cochrane Drive.	Completed
Riva Town Center Boulevard	Proposed road connection between Annapolis Harbour Center and Festival at Riva Road.	Design complete. No const. funding.
Holly Avenue Extended	New connector road between West Street and Jennifer Road.	No activity
<i>Parole Urban Design Concept Plan</i>		
U.S. 50/U.S. 301/MD 2 Interchange	Extend MD 2 to Jennifer Road including a hiker/biker trail. Provide north to east and south to west ramps.	Under construction
Medical Boulevard	New connection from Jennifer Road to Bestgate Road near the Anne Arundel Medical Center.	Completed
MD 178 at Bestgate Road	Provide a north to east right turn lane.	Completed
Admiral Cochrane Drive	Extension from west of Riva Road to MD 2.	Completed
Harry S. Truman Parkway	Harry S. Truman Parkway extension from east of Riva Road to Admiral Cochrane Drive.	Completed
Old Solomon's Island Road	Old Solomon's Island Road (MD 393) extension from Forest Drive to Hudson Street.	In county CIP, not funded
U.S. 50/U.S. 301 Strategic Plan	Form a committee to provide strategies to decrease congestion in the US 50/301 corridor.	No activity
Forest Drive Extension/Three Mile Oak	Extend Forest Drive from Riva Road to MD 450 with a roundabout at MD 178.	No activity
Ramps from I-97 to Housley Road	Provide access ramps to and from I-97 at Housley Road.	No activity
Town Center Boulevard Bridge	Construct a bridge across MD 665 from Town Center Boulevard to Womack Drive.	No activity
U.S. 50/U.S. 301 Off-ramp	Construct an off-ramp from US 50/301 to Truman Parkway.	No activity
U.S. 50/U.S. 301 Overpass	Housely Road to Aris T. Allen (MD 665) or MD 450 to Truman Parkway.	No activity

Project Name	Description and Purpose	Status
multi-modal Transit Station and Riva Square	Potential multi-modal Transit Station and Riva Square.	No activity
Gateway Village Drive	New connector road through Sam's Club and the SHA Maintenance facility from MD 178 to Housley Road.	Under design. No construction funding.
Midterm Project Planning.	Acquisition of right-of-way and finalization of alignment for Mid- and Long-term project.	
Riva Town Center Boulevard	Proposed road connection between Annapolis Harbour Center and Festival at Riva Road.	Design completed. No const. funding.
Riva Road/MD 665 Interchange	Study ways to improve operation of the Riva Road/MD 665 interchange.	Under study

APPENDIX B

Glossary of Abbreviations and Acronyms

ARTMA – The Annapolis Regional Transportation Management Association

Downtown – downtown Annapolis

MTA – Maryland Transit Administration

LOS – level of service

NAAA – Naval Academy Athletic Association

NMCMS – Naval Marine Corps Memorial Stadium

TDM – Transportation Demand Management

APPENDIX C STREET TYPOLOGY GUIDELINES

Annapolis Regional Transportation Vision and Master Plan

Street Typology Guidelines

Purpose

These street typology guidelines were prepared to support the primary purpose of the *Annapolis Transportation Vision and Master Plan*, which is to enhance mobility for all user groups who are traveling by car, transit, walking, or bicycling. Today, many of the major streets in the study area demonstrate a priority towards motorized vehicles, lacking facilities and amenities for transit users, pedestrians, and bicyclists. As a result, over 90% of all trips in the study area are taken by car.

The guidelines acknowledge that the automobile will continue to be the preferred form of transportation in the area. But at the same time, the public transportation facilities and the public street environment must become more useful, convenient, and comfortable for people choosing to ride the bus, walk, or bicycle. It is about civilizing the overall transportation system, rewarding short trips, and offering users choices about getting around. The following techniques primarily focus on improving arterial and collector streets in the study area since they handle the highest volumes of traffic and, therefore, offer the greatest opportunity to achieve benefits from improvement efforts.

Application of the Guidelines

The following *Street Typology Guidelines* are intended to provide guidance for policy makers, project applicants, and interested third parties in their efforts to improve the area's streets by:

- Promoting their role as places of shared use;
- Making them safe, comfortable and interesting – especially for pedestrians;
- Encouraging walking, biking, and transit use; and
- Accommodating vehicles in ways that respect other users and the form of public space.

The guidelines are not intended to provide all of the necessary specific design details but rather a framework for local decision makers to use when:

- Amending public works or zoning design standards;
- Designing and developing new streets; or
- Making street improvements to complement adjoining land uses.

Street Context

Streets belong to the community and are, at their best, places of shared use. They are one part of a larger system of physical elements that create and define a network of public open spaces – sometimes referred to as the 'public realm'. So, how does the concept of a lively, aesthetically pleasing 'public realm' apply to streets? It helps to begin with an understanding of a given street's context and the adjacent land use character.

In general, the greater Annapolis / Parole area consists of three primary land use character types adjoining its major streets:

1. Mixed Use Centers: The Annapolis Comprehensive Plan, Parole Growth Management Area Plan, and the Annapolis Neck SAP promote the creation of and the continued existence of "mixed use" or "activity" centers. These are places, recognized by the City and County, as places that do or should include a number of different uses, which benefit from their close proximity to one another. The attention to site planning and the incorporation of urban design amenities (pedestrian facilities, landscaping, and public space) create recognizable, pedestrian friendly activity centers. In addition to likely high traffic volumes, transit service is envisioned in these areas as well as good bike access. Historic neighborhoods (built prior to the 1940's), and areas designated in the City and County plans as focal areas for new infill development and redevelopment, will add vitality to the surrounding neighborhoods and provide identifiable community activity centers.

Targeted areas already identified by the City and County include:

- Bay Ridge Avenue / Eastport
- Central West Street
- Eastport
- Inner West Street
- West Annapolis
- Bay Ridge Avenue / Hillsmere
- Downtown
- Forest Drive
- Outer West Street
- Parole



Figure 1: Mixed Use Center - Downtown

These areas are envisioned as pedestrian friendly activity centers, attention to site planning and the incorporation of urban design amenities (pedestrian facilities, landscaping and public space) are essential. Transit service should be accommodated, as well as good bike access, but accommodation of high traffic volumes will also be important.

2. Commercial / Industrial Development:

These areas are typically dominated by vehicular traffic with very little regard for the safety, comfort, or experience of pedestrians and bicyclists. They function primarily as commercial/retail/employment centers, offering important services and jobs. They typically do not contain any shared public space, and vehicle speeds and volumes tend to be high. Existing land use in these areas generally has been developed since the 1950s. Uses include strip commercial development, automobile dealerships, shopping centers, convenience retail, etc.



Figure 2: Commercial/Industrial Example

Although these areas are some of the most challenging to enhance, they also present considerable opportunity to demonstrate the benefits of targeted improvements - especially those that address the needs of bicyclists, pedestrians, and transit users. Creation of shared public space will be desirable as well as managing vehicle speed and traffic flow.

3. Residential Areas: The bulk of uses within the study area are residential. Maintaining, enhancing, or improving the vitality and quality of life for area residents will always be a fundamental goal. Objectives including accessibility, mobility, and connectivity - and policies that support them - can assist in enhancing the natural and physical setting of residential neighborhoods.



Figure 3: Residential Area Example

Targeted residential area improvements may be part of a broader strategy to encourage private investment into residential areas that have not responded as favorably to past and existing market conditions.

Street Structure

Simply stated, streets are defined by three main component zones: 1) the roadway itself, 2) the sidewalk area, and 3) the adjacent buildings or development. It helps to understand these areas and how they work together when considering street improvements.

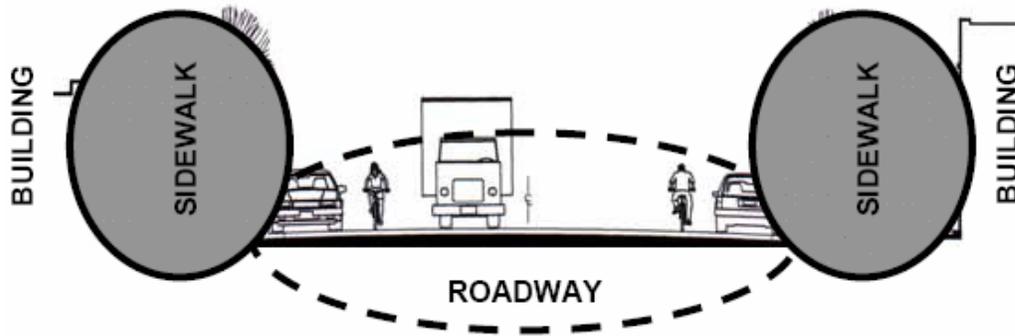


Figure 4: Street Structure Cross Section

1. Roadway: This is the paved area, typically between the curbs, that is primarily used by vehicles and bicycles. This is the zone of vehicular movement and possibly the biggest safety challenge for pedestrians who wish to cross. The roadway abuts the sidewalk area and contrasts with the height of the adjacent development (or lack thereof) to define the perceived scale of the street.
2. Sidewalk Area: This is the area typically between the curb and the edge of adjacent buildings or development, such as parking lots or landscaping. This area is typically devoted to pedestrians. In addition to being a place to walk, this zone may contain landscaping, lighting, utilities, site furnishings, or other amenities. The width and attention to detail of this zone is a good indication of how much priority is being given to pedestrians.



Figure 5: Roadway Area



Figure 6: Sidewalk Area

3. Building Edge: This is where public right-of-way and adjacent property meet. Adjacent buildings and/or development form the edge of the streetscape and their design directly affects the character and function of the street. This area may include building fronts, walls, doors, windows, and/or outdoor areas such as patios, courtyards, arcades, landscaping, and parking lots.



Figure 7: Building Edge

Street Typology Improvement Matrix

The following matrix describes treatments that may be employed, alone or in combination, to improve and rebalance streets for all travel modes within the three primary land use character areas: mixed-use, commercial/industrial, and residential. The matrix is organized by street structure zone (roadway, sidewalk, and building edge) and ranks potential treatments as critical, beneficial, or not applicable. The matrix is intended to be used as a discussion framework to address street design issues systematically, and does not replace the need for detailed design and engineering performed by licensed professionals.

The specific features combine to form the landscape of the street – or ‘streetscape’. How these elements are designed, detailed, manufactured, and located greatly influences a street’s character and function. Not all design treatments are necessary or even important in the context of each of the three land use character areas. For example, wide sidewalks are typically more important in mixed-use centers or activity areas because an active pedestrian environment is essential to their success.

The street typology design treatments, and the matrix framework for considering them, are intended to support City and County plan policy direction to encourage walking, transit, and bicycling to help relieve traffic congestion. The mixed-use centers and activity centers identified by the City and County have considerable potential for integrating land use and transportation in a way that encourages alternative transportation modes.

Transitions from one land use character area to another are also important considerations, especially when motorists are traveling from a commercial/industrial environment to a mixed-use or residential one. The design of the roadway, sidewalk, and building edge should all contribute to make motorists aware that they are entering an area where slower speeds and awareness of pedestrians is essential. The street typology matrix lists these transitions as an important consideration for each of the street structure zones.

Design treatments that form the palette of facilities, materials, and techniques available are listed in the left hand column of the matrix.

Street Typology Improvement Matrix

Roadway Treatments	Description	Potential Uses and Benefits	Critical			Beneficial			N/A			Comments
			MU	C/I	R	MU	C/I	R	MU	C/I	R	
Add bike lanes	Striping, markings and signage 4.5' minimum 6' desirable	Improves safety, calms traffic, encourages use, and is relatively inexpensive (especially when existing pavement is available).		✓		✓					✓	May require roadway width, may require reduced on-street parking.
Reduce travel lane width	Striping using a 12' min. for freight routes that carry 250+ 4-axle trucks per day 10'-11' for non-freight routes designed for 40 mph or less	Improves safety, calms traffic, reclaims width for other uses, reduces pedestrian crossing width, and helps rebalance user prioritization of street.				✓	✓					May require exceptions from DOT.
Add bold pavement markings	Striping and other markings	Improves safety, calms and guides traffic, designates special areas, and is relatively inexpensive.				✓	✓					Requires maintenance, may be less effective than physical barriers.
Reduce number of travel lanes	Re-striping or curb relocation	Improves safety and calms traffic.				✓	✓					Potential peak traffic congestion impacts.
Provide on-street parallel parking	7' width minimum 8' width desirable	Orients street access and define sidewalk zone, improves accessibility, slows traffic, and buffers pedestrians from traffic.	✓			✓	✓					Takes up width, potentially increases bicyclist hazard, often discouraged on arterial streets.
Construct refuge island	Raised concrete 6' minimum width 8'-12' desirable	Improves safety and calms traffic.		✓		✓						May impact drainage, trucks may run over, could limit left turns.
Construct median	Width varies 6' minimum if street trees or pedestrian refuge	Improves street appearance, improves traffic operations, and lowers traffic speeds.				✓		✓				Takes up width, may complicate drainage.
Reduce corner radii	Varies by corner	Shortens pedestrian crossings, reduces vehicle speeds, improves pedestrian visibility, and greatly improves pedestrian safety and convenience.	✓			✓						May conflict with large vehicle turning movements.
Provide crosswalks	'Ladder' striping encouraged 12' width desirable	Improves pedestrian crossing opportunities and comfort, helps identify preferred crossing locations, and alerts drivers to likely presence of pedestrians.	✓	✓								Should be part of a comprehensive set of measures, needs to be highly visible.
Create pavement texture	A variety of textured surfaces to help delineate special street areas, such as crosswalks.	Highlights crosswalk or intersection and improves street aesthetics.				✓	✓	✓				May complicate repaving, need to sure to withstand vehicle loads snow removal, may increase noise, color may fade with age.
Create transition area	Visual clues to the approaching change of use (e.g., commercial to mixed-use), such as reduced lane width, on-street parking, and other treatments noted above.	Slows traffic prior to entering, creates visual gateway, and enhances street identity.	✓			✓	✓					Limited benefit without other linked techniques and/or devices for the sidewalk and building edge.

Critical – Necessary treatment if pedestrian, transit, and/or bicycle activity is to be successful.

Beneficial – Desirable treatment that will complement "critical" elements and will typically be beneficial separately.

N/A – The treatment is not applicable to the particular street context (mixed-use, commercial/industrial, or residential).

MU - Mix-use street context.

C/I – Commercial/Industrial street context.

R – Residential street context.

Street Typology Improvement Matrix

Sidewalk Treatments	Description	Potential Uses and Benefits	Critical			Beneficial			N/A			Comments
			MU	C/I	R	MU	C/I	R	MU	C/I	R	
Construct curb extensions	At intersections, dedicate area typically given to parallel parking to pedestrians	Shortens pedestrian crossing distance, improves pedestrian visibility, slows traffic, improves sidewalk operation, and can be combined with bus stop.	✓				✓	✓				Very effective device, can be moderately expensive, may interfere with drainage.
Restrict driveways	Reducing driveway width, relocating vehicular access to side streets and/or maintaining minimum spacing between driveways	Improves pedestrian safety and street operation.	✓				✓	✓				Not popular with auto-oriented businesses.
Increase maintenance	Street sweeping, sidewalk power washing, plant care, etc.	Improves aesthetics, improves safety, and demonstrates community pride.	✓				✓	✓				Sign of a healthy street, requires on-going commitment and funding.
Construct adequate sidewalks	5' minimum width 12' min. width in activity areas	Improves pedestrian safety and environment and creates public space essential for pedestrian and transportation activity.	✓	✓	✓							Requires R.O.W. width.
Install street furniture	Benches, bike racks, decorative lighting, transit shelters, canopies, etc.	Supports public activity, improves pedestrian comfort, and helps bring street to life.	✓				✓	✓				Requires wide sidewalks, investment and on-going maintenance.
Plant street trees and landscaping	4' x 4' tree well minimum 3' planter width minimum Locate tree trunks 4' min. away from traffic 25'-50' street tree spacing based on species	Improves aesthetics, can be applied almost anywhere, slows traffic, and enhances pedestrian environment.					✓	✓	✓			Requires width, investment and on-going maintenance.
Put utilities underground	Relocate overhead utilities to underground service	Provides additional sidewalk space, improves street aesthetics, and supports pedestrian activity.					✓	✓	✓			Expensive, but may be the best way to make some of the old sidewalks in the city more usable and ADA accessible.
Create transition area	Visual clues to the approaching change of use (e.g., commercial to mixed-use), such as increased sidewalk width, curb extensions, street trees, and other treatments noted above.	Slows traffic prior to entering, creates visual gateway, and enhances street identity.	✓				✓	✓				Limited benefit without other linked techniques and/or devices for the roadway and building edge.

Critical – Necessary treatment if pedestrian, transit, and/or bicycle activity is to be successful.

Beneficial – Desirable treatment that will complement "critical" elements and will typically be beneficial separately.

N/A – The treatment is not applicable to the particular street context (mixed-use, commercial/industrial, or residential).

MU - Mix-use street context.

C/I – Commercial/Industrial street context.

R – Residential street context.

Street Typology Improvement Matrix

Building Edge Treatments	Description	Potential Uses and Benefits	Critical			Beneficial			N/A			Comments
			MU	CI	R	MU	CI	R	MU	CI	R	
Orient building to face the street	Main building entry, windows and focal architectural detailing that faces the primary street	Strengthens the relationship between the street and adjacent land use, improves pedestrian environment, improves safety and security.	✓				✓	✓				Parking must be located to rear or side of building.
Locate building as close to front property line as possible	0'-15' setback desirable	Clearly defines street edge, improves pedestrian environment, improves safety and security.	✓				✓				✓	Not popular with auto-oriented businesses.
Provide prominent street level entry	Require main building entries to be oriented to the street.	Strengthens the relationship between the street and adjacent uses, improves pedestrian environment, and improves safety and security.	✓				✓	✓				Can be a theft prevention challenge for businesses with multiple entries.
Consider height/width ratio of building to street	1:2 or 1:3 building height to street width ratio is a good target 1:7 or greater is undesirable (if unavoidable, consider division of street with median or service lanes).	Supports a human scaled street environment, provides pleasing sense of enclosure, allows light and air movement.	✓				✓	✓				Taller buildings may require sensitive façade stepping to break up massing.
Avoid blank walls – include pedestrian level windows	Break up building facades and allow for 'eyes on the street'	Improves street level aesthetics, safety, security, and pedestrian environment.	✓				✓	✓				Not popular with some businesses, sometimes inconsistent with corporate architecture – especially large commercial uses.
Locate off-street parking to side or rear of building	Require a specified amount of a property frontage (minimum 25%) to have the building(s) with minimum setback of 0'-5'	Improves street aesthetics, provides parking in close proximity to businesses, parking lots may provide future infill development sites.	✓				✓	✓				Not popular with some auto-oriented businesses.
Encourage storefronts	Main entries and display windows for retail shops that line the street	Improves pedestrian environment and creates street level activity and interest.	✓				✓				✓	Not popular with some auto-oriented businesses.
Break long facades into architecturally smaller segments	No façade segment longer than 50' without a change in design	Improves street aesthetics, pedestrian environment, safety, and security.	✓				✓				✓	Not popular with some auto-oriented businesses.
Use durable, high quality materials at street level	Metal, masonry, concrete, durable types of wood (no plastics, spray on or foam)	Improves street aesthetics, pedestrian environment, safety and security, conveys quality, and permanence.	✓				✓				✓	Not popular with some businesses.
Incorporate porches and covered entries on residential buildings that face the street	Porches: 8' depth minimum Entries: 40 s.f. minimum	Strengthens the relationship between the street and the residence and supports a human scaled pedestrian street environment as well as safety and security.						✓	✓	✓		Not popular with some home builders.
Create transition area	Visual clues to the approaching change of use (e.g., commercial to mixed-use), such as reduced front building setback, off-street parking to the side or rear of buildings, and other treatments noted above.	Slows traffic prior to entering, creates visual gateway, and enhances street identity.	✓				✓	✓				Limited benefit without other linked techniques and/or devices for the roadway and sidewalk.