

Gaithersburg West Master Plan Transportation Appendix



Gaithersburg West Master Plan Transportation Appendix

Draft as of 3/11/09

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1. Purpose

The Public Hearing Draft of the Gaithersburg West Master Plan proposes a conversion of the Life Sciences Center (LSC) area from auto-oriented suburbia to a transit-oriented, mixed-use, community. This Appendix provides the technical basis and details for the transportation system recommendations in the Gaithersburg West Master Plan.

The Plan proposes several innovative changes designed to promote the orderly implementation of a transit-oriented and sustainable center for the LSC, including:

- Realignment of the Corridor Cities Transitway (CCT) with line-haul service between the three proposed LSC CCT stations.
- Acceptance of congestion levels that reflect the Planning staff and Planning Board approach to adequacy.
- A proposed local street network that will create a finer grid than exists today and improve vehicular and pedestrian connections between districts.
- An implementation plan that relies on proportional participation by all developments, and a staging plan to coordinate areawide transportation system implementation in lieu of assigning piecemeal transportation exaction requirements to individual development applications.

Since the early 1980s, the “balance” between land use and transportation system recommendations in master plans and sector plans has applied the procedures and general policies contained in the County’s Growth Policy. The current Growth Policy applies an areawide measure of mobility, called Policy Area Mobility Review, and a localized measure of congestion called Local Area Transportation Review. These measures, used to define adequacy for development review cases, are adapted for master plan analysis through application of the Department’s TRAVEL/3 regional travel demand model and Local Area Model as described in detail in Chapter 3 of this Appendix.

The land use and transportation system are balanced to promote an end-state level of development that provides zoning density levels needed to facilitate the redevelopment of the LSC area from a largely auto-oriented community to a transit-oriented community. The transportation system needed to accommodate these levels of development must achieve a 30% Non-Auto Driver Mode Share (NADMS) for LSC employees, an objective that can be met through a combination of strategies, including:

- Improved access to transit, including the realignment of the CCT through the LSC and improved transit circulator services in combination with the concentration of future development within walking distance of transit.
- Implementation of a finer local street network with prevailing block lengths of 350 feet or less that promotes walking and bicycling.
- Management of the long-term parking supply through coordination of both zoning requirements and public parking provisions.

- Commencement of proactive travel demand management services through the establishment of the Greater Shady Grove Transportation Management District (TMD).

The establishment of this balance between land use and transportation required an iterative review of alternative land use and transportation concepts, as described in this Appendix. These Appendix materials document:

- The balance between long-term land use and transportation systems needed to provide sufficient mobility in the developing LSC area and surrounding communities, using appropriate evaluation tools and measures of effectiveness.
- The staging, implementation, and monitoring mechanisms that manage land use and transportation implementation details over two to three decades as the Plan is implemented.

The Appendix covers two areas of substance:

- Chapter 2 describes the recommendations at a greater level of detail than described in the Plan.
- Chapter 3 demonstrates that the end-state conditions in the Plan will result in an appropriate balance between land use and transportation.

This Draft Appendix is being released during the second week of March 2009 to provide technical information prior to the public hearing scheduled for March 26. The materials in this Appendix, plus supplementary analysis, will be incorporated into a complete set of Plan Appendices.

2. Transportation Plan Recommendations

The Gaithersburg West Master Plan recommends a multimodal transportation system that recognizes the prior planning for the CCT system to create a transit-oriented community of walkable blocks with multimodal transportation options for residents, employees, and visitors.

Figure 1 shows the range of transportation system strategies examined in the Gaithersburg West Master Plan, including:

- Travel demand management
- Transit services
- Local street network
- Transportation system policies

Figure 1 indicates the likelihood that the Plan would incorporate the different strategies based on analyses and coordination performed to date. The cells shaded in light blue indicate those strategies with high potential. In general, those strategies with high potential were incorporated into the Plan as described in the following paragraphs.

	Strategy	Opportunities	Constraints	Potential
Demand Management	Reduce Single Occupant Vehicle mode share	Flexible, low capital cost	Operational costs, monitoring	High
	Increase parking charges	Reduce traffic, provide revenue	Parking Lot District establishment, garage locations	Moderate
Transit Services	Construct CCT through LSC area	Serve planned development near LSC stations, reduce traffic	Capital costs, operational costs	High
	Express bus service using value-priced lanes from I-270	Capture long-distance riders	Operating cost	Moderate
	Shuttle services	Low capital cost	Operating cost	Moderate
Local Street Network	Add local "midblock" streets	Provide alternate routes, reduce walking distances	Capital costs, definition of final alignment and implementation responsibilities	High
	Left turn prohibitions	Reduce congestion	Circuitous trips (cars and buses), public acceptance	Moderate
	Add turn lanes	Reduce congestion	Increase pedestrian crossing distances, capital cost	High (for selected locations)
	Grade-separated interchanges	Reduce congestion	Capital cost, attractiveness, inhibits pedestrian crossings, public acceptance	Moderate (for selected locations)
	CCT bridging over roadways	Reduce congestion	Capital cost, attractiveness, public acceptance	Moderate (for selected locations)
Policies	Accept higher congestion levels	Consistent with urbanizing area, no capital cost	Operating costs, public acceptance	Moderate
	Increase residential uses	Create mixed use centers, provide housing near jobs, lower trip generation rates	Economic and market feasibility	Moderate
	Staging Plan	Provide services at time of development	None	High

Figure 1: Transportation Management Strategies

A. Travel Demand Management

Travel Demand Management (TDM) describes a wide range of programs and services designed to reduce the use of single-occupant vehicle trips. Simply put, TDM is the set of public policy strategies to provide travel options that reduce and spread demand by travel destination, mode, route, and time of day to most efficiently utilize transportation system infrastructure and resources. TDM strategies can be implemented by both public and private sector activities. TDM strategies include:

- Infrastructure such as high quality pedestrian environments, bus or High Occupancy Vehicle facilities or preferential treatments, telework centers, commuter information stores, car-sharing (i.e., Zipcar) and bike-sharing stations, and well-located transit stations or stops with real-time transit information.
- Services such as transit services, vanpools, ride-matching, Guaranteed Ride Home services, alternative commute option information (i.e., Greater Shady Grove Management District and the Metropolitan Washington Council of Government Commuter Connections).
- Policies that affect the use of infrastructure and services, including parking supply management, preferential parking treatments for carpools/vanpools, transit subsidies, flexible work schedules, tax incentives, congestion pricing, and distance-based or Vehicle Miles of Travel pricing.

Montgomery County Travel Demand Management Applications

Current TDM strategies in Montgomery County include a variety of programs and services integrated between the private and public sectors. The Office of Legislative Oversight has summarized the County's existing TDM activities in their December 2008 report 2009-6, titled *Transportation Demand Management Implementation, Funding, and Governance*.

The **private sector** contributions include requirements of Planning Board conditions determined at the time of development review and approval (subdivision), often through a Traffic Mitigation Agreement (TMAg) to either provide a specified set of services or to achieve a specific performance objective. Traffic Mitigation Agreements are described in the Planning Board's Local Area Transportation Review / Policy Area Mobility Review (LATR/PAMR) Guidelines.

The **public sector** contributions include the activities of the area Transportation Management District (TMD). The proposed Greater Shady Grove Transportation Management District will provide services to employers and employees in the commercial areas of the LSC to promote adoption of commuter benefits programs by employers and to inform employees of alternative commuting options. The Greater Shady Grove Transportation Management District will also work to improve transit service in the area, to increase ridership, and to provide transit-friendly amenities.

In 2002, the County Council adopted Bill 32-02, an important link between the public and private sector TDM programs. This TDM law requires employers with more than 25 employees located in one of the County's four Transportation Management Districts to implement a Traffic Management Plan (TMP), participate in an annual commuter survey, and submit an annual report of TMP activities.

Target TDM Markets

TDM strategies can be customized by target markets, including consideration of the type of land use (i.e., residential, commercial, or special event) and time of day (i.e., peak period, midday, or all day). Figure 2, from the Institute of Transportation Engineers *Transportation Impact Analyses for Site Development* proposed Recommended Practice, summarizes the different types of TDM techniques commonly applied nationally to reduce vehicle traffic generation by their target market and trip reduction focus.

Figure 2: Travel Demand Management Techniques and Target Markets

Technique ^a	Types of Trips Affected					
	Office	Retail	Industrial	Residential	Lodging	Event
Physical Actions						
Parking availability reduced below normal demand level or substantial increase in parking costs	T, P	-	T, P	T, P	T, P	T, P
Quality pedestrian environment on-site (mixed-use developments only)	T, P, M	T, P, M	T, M	T, P, M	T, P, M	T, P, M
Building amenities (bicycle lockers, showers, ATM, parking garage dimensions to accommodate vanpools, wiring for ease of telework)	T, P, M	-	T, P, M	T, P, M	-	-
Non-Physical Actions						
Transit service to areas of trip origins	T, P	T, PM	T, P	T, P	T, P	T, P
Carpool, vanpool programs (ridematching, preferential parking, subsidies, promotion)	T, P	T, PM	T, P	T, P	-	T, P
Modified work schedules (4/40, staggered, flex)	P	-	P	P	-	-
Telecommute options	T, P	-	-	T, P	-	-
Internal shuttle transportation to/within development site	T, M	T, M	-	T, M	T, P	-
Transit subsidy	T, P	-	T, P	T, P	-	-
On-site transportation coordinator or information center	T, P	T, P	T, P	T, P	T, P	T, P

T = daily trips, P = peak hour trips, PM = p.m. peak hour trips, M = midday trips.

^aOther techniques may be applicable either separately or in combination with others. To be effective, each measure must be designed to generate and sustain use of alternatives to the single-occupant automobile.

Many TDM techniques are effective in reducing auto travel at all times of day, others are specifically targeted toward peak period conditions. The Plan recommends continuation of a focus on weekday peak period modal shifts to optimize transportation system performance when congestion is greatest. As Montgomery County begins to consider climate change and energy requirements identified in the 2009 Climate Protection Plan the emphasis of travel demand management can be expected to shift somewhat from managing traffic congestion to reducing greenhouse gas emissions. The two objectives (peak period mobility versus daily or annual carbon footprint) are often, but not always, in synch. Shifting travel modes from auto to walking or biking will serve both objectives and TDM policies should encourage this type of shift as the highest priority. On the

other hand, shifting an auto trip from the peak period to the off-peak period will serve the historic TDM objective of managing peak period performance, but has a smaller effect on greenhouse gas emissions (the difference between travel speeds and emissions during peak and off-peak periods).

The focus of active TDM strategies in the Gaithersburg West Master Plan is on commuters who work in the LSC area, for three reasons:

- Recurring vehicular travel demand is most constrained by traffic leaving the LSC area during the evening peak period.
- For the types of housing envisioned in the LSC (predominantly multifamily mid-rise units), the location and market provide high levels of transit use without the application of external TDM actions.
- TDM strategies applied at the workplace are often more effective than those applied at the residential level, due to both economies of scale and the fact that the employer/employee relationship can often be more productively applied than the residential owner/tenant relationship.

The staging plan for the LSC recommends that the mode share and transportation system performance be monitored periodically to track planned progress in targeted modal shifts and a reduction in per-unit vehicle trip generation rates. The implementation plan relies on a strong linkage between public and private TDM efforts so that the responsibility for success of the LSC trip reduction efforts are distributed across all plan area owners and tenants.

Employees working in the LSC

The Plan recommends a 30% Non-Auto Driver Mode Share (NADMS) goal for the LSC. The current NADMS for this area is 16%. The NADMS measures the percentage of travelers who drive to and from work in the LSC as opposed to taking other modes.

The Local Area Modeling performed for the LSC analysis presumed that the 30% NADMS would be achieved over time for all commercial employees within the LSC located north of Darnestown Road. For monitoring purposes, the NADMS has been defined as follows:

- Employees who normally arrive at their workplace in the LSC during the busiest two hours of the morning peak period from 7:00 to 9:00 AM.
- Auto drivers include those in single-occupant vehicles (SOV) and those driving carpools and vanpools.
- Non-auto drivers include transit riders, carpool/vanpool passengers, walkers, bicyclists, as well as those who have a workplace in the LSC but telecommute on the day of surveys.

The last Master Plan for the LSC area, the 1990 *Shady Grove Study Area Master Plan* estimated, on average, approximately 12% of the home-to-work trips originating outside

the Study Area which are bound for Shady Grove would arrive at work via transit. As noted previously, the NADMS goal for this Plan in the LSC is 30%. When comparing these two mode shares it should be noted that the land area in the 1990 *Shady Grove Study Area Master Plan* is roughly twice as large as the LSC and reflects a relatively dispersed land use pattern located both east and west of I-270. Also, the 30% NADMS goal for the LSC includes transit use, as well as other sub-mode shares such as ridesharing and walking/biking. The Plan considers a 30% NADMS goal in the LSC area achievable for several reasons, including: (1) the realignment of the CCT through the LSC; (2) the concentration of planned development within walking distance of the three proposed CCT stations in the LSC; (3) complementary feeder-bus service to the proposed CCT stations; and (4) implementation of an active TDM program in the LSC (including employer-sponsored subsidized transit fares, parking management strategies and staggered work hours).

Residents living in the LSC

The 1990 *Shady Grove West Study Area Plan* identified a 75% auto-driver goal for the journey-to-work for Study Area residents. The 2005 Census Update Survey noted that this goal has very nearly been achieved in the R & D Village Policy Area, with a 73% auto-driver mode share reported for residents in that area.

B. Corridor Cities Transitway (CCT) and Local Transit System

To serve the LSC area, this Plan recommends the realignment of the CCT with line-haul service between the three proposed LSC CCT stations. To reduce delays for transit and vehicles, this realignment may require CCT bridges over Key West Avenue (MD 28) and Great Seneca Highway (MD 119). Project planning for the CCT takes into account the potential need to reconfigure existing bus service to avoid duplication and ensure the most efficient allocation of vehicles and personnel. There are currently six Ride On routes from the Shady Grove Metro Station, three of which provide service to the LSC area, including Shady Grove Adventist Hospital and the Traville Transit Center. When the CCT is in place, these routes may need to be readjusted to ensure the most efficient service. This Plan also recommends the development of express bus service using value-priced lanes from I-270 and the Intercounty Connector (ICC), as well as shuttle bus routes to serve the LSC area.

As densities increase in the LSC area with zoning requirements and design guidelines that require buildings to be street-oriented rather than parking-lot oriented, the number of potential transit riders and the attractiveness of transit will both increase.

Corridor Cities Transitway

Background

The Corridor Cities Transitway (CCT) has been included in County master plans in one form or another for over 20 years. The CCT is envisioned to be either a bus rapid transit (BRT) or light rail transit (LRT) system providing frequent (5-10 minute) service between the Shady Grove Metrorail Station and Clarksburg (i.e., the COMSAT site).¹ Figure 1 shows the Current CCT alignment.

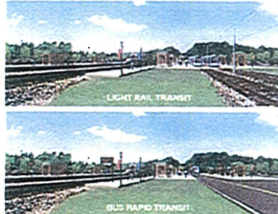
Purpose

The primary purpose of the CCT is to provide improved mobility options within the corridor as well as improved access to the Metrorail system. The CCT is viewed as central to the establishment of active pedestrian oriented mixed use centers along the entire corridor – not just in the Gaithersburg West area. As such, the respective visions for the centers and the CCT are co-dependent.

Station Locations and Functions

The major corridor cities or activity centers served by the CCT stations include Shady Grove, King Farm, Crown Farm, Quince Orchard Park, Metropolitan Grove, Germantown and the southern edge of Clarksburg. One overriding objective in

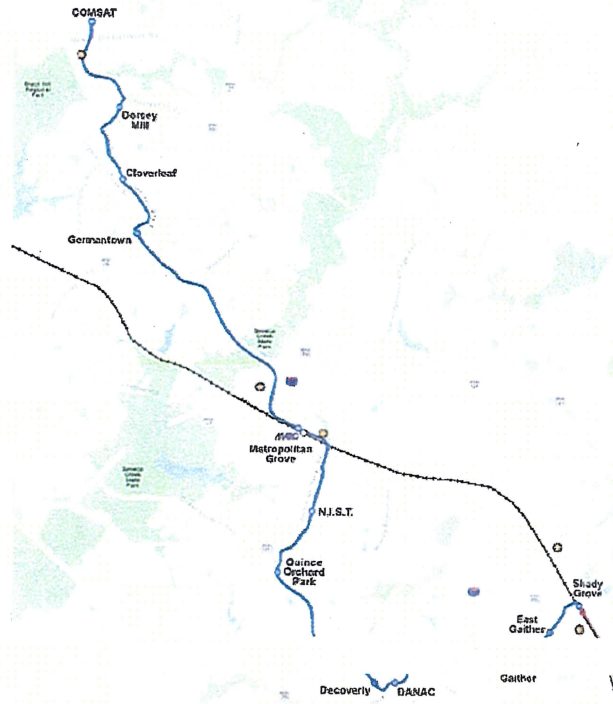
Metropolitan Grove



recent past (Shady Grove and Twinbrook) and current

(Germantown and Gaithersburg West) planning efforts is to establish a vision for pedestrian oriented mixed use communities with transit supportive

Figure 3: Current CCT alignment



King Farm



¹ While adopted master plans envision the CCT extending into Frederick County, the current Environment Assessment underway by the Maryland Transit Administration (MTA) includes only the segment between Shady Grove and the COMSAT site in Clarksburg. Any eventual first phase of actual construction of the CCT would likely involve a segment that began at the Shady Grove Metrorail station and ended at some location south of the COMSAT site (e.g., Metropolitan Grove or Germantown).

densities within one-half mile of most station areas. It is the combination of a mix of activities coupled with high quality of transit service that reduces the growth rate of single occupant auto trips – sometimes significantly. There are 14 planned station locations along the alignment between Shady Grove and COMSAT. The current plan is for 7 of the 14 stations to have parking for transit riders, including the Washingtonian (Crown Farm) and Decoverly stations.

Current CCT Study Underway

The Maryland Transit Administration is currently nearing completion of an updated Alternatives Analysis/Environmental Assessment (AA/EA) of the CCT. It is anticipated that the study will be completed during May 2009. The purpose of the study is to update information from the 2002 Environmental Impact Statement on the impacts of the CCT and to help in the selection of a preferred mode (bus rapid transit or light rail).

Alternative Alignment Recommended by Gaithersburg West Master Plan

At its southern end, the CCT current master planned alignment (the blue line on Figure 4) goes over I-270 heading west after leaving King Farm and serves the Crown Farm development in the City of Gaithersburg before entering the Gaithersburg West study area as it runs along the south side of Decoverly Drive. The proposed DANAC station is located on Decoverly Drive just before the alignment goes over Great Seneca Highway. The Decoverly Station is located on the west side of Great Seneca Highway.

The red line represents potential modifications to the CCT alignment in this area. The modified alignment within Crown Farm is a result of the local review of the development carried out by the City of Gaithersburg and has been closely coordinated with the Maryland Transit Administration (MTA).

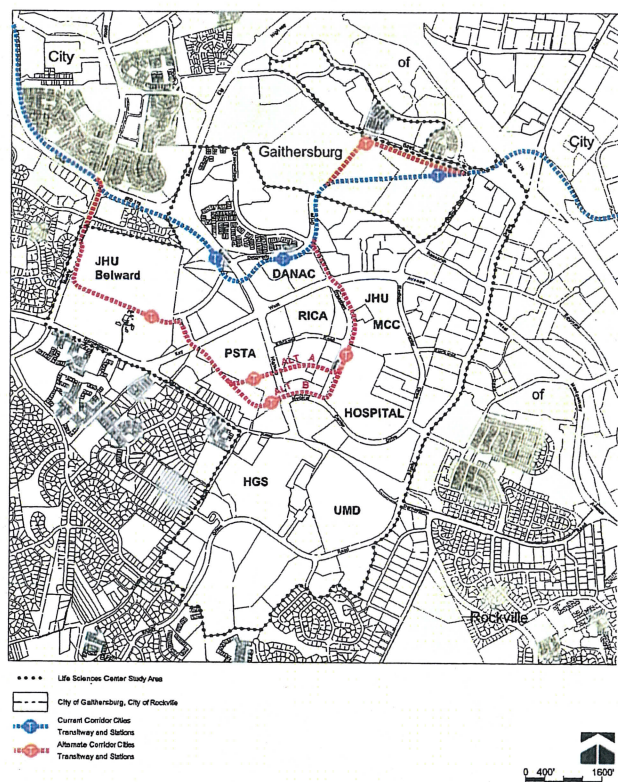


Figure 4: Draft Plan CCT alignment and stations

The Plan recommends the CCT alignment be extended south along Broschart Road to better serve the Shady Grove Life Sciences Center, the land where the Public Service Training Academy is currently located, and the Johns Hopkins University (JHU) Belward

Research Campus with stations at each of these locations. Commuter parking would likely be available at no more than two of the stations and more likely, just one of the three stations.

The analysis of this proposed change to the alignment of the CCT is being carried out by the MTA using updated land use forecasts provided by the Planning Department.² It is not anticipated that the analysis will be completed until sometime after the release of the Alternatives Analysis / Environmental Assessment in May 2009. Once completed, the analysis is expected to inform the selection of a Locally Preferred Alternative – scheduled to occur sometime in Fall 2009.³

The staff believes the proposed alignment shift through the LSC area will both better support the vision for the area, complement the other planning efforts along the I-270 corridor, and better fulfill the potential of the CCT. As a result, it is recommended that the CCT planning move ahead under the assumption that the concept of the proposed modification of the alignment south to serve the LSC area better fulfills the Plan vision – even if it results in the need for additional environmental impact analysis.

It should also be noted that some communities near the proposed change in the alignment have recently requested that other modifications to the alignment on the Belward campus be considered. While potential additional modifications are not currently being studied by the MTA, the staff feels that the dialogue should continue so as not to preclude further consideration at a later date.

CCT Staging Considerations

It is possible the CCT will involve a staged or phased implementation – regardless of mode or alignment. Some key factors to consider in the staging plan include the following:

- The service should be frequent (ten minutes or less)
- The average scheduled speed needs to be faster than conventional local bus service – a minimum of 15 mph.
- The vehicles should be new, low floor, hybrid electric or other clean technology, and branded.
- Station boarding areas should be distinctive, well-lit, and far enough apart to maintain an attractive average scheduled speed.

² The forecast provided MTA include updated estimates for Germantown, Twinbrook, and White Flint as well.

³ Note that the analysis of the alternative alignment effectively expands the scope of the LPA decision to include alignment (master plan or new alignment through LSC area) as well as mode (bus rapid transit or light rail). If the new alignment is chosen as part of the LPA, it is possible the Federal Transit Administration will require the MTA to conduct another supplemental environmental assessment, which could delay the project entering the FTA's New Start pipeline.